Middle Santa Ana River Bacterial Indicator TMDL
Urban Source Evaluation Plan

PREPARED BY
CDM

ON BEHALF OF
Santa Ana Watershed Project Authority
San Bernardino County Stormwater Program
Riverside County Flood Control District
Cities of Chino Hills, Upland, Montclair, Ontario, Rancho Cucamonga, Rialto, Chino, Fontana, Norco, Corona, and Riverside

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Section 1
Introduction

Various waterbodies in the Middle Santa Ana River watershed are listed on the state 303(d) list of impaired waters due to high levels of fecal coliform bacterial indicators. The Middle Santa Ana River (MSAR) Bacterial Indicator Total Maximum Daily Load (TMDL) was adopted by the Santa Ana Regional Water Quality Control Board (RWQCB) and approved by the State Water Resources Control Board (SWRCB) to address these fecal coliform indicator impairments. The Environmental Protection Agency (EPA) Region 9 approved the TMDL on May 16, 2007 making the TMDL effective. By November 30, 2007, designated urban dischargers (as defined by the TMDL) are required to submit an Urban Source Evaluation Plan (USEP). This document is being submitted to fulfill the USEP requirement.

1.1 Regulatory Background

Table 3-1 of the Santa Ana Regional Water Quality Control Plan (Basin Plan) designates beneficial uses for surface waters in the Santa Ana River watershed (RWQCB 1995). The beneficial uses applicable to waterbodies in the MSAR watershed include Water Contact Recreation (REC-1), which is defined in the Basin Plan as follows:

> "waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs" (Basin Plan, page 3-2).

The Basin Plan (Chapter 4) specifies fecal coliform as a bacterial indicator for pathogens ("bacterial indicator"). Fecal coliform present at concentrations above certain thresholds are believed to be an indicator of the presence of fecal pollution and harmful pathogens, thus increasing the risk of gastroenteritis in bathers exposed to the elevated levels. The Basin Plan currently specifies the following water quality objectives for fecal coliform:

REC-1 - *Fecal coliform: log mean less than 200 organisms/100 mL based on five or more samples/30 day period, and not more than 10% of the samples exceed 400 organisms/100 mL for any 30-day period.*

The EPA published new bacteria guidance in 1986 (EPA 1986). This guidance advised that for freshwaters *Escherichia coli* (*E. coli*) is a better bacterial indicator than fecal coliform. Epidemiological studies found that the positive correlation between *E. coli* concentrations and the frequency of gastroenteritis was better than the correlation between fecal coliform concentrations and gastroenteritis.

The RWQCB is currently considering replacing the REC-1 bacteria water quality objectives for fecal coliform with *E. coli* objectives. This evaluation is occurring

through the work of the Stormwater Quality Standards Task Force (SWQSTF). The SWQSTF is comprised of representatives from various stakeholder interests, including the Santa Ana Watershed Protection Authority, the counties of Orange, Riverside, and San Bernardino, Orange County Coastkeeper, Inland Empire Waterkeeper, the RWQCB, and EPA Region 9.

In 1994 and 1998, because of exceedences of the fecal coliform objective established to protect the REC-1 use, the RWQCB added various waterbodies in the MSAR watershed to the state 303(d) list of impaired waters. The MSAR Watershed TMDL Task Force ("TMDL Task Force"), which includes representation by many key watershed stakeholders, was subsequently formed to address this impairment through the development of a TMDL for the watershed. The MSAR Bacterial Indicator TMDL addresses bacterial indicator impairments in the following MSAR watershed waterbodies (Figure 1-1):

- Santa Ana River, Reach 3 – Prado Dam to Mission Boulevard
- Chino Creek, Reach 1 – Santa Ana River confluence to beginning of hard lined channel south of Los Serranos Road
- Chino Creek, Reach 2 – Beginning of hard lined channel south of Los Serranos Road to confluence with San Antonio Creek
- Mill Creek (Prado Area) – Natural stream from Cucamonga Creek Reach 1 to Prado Basin
- Cucamonga Creek, Reach 1 – Confluence with Mill Creek to 23rd Street in City of Upland
- Prado Park Lake

The TMDL for these waters established compliance targets for both fecal coliform and *E. coli*:

- *Fecal coliform:* 5-sample/30-day Logarithmic Mean less than 180 organisms/100 mL and not more than 10% of the samples exceed 360 organisms/100 mL for any 30-day period.
- *E. coli:* 5-sample/30-day Logarithmic Mean less than 113 organisms/100 mL and not more than 10% of the samples exceed 212 organisms/100 mL for any 30-day period.

1.2 Purpose and Objectives

The MSAR Bacterial Indicator TMDL addresses bacterial indicator impairments by establishing requirements for urban and agricultural discharges (**Figure 1-2**):

- Urban and agricultural dischargers shall implement a watershed-wide monitoring program;
- Permitted Municipal Separate Storm Sewer System (MS4) dischargers shall develop and implement a USEP; and
- Agricultural dischargers shall develop an Agricultural Source Evaluation Plan (AgSEP) and a Bacterial Indicator Agricultural Source Management Plan (BASMP).

Per Section 4.1 of the TMDL, the purpose of the USEP is to identify specific activities, operations, and processes in urban areas that contribute bacterial indicators to MSAR waterbodies. The Plan should also include a proposed schedule for the activities identified and include contingency provisions as needed to reflect any uncertainty in the proposed activities or schedule.

Per Sections 4.2, 4.3, 4.4 and 4.5 of the TMDL, the findings from the USEP activities will be used by the San Bernardino and Riverside County MS4 permit programs to mitigate urban sources of bacterial indicators to the extent practicable. The findings may also be used by the RWQCB to require revisions to the San Bernardino County Municipal Stormwater Management Program (MSWMP) and Riverside County Drainage Area Management Plan (DAMP). Wherever USEP activities identify bacterial indicator sources that are not covered by the San Bernardino and Riverside County MS4 permits, the RWQCB will be responsible for implementing follow-up actions.

The objectives of the USEP are as follows:

- Describe Urban Source Evaluation Monitoring Program to be implemented to identify urban bacterial indicator sources;
- Establish a risk-based framework for evaluating water quality data obtained with regards to human illness from the Urban Source Monitoring Program;
- Identify investigative activities that may be implemented to the maximum extent practicable based on water quality data; and
- Provide a schedule for USEP implementation with contingencies built in to allow for consideration of new data, modified regulations, changed priorities, or new technologies.

1.3 Urban Source Evaluation Plan Framework

To fulfill the purpose and objectives stated above, the USEP framework consists of three key steps:

- *Step 1: Urban Source Evaluation Monitoring Program* – The first step in the plan is to conduct a monitoring program at key sites to gather bacterial indicator source data associated with urban land uses. Section 2 of this plan provides the details of this monitoring program.

- *Step 2: Risk Characterization* – Step 2 couples the data obtained from Step 1 with other applicable watershed data to characterize the risk of exposure to bacterial indicators and prioritize urban sites for additional investigation. Section 3 describes the characterization and prioritization process.

- *Step 3: Site Investigations* – This step describes the types of actions that may be implemented to further investigate urban bacterial indicator sources. Per the outcome of Step 2, site investigation activities will be focused on high priority sites first. Section 4 identifies the site investigative tools that may be used at a given site.

- *Step 4: Adaptive Implementation* - As new data become available or if changes in recreational uses occur on waterbodies as a result of SWQSTF efforts, then site prioritization or the schedule for USEP implementation may change. Section 5 describes the adaptive implementation process in the context of the USEP schedule.

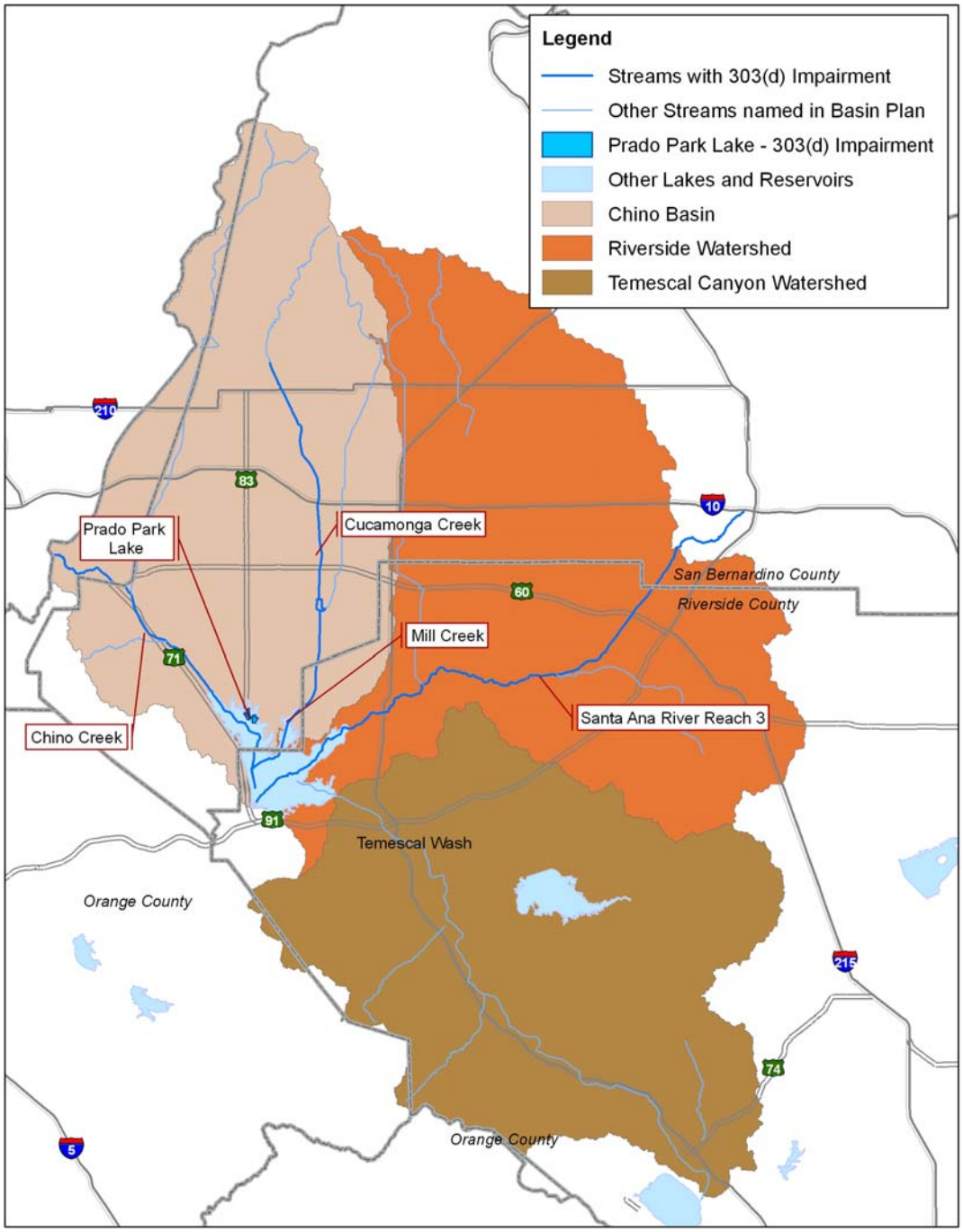

Figure 1-1
Bacterial Indicator Impairments in the MSAR Watershed

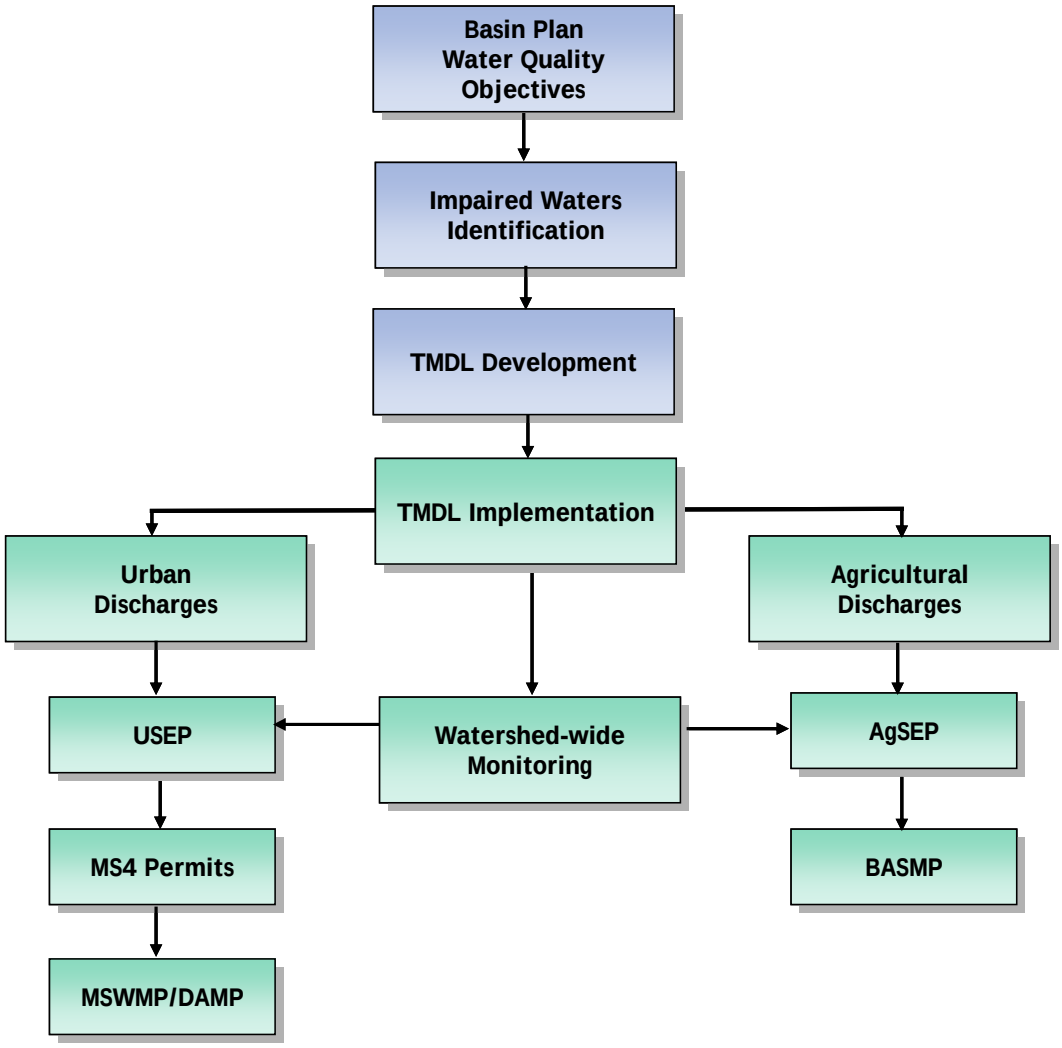

Figure 1-2. Relationship between USEP and MSAR Bacterial Indicator TMDL

Section 2
Urban Source Evaluation Monitoring Program

Elevated levels of bacterial indicators have been documented in most monitored waterbodies within the MSAR watershed; however, the sources of bacterial indicators are unknown. The Urban Source Evaluation Monitoring Program has been structured to provide information on bacterial indicator sources. However, it is important to note that the uncertainty associated with source identification techniques is relatively high. Accordingly, it is recommended that (1) sources be defined at a fairly high level, e.g., human vs. non-human bacteria sources, (2) limited to types of analyses where there is a relatively high level of certainty; and (3) that source identification analysis be only one of a number of tools used to identify sources (Rochelle 2007).

For this monitoring program, source identification relies on the use of *Bacteroides thetaiotaomicron* ("*Bacteroides*") markers specific to human and domestic canine sources and *Prevotella ruminiola* for bovine sources. The technical basis for the use of these markers as a source identification tool has been described previously (e.g., EPA 2007; Field and Samadpour 2007; and Kildare et al. 2006). Although bovine is not an urban source, it was included in the source analysis given the agricultural lands present in the MSAR watershed. However, if a bovine source is observed, this information will be provided to the RWQCB, which evaluate the source in coordination with agricultural stakeholders.

Bacteroides was selected as the source identification tool for the Urban Source Evaluation Monitoring primarily because it has been successfully used in other regional studies. For example, *Bacteroides* markers for human, domestic canine and bovine sources have been used in water quality studies in the Chino Creek watershed (Leddy 2006) and the Calleguas Creek watershed (Kildare et al. 2006). In addition, the Southern California Coastal Water Research Project (SCCWRP) is currently using *Bacteroides* in its ongoing epidemiologic study of nonpoint source contaminated beaches (SCCWRP 2007).

Rochelle (2007) notes that source identification methods, including *Bacteroides*, should not be the only tool used to assess sources of fecal contamination. This recommendation is based on the recognition that the results of source identification analyses are often not definitive. Accordingly, the source identification data generated by the Urban Source Evaluation Monitoring Program will only be used to prioritize resources for follow-up investigations. The types of follow-up investigations that may be implemented are discussed in Section 4.

The following subsections provide a summary of the monitoring program. Additional details may be obtained from the Monitoring Plan and Quality Assurance Project Plan (QAPP) prepared to support this monitoring effort[1].

2.1 Monitoring Program Framework

Bacterial indicator and source data will be collected from 13 watershed sites from July 2007 to March 31, 2008. The following data are to be collected during each sampling event:

- *Field Parameters*: Flow, temperature, conductivity, pH, dissolved oxygen, and turbidity;
- *Laboratory Water Quality Parameters*: Fecal coliform, *E. coli*, and total suspended solids; and
- *Bacteroides Marker Analysis*: Samples are assayed for *Bacteroides* host-specific markers for humans, bovine, and domestic canine.

Samples are collected during both dry and wet seasons and during both dry and wet weather. Detailed information on field data collection methods, sample frequency and laboratory analysis methods is provided in the Monitoring Plan and QAPP prepared to support the monitoring program[1].

2.2 Monitoring Program Locations

Thirteen sites were incorporated into the Urban Source Evaluation Monitoring Program (Table 2-1 and Figure 2-1). Site selection was based on the following general and site-specific criteria:

- Collectively, selected sites that discharge to an impaired water should, to the extent practicable, characterize the water quality of the tributary to the 303(d) listed segment.
- Collectively, selected sites tributary to an impaired water should have the potential to contribute a high percentage of the flow (volumetrically) to the impaired water.
- A selected site should be close to the base of its watershed so that it characterizes the majority of flow reaching the impaired water from that tributary.
- Flow at a selected site should not include any permitted effluent discharge. *Bacteroides* can be detected in treated effluent even after treatment. To minimize

[1] *Middle Santa Ana River Monitoring Plan*, August 2007 (or subsequent revisions); *Quality Assurance Project Plan for Middle Santa Ana River Pathogen TMDL Project*, August 2007 (or subsequent revisions)

the likelihood of a misinterpretation of data, sample collection from sites where the flow contains treated effluent is avoided.

- Flow at a selected site should generally occur under both dry and wet weather conditions.

The specific sampling locations on each waterbody were selected in coordination with staff from the San Bernardino County Flood Control District, the Riverside County Flood Control and Water Conservation District, and the RWQCB.

2.3 Monitoring Data Reports

A summary of the data collected through March 2008 will be provided to the TMDL Task Force in April 2008 after all data results become available from laboratories. This submittal will be provided as an electronic spreadsheet file and will not include any data analysis.

A data analysis report that fully evaluates the monitoring data collected from USEP sites through March 2008 will be submitted to the TMDL Task Force for review by July 31, 2008. This report will include an evaluation of water quality data in two primary contexts: (1) data patterns and trends observed at the USEP sample sites; and (2) observations at the USEP sites in the context of other available relevant watershed-wide monitoring data.

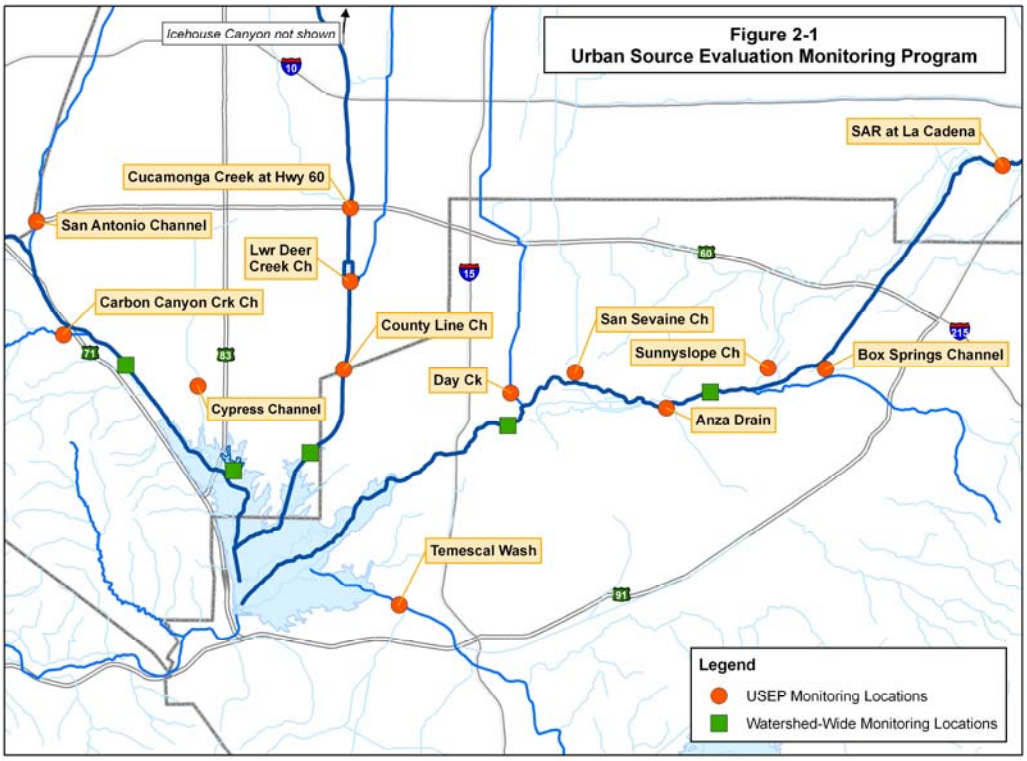

Table 2-1. Urban Source Evaluation Monitoring Program Site Locations

Subwatershed	Sample Location
Santa Ana River, Reach 3	Santa Ana River (SAR) at La Cadena Drive
	Box Springs Channel at Tequesquite Avenue
	Sunnyslope Channel near confluence with SAR
	Anza Drain near confluence with Riverside effluent channel
	San Sevaine Channel in Riverside near confluence with SAR
	Day Creek at Lucretia Avenue
	Temescal Wash at Lincoln Avenue
Chino Creek, Reach 1	Cypress Channel at Kimball Avenue
Chino Creek, Reach 2	San Antonio Channel at Walnut Ave
	Carbon Canyon Creek Channel at Pipeline Avenue
Mill Creek (Prado Area)	Chris Basin Outflow (Lower Deer Creek)
	County Line Channel near confluence with Cucamonga Creek
Cucamonga Creek, Reach 1	Cucamonga Creek at Highway 60 (Above RP1)

Section 3
Risk Characterization

Step 2 of the Urban Source Evaluation Plan framework couples the data obtained from Step 1 (Urban Source Evaluation Monitoring Program) with other applicable watershed data to characterize the risk of exposure to bacterial indicators and prioritize sites identified as potential urban sources for additional investigation. The following sections describe the activities associated with this step.

3.1 Risk Characterization Framework

Figure 3-1 illustrates the Risk Characterization Framework that guides the prioritization of sites for follow-up investigation of urban bacterial indicator sources. Three key factors drive the characterization process:

- *Exceedance Factor* – The first factor to be evaluated in the framework is the frequency and magnitude by which the bacterial indicator exceeds the water quality objective. The greater the frequency and magnitude of recorded exceedances, the higher the likelihood that the contamination can be tracked back to its source. Intermittent, low intensity events are more difficult to detect and, therefore, more difficult to trace.

- *Contagion Factor* – Human beings, particularly children are believed to be at greater risk of infection from water-borne pathogens generated by other people (EPA 2007). Accordingly, the risk of illness resulting from recreational use is believed to be highest where microbiological methods (e.g. *Bacteroides*) indicate the probable presence of human pathogens. After human sources, exposure to fecal contamination from agricultural animals is the next most important concern (EPA 2007).

- *Exposure Factor* - A higher investigation/implementation priority should be assigned to locations and conditions where recreational activities are most likely to occur. Exceedances that occur in natural channels, during warmer months with relatively moderate flows, merit a higher priority than those that may occur in a concrete flood control channel during a winter rainstorm. This different priority is based on the assumption that the number of persons likely to be exposed is much higher in the first case than in the second.

Data obtained from the Monitoring Program (Step 1) are combined with other available data (e.g., literature or other available water quality data) to evaluate the strength of each factor as “high” or “low”. A decision regarding whether a factor is rated as “high” or “low” depends on the definition provided above. If exceedances of the bacterial indicators are common and substantial, then the exceedance factor would be rated “high.”

3.2 Priority for Site Investigations

The factors described in Section 3.1 will drive the prioritization of urban source investigation activities. Figure 3-1 provides a framework for priority ranking from high (1) to low (8). Generally speaking, the highest priority sites are those where:

- Magnitude and frequency of bacterial indicator exceedance are high;
- *Bacteroides* marker analysis indicates the persistent presence of human sources of bacteria;
- The site is in an area, or is close to an area, where recreational activities are likely to occur; and
- Observed exceedances and the presence of human sources of bacteria occur during periods when people are most likely to be present, e.g., during warm months and dry periods.

In contrast, the lowest priority sites for urban dischargers would be those where the bacterial indicator exceedance frequency and magnitude is low, human or other urban sources, e.g., dog, are not present, and the site is not used for water contact recreation, e.g., a concrete, vertical walled flood control channel. Sites that indicate the presence of bacteria linked to dog sources are of lower priority than sites where human sources are observed. Sites with bacteria from bovine sources will be referred to the RWQCB for follow-up action with agricultural dischargers.

The exceedance, contagion and exposure factors provide the basic foundation for prioritizing sites or areas for further investigative activities. As appropriate, additional factors may be considered to more clearly define the priority between several sites with similar priorities based on the three base factors. For example, other relevant considerations may include regulatory factors (e.g., the waterbody may be reclassified as a result of SWQSTF outcomes), land use, and controllability considerations.

Prioritization will occur for the first time after completion of the Urban Source Evaluation Monitoring Program. In coordination with the RWQCB, sites will be ranked from high to low, with the highest ranked sites being those where concerns with exposure to human sources of bacteria are greatest. Sites may be re-prioritized at a later date if additional data or other factors need to be considered. For example, in some instances the limited resources of the MS4 dischargers may be a factor in the prioritization of bacterial indicator control activities.

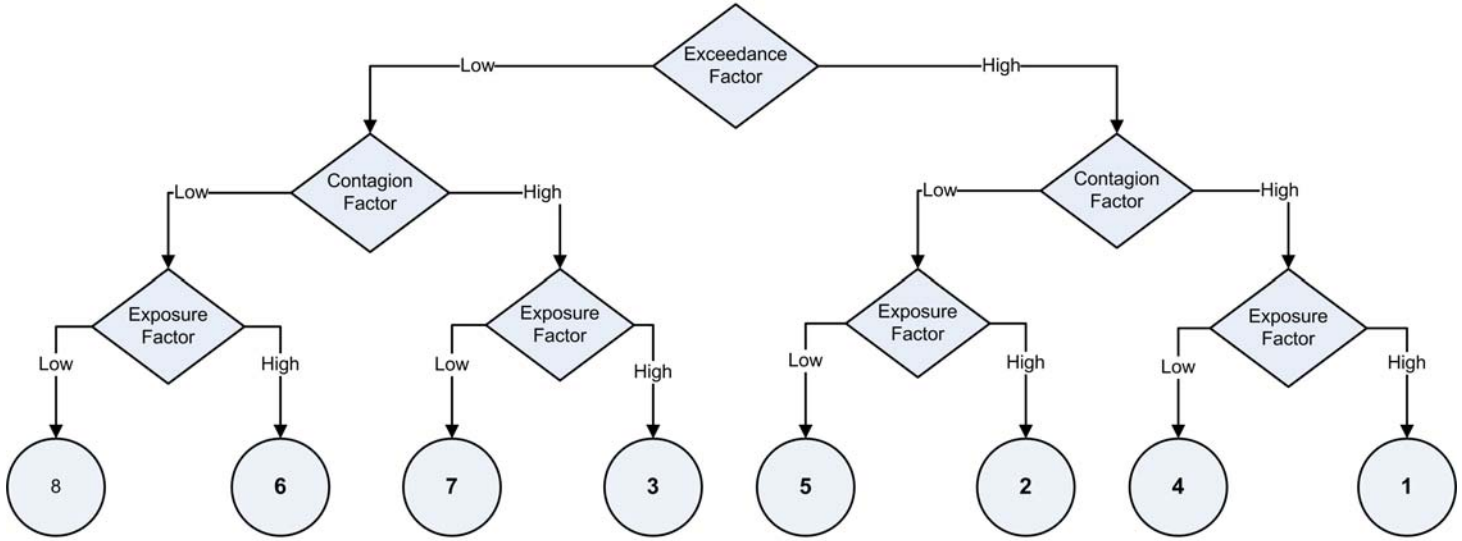

Figure 3-1. Risk Characterization Framework. Circles with lower numbers represent situations that result in a site receiving a higher priority for follow-up bacteria source investigation activities.

Section 4
Site Investigations

This section describes the types of actions that may be implemented to further investigate urban bacterial indicator sources. For each high priority site, stakeholders will develop an investigative strategy. This strategy will include an implementation schedule with dates for completion of specific investigative activities. In addition, the strategy will include a schedule for the preparation of progress reports that provide an opportunity to evaluate the data and determine whether any changes to the investigative strategy are warranted. At a minimum, each investigative strategy will be reviewed and, if necessary revised consistent with approved budgets, at least once every six months (see Section 5 and Table 5-1).

Resources will be directed to the high priority areas first, that is, those areas with the most significant problems. Investigative strategies will typically be developed and implemented for moderate and low priority sites only after high priority sites have been addressed. However, when necessary, the priority for any site can be elevated, particularly if new data become available that changes the priority for action.

Investigative activities fall into three categories: Channel surveys; enhanced tracking methods; and controllability assessment. We expect that these activities would typically be implemented sequentially at a given site, e.g., complete channel survey work before implementing an enhanced tracking method. However, if the source of the bacterial indicator exceedance is generally known, it may be appropriate to skip channel surveys and conduct a controllability assessment.

The following subsections describe the three categories of investigation noted above and the types of investigative tools available. Not all tools need be implemented at each high priority site, nor is this list of tools intended to be an exhaustive list, i.e., where appropriate, stakeholders may consider other tools not described in this section.

4.1 Channel Surveys

Channel surveys may be conducted upstream of the Urban Source Evaluation Monitoring Program site to better define the problem. Examples of investigative tools that may be considered for implementation during these surveys include:

a) Conduct use attainability studies consistent with the methods developed by the EPA and SWQSTF to provide better evaluation of exposure risk and, where appropriate, to provide the basis for a change in the recreational use.

b) Conduct additional source tracking studies in tributaries or outfalls to better define the source of urban bacterial indicators.

c) Determine flow loading from tributaries and other outfalls to evaluate potential for these sources to contribute significant numbers of bacteria.

d) Conduct preliminary source reconnaissance to identify locations of:

   i. Direct human sources (e.g., leaking sewers or septic systems, homeless camps, diapers, illicit dumping), or presence of treated effluent from a POTW.

   ii. Domesticated animals associated with urban land use, especially areas where domesticated animals are concentrated.

   iii. Wildlife (e.g., birds, rodents, squirrels, rabbits, feral cats and dogs) – identify areas where wildlife are known to congregate, for example, wetland areas.

4.2 Enhanced Tracking Methods

Within subwatersheds it may be necessary to conduct additional source tracking activities to narrow down where urban sources of bacterial indicators are greatest. Such efforts are intended to provide a means to further prioritize implementation of potential control efforts within the subwatershed. Examples of tools that may be used to support enhanced source tracking include:

a) Evaluate relative contribution of bacterial indicators by each flow source – Relating bacterial indicator concentrations to flow sources can help narrow down which tributaries or drains contribute the most bacteria to the waterbody.

b) Human tracer compounds (analgesics, hormones, caffeine, antibiotics, etc.) – This method uses indicators other than bacteria to identify or confirm the presence of human sewage.

c) Use analyses to identify patterns and trends – Similar to (a), this method provides another quantitative tool for prioritizing mitigation efforts within a subwatershed. However, for it to have the greatest utility, additional bacterial indicator data collection will likely be necessary.

4.3 Controllability Assessment

Where bacterial indicator sources are present as urban sources, the final step in the investigative process is to determine the controllability of the source. Controllability is largely dependent on the nature of the source with urban sources likely to be more controllable than non-urban sources, e.g., wildlife. In some instances, it may not be feasible to control the source. For example, where birds are the primary bacteria source, elimination of birds may be difficult. The controllability assessment will consider three alternatives:

- *Prevention (or source control)* – Examples include repair of all sewer leaks, better control of domestic animals, moving homeless camps, stronger enforcement of illicit dumping, etc.

- *Low Flow Diversion* – Construction of diversions to intercept dry weather flows and send the water to a regional treatment facility may be feasible in some areas.

- *On-Site or Regional Treatment* – The use of on-site treatment facilities, e.g., detention ponds, wetlands and bioswales, is largely dependent on land availability. The practicability of these systems will have to be considered on a site-specific basis. Regional treatment may be an option if regulations allow. However, similar to on-site treatment, installation of regional treatment facilities requires adequate available space.

When the bacteria source is clearly human-derived, then efforts will be made to eliminate the source to the maximum extent practical, e.g., if the human bacteria source is a leaking sewer pipe or septic system, then appropriate corrective action will be taken when the specific source is identified. It may also be determined that bacteria sources may be controlled best through modifications to the requirements contained in the MSWMP or DAMP. The MS4 dischargers will work with the RWQCB where such changes are warranted.

USEP activities may identify sources that are difficult to control because of public policy issues. For example, if the human source is a homeless population, then efforts to eliminate the source will require a public policy discussion that must involve multiple stakeholders, including the RWQCB.

Section 5
Implementation

5.1 Adaptive Implementation

Implementation of the MSAR Bacterial Indicator TMDL is a long-term process designed to achieve compliance by 2015 and 2025 for summer dry and winter wet conditions, respectively. Adaptive implementation is an iterative process commonly incorporated into TMDL implementation plans to provide a means to reassess compliance strategies based on new data or analyses. Given the large uncertainty associated with control of pollutants such as bacteria, an adaptive implementation component has been included in the USEP framework to provide opportunity, where appropriate, to reconsider priorities. The adaptive implementation process will be conducted per the schedule provided in Table 5-1.

5.2 Urban Source Evaluation Plan Schedule

Table 5-1 provides the schedule for implementing the USEP. The schedule is initially focused on completing the Urban Source Evaluation Monitoring Program. Data summaries will be provided to the RWQCB during the monitoring program. In addition, following completion of this sampling effort, data will be fully analyzed to support completion of the Risk Characterization Step, which will prioritize sub-watersheds for subsequent investigation.

For sites considered high priority, a site- or subwatershed-specific investigation strategy will be developed by the TMDL Task Force. Development of this strategy will be completed based on work being conducted for the MSAR Pathogen TMDL Project (State Proposition 40 grant project administered by the Santa Ana Watershed Project Authority). Investigative strategies will be developed for high priority sites no later than January 2009. However, if the TMDL Task Force agrees, these strategies may be developed sooner.

Periodically, but at no more than six month intervals, the TMDL Task Force will consider modifying site investigation activities (including the priority of a given site) through the adaptive implementation process. The USEP may be also revised, as appropriate, at this time. In addition, the TMDL Task Force will prepare a status report every six months to provide the RWQCB a summary of ongoing and planned activities related to the management of urban sources of bacterial indicators.

Table 5-1. Urban Source Evaluation Plan Schedule		
USEP Step	**Activity**	**Schedule**
Step 1 - Urban Source Evaluation Monitoring Program	Implement sampling program	July 2007 - March 2008
	Data summary	April 2008
	Data Analysis Report	July 2008
Step 2 - Risk Characterization	Prioritization of Urban Source Evaluation Monitoring Program sites	August 2008
Step 3 - Site Investigation	Develop investigative strategy at highest priority sites, including site- or subwatershed-specific activities and implementation schedule	January 2009 (or sooner, as appropriate)
Step 4 - Adaptive Implementation Process	Prepare status report summarizing ongoing and planned activities related to the management of urban sources of bacterial indicators	Every six months beginning July 2009
	▪ Evaluate progress of and findings from investigative activities ▪ Evaluate new water quality data ▪ Consider changes to regulatory requirements, e.g. changes in recreational uses as a result SWQSTF activities ▪ Consider new technologies ▪ Reprioritize site investigation activities (if needed) ▪ Revise USEP (if needed)	Every six months (or more frequently if needed) beginning July 2009

Section 6
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