



February 3, 2014

Bruce H. Wolfe, Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Ms. Pamela Creedon, Executive Officer
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Dear Mr. Wolfe and Ms. Creedon:

Enclosed is the February 2014 Long-Term Trash Load Reduction Plan for the City of Orinda, which is required by and in accordance with Provision C.10.c in National Pollutant Discharge Elimination System (NPDES) Permit Number CAS612008 issued by the San Francisco Bay Regional Water Quality Control Board and/or by Provision C.10.c in NPDES Permit Number CA0083313 issued by the Central Valley Regional Water Quality Control Board.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Respectfully,

Janet Keeter
City Manager

Enclosure

City of Orinda
Trash Management Plan
2014-2022

Submitted to the
California Regional Water Quality Control Board for the San Francisco Bay Region
February 1, 2014
in compliance with Provision C.10 of the Municipal Regional Stormwater Permit

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Maps of City of Orinda showing Trash Generation Rates and Trash Management Areas

1. Introduction by the Contra Costa Clean Water Program (CCCWP)

Contra Costa municipalities have prepared Long-Term Trash Reduction Plans (Plans) in compliance with Provision C.10.c. of the Municipal Regional Stormwater Permit¹ (MRP). Each municipal plan describes control measures and best management practices (BMPs) designed to attain a 70% trash load reduction by July 1, 2017 and a 100% reduction by July 1, 2022.

A. Trash Sources, Pathways, and Loadings

Figure 1 illustrates sources and pathways of trash that enters the region’s creeks and San Francisco Bay. Trash has multiple sources—all of which are episodic and widely dispersed.

In Figure 1, *Stormwater Conveyances* is highlighted because *only this pathway* is subject to MRP trash-reduction requirements. In reality, the other pathways are equally significant, depending on time and location. In practical terms, the pathways are intertwined. For example, on-land clean-ups reduce trash entering storm drains and also reduce wind-blown trash. When visible trash is reduced, litter and dumping from all sources tends to become less frequent and severe.

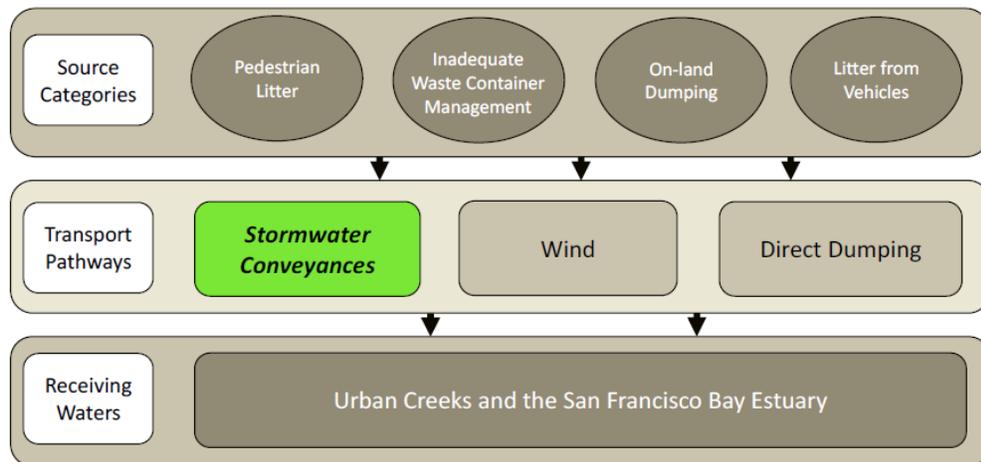


Figure 1. Trash sources and transport pathways.

Municipalities must balance their commitment to MRP compliance with their commitment to preserving and enhancing local environmental quality and quality of life for their residents. That is, municipalities seek to reduce trash on local streets and roads, and to reduce the *total* amount of trash in their creeks and on their shorelines—in addition to fulfilling the Water Board’s mandate to eliminate trash that flows through storm drains.

For these reasons, Contra Costa municipalities address trash holistically and comprehensively, integrating a variety of strategies, and uses a variety of methods to assess the success of those strategies.

B. Background for this Plan

MRP Provision C.10 requires the Permittees to reduce trash loads from their storm drains by 40% by 2014, 70% by 2017, and 100% by 2022.

Provision C.10.a.ii. required each Permittee to determine a baseline trash load and a method for tracking reductions in trash loads. Working collectively through the Bay Area Stormwater Management Agencies

¹ Order R2-2009-0074, issued by the California Regional Water Quality Control Board for the San Francisco Bay Region, became effective on December 1, 2009 and applies to 76 cities, towns, counties, and flood control districts.

Association (BASMAA)—and in close collaboration with Water Board staff—the Permittees developed methods, including a calculator, for tracking loads and load reductions.

The Permittees used these methods to develop Short-Term Trash Load Reduction Plans by February 1, 2012, and are implementing those plans through July 1, 2014 to achieve the 40% reduction. Progress has been documented in the Permittees' 2012 and 2013 Annual Reports.

Following their review of the Short-Term Plans, Water Board staff requested Permittees to change the methods used to evaluate trash load reductions. Working collectively through BASMAA—and again in close collaboration with Water Board staff—the Permittees developed the framework and planning tools to be used in the Permittees Long-Term Plans.

C. Framework for Long-Term Trash Management

The following 8-step framework was developed²:

1. Identify high, medium, and low trash generation areas, based on land use and other geographic data, local knowledge, and field verification.
2. Attempt to identify sources in high and medium trash generation areas to assist in focusing control measures.
3. Prioritize areas and problems/types.
4. Identify options (tools) for dealing with prioritized areas/problems.
5. Define success/goals and measurement type.
6. Select and implement tools.
7. Evaluate success.
8. Modify as needed.

Steps 5 and 7 of this framework acknowledge fundamental challenges presented by Provision C.10—how to define and evaluate success.

D. Identifying High-Trash Areas

To implement the first step of the framework—to identify high, medium, and low trash-generation areas—the Permittees collectively, through BASMAA, developed and calibrated a predictive model of trash generation.³ Model variables are designated land use and 2010 median household income; the model was calibrated based on trash collected in full-trash-capture devices (BASMAA, 2012a, BASMAA, 2012b).

The Permittees applied the model as follows: The model was used to generate a preliminary map designating very high, high, moderate, and low trash generation areas. Local municipal staff reviewed the preliminary map and identified areas that had incorrect designations based on local knowledge of actual land uses and of trash generation rates (CCCWP, 2013). Specific methods used to verify local trash generation rates are documented in Section 2 below and may include queries of municipal staff or members of the public, reviews of municipal operations data, viewing areas using Google Maps and Street View, application of BASMAA's On-Land Visual Trash Assessment Protocol (BASMAA, 2013), or other methods.

² The framework was developed in a November 1, 2012 meeting at Water Board staff offices and was refined in subsequent meetings with Water Board staff.

³ "Generation" is understood to be the volume of trash potentially available to be transported from the urban watershed (per acre, per year) into the storm drains in the absence of any control measures and BMPs.

E. Trash Management Strategy

Municipalities delineated Trash Management Areas (TMAs) within their jurisdictions. TMA boundaries are based on land uses, drainage areas, management areas, and/or geographic considerations, and are drawn to facilitate focused and efficient efforts to reduce trash in areas with very high, high, and medium trash generation rates. The rationale for delineating TMAs in the specific municipality, an overview of the municipality's trash management approach, and a description of activities that apply throughout the municipality (including hot spot cleanups, jurisdiction-wide policies, and jurisdiction-wide public outreach) is in Section 3.

Section 4 consists of individual summary plans for each municipal TMA. Each TMA plan describes the key TMA characteristics, summarizes control measures, and describes methods for evaluating effectiveness of efforts within the TMA.

F. Assessing Effectiveness

Each TMA summary plan includes methods to evaluate effectiveness. As indicated in the framework, the primary purpose of these evaluations is to facilitate continuous improvement of control measures within the TMA. Continuous improvement requires TMA-specific interpretation of results, including consideration of factors that may have contributed to success, or lack of success, at that locale during the evaluation period. Evaluations of effectiveness and adjustments to the TMA summary plans will be included in each annual report.

A secondary purpose of the evaluation methods is to contribute evidence toward an annual general evaluation of progress toward MRP goals. Such an evaluation will be based on weight-of-evidence, using the results from TMA-level evaluations of the effectiveness of specific actions within the TMA, and of the total of TMA-level actions, during the reporting period. A jurisdiction-wide assessment of progress will be compiled by combining this TMA-level evidence with the results of hot spot cleanups, visual assessments of creeks and shorelines, and observations by local residents and cleanup participants. As additional outcome-based assessment methods are devised and pilot tested—regionally and statewide—information derived from these methods will be incorporated into annual progress assessments.

2. City of Orinda Trash Management Overview

A. Characteristics Affecting Trash Generation and Management

Demographic data from the 2010 census is presented in Table 2-1.

Table 2-1. 2010 Census Data

Population	17,643
Under 18	25.6%
18-24	4.1%
25-44	15.5%
45-64	34.6%
65 and older	20.1%
Median household income	\$117,637 ⁴

Table 2-2 presents summarizes land uses within the City of Orinda.

Table 2-2. 2005 Land Uses (ABAG)

Land Use Category	Jurisdictional Area	% of Jurisdictional Area
Commercial and Services	107.7	1.3%
Industrial	1.3	0.0%
Residential	4,840.2	60.2%
Retail	31.7	0.4%
K-12 Schools	174.3	2.2%
Urban Parks	55.6	0.7%
Other	2,834.8	35.2%

The City of Orinda is in a semi-rural valley situated in the Oakland/Berkeley hills immediately east of the Caldecott Tunnel on Highway 24. Highway 24 bisects Orinda and is identified on the attached Trash Generation Map as a high/very high trash generating area, however the highway is under Caltrans jurisdiction and is not included as part of this Long-Term Trash Management Plan. Orinda is largely residential and open space so the vast majority of the city is categorized as low trash generating areas with a few medium trash generating areas. Camino Pablo and Moraga Way are two heavily traveled arterials that provide access to Highway 24 and are identified as high trash generating areas.

B. Drainage System and Water Resources Affected by Trash

Waterways most affected by trash in Orinda are creeks. There are approximately 31 miles of creeks flowing through Orinda; 19 miles, or roughly 11 percent, of which are bordered by more than nearly 800 home sites. Most of the 12.8 square-mile area of the incorporated city is located within the San Pablo Creek Watershed and drains into San Pablo Reservoir just north of Orinda. The southeastern portion of Orinda is located in the Upper San Leandro Watershed and drains to the south into the Upper San Leandro Reservoir south of Moraga.

⁴ From the 2000 Census. The median household income for the City of Orinda from the 2010 Census is not currently available.

C. Trash Problems and Priorities

The first step in developing the attached Trash Generation Map involved identifying very high, high, medium and low trash generating areas based on modeled generation rates that incorporate land uses and income level. Based on this initial modeling, Orinda was categorized as having mostly low trash generating areas with a few medium trash generating areas. The only high and very high trash generating areas were the Orinda BART Station and Highway 24, both of which are non-jurisdictional trash generators.

The next step involved conducting on-land visual assessments by using the BASMAA On-Land Visual Assessment Protocol and using local knowledge to verify the trash generation categories. The on-land visual assessments were performed by the City's Public Works Supervisor and Stormwater Program Manager. During the assessment, Camino Pablo and Moraga Way which were considered low trash generating areas are actually high due to wind-blown trash, moving vehicles, and pedestrian litter. Also, many of the swim clubs and utility yards which were considered medium trash generating areas appeared to be very well maintained and are actually low. The rest of the map appeared to be consistent with observations made during the ground-truthing activities.

Table 2-3 summarizes trash generation by land use:

Trash Generation Category	Jurisdictional Area (Acres)	Commercial and Services	Industrial	Residential	Retail	K-12 Schools	Urban Parks	Other
Very High	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High	49.6	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Medium	231.8	29.2%	0.1%	0.0%	1.1%	61.4%	8.2%	0.0%
Low	7,764.2	0.5%	0.0%	62.3%	0.4%	0.4%	0.5%	35.9%

3. City of Orinda Trash Management Strategy

The following trash management strategy is designed to attain a 70% trash load reduction by July 1, 2017 and a 100% reduction by July 1, 2022. The strategy may be updated and revised in response to changing conditions, including the amounts and location of trash generation, effectiveness of management actions, and available resources. Updates will be documented in Annual Reports.

The same trash control measures described in the Short Term Trash Load Reduction Plan submitted on February 1, 2012 were used for implementation by the City to meet the 70% and 100% trash reduction goals. The control measures are designed to prevent or significantly reduce the likelihood of trash being deposited onto the urban landscape; intercept and remove trash prior to reaching the stormwater conveyance system; intercept and remove trash in the stormwater conveyance system; and intercept and remove trash that passes through the stormwater conveyance system and ends up in waterways. The selected measures for each of the Trash Management Areas were chosen primarily based on their ease of implementation within the framework of the City’s existing staff and programs and based on their cost-effectiveness.

Future submissions of Long-Term Trash Management Plans as well as this year's Annual Report will include a map of C.3-Compliant LID Facilities. The map will show the location of these facilities and the treatment area.

A. Delineation of Trash Management Areas

Trash management areas are delineated based on trash generating rates. The highest priority is given to high trash generating areas followed by medium trash generating areas. All low trash generating areas are categorized as Trash Management Area 1.

TMA	Jurisdictional Area (Acres)	Trash Generation Category			
		Very High	High	Medium	Low
TMA 1	7,738.3	0.0%	0.0%	0.0%	100.0%
TMA 2	19.5	0.0%	100.0%	0.0%	0.0%
TMA 3	30.1	0.0%	100.0%	0.0%	0.0%
TMA 4	20.1	0.0%	0.0%	80.8%	19.2%
TMA 5	85.7	0.0%	0.0%	86.4%	13.6%
TMA 6	26.8	0.0%	0.0%	60.6%	39.4%
TMA 7	10.1	0.0%	0.0%	100.0%	0.0%
TMA 8	114.9	0.0%	0.0%	100.0%	0.0%

B. Area-Specific Control Measures, Implementation Schedules, and Effectiveness Assessment

Long-Term Trash Reduction Plans for each Trash Management Area, including control measures, detailed implementation plans, and methods of assessing the effectiveness of control measures are in Section 4.

C. Creek and Shoreline Cleanups

Table 3-2. Creek and Shoreline Cleanups

Location	Description	Cleanup Frequency			
		Pre-MRP	12/2009 to 7/2014	7/2014 to 7/2017	After 7/2017
Location 1	San Pablo Creek	X	X	X	X

Citizen volunteers organized in April 2009 for the first Orinda In Action Day, an all-volunteer effort to perform projects in the city including landscaping; painting; creek projects including trash pick-up, invasive vegetation removal, and native planting; on-land trash cleanup; electronic recycling; and a canned food drive. The first Orinda In Action Day was such a success the first year (2009) that it has become an annual event and has continued to expand with regard to the number of volunteers and number of projects.

The local creeks group, Friends of Orinda Creeks (FOC), assists at the Orinda In Action event and with the cleanup of the city’s current trash hot spot. The volume and type of trash collected at the hot spot is tracked after each cleanup event. The volume of trash removed annually that has the potential of entering the MS4 is on average 0.5 cubic yard and dominant types include plastic products, paper and cardboard. The cleanup data will be used to detect trends in types of trash being conveyed through the storm drain system and to evaluate the effectiveness of control measures described in Section 4.

D. Trash Reduction Policies

Since the adoption of the MRP, the city has implemented anti-littering and illegal dumping enforcement into the city’s ordinance. In addition to investigating complaints received about littering and illegal dumping, the city has formalized through the Enforcement Response Plan (ERP) its enforcement procedures, including citations, and collects evidence as available from illegal dump sites in an attempt to track down the offender. The city also has an ordinance for appropriate trash service for private properties to ensure adequate private trash service.

E. Public Education, Outreach, and Community Involvement

Through the CCCWP, the Permittees conducted a “Litter Travels, But It Can Stop with You” multi-year campaign beginning in FY 2009-2010. The multi-media campaign was designed to educate Contra Costa’s citizens about the impacts of trash and litter in the County’s waterways and how they can help address this problem and included TV spots, billboards, posters at BART stations, placards on transit buses, print ads and updates to the CCCWP website. Other outreach included more than 10,000 letters to County residents, contact with youth sports leagues, outreach to the 17 school districts in the County, and distribution of flyers to students in 5 of those districts. Pre and post-campaign surveys were conducted.

Through the CCCWP, Permittees also support the work of the California Product Stewardship Council (CPSC) and the Green Business Program. Both of these organizations address trash through source reduction and waste management. CPSC's mission is to promote Extended Producer Responsibility

(EPR), which is based upon shifting California's product waste management system from one focused on government funded and ratepayer financed waste diversion to one that relies on producer responsibility in order to reduce public costs and drive improvements in product design that promote environmental sustainability. The CPSC's position is that the producers should have the primary responsibility to establish, fund, and manage end of life systems for their products. CPSC has advocated for EPR legislation affecting a wide-range of products including pharmaceuticals, batteries, paint, sharps, and mattresses.

The Green Business Program, of which CCCWP is the largest contributing Partner in Contra Costa County, is designed to publicly recognize private businesses and public agencies that take extra steps, beyond baseline compliance with environmental regulations, to prevent pollution and save resources (e.g., conserve water and energy, reduce waste through reuse and recycling, prevent stormwater pollution through good housekeeping practices, etc.). To date, 530 businesses have been certified as Green Businesses in Contra Costa County. Currently, 334 businesses are certified including a large number of auto repair shops, landscapers, waste haulers, printers, grocery and hardware stores, solar panel installers, and home remodelers. Numerous public agencies have also been certified. Municipal stormwater and POTW inspectors assist the Green Business program by encouraging potential Green Business candidates. CCCWP staff serves on the Green Business Program's "Partners Committee" and actively engages in development of the Green Business checklist (i.e., the stormwater pollution prevention section that each business needs to complete before becoming certified as a green business). Some of the more relevant actions that businesses have undertaken to become certified or recertified that also reduce trash loads include the following: commit to reduce waste in a minimum of five ways, maintain parking areas free of litter, keep dumpsters covered when not in use, ensure tarps for covering loads are in good condition and used correctly, and purchase a minimum of three recycled-content products.

To address trash from illegal dumping, the CCCWP operates a 1-800-No-Dumping hotline. The hotline is used by both businesses and the public to report potentially illegal dumping activities. All hotline calls are referred to the appropriate municipality for follow-up and, if necessary, enforcement. Calls have been logged since FY 2004-2005. Calls to the hotline are combined with calls that come directly to municipalities and Contra Costa County Hazardous Materials (Hazmat) Division and are tracked and documented annually in the municipal annual reports.

The CCCWP will continue to identify new partners and areas of outreach for source reduction and measures to reduce trash in the environment. CCCWP is currently in contact with California Department of Transportation (Office of Stormwater Program Development) and hopes to identify trash load reduction projects in Contra Costa County that would be financially and strategically feasible for all involved parties. CCCWP has also made contact with the California Highway Patrol, Contra Costa County Solid Waste Authority, and a number of transfer stations to potentially develop additional outreach materials to reduce litter from uncovered loads.

[F. Jurisdiction-wide Progress Assessment and Continuous Improvement](#)

Jurisdiction-wide progress will be assessed by evaluating a combination of methods. As described in the individual TMA sheets, municipal staff will document the amount of trash versus debris being removed from street sweeping, on-land cleanup and storm drain maintenance operations. On-land visual assessments will be performed by either the public works maintenance staff or the Stormwater Program Manager before and after the control measures are implemented. A follow up visual assessment will be performed to determine how quickly and how much of the trash accumulates after performing cleanup operations. If necessary, improvements to the control measures will be made and control measures will be added or removed based on the information derived.

4. Trash Management Area Plans

A. TMA-Specific Plans

TMA-specific plans for 8 areas are attached.

5. References

BASMAA 2012a. Bay Area Stormwater Management Agencies Association. Trash Generation Rates for San Francisco Bay Area MS4s (Draft Final). Presentation to the BASMAA Trash Committee, August 2012. Prepared by EOA, Inc.

BASMAA 2012b. Baseline Trash Generation Rates, Preliminary Calibration of Modeled Results, Presentation to BASMAA Trash Committee, September, 2012. Prepared by EOA, Inc.

BASMAA 2013a. Visual On-Land Trash Assessment Protocol for Stormwater, Version 1.0 (Draft). April 30, 2013. Prepared by EOA, Inc.

CCCWP, 2013. Contra Costa Clean Water Program. Long-Term Trash Load Reduction Plan Development—Trash Generation Map Refinements. Technical Memorandum, May 20, 2013. Prepared by EOA, Inc.

Trash Management Area 1 includes all low trash generating areas and is comprised of mostly residential and some commercial land uses. Effectively no trash can be observed in Trash Management Area 1 and the potential for trash to enter a drainage system or waterway is low.

Key Characteristics of Trash Management Area 1

Total Jurisdictional Area (Acres)	Percent in Trash Generation Category				Dominant Land Uses	Dominant Types and Sources of Trash
	Very High	High	Medium	Low		
7,738.3	0	0	0	100	Residential	NA

Summary of Control Measures and Implementation Schedule for Trash Management Area 1

Control Measure	Control Measure Details	Pre-MRP	12/2009 to 7/2014	7/2014 to 7/2017	After 7/2017
NA	No further actions planned.				

Evaluation of Program Effectiveness for Trash Management Area 1

Control Measure	Evaluation Method	Evaluation Method Details
NA	NA	NA

The City of Orinda participates in county-wide public education and outreach activities with the CCCWP. Activities include participation in the Used Oil Campaign which focuses on certifying used oil collection centers, distributing information at public events, providing a school program (using Mr. Funnelhead) targeted to third, fourth, and fifth graders, and advertising on cable TV and newspapers. In addition, the city sponsors a community service day (Orinda in Action) in conjunction with the Orinda Association that includes creek cleanup and on-land trash pickups. The city also participates in Kids for the Bay, which educates fourth and fifth graders about their local watershed and hosts field activities including shoreline or creek trash clean-up. The city will continue to participate in county-wide activities and sponsor local activities in an effort to maintain the low levels of trash seen throughout the vast majority of the city.

Camino Pablo is a public road and one of two main arterials in Orinda providing access to Highway 24. Sources of trash include wind-blown trash, trash from moving vehicles and pedestrian-generated litter.

Key Characteristics of Trash Management Area 2

Total Jurisdictional Area (Acres)	Percent in Trash Generation Category				Dominant Land Uses	Dominant Types and Sources of Trash
	Very High	High	Medium	Low		
19.5	0	100	0	0	Public road	Pedestrian-generated litter Wind-blown trash

Summary of Control Measures and Implementation Schedule for Trash Management Area 2

Control Measure	Control Measure Details	Pre-MRP	12/2009 to 7/2014	7/2014 to 7/2017	After 7/2017
Street Sweeping	Increase frequency from 2x/month to 1x/week	X	X	X	X
On-land Trash Cleanups	<ul style="list-style-type: none"> Coincide on-land trash cleanup with street sweeping 1x/month. Sponsor volunteer on-land cleanup events Sponsor work alternative program 			X	X

Currently, the city owns and operates one street sweeper. Camino Pablo is swept approximately 2x/month, however there are long stretches of road that do not have curb and street sweeping is ineffective in these areas. Conducting on-land trash cleanups prior to or immediately after the street sweeper goes through will increase efficiency and the amount of trash reduced. Based on available resources, municipal staff will conduct the on-land cleanups. To minimize staff time and reduce cost, the city plans to organize volunteer events and is considering sponsoring a work alternative program.

Evaluation of Program Effectiveness for Trash Management Area 2

Control Measure	Evaluation Method	Evaluation Method Details
Enhanced Street Sweeping	On-land visual assessment and track volume of trash removed	Since the adoption of the MRP, the city has been keeping a data log for street sweeping operations. The data collected includes dates, locations, number of miles swept and volume of trash removed. Additional data that will be added to the log is the percentage of trash compared to debris. The city will continue to track data based on the frequency changes in addition to performing before and after visual assessments.
On-land Trash Cleanups	Track location, frequency and volume of trash collected	Since the adoption of the MRP, the city has been keeping track of litter removed from on-land cleanups. The city will continue to track the amount of litter being collected and will determine if additional measures are required after comparing historical data.

Moraga Way is a public road and one of two main arterials in Orinda providing access to Highway 24. Sources of trash include wind-blown trash, trash from moving vehicles and pedestrian-generated litter

Key Characteristics of Trash Management Area 3

Total Jurisdictional Area (Acres)	Percent in Trash Generation Category				Dominant Land Uses	Dominant Types and Sources of Trash
	Very High	High	Medium	Low		
30.1	0	100	0	0	Public road	Pedestrian-generated litter Wind-blown trash

Summary of Control Measures and Implementation Schedule for Trash Management Area 3

Control Measure	Control Measure Details	Pre-MRP	12/2009 to 7/2014	7/2014 to 7/2017	After 7/2017
Street Sweeping	Maintain frequency of 1x/week	X	X	X	X
On-land Trash Cleanups	<ul style="list-style-type: none"> • Coincide on-land trash cleanup with street sweeping 1x/month. • Sponsor volunteer on-land cleanup events • Sponsor work alternative program 			X	X

Currently, the city owns and operates one street sweeper. Moraga Way is swept approximately 1x/week, however there are sections of road that do not have curb and street sweeping is ineffective in these areas. Conducting on-land trash cleanups prior to or immediately after the street sweeper goes through will increase efficiency and the amount of trash reduced. Based on available resources, municipal staff will conduct the on-land cleanups. To minimize staff time and reduce cost, the city plans to organize volunteer events and is considering sponsoring a work alternative program.

Evaluation of Program Effectiveness for Trash Management Area 3

Control Measure	Evaluation Method	Evaluation Method Details
Enhanced Street Sweeping	On-land visual assessment and track volume of trash removed	Since the adoption of the MRP, the city has been keeping a data log for street sweeping operations. The data collected includes dates, locations, number of miles swept and volume of trash removed. The city will continue to track data in addition to performing before and after visual assessments.
On-land Trash Cleanups	Track location, frequency and volume of trash collected	Since the adoption of the MRP, the city has been keeping track of litter removed from on-land cleanups. The city will continue to track the amount of litter being collected and will determine if additional measures are required after comparing historical data.

The downtown area of Orinda east of Highway 24 (Theater Square) consists of commercial and retail space. Trash Management Area 4 drains into the publicly owned storm drain system which connects to a culvert prior to discharging to San Pablo Creek. Sources of trash include trash from moving vehicles, pedestrian-generated litter, and illegal dumping.

Key Characteristics of Trash Management Area 4

Total Jurisdictional Area (Acres)	Percent in Trash Generation Category				Dominant Land Uses	Dominant Types and Sources of Trash
	Very High	High	Medium	Low		
20.1	0	0	80.8	19.2	Commercial and Retail	Pedestrian-generated litter

Summary of Control Measures and Implementation Schedule for Trash Management Area 4

Control Measure	Control Measure Details	Pre-MRP	12/2009 to 7/2014	7/2014 to 7/2017	After 7/2017
Enhanced Storm Drain Inlet Maintenance	Increase frequency for storm drain inlets cleanings to 1x/month during rainy season (Oct.-April)				X
Street Sweeping	Maintain frequency of 1x/week	X	X	X	X
Improved Trash Bins/Container Management	Review existing spacing of trash bins and install trash and recycling bins in areas where trash is prevalent.				X

The street sweeping schedule for Moraga Way described in TMA 3 includes the Theater Square area. Storm drain inlets in Orinda are cleaned and maintained by municipal staff. Storm drain inlets are cleaned on an on-call/as-needed basis. Based on available resources, the city plans to increase the frequency for cleaning debris collected at the top of storm drain inlets in the Theater Square area during the rainy season with a focus on the downstream inlets located prior to connecting to the culvert. In addition, the city will review the inventory and spacing of existing trash bins, and current schedule for cleaning and maintenance.

Evaluation of Program Effectiveness for Trash Management Area 4

Control Measure	Evaluation Method	Evaluation Method Details
Enhanced Storm Drain Inlet Maintenance	Document Maintenance	Cleaning and maintenance of storm drain inlets will be documented based on the frequency mentioned above. Trash will be separated from debris and only the volume of trash will be logged. The frequency of clean outs will be tracked and data collected will also include the date and capacity of the storm drain inlet at the time it is cleaned.
Enhanced Street Sweeping	On-land visual assessment and track volume of trash removed	Since the adoption of the MRP, the city has been keeping a data log for street sweeping operations. The data collected includes dates, locations, number of miles swept and volume of trash removed. The city will continue to track data and log the percentage of trash vs. debris being removed in addition to performing before and after visual assessments.

The downtown area of Orinda west of Highway 24 (Orinda Village Square) consists of commercial, office and retail space. Trash Management Area 5 drains into the publicly and privately owned storm drain system and outfalls at San Pablo Creek which runs along the southern edge of this area. Sources of trash include trash from moving vehicles, pedestrian-generated litter, and illegal dumping.

Key Characteristics of Trash Management Area 5

Total Jurisdictional Area (Acres)	Percent in Trash Generation Category				Dominant Land Uses	Dominant Types and Sources of Trash
	Very High	High	Medium	Low		
85.7	0	0	86.4	13.6	Commercial and Retail	Pedestrian-generated litter

Summary of Control Measures and Implementation Schedule for Trash Management Area 5

Control Measure	Control Measure Details	Pre-MRP	12/2009 to 7/2014	7/2014 to 7/2017	After 7/2017
Enhanced Storm Drain Inlet Maintenance	Increase frequency for storm drain inlet cleanings to 1x/month during rainy season (Oct.-April)				X
Street Sweeping	Increase frequency from 2x/month to 1x/week	X	X	X	X
Improved Trash Bins/Container Management	Review existing spacing of trash bins and install trash and recycling bins in areas where trash is prevalent.				X

The street sweeping schedule for Camino Pablo described in TMA 2 include the Orinda Village Square area. Storm drain inlets in Orinda are cleaned and maintained by municipal staff. Storm drain inlets are cleaned on an on-call/as-needed basis. Based on available resources, the city plans to increase the frequency for cleaning debris collected at the top of storm drain inlets in the Orinda Village Square area during the rainy season with a focus on the downstream inlets. In addition, the city will review the inventory and spacing of existing trash bins, and current schedule for cleaning and maintenance.

Evaluation of Program Effectiveness for Trash Management Area 5

Control Measure	Evaluation Method	Evaluation Method Details
Enhanced Storm Drain Inlet Maintenance	Document Maintenance	Cleaning and maintenance of storm drain inlets will be documented based on the frequency mentioned above. Trash will be separated from debris and only the volume of trash will be logged. The frequency of clean outs will be tracked and data collected will also include the date and capacity of the storm drain inlet at the time it is cleaned.
Enhanced Street Sweeping	On-land visual assessment and track volume of trash removed	Since the adoption of the MRP, the city has been keeping a data log for street sweeping operations. The data collected includes dates, locations, number of miles swept and volume of trash removed. Additional data that will be added to the log is percentage of trash compared to debris. The city will continue to track data based on the frequency changes in addition to performing before and after visual assessments.

The Orinda Country Club and perimeter of Lake Cascade comprise Trash Management Area 6. The Orinda Country Club and adjacent Lake Cascade are privately owned and are outside of the City’s jurisdiction for stormwater management. Sources of trash include pedestrian-generated trash, illegal dumping, and special events. Several drainage areas tributary to the lake outfall at various points around the lake.

Key Characteristics of Trash Management Area 6						
Total Jurisdictional Area (Acres)	Percent in Trash Generation Category				Dominant Land Uses	Dominant Types and Sources of Trash
	Very High	High	Medium	Low		
26.8	0	0	60.6	39.4	Park	Pedestrian-generated litter

Summary of Control Measures and Implementation Schedule for Trash Management Area 6					
Control Measure	Control Measure Details	Pre-MRP	12/2009 to 7/2014	7/2014 to 7/2017	After 7/2017
On-land Trash Cleanups	Coordinate volunteer on-land cleanup events with the Country Club				X
Enhanced Storm Drain Inlet Maintenance	Perform inlet cleaning and maintenance upstream of outfalls				X

As mentioned above, the Orinda Country Club and Lake Cascade are non-jurisdictional facilities. The city is planning to coordinate with the Country Club and discuss control measures for reducing trash. Control measures the city is planning to further investigate include coordinating volunteer cleanup events with the Country Club, and increased inlet cleaning and maintenance upstream of outfalls to the lake conducted by municipal staff.

Evaluation of Program Effectiveness for Trash Management Area 6		
Control Measure	Evaluation Method	Evaluation Method Details
On-land Trash Cleanups	Document frequency and volume of trash collected	On-land trash cleanup efforts around Lake Cascade will be evaluated by tracking the amount of litter being collected.
Enhanced Storm Drain Inlet Maintenance	Document Maintenance	Cleaning and maintenance of storm drain inlets upstream of outfalls to Lake Cascade will be documented by tracking the volume of trash emptied, frequency of cleanouts, and capacity of the storm drain inlet at the time it is cleaned.

The following churches comprise Trash Management Area 7: Holy Shepherd Lutheran Church and St. John Evangelist Church. The churches are privately owned and are outside of the City’s jurisdiction for stormwater management. Both churches are adjacent to Moraga Way and trash sources include trash from moving vehicles, pedestrian generated litter, parked cars and special events.

Key Characteristics of Trash Management Area 7

Total Jurisdictional Area (Acres)	Percent in Trash Generation Category				Dominant Land Uses	Dominant Types and Sources of Trash
	Very High	High	Medium	Low		
10.1	0	0	100	0	Institutional	Moving vehicles and Pedestrian-generated litter

Summary of Control Measures and Implementation Schedule for Trash Management Area 7

Control Measure	Control Measure Details	Pre-MRP	12/2009 to 7/2014	7/2014 to 7/2017	After 7/2017
Enhanced Storm Drain Inlet Maintenance	Perform inlet cleaning and maintenance downstream of church				X
Public Outreach and Education	Meet with church staff and discuss trash related issues. Review locations of trash bins and frequency of trash pickups.				X

As mentioned above, churches are non-jurisdictional facilities. The city plans to investigate the storm drain network in the vicinity of the churches and determine if performing inlet cleanings downstream of the churches will effectively reduce trash. The city is also planning to coordinate with church staff and discuss trash reduction strategies by targeting dominant sources of trash.

Evaluation of Program Effectiveness for Trash Management Area 7

Control Measure	Evaluation Method	Evaluation Method Details
Enhanced Storm Drain Inlet Maintenance	Document Maintenance	Cleaning and maintenance of storm drain inlets downstream of the churches will be documented by tracking the volume of trash removed, frequency of cleanouts, and capacity of the storm drain inlet at the time it is cleaned.

The following schools comprise Trash Management Area 8: Sleepy Hollow Elementary School, Glorietta Elementary School, Orinda Intermediate School, Del Rey Elementary School and Miramonte High School. Schools are outside of the City’s jurisdiction for stormwater management. Sources of trash include pedestrian-generated litter, illegal dumping and special events.

Key Characteristics of Trash Management Area 8

Total Jurisdictional Area (Acres)	Percent in Trash Generation Category				Dominant Land Uses	Dominant Types and Sources of Trash
	Very High	High	Medium	Low		
114.9	0	0	100	0	Institutional	Pedestrian-generated litter

Summary of Control Measures and Implementation Schedule for Trash Management Area 8

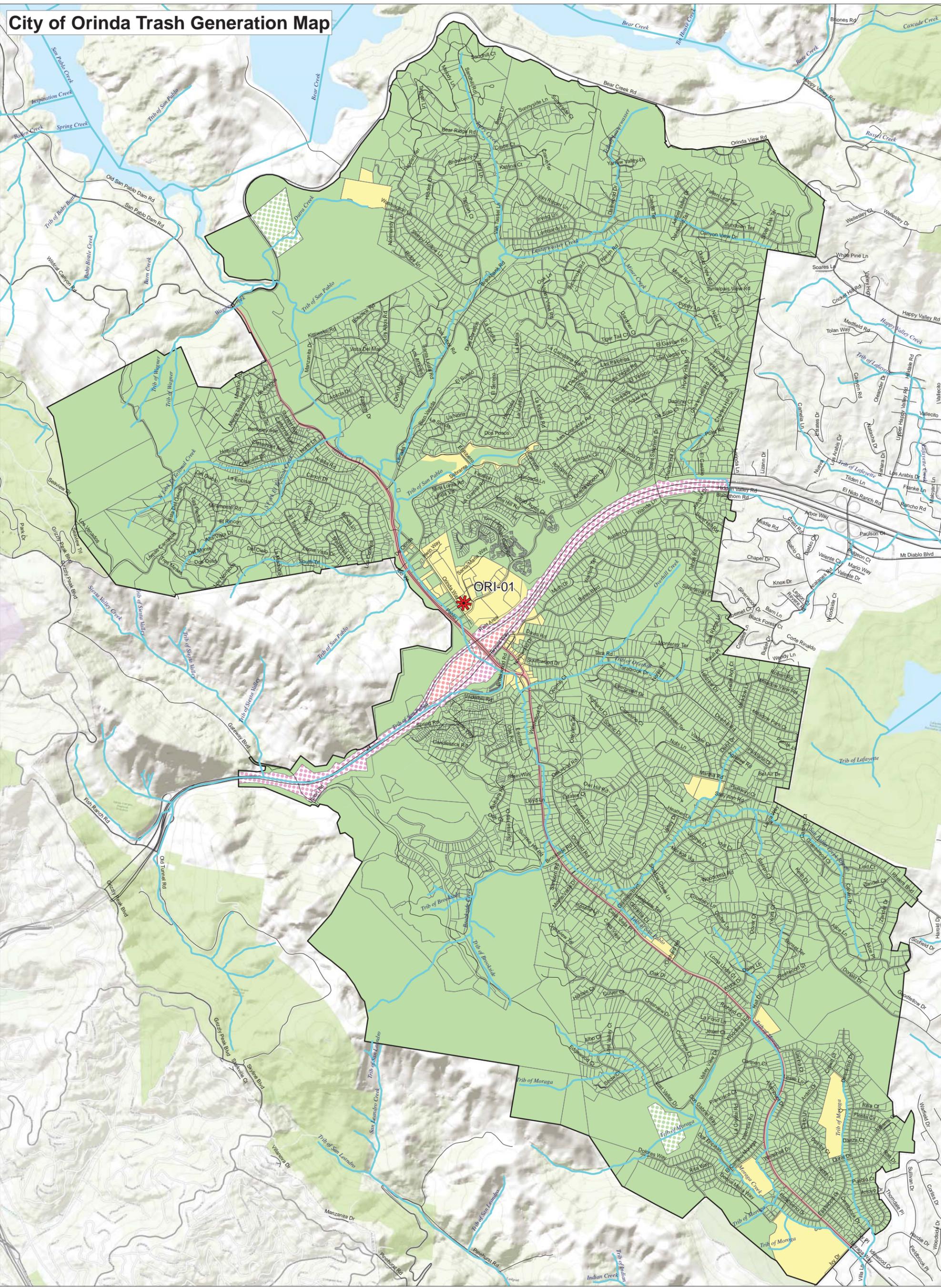
Control Measure	Control Measure Details	Pre-MRP	12/2009 to 7/2014	7/2014 to 7/2017	After 7/2017
Enhanced Storm Drain Inlet Maintenance	Perform inlet cleaning and maintenance downstream of school				X
Public Outreach and Education	Team up with other agencies and meet with school districts to discuss trash related issues				X

As mentioned above, schools are non-jurisdictional facilities. The city plans to investigate the storm drain network in the vicinity of the schools and determine if performing inlet cleanings downstream of the schools will effectively reduce trash. The city is also planning to team up with Contra Costa County and other agencies within the CCCWP who have included schools as part of their long-term trash reduction plan. The plan is to collectively approach school districts to discuss current trash and recycling programs and strategize on making improvements to existing programs or implementing new programs.

Evaluation of Program Effectiveness for Trash Management Area 8

Control Measure	Evaluation Method	Evaluation Method Details
Enhanced Storm Drain Inlet Maintenance	Document Maintenance	Cleaning and maintenance of storm drain inlets downstream of the schools will be documented by tracking the volume of trash removed, frequency of cleanouts, and capacity of the storm drain inlet at the time it is cleaned.
Other Control Measures	Interview faculty & On-land visual assessment	A possible evaluation method is to interview school faculty to determine the effectiveness of trash reducing programs. Based on available resources, on-land visual assessments conducted by municipal staff at various times throughout the school year is another possible method.

City of Orinda Trash Generation Map



Legend

Trash Generation Category

- Low
- Medium
- High
- Very High
- Non-Jurisdictional (Dot color = Generation Category)
- Parcel Boundary
- Creek/Shoreline Hotspot
- Streets
- Agency Boundary
- Creeks

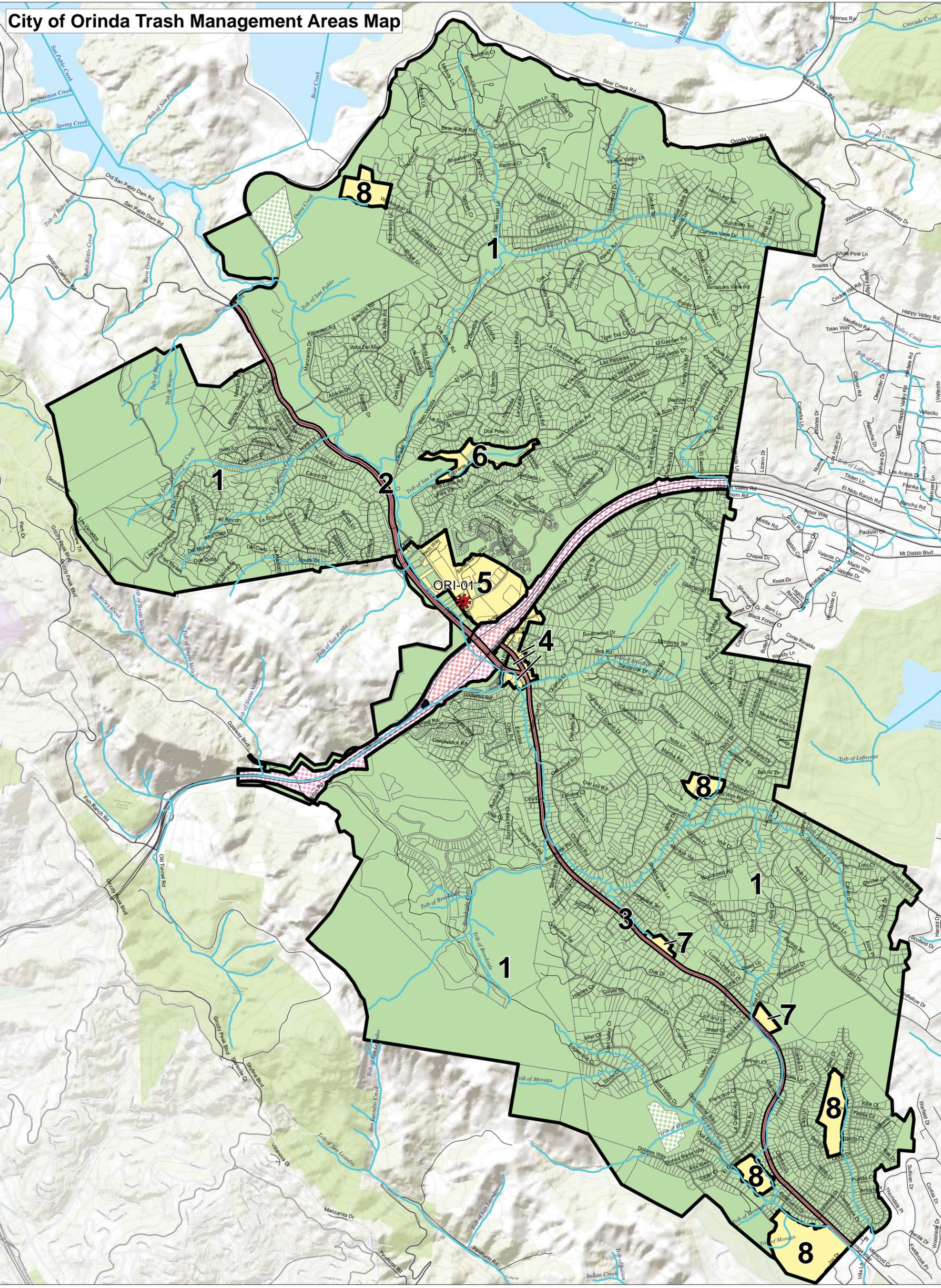


Data Sources:
 Roads: Tele Atlas
 City Boundaries: Contra Costa County
 Background: ESRI World Topographic Map

Map Created By:
 EOA, Inc.

Date:
 November 13th, 2013

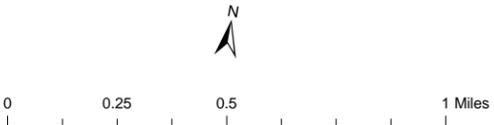
City of Orinda Trash Management Areas Map



Legend

Trash Generation Category

- Low
- Medium
- High
- Very High
- Creek/Shoreline Hotspot
- Trash Management Area
- Non-Jurisdictional (Dot color = Generation Category)
- Streets
- Agency Boundary
- Creeks
- Parcel Boundary

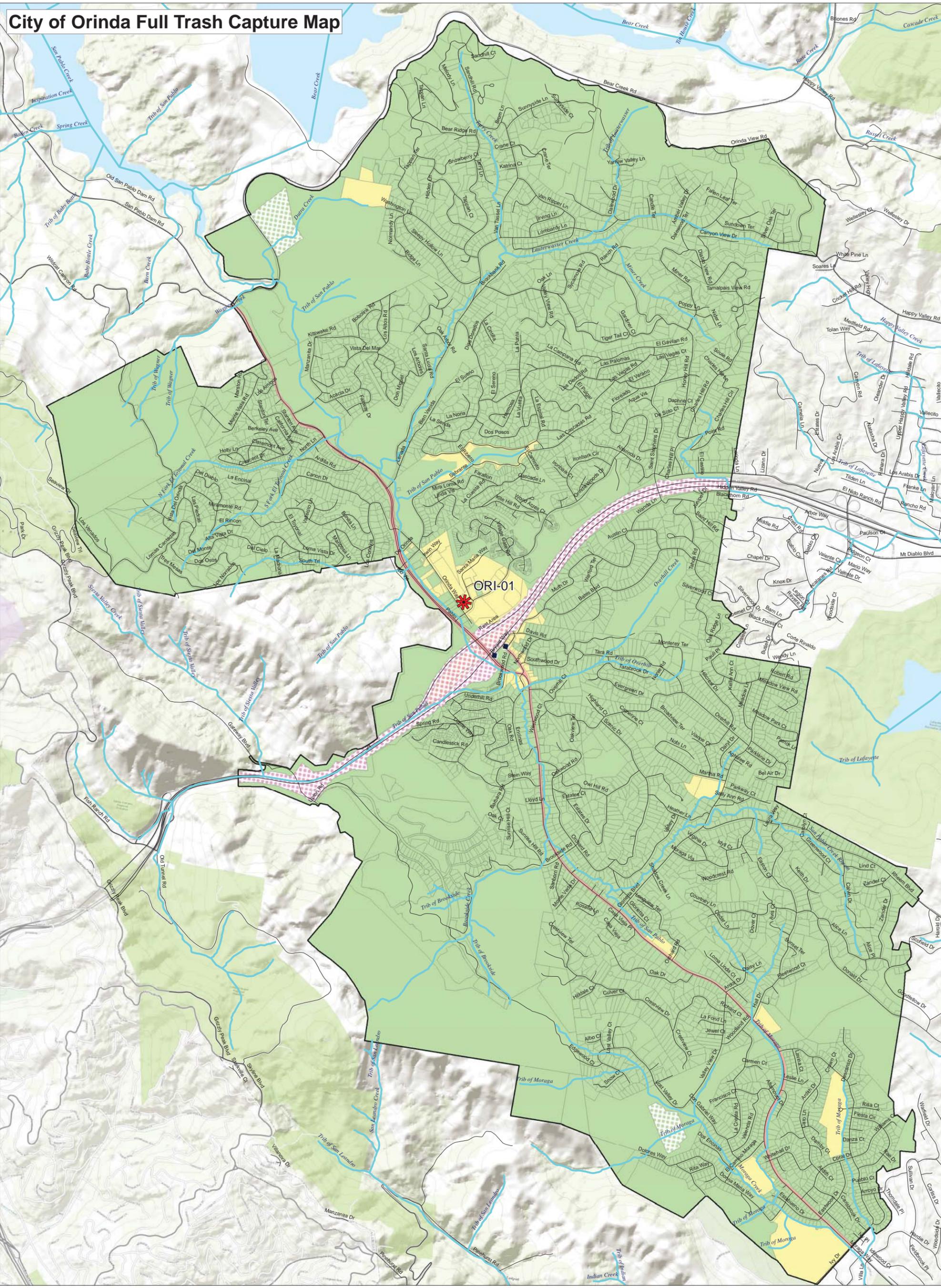


Data Sources:
 Roads: Tele Atlas
 City Boundaries: Contra Costa County
 Background: ESRI World Topographic Map

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 November 13th, 2013

City of Orinda Full Trash Capture Map



Legend

 Low	 Medium	 High	 Very High	 Creek/Shoreline Hotspot	 Full-Capture Location	 Full Trash Capture	 Non-Jurisdictional (Dot color = Generation Category)	 Streets	 Agency Boundary	 Creeks	 Parcel Boundary
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0 0.25 0.5 1 Miles

Data Sources:
 Roads: Tele Atlas
 City Boundaries: Contra Costa County
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 November 13th, 2013