



CONTRA COSTA  
**CLEAN WATER**  
PROGRAM

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Program Manager

February 1, 2012

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Dear Mr. Wolfe and Ms. Creedon:

Enclosed is the unincorporated Contra Costa County's Short-Term Trash Reduction Plan submitted in accordance with Provision C.10.a. in NPDES Permit No. CAS612008 issued by the San Francisco Bay Regional Water Quality Control Board, and/or NPDES Permit No. CA0083313 issued by the Central Valley Regional Water Quality Control Board.

I certify under penalty of law that this document and all attachments are prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluated the information submitted. Based on my inquiry of the person or persons who managed 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."

Sincerely,

Julia R. Bueren, Director  
Contra Costa County  
Public Works Dept.

# Baseline Trash Load and Short-Term Trash Load Reduction Plan

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**Submitted by:**

**Contra Costa County**



**255 Glacier Drive**

**Martinez, CA 94553-4825**

*In compliance with Provisions C.10.a(i) and C.10.a(ii) of Order R2-2009-0074*

**January 11, 2012**

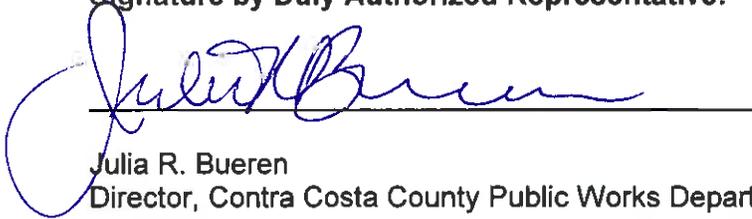
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**CONTRA COSTA COUNTY  
SHORT-TERM TRASH LOAD REDUCTION PLAN**

**CERTIFICATION STATEMENT**

"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 ensure that qualified personnel properly gather and evaluate 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."

**Signature by Duly Authorized Representative:**



Julia R. Bueren  
Director, Contra Costa County Public Works Department

1/24/12

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## ABBREVIATIONS

BASMAA	Bay Area Stormwater Management Agencies Association
BID	Business Improvement District
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CASQA	California Stormwater Quality Association
CDS	Continuous Deflection Separator
CEQA	California Environmental Quality Act
CY	Cubic Yards
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
GIS	Geographic Information System
MRP	Municipal Regional Stormwater NPDES Permit
MS4	Municipal Separate Storm Sewer System
NGO	Non-Governmental Organization
NPDES	National Pollutant Discharge Elimination System
Q	Flow
SFRWQCB	San Francisco Regional Water Quality Control Board
SWRCB	State Water Resource Control Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
Water Board	San Francisco Regional Water Quality Control Board
WDR	Waste Discharge Requirements

## PREFACE

This Baseline Trash Load and Short-Term Trash Load Reduction Plan (Plan) is submitted in compliance with provision C.10.a(i) and C.10.a(ii) of the Municipal Regional Stormwater NPDES Permit (MRP) for Phase I communities in the San Francisco Bay (Order R2-2009-0074). This Plan was developed using a regionally consistent format developed by the Bay Area Stormwater Management Agencies Association (BASMAA). Based on new information that becomes available during the implementation of this Short-Term Plan (e.g., revisions to baseline loading estimates or load reduction credits of quantification formulas), the Contra Costa County may choose to amend or revise this Plan. If revisions or amendments are necessary, a revised Short-Term Plan will be submitted to the Water Board via the Contra Costa County's annual reporting process.

**Please Note:** This Baseline Trash Load and Short-Term Trash Load Reduction Plan template and guidance was prepared to assist cities and counties (i.e., Permittees) subject to requirements in provision C.10.a.i of the Municipal Regional Stormwater NPDES Permit (MRP) for Phase I communities in the San Francisco Bay (Order R2-2009-0074). The template and guidance are intended to provide Permittee's with a format for developing their Short-Term Plans and submitting to the San Francisco Bay Regional Water Quality Control Board by February 1, 2012 in compliance with MRP provision C.10.a.i. The template provides a mechanism to link the results of the *Trash Baseline Generation Rates Project* and the *Trash Load Reduction Tracking Method*, each coordinated by Bay Area Stormwater Management Agencies Association (BASMAA). The use of this document and associated guidance are done so under the discretion of each Permittee.

## 1.0 INTRODUCTION

The Municipal Regional Stormwater NPDES Permit for Phase I communities in the San Francisco Bay (Order R2-2009-0074), also known as the Municipal Regional Permit (MRP), became effective on December 1, 2009. The MRP applies to 76 large, medium and small municipalities (cities, towns and counties) and flood control agencies in the San Francisco Bay Region, collectively referred to as Permittees. Provision C.10 of the MRP (Trash Load Reduction) requires Permittees to reduce trash from their Municipal Separate Storm Sewer Systems (MS4s) by 40 percent before July 1, 2014.

Required submittals to the San Francisco Bay Regional Water Quality Control Board (Water Board) by February 1, 2012 under MRP provision C.10.a (Short-Term Trash Loading Reduction Plan) include:

1. (a) Baseline trash load estimate, and (b) description of the methodology used to determine the load level.
2. A description of the Trash Load Reduction Tracking Method that will be used to account for trash load reduction actions and to demonstrate progress and attainment of trash load reduction levels.
3. A Short-Term Trash Loading Reduction Plan that describes control measures and best management practices that will be implemented to attain a 40 percent trash load reduction from its MS4 by July 1, 2014;

This Short-Term Trash Load Reduction Plan (Short-Term Plan) is submitted by the Contra Costa County in compliance with the portions of MRP provision C.10.a.i listed as 1a and 3 above. In compliance with 1b, BASMAA submitted a progress report on behalf of Permittees that briefly describes the methodologies used to develop trash baseline loads (BASMAA 2011a). These methods are more fully described in BASMAA (2011b, 2011c). Lastly, the *Trash Load Reduction Tracking Method Technical Report* (BASMAA 2011d) was submitted by BASMAA on behalf of Permittees in compliance with submittal 2 described above. The Baseline Loading Rates and Tracking Method projects are briefly described below.

### Baseline Trash Generation Rates Project

Through approval of a BASMAA regional project, Permittees agreed to work collaboratively to develop a regionally consistent method to establish baseline trash loads from their MS4s. The project, also known as the *BASMAA Baseline Trash Generation Rates Project* assists Permittees in establishing a baseline to demonstrate progress towards MRP trash load reduction goals (i.e., 40 percent). The intent of the project was to provide a scientifically-sound method for developing (default) baseline trash generation rates that can be adjusted, based on Permittee/site specific conditions; and used to develop baseline loading rates and loads. Baseline loads form the reference point for comparing trash load reductions achieved through control measure implementation.

Baseline trash loading rates are quantified on a volume per unit area basis and based on factors that significantly affect trash generation (e.g., land use, population density, and economic profile). The method used to establish baseline trash loads for each Permittee builds off “lessons learned” from previous trash loading studies conducted in urban areas (Allison and Chiew 1995; Allison et al. 1998; Armitage et al. 1998; Armitage and Rooseboom 2000; Lippner et al. 2001; Armitage 2003; Kim et al. 2004; County of Los Angeles 2002, 2004a, 2004b; Armitage 2007). The method is based off a conceptual model developed as an outgrowth of these studies (BASMAA 2011b). Baseline trash loading rates were developed through the quantification and characterization of trash captured in Water Board recognized

full-capture treatment devices installed in the San Francisco Bay area. Methods used to develop trash baseline loading rates are more fully described in BASMAA (2011b, 2011c, and 2012).

## **Trash Load Reduction Tracking Method Summary**

The trash load reduction tracking method, described in the *Trash Load Reduction Tracking Method Technical Report*, assists Permittees in demonstrating progress towards reaching trash load reduction goals defined in the MRP (e.g., 40 percent). The tracking method is based on information gained through an extensive literature review and Permittee experiences in implementing stormwater control measures in the San Francisco Bay Area. The literature review was conducted to evaluate quantification methods used by other agencies to assess control measure effectiveness or progress towards quantitative goals. Results are documented in the *Trash Load Reduction Tracking Method: Technical Memorandum # 1 – Literature Review* (BASMAA 2011d).

Methods attributable to specific trash control measures fall into two categories: 1) trash load reduction quantification formulas; and 2) load reduction credits (BASMAA 2011e). Quantification formulas were developed for those trash control measures that were deemed feasible and practical to quantify load reductions at this time. Load reduction credits were developed for all other control measures included in the methodology development. Both categories of methods assume that as new or enhanced trash control measures are implemented by Permittees, a commensurate trash load reduction will occur. Progress towards load reduction goals will be demonstrated through comparisons to established trash baseline load estimates developed through the BASMAA *Baseline Generation Rates Project*.

## **Short-Term Trash Load Reduction Plan**

The purpose of this Short-Term Plan is to describe the current level of implementation of control measures and best management practices, and identify the type and extent to which new or enhanced control measures and best management practices will be implemented to attain a 40 percent trash load reduction from their MS4 by July 1, 2014. The Short-Term Plan was developed using a template created by BASMAA through a regional project. New and enhanced trash control measures (i.e., Best Management Practices) that Permittees may implement to demonstrate trash load reduction goals are included in Table 1.1. This list was developed collaboratively through the BASMAA Trash Committee, which included participation from Permittee, stormwater program, Water Board and non-governmental organization (NGO) staff. The list of control measures is based on: 1) the potential for Permittees to implement; 2) the availability of information required to populate formulas and develop credits; and 3) the expected benefit of implementation. Load reductions associated with each control measure are demonstrated either through a quantification formula (QF) or credits (CR) described in the *Trash Load Reduction Tracking Method Technical Report* (BASMAA 2011e).

In efforts to reduce trash discharged from MS4s, Permittees may choose to implement control measures that are not included in Table 1.1 or described more fully in BASMAA (2011e). If a Permittee chooses to do so, methods specific to calculating trash load reductions for that control measure would need to be developed. Additionally, at that point, consideration should be given to updating this Short-Term Plan.

Additionally, based on new information that becomes available during the implementation of this Short-Term Plan (e.g., revisions to baseline loading estimates or load reduction credits of quantification formulas), the Contra Costa County may amend or revise this Plan. If revisions or amendments are

necessary, a revised Short-Term Plan will be submitted to the Water Board via the Contra Costa County’s annual reporting process.

**Table 1.1. Trash control measures for which load reduction quantification credits or formulas were developed to track progress towards trash load reduction goals.**

<b>Load Reduction Credits</b>
Single-use Carryout Plastic Bag Ordinances
Polystyrene Foam Food Service Ware Ordinances
Public Education and Outreach Programs
Activities to Reduce Trash from Uncovered Loads
Anti-Littering and Illegal Dumping Enforcement Activities
Improved Trash Bin/Container Management Activities
Single-Use Food and Beverage Ware Ordinances
<b>Quantification Formulas</b>
On-land Trash Pickup (Volunteer and/or Municipal)
Enhanced Street Sweeping
Partial-Capture Treatment Devices
Enhanced Storm Drain Inlet Maintenance
Full-Capture Treatment Devices
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)

This Short-Term Plan is organized into the following sections:

- Introduction;
- Trash Baseline Load Estimate;
- Load Reduction Calculation Process
- Planned Implementation of New or Enhanced Control Measures;
- Implementation Schedule; and
- References

## 2.0 BASELINE TRASH LOADING ESTIMATE

*Note: Tables and information presented in this section are subject to change based on the results of a third monitoring event of the BASMAA Baseline Trash Loading Rates Project. Therefore, this section of the Short-Term Plan may be updated with revised trash generation rates, baseline loading rates, and baseline loads.*

This section provides the estimated annual trash baseline load from the County of Contra Costa's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the County of Contra Costa worked collaboratively with other MRP Permittees through BASMAA to develop data and the process necessary to establish baseline trash loading estimate from our MS4. The collaborative project was managed through the BASMAA Trash Committee and included a series of steps described in BASMAA (2012) and listed below. The approach was intended to be cost-effective and consistent, but still provide an adequate level of confidence in trash loads from MS4s, while acknowledging that uncertainty in trash loads still exists. The approach entailed the following steps:

1. Conduct literature review;
2. Develop conceptual model;
3. Develop and implement sampling and analysis plan;
4. Test conceptual model;
5. Develop and apply default trash generation rates to Permittee effective loading areas;
6. Adjust default trash generation rates based on baseline levels of control measure implementation by the Permittee to develop trash **baseline loading rates**; and,
7. Calculate Permittee-specific annual trash **baseline load**.

Through the collaborative BASMAA project, default baseline trash generation rates (volume per area) were developed for a finite set of categories, based on factors that significantly affect trash loads (e.g., land use). These trash generation rates were then applied to effective loading areas in applicable jurisdictional areas within the County of Contra Costa. Trash generation rates were then adjusted based on baseline street sweeping, storm drain inlet maintenance, and stormwater pump station maintenance conducted in each applicable area. The sum of the trash loads (i.e., rate multiplied by area) from each effective loading area represents the County of Contra Costa's baseline trash load from its MS4. A full description of the methods by which trash baseline loads were developed is included in BASMAA (2012a) and is summarized below.

### Permittee Characteristics

Incorporated in 1850, the County of Contra Costa covers 30,6176 acres in Contra Costa County, and has a jurisdictional area of 27,778 acres. Unincorporated communities within the County include Crockett, El Sobrante, Kensington, Rodeo, Alamo, Blackhawk, Camino Tassajara, Pacheco, Bay Point, Bethel Island, Byron, and Discovery Bay.

### Default Trash Generation Rates (Regional Approach)

A set of default trash generation rates was developed via the BASMAA regional collaborative project (BASMAA 2012a). Default generation rates were developed based on a comparison between trash characterization monitoring results, land uses, economic profiles, and other factors that were believed to possibly affect trash generation. Three trash characterization monitoring events were scheduled via the *Trash Loading Rates Project*. Due to the compliance timeline in the MRP, only two of three trash characterization monitoring events were used to develop trash generation rates described in BASMAA

(2012a) and presented in this section. Following the completion of the third characterization event (Winter 2011/12), this section of the Short-Term Plan may be updated to reflect the most up-to-date trash generation and loading rates available. Trash generation rates based on the results of two of the three characterization events are shown in Table 2-1 for each trash loading category.

**1. Table 2-1: Regional Default Annual Trash Generation Rates by Land Use Category.**

Land Use Category	Generation Rates (Gallons/Acre)
Retail and Wholesale	29.99
High Density Residential	17.04
K-12 Schools	13.14
Commercial and Services/ Heavy, Light and Other Industrial	7.08
Urban Parks	2.14
Low Density Residential	1.25
Rural Residential	0.17

### Jurisdictional and Effective Loading Areas

Default trash baseline generation rates presented in Table 2-1 were applied to effective loading areas with jurisdictional areas within the County of Contra Costa. The County of Contra Costa's jurisdictional areas includes all urban land areas within the County of Contra Costa boundaries that are subject to the requirements in the MRP. Land use areas identified by a combination of the ABAG 2005 land use dataset and Permittee knowledge that were not included within the County's jurisdictional areas include:

- Federal and State of California Facilities and Roads (e.g., Interstates, State Highways, Military Bases, Prisons);
- Roads Owned and Maintained by cities within the County;
- Colleges and Universities (Private or Public);
- Non-urban Land Uses (e.g., agriculture, forest, rangeland, open space, wetlands, water);
- Communication or Power Facilities (e.g., PG & E Substations);
- Water and Wastewater Treatment Facilities; and
- Other Transportation Facilities (e.g., airports, railroads, and maritime shipping ports).

Once the County of Contra Costa's jurisdictional area was delineated, an effective trash loading area was developed by creating a 200-foot buffer around all streets within the County's jurisdictional area. The purpose of the effective loading area is to eliminate land areas not directly contributing trash to the County's MS4 (e.g., large backyards and rooftops). Both the jurisdictional and the effective loading areas for the County of Contra Costa are presented in Table 2-2.

2. **Table 2-2: Jurisdictional areas and effective loading areas in the County of Contra Costa by land use classes identified by ABAG (2005).**

Land Use Category	Jurisdictional Area (Acres)	Effective Loading Area (Acres)	% of Effective Loading Area
High Density Residential	2,477	2,009	12
Low Density Residential	12,439	10,349	60
Rural Residential	5,272	2,591	15
Commercial and Services/ Heavy, Light and Other Industrial	5,865	1,415	8
Retail and Wholesale	537	299	2
K-12 Schools	496	244	1
Urban Parks	693	384	2
<b>TOTAL</b>	<b>27,778</b>	<b>17,291</b>	<b>100%</b>

### Permittee-Specific Baseline Trash Loading Rates

Regional default trash generation rates developed through the BASMAA regional collaborative project were applied to effective loading areas within the County of Contra Costa based on identified land uses. These generation rates were then adjusted based on the calculated effectiveness of baseline street sweeping, storm drain inlet maintenance and pump station maintenance implemented by the County. These adjustments were conducted in GIS due to the site specificity of baseline generation rates and baseline control measure implementation. The following sections describe the baseline level of implementation for these three control measures. A summary of trash baseline generation and loading rates for the County of Contra Costa are provided in Table 2-3 and areas associated with these rates are illustrated in Figure 2-1.

#### **Baseline Street Sweeping**

A "baseline" street sweeping program is defined as the sweeping frequency and parking enforcement implemented by the County of Contra Costa prior to effective date of the MRP. Baseline street sweeping differs from "enhanced" street sweeping, which includes increased parking enforcement and/or sweeping conducted at a frequency greater than baseline ceiling (i.e., once per week for retail land uses and twice per month for all other land uses). The baseline ceiling was created to not penalize implementers of enhanced street sweeping programs prior to the effective date of the MRP. For those Permittees that sweep less frequent than the baseline ceiling, their current sweeping frequency serves as their baseline.

The County of Contra Costa's baseline and current street sweeping program includes sweeping most residential, downtown, and arterial streets once per month. Parking enforcement signs for street sweeping are not posted in the County, and parking enforcement equivalent occurs in the community of Waldon near the Pleasant Hill BART station. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

**Baseline Storm Drain Inlet Maintenance**

Within the County, storm drain inlets were cleaned at a baseline level of one time per year prior to the effective date of the MRP. Based on this baseline frequency and the effectiveness rating developed in BASMAA (2012b), the baseline storm drain maintenance program in the County of Contra Costa has an annual effectiveness rating of 5%. The estimated trash load reduced via baseline storm drain inlet maintenance is presented in Table 2-3.

**Baseline Stormwater Pump Station Maintenance**

The County of Contra Costa owns and maintains one stormwater pump stations. Of these stations, one have trash racks that capture trash and allow for removal during maintenance. For those pump stations with trash racks, the estimated volume of trash removed annually from each pump station prior to the effective date of the MRP is considered the baseline level of implementation. To determine the baseline volume of trash removed from pump stations, an effectiveness rating of 25% removal of the baseline trash load attributable to the area draining to the pump station is assumed. This effectiveness rating is based on methods developed in BASMAA (2012b). The estimated trash load reduced via baseline pump station maintenance is presented in Table 2-3.

**Baseline Trash Loading Estimate**

The estimated baseline trash load from the County of Contra Costa was calculated as the sum of the loads from the County’s effective loading area, adjusted for baseline implementation of street sweeping, storm drain inlet maintenance, and pump station maintenance. The preliminary annual trash baseline load for the County of Contra Costa is presented in Table 2-3. Preliminary baseline trash loading rates are presented in Figures 2-1a through 2-e to provide a geographical illustration of areas with estimated low, moderate, high and very high trash loading rates.

3. **Table 2-3: Preliminary annual trash baseline load for the County of Contra Costa.**

Category	Annual Load (gallons)
Preliminary Generation Trash Load	70,619
Load Removed via Baseline Street Sweeping	9,778
Load Removed via Baseline Storm Drain Inlet Maintenance	3,042
Load Removed via Baseline Stormwater Pump Station Maintenance	282
<b>Preliminary Trash Baseline Load</b>	<b>57,516</b>

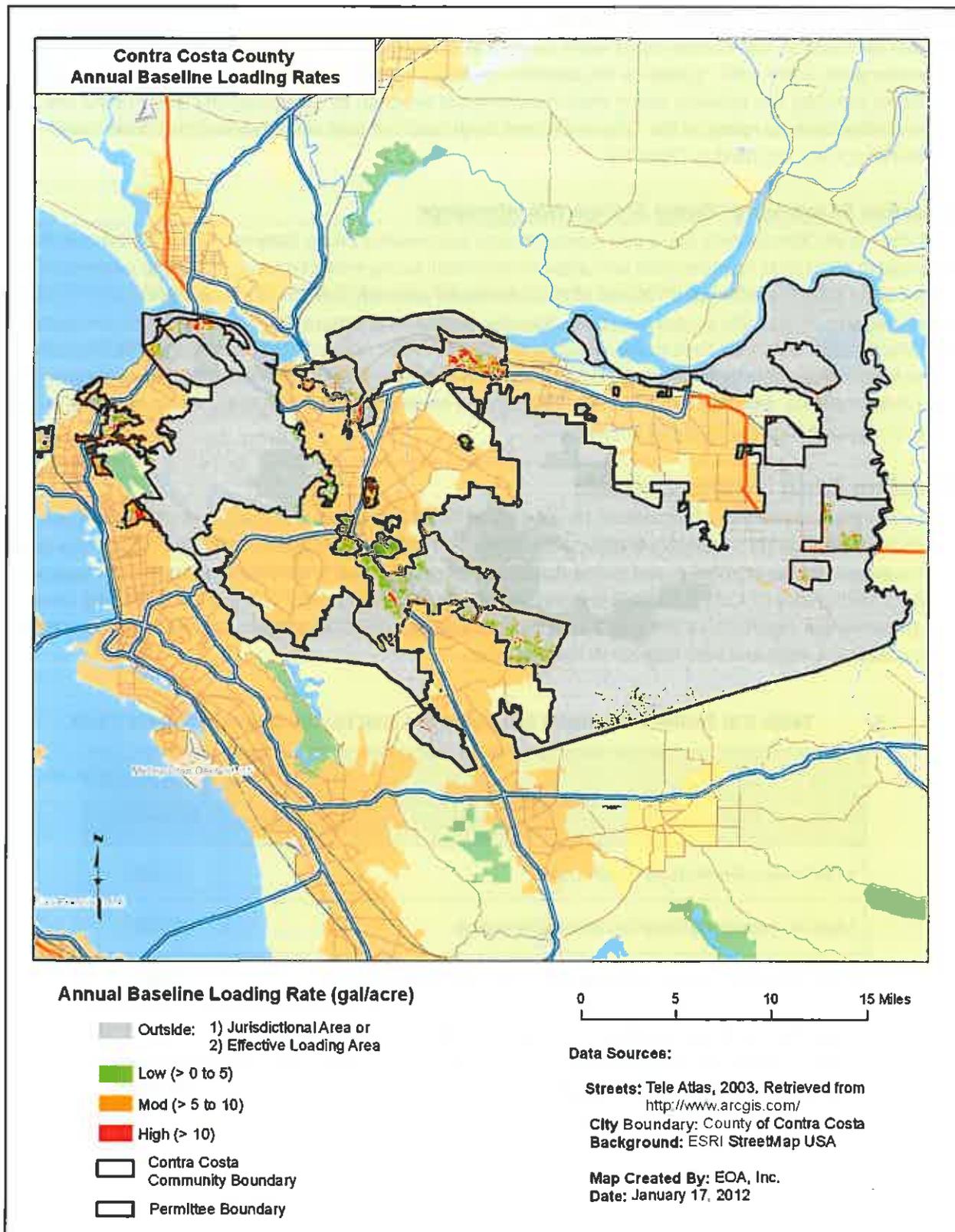


Figure 2-1a: Estimated trash baseline loading rates for the geographical areas in the County of Contra Costa.

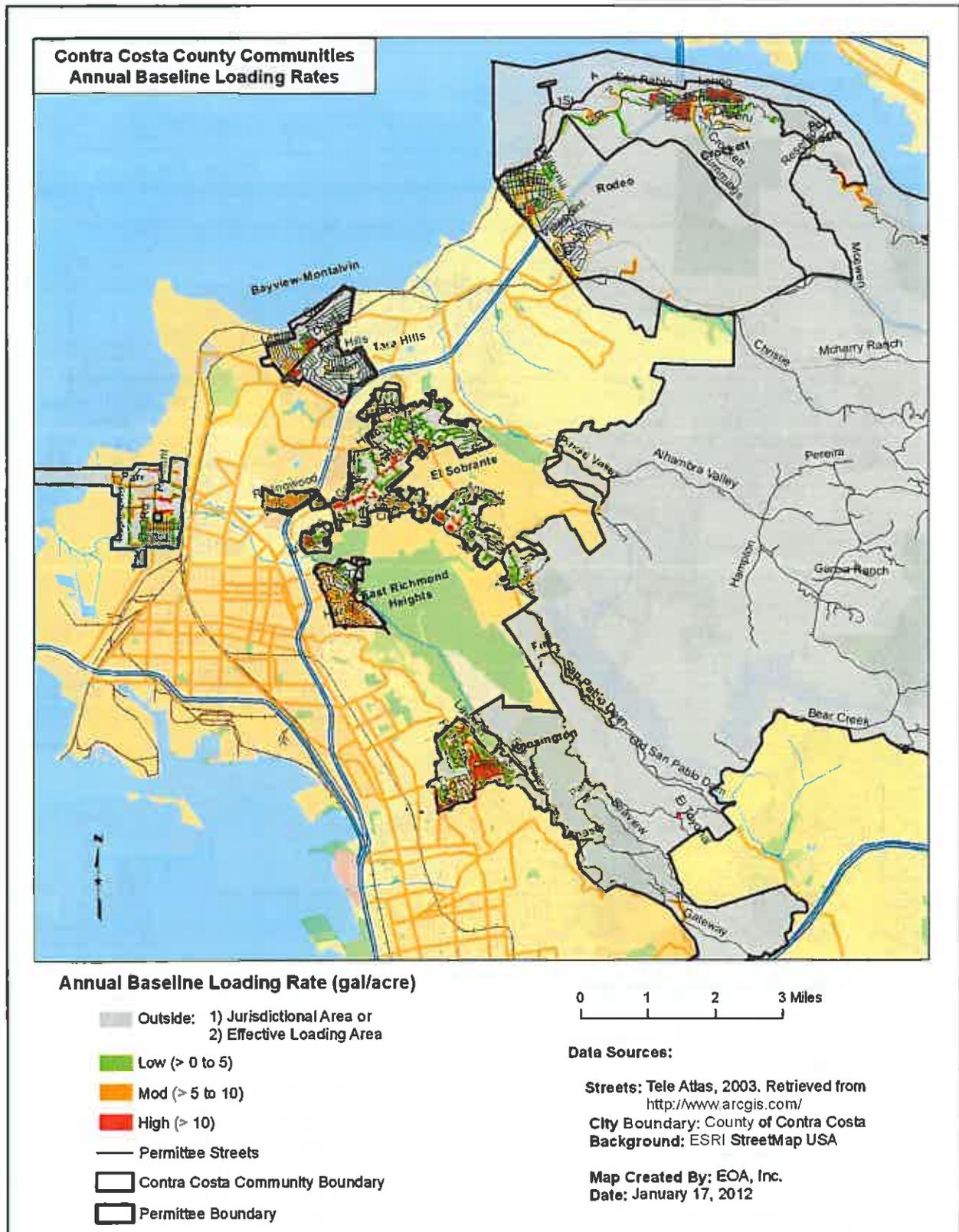


Figure 2-1b: Estimated trash baseline loading rates for Kensington- El Sobrante-Rodeo Region in the County of Contra Costa.

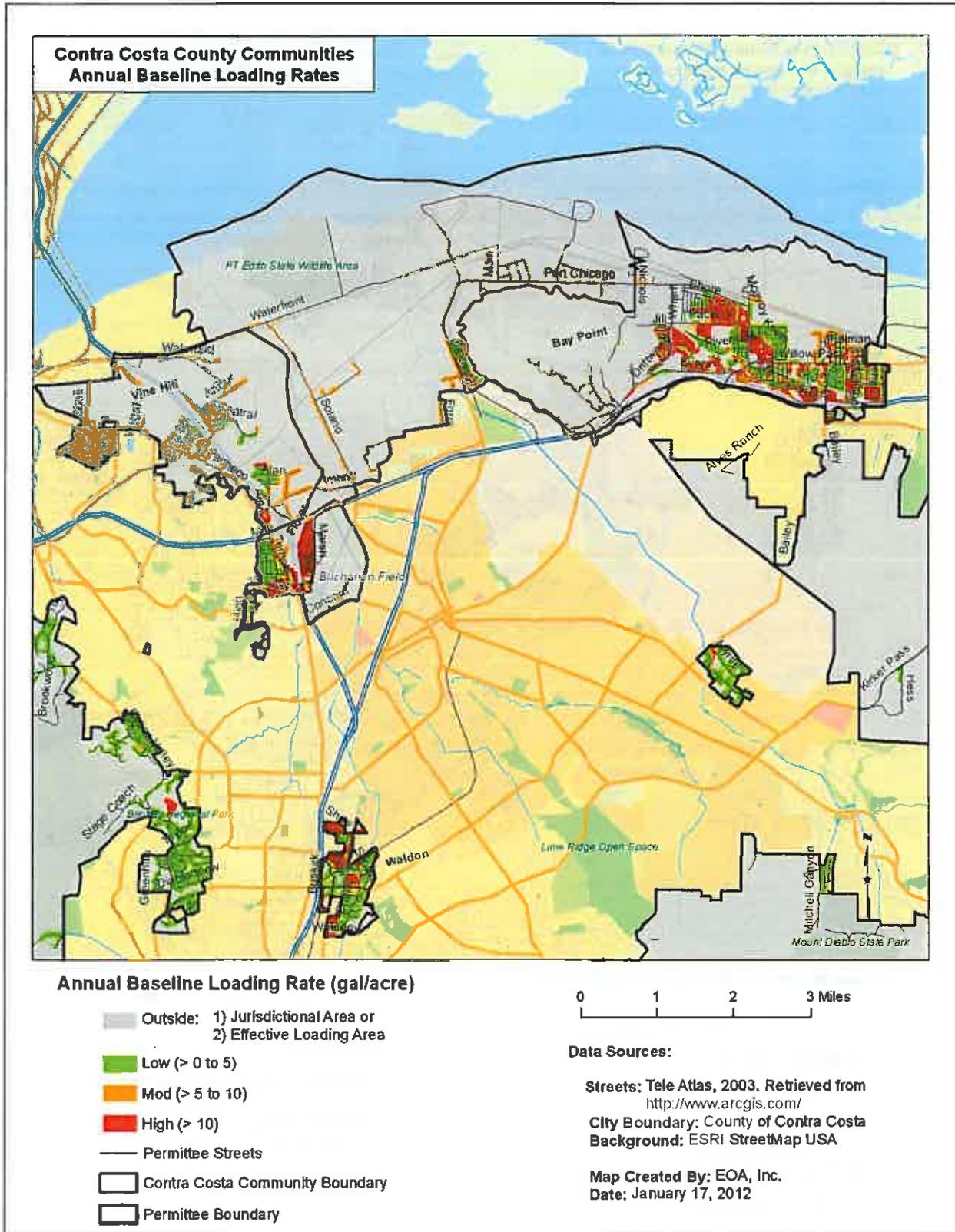


Figure 2-1c: Estimated trash baseline loading rates for Vine Hill- Bay Point Region in the County of Contra Costa.

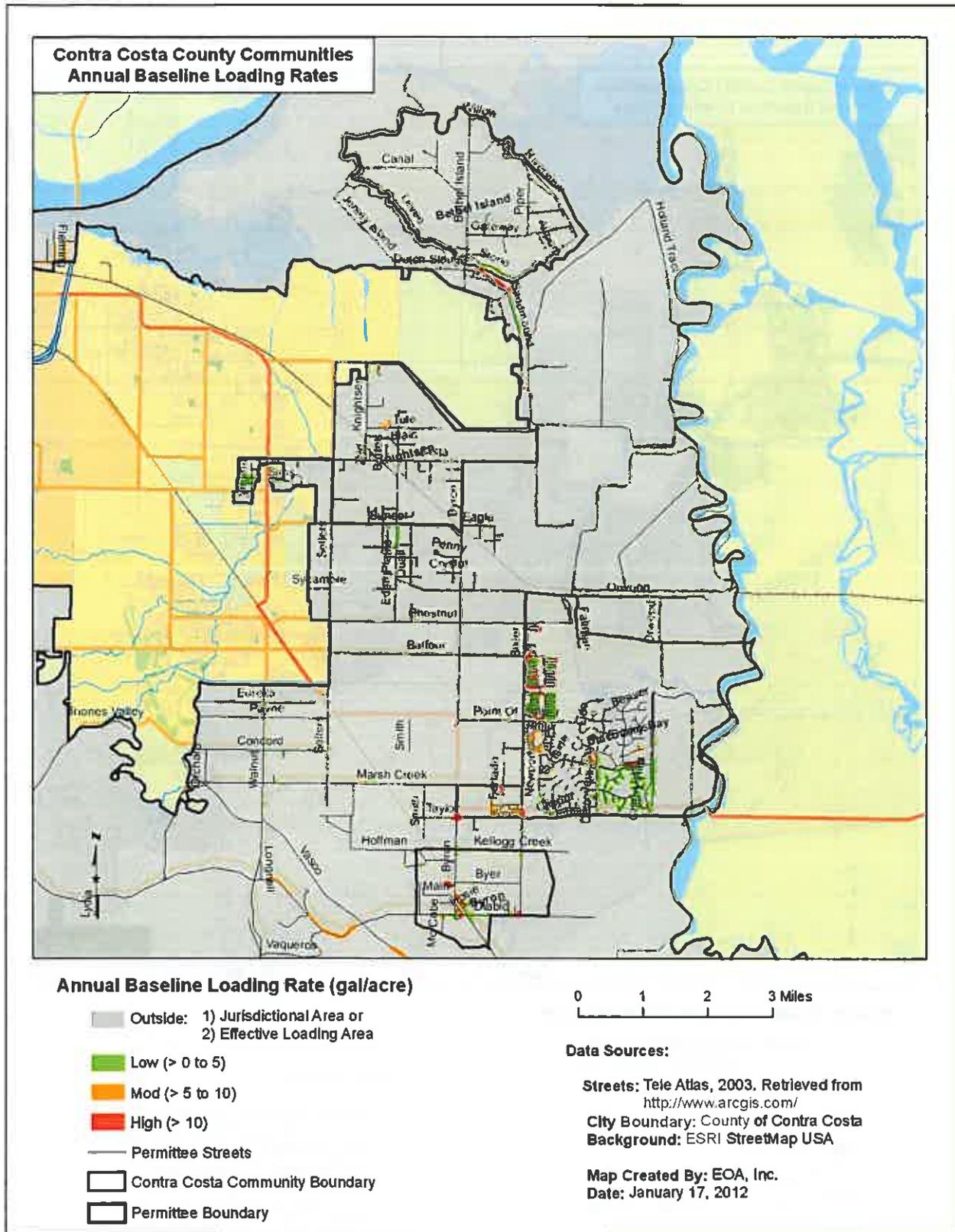


Figure 2-1d: Estimated trash baseline loading rates for the Discovery Bay-Bethel Island Region in the County of Contra Costa.

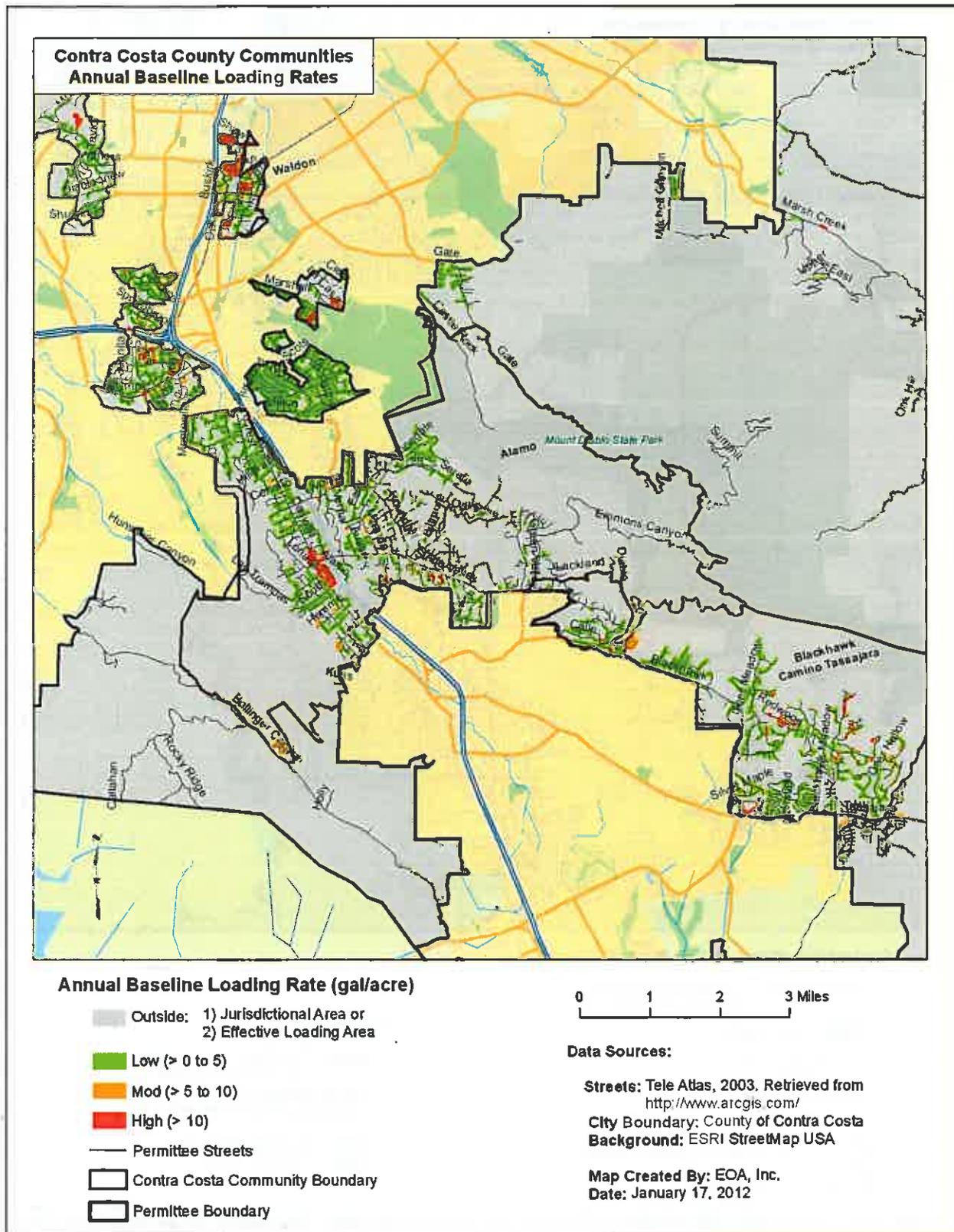


Figure 2-1e: Estimated trash baseline loading rates for the Alamo-Blackhawk Region in the County of Contra Costa.

### 3.0 LOAD REDUCTION CALCULATION PROCESS

Using the guiding principles and assumptions described BASMAA (2011e), a stepwise process for calculating trash load reductions was developed collaboratively through BASMAA. This process is fully described in Trash Load Reduction Tracking Method Technical Report (BASMAA 2011e) and is briefly summarized in this section. The process takes into at what point in the trash generation and transport process a trash control measure: 1) prevents trash generation, 2) intercepts trash in the environment prior to reaching a water body, or 3) removes trash that has reached a water body. In doing so, it avoids double-counting of trash load reductions associated with specific control measures.

To demonstrate trash load reductions, baseline trash loading rates will be adjusted using the following process:

**Step #1: Existing Enhanced Street Sweeping**

**Step#2: Trash Generation Reduction**

**Step #3: On-land Interception**

**Step #4: Trash Interception in the Stormwater Conveyance System**

**Step #5: Trash Interception in Waterways**

**Step #6: Comparison to Baseline Trash Load**

Reductions calculated in Steps 2 and 5 are assumed to be implemented at a constant rate on an “area-wide” basis. For example, if a new region-wide public education strategy is implemented within the San Francisco Bay area, all Permittees can apply load reduction credits associated with this control measure. In contrast, Steps 1, 3 and 4 are “area-specific” reductions that only apply to specific areas within a Permittee’s jurisdiction. Area-specific control measures include full-capture treatment devices and enhanced street sweeping. Area-specific reductions may require the use of a Geographic Information System (GIS) to calculate.

Reductions are generally applied in the sequence as presented in Figure 2-1 and described below, although some reductions may be applied “in-parallel” and calculated during the same sub-step in the process.

#### **Step #1: Existing Enhanced Street Sweeping**

Trash load reductions due to existing enhanced street sweeping implemented prior to the effective date of the MRP and conducted at levels above baseline levels are not incorporated into each Permittee’s trash baseline load. Therefore, load reductions associated with existing enhanced are accounted for first in the trash load reduction calculation process. Existing enhanced street sweeping includes street sweeping conducted at a frequency greater than **1x/week** for streets within retail land use areas or greater than **2x/month** for streets in all other land use areas. The result of adjustments made to trash baseline loads due to the implementation of existing enhanced street sweeping is a set of **current baseline loading rates** and a **current baseline load**.

#### **Step #2: Trash Generation Reduction Control Measures**

Trash generation reduction control measures prevent or greatly reduce the likelihood of trash from being deposited onto the urban landscape. They include the following area-wide control measures:

- CR-1: Single-Use Carryout Plastic Bag Ordinances
- CR-2: Polystyrene Foam Food Service Ware Ordinances
- CR-3: Public Education and Outreach Programs
- CR-4: Reduction of Trash from Uncovered Loads
- CR-5: Anti-Littering and Illegal Dumping Enforcement
- CR-6: Improved Trash Bin/Container Management
- CR-7: Single-Use Food and Beverage Ware Ordinances

Load reductions associated with trash generation reduction control measures are applied on an area-wide basis.<sup>1</sup> Therefore, reductions in current baseline loading rates are adjusted uniformly based on the implementation of the control measure and the associated credit claimed.

Baseline loading rate adjustments for all generation reduction controls measures implemented may be applied in-parallel, but should be applied prior to calculating on-land interception measures discussed in Step #3. The result of adjustments to trash baseline loading rates due to the implementation of these enhanced control measures will be a set of street loading rates. The street load is the volume of trash estimated to enter the environment and available for transport to the MS4 if not intercepted via on-land control measures described in Step #2.

### **Step #3: On-land Interception Control Measures**

Once trash enters the environment, it may be intercepted and removed through the following control measures prior to reaching the stormwater conveyance system:

- QF-1: On-land Trash Cleanups (Volunteer and/or Municipal) (Area-wide)
- QF-2: Enhanced Street Sweeping (Area-specific)

Since on-land trash cleanups can affect the amount of trash available to street sweepers, load reductions associated with their implementation will be quantified first, followed by street sweeping enhancements. On-land trash cleanups will be applied as an area-wide reduction and all effective loading rates will be adjusted equally. Enhanced street sweeping, however, is an area-specific control measure and only those effective loading rates associated with areas receiving enhancements will be adjusted. Due to the spatial nature of enhanced street sweeping, GIS may be needed to conduct this step.

The result of adjustments to effective loading rates due to the implementation of these enhanced control measures will be a set of conveyance system loading rates. The conveyance load is the volume of trash estimated to enter the stormwater conveyance system (e.g., storm drains).

### **Step #4: Control Measures that Intercept Trash in the MS4**

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<sup>1</sup> The only exception to this statement are load reductions associated with the establishment of Business Improvement Districts (BIDs) or equivalent, which are specific to geographic areas and considered "area-specific".

Control measures that intercept trash in the stormwater conveyance system are area-specific. Therefore, they only apply to land areas and associated trash loads reduced. Conveyance system loading rates developed as a result of Step #3 should be adjusted in-parallel for the following control measures:

- QF-3a: Partial-capture Treatment Device: Curb Inlet Screens (Area-specific)
- QF-3b: Partial-capture Treatment Device: Stormwater Pump Station Trash Racks Enhancements (Area-specific)
  
- QF-4: Enhanced Storm Drain Inlet Maintenance (Area-specific)
- QF-5: Full-Capture Treatment Devices (Area-specific)

Load reductions for these control measures are calculated in-parallel because they are applied to independent geographical areas.

Reductions from all control measures described in this step are area-specific and may require the use of GIS to calculate a set of waterway loading rates. Once waterway loading rates have been determined, a waterway load will be developed and used as a starting point for calculating load reductions associated with trash interception in waterways discussed in Step #5.

### Step #5: Control Measures that Intercept Trash in Waterways

The load of trash that passes through the stormwater conveyance system without being intercepted may still be removed through interception in waterways. There are two control measures associated with interception in waterways:

- QF-3c: Partial-capture Treatment Device: Litter Booms/Curtains (Area-wide)
- QF-7: Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (Area-wide)

As these control measures are implemented, load reduction estimates can be calculated in-parallel for these two measures.

### Step #6: Comparison to Baseline Trash Load

Applying the four steps described in the processes above will provide an estimated trash load (volume) remaining after trash control measures are implemented. As depicted in the following equation, the relative percent difference between the baseline load and the load remaining after control measures are implemented is the percent reduction that will be used to assess progress towards MRP trash load reduction goals.

$$\frac{\text{Baseline Load} - \text{Remaining Load}}{\text{Baseline Load}} = \% \text{ Reduction}$$

## 4.0 ENHANCED TRASH CONTROL MEASURES

This section describes the new or enhanced trash control measures planned for implementation by the Contra Costa County. The enhanced control measures described are designed to reach a 40% reduction by July 1, 2014. New and enhanced control measures that will be implemented by Contra Costa County include those listed in Table 4.1.

**Table 4.1. Trash control measures that will be implemented by Contra Costa County to reach the 40% trash load reduction.**

Control Measure
Single-use Carryout Plastic Bag Ordinances
Polystyrene Foam Food Service Ware Ordinances
Public Education and Outreach Programs
Anti-Littering and Illegal Dumping Enforcement Activities
On-land Trash Pickup (Volunteer and/or Municipal)
Enhanced Street Sweeping
Partial-Capture Treatment Devices
Full-Capture Treatment Devices
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)

## CR-1: Single-use Carryout Plastic Bag Policy

Single-use plastic carryout bags have been found to contribute substantially to the litter stream and to have adverse effects on marine wildlife (United Nations 2009, CIWMB 2007, County of Los Angeles 2007). The prevalence of litter from plastic bags in the urban environment also compromises the efficiency of systems designed to channel storm water runoff. Furthermore, plastic bag litter leads to increased clean-up costs for the Permittees and other public agencies.

Based on recent experiences of municipalities throughout the State, the process Permittees must go through to enact a single-use carryout plastic bag policy/ordinance is difficult due to intense scrutiny and opposition from not only public interest groups and lobbyists, but also merchants and community members. In most cases, most opposition groups are pressing for the development of Environmental Impact Reports (EIRs) in accordance with the California Environmental Quality Act (CEQA).

### Baseline Level of Implementation

Prior to adoption of the MRP, Permittees within the Bay area have enacted policies or ordinances on Single-use Carryout Plastic Bags. To avoid penalizing these early implementers, an applicable control measure implemented by a Permittee prior to the effective date of the MRP will be credited equally to a control measure implemented after the effective date. Therefore, the baseline level of implementation is not applicable for this control measure.

### Enhanced Level of Implementation

Contra Costa County plans to adopt an ordinance prohibiting the distribution of single-use carryout plastic bags at all types of retailers (excepting restaurants). It is anticipated that the ordinance will become effective during Fiscal Year 2013-2014. In the interim period, as the County develops its ordinance, the County will also support all efforts toward a statewide ban on single-use plastic bags (and fee for single use paper bags). The total percent trash reduced from MS4s as a result of implementing a single-use carryout plastic bag ordinance will be reported in the Annual Report submitted each September to the Water Board.

#### **Tier 3 – Prohibit Distribution at All Retail Establishments (with the Exception of Restaurants) –**

*The County will adopt a local policy or ordinance or implementation of a statewide or countywide action that prohibits ALL retail establishments (with the exception of restaurants) from distributing single-use carryout plastic bags.*

**Additional Activities** – *In addition to the adoption of a Tier 3 ordinance that bans distribution of single-use plastic bags at all retail establishments, the County ordinance will charge a fee for single-use paper bags at all retail establishments to discourage use of single-use bags other than those made of plastic (with exceptions to this fee for certain customers, such those enrolled in supplemental food programs). Also, complimentary public education and outreach activities will be undertaken by the County; these additional activities will be designed to significantly reduce the overall usage of ALL types of single-use carryout bags (plastic et al.).*

### **Reduction from Implementing Control Measure**

The Contra Costa County will receive a 10 percent reduction credit for implementing specific enhanced control measures described in Enhanced Level of Implementation section above. The 10 percent reduction credit will be applied to the Contra Costa County's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2011e). A summary of all load reductions anticipated through the implementation of this plan are included in Section 4.0.

## CR-2: Polystyrene Foam Food Service Ware Policy

Polystyrene foam is used as food ware in the food service industry. According to the USEPA, floatable debris in waterways, such as products made of polystyrene, is persistent in the environment and has physical properties that can have serious impacts on human health, wildlife, the aquatic environment and the economy (USEPA 2002). Due to its properties, polystyrene foam used as food ware is typically not recycled. Since 1990, over 100 government agencies within the United States, including over twenty within the Bay area have enacted full or partial bans on polystyrene foam food service ware.

### Baseline Level of Implementation

Prior to adoption of the MRP, over twenty agencies within the Bay area enacted full or partial bans on polystyrene foam food service ware. To avoid penalizing these early implementers, an applicable control measure implemented by a Permittee prior to the effective date of the MRP will be credited equally to a control measure implemented after the effective date. Therefore, the baseline level of implementation is not applicable for this control measure.

### Enhanced Level of Implementation

Contra Costa County plans to adopt an ordinance banning polystyrene foam food service ware at the point-of-sale. This ordinance will presumably apply to all food vendors, with exceptions potentially provided to non-profit organizations; in addition, this ordinance will require food vendors to provide a discount for customers bringing their own reusable beverage container. It is anticipated that the ordinance will become effective during Fiscal Year 2013-2014. In the interim period, as the County develops its ordinance, the County will also support all efforts toward a statewide ban of polystyrene takeout food ware (and either a fee for other types of single-use takeout food ware, or a discount for customers bringing their own reusable beverage containers). The percent trash reduction from MS4s as a result of implementing a polystyrene foam food service ware policy/ordinance will be reported in the Annual Report submitted each September.

**Tier 1b – Prohibit the distribution of polystyrene foam single-use food and beverage ware at all food service vendors** – The County will adopt a local ordinance that prohibits all food vendors from distributing polystyrene foam food and beverage ware.

**Tier 2a – Require all food service vendors to provide consumers a discount for “bringing their own” reusable beverage ware:**

-The County ordinance will require ALL food service establishments that sell take-out beverages to provide a discount to consumers on the sale of beverages when a re-usable container is used.

### Percent Reduction from Enhancements

The Contra Costa County will receive a 8 percent reduction credit for implementing specific enhanced control measures described in *Enhanced Level of Implementation* section above. The 8 percent reduction credit will be applied to the Contra Costa County's baseline trash load. This percent reduction credit is consistent with methods presented in the

BASMAA (2011e). A summary of all load reductions anticipated through the implementation of this plan are included in Section 4.0.

## CR-3: Public Education and Outreach Programs

Permittees in the San Francisco Bay Area have implemented public education and outreach programs to inform residents about stormwater issues relating to pollutants of concern, watershed awareness and pollution prevention. Public education and outreach efforts include developing and distributing brochures and other print media; posting messages on websites and social networking media (Facebook, Twitter etc.), attending community outreach events, and conducting media advertising. In recent years, some municipal agencies have implemented anti-litter campaigns to increase public awareness about the impacts of litter on their communities and water quality; and to encourage the public to stop littering.

### Baseline Level of Implementation

The Contra Costa County implemented the following public education and outreach control measures prior to the effective date of the MRP: the Keep the Delta Clean Program, a program that educates boaters about clean boating; the annual watershed calendar, containing messages about various forms of stormwater pollution, which was mailed to every single family home in Contra Costa County; the County Watershed Program website which contains information about stormwater pollution; support for the Our Water Our World campaign; and many pollution prevention pamphlets and brochures on a variety of topics. These control measures are considered baseline because they were either not related to trash reduction specifically, or they are not planned to be continued during the term of the MRP. New actions or actions started prior to the effective date of the MRP and continued into the future are described under the next section.

### Enhanced Level of Implementation

The Contra Costa County will implement the following public education and outreach control measures prior to July 1, 2014.

#### Advertising Campaign

Contra Costa County participates in and contributes to a Countywide advertising campaign through the Contra Costa Clean Water Program. This campaign is directly related to trash, and is based around the slogan "Litter Travels, But It Can Stop With You". This message is promulgated through various types of media, including: radio and television advertisements; billboards placed at strategic points along County freeways; transit ads on the West Cat, Tri Delta and County Connection bus lines; BART posters placed in the Richmond, El Cerrito, Orinda, Lafayette, Walnut Creek, Pleasant Hill, and North Concord/Martinez BART stations; online ads on Facebook, Contra Costa County Times website, and through network of affiliate websites that were geo-targeted to County residents; and through direct mail to new homeowners.

#### Outreach to School-age Children and Youth

As part of the "Litter Travels But It Can Stop With You" advertising campaign, digital ads ran in bowling alleys in Antioch, Brentwood, Danville and Concord; Facebook online ads were geo-targeted to County residents under 18; and Sparknotes.com online ads are geo-targeted to County residents.

Contra Costa County also supports the Watershed Institute which partners with elementary schools in the County. Some of these schools partner in a service project, such as creek restoration, trash pick-ups, and planting willow-cuttings along creek banks.

Additionally, Contra Costa County supported the Newspapers in education (NIE) program through the Contra Costa Clean Water Program. NIE provided student activity booklets and the use of newspapers to identify various environmental activities students and their families could implement. The Stormwater Management Program curriculum stresses the storm drain system and causes of stormwater pollution and how it can be prevented, followed by two activities designed to reinforce the information.

#### **Media Relations (Use of Free Media)**

BASMAA provided three (3) region-wide media pitches, for a total of thirty-eight (38) media placements on the subjects of pesticides, car washing and litter.

#### **Community Outreach Events**

Contra Costa County has an ongoing partnership with The Watershed Project, part of which involves putting together community outreach events. Each year, three cleanups are held on Earth Day, at Wildcat Creek, Verde Elementary, and El Sobrante Library.

Additionally, through the Keep the Delta Clean Program and in partnership with the California Department of Boating and Waterways, County staff outreaches to boaters and outdoor enthusiasts at boating and sports shows about clean boating, a large component of which is properly disposing of litter.

The County continues to support the Bringing Back the Natives Garden Tour, and partners with local creek groups such as Friends of Marsh Creek and provides resources for them to engage in outreach activities in their communities.

#### **Percent Reduction from Enhancements**

The Contra Costa County will receive a 8 percent reduction credit for implementing specific enhanced control measures described in *Enhanced Level of Implementation* section above. The 8 percent reduction credit will be applied to the Contra Costa County's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2011e). A summary of all load reductions anticipated through the implementation of this plan are included in Section 4.0.

## **CR-5: Anti-Littering and Illegal Dumping Enforcement Activities**

Successful anti-littering and illegal dumping enforcement activities include laws or ordinances that make littering or dumping of trash illegal. Laws are enforced by various municipal agency staff (e.g., police, sheriff and public works department staff) who issue citations in response to citizen complaints or other enforcement methods (e.g., surveillance cameras, signage and/or physical barriers installed at illegal dumping hot spots). In some California jurisdictions, the minimum fine for littering is \$500 and the maximum penalty for highway littering is \$1000 (City of San Francisco 2001). However, it is difficult to enforce small littering events unless they are witnessed or solid proof exists linking the offender to the litter. As a result, enforcement tends to focus on larger scale illegal dumping activities.

### **Baseline Level of Implementation**

The baseline trash load described in Section 2.0, assumes that Contra Costa County has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow. Prior to enhanced levels of implementation, Contra Costa County implements the use of “No Dumping” signage throughout unincorporated parts of the county. Contra Costa County Title 1014 Stormwater Management and Discharge Control also provides for levels of enforcement against illegal dumpers.

### **Enhanced Level of Implementation**

The Contra Costa County has implemented various enhanced anti-littering and illegal dumping enforcement control measures and will be implementing physical barriers or improvements.

### **Anti-Littering and Illegal Dumping Enforcement Programs**

Contra Costa County has implemented the use of Q-Star FlashCam surveillance camera systems. Currently, the County has a total of 5 FlashCam cameras and 3 decoy (“dummy”) cameras that provide coverage in a total of 8 different repeat illegal dumping hot spot locations. Since the installation of the FlashCam cameras, illegal dumping activity at these known sites has stopped. As a result, the County will continue to purchase more of these systems to deter and stop illegal dumping activities throughout unincorporated Contra Costa County. In addition to our 8 FlashCam’s, Contra Costa County’s Department of Conservation and development has also installed 6 FlashCam units for illegal dumping surveillance in unincorporated North Richmond.

In addition to the FlashCam program, Environmental Health now has 7 field inspectors that investigate illegal dumping along with their other public health and safety duties to help determine the source/Responsible Party for the dumping. When evidence is found at these dump sites, the inspectors partner with the Contra Costa Office of the Sheriff to cite the illegal dumpers and require their removal and proper disposal of the dumped solid waste.

Contra Costa County has also implemented approximately 60 additional public information signs. The signs state the appropriate watershed and then the message, “Ours to Protect.” These signs have been strategically placed at location where there have been illegal dump sites in the past near creeks or at potential dump sites near creeks. Getting the message out will hopefully discourage people from dumping in or near waterways.

**Use of Physical Barriers or Improvements**

Contra Costa County is also working with Contra Costa County Public Works Maintenance to identify locations where fencing can be placed at known dump locations to stop illegal dumping. Thus far, we have identified 4 locations where fencing or roadside barriers will prevent further illegal dumping activities and are working towards installing such physical barriers.

**Percent Reduction from Enhancements**

The Contra Costa County will receive a 5 percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The 5 percent reduction credit will be applied to the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Contra Costa County. This percent reduction credit was obtained from the *Trash Load Reduction Tracking Method Report* (BASMAA 2011e) and is presented in the Trash Load Reduction Summary Table included in Section 4.

## QF-1: Enhanced On-Land Trash Cleanups (Volunteers and/or Municipal)

On-land cleanups conducted by Permittees and volunteers have been successful in removing trash from identified trash hot spots and engaging local citizenry in improving their communities. Permittees have several programs in place to address on-land trash. Municipal efforts relate to ongoing beautification of impacted areas and coordination of cleanup events. Volunteer on-land cleanups involve the meeting of individuals, creek and watershed groups, civic organizations, businesses and others at designated or adopted on-land sites to remove trash. On-land trash cleanups are conducted as single-day or throughout the year.

### Baseline Level of Implementation

The Contra Costa County implemented the following on-land cleanup activities prior to the effective date of the MRP: Large debris removal in the road right of way as a result of illegal dumping activities. Historically the Contra Costa County Public Works Maintenance Division has limited their debris removal activities to large dumped objects such as shopping carts, appliances, mattresses, etc.

Prior to 2008 the Contra Costa County did have a juvenile litter removal crew overseen by the County Probation Department. But when funding for the Probation Supervisor to this program ended due to budget constraints, Public Works had no resource to collect trash along County roadways and within County roadside drainages. Trash removal activities once again focused on large debris that posed a public hazard.

These control measures are considered baseline because they were accounted for in the preliminary trash generation rates established through the BASMAA *Baseline Trash Generation Rates Project*. New or enhanced actions that began or are planned to begin after to the effective date of the MRP are described under the next section.

### Enhanced Level of Implementation

Prior to July 1, 2014, the Contra Costa County will be conducting or coordinating the following new or enhanced on-land trash cleanup activities listed below:

***New or Enhanced Permittee-led On-land Cleanups:***

*MS4 Screenings Trash Removal*

*Routine or Regularly Scheduled Litter Pickup and Removal*

*Removal of Homeless Encampments*

*Illegal Dump Site Response and Abatement*

*Interagency Cleanup Coordination and Cleanup<sup>2</sup>*

*Litter Pickup Event Coordination and Cleanup<sup>3</sup>*

<sup>2</sup> *Interagency Cleanup Coordination and Cleanup* - On-land cleanups coordinated with other departments or programs within a municipality or countywide agency. Other department, programs or agencies include roads, streets and highways department, Department of Transportation, Anti-litter and graffiti programs, Department of Corrections and others that may conduct on-land trash cleanups.

<sup>3</sup> *Litter Pickup Event Coordination and Cleanup* - On-land cleanups coordinated and publicized by the municipality but conducted by volunteers and/or adult/juvenile offenders. The municipality provides trash bags and disposes of collected trash. Examples include the annual Great American Pickup Event and other one-day or on-going cleanup events.

***New or Enhanced Volunteer-led On-land Cleanups:***

***Single-day Efforts***

***-Organized Single-day Cleanup Events***

***On-going Efforts:***

***-Adopt-a-Road Program***

***-Other Organized Cleanup Events by Creek Groups conducting pre-creek clean-ups***

***Business Improvement District Cleanups ie. Citizens for a Clean El Sobrante, North Richmond Beautification Committee, Bay Point Chamber of Commerce***

***-Routine Cleanups of Selected Hot Spots***

These on-land cleanups will be conducted or coordinated each year and the volume of trash removed will be tracked to demonstrate trash loads reduced.

Please note that only trash that has the potential of entering the MS4 will be tracked. As a result, large items (e.g., appliances, shopping carts, furniture, mattresses, televisions, tires, lumber, etc.) that will be removed during on-land trash cleanups are not part of the volume determination since they do not have the potential of entering the MS4.

Regarding New or Enhanced Permittee-Led Clean-ups, the Contra Costa County intends to continue our rigorous MS4 screening program required under C.5.e of the MRP which is helping to identify on-land illicit discharge/trash hot spot locations. Since this program was implemented in November of 2010, the Contra Costa County has collected detailed trash removal data which was used to project future trash loads reduced from this activity. See Table 6-4a. QF-1 & QF-6 Permittee-Led Clean-ups Following MS4 Screenings PY 2010-11 and Table 6-4b. QF-1 Permittee-Led On-Land Clean-ups Following MS4 Screenings PY 2011-12 (data from first half of the current permit year) for trash removal volumes from this activity which the Contra Costa County plans to prioritize as a cost effective means of intercepting street load trash volumes before reaching waterways.

Regarding New or Enhanced Volunteer-Led Clean-ups, the Contra Costa County will continue to build on our burgeoning Adopt-a-Road Program: A Plan for Litter Control including encouragement for greater participation by our local unincorporated communities, Business Improvement Districts, organizations, corporations, groups, and individuals to participate by providing volunteers to maintain and enhance Contra Costa County roadside on roads service-able by volunteers. The goal of the Contra Costa County Adopt-A-Road Program is to promote civic responsibility, community spirit and pride while allowing volunteers to do something worthwhile including helping the Contra Costa County meet our short term trash reduction plan goals.

Through our partnership with the non-profit outreach organization, the Watershed Project and numerous creek and watershed groups operating in unincorporated areas of the County, the Contra Costa County intends to direct volunteer groups to conduct more pre-creek clean-ups of trash, intercepting litter in their communities before it reaches conveyances or more difficult to clean, receiving waterways. Through Contra Costa County's Community Watershed Stewardship Grant program we plan to increase our joint efforts towards Permittee and Volunteer On-Land trash cleanup events by funding \$100,000 of awards in early 2012.

### **Percent Reduction from Enhancements**

The total estimated annual volume of trash that will be reduced beginning July 1, 2014 as a result of implementing on-land trash cleanups is 15.89\* cubic feet (3,209 gallons). This volume is equal to approximately a 5.6 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Contra Costa County. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 4.

\* Note this volume is substantially lower than actual trash loads removed from municipal and volunteer on-land clean-ups due to a required cap of 15% for QF-1 and QF-6 combined control measures. Actual data will continue to be reported in our Annual Report under Provision C.10.

## QF-2: Enhanced Street Sweeping

Street sweeping is conducted by most, if not all, Bay Area municipalities to remove trash and debris that collect in the gutters at the edge of streets. Parked cars and large storms that produce significant runoff can impact the effectiveness of street sweepers. However, increasing parking enforcement or more frequent street sweeping (as compared to the frequency of storm events) may increase the trash load reduced to MS4s. Permittees who choose to enhance street sweeping may do so to demonstrate trash load reductions to their MS4s and progress towards trash load reduction goals required by the MRP.

### Baseline Level of Implementation

The baseline trash load described in Section 2.0 incorporates the trash load reductions due to baseline street sweeping. The Contra Costa County's baseline street sweeping program includes sweeping at a frequency of one sweep per month on average in retail areas as well as one sweep per month in all other areas.

A frequency ceiling for a "baseline" street sweeping program was established at 1x/week for retail land uses and 1x/month for all other land uses which equals Contra Costa County's existing street sweeping program. Beginning in January 2012, two high trash load communities will be swept more frequent than this ceiling and will account for trash reductions attributable to the increased frequency of two sweeps per month which accounts for one additional monthly sweep above the ceiling via the trash load reduction tracking method (i.e., towards their 40% goal).

Contra Costa County currently sweeps all unincorporated streets with curb and gutter 1x per month. This includes most residential, downtown, and arterial streets. "No Parking" enforcement in our jurisdiction can only be performed at locations that have No Parking signage installed. In the Contra Costa County there has been historically vigorous resistance to adding additional signage in certain communities.

Based on this community feedback, Contra Costa County has "No Parking Street Sweeping" signage only in high transient parking areas including the community of North Richmond and Coggins Drive and Cherry Lane located in the community of Waldon near the Pleasant Hill BART station. Enforcement at the former is performed by the CA Highway patrol via a special arrangement between the Contra Costa Office of the Sheriff and the CHP. The Sheriff's Office is responsible for enforcing signage around the Pleasant Hill BART Station.

The Contra Cost County also employs other enforcement equivalencies to ensure sweepers are able to access the curb and optimize our street sweeping program. This includes timing of sweeping to evening hours in certain locations including the Colusa Circle business district of Kensington, commercial areas around the Pleasant Hill BART Station and Rodeo. Also in the greater grid section of North Richmond streets are swept on alternating days – the 1<sup>st</sup> Thursday (odd side) and 1<sup>st</sup> Friday (even side) to allow cars to have places to park and allow greater access for the sweeper to reach the curb and gutter.

### Enhanced Level of Implementation

Enhancements to street sweeping frequencies and parking enforcement (or equivalent measures) control measures will be used to calculate loads reduced from enhanced street sweeping, consistent with the trash load reduction tracking method (BASMAA 2011e). A list of

planned enhancements is included in Table QF-2-1 and illustrated in Figure QF-2-1.

Enhancements include:

- Adding a second monthly sweep in two areas with higher than average litter loads:

These include the greater grid North Richmond area which is comprised of numerous streets totaling 14.6 curbed miles with the following estimated land use breakdown: 92% high density residential, 5% commercial/industrial and 3% retail/wholesale. This area is currently swept as part of the North Richmond Route 1 on the 1<sup>st</sup> Thursday (odd side) and 1<sup>st</sup> Friday (even side) of the month. Beginning in January 2012, these streets will now be swept 2x per month on the 3<sup>rd</sup> Thursday and 3<sup>rd</sup> Friday.

Additionally the Rodeo Housing Authority area which is comprised of 6 streets totally 3.14 miles with an estimated 80% high density residential and 20% low density residential land use will receive a second monthly sweep as part of Rodeo Route 1 on the 2<sup>nd</sup> Friday of the month.

- Sweeping Vasco Road (22.2 curbed miles) in East County on a quarterly basis.

Due to heavy traffic loads, high speeds and limited shoulders this dangerous corridor has historically not be swept on a monthly basis. The roadway has experience numerous construction projects as part of traffic safety improvement over the years and has been periodically swept in conjunction with those construction activities. Beginning with the Contra Costa County new three year street sweeping contract, Vasco Road will now be swept on a quarterly basis.

### Percent Reduction from Enhancements

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of enhanced street sweeping is 15.37 cubic feet. As described in Trash Load Reduction Summary Table included in Section 4, this volume is equal to approximately a 0.2 \* percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Contra Costa County.

\* Due to EOA submitting additional credit for existing enhanced street sweeping for Contra Costa County of 63 gallons. The credit for the above actual enhanced sweeping has been reduced in the Trash Load Calculator to 40 gallons which equates to a negligible reduction. See Control Measures Summary Table 5-1 and Trash load Reduction Calculator table 6-2.

Table QF-2-1. Planned enhanced street sweeping program in the Contra Costa County.

Route ID	Approximate Length Swept (curb miles)	Baseline		Enhanced	
		Frequency	Parking Enforcement	Frequency	Parking Enforcement
North Richmond Route 1 (includes Housing Authority)	14.16	1 x per month	2x per month	Enforcement by CHP	Enforcement and Notices of additional monthly sweep mailed to residents and property owners along sweeping routes.
Rodeo Route 1 (Housing Authority)	3.14	1x per month	2x per month	None	

Figure QF-2-1: Planned enhanced street sweeping program in the Contra Costa County.

North Richmond Route 1: Additional sweep on the 3<sup>rd</sup> Thursday (odd side) and 3<sup>rd</sup> Friday (even side) of the month.



Rodeo Route 1 Housing Authority area additional sweep on the 2<sup>nd</sup> Friday of the month.





### **QF-3: Partial-Capture Treatment Devices**

Partial-capture devices are treatment devices that have not been approved as full-capture by the San Francisco Bay Regional Water Quality Control Board, but capture trash at a known effectiveness value. Partial-capture devices may be similar to full-capture devices, but do not meet the full capture definition due to engineering challenges; or they may be completely different types of devices. Partial-capture devices include curb inlet screens (e.g., automated retractable screens), litter booms/curtains and stormwater pump station track racks. Trash loads reduced via partial-capture devices within a Permittee's jurisdictional boundaries may be used to demonstrate attainment of trash load reduction goals.

#### **Baseline Level of Implementation**

##### ***Curb Inlet Screens and Litter Booms/Curtains***

Prior to effective date of the MRP, some Permittees within the Bay area have installed and maintained curb inlet screens and litter booms/curtains. To avoid penalizing these early implementers, the applicable control measure implemented by a Permittee prior to the effective date of the MRP will be credited equally to a control measure implemented after the effective date. Furthermore, the trash load removed via these devices installed prior to the MRP is not accounted for in baseline trash loads. Therefore, the baseline level of implementation is not applicable for this control measure, as devices installed prior to the effective date of the MRP and associated loads reduced will be grandfathered in as enhanced measures.

##### ***Stormwater Pump Station Racks***

Similar to the devices described above, some Permittees within the Bay area have installed and maintained trash racks on their stormwater pump stations. Existing pump station trash racks are assumed to remove roughly 25% of the trash that enters the pump station (BASMAA 2011e). The baseline trash load removed via these devices is accounted for in baseline trash loads. Contra Costa County currently owns the North Richmond Storm Drain Pump Station which has four trash racks installed within two wet wells. The County contracts with the west County Wastewater District to operate and maintain the pump station including conducting wet weather inspections and trash removal activities.

#### **Enhanced Level of Implementation**

A total of 7 partial-capture treatment devices have been or will be installed in unincorporated Contra Costa County prior to July 1, 2014. A list of these partial-capture devices is included in Table QF-3-1. All devices listed within the table are enhanced trash control measures. Calculation of loads reduced from partial-capture devices will be consistent with the approach described in the *Trash Load Reduction Tracking Method Report* (BASMAA 2011e).

#### **Percent Reduction from Enhancements**

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of implementing partial-capture treatment devices listed in Table QF-3-1 is 67.77 cubic feet. This volume is equal to approximately a 1 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Contra Costa County. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 4.

**Table QF-3-1. Partial capture treatment devices installed or planned to be installed within the Contra Costa County prior to July 1, 2014.**

Device ID	Public or Private	Device Name	Location (Cross Streets)	Installation Date/Anticipated Installation Date	Total Area Treated (acres)	Trash Load Reduced
Crockett 1	Public	Curb Inlet Screen	2 <sup>nd</sup> St and Pomona St	April 2012	8.16	6 gal/year
Crockett 3	Public	Curb Inlet Screen	Pomona St and 6 <sup>th</sup> St	April 2012	21.87	7 gal/year
Crockett 4	Public	Curb Inlet Screen	Pomona St east of 2 <sup>nd</sup> St	April 2012	0.48	8 gal/year
Pacheco	Public	Curb Inlet Screen	Pacheco Ave and Center Ave	April 2012	8.37	17 gal/year
Rodeo 2	Public	Curb Inlet Screen	Parker Ave and 4 <sup>th</sup> St	April 2012	18.21	1 gal/year
Rodeo 3a	Public	Curb Inlet Screen	Parker Ave and 6 <sup>th</sup> St	April 2012	5.69	12 gal/year
Rodeo 3b	Public	Curb Inlet Screen	Parker Ave and 6 <sup>th</sup> St	April 2012	5.69	12 gal/year

## **QF-5: Full-Capture Treatment Devices**

As defined by the Municipal Regional Stormwater Permit (MRP), a full-capture system or device is any single device or series of devices that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate (Q) resulting from a one-year, one-hour, storm in the sub-drainage area. A list of the full-capture systems and devices recognized by the San Francisco Bay Regional Water Quality Control Board (Water Board) is included in *Trash Load Reduction Tracking Method Report* (BASMAA 2011e). Trash loads reduced via publically or privately owned and operated devices within a Permittee's jurisdictional area that have been recognized by the Water Board as full-capture may be used to demonstrate attainment of trash load reduction goals.

### **Baseline Level of Implementation**

Prior to adoption of the MRP, some Permittees installed and maintained full capture devices. To avoid penalizing these early implementers, an applicable control measure implemented within a Permittee's jurisdictional area prior to the effective date of the MRP will be credited equally to a control measure implemented after the effective date. Therefore, the baseline level of implementation is no trash full-capture devices have been installed.

### **Enhanced Level of Implementation**

A total of 7 trash full-capture treatment devices have been or will be installed in the Contra Costa County prior to July 1, 2014. A list of these full-capture devices is included in Table QF-5-1. All devices listed within this table are enhanced trash control measures. Table QF-5-1 also includes the area treated and the calculated trash load reduced from each full-capture treatment device. These calculations are consistent with the approach described in the *Trash Load Reduction Tracking Method Report* (BASMAA 2011e).

### **Percent Reduction from Enhancements**

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of implementing full capture devices is 10.29 cubic feet. This volume is equal to approximately a 0.2 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Contra Costa County. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 4.

**Table QF-5-1. Trash full-capture treatment devices within the jurisdictional boundaries of the Contra Costa County that are planned for installation by July 1, 2014.**

Device ID	Public or Private	Device Name	Location (Cross Streets)	Installation Date/Anticipated Installation Date	Total Area Treated (acres)	Trash Load Reduced
Crockett 1	Public	Connector Pipe Screen	2 <sup>nd</sup> St and Pomona St	April 2012	8.16	7 gal/year
Crockett 3	Public	Triton Bioflex Drop Inlet Trash Guard	Pomona St and 6 <sup>th</sup> St	April 2012	21.87	8 gal/year
Crockett 4	Public	Connector Pipe Screen	Pomona St east of 2 <sup>nd</sup> St	April 2012	0.48	10 gal/year
Pacheco	Public	Connector Pipe Screen	Pacheco Ave and Center Ave	April 2012	8.37	20 gal/year
Rodeo 2	Public	Connector Pipe Screen	Parker Ave and 4 <sup>th</sup> St	April 2012	18.21	1 gal/year
Rodeo 3a	Public	Connector Pipe Screen	Parker Ave and 6 <sup>th</sup> St	April 2012	5.69	15 gal/year
Rodeo 3b	Public	Triton Bioflex Drop Inlet Trash Guard	Parker Ave and 6 <sup>th</sup> St	April 2012	5.69	15 gal/year

## QF-6: Creek/Channel/Shoreline Cleanups

Creek/channel/shoreline cleanups have been successful in removing large amounts of trash from San Francisco Bay area creeks and waterways; and increasing citizen's awareness of trash issues within their communities. Creek/channel/shoreline cleanups are conducted as single-day events or throughout the year by volunteers and municipal agencies. Since volunteers and municipal agencies have the common goal of clean creeks and waterways, their efforts sometimes overlap. This is apparent with some municipal agencies using volunteers to help assess and clean designated trash hot spots during single-day volunteer events.

### Baseline Level of Implementation

Trash reduced via creek/channel/shoreline cleanups was not accounted for in the Contra Costa County's baseline trash load described in Section 2.0. Therefore, implementation of any of the control measures described in this section is considered to be an enhancement and can be used to demonstrate progress towards load reduction goals.

### Enhanced Level of Implementation

Prior to July 1, 2014, the Contra Costa County will conduct MRP-required<sup>4</sup> and the following non MRP-required creek/channel/shoreline cleanups<sup>5</sup> listed below:

#### **Permittee & Volunteer Collaborative Activities**

##### ***Single-day Efforts***

- *Earth Day (April 22)*
- *Coastal Cleanup Day (third Saturday in September)*
- *Other Organized Single-day Events*

##### ***On-going Efforts***

- *Various Friends of Creek Groups' Organized Cleanup events in unincorporated County:*
  - Friends of Alhambra Creek*
  - Partners for Rodeo Creek*
  - Friends of Marsh Creek*
  - SPAWNERS*
  - the Watershed Project*

#### **Permittee-led Cleanup Activities**

##### ***On-going Efforts***

- *Removal of Homeless Encampments*
- *Trash Removal Following In-Water MS4 Screenings*
- *Routine or Regularly Scheduled Creek Maintenance*
- *Illegal Dump Site Correction*
- *Other On-going Cleanup Efforts*

Both types of channel/creek/shoreline cleanups will be conducted each year and the volume of trash removed will be tracked to demonstrate trash loads reduced. Consistent with trash

<sup>4</sup> Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.

<sup>5</sup>All "other" creek/channel/shoreline cleanups conducted by a municipality that are not required by Provision C.10.b.

reduction control measure QF-6 and for the purposes of future trash removal projections, an estimate of the percentage make-up that is trash was used to calculate loads reduced from these activities. As a result, large items (e.g., appliances, shopping carts, furniture, mattresses, televisions, tires, lumber, etc.) that were removed during in-water trash cleanups and homeless encampment removals were not included as part of the volume determination.

However based on future guidance from EOA and as recommended by the Contra Costa Clean Water Program future actual volumes removed from various in-water clean-up activities may be able to be included at 100% since one could argue the distinction between QF-1 not counting large debris due to its inability of being carried through the MS4 storm drain conveyance does not apply to QF-6 activities since the large debris is already located within the waterway. For the purpose of this plan, future QF-6 volumes were conservatively estimated based on the following litter compositions of the total debris removed: 35% for homeless encampment clean-ups, 47% for volunteer events based on PY2010-11 trash assessment data which separated large debris from trash; 30% for trash rack maintenance and 90% in-water cleanups following MS4 screenings.

Regarding New or Enhanced Permittee-Led In-Water Clean-ups, the Contra Costa County intends to continue our rigorous MS4 screening program required under C.5.e of the MRP which is helping to identify outfalls with solid waste illicit discharges as well as additional in-water trash hot spots. Since this program was implemented in November of 2010, the Contra Costa County has collected detailed in-water trash removal data from PY 2010-11 which was used to project future trash loads reduced from this activity. See Table 6-4a. QF-1 & QF-6 Permittee-Led Clean-ups Following MS4 Screenings PY 2010-11, for trash removal volumes from this activity which the Contra Costa County plans to continue to prioritize for the health of our local waterways.

Regarding Volunteer-Led Creek/Channel/Shoreline Clean-ups, the Contra Costa County will continue to build on our existing partnerships with the non-profit outreach organization, the Watershed Project, and numerous creek and watershed groups operating in unincorporated areas of the County. The Contra Costa County intends to offer greater financial support of these vital volunteer creek groups' clean-up efforts through the Contra Costa County Community Watershed Stewardship Grant program, other developing projects, future contractual relationships and by working together at current grant proposals.

### **Percent Reduction from Enhancements**

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of implementing creek/channel/shoreline cleanups is 20.38 \* cubic feet (4117 gallons). This volume is equal to approximately a 7.2 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Contra Costa County. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 4.

\* Note this volume is substantially lower than actual trash loads removed from municipal and volunteer on-land clean-ups due to a required cap of 15% for QF-1 and QF-6 combined control measures. Actual data will continue to be reported in our Annual Report under Provision C.10.

**TABLE QF-6. QF-6 Permittee-Led In-Water Homeless Encampment Clean-ups PY 2010-11**

Date	Location	Volume (cubic yards)
9/9/10	G2	15
9/13/10	FCZ3B	2.8
9/13/10	W3	4.14
9/14/10	FCZ3B	3.2
9/14/10	W3	4.6
9/15/10	FCZ3B	8
9/15/10	G2	5
9/16/10	SP1	48.0
9/21/10	FCZ3B	1.6
9/21/10	G2	2
9/21/10	W3	1.38
11/30/10	FCZ3B	3.2
12/22/10	FCZ3B	2.4
12/22/10	G2	7.0
12/22/10	W3	4.14
1/18/10	G2	6.0
1/18/10	W3	5.06
1/19/10	W3	3.68
Total		127.2 cu yds
Litter (35%)		44.52 cu yds
X 202 gallons/cu yd		8993 gallons
8.43% allowed from QF-6 For max 15% QF-1 & QF-6	= 32.8% of all QF-6 activities	= 1350 gallons

## **5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS**

The Contra Costa County is committed to reducing the potential for trash impacts in local water bodies in the San Francisco Bay Area. The planned enhanced trash control measures described in Section 3.0 are also listed in Table 5-1. The enhancements are intended to comply with the 40% trash load reduction goal in MRP provision C.10. Table 5-1 includes a summary of Contra Costa County's planned enhanced trash control measures.

**Table 5-1. Planned enhanced trash control measure implementation within the jurisdictional boundaries of the Contra Costa County and associated trash loads reduced.**

Trash Control Measure	Summary Description Control Measure Action	% Reduction (Credits)	% Reduction (Quantifications)	Trash Load Reduced	Cumulative % Reduction (Compared to Baseline)
Single-use Carryout Plastic Bag Policy (CR-1)	Ordinance banning distribution of single-use plastic bags at all retail establishments, fee for single-use paper bags, associated public education and outreach.	10	NA	5895 gal	10
Polystyrene Foam Food Service Ware Ban (CR-2)	Ordinance banning distribution of polystyrene foam single-use food and beverage ware at all food service vendors, discount for customers using reusable beverage containers.	8	NA	4716 gal	18
Public Education and Outreach Programs (CR-3)	Various Anti-Littering Campaigns and Outreach	8	NA	4716 gal	26
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	FlashCam Cameras & Exclusionary Barriers	5.1	NA	2358 gal	31.1
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	MS4 Screens & Adopt-A-Road Program	NA	5.6%	3209 gal= 15.89 cu ft	36.7
Enhanced Street Sweeping – (Existing and Future Enhanced) (QF-2)	North Richmond & Rodeo Housing Authority Areas	NA	negligible	115 gal= 15.37 cu ft	36.7
Curb Inlet Screens (Partial-Capture Treatment Device) (QF-3a)	Multiple Devices to be Installed Countywide	NA	0.3%	62.6 gal= 8.36 cu ft	37.7
Enhanced Pump Station Trash Rack Cleaning (Partial-capture Treatment Device) (QF-3b)	>2 Wet Season Trash Removals	NA	0.7%	444.4 gal= 59.4 cu ft	37.7
Full-capture Treatment Devices (QF-5)	Multiple Devices to be Installed Countywide	NA	0.2%	77 gal= 10.29 cu ft	37.9

Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Increased Creek Cleanups	NA	7.2%	4117 gal= 20.38 cu ft	45.1
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\* It was Contra Costa County's understanding that existing trash loads removed from baseline street sweeping activities (for Contra Costa County 1x/month) was included in our baseline trash generation rates. For the purposes of this Short Term Trash Reduction Plan, EOA, Inc. provided guidance from their street sweeping sampling activities, that trash comprised 8% of the total debris removed via street sweeping. Based on actual data reported for PY 2010/11 street sweeping volumes removed in Contra Costa County = 4089.5 cubic yards debris = 327.16 cu yd trash = 66086 gallons of trash removed from existing street sweeping activities.

## 5.1 Annual Reporting and Progress Towards Trash Load Reduction Goal(s)

Consistent with MRP Provision C.10.d (i), the Contra Costa County intends to report on progress towards MRP trash load reduction goals on an annual basis beginning with the Fiscal Year 2011-2012 Annual Report. Annual reports will include:

1. A brief summary of all enhanced trash load reduction control measures implemented to-date;
2. The dominant types of trash likely removed via these control measures;
3. Total trash loads removed (credits and quantifications) via each control measure implementation; and
4. A summary and quantification of progress towards trash load reduction goals.

Similar to other MRP provision, annual reporting formats will be consistent region-wide. Annual reports are intended to provide a summary of control measure implementation and demonstrate progress toward MRP trash reduction goals. For more detailed information on specific control measures, the Contra Costa County will retain supporting documentation on trash load reduction control measure implementation. These records should have a level of specificity consistent with the trash load reduction tracking methods described in the *BASMAA Trash Load Reduction Tracking Method Technical Report* (BASMAA 2011e).

## 5.2 Considerations of Uncertainties

Baseline trash loading and load reduction estimates are based on the best available information at the time this Short-Term Plan was developed. As with any stormwater loading and reduction estimate, a number of assumptions were used during calculations and therefore uncertainty is inherent in the baseline trash load estimate presented in Section 2.0 and the load reduction estimate presented in this section. For these reasons, the baseline loading estimates presented in this plan should be considered first-order estimates. During the implementation of this Short-Term Plan and subsequent plans, additional information may become available to allow the calculation of a more robust baseline load.

## **6.0 IMPLEMENTATION SCHEDULE**

Implementation of enhanced trash control measures by the Contra Costa County is currently planned to occur in a timeframe consistent with MRP requirements. A preliminary implementation schedule for all planned enhancements is described in Table 6-1. This schedule provides a timeframe for reducing trash discharged from the Contra Costa County's MS4 by 40%.

Based on new information that becomes available during the implementation of this Short-Term Plan (e.g., revisions to baseline loading estimates or load reduction credits of quantification formulas), the Contra Costa County may choose to amend or revise this Plan and/or the associated implementation schedule. If revisions or amendments occur, a revised Short-Term Plan and implementation schedule will be submitted to the Water Board via the Contra Costa County's annual reporting process.

Table 6-1. Preliminary implementation schedule for enhanced trash control measures in the Contra Costa County.

Trash Control Measure	Beginning Date of Implementation
Single-use Carryout Plastic Bag Ordinance (CR-1)	Fiscal Year 2013-2014
Polystyrene Foam Food Service Ware Ban (CR-2)	Fiscal Year 2013-2014
Public Education and Outreach Programs (CR-3)	January 2010
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	May 2011
On-Land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	November 2010
Enhanced Street Sweeping (QF-2)	January 2012
Curb Inlet Screens (Partial-capture Treatment Device) (QF-3a)	April 2012
Enhanced Pump Station Trash Rack Cleaning (Partial-capture Treatment Device) (QF-3b)	January 2012
Full-capture Treatment Devices (QF-5)	April 2012
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	April 2010

**Table 6.2 Contra Costa County Trash Load Reduction Calculator Summary  
Load Reduction Summary**

Permittee	
Land Area within Permittee's Geographical Boundaries	acres
Number of Storm Drain Inlets	(From records)
Effective Load Area	(From records)
Generated Load	(From Table 2-2 of Short-Term Plan)
Load Removed via Baseline Street Sweeping	(From Table 2-3 of Short-Term Plan)
Load Removed via Baseline SDI Maintenance	(From Table 2-3 of Short-Term Plan)
Load Removed via Baseline Pump Station Maintenance	(From Table 2-3 of Short-Term Plan)
Preliminary Trash Baseline Load	(From Table 2-3 of Short-Term Plan)
Total Load Reduced:	57,517 gallons/year
	25,942 gallons/year
<b>% Reduction</b>	<b>45.1%</b>

Control Measure	Individual Control Measure		Cumulative	
	Load Reduction Credit (%)	Load Reduced (gals/year)	Load Reduction (%)	Load Reduced (gals/year)
Existing Enhanced Street Sweeping	-		0.1%	63
<b>Credits</b>				
CR-1: Single-Use Carryout Bag Policy	10.0%	5,745	10.1%	5,808
CR-2: Polystyrene Foam Food Service Ware Policy	8.0%	4,596	18.1%	10,405
CR-3: Public Education and Outreach Programs	8.0%	4,596	26.1%	15,001
CR-4: Reduction of Trash from Uncovered Loads	0.0%	0	26.1%	15,001
CR-5: Anti Littering and Illegal Dumping Enforcement	5.0%	2,873	31.1%	17,874
CR-6: Improved Trash Bin/Container Management	0.0%	0	31.1%	17,874
CR-7: Single-Use Food and Beverage Ware Policy	0.0%	0	31.1%	17,874
<b>Quantifications</b>				
QF-1: On-Land Clean-up	-	3,209	36.7%	21,083
QF-2: Enhanced Street Sweeping	-	40	36.7%	21,123
QF-3: Partial Trash Capture	-	562	37.7%	21,685
QF-4: Inlet Maintenance	-	0	37.7%	21,685
QF-5: Full Trash Capture	-	140	37.9%	21,825
QF-6: Creek Clean-up	-	4,117	45.1%	25,942
<b>Totals</b>	NA	25,942	45.1%	25,942
				31,575

TABLE 6.3. Quantitative Formula (QF) Trash Removal Supporting Data

Trash Reduction Control Measure	Actual Load Reduction (gallons)* * Annually	Revised Data (Max. 15% Total)	Litter Make-up	Unincorporated Area	Data Justification
QF-1 Permittee-led ON-LAND Cleanups	-	-	-	-	Took 6.57% of actual data. Max 15% reduction allowed from QF-1 & QF-6 activities. Based on the average of actual On-Land trash removal data following MS4 screening performed in PY 2010-11(7445 gallons) and PY 2011-12 (16808 gallons). See Table 6-4a and 6-4b.
MS4 Screenings Trash Removal	12127	1817	90%	All	-
QF-1 Volunteer-led ON-LAND Cleanups	-	-	-	-	-
Adopt-a-Road program	9292	1392	100%	All	Based on average year of activity PY 2010-11 when 46 cubic yards (9292 gallons) of trash was collected by this program.
<b>Total QF-1 ON-LAND Control Measures</b>	<b>21419</b>				

QF-3 Partial Trash Capture	-	-	-	-	-
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Partial Trash Capture Devices	63	-	All North Richmond Storm Drain Pump Station receives 67% of flow from unincorporated areas.	Litter volume based on North Richmond Storm Drain Pump Station last two PY 2010-11 wet season cleanings which removed 2.2 cubic yards (444.4 gallons).
Pump Station Trash Rack Enhanced Cleaning	444	100%		
<b>Total QF-3 Partial Trash Capture Control Measures</b>	<b>507</b>			

<b>QF-6 Permittee-led CREEK Cleanup Activities</b>				<p>Took 8.43% of actual data. Max 15% reduction allowed from QF1 &amp; QF-6 activities.</p> <p>Used 35% litter from homeless encampment clean- ups as conservative measure; FCD Maintenance contends litter make-up may be higher between 50-60%.</p>
Homeless Encampment Removal	8993	35%	Used data only from locations cleaned in unincorporated areas.	Removed 199 cu yds. of debris from trash rack maintenance in PY 2010-11
Trash Rack Maintenance	7235	30%	Based on 60% of 45 total trash racks located in unincorporated areas.	Based on actual In-Water trash removal data following MS4 screening performed in PY 2010-11. See Table 6-4a.
MS4 Screenings Trash Removal in Waterways	3219	90%	All	

<b>QF-6 Permittee &amp; Volunteer CREEK Collaborative Activities</b>			47%		Based on PY 2010-11 trash assessment data, litter/total debris removed.
CA Coastal Cleanup Day - Pinole Creek EBMUD Events	50	8	""	All	Based on avg. trash removal from 2010 & 2011 events.
Friends of Alhambra Creek Group Annual Fall Creek Cleanup	3760	564	""	All	Total litter removed based on Fall 2011 Cleanup event which collected 8,000 lbs total debris.
Friends of Marsh Creek Annual Creek Cleanup Event	1240	185	""	All	Based on total litter collected during Jan. 2011 joint Permittee/Volunteer creek clean-up event at 5 unincorporated sites.
Various Creek Cleanup Events by the Watershed Project	2925	441	NA	Estimate 3 unincorp. sites cleaned per year.	Based on 2011 CA Coastal Cleanup data avg. 975 gallons avg. litter collected per site
<b><u>Total QF-6 CREEK Control Measures</u></b>	<b>27422</b>	<b>7326</b>			

Conversions: 1 cubic yard trash = 202 gallons; 1 gallon trash = 1 pound

Actual trash collection data above was reduced proportionately to reflect requirement that no more than 15% credit may be applied to QF-1 and QF-6 combined control measures.

**TABLE 6-4a. QF-1 & QF-6 Permittee-Led Clean-ups Following MS4 Screenings PY 2010-11**

QF-1 & QF6 MS4 Screening Trash Removal PY 2010-11		Roadway/Creek		At/From	To	Date Cleaned	Labor Cost FCD	Cost CCC	Wt. FCD \$607	Wt. CCC	Total Weight	Crew
1	CCC FCD Pacheco	Grayson Creek	Center Ave			11/18/2010	\$250	\$300	2 sites	1213		5 Deбри Tech crews C. Bernard D. Jordan
2	FCD Pacheco	Grayson Creek	2nd Ave				\$250	\$300	2 sites			Matt (PWD Signage)
3	CCC Pacheco	Grayson Creek Pacheco Blvd. west side; south of Arthur Rd.						\$300	940			
4	CCC Martinez	Waterfront Rd	Pacheco Slough					\$300	4 sites			
5	CCC Martinez	Waterfront Rd	3 Block West of Pacheco Slough					\$300				
6	CCC Rodeo	San Pablo Ave.; east side; north of California						\$300				
7	CCC N. Richmond	Alamo Ave	Battery St.		Central Ave			\$300				
8	CCC N. Richmond	Pittsburg Ave	Richmond Parkway					\$300				
1	CCC West County	San Pablo Avenue	Kay Rd.		Shamrock Dr.	1/19/2011	\$500	\$1,800	2 sites 607	6 sites 2153	8 sites 2760	\$2,300
2	CCC West County	San Pablo Avenue	Shamrock Dr.		Bonnie Dr.			\$300				
3	FCD Bay Point	Clearland Ditch Fenced FCD Property on northside Mary Anne Lane (west of Bailey Rd.)						\$300	1650 P 5 FCD sites	1650 P 5 CCC sites		
4	CCC Bay Point	Alberts Ave. (west side)	Willow Pass Rd.		Waters St.			\$300				
5	FCD Bay Point	Riverside Ditch - Riverside Ave (upstream/south of hotspot); west of San Joaquin Ct.			Drive north on FCD road to access Site 5.		\$250					
6	FCD Bay Point	Riverside Ditch					\$250					
7	FCD Bay Point	Riverside Ditch - Pacifica Ave (upstream from hotspot); west of Anchor Dr. Access via FCD gate to the left.			Drive into complex at 60 Pacifica to the end of the parking lot; at Wharf Dr.		\$250					
8	FCD Bay Point	Shore Acres Ditch	Shore Rd.		at N. Broadway Wharf Dr.		\$250					
9	FCD Bay Point	Vacant Parcel	Willow Pass Rd.				\$250					
10	FCD Bay Point	Richmond Parkway	Bend @ South Richmond Pkwy				\$250					





TABLE 6-4b. QF-1 Permittee-Led On-Land Clean-ups Following MS4 Screenings PY 2011-12 (first ½ of year)

QF-1 On-Land MS4 Screening Trash Removal PY 2011-12

Site	CCC/ FCD	Area	Roadway/Creek	At/From	To	Date Cleaned	Labor				Total Weight	Crew	
							Cost FCD	Cost CCC	Wt. FCD	Wt. CCC			
1	CCC	Bay Point	Hanlon Rd. @ Willow Creek	Between Bayview & Mountainview		7/29/2011		\$300				280	Debris Tech Only
1	CCC	Bay Point	Evora Rd	Willow Pass Rd.	Pullout	8/18/2011		\$250				1040	5 Debris Tech Crews
2	CCC	Bay Point	Evora Rd	Pullout				\$250					
3	CCC	Bay Point	Evora Rd	Pullout	Driftwood			\$250					
4	CCC	Bay Point	Evora Rd	Bottom towards Willow Pass Rd.				\$250					C. Bernard
5	CCC	Bay Point	Riverside Dr. (Southside; Under Acacia Tree)	Between Agua Dr.	at DeAnza Trail			\$300					A. Anaya
6	CCC	Bay Point	Hanlon Rd. @ Willow Creek	Between Bayview & Mountainview				\$250					8:30 - 4:00
7	CCC	Bay Point	Willow Pass Rd. @ N. Highland (Vacant parcel)					\$250					7 hours
8	CCC	Bay Point	Willow Pass Rd. @ N. Broadway Ave. (Vacant parcel at bus stop)					\$250					
9	CCC	Bay Point	Willow Pass Rd. @ N. Broadway Ave. (Vacant parcel at bus stop)					\$250					
10	CCC	Bay Point	3000 Willow Pass Road	Alves Lane	Fire Station			\$300					
											\$2,600		

CA Coastal Cleanups Roadside Clean-up

Events

1	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.	9/13/2011	\$250	850	6 Debris Tech Crews
2	CCC	El Sobrante	San Pablo Dam Rd (North Side)	Bear Creek Rd.	Kennedy Grove		\$250		C. Bernard
3	CCC	El Sobrante	San Pablo Dam Rd (North Side)	Bear Creek Rd.	Kennedy Grove		\$250		A. Anaya
4	CCC	El Sobrante	San Pablo Dam Rd (North Side)	Bear Creek Rd.	Kennedy Grove		\$250		D. Jordan Jason
5	CCC	El Sobrante	San Pablo Dam Rd (North Side)	Bear Creek Rd.	Kennedy Grove		\$250		Tamori PWD-
6	CCC	El Sobrante	San Pablo Dam Rd (North Side)	Bear Creek Rd.	Kennedy Grove		\$250		Signage (all day event)
7	CCC	El Sobrante	San Pablo Dam Rd (North Side)	Bear Creek Rd.	Kennedy Grove		\$250		
8	CCC	El Sobrante	San Pablo Dam Rd (North Side)	Bear Creek Rd.	Kennedy Grove		\$250		
9	CCC	El Sobrante	San Pablo Dam Rd (North Side)	Bear Creek Rd.	Kennedy Grove		\$250		
10	CCC	El Sobrante	San Pablo Dam Rd (North Side)	Bear Creek Rd.	Kennedy Grove		\$250		
							\$2,500		

1	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.	9/14/2011	\$250	1,560	same as above
2	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.		\$250		
3	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.		\$250		

Contra Costa County

4	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.	\$250
5	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.	\$250
6	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.	\$250
7	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.	\$250
8	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.	\$250
9	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.	\$250
10	CCC	El Sobrante	San Pablo Dam Rd (South Side)	Tri Lane	Bear Creek Rd.	\$250
						\$2,500

1	CCC	Briones	Alhambra Valley Rd.	Castro Ranch Rd.	Bear Creek Rd.	9/15/2011	\$300	2940	8520	same as above
2	CCC	Briones	Alhambra Valley Rd.	Castro Ranch Rd.	Bear Creek Rd.		\$300			
3	CCC	Briones	Alhambra Valley Rd.	Castro Ranch Rd.	Bear Creek Rd.		\$300	2740		
4	CCC	Briones	Alhambra Valley Rd.	Castro Ranch Rd.	Bear Creek Rd.		\$300			
5	CCC	Briones	Alhambra Valley Rd.	Castro Ranch Rd.	Bear Creek Rd.		\$300	2840		
6	CCC	Briones	Alhambra Valley Rd.	Castro Ranch Rd.	Bear Creek Rd.		\$300		426	
							\$1,800			

1	CCC	Martinez	Alhambra Valley Rd.	Site 1	10/15/2011	6000	Friends of Alhambra Creek (30+)
2	CCC	Martinez	Alhambra Valley Rd.	Site 2			2 PWD
3	CCC	Martinez	Alhambra Valley Rd.	Site 3			Signage Front Loader & Winch Truck
4	CCC	Martinez	Alhambra Valley Rd.	Site 4			
5	CCC	Martinez	Alhambra Valley Rd.	Site 5			3 CWP
6	CCC	Martinez	Alhambra Valley Rd.	Site 6			

TOTAL 18,676 LBS. 18,250  
LITTER 92.45 CU YDS 7 DAYS  
90% 16808.4

44 SITES

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