

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

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**Submitted by:**



City of Saratoga  
13777 Fruitvale Avenue  
Saratoga, CA 95070

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

**February 1, 2012**

Baseline and Short-Term Trash Load Reduction Plan  
West Valley Community

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Incorporated October 22, 1956

# CITY OF SARATOGA

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## City of Saratoga 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:**

John Cherbone  
Director Public Works

February 1, 2012

Baseline and Short-Term Trash Load Reduction Plan  
West Valley Community

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# TABLE OF CONTENTS

<b>CERTIFICATION STATEMENT .....</b>	<b>i</b>
<b>TABLE OF CONTENTS .....</b>	<b>iii</b>
<b>LIST OF TABLES .....</b>	<b>iv</b>
<b>LIST OF FIGURES .....</b>	<b>v</b>
<b>ABBREVIATIONS .....</b>	<b>vi</b>
<b>PREFACE .....</b>	<b>vii</b>
<b>ACKNOWLEDGEMENTS .....</b>	<b>viii</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>BASELINE TRASH GENERATION RATES PROJECT .....</b>	<b>1</b>
<b>TRASH LOAD REDUCTION TRACKING METHOD SUMMARY.....</b>	<b>2</b>
<b>SHORT-TERM TRASH LOAD REDUCTION PLAN .....</b>	<b>2</b>
<b>2.0 BASELINE TRASH LOADING ESTIMATE.....</b>	<b>5</b>
<b>PERMITTEE CHARACTERISTICS.....</b>	<b>5</b>
<b>DEFAULT TRASH GENERATION RATES (REGIONAL APPROACH) .....</b>	<b>6</b>
<b>JURISDICTIONAL AND EFFECTIVE LOADING AREAS.....</b>	<b>6</b>
<b>PERMITTEE-SPECIFIC BASELINE TRASH LOADING RATES .....</b>	<b>7</b>
<i>Baseline Street Sweeping</i>	
<i>Baseline Storm Drain Inlet Maintenance</i>	
<i>Baseline Stormwater Pump Station Maintenance</i>	
<b>BASELINE TRASH LOADING ESTIMATE.....</b>	<b>8</b>
<b>3.0 LOAD REDUCTION CALCULATION PROCESS .....</b>	<b>11</b>
<b>4.0 ENHANCED TRASH CONTROL MEASURES .....</b>	<b>15</b>
<b>CR-2: POLYSTYRENE FOAM FOOD SERVICE WARE POLICY.....</b>	<b>16</b>
<i>Baseline Level of Implementation</i>	
<i>Enhanced Level of Implementation</i>	
<i>Percent Reduction from Enhancements</i>	
<b>CR-3: PUBLIC EDUCATION AND OUTREACH PROGRAMS .....</b>	<b>17</b>
<i>Baseline Level of Implementation</i>	
<i>Enhanced Level of Implementation</i>	
<i>Percent Reduction from Enhancements</i>	
<b>CR-4: REDUCTION OF TRASH FROM UNCOVERED LOADS.....</b>	<b>21</b>
<i>Baseline Level of Implementation</i>	
<i>Enhanced Level of Implementation</i>	
<i>Percent Reduction from Enhancements</i>	
<b>CR-5: ANTI-LITTERING AND ILLEGAL DUMPING ENFORCEMENT ACTIVITIES.....</b>	<b>22</b>
<i>Baseline Level of Implementation</i>	
<i>Enhanced Level of Implementation</i>	
<i>Percent Reduction from Enhancements</i>	
<b>CR-6: IMPROVED TRASH BIN/CONTAINER MANAGEMENT .....</b>	<b>3</b>
<i>Baseline Level of Implementation</i>	
<i>Enhanced Level of Implementation</i>	
<i>Percent Reduction from Enhancements</i>	
<b>QF-3: PARTIAL-CAPTURE TREATMENT DEVICES.....</b>	<b>5</b>
<i>Baseline Level of Implementation</i>	
<i>Enhanced Level of Implementation</i>	
<i>Percent Reduction from Enhancements</i>	

**QF-4: ENHANCED STORM DRAIN INLET MAINTENANCE.....27**  
*Baseline Level of Implementation*  
*Enhanced Level of Implementation*  
*Percent Reduction from Enhancements*

**QF-5: FULL-CAPTURE TREATMENT DEVICES .....28**  
*Baseline Level of Implementation*  
*Enhanced Level of Implementation*  
*Percent Reduction from Enhancements*

**QF-6: CREEK/CHANNEL/ShORELINE CLEANUPS.....30**  
*Baseline Level of Implementation*  
*Enhanced Level of Implementation*  
*Percent Reduction from Enhancements*

**5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS..... 31**

**5.1 ANNUAL REPORTING AND PROGRESS TOWARDS TRASH LOAD REDUCTION GOAL(S) .....33**

**5.2 CONSIDERATIONS OF UNCERTAINTIES.....33**

**6.0 IMPLEMENTATION SCHEDULE..... 35**

**7.0 REFERENCES..... 37**

## LIST OF TABLES

<b>TABLE 1.1.</b> TRASH CONTROL MEASURES FOR WHICH LOAD REDUCTION QUANTIFICATION CREDITS OR FORMULAS WERE DEVELOPED TO TRACK PROGRESS TOWARDS TRASH LOAD REDUCTION GOALS.....	3
<b>TABLE 2-1.</b> REGIONAL DEFAULT ANNUAL TRASH GENERATION RATES BY LAND USE CATEGORY.....	6
<b>TABLE 2-2.</b> JURISDICTIONAL AREAS AND EFFECTIVE LOADING AREAS IN THE CITY OF SARATOGA BY LAND USE CLASSES IDENTIFIED BY ABAG (2005).....	7
<b>TABLE 2-3.</b> PRELIMINARY ANNUAL TRASH BASELINE LOAD FOR THE CITY OF SARATOGA.....	8
<b>TABLE 4.1.</b> TRASH CONTROL MEASURES THAT WILL BE IMPLEMENTED BY THE CITY OF SARATOGA TO REACH THE 40 PERCENT TRASH LOAD REDUCTION.....	15
<b>TABLE QF-3.1.</b> PARTIAL-CAPTURE TREATMENT DEVICES INSTALLED OR PLANNED TO BE INSTALLED WITHIN THE CITY OF SARATOGA PRIOR TO JULY 1, 2014.....	26
<b>TABLE QF-5-1.</b> TRASH FULL-CAPTURE TREATMENT DEVICES WITHIN THE JURISDICTIONAL BOUNDARIES OF THE CITY OF SARATOGA THAT ARE PLANNED FOR INSTALLATION BY JULY 1, 2014.....	29
<b>TABLE 5-1.</b> PLANNED ENHANCED TRASH CONTROL MEASURE IMPLEMENTATION WITHIN THE JURISDICTIONAL BOUNDARIES OF THE CITY OF SARATOGA AND ASSOCIATED TRASH LOADS REDUCED.....	32
<b>TABLE 6-1.</b> PRELIMINARY IMPLEMENTATION SCHEDULE FOR ENHANCED TRASH CONTROL MEASURES IN THE CITY OF SARATOGA.....	36

## LIST OF FIGURES

<b>FIGURE 2-1.</b> ESTIMATED TRASH BASELINE LOADING RATES FOR GEOGRAPHICAL AREAS IN THE CITY OF SARATOGA.....	9
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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
IDDE	Illicit Discharge Detection and Elimination
JPA	Joint Powers Authority
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
SOP	Standard Operating Procedure
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
WVCWP	West Valley Clean Water Program

## **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 Region (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 City of Saratoga may chose 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 City of Saratoga's annual reporting process.

## ACKNOWLEDGEMENTS

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## 1.0 INTRODUCTION

The Municipal Regional Stormwater NPDES Permit for Phase I communities in the San Francisco Bay Region (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 the Permittee's MS4 by July 1, 2014.

This Short-Term Trash Load Reduction Plan (Short-Term Plan) is submitted by the City of Saratoga 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 and 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 the baseline trash loads for each Permittee builds off of "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 on 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 2012b.

## 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 2012a). 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 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 Permittees, stormwater programs, 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 credit (CR) as described in the *Trash Load Reduction Tracking Method Technical Report* (BASMAA 2012a).

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 2012a. 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.

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 City of Saratoga 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 City of Saratoga'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.**

Load Reduction Credits
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 Activities to Reduce Trash from Uncovered Loads
CR-5 Anti-Littering and Illegal Dumping Enforcement Activities
CR-6 Improved Trash Bin/Container Management Activities
CR-7 Single-Use Food and Beverage Ware Ordinances
Quantification Formulas
QF-1 On-Land Trash Pickup (Volunteer and/or Municipal)
QF-2 Enhanced Street Sweeping
QF-3 Partial-Capture Treatment Devices
QF-4 Enhanced Storm Drain Inlet Maintenance
QF-5 Full-Capture Treatment Devices
QF-6 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;
- Summary of Trash Control Measure Enhancements;
- Implementation Schedule; and
- References.

Baseline and Short-Term Trash Load Reduction Plan  
West Valley Community

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## 2.0 BASELINE TRASH LOADING ESTIMATE

**Note:** *In this section, a set of default trash generation rates and estimated trash baseline loads are presented. Generation rates were developed via a BASMAA regional collaborative project and should be considered preliminary. Although to-date BASMAA has attempted to develop rates that are applicable to all municipalities in the San Francisco Bay Area, preliminary rates and baseline loads presented within this section are not believed to be fully representative of trash discharged from the City of Saratoga's municipal separate storm sewer system (MS4). It is our understanding that BASMAA will continue to refine trash generation rates during the completion of its Trash Baseline Generation Rates Project in 2012 and attempt to develop refined generation rates that may be more applicable to the City of Saratoga. If the City deems that these refined generation rates are applicable, these refined rates will be used to revise trash baseline loads presented in this section. If BASMAA is unable to develop refined generation rates that are applicable to the City of Saratoga, then the City may individually or in collaboration with other similar cities, develop city-specific generation rates and revise baseline load estimates presented in this section accordingly.*

This section provides an estimated annual trash baseline load from the City of Saratoga's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Saratoga worked collaboratively with other MRP Permittees through BASMAA to develop data and the process necessary to establish baseline trash loading estimate from the City's MS4. The collaborative project was managed through the BASMAA Trash Committee and included a series of steps described in BASMAA 2012b and listed below. The approach was intended to be cost-effective and consistent to 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 City of Saratoga. 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 City of Saratoga'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 1956, the City of Saratoga is located in Santa Clara County, and has a jurisdictional area of 7,894 acres. According to the 2010 Census, it has a population of 29,926, with a population density of 2,416.9 people per square mile, and average household size of 2.77. Of the 29,926 who call the City of Saratoga home, 24% are under the age of 18, 4.6% are between 18 and 24, 15.6% are between 25 and

44, 35.4% are between 45 and 64, and 20.3% are 65 or older. The median household income was \$139,865 in 2000<sup>1</sup>.

## 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 are believed to possibly affect trash generation. Three trash characterization monitoring events were scheduled via the *Trash Generation 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 2012), 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.

**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 within jurisdictional areas within the City of Saratoga. The City of Saratoga’s jurisdictional areas include all urban land areas within the City of Saratoga’s 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 City’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 Santa Clara County;

<sup>1</sup> From the 2000 Census. The median household income for the City of Saratoga from the 2010 Census is not currently available.

- 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 City of Saratoga’s jurisdictional area was delineated, an effective trash loading area was developed by creating a 200-foot buffer on each side of the streets within the City’s jurisdictional area. The purpose of the effective loading area is to eliminate land areas not directly contributing trash to the City’s MS4 (e.g., large backyards and rooftops). Both the jurisdictional and the effective loading areas for the City of Saratoga are presented in Table 2-2.

**Table 2-2: Jurisdictional areas and effective loading areas in the City of Saratoga 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	13	11	0
Low Density Residential	3,393	3,186	58
Rural Residential	2,870	1,964	35
Commercial and Services/ Heavy, Light and Other Industrial	116	91	2
Retail and Wholesale	59	48	1
K-12 Schools	171	86	2
Urban Parks	240	150	3
<b>TOTAL</b>	<b>6,861</b>	<b>5,536</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 City of Saratoga 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 City. 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 City of Saratoga 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 City of Saratoga 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 the 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 frequently than the baseline ceiling, their current sweeping frequency serves as their baseline.

The City of Saratoga's baseline street sweeping program includes sweeping most streets within the City four times per year, and sweeping the downtown area once per week. The City's current street sweeping program includes sweeping most streets within the City once per month and the downtown area once per week. Parking enforcement signs for street sweeping are not posted in the City, but cars generally do not park on City streets<sup>2</sup>. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

**Baseline Storm Drain Inlet Maintenance**

Within the City of Saratoga, prior to the effective date of the MRP, storm drain inlets were cleaned at a baseline level of one time every two years. Based on this baseline frequency and the effectiveness rating developed in BASMAA (2012b), the baseline storm drain maintenance program in the City of Saratoga has an annual effectiveness rating of 2.5 percent. The estimated trash load reduced via baseline storm drain inlet maintenance is presented in Table 2-3.

**Baseline Stormwater Pump Station Maintenance**

The City of Saratoga does not own stormwater pump stations with trash racks.

**Baseline Trash Loading Estimate**

The estimated baseline trash load from the City of Saratoga was calculated as the sum of the loads from the City'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 City of Saratoga is presented in Table 2-3. Preliminary baseline trash loading rates are presented in Figure 2-1 to provide a geographical illustration of areas with estimated low, moderate, and high trash loading rates.

**Table 2-3: Preliminary annual trash baseline load for the City of Saratoga.**

Category	Annual Load (gallons)
Preliminary Generation Trash Load	8,032
Load Removed via Baseline Street Sweeping	2,607
Load Removed via Baseline Storm Drain Inlet Maintenance	136
Load Removed via Baseline Stormwater Pump Station Maintenance	0
<b>Preliminary Trash Baseline Load</b>	<b>5,289</b>

<sup>2</sup> Considered equivalent to parking enforcement.

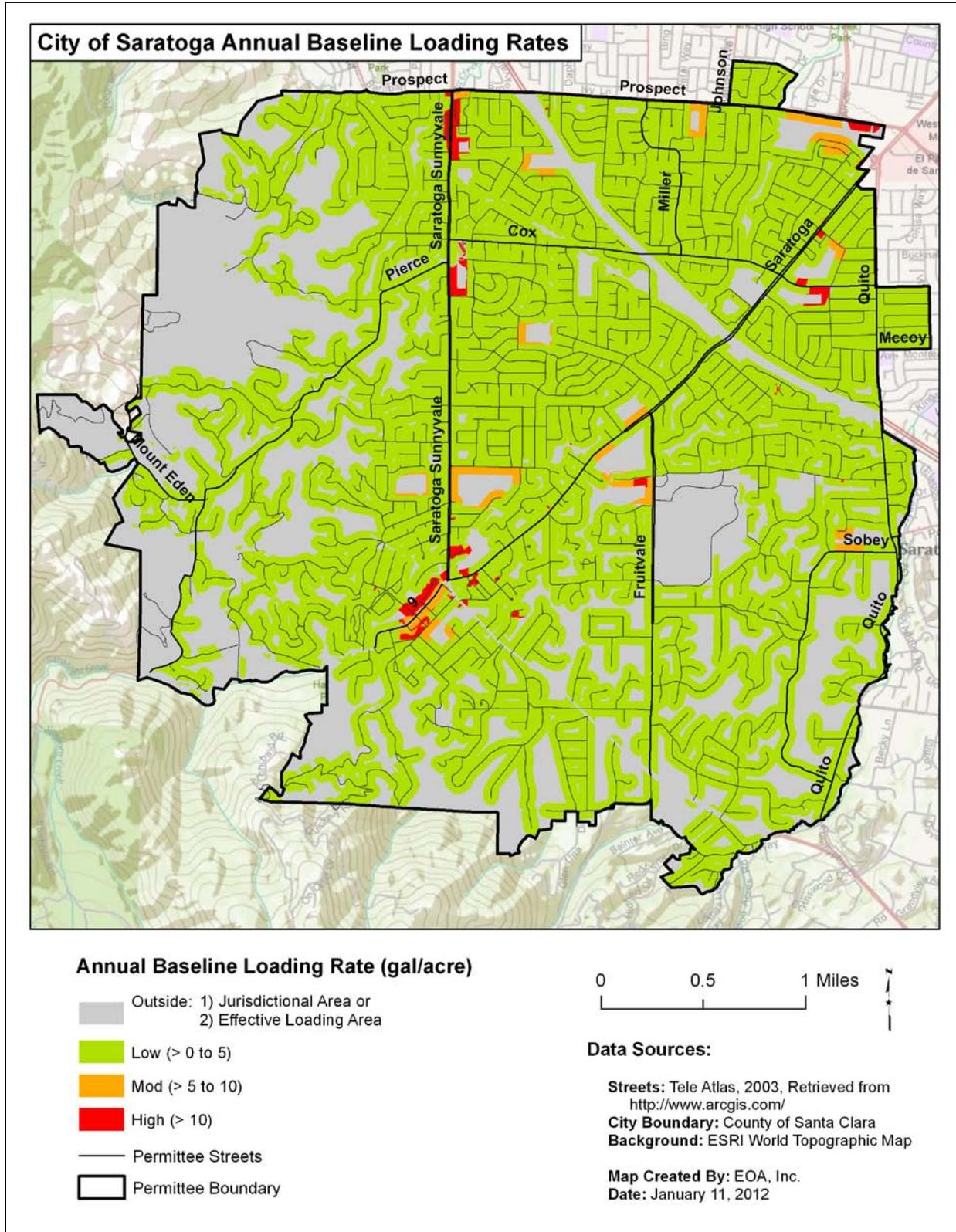


Figure 2-1: Estimated trash baseline loading rates for geographical areas in the City of Saratoga.

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## 3.0 LOAD REDUCTION CALCULATION PROCESS

Using the guiding principles and assumptions described in BASMAA 2012a, a stepwise process for calculating trash load reductions was developed collaboratively through BASMAA. This process is fully described in the *Trash Load Reduction Tracking Method Technical Report* (BASMAA 2012a) and is briefly summarized in this section. The steps take into account 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, the process avoids double-counting 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 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 street sweeping 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 that trash will be 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>3</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 control 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 #3.

## 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).

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<sup>3</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."

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

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-6: 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 five 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.

$$\frac{\text{Baseline Load} - \text{Remaining Load}}{\text{Baseline Load}} \cdot 100 = \% \text{ Reduction}$$

Baseline and Short-Term Trash Load Reduction Plan  
West Valley Community

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## 4.0 ENHANCED TRASH CONTROL MEASURES

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

**Table 4.1. Trash control measures that will be implemented by the City of Saratoga to reach the 40 percent trash load reduction.**

Control Measure
CR-2 Polystyrene Foam Food Service Ware Ordinances
CR-3 Public Education and Outreach Programs
CR-4 Activities to Reduce Trash from Uncovered Loads
CR-5 Anti-Littering and Illegal Dumping Enforcement Activities
CR-6 Improved Trash Bin/Container Management (Municipally or Privately-Controlled)
QF-3 Partial-Capture Treatment Devices
QF-4 Enhanced Storm Drain Inlet Maintenance
QF-5 Full-Capture Treatment Devices
QF-6 Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)

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

Polystyrene foam is used as food ware in the food service industry. According to the USEPA, products made of polystyrene can become floatable debris in waterways, are persistent in the environment, and have 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

The City of Saratoga plans to adopt policies limiting the distribution of polystyrene foam food service ware at City-sponsored events and on City-owned property. Language prohibiting the distribution and purchase of polystyrene foam food and beverage ware will be incorporated into City facility rental agreements, festival and event Use Permits, and internal City purchasing policies. These policies will become effective by December 31, 2012. The percent trash reduction from MS4s as a result of implementing a polystyrene foam food service ware policy will be reported in the Annual Report submitted each September.

### Percent Reduction from Enhancements

The City of Saratoga will receive a 2 percent reduction credit for implementing specific enhanced control measures described in the *Enhanced Level of Implementation* section above. The 2 percent reduction credit will be applied to the City of Saratoga's baseline trash load. This percent reduction credit is consistent with methods presented in BASMAA 2012a. A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.

## 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 City of Saratoga has regularly provided public education and outreach on stormwater issues to its residents and businesses through programs such as school tours and presentations, Saratoga's Farmers Market, the City's quarterly newsletter, City festivals and events, and through its partnership with the West Valley Clean Water Program (WVCWP). The City of Saratoga has no plans to discontinue public education and outreach control measures that were implemented prior to the effective date of the MRP and will only enhance these programs in the future to incorporate litter messaging. These control measures are considered baseline because they were not previously related to trash reduction specifically. New actions and the actions started prior to the effective date of the MRP that the City of Saratoga plans to implement or continue into the future, with more emphasis on litter messaging, are described in the next section.

### Enhanced Level of Implementation

The City of Saratoga will implement the following public education and outreach control measures prior to July 1, 2014:

#### **Litter Reduction Advertising Campaign(s)**

##### ***BASMAA Youth Outreach Campaign (Regional)***

The City of Saratoga through participation in and funding of the regional **BASMAA Youth Outreach Campaign**, will implement an outreach campaign designed to reduce littering by the youth target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase awareness among Bay Area youth (ages 16-24) on litter and stormwater pollution issues, and eventually change their littering behaviors. Combining the ideas of community based social marketing with traditional advertising, the Youth Campaign aims to engage youth to enable the peer-to-peer distribution of Campaign messages. The Campaign will at least run from FY 11-12 through FY 13-14. Brief descriptions of the Campaign activities are provided below:

- **Raising Awareness**: The Campaign will begin by raising awareness among the youth target audience on litter and stormwater pollution issues. Partnerships with youth commissions, high schools, and other youth-focused organizations will be developed to reach the target audience. Messages targeted to youth will be created and distributed via paid advertising, email marketing, the Campaign website, and social networking sites (e.g., Facebook and Twitter).

- **Engage the Youth:** The advertisements will encourage the audience to participate in the Youth Campaign by joining a Facebook page, entering a contest, taking an online quiz, etc., and providing their contact information. At the beginning of FY 12-13, a video contest will be launched to get Bay Area youth further involved in the Campaign. An online voting system will be used to select the winning entry. Media advertising will be conducted to promote the winning entry.
- **Change Behaviors:** To move the audience along the behavior change continuum, the Campaign will use electronic platforms such as email marketing and social networking sites to encourage participants to engage in increasingly more difficult behavior changes, such as participating in a clean-up, organizing a clean-up, etc.
- **Maintain Engagement:** After establishing a connection with the youth target audience, the Campaign will continue to interact with the target audience through email marketing and social media websites.

The Youth Campaign will include a pre- and post-campaign survey of Campaign participants to evaluate the effectiveness of outreach. The pre-campaign survey will be conducted in FY 11-12 and the post campaign survey in FY 13-14. Other evaluation mechanisms, such as website hits, number of youth engaged in the Campaign's social networking website, etc. will also measure the Campaign's effectiveness in increasing awareness and changing behavior.

#### ***Watershed Watch Campaign (Countywide)***

In addition to the BASMAA Youth Outreach Campaign, the City of Saratoga will continue to implement the countywide **Watershed Watch Campaign** through active participation and funding of the Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP). This Campaign develops and distributes media advertising that includes anti-litter messages. Anti-litter advertisements that have been developed for television, print, transit, and radio are used each year, and will continue in the future. The Campaign conducts a telephone survey every five years to measure the effectiveness of outreach and the associated increase in awareness about litter- and stormwater-related messaging.

#### **Outreach to School-Age Children or Youth**

##### ***ZunZun (Countywide)***

The City of Saratoga plans to continue through participation in and funding of the SCVURPPP countywide ZunZun Program, to implement litter reduction outreach to elementary school-age children. Up to 50 ZunZun assemblies at elementary schools are conducted in the Santa Clara Valley each year. These bilingual musical assemblies educate elementary school students and their teachers on watersheds and urban runoff pollution prevention, including litter. ZunZun performances use physical comedy, audience participation, and musical instruments to educate teachers and children. Handouts, including teacher and student activity sheets, are distributed following the assembly.

The SCVURPPP Schools and Youth Education and Outreach Work Group provides a list of schools for ZunZun to contact. In addition to schools with high Hispanic populations, the list also targets schools with high Asian/Pacific Islander populations.

ZunZun assemblies are evaluated using postage-paid evaluation cards that are distributed to all teachers present at the performances. Teachers mail the completed evaluation cards to SCVURPPP, and results are compiled by SCVURPPP staff. Based on the teacher feedback, changes are made to future assemblies and/or handouts.

## **Media Relations**

### ***BASMAA Regional Media Relations Project (Regional)***

The City of Saratoga plans to continue participation in and funding of the **BASMAA Regional Media Relations Project**, to implement a media relations project partially designed to reduce littering from target audiences in the Bay Area. The goal of the BASMAA Media Relations Project is to generate media coverage that encourages individuals to adopt behavior changes to prevent water pollution, including littering. At least two of the project's press releases or PSAs focus on litter issues each year (e.g., promoting creek clean-up activities, preventing litter by using reusable containers, etc.).

## **Community Outreach Events**

***West Valley Clean Water Program (WVCWP) Sponsored Events (Local)***-The City of Saratoga is a member of the WVCWP, which sponsors public education and outreach events and campaigns on behalf of the West Valley communities, including Campbell, Los Gatos, Monte Sereno, and Saratoga. These events are implemented to provide education, outreach and volunteer opportunities for all members of the West Valley communities in areas targeted for litter abatement. At the conclusion of each event, the WVCWP completes its standardized event form, which includes an evaluation component to record feedback from staff and event participants in order to gauge the success of an event and make improvements to future events.

**Coastal Cleanup Day**- This event is hosted by the WVCWP every September at a creek in at least one of the West Valley communities. Volunteers are brought in from all the West Valley communities to clean a creek site known to have litter issues. Volunteers are often utilized to assist the communities in performing their MRP-required trash hot spot assessment cleanups during Coastal Cleanup events. Coastal Cleanup Day includes outreach to the volunteers on litter messaging and other stormwater quality issues through verbal presentations, literature distributions, and giveaways such as reusable bags.

**High School Student Cleanups**- The WVCWP sponsors a cleanup event at a creek site adjacent to a high school within the West Valley communities at least once per year. Teacher and student volunteers assist in data collection and learn the importance of monitoring sites for litter issues. The event coordinators include litter reduction messaging in the event, and distribute giveaways (e.g. reusable bags) and literature on litter and other stormwater quality issues.

**National River Cleanup Day**- This event is hosted by the WVCWP every May at a creek location in at least one of the West Valley communities that is known to have a litter issue. Volunteers from all the West Valley communities are invited to participate in the cleaning of several hundred feet to a few miles of creek length, depending on the size and accessibility of the site chosen. Volunteers may also assist in the MRP-required trash hot spot assessments if a Permittee's hot spot is selected as a National River Cleanup Day site. The WVCWP staff and supporting municipality staff provide messaging on litter issues and distribute outreach materials in the forms of literature and giveaways.

**Youth Creek Cleanup Day**- WVCWP sponsors this annual cleanup for elementary school students, which may occur at a West Valley community MRP-required hot spot depending on the location selected for the cleanup. Students, parents, and teachers participate in the monitoring of quantities of litter collected (required for assessment) and learn about litter and other stormwater quality issues from WVCWP staff and supporting municipality staff. Event staff distributes literature on litter and giveaways such as reusable bags.

Enviroscape Presentations and Outreach Events- In addition to creek cleanup events, the WVCWP also sponsors and attends a minimum of four outreach events per year among the four West Valley communities. Messaging at these events through the use of the Enviroscape watershed model and presentations includes discussions on trash and litter and how the watershed and stormdrain system operate. These events include a combination of at least four of the following events per year among the four communities: school on-land litter pickups, school Enviroscape presentations, Arbor Day events, Earth Day events, Wildlife Education Fair (held in the City of Cupertino but advertised in the West Valley communities), Public Works open houses, and the Great American Litter Pickup (held in Campbell annually). These events are rotated among the four West Valley communities unless an event has a standing location, in which case volunteers and attendees are invited from all the communities to participate (e.g. Campbell's Great American Litter Pickup draws volunteers from all the West Valley communities).

### **Percent Reduction from Enhancements**

The City of Saratoga will receive a total of 8 percent reduction credit for implementing specific enhanced control measures described in the *Enhanced Level of Implementation* section above. This percent reduction is comprised of the following credits, consistent with the *Load Reduction Tracking Method*:

- Litter Reduction Advertising Campaigns – 3%
- Outreach to School-Age Children or Youth – 2%
- Media Relations – 1%
- Community Outreach Events - 2%

These 8 percent reduction credits will be applied against the City of Saratoga's baseline trash load. This percent reduction credit is consistent with methods presented in BASMAA 2012a. A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.

## CR-4: Reduction of Trash from Uncovered Loads

Although it is currently illegal to operate a vehicle that is improperly covered so its contents escape<sup>4</sup>, vehicles remain a significant trash source to MS4s and local waterways. Specifically, vehicles that do not secure or cover their loads when transporting trash and debris have a high risk of contributing trash to MS4s. Land areas that generate trash from vehicles include roads, highways (on/off ramps, shoulders, or median strips) and parking lots. To help address the dispersion of trash from unsecured or uncovered vehicles destined for landfills and transfer stations, Permittees may require municipally-contracted trash haulers to cover or secure loads or work with municipal staff or private landfill and transfer station operators to enhance enforcement of existing regulations and/or to educate waste haulers on securing loads.

### Baseline Level of Implementation

The baseline trash load described in Section 2.0 assumes that prior to adoption of the MRP, the City of Saratoga has not adopted control measures to reduce trash from vehicles with uncovered loads. Therefore, implementation of any of the control measures described in this section is considered to be enhanced implementation.

### Enhanced Level of Implementation

The City of Saratoga has or will implement the following enhanced control measures to reduce trash from vehicles with uncovered loads prior to December 31, 2012:

**Require Municipal Trash Haulers to Cover Loads** – The City of Saratoga’s Joint Powers Authority (JPA) contract with its franchised waste hauler requires the hauler to cover loads when transporting trash and debris to the disposal site. Amendments to the 2006 hauler agreement required the hauler to switch to enclosed trucks. Additionally, the City’s hauler is the exclusive roll-off and debris box provider for the City, which prevents private haulers that may not be regulated to have covered loads from entering the City.

The City of Saratoga will require language specifying the requirement of covered loads in the City’s Standard Operating Procedures (SOPs) for City employees and in future contracts with private contractors for the City, such as landscape contractors, by December 31, 2012.

**Implement an Enhanced Enforcement Program for Vehicles with Uncovered Loads** – The City of Saratoga Sheriff’s Department actively enforces the CA Vehicle Code Sections 23114 and 23115, and monitors for vehicles with uncovered loads and would issue a monetary fine, as needed, to vehicles observed with uncovered loads in the City of Saratoga.

### Percent Reduction from Enhancements

The City of Saratoga will receive a 5 percent reduction credit for implementing specific enhanced control measures described in the *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 City of Saratoga. This percent reduction credit was obtained from the *Trash Load Reduction Tracking Method Report* (BASMAA 2012a) and is presented in the Trash Load Reduction Summary Table included in Section 5.

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<sup>4</sup> In accordance with the California Vehicle Code Sections 23114 and 23115, it is against the law to operate a vehicle on the highway which is improperly covered, constructed, or loaded so that any part of its contents or load spills, drops, leaks, blows, or otherwise escapes from the vehicle. Exempted materials include hay and straw, clear water, and feathers from live birds. Additionally, any vehicle transporting garbage, trash, or rubbish, used cans or bottles, waste papers, waste cardboard, etc. must have the load covered to prevent any part of the load from spilling on the highway (CVC 2011). Significant fines are possible for non-compliance.

## 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 the City of Saratoga 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 the MRP and this Short Term Plan, the City of Saratoga received complaints regarding anti-littering and illegal dumping if members of the public called the City directly. In response, City staff would clean and monitor the reported area as resources allowed, with little-to-no investigation or enforcement of the responsible party.

### Enhanced Level of Implementation

The City of Saratoga will implement or has already implemented the following enhanced anti-littering and illegal dumping enforcement control measures prior to July 1, 2014:

**Anti-Littering and Illegal Dumping Enforcement Program** – The City of Saratoga will specify in its Illicit Discharge Detection and Elimination (IDDE) Enforcement Response Program (ERP) that litter and illegal dumping are types of stormwater violations that can be met with a citation (as warranted). The IDDE reporting program will allow for the City's IDDE responder to investigate complaints received regarding litter and illegal dumping in order to identify violators, in addition to ongoing surveillance by staff of illegal dump sites. The City of Saratoga's IDDE ERP will be reviewed and updated, as needed, by December 31, 2012 to include litter and illegal dumping violations.

**Use of Physical Barriers or Improvements** – The City of Saratoga has worked with PG&E to install physical barriers in the form of chains at two illegal dumping hot spots identified by the City as ongoing problem areas for illegal dumping. These sites are also monitored by the City's Streets Maintenance staff to deter future illegal dumping.

### Percent Reduction from Enhancements

The City of Saratoga will receive a 4 percent reduction credit for implementing specific enhanced control measures described in the *Description of Enhanced Level of Implementation* section above. The 4 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 City of Saratoga. This percent reduction credit was obtained from the *Trash Load Reduction Tracking Method Report* (BASMAA 2012a) and is presented in the Trash Load Reduction Summary Table included in Section 5.

## CR-6: Improved Trash Bin/Container Management

Receptacles used to place/store trash or recyclables prior to collection by a public agency or private waste hauler reduce the potential for littering and trash loading to stormwater conveyance systems and receiving waters (City of Los Angeles 2004). For the purposes of assigning trash load reduction credits, receptacles fall into the following two categories:

- **Private Trash/Recycling Bins:** A receptacle for placing trash or recyclables generated from a household, business, or other location that is serviced by a trash hauler. Bins are specifically-designed, heavy-duty plastic wheeled containers with hinged lids, or large multi-yard metal or plastic containers rectangular in shape.
- **Public Area Trash Containers:** A receptacle that provides people with a convenient and appropriate place to dispose of incidental trash generated in public spaces. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of containers and bins in reducing trash in the environment is likely dependent upon: the location and density of the receptacles, size of the bin/container in relationship to the size needed to service users, frequency of maintenance, and the ability of the bin/container to capture and contain the trash deposited.

### Baseline Level of Implementation

The baseline trash load described in Section 2.0 assumes that the City of Saratoga has not implemented enhanced trash bin/container management practices prior to effective date of the MRP. Prior to the MRP, control measures included in the 2006 hauler agreement were the change to carts with lids, including the switch from three open bins for residential recycling to a mixed recyclables, closed-lid cart. In addition, waste and recycling collection containers have to be issued by the hauler, therefore not allowing waste generators to place private containers (e.g. inadequately sized or open top containers) out for collection by the hauler.

### Enhanced Level of Implementation

The City of Saratoga has implemented the following improved trash bin/container management practices prior to July 1, 2014:

**Ensuring Adequate Private Trash Service** – The City of Saratoga has a municipal ordinance that requires all occupied commercial and residential properties to subscribe to the minimum level of garbage collection service available to the property with no more than a week's worth of garbage accumulation permitted at any time. The City of Saratoga partners with its waste hauler to require all businesses and households within the City to have adequate trash service (i.e., sufficient trash collection or use of bins of the appropriate size) through its JPA agreement with the hauler.

In addition, Saratoga's municipal ordinance requires proper placement of debris boxes by prohibiting the placement of debris boxes on any City street. This encourages safety for motorists and pedestrians and prevents the improper disposal of waste, including illegal dumping. Debris boxes must be provided by the City's franchised hauler and remain on private property through the length of their use.

### **Percent Reduction from Enhancements**

The City of Saratoga will receive a 3 percent reduction credit for implementing specific enhanced control measures described in the *Description of Enhanced Level of Implementation* section above. The 3 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 City of Saratoga. This percent reduction credit was obtained from the *Trash Load Reduction Tracking Method Report* (BASMAA 2012a) and is presented in the Trash Load Reduction Summary Table included in Section 5.

## 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 the 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 considered enhanced measures.

#### *Stormwater Pump Station Racks*

The City of Saratoga does not own any stormwater pump stations with trash racks.

### Enhanced Level of Implementation

A total of 12 partial-capture treatment devices, in the form of curb inlet bar screens, were installed in the City of Saratoga prior to July 1, 2014. These devices were installed along a major roadway that is adjacent to a freeway and known to generate significant quantities of trash and litter. 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 2012a).

### Percent Reduction from Enhancements

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of implementing the partial-capture treatment devices listed in Table QF-3-1 is 57 gallons, assuming these devices have the effectiveness of twenty-five percent of a full-capture device, based on SCVURPPP guidance, and the land use treated. This volume is equal to approximately a 1.1 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Saratoga. Both values provided within this section are included in the Trash Load Reduction Summary Table included in Section 5.

**Table QF-3-1. Partial-capture treatment devices installed or planned to be installed within the City of Saratoga prior to July 1, 2014.**

Number of Devices	Public or Private	Device Name	Location (Cross Streets)	Installation Date/Anticipated Installation Date	Total Area Treated (acres)	Trash Load Reduced
12	Private	Curb Inlet Bar Screens	Saratoga Ave, West of 85 (6); Saratoga Ave, East of 85 (2); Saratoga Ave, Under 85 (4)	Pre-MRP	48	57

## **QF-4: Enhanced Storm Drain Inlet Maintenance**

In accordance with countywide Stormwater Conveyance System Operation and Maintenance Performance Standards (tier 2), storm drain inlets may be maintained at least every other year by Permittees. Permittees who have enhanced storm drain inlet maintenance by increasing the frequency of cleanouts may use the reduction in the load of trash going to the MS4s to demonstrate attainment of trash load reduction goals required by the MRP.

### **Baseline Level of Implementation**

The baseline trash load described in Section 2.0 assumes that the City of Saratoga currently maintains and removes material from storm drain inlets at least every other year. This baseline frequency is consistent with the frequency of storm drain inlet maintenance in the City of Saratoga prior to the effective date of the MRP.

### **Enhanced Level of Implementation**

A total of 1,972 storm drain inlets will be maintained in the City of Saratoga at higher-than-current frequencies prior to July 1, 2014. All storm drain inlets in the City of Saratoga, which were previously cleaned once every two years, will be inspected and cleaned, as needed, on an annual basis beginning July 1, 2012. The enhanced frequency of maintenance and associated effectiveness ratings will be used to calculate loads reduced from enhanced maintenance. This load reduction calculation method is consistent with the trash load reduction tracking method (BASMAA 2012a).

### **Percent Reduction from Enhancements**

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of implementing enhanced storm drain inlet maintenance is 78 gallons. This volume is equal to approximately a 1.4 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Saratoga. Both values provided within this section are included in the Trash Load Reduction Summary Table included in Section 5.

## 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 the *Trash Load Reduction Tracking Method Report* (BASMAA 2012a). 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 having no trash full-capture devices installed.

### Enhanced Level of Implementation

A total of four trash full-capture treatment devices have been or will be installed in the City of Saratoga 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 the full-capture treatment devices. These calculations are consistent with the approach described in the *Trash Load Reduction Tracking Method Report* (BASMAA 2012a).

### 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 56 gallons. This volume is equal to approximately a 1.1 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Saratoga. Both values provided within this section are included in the Trash Load Reduction Summary Table included in Section 5.

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

Number of Devices	Public or Private	Device Name	Locations (Cross Streets)	Installation Date/Anticipated Installation Date	Total Area Treated (acres)	Trash Load Reduced (gallons/year)
4	Public	StormTek Inlet Device (Advanced Solutions)	Along Fruitvale Ave	By November 2012	16	56

## 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 in 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. For example, some municipal agencies use 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 City of Saratoga'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 City of Saratoga will conduct MRP-required<sup>5</sup> and the following non-MRP-required creek/channel/shoreline cleanups<sup>6</sup> listed below. Both types of cleanups will be conducted each year and the volume of trash removed will be tracked to demonstrate trash loads reduced.

The City of Saratoga is a member of the West Valley Clean Water Program (WVCWP), which sponsors creek cleanup events on behalf of the West Valley communities, including Campbell, Los Gatos, Monte Sereno, and Saratoga. These events are implemented to gather volunteers from all the West Valley communities to assist in completing the MRP-required trash hot spot assessments as well as other non-MRP-required creek cleanups at selected sites among all four communities. The WVCWP allows the West Valley communities to operate as a group that benefits from events held in any of the communities as they serve the same population. These creek cleanups are held annually in a minimum of one of the four West Valley communities. Each year, the WVCWP sponsors the City of Saratoga's MRP-required trash hot spot assessment with the assistance of volunteers.

### 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 285 gallons. This volume is equal to approximately a 5.4 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Saratoga. This volume is a conservative estimate based on the averages of data collected from Saratoga's MRP-required trash hot spot cleanups and assumes lower collection rates (e.g., smaller bag sizes were used to calculate volume) than historical data demonstrates and does not account for the other WVCWP or volunteer-led cleanups in the other West Valley communities. Both values provided within this section are included in the Trash Load Reduction Summary Table included in Section 5.

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<sup>5</sup> Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.

<sup>6</sup>All "other" creek/channel/shoreline cleanups conducted by a municipality that are not required by Provision C.10.b.

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

The City of Saratoga 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 4.0 are also listed in Table 5-1. The enhancements are intended to comply with the 40 percent trash load reduction goal in MRP provision C.10.

The City of Saratoga has selected control measures based on their effectiveness in preventing the generation of trash and removing trash once it has entered the environment.

Control measures that will prevent the generation of trash and litter that have or will be implemented by the City of Saratoga include: the adoption of a polystyrene policy that will prohibit the purchase and distribution of polystyrene food service ware at City-sponsored events and on City property; the continued implementation of local and regional public education and outreach campaigns that will have improved focus on litter messaging and evaluation components; the enhanced implementation of programs to prevent uncovered loads, littering, and illegal dumping through improved enforcement, monitoring, and physical improvements to the City; and the improved trash bin/container management for private and public areas through continued partnerships with the City's franchised waste hauler.

Additional control measures to intercept trash once it has entered the environment that will be implemented by the City of Saratoga include: the installation and utilization of partial- and full-capture devices to intercept trash that has entered the MS4; enhanced storm drain inlet maintenance from one time every other year to annual inspections with cleaning as needed; and the collection of trash from creek cleanups through volunteer and staff efforts.

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

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced	Cumulative % Reduction (Compared to Baseline)
Polystyrene Foam Food Service Ware Ban (CR-2)	Adopt a policy to prohibit the distribution and purchase of polystyrene food ware at City-sponsored events and on City property.	2.0%	76	29.9%
Public Education and Outreach Programs (CR-3)	Regional, county, and local advertising campaigns, youth outreach, media relations, and community events to promote litter messaging, which will include evaluation components.	8.0%	303	35.6%
Activities to Reduce Trash from Uncovered Loads (CR-4)	Waste hauler and private contractor agreements and City SOPs that will require covered loads with enforcement of uncovered loads in the City performed by the Sheriff's Department.	5.0%	189	39.2%
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Enforcement of littering and illegal dumping activities through the IDDE program and installation of physical barriers as deterrents.	4.0%	151	42.0%
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Municipal ordinance and hauler agreement which require adequate service levels and bin types for garbage collection.	3.0%	114	44.2%
Curb Inlet Screens (Partial-Capture Treatment Device) (QF-3a)	The installation of Partial-Capture Devices to intercept trash in the MS4.	NA	57	45.3%
Enhanced Storm Drain Inlet Maintenance (QF-4)	Enhanced frequency of storm drain inlet maintenance from once every other year to annual.	NA	78	46.7%
Full-Capture Treatment Devices (QF-5)	The installation of Full-Capture Devices to intercept trash in the MS4.	NA	56	47.8%
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	MRP-required and non-MRP-required creek cleanup events.	NA	285	53.2%

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

Consistent with MRP Provision C.10.d (i), the City of Saratoga 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 provisions, 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 City of Saratoga 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 2012a).

## 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 accurate baseline load.

Baseline and Short-Term Trash Load Reduction Plan  
West Valley Community

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## 6.0 IMPLEMENTATION SCHEDULE

Implementation of enhanced trash control measures by the City of Saratoga is currently planned to occur in a timeframe consistent with MRP requirements. A preliminary implementation schedule for all planned enhancements is described in Table 5-1. This schedule provides a timeframe for reducing trash discharged from the City of Saratoga's MS4 by 40 percent.

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 City of Saratoga 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 City of Saratoga's annual reporting process.

**Table 6-1. Preliminary implementation schedule for enhanced trash control measures in the City of Saratoga.**

Trash Control Measure	Beginning Date of Implementation
Polystyrene Foam Food Service Ware Ban (CR-2)	By December 31, 2012
Public Education and Outreach Programs (CR-3)	Already Implemented  Will incorporate enhanced evaluation component into Community Outreach Events by December 31, 2012.
Activities to Reduce Trash from Uncovered Loads (CR-4)	Language already implemented in JPA Hauler Agreement and enforcement existing by Sheriff's Department.  Will incorporate language into City SOPs and private contractor agreements by December 31, 2012.
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Addition of enforcement language to IDDE ERP by December 31, 2012.  Physical barriers already implemented.
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Already implemented through municipal code and hauler agreement.
Curb Inlet Screens (Partial-Capture Treatment Device) (QF-3a)	Already implemented as devices are already installed.
Enhanced Storm Drain Inlet Maintenance (QF-4)	July 1, 2012 with new vendor contract
Full-Capture Treatment Devices (QF-5)	Some Full-Capture Devices installed with remainder to be installed by November 2012.
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Already implemented through MRP-required and non-MRP-required cleanups.

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