Santa Clara Valley
Urban Runoff
Pollution Prevention Program

February 1, 2012

Short-Term Trash Load Reduction

Permit Provision C.10.a

Submitted in Compliance with NPDES Permit No. CAS612008 (Order R2-2009-0074)

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

Campbell • Cupertino • Los Altos • Los Altos Hills • Los Gatos • Milpitas • Monte Sereno • Mountain View • Palo Alto
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February 1, 2012

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

Subject: Permit Provision C.10.a Short-Term Trash Load Reduction

Bruce

Dear ~~Mr. Wolfe~~:

This letter and attached document entitled *Short-Term Trash Load Reduction* is submitted on behalf of the following Santa Clara Valley Urban Runoff Pollution Prevention Program (SCVURPPP) Permittees:

- City of Cupertino
- City of Los Altos
- Town of Los Altos Hills
- City of Milpitas
- City of Mountain View
- City of Palo Alto
- City of San Jose
- City of Santa Clara
- City of Sunnyvale
- County of Santa Clara
- West Valley Communities
  - City of Campbell
  - Town of Los Gatos
  - City of Monte Sereno
  - City of Saratoga

This submittal consists of a compilation of Short-Term Trash Load Reduction Plans and Baseline Trash Loads developed by each Permittee to satisfy Permit Provisions C.10.a.i and C.10.a.ii of the Municipal Regional Stormwater NPDES Permit (MRP), Order R2-20098-0074, NPDES Permit No CAS612008 issued by the San Francisco Bay Regional Water Quality Control Board.

Please contact me at 510-832-2852 regarding any additional questions or concerns.

Very truly yours,

Adam

Adam W. Olivieri, Dr. P.H., P.E.
Program Manager

cc: Dale Bowyer, San Francisco Bay Regional Water Quality Control Board
Tom Mumley, San Francisco Bay Regional Water Quality Control Board
Management Committee

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1410 Jackson Street • Oakland, CA 94612 • tel: (510) 832-2852 • fax: (510) 832-2856
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Certification Regarding Short-Term Trash Load Reduction Plan
Certification Regarding Baseline Trash Load

"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.[1] I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.[2]"

Submitted on behalf of the Santa Clara Valley Urban Runoff Pollution Prevention Program (per Management Committee Direction)

February 1, 2012

Adam W. Olivieri, Dr. P.H., P.E.
Program Manager

[1]Notwithstanding the above, some of the attachments are works-in-progress and are submitted only with the intent and for the purpose of illustrating progress.

[2] Even though this Program report contains and incorporates the individual Co-permittee plans, this certification is made only with respect to the former; separate Co-permittee certifications have been provided with the latter.

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Santa Clara Valley
Urban Runoff
Pollution Prevention Program

County of Santa Clara

County of Santa Clara

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

County of Santa Clara

Department of Planning and Development
County Government Center, East Wing
70 West Hedding Street, 7th Floor
San Jose, California 95110

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

February 1, 2012

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COUNTY OF SANTA CLARA
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:

Darrell Wong

Darrell K. H. Wong, P.E.
Senior Civil Engineer
Land Development Engineering
DEVELOPMENT SERVICES OFFICE

Date: January 25, 2012

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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 County of Santa Clara 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 County of Santa Clara's annual reporting process.

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 County of Santa Clara 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 the 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 County of Santa Clara 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 County of Santa Clara'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
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
Quantification Formulas
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 Generation 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 Santa Clara's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the County of Santa Clara 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 Santa Clara. 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 Santa Clara'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

Founded in 1850, the County of Santa Clara has a jurisdictional area of 12,669 acres. Unincorporated Census-designated communities are scattered around the County and include Alum Rock, Burbank, Cambrian Park, East Foothill, Fruitdale, Lexington Hills, Loyola, San Martin, and Stanford. The median household income was $74,335 in 2000[1].

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

[1] From the 2000 Census. The median household income for the County of Santa Clara from the 2010 Census is not currently available.

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 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 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.

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 Santa Clara. The County of Santa Clara's jurisdictional areas includes all urban land areas within the County of Santa Clara 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 incorporated cities in 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 Santa Clara'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 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 Santa Clara are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the County of Santa Clara 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	1,558	1,238	22
Low Density Residential	2,858	2,147	38
Rural Residential	1,750	942	17
Commercial and Services/ Heavy, Light and Other Industrial	366	117	2
Retail and Wholesale	63	26	0
K-12 Schools	51	22	0
Urban Parks	170	39	1
County Expressways	1,150	1,150	20
TOTAL	**7,968**	**5,681**	**100%**

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 Santa Clara 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 Santa Clara 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 Santa Clara 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 Santa Clara's baseline and current street sweeping program includes sweeping expressways once per month. The County does not sweep any other streets. Parking enforcement signs

for street sweeping are not posted in the County, but parking is not permitted on expressways[2]. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the County of Santa Clara, 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 Santa Clara has an annual effectiveness rating of 5%. The estimated trash load reduced via storm drain inlet maintenance is presented in Table 2-3.

Baseline Stormwater Pump Station Maintenance

The County of Santa Clara owns and maintains seven stormwater pump stations, but none of these stations have trash racks. However, the County of Santa Clara has installed hydrodynamic separators at two of these stations. This trash load reduction is not included in the baseline calculation. However, a reduction is included in "QF-5: Full-Capture Treatment Devices" within Section 4.

Some of the trash generated in the County's effective loading area is captured by stormwater pump stations with trash racks owned and maintained by cities. 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 Santa Clara 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 Santa Clara is presented in Table 2-3. Preliminary baseline trash loading rates are presented in Figure 2-1a through Figure 2-1e to provide a geographical illustration of areas with estimated low, moderate, high and very high trash loading rates.

[2] Considered equivalent to parking enforcement

Table 2-3: Preliminary annual trash baseline load for the County of Santa Clara.

Category	Annual Load (gallons)
Preliminary Generation Trash Load	37,425
Load Removed via Baseline Street Sweeping	5,729
Load Removed via Baseline Storm Drain Inlet Maintenance	1,585
Load Removed via Baseline Stormwater Pump Station Maintenance	153
Preliminary Trash Baseline Load	29,958

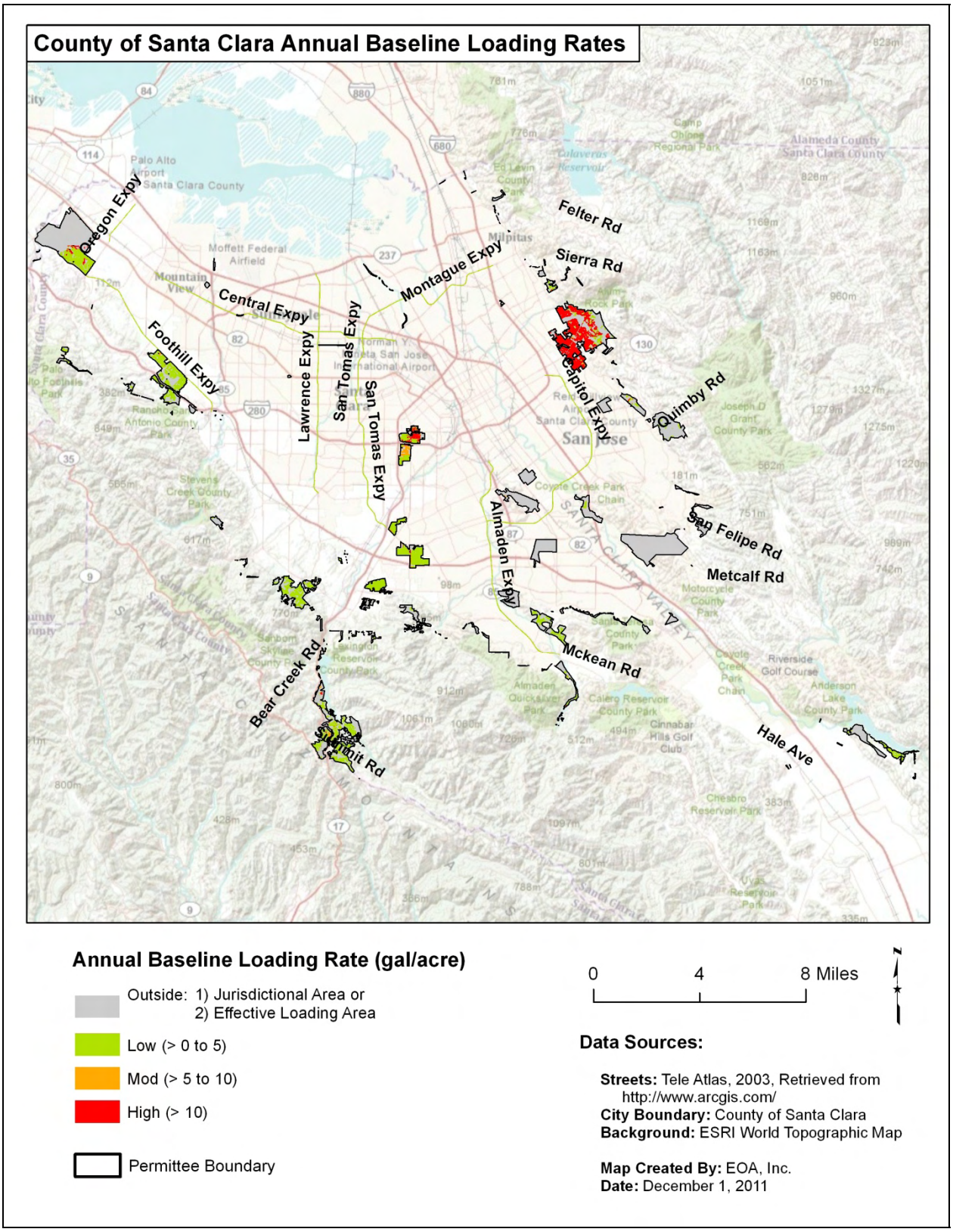

Figure 2-1a: Estimated trash baseline loading rates for geographical areas in the County of Santa Clara.

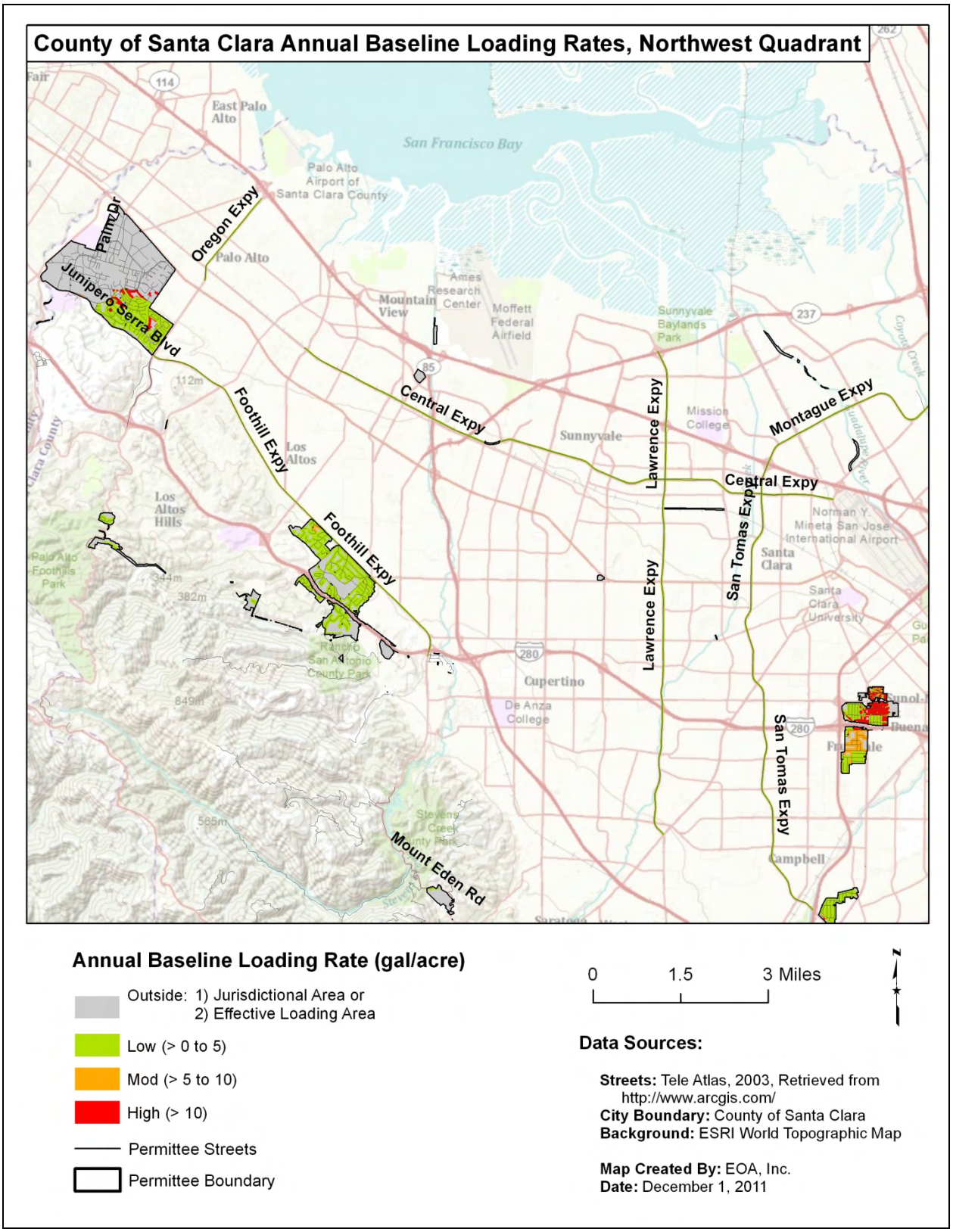

Figure 2-1b: Estimated trash baseline loading rates for geographical areas in the County of Santa Clara's Northwest Quadrant.

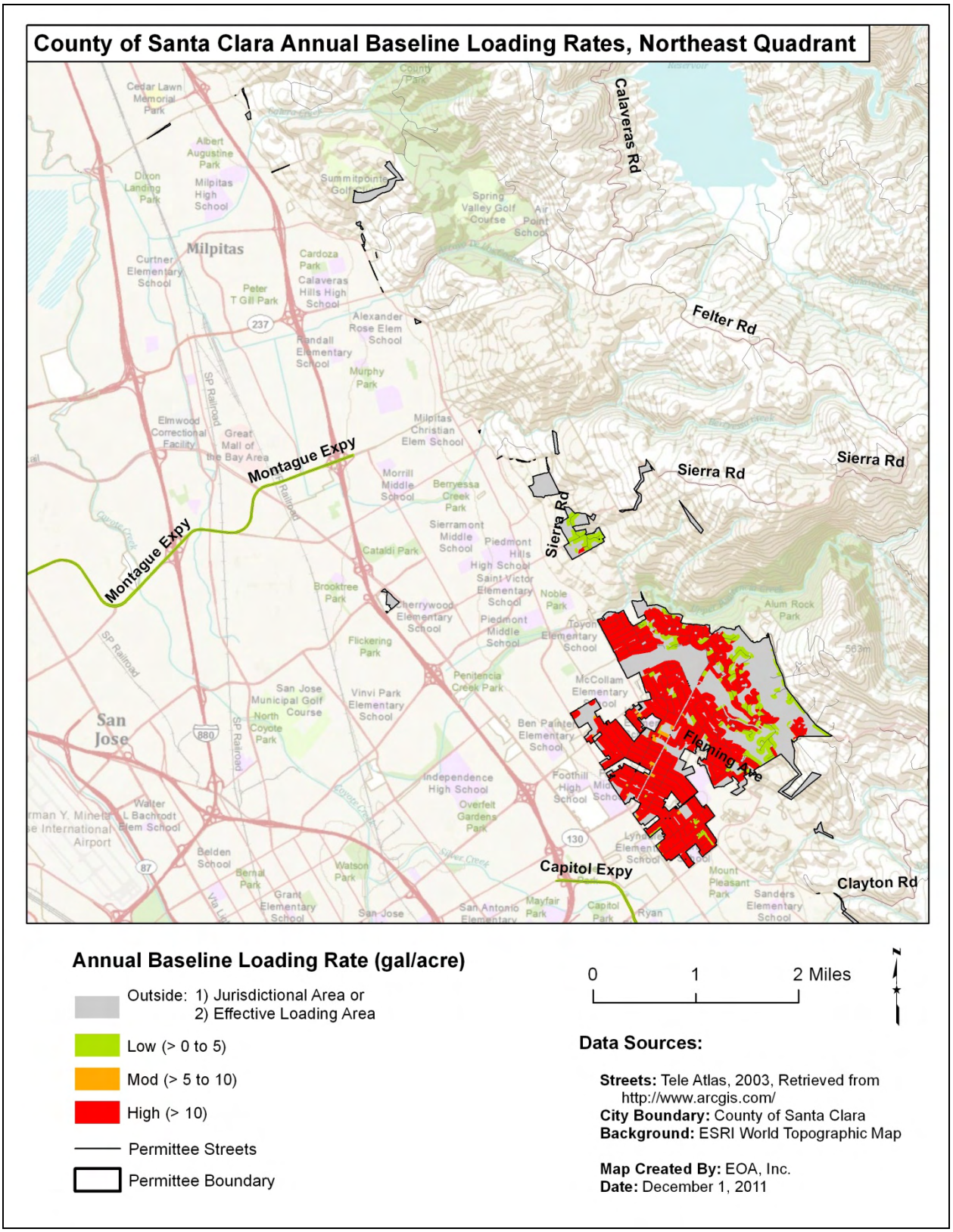

Figure 2-1c: Estimated trash baseline loading rates for geographical areas in the County of Santa Clara's Northeast Quadrant.

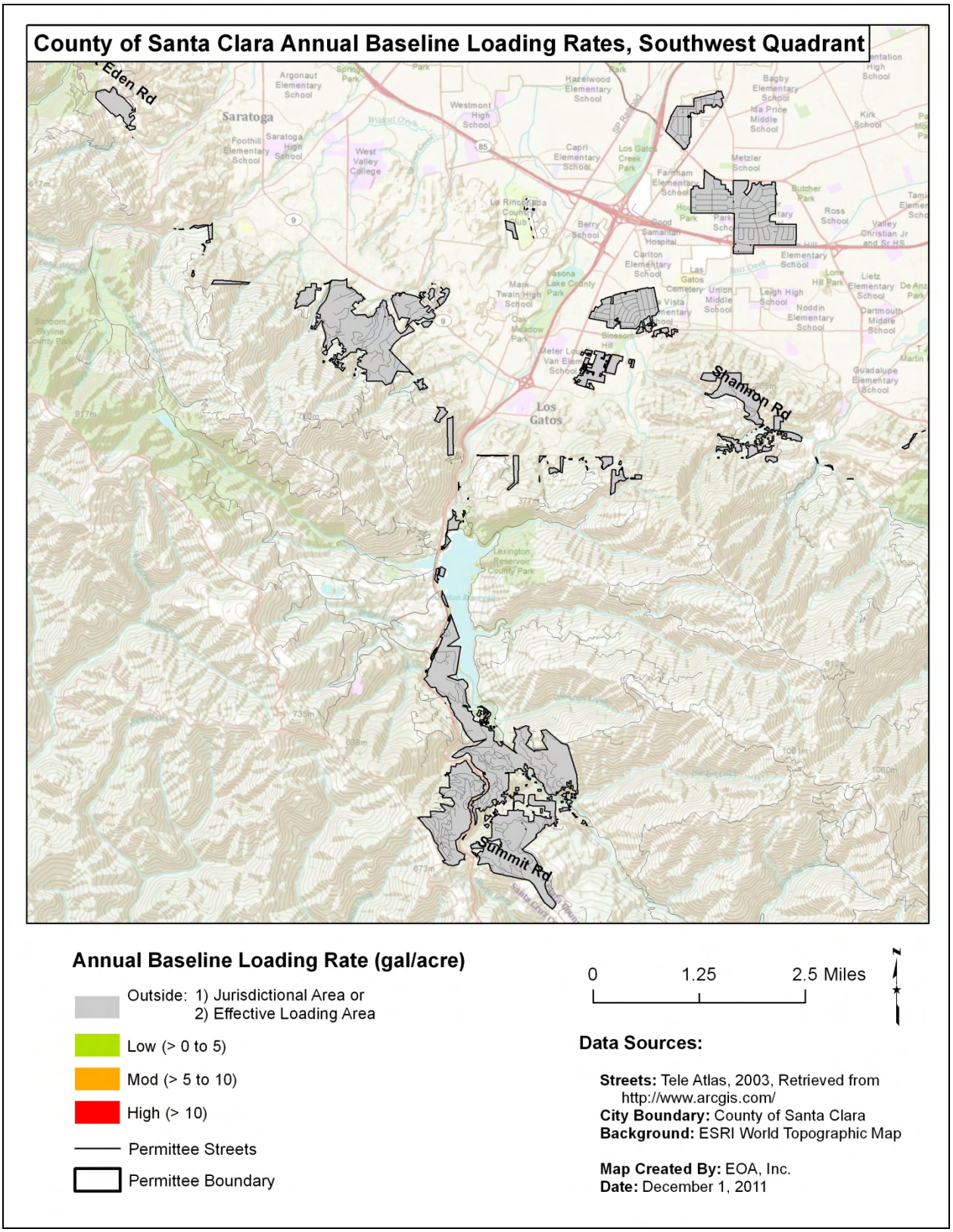

Figure2-1d: Estimated trash baseline loading rates for geographical areas in the County of Santa Clara's Southwest Quadrant.

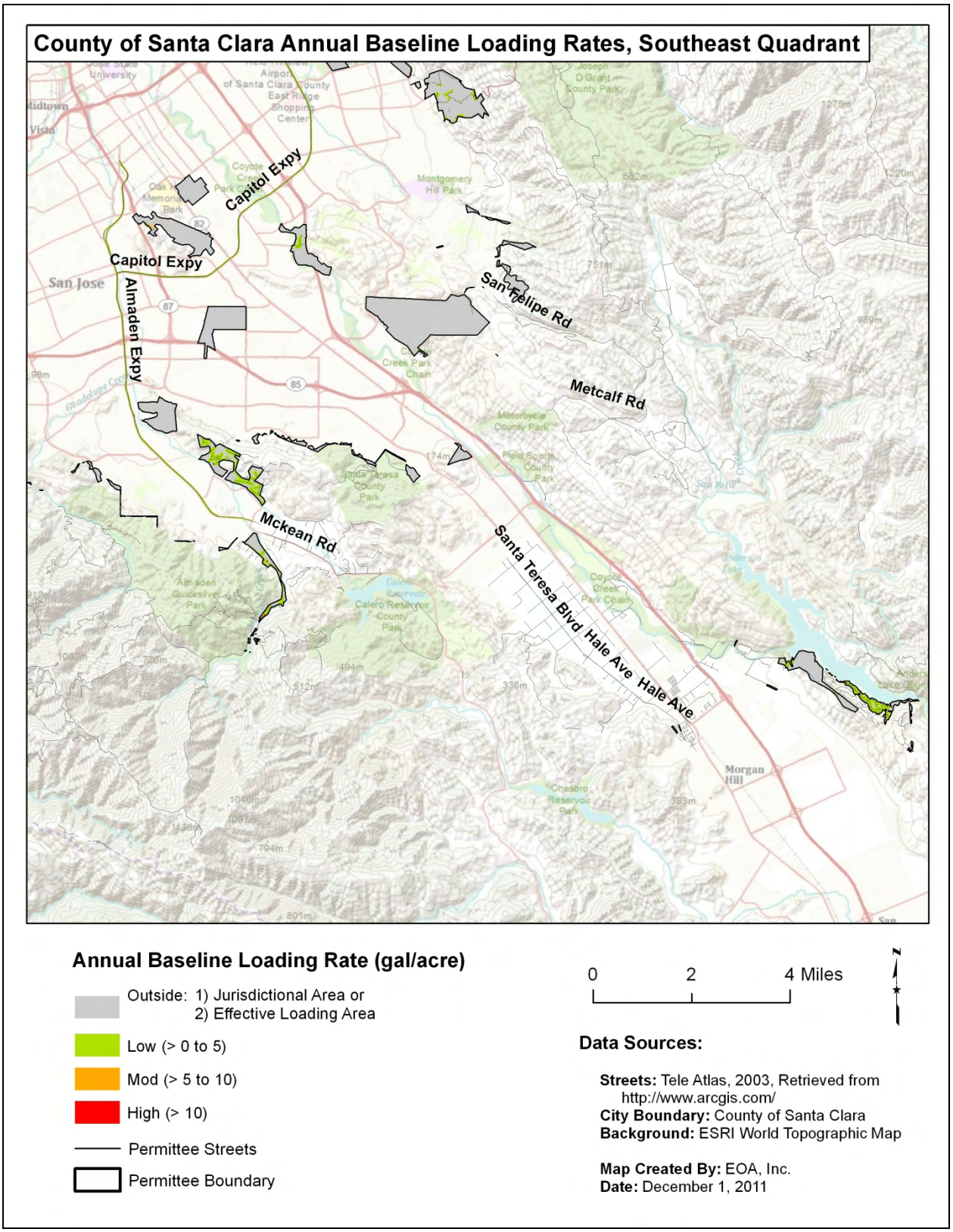

Figure2-1e: Estimated trash baseline loading rates for geographical areas in the County of Santa Clara's Southeast Quadrant.

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 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.[5] 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 #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).

[5] 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-7: Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (Area-wide)

As these control measures are implemented, load reduction estimates can be calculated <u>in-parallel</u> 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.

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

4.0 ENHANCED TRASH CONTROL MEASURES

This section describes the new or enhanced trash control measures planned for implementation by the County of Santa Clara. 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 County of Santa Clara include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by County of Santa Clara to reach the 40% trash load reduction.

Control Measure
Single-use Carryout Plastic Bag Ordinances
Public Education and Outreach Programs
Anti-Littering and Illegal Dumping Enforcement Activities
Improved Trash Bin/Container Management (Municipally or Privately-Controlled)
On-land Trash Pickup (Volunteer and/or Municipal)
Enhanced Street Sweeping
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

The County of Santa Clara has adopted a Single-Use Carryout Bag Ban, Division B11 Chapter XVII of the Santa Clara County Ordinance Code, which prohibits the distribution of single-use carry out plastic bags**.** The Ordinance prohibits the free distribution of paper and plastic single-use carryout bags at retail establishments within unincorporated Santa Clara County, where a retail establishment is defined as an "establishment that is open to the public and devoted to the retail sale of a commodity or commodities and provides single-use carryout bags to its customers as a result of the sale of a product. Public eating establishments are excluded from this definition."

Exemptions to the Ordinance include: 1) Plastic or paper bags used by public eating establishments, non-prohibit organizations and social organizations; 2) Bags used to protect delivered newspaper; and 3) Notwithstanding any other law, on and after January 1, 2012 a retail establishment may provide customers participating in the California special supplemental food program for women, infants and children (WIC) and customers participating in the supplemental nutrition assistance program (SNAP formerly food stamps) with reusable bags or recycled paper bags at no cost at point of sale until December 31, 2014. In addition, single-use carryout bags without handles provided to the customer and are intended to (1) transport produce, built food or meat from a produce, bulk food or meat department within a retail establishment;(2) to hold prescription medication dispensed from a pharmacy or (3) to segregate food or merchandise that could damage or contaminate other food or merchandise when placed together in a reusable bag or recycled paper bags are exempted.

The ordinance became effective on January 1, 2012. The total percent trash reduced from MS4s as a result of implementing a single-use carryout plastic bag ban will be reported in the Annual Report submitted each September to the Water Board.

Reduction from Implementing Control Measure

The County of Santa Clara will receive a **twelve percent** reduction credit for implementing specific enhanced control measures described in Enhanced Level of Implementation section above. The twelve percent reduction credit will be applied to the County of Santa Clara'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 County of Santa Clara implemented the following public education and outreach control measures prior to the effective date of the MRP. There are no baseline actions because there are no additional actions that are will not 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 County of Santa Clara will implement the following public education and outreach control measures prior to July 1, 2011.

Litter Reduction Advertising Campaign(s)

BASMAA Youth Outreach Campaign (Regional)

Through participation and funding of the regional BASMAA Youth Outreach Campaign the County of Santa, will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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. A brief description of the Campaign activities is provided below:

- Raising Awareness: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the County of Santa Clara 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Outreach to School-age Children or Youth

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide ZunZun Program the County of Santa Clara, plans to continue 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 includes 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)

Through participation and funding of the **BASMAA Regional Media Relations Project**, the County of Santa Clara plans to continue 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 press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

Percent Reduction from Enhancements

The County of Santa Clara will receive a **six percent** reduction credit for implementing specific enhanced control measures described in Enhanced Level of Implementation section above. The six percent reduction credit will be applied to the County of Santa Clara'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 the County of Santa Clara has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow. The County has an existing Solid Waste Program and plans on continuing with the program which already includes the enhanced efforts.

Enhanced Level of Implementation

The County of Santa has been implementing a Solid Waste Program since 1989 and has regulatory authority under Division B11 Chapter IX: Garbage and Refuse of the Santa Clara County Ordinance Code**.** The Solid Waste Program serves the unincorporated areas of the County and all cities except the City of San Jose and consists of the following activities: permitting solid waste disposal, composting and transfer facilities; inspecting landfills, transfer stations, composting facilities, and refuse collection vehicles and yards; monitoring disposal facilities to exclude hazardous wastes, medical wastes or liquid wastes; providing information to the public and industry regarding the proper disposal of solid wastes (including asbestos); and investigating complaints and mitigating problems associated with illegal dumping, disposal, or storage of solid wastes.

The Solid Waste Program investigates all complaints on illegal dumping in unincorporated Santa Clara County. During investigation/clean up staff collect evidence to identify the offender and when possible take appropriate enforcement actions. Enforcement actions include citations, informal and formal office hearings, and, as a last resort, referral to County Counsel or the District Attorney. The Solid Waste Program is also in the process of developing a fine schedule under County Ordinance Code Division A-37 Administrative Fines/ Penalties, which will make the fine process more efficient. The Solid Waste Program expects the fine schedule to be developed by July 2012.

The Departments of Parks and Recreation (Parks) oversees littering and dumping problems within County Parks. Division B.14 Chapter 2 Article 2 of the Santa Clara County Ordinance Code addresses dumping, littering and cleanliness of the County Parks.

Parks is made aware of illegal dumpsites from public complaints and when staff finds a sites while performing his/her rounds through a County park. Parks investigates all complaint on illegal dumping collects evidence to identify the offender and when possible takes appropriate enforcement actions.

Percent Reduction from Enhancements

The County of Santa Clara will receive a **two percent** reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The two 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 County of Santa Clara. 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.

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 for placing incidental trash generated in public spaces that provides people with a convenient and appropriate place to dispose of trash. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of bins/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 County of Santa Clara has not implemented enhanced trash bin/container management practices prior to effective date of the MRP. The County has an existing Solid Waste Program and plans on continuing with the program, which already includes the enhanced efforts.

Enhanced Level of Implementation

The County has implemented a Solid Waste Program and a Garbage and Refuse Ordinance (Division B.11 Chapter IX) that gives the Solid Waste Program the authority to enforce against insufficient containers and garbage collection service issues.

Section 189 of the Ordinance contains refuse container requirements, which requires containers to be adequately sized for receiving and holding all refuse and must be constructed so as to be durable, leak proof, cleanable and have close-fitting lids. This section also prohibits refuse producers from filling a refuse container that causes the refuse to fall out of or overflow from the container, or to preclude proper closure of the lid.

Section 184 of the Ordinance requires a garbage producer to have and pay for garbage collection services. The Ordinance exempts garbage producers that live in remote areas where a permitted collector cannot provide services. In these cases the garbage producer is allowed to transport his/her own garbage to an approved solid waste facility with a frequency and mode of transport to preclude any nuisance conditions.

The Solid Waste Program investigates any complaints about refuse containers and coordinates with the permitted garbage collector to address garbage producers that have insufficient trash collection.

Percent Reduction from Enhancements

The County of Santa Clara will receive a **three percent** reduction credit for implementing specific enhanced control measures described in Description of Enhanced Level of Implementation section above. The three 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 County of Santa Clara. 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 County of Santa Clara implemented the following on-land cleanup activities prior to the effective date of the MRP. The Department of Parks and Recreation (Parks) and Department of Environmental Health (DEH) cleaned up homeless encampments and illegal dump sites. Parks only performs clean ups for sites that are located in County Parks while DEH performs cleanups on both public and private land. In addition, Parks and Recreation organizes land-based clean up throughout the year at various County Park locations. These control measures are considered baseline because they were accounted for in the preliminary trash generation rates established through the BASMAA *Baseline Trash Loading 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 County of Santa Clara will be conducting or coordinating the following new or enhanced on-land trash cleanup activities listed below. 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.

New or Enhanced Permittee-led On-land Cleanups:

- *Routine or Regularly Scheduled Litter Pickup and Removal*
- *Removal of Homeless Encampments*
- *Illegal Dump Site Response and Abatement*
- *Organized Single-day Cleanup Events*
- *Expressway clean-ups*

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 199 gallons. This volume is equal to

approximately a **0.7 percent** reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the County of Santa Clara. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 4.

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 County of Santa Clara's baseline street sweeping program includes sweeping the outside curb on County Expressways at a frequency of once per month on average. Parking enforcement signs are not posted but parking is not permitted on expressway per the California Street and Highways Code.

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. Enhancements include: increasing sweeping on County Expressway to once per week and will include sweeping the median curb.

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 6,575 gallons. As described in Trash Load Reduction Summary Table included in Section 4, this volume is equal to approximately a **21.9 percent** reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the County of Santa Clara.

Table QF-2-1. Planned enhanced street sweeping program in the *County of Santa Clara*.

Route ID	Approximate Length Swept (curb miles)	Baseline		Enhanced	
		Frequency	Parking Enforcement	Frequency	Parking Enforcement
County-owned Expressways (outside curb)	140	Monthly	Yes	Weekly	Yes
County-owned Expressways (median)	140	None	Yes	Weekly	Yes

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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 Pemittees 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 four trash full-capture treatment devices have been or will be installed in the County of Santa Clara 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 154 gallons. This volume is equal to approximately a **0.5 percent** reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the County of Santa Clara. 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 County of Santa Clara 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
Central/ Fair oaks	Public	CDS	Central Expwy and Fair Oaks, Sunnyvale	2005	60.88	116
Central/ De La Cruz	Public	CDS	Central Expwy and De La Cruz Blvd, Santa Clara	2005	11.44	21
Porter Lane	Private	CDS	Porter Court (in lot 7)	July 2013	4	13
Camden Ave	Private	CDS	1450 Camden Avenue	April 24, 2009	0.56	3

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 County of Santa Clara'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 County of Santa Clara will conduct MRP-required[10] and the following non MRP-required creek/channel/shoreline cleanups[11] 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.

<u>Permittee & Volunteer Collaborative Activities</u>

Single-day Efforts

- National River Cleanup Day (third Saturday in May)
  - Stevens Creek Reservoir
  - Hellyer Park/ Coyote Creek
  - Los Gatos Creek, Campbell/los Gatos
  - Lexington Reservoir, Los Gatos
  - Vasona Reservoir, Los Gatos
- Coastal Cleanup Day (third Saturday in September)
  - Stevens Creek Reservoir
  - Almaden Quicksilver/los Alamitos creek
  - Hellyer Park/ Coyote Creek
  - Los Gatos Creek, Campbell/ Los Gatos
  - Lexington Reservoir, Los Gatos
- Other Organized Single-day Events

<u>Permittee-led Cleanup Activities</u>

On-going Efforts

- *Removal of Homeless Encampments*
- *Illegal Dump Site Correction*

[10] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.

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

The Department of Parks and Recreation (Parks) responds to complaints of illegal dumpsites and homeless encampments as well as those that the Parks staff discovers during their rounds through County Parks. Parks staff investigates complaints and takes appropriate measures to cleanup the dumpsite and/or homeless encampment. However, not all illegal dumpsites, homeless encampments and single-day cleanup sites are tracked by volume. Only those that are tracked by volume will be counted toward the 40% reduction goal.

Parks participates and help host National River Cleanup Day and Coastal Cleanup Day each year at multiple locations throughout County parks. Trash hot spots identified by the County to satisfy Provision C.10 .b are assessed and cleaned during National River Cleanup Day and/or Coastal Cleanup Day.

The Department of Environmental Health (DEH) also responds to complaints of illegal dumpsites and homeless encampments throughout unincorporated Santa Clara County on public and/or private land. However, DEH does not track trash removed by volume and will not be counted toward the 40% reduction until DEH is capable of tracking this information.

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 199 gallons. This volume is equal to approximately a **0.7 percent** reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the County of Santa Clara. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 4.

5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS

The County of Santa Clara 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 4-1. The enhancements are intended to comply with the 40% trash load reduction goal in MRP provision C.10.

The County of Santa Clara has indicted in this plan the trash control measures the Departments of Parks and Recreation, Roads and Airports, Environmental Health and Integrated Waste Management plan or have already implement to reduce the trash load to local water bodies in the San Francisco Bay Watershed. These departments plan to continue implementing a Single-Use Carry-out Bag Ban; Solid Waste Program, which will include investigating illegal dumping, collecting evidence, taking enforcement actions, working with the garbage collection agencies to identify households/businesses with insufficient trash collection, and clean up illegal dump sites; clean-up homeless encampments; organize single-day cleanup events; inspect private and public full –capture treatment device to ensure the device is operating correctly; and continue to maintain county- owned storm drain systems and pump stations. The County of Santa Clara also plans to increase street sweeping of expressways from monthly to weekly. In addition, through participation and funding of the SCVURPPP and BASMAA the County of Santa will implement an outreach campaign program, outreach to school age children and media relations.

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

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced (Gallons)	Cumulative % Reduction (Compared to Baseline)
Single-use Carryout Plastic Bag Ordinance (CR-1)	Single-use Bag Ban effective 1/1/12	12	3,595	12%
Public Education and Outreach Programs (CR-3)	Participate in SCVURPPP/BASMAA	6	1,797	18%
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Program that includes investigation, collection of evidence and enforcement when possible	2	599	20%
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Ordinance and work with trash hauler to identify insufficient services	3	899	23%
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Clean up illegal dumps, homeless encampments and expressways	NA	199	23.7%
Enhanced Street Sweeping (QF-2) – (Existing and Future Enhanced)	Increase frequency to weekly and sweeping median	NA	6,575	45.6%
Full-capture Treatment Devices (QF-5)	4 CDS units	NA	154	46.1%
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Participate in National River Clean up day and Coastal Clean up day and clean ups of illegal dumping/ homeless encampments.	NA	199	46.8%

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

Consistent with MRP Provision C.10.d (i), the County of Santa Clara 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 County of Santa Clara 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 County of Santa Clara 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 County of Santa Clara'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 County of Santa Clara may chose 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 County of Santa Clara]s annual reporting process.

Table 6-1. Preliminary implementation schedule for enhanced trash control measures in the *County of Santa Clara*.

Trash Control Measure	Beginning Date of Implementation
Single-use Carryout Plastic Bag Ordinance (CR-1)	January 1, 2012
Public Education and Outreach Programs (CR-3)	Campaign Sept 2011 and run FY 12 through FY14, school outreach& media relations - existing
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Existing(planning on adopting a fine schedule by July 2012)
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Existing
Single-Use Food and Beverage Ware Ordinance (CR-7)	January 1, 2012
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Existing
Enhanced Street Sweeping (QF-2)	Planning for enhancement by January 1, 2013
Full-capture Treatment Devices (QF-5)	3 existing and one by July 2013
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Existing

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011e. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. XXXX 2011

BASMAA (Bay Area Stormwater Management Agencies Association). 2012. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. XXXX 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Campbell

City of Campbell

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

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70 N. First Street
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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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CITY OF CAMPBELL
Public Works Department

City of Campbell
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."

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Baseline and Short-Term Trash Load Reduction Plan

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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 Campbell 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 Campbell's annual reporting process.

ACKNOWLEDGEMENTS

The *West Valley Communities would like to acknowledge the comments, suggestions, and guidance provided by each of the participating members at regional, county-wide, and local working groups to complete the Bay-Area wide, MRP Trash Short-Term Plan Template. Additionally, the West Valley Communities are thankful for the dedication and hard work of local county-wide SCVURPPP Staff, West Valley Clean Water Program Staff, and the SCVURPPP Trash Ad Hoc Task Group, who took up the challenge to collect, categorize and characterize the MS4 trash, and lead the way in countless hours of discussion, review, and dissection of the topic of trash.*

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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 Campbell 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 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 Campbell 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 Campbell'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-6Improved 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

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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 Campbell'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 Campbell. 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 Campbell, 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 the estimated annual trash baseline load from the City of Campbell's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Campbell 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 Campbell. 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 Campbell'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 1952, the City of Campbell is located in Santa Clara County, and has a jurisdictional area of 3,772 acres. According to the 2010 Census, it has a population of 39,349, with a population density of 6,685.2 people per square mile and average household size of 2.42. Of the 39,349 who call the City of

Campbell home, 21% are under the age of 18, 7.6% are between 18 and 24, 32.6% are between 25 and 44, 27.6% are between 45 and 64, and 11.2% are 65 or older. The median household income was $67,214 in 2000[1]. The City of Campbell is home to The Pruneyard Shopping Center, a variety of retail and light Industrial businesses and mixed residential densities.

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 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 of the City of Campbell. The City of Campbell's jurisdictional areas include all urban land areas within the City of Campbell'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;
- Colleges and Universities (private or public);

[1] From the 2000 Census. The median household income for the City of Campbell from the 2010 Census is not currently available.

- 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 Campbell'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 Campbell are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the City of Campbell 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	230	209	7
Low Density Residential	1,881	1,787	61
Rural Residential	77	67	2
Commercial and Services/ Heavy, Light and Other Industrial	587	476	16
Retail and Wholesale	297	228	8
K-12 Schools	129	78	3
Urban Parks	226	68	2
TOTAL	**3,426**	**2,913**	**100%**

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 Campbell 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 Campbell 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 Campbell 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 (set at 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 Campbell's baseline and current street sweeping program includes sweeping streets in most residential areas once per month, and most arterial roads and the downtown area twice per month. Parking enforcement signs for street sweeping are not posted in the City. However, parking enforcement equivalent exists on some arterial roads. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of Campbell, 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 Campbell 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 Campbell does not own stormwater pump stations.

Baseline Trash Loading Estimate

The estimated baseline trash load from the City of Campbell is 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 Campbell 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 Campbell.

Category	Annual Load (gallons)
Preliminary Generation Trash Load	17,186
Load Removed via Baseline Street Sweeping	5,836
Load Removed via Baseline Storm Drain Inlet Maintenance	284
Load Removed via Baseline Stormwater Pump Station Maintenance	0
Preliminary Trash Baseline Load	11,066

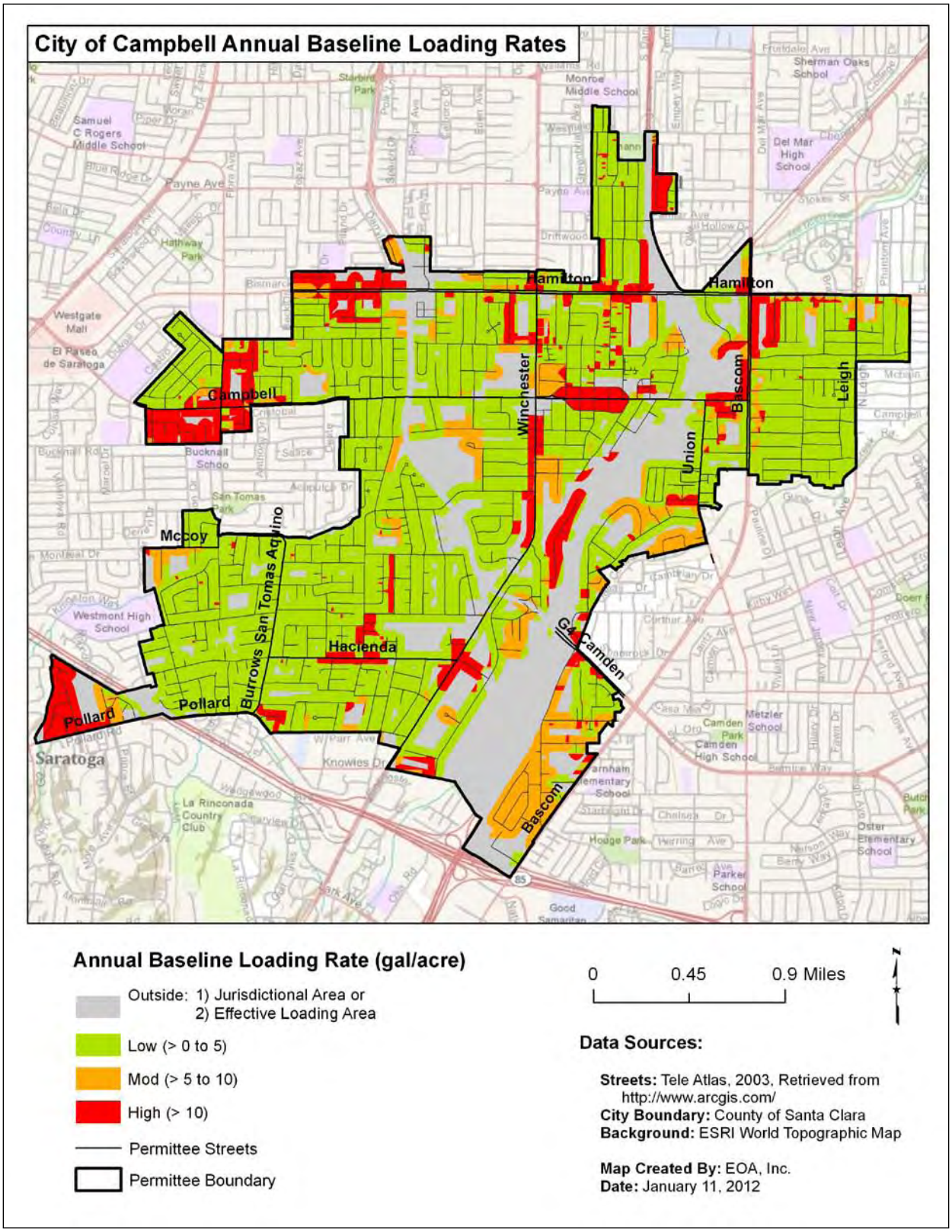

Figure 2-1: Estimated trash baseline loading rates for geographical areas in the City of Campbell.

Baseline and Short-Term Trash Load Reduction Plan

West Valley Community

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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 process takes 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.[2] 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).

[2] 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 <u>in-parallel</u> 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.

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

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 Campbell. 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 Campbell include those listed in Table 4.1.

Table 4-1. Trash control measures that will be implemented by the City of Campbell 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-1 On-Land Trash Pickup (Volunteer and/or Municipal)
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 Campbell 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 the City's internal policies (e.g., purchasing policies and event and facility use permits and agreements) by December 31, 2012. The percent trash reduction from MS4s as a result of implementing polystyrene foam food service ware policies will be reported in the Annual Report submitted each September.

Percent Reduction from Enhancements

The City of Campbell 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 Campbell'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 Campbell will continue public education and outreach control measures that were implemented prior to the effective date of the MRP including outreach via its website, newsletters and its partnership with the West Valley Clean Water Program (WVCWP). These control measures are considered baseline because they were not related to trash reduction specifically, however, they will be enhanced to incorporate litter messaging as a priority pollutant topic. New actions and the actions started prior to the effective date of the MRP that the City of Campbell plans to implement or continue into the future are described in the next section.

Enhanced Level of Implementation

The City of Campbell 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 Campbell through participation in and funding of the regional **BASMAA Youth Outreach Campaign,** the City of Campbell 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 the awareness of 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 Campbell 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 Campbell plans to continue 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 Campbell 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 Campbell is a member of the WVCWP, which sponsors public 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 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 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 adjacent to a high school within the West Valley communities at least once per year. Teachers 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 municipality'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 required monitoring of litter collected (required for the assessment) and learn about litter and other stormwater quality issues from WCVWP 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 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 Campbell 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 Campbell'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[3], 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 Campbell 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 Campbell has or will implement the following enhanced control measures to reduce trash from vehicles with uncovered loads prior to July 1, 2014:

Require Municipal Trash Haulers to Cover Loads – The City of Campbell'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 Campbell will require language specifying the requirement of covered loads in the City's contracts with private contractors (e.g. landscape contractors) by July 30, 2012.

Implement an Enhanced Enforcement Program for Vehicles with Uncovered Loads – The City of Campbell's municipal ordinance requires that all conveyances used to haul waste and other materials be covered and enclosed to prevent the contents from entering the public right-of-way and adjacent lands.

Additionally, the City of Campbell Police 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 Campbell.

Percent Reduction from Enhancements

The City of Campbell 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 Campbell. 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.

[3] 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 Campbell 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 following its adoption, the City of Campbell's Streets and Parks staff has an informal program in place to respond to complaints from the public regarding illegal dumping. If illegal dumping sites are found in response to complaints, staff picks up the materials and provides outreach to the violator (if identifiable) but there was no enforcement.

Enhanced Level of Implementation

The City of Campbell 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 Campbell will specify in its Illicit Discharge Detection and Elimination (IDDE) Enforcement Response Program (ERP) for 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 Campbell'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 Campbell has installed physical barriers in the form of chain link fences and gates at an area the City identified as a hot spot for illegal dumping. This site is monitored by the City's Streets and Parks Maintenance staff to deter future illegal dumping.

Percent Reduction from Enhancements

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

Ensuring Adequate Private Trash Service – The City of Campbell has a municipal ordinance in place that requires all commercial and residential properties to have the minimum of once-a-week waste collection service. The municipal ordinance prohibits the accumulation of waste on any property in the City and the hauler may require changes to service levels or container types in order to prevent the accumulation of excess waste. The City of Campbell utilizes its waste hauler to ensure all businesses and households within the City have adequate trash service (i.e., sufficient trash collection or use of bins of the appropriate size) through its JPA agreement with the hauler.

Percent Reduction from Enhancements

The City of Campbell 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 Campbell. 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-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 events or as ongoing events throughout the year.

Baseline Level of Implementation

The City of Campbell has had ongoing on-land cleanup activities through the work of the City's Streets and Parks Maintenance staff to maintain the medians, landscaped areas, roads, and parks prior to the effective date of the MRP. These control measures are considered baseline because they were accounted for in the preliminary trash generation rates established through the BASMAA *Baseline Trash Loading 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 City of Campbell will be conducting or coordinating the following new or enhanced on-land trash cleanup activities listed below. 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.

<u>Great American Litter Pickup</u>
The City of Campbell began participating in the Great American Litter Pickup in 2003. Although this event began prior to the MRP, it was implemented in preparation for the Los Angeles Trash TMDLs and MRP trash reduction requirements that were going to require significant actions to reduce trash by the Permittees. Campbell's annual participation in this event following the MRP has resulted in yearly increases in the amount of volunteers in attendance and the level of litter outreach conducted.

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.

Percent Reduction from Enhancements

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of implementing on-land trash cleanups is 1,446 gallons. This volume is equal to approximately a 13.1 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 Campbell. This volume is a conservative estimate based on the averages of the data collected from Campbell's last four annual Great American Litter Pickups as lower collection rates were assumed (e.g., smaller bag sizes were used to calculate volume) than historical data demonstrates. Both values provided within this section are included in the Trash Load Reduction Summary Table included in Section 5.

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 per 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 Campbell 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 Campbell prior to the effective date of the MRP.

Enhanced Level of Implementation

A total of 1,148 storm drain inlets will be maintained in the City of Campbell at higher-than-current frequencies prior to July 1, 2014. All storm drain inlets in the City of Campbell, 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 180 gallons. This volume is equal to approximately a 1.6 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 Campbell. 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 Pemittees 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 26 trash full-capture treatment devices have been or will be installed in the City of Campbell 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 537 gallons. This volume is equal to approximately a 4.8 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 Campbell. 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 Campbell that are planned for installation by 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 (gals/year)
1	Private	Continuous Deflective Separator (Contech)	710 E McGlincy Lane (Commercial)	Existing Building Permit final 1/3/2007	4.5	10
1	Private	Continuous Deflective Separator (Contech)	655 Creekside (Marriott Hotel) (Retail)	Existing Building Permit final 7/6/2010	3.13	30
1	Private	Continuous Deflective Separator (Contech)	452 Salmar (Retail)	Existing Building Permit final 10/20/2009	1.27	12
1	Private	Continuous Deflective Separator (Contech)	1691 and 1711 Bucknall (High Density Residential)	Existing Building Permit final 8/28/2008	0.56	3
22	Public	StormTek Inlet Device (Advanced Solutions)	Various locations throughout City (59% retail/wholesale; 41% commercial/industrial)	By Nov 2012	72.3	481

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 citizens' 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 Campbell'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 Campbell will conduct MRP-required[4] and the following non-MRP-required creek/channel/shoreline cleanups[5] 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 Campbell 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. The WVCWP sponsors Coastal Cleanup Day every September on behalf of the City of Campbell in conjunction with the City's MRP-required trash hot spot assessment.

In addition to the WVCWP creek cleanup events, there are several volunteer-led creek cleanup sites adopted in the West Valley communities every Coastal Cleanup Day and National River Day. Conservatively, as there are multiple sites among the West Valley communities for each annual event, these events will continue to occur annually at at least one site in the City of Campbell per year, and the volume of trash removed from these events will be tracked to demonstrate trash loads reduced.

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 843 gallons. This volume is equal to approximately a 7.7 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 Campbell. This volume is a conservative estimate based on the averages of the data collected from multiple creek cleanup sites and events over

[4] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.
[6]All "other" creek/channel/shoreline cleanups conducted by a municipality that are not required by Provision C.10.b.

the past three years, including MRP-required and non-MRP-required Permittee-led and volunteer-led events. In addition, to maintain a conservative estimate of the volumes of trash collected through these events over time, lower frequencies of events and number of sites, as well as smaller bag sizes were assumed, despite historical data demonstrating higher collection rates. Both values provided within this section are included in the Trash Load Reduction Summary Table included in Section 5.

Baseline and Short-Term Trash Load Reduction Plan

West Valley Community

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5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS

The City of Campbell 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 Campbell 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 the City of Campbell has or will implement include: the adoption of a polystyrene policy that will prohibit the purchase and distribution of polystyrene 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 have or will be implemented by the City of Campbell include: on-land litter pickups through the City's sponsoring of Great American Litter Pickup Day; enhanced storm drain inlet maintenance from one time every other year to annual inspections, with cleaning as needed; the installation and utilization of full-capture devices to intercept trash that has entered the MS4; 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 Campbell 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 policies to prohibit the distribution and purchase of polystyrene at City-sponsored events and on City property.	2.0%	221	2.0%
Public Education and Outreach Programs (CR-3)	Regional, county, and local advertising campaigns, youth outreach, media relations, and community events to promote litter messaging that will include evaluation components.	8.0%	885	10.0%
Activities to Reduce Trash from Uncovered Loads (CR-4)	Waste hauler agreement, municipal code, and future private contract agreements require covered loads with enforcement of uncovered loads in the City covered by the Police Department.	5.0%	553	15.0%
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Enforcement of littering and illegal dumping violations through the IDDE program and installation of physical barriers as deterrents.	4.0%	443	19.0%
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%	332	22.0%
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Campbell's continued participation in Great American Litter Pickup.	NA	1,446	35.1%
Enhanced Storm Drain Inlet Maintenance (QF-4)	Enhanced frequency of storm drain inlet maintenance from once every other year to annual.	NA	180	36.7%
Full-Capture Treatment Devices (QF-5)	The installation of Full-Capture Devices to intercept trash in the MS4.	NA	537	41.5%
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	MRP-required and non-MRP-required creek cleanup events.	NA	843	49.2%

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

Consistent with MRP Provision C.10.d (i), the City of Campbell 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 Campbell 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 Campbell 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 Campbell'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 Campbell 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 Campbell's annual reporting process.

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

Trash Control Measure	Beginning Date of Implementation
Polystyrene Foam Food Service Ware Ban (CR-2)	December 31, 2012
Public Education and Outreach Programs (CR-3)	Already Implemented Will incorporate evaluation component into Community Outreach Events by December 31, 2012.
Activities to Reduce Trash from Uncovered Loads (CR-4)	Language already implemented in JPA Agreement, municipal code, and enforcement in place by Police Department. Contracts with private contractors will be updated by July 30, 2012.
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Addition of enforcement language to IDDE ERP by December 31, 2012. Physical barriers implemented at hot spots.
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Already implemented in municipal code and JPA agreement with hauler.
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Already implemented
Enhanced Storm Drain Inlet Maintenance (QF-4)	July 1, 2012 with new vendor contract.
Full-Capture Treatment Devices (QF-5)	Some Full-Capture Devices already installed with remainder to be installed by November 2012.
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Already Implemented

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February 2012.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Cupertino

City of Cupertino

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

City of Cupertino
10300 Torre Ave
Cupertino, CA 95014

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

January 11, 2012

CUPERTINO GREEN
Program

CITY OF CUPERTINO
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:

Glenn Goepfert
Assistant Director of Public Works, Engineering

January 11, 2012

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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 City of Cupertino 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 Cupertino's annual reporting process.

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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 City of Cupertino 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 the 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 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 (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 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.

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 City of Cupertino 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 Cupertino'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
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
Quantification Formulas
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 Generation 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 City of Cupertino's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Cupertino 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 (2012b) 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 City of Cupertino. 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 Cupertino'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 1955, the City of Cupertino is located in Santa Clara County, and has a jurisdictional area of 7,239 acres. According to the 2010 Census, it has a population of 58,302, with a population density of 5,179.1 people per square mile, and average household size of 2.87. Of the 58,302 who call the City of Cupertino home, 27.6% are under the age of 18, 5.6% are between 18 and 24, 26.8% are between 25 and 44, 27.5% are between 45 and 64, and 12.5% are 65 or older.

Companies such as Apple, Hewlett-Packard, ArcSight (an HP Company), Chordiant Software, Inc., Seagate Technology, Inc., and Trend Micro Inc. are located in the City of Cupertino. The median household income was $100,411 in 2000[1].

[1] From the 2000 Census. The median household income for the City of Cupertino from the 2010 Census is not currently available.

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 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 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.

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 City of Cupertino. The City of Cupertino's jurisdictional areas includes all urban land areas within the City of Cupertino 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;
- 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 Cupertino'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 Cupertino are presented in Table 2-2.

Table 2-2. Jurisdictional areas and effective loading areas in the City of Cupertino 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	521	483	10
Low Density Residential	3,233	3,112	65
Rural Residential	267	173	4
Commercial and Services/ Heavy, Light and Other Industrial	723	465	10
Retail and Wholesale	317	262	6
K-12 Schools	229	124	3
Urban Parks	372	172	4
TOTAL	**5,661**	**4,792**	**100%**

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 Cupertino 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 Cupertino 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 Cupertino 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 City of Cupertino's baseline and current street sweeping program includes sweeping streets in residential and retail areas, and arterial roads twice per month. Parking enforcement signs for street sweeping are posted in some residential areas, and parking enforcement equivalent occurs on many arterial roads. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of Cupertino, storm drain inlets were cleaned at a baseline level of one time every two years 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 City of Cupertino has an annual effectiveness rating of 2.5%. 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 Cupertino does not own stormwater pump stations with trash racks.

Baseline Trash Loading Estimate

The estimated baseline trash load from the City of Cupertino 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 Cupertino 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, high and very high trash loading rates.

Table 2-3. Preliminary annual trash baseline load for the City of Cupertino.

Category	Annual Load (gallons)
Preliminary Generation Trash Load	25,292
Load Removed via Baseline Street Sweeping	12,846
Load Removed via Baseline Storm Drain Inlet Maintenance	311
Load Removed via Baseline Stormwater Pump Station Maintenance	0
Preliminary Trash Baseline Load	12,135

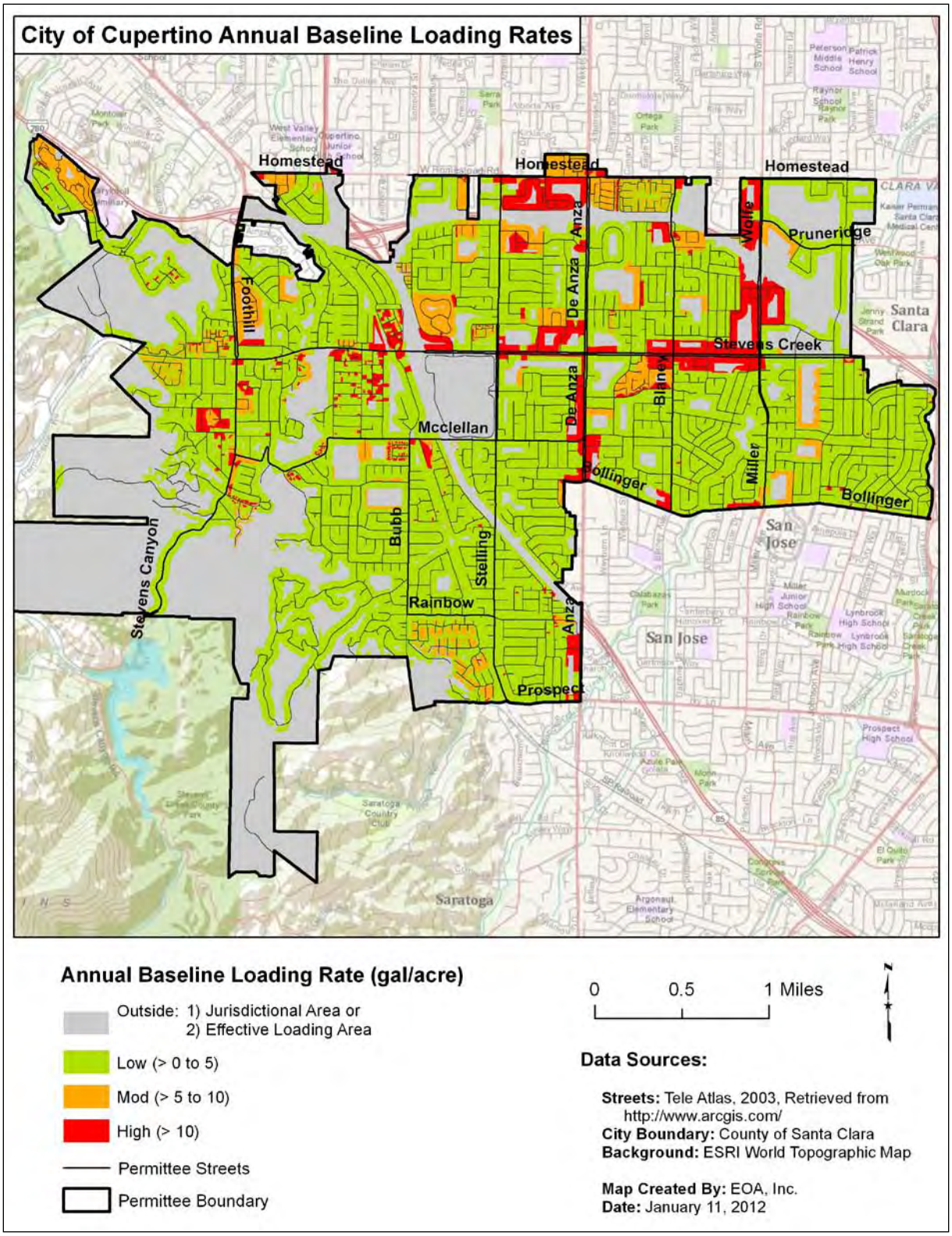

Figure 2.1. Estimated trash baseline loading rates for geographical areas in the City of Cupertino.

3.0 LOAD REDUCTION CALCULATION PROCESS

Using the guiding principles and assumptions described BASMAA (2012a), 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 2012a) and is briefly summarized in this section. The process takes into consideration 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 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.[2] 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 #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).

[2] 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 <u>in-parallel</u> 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.

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

4.0 ENHANCED TRASH CONTROL MEASURES

This section describes the new or enhanced trash control measures planned for implementation by the City of Cupertino. 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 City of Cupertino include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by City of Cupertino 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
Activities to Reduce Trash from Uncovered Loads
Anti-Littering and Illegal Dumping Enforcement Activities
Improved Trash Bin/Container Management (Municipally or Privately-Controlled)
On-land Trash Pickup (Volunteer and/or Municipal)
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

The City of Cupertino plans to adopt an ordinance or local policy to prohibit the distribution of single-use carryout plastic bags at large supermarkets (e.g. 99 Ranch Market, Lucky, Marina and Whole Foods Market) within the jurisdictional boundaries of the City of Cupertino**.** Stores will be allowed to provide paper bags at no cost to customers or charge a fee for paper bags. Public outreach to these stores through scheduled meetings and to residents via articles in the City's monthly newsletter will begin on or before November 1, 2012. The ordinance is expected to be adopted and effective by April 2014. Public education, outreach and enforcement will be conducted in parallel with the ordinance or local policy to ensure maximum compliance. The total percent trash reduced from MS4s as a result of implementing a single-use carryout plastic bag policy or ordinance will be reported in the Annual Report submitted each September to the Water Board.

Percent Reduction from Enhancements

The City of Cupertino will receive a six (6) percent reduction credit for implementing the specific enhanced control measures described in Enhanced Level of Implementation section above. The six (6) percent reduction credit will be applied to the City of Cupertino's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.

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

The City of Cupertino recently adopted a policy prohibiting food vendors from distributing polystyrene foam food and beverage ware at City-sponsored events or on City-owned property.

The policy became effective on October 1, 2011. Notices to event planners regarding the prohibition are included in the City's event planning instruction guide. The City's franchised trash and recycling hauler was consulted and the City's hauler agreed to support and reiterate the City's polystyrene foam single-use food and beverage packaging prohibition when providing trash and recycling receptacles to event coordinators. 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 Cupertino will receive a two (2) percent reduction credit for implementing specific enhanced control measures described in the *Enhanced Level of Implementation* section above. The two (2) percent reduction credit will be applied to the City of Cupertino's baseline trash load. This percent reduction credit is consistent with methods presented in the 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 Cupertino implemented the following public education and outreach control measures prior to the effective date of the MRP. The City provides a 3rd grade creek education program and field trip conducted by the City's Naturalist to allow students to examine aquatic life in Stevens Creek. The City pays for buses to allow all 3rd grade classes in the City of Cupertino and in the Cupertino School District to participate in this popular program. As a result, teachers have incorporated creek education into their regular curriculum. Environmental Programs staff publishes educational articles for its adult community each month in the City's newsletter. As evidenced by the response to articles, the City's newsletter has proven to be an effective way to engage the community. Residents frequently use the advertised email address (environmental@cupertino.org) to contact City staff about environmental concerns or to report potential stormwater violations. These control measures are considered baseline because they were not related to trash reduction specifically. New trash reduction activities 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 City of Cupertino 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)

Through participation and funding of the regional **BASMAA Youth Outreach Campaign,** the City of Cupertino will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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. A brief description of the Campaign activities is provided below:

- Raising Awareness: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the City of Cupertino 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Outreach to School-age Children or Youth

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide ZunZun Program, the City of Cupertino plans to continue 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 includes 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)

Through participation and funding of the **BASMAA Regional Media Relations Project**, the City of Cupertino plans to continue 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 press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

Community Outreach Events

In addition to regional efforts, the City of Cupertino will hold four (4) community outreach events per year where an anti-litter message will be presented to attendees. The City will organize and present focused outreach and education at an implementation level, listed in Table CR-3.2 of the Trash Load Reduction Tracking Method Technical Report. The City will focus its litter awareness messages on the City's highest priority areas where litter is the most prevalent. An evaluation component (e.g. survey questions) conducted at these events will be included in the City's outreach strategy. The City's events will always include a presentation using photos, an Enviroscape model, or similar mechanism to raise awareness about the impact of litter problems on local watersheds, water bodies, and wildlife. Several resolutions to the problem will be modeled or discussed, after which, attendees will be invited to take action by making a personal list of anti-litter activities that they can and will commit to doing. Cupertino's four annual community outreach events are further described below:

Cupertino Earth Day Festival (Local) **-** Every April on a Saturday close to Earth Day Cupertino holds an Earth Day Festival. Cupertino's Environmental Programs staff will host a table featuring the Enviroscape model, an Environmental Jeopardy game, and information on litter and other stormwater quality issues. Giveaways such as reusable bags that promote the discontinued use of single use bags are provided as resources are available.

World Water Monitoring Day (Local) **-** The City of Cupertino and the Stevens & Permanente Creeks Watershed Council will host a World Monitoring Day event every October at Blackberry Farm with help from a federal grant received in 2011 through a partnership with the Stevens Permanente Creek Watershed Council and other cities. Volunteers will have an opportunity to learn how to sample and monitor water quality, learn its impact on aquatic life and how to protect wildlife and creek habitat. In addition, photos and discussions on litter and other stormwater issues will be provided.

Cupertino Fall Festival (Local) **-** Every September the City of Cupertino participates in Cupertino Rotary Club's Fall Festival. The festival is held in Memorial Park, one of the City's priority areas of focus for litter reduction. The park is located near a community college and several restaurants and food retail businesses. Cupertino's Environmental Programs staff will convey anti-littering messages to children, older students and parents. Attendees will be invited to take action by developing a personal list of litter reduction and water pollution prevention activities. City staff will develop signage for the event, directing attendees to use the appropriate recycling, composting or trash receptacles for food waste and litter and to take individual responsibility for keeping it a litter-free festival.

Creek Cleanup Events (Local) **-** Every May the City will host a site on National River Cleanup Day at one of the City's most littered areas, adjacent to a creek. The location will change if over time a site no longer requires a large group of volunteers to remove litter. New locations of concern will be identified and selected for cleanup as former sites are given a lower priority on the City's list of sites of concern. Cupertino staff will begin each event by showing photos or giving a presentation to open a discussion

with volunteers about local areas that suffer from the prevalence of litter. The City will train a couple of its dedicated volunteer groups to conduct hot spot assessments. Discussions about the source of litter and activities that will reduce litter will continue throughout the event as staff participates with the volunteers in the cleanup.

Percent Reduction from Enhancements

The City of Cupertino will receive a total of eight (8) percent reduction credit for implementing specific enhanced control measures described in *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 eight (8) percent reduction credits will be applied against the City of Cupertino's baseline trash load. This percent reduction credit is consistent with methods presented in the 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 and which its' contents escapes[3], vehicles remain an important 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 local law enforcement to enhance enforcement of existing regulations.

Baseline Level of Implementation

The baseline trash load described in Section 2.0, assumes that prior to adoption of the MRP the City of Cupertino 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 Cupertino has begun to implement the following enhanced control measures to reduce trash from vehicles with uncovered loads.

Require Municipal Trash Haulers to Cover Loads – After the adoption of the MRP, the City of Cupertino proposed anti-litter management actions during negotiations with its franchised garbage and recycling hauler (Recology). In May of 2010, the City of Cupertino included language in its contract with Recology that requires Recology to cover loads when transporting trash and debris to all landfills and transfer stations. The new franchise agreement took effect on November 1, 2010.

Implement an Enhanced Enforcement Program for Vehicles with Uncovered Loads – The City of Cupertino's enhanced enforcement will include citations and fines for vehicles spotted with uncovered loads on all roads in the City's jurisdictional area. The Sheriff's Office confirmed that its motor units and regular patrol deputies are well versed in and currently enforcing vehicle sections 32114 and 23115 within the City of Cupertino. The Sheriff's Office reported that a Commercial Vehicle Enforcement Unit focuses efforts in the Foothill Boulevard/Stevens Canyon Road and Stevens Creek Blvd. area. These are heavily traveled arterials that provide access to much of the City's retail/commercial area.

Percent Reduction from Enhancements

The City of Cupertino will receive a five (5) percent reduction credit for implementing specific enhanced control measures described in Description of Enhanced Level of Implementation section above. The five (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 Cupertino. 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.

[3] 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 loads 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 Cupertino has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow.

Enhanced Level of Implementation

The City of Cupertino began to implement the following enhanced anti-littering and illegal dumping enforcement control measures through its *Illegal Discharge Detection and Elimination* (IDDE) enforcement program on April 1, 2010. Beginning in April 2012, the City will step up its enforcement of illegal dumping by using physical deterrents (i.e., identifying, cleaning up and putting litter prohibition signage at 60 to 100 percent of the sites) where illegal dumping or littering is found to be prevalent within the City of Cupertino's jurisdictional area. Enhanced enforcement will include the following activities:

- City staff (i.e. the Stormwater Inspector, Hazardous Materials Coordinator and Environmental Programs staff) will work collaboratively to conduct thorough investigations of complaints received via, 1) calls to the City's Service Center, Public Works Dept. or Environmental Programs Division, 2) reports submitted via the City's online public reporting program (*Comcate*), or 3) messages received via the Environmental Programs email address published in the City's monthly newsletter (*the Scene*);
- The City's enforcement procedures will include maintaining high priority areas, citations with fines for littering or dumping (commensurate with the severity of the violation), litter prohibition signage; and,
- The collection of evidence (e.g., names, addresses, etc.) from illegal dump sites (i.e., public and private) in an attempt to identify offenders.

Percent Reduction from Enhancements

The City of Cupertino will receive a four (4) percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The four (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 Cupertino. 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 for placing incidental trash generated in public spaces that provides people with a convenient and appropriate place to dispose of trash. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of bins/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 Cupertino has not implemented enhanced trash bin/container management practices prior to effective date of the MRP.

Enhanced Level of Implementation

Ensuring Adequate Private Trash Service – After the MRP was adopted the City of Cupertino began implementing a program to identify businesses and households that do not subscribe to and utilize sufficient disposal and recycling services. The City of Cupertino entered into an agreement with its franchised hauler (Recology) on November 1, 2010. Within that agreement the City chose to coordinate with its hauler and the hauler's drivers to ensure identification of properties with insufficient service. The City's franchise agreement requires businesses, high density residential and single family households to have an adequate number of appropriate sized containers and subscribe to a frequency of service that will prevent trash from overflowing, accumulating or being stored uncovered and uncontained. The requirement for contained trash is enforced through citizen complaints, when properties are reported by the garbage hauler, or when City stormwater inspectors make routine visits to businesses (e.g. restaurants and retail) to verify stormwater compliance. The City also requires developers, through the building permit process, to install adequately sized trash enclosures with a roof whenever a commercial property is being developed or redeveloped.

Percent Reduction from Enhancements

The City of Cupertino will receive a three (3) percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The three (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 Cupertino. 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-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 City of Cupertino implemented the following on-land cleanup activities prior to the effective date of the MRP. The City's Grounds Maintenance staff picked up litter as needed from parks and public places. These control measures are considered baseline because they were accounted for in the preliminary trash generation rates established through the BASMAA *Baseline Trash Loading 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 City of Cupertino will conduct or coordinate the new or enhanced on-land trash cleanup activities listed below. 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.
On-land cleanups will include at least one and possibly more of the following activities per year:

- As illegal dumping or litter sites are identified by the City, site response and abatement will follow in coordination with the City's Public Works Service Center;
- Interagency cleanup of on-land checkpoint near the end of the City's MS4 and Stevens Creek will be conducted annually in coordination with the Department of Corrections;
- As litter hot spots or areas of priority focus for the City are identified, the City will organize and coordinate an annual large scale Keep America Beautiful event to remove trash and engage volunteers in the anti-litter campaign; or
- The City will organize and coordinate at least one small-scale single-day cleanup event be led by one of the known volunteer groups with which the City has partnered while piloting cleanup events since the MRP was adopted;

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.

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 260 gallons. This volume is a conservative estimate based on data collected from previous on-land and creek cleanups where the City regularly collects more than twenty, thirteen-gallon bags on average from events of this nature. This volume is equal to approximately a 2.1 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 Cupertino. Both values provided within this section are included in 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 *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 Pemittees 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 two (2) trash full-capture treatment devices will be installed in the City of Cupertino 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 2012a).

The City of Cupertino is participating in the Bay Area-wide Trash Capture Demonstration Project and has signed a purchasing agreement for two (2) approved Continuous Deflective Separator (CDS) units from Contech Construction Products. The project is currently in the design phase, and the units are tentatively scheduled for installation in July of 2012. These two CDS units will treat approximately 84.4 acres of the City's retail/wholesale land use areas that drain to the MS4s.

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 473 gallons. This volume is equal to approximately a 3.9 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 Cupertino. Both values provided within this section are included in 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 Cupertino 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
Vallco CDS1	Private	Continuous Deflective Separator (Contech)	Vallco	By November 2012	59.4	331 gallons
Vallco CDS2	Private	Continuous Deflective Separator (Contech)	Vallco	By November 2012	25	142 gallons

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 City of Cupertino'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 Cupertino will conduct MRP-required[4] and three annual non MRP-required creek/channel/shoreline cleanups[5]. The City will hold large-scale non required events on National River Cleanup Day, Coastal Cleanup Day and one other single-day event. 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 began piloting Creek Cleanup Events with National River Cleanup Day in May 2008. The event was successful, but the turnout of volunteers was more than City staff could manage. At least 80 volunteers signed up for the City's first cleanup event and approximately 20 volunteers who called to register prior to the event were turned away because the site and staff could not accommodate more volunteers. City staff considered finding other sites and piloted a cleanup event with a much smaller group of volunteers at Stevens Creek in fall of 2008. That site was not ideal (no restrooms and parking was limited). The City held its third piloted event at Calabazas Creek (the location of its first site) on Coastal Cleanup Day, September 2008. By 2009, City staff were looking for other sites and began to organize a cleanup at Regnart Creek, but discovered that the Creek had been adopted by Cupertino High School students and that parking was too limited for the level of turnout that was indicated by volunteers who called to register for the event. It became apparent that the community wanted and would continue to provide large-scale participation in creek cleanup events.

With the adoption of the MRP and the City's selection of two *hot spots*, City staff decided to try combining cleanup events with the MRP-required creek assessments to engage the public (especially high school students) in community-wide litter reduction. After piloting several events City staff decided to separate the creek assessments from the large-scale events and only invite volunteers who indicated a desire to make a long-term commitment to help with litter reduction to participate in the smaller-scale but more technically focused *hot spot assessments*. The City also chose to expand the area of its large-scale creek cleanups to allow volunteers more

[4] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.
[6]All "other" creek/channel/shoreline cleanups conducted by a municipality that are not required by Provision C.10.b.

freedom in selecting their personal cleanup spots and to allow individual groups to work at their own the pace unhindered by a the schedule of start and stop times. The City has selected the option of additional creek cleanup events because this mechanism seems to work well as a means of public education and community building in addition to the load of trash removed from the creeks. The quantity of volunteers is not lacking, but areas that need cleaning and also have safe access to a long stretch of creek are not easy to find. Finding ideal cleanup spots will be a focus of the City's enhanced creek cleanup coordination.

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 676 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 City of Cupertino. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.

5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS

The City of Cupertino 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 described in Table 5-1 on the following page. The enhancements are intended to comply with the 40% trash load reduction goal in MRP provision C.10. The trash control measures that will be implemented by the City of Cupertino to reach the 40% trash load reduction are:

- Single-use Carryout Plastic Bag Policy/Ordinance at Large Supermarkets
- Polystyrene Foam Food Service Ware Prohibition Policy/Ordinance on City Property
- Public Education and Outreach Programs with Four Annual Community Events Focused on Littered Areas
- Enforcement to Reduce Trash from Uncovered Loads
- Anti-Littering and Illegal Dumping Enforcement Activities
- Citywide Improved Trash Bin/Container Management
- On-land Trash Pickup (Volunteer and Municipal)
- Full-Capture Treatment (Contech CDS) Devices
- Three Annual Creek Cleanup Events (Volunteer)

See Table 5-1 for more detail.

Table 5-1. Planned enhanced trash control measure implementation within the jurisdictional boundaries of the City of Cupertino and associated trash loads reduced. This table includes

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced	Cumulative % Reduction (Compared to Baseline)
Existing Enhanced Street Sweeping	Load Reduction via existing enhanced street sweeping.	**0.6%**	**67**	**0.6%**
Single-use Carryout Plastic Bag Ordinance (CR-1)	Adopt an ordinance prohibiting the distribution of single-use carryout plastic bags by large supermarkets in the City of Cupertino by April 2014.	**5.9%**	**724**	**6.5%**
Polystyrene Foam Food Service Ware Ban (CR-2)	Adopted a policy prohibiting food vendors from distributing polystyrene foam food and beverage ware at City-sponsored events or on City of Cupertino-owned property. Effective October 1, 2011.	**2.0%**	**241**	**8.5%**
Public Education and Outreach Programs (CR-3)	Through SCVURPPP, continue to develop public outreach campaigns targeting litter/trash load reduction. By Jul 2014, City will host 4 annual public events with an anti-litter component and evaluation tool to measure public's awareness and commitment to take action	**8.0%**	**965**	**16.5%**
Activities to Reduce Trash from Uncovered Loads (CR-4)	1) Through municipal contract, required City's hauler to cover truck loads; 2) Through Sheriff's Dept, Enforce the CA Vehicle Code for vehicles transporting uncovered loads with fines.	**5.0%**	**603**	**21.4%**
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Implementation of an enhanced anti-littering and illegal dumping enforcement program that includes: -Thorough investigations of complaints; -Enforcement procedures including citations with fines; -The collection of evidence to identify offenders; -Installation of or physical improvements & signage which eliminate or deter illegal dumping at high priority sites	**4.0%**	**483**	**25.4%**
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Enforcement of City agreement with waste hauler requiring sufficient frequency of service and adequate trash containment at private properties within the City	**3%**	**362**	**28.4%**
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	One City led volunteer large scale on-land cleanup event at an identified heavily littered public site per year, averaging 260 gallons of trash removal per year	**NA**	**260**	**30.5%**

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced	Cumulative % Reduction (Compared to Baseline)
Full-capture Treatment Devices (QF-5)	By agreement with City private property owner is Installing 2 Contech CDS units draining 84.4 acres of retail commercial area. Devices to be installed on private property by November 2012	**NA**	**473**	**34.4%**
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	City will Coordinate 3 volunteer cleanup events per year. Estimates from pilot cleanup events indicate approximately 273 gallons from Calabazas Creek, 247gallons from Regnart & Calabazas Creeks and 156 gallons from Stevens Creek at Heney Creek confluence annually	**NA**	**676**	**40.0%**

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

Consistent with MRP Provision C.10.d (i), the City of Cupertino 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 City of Cupertino 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 robust baseline load.

6.0 IMPLEMENTATION SCHEDULE

Implementation of enhanced trash control measures by the City of Cupertino 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 City of Cupertino'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 City of Cupertino may chose 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 Cupertino's annual reporting process.

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

Trash Control Measure	Beginning Date of Implementation
Single-use Carryout Plastic Bag Ordinance (CR-1)	-Public Education Campaign Nov. 2012 -Adopt Ordinance by April 2014
Polystyrene Foam Food Service Ware Ban (CR-2)	October 1, 2011
Public Education and Outreach Programs (CR-3)	-Advertising Campaigns Sept. 2012 -Youth Outreach already implemented -Media Campaigns already implemented -Local Community Outreach Events November 2012
Activities to Reduce Trash from Uncovered Loads (CR-4)	February 2012
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Illegal Dumping Enforcement April 2010 Begin Identifying & putting up signage February 2012
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	November 1, 2010
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	By March 2014
Full-capture Treatment Devices (QF-5)	By November 2012
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Expansion of Piloted River Cleanup Day- May 2012 Expansion of Piloted Coastal Cleanup- Sept 2012 Single-day Volunteer Cleanup annually by November 2013

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February .

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Los Altos

City of Los Altos

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

City of Los Altos

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

February 1, 2012

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CITY OF LOS ALTOS]
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:

Larry Lind January 26, 2012
Senior Engineer

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Figure 1-1: Creeks Within the City of Los Altos.

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

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 City of Los Altos 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 Los Altos' annual reporting process.

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

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 City of Los Altos 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

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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.

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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 the 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*.

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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 Permittees, 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 the City of Los Altos chooses to do so, methods specific to calculating trash load reductions for that control measure would need to be developed and included in a revision to this 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 City of Los Altos 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 Los Altos' 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
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
Quantification Formulas
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)

2.0 BASELINE TRASH LOADING ESTIMATE

This section provides the estimated annual trash baseline load from the City of Los Altos's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Los Altos 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 City of Los Altos. 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 Los Altos'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

Default Trash Generation Rates (Regional Approach)

A set of default trash generation rates for wet and dry seasons were 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 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 (Fall/Winter 2011), this section of the Plan will 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.

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Table 2-1: Regional Default Trash Generation Rates.

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

Characteristics of the City of Los Altos

Tree lined streets and a small village atmosphere characterizes Los Altos which is located in the heart of world famous Silicon Valley. Just 40 miles south of San Francisco, Los Altos is an upscale residential community served by seven small retail areas. The approximately seven square mile city is developed with small businesses, schools, libraries and churches. According to the 2010 Census, it has a population of 28,976, with a population density of 4,466.8 people per square mile, and average household size of 2.61. Of the 28,976 who call the City of Los Altos home, 26.1% are under the age of 18, 3.5% are between 18 and 24, 18.2% are between 25 and 44, 32.3% are between 45 and 64, and 20.0% are 65 and older. The City had a median household income of $127,000 based on the 2000 Census

Los Altos' climate is marine-influenced with an average summertime high temperature of 78°F and an average low of 57°F, dropping to an average winter nighttime low temperature of 41°F and an average high of 60°F. Mean annual precipitation ranges from 15 to 22 inches, with the majority of that precipitation falling from November through March. Precipitation occurs entirely as rainfall. Snowmelt is not a hydrologic process that significantly affects runoff in the City.

Precipitation that falls within the City of Los Altos generates stormwater runoff. This runoff is conveyed in a number of mostly manmade flood protection systems that discharge to the creeks. Most of these systems do not interact with one another, and potential improvements to one system should not impact the performance of other systems. The total land area within the city limits is roughly 6.3 square miles (approximately 4,000 acres). To create a rural aesthetic, many of the streets in Los Altos do not have traditional suburban curb and gutter lined streets. This layout provides some attenuation before runoff reaches a catch basin.

In addition to storm drains, flood protection is provided to the City of Los Altos by four creeks (Hale, Stevens, Adobe, and Permanente) that convey storm-generated runoff north to the San Francisco Bay. Figure 1-1 shows these facilities.

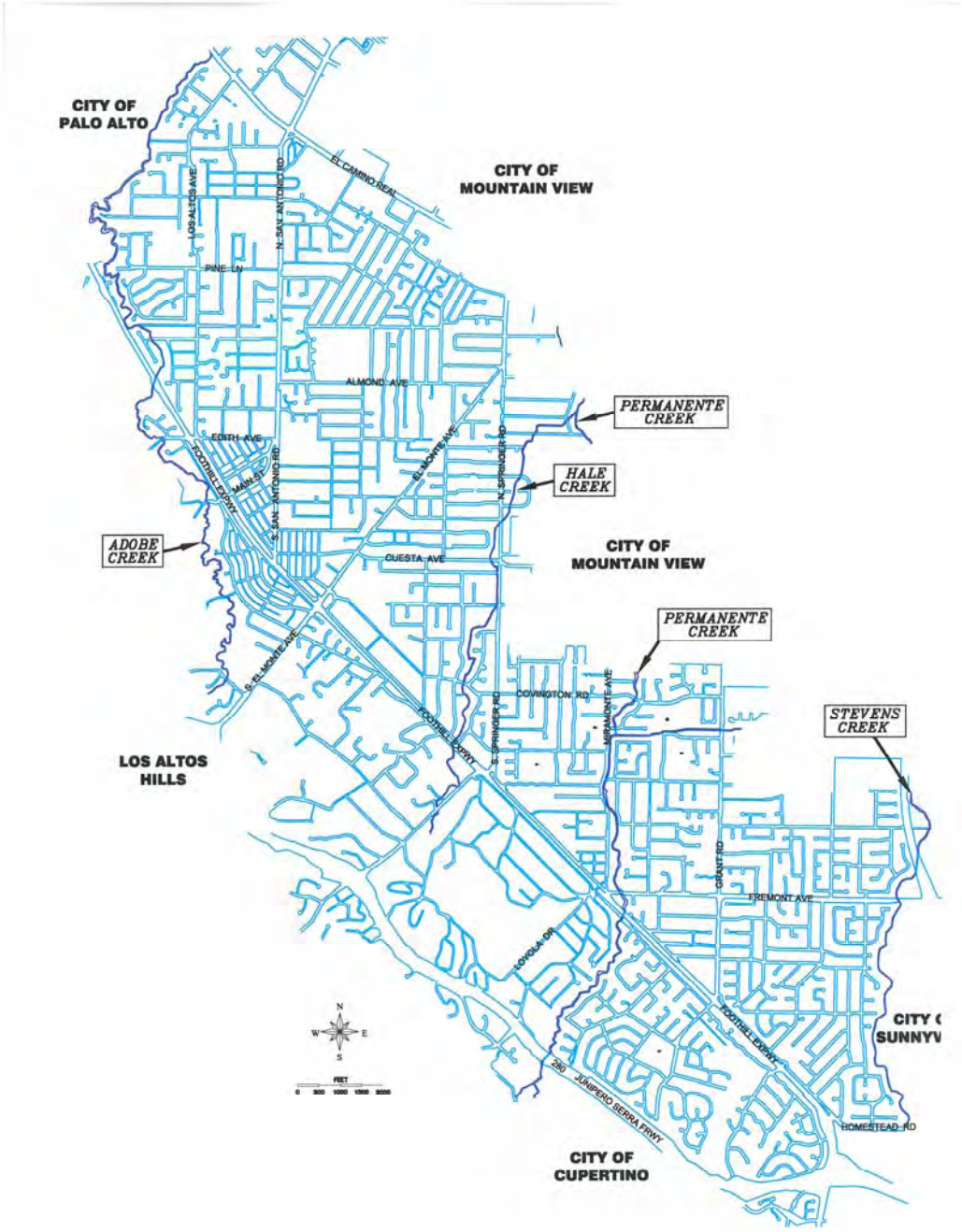

Figure 1-1: Creeks Within the City of Los Altos.

Land Use

The City of Los Altos is an established and largely developed community. Table LU-3 shows the currently land uses based on the 2002 General Plan. A desirable balance of land uses currently exists and will be maintained in the further under the approved General Plan.

Table LU-3: General Plan Land use in the Los Altos Planning Area

Land Use	Net Acres In Planning Area	Percentage of Land In Planning Area
Single-Family Large Lot	429	11%
Single-Family Medium Lot	2598	67%
Single-Family Small Lot	83	2%
Low Density Multi-Family	34	1%
Medium Density Multi-Family	45	1%
Neighborhood Commercial	37	1%
Downtown Commercial	42	1%
Thoroughfare Commercial	59	2%
Public School Land	120	3%
Private School Land	34	1%
Public and Institutional	113	3%
Utilities		
Parking		
Parks	32	1%
Other Open Space	127	3%
Planned Community	93	3%
Total	**3,846**	**100%**

For the purpose of this Plan, the land uses depicted in ABAG (2005) was used since it consolidated the land uses listed above to make the trash evaluation more manageable. ABAG's land uses are shown in Table 2-2.

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 City of Los Altos. The City of Los Altos's jurisdictional areas includes all urban land areas within the City of Los Altos boundaries that are subject to the requirements in the MRP. Land use areas identified by a combination of the ABAG 2005 and use dataset, City of Los Altos General Plan and the City's knowledge that were <u>not</u> 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;
- 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 Los Altos's jurisdictional area was delineated (Table LU-3), 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). The jurisdictional areas for the City of Los Altos are shown in Table LU-3 above and the effective loading areas are presented in Table 2-2 below.

Table 2-2: Effective loading areas in the City of Los Altos by land use classes identified by ABAG (2005).

Land Use Category	Effective Loading Area (Acres)	% of Effective Loading Area
High Density Residential	81	2
Low Density Residential	3,297	88
Rural Residential	43	1
Commercial and Services/ Heavy, Light and Other Industrial	146	4
Retail and Wholesale	93	2
K-12 Schools	76	2
Urban Parks	30	1
TOTAL	**3,767**	**100%**

CITY OF LOS ALTOS SPECIFIC BASELINE TRASH LOADING RATES

Regional default trash generation rates developed through the BASMAA regional collaborative project were applied to specific geographical areas in City of Los Altos based on the areas' 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. 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 Los Altos 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 Los Altos 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 City of Los Altos's baseline street sweeping program includes sweeping industrial and residential areas once per month, commercial areas twice per month, and retail areas once per week. Parking enforcement signs are not posted in the City, but cars generally do not park on City streets and the downtown areas are swept before cars arrive[1]. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of Los Altos, 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 City of Los Altos has an annual effectiveness rating of 5%. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Stormwater Pump Station Maintenance

The City of Los Altos does not own any stormwater pump stations.

Baseline Trash Loading Estimates

The estimated baseline trash load from the City of Los Altos 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 Los Altos 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, high and very high trash loading rates.

Table 2-3: Preliminary Trash baseline load for the City of Los Altos

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Category	Load (gallons)
Preliminary Baseline Trash Generation Load	10,393
Load Removed via Baseline Street Sweeping	5,771
Load Removed via Baseline Storm Drain Inlet Maintenance	231
Preliminary Baseline Trash Load	**4,391**

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[1] Considered equivalent to parking enforcement

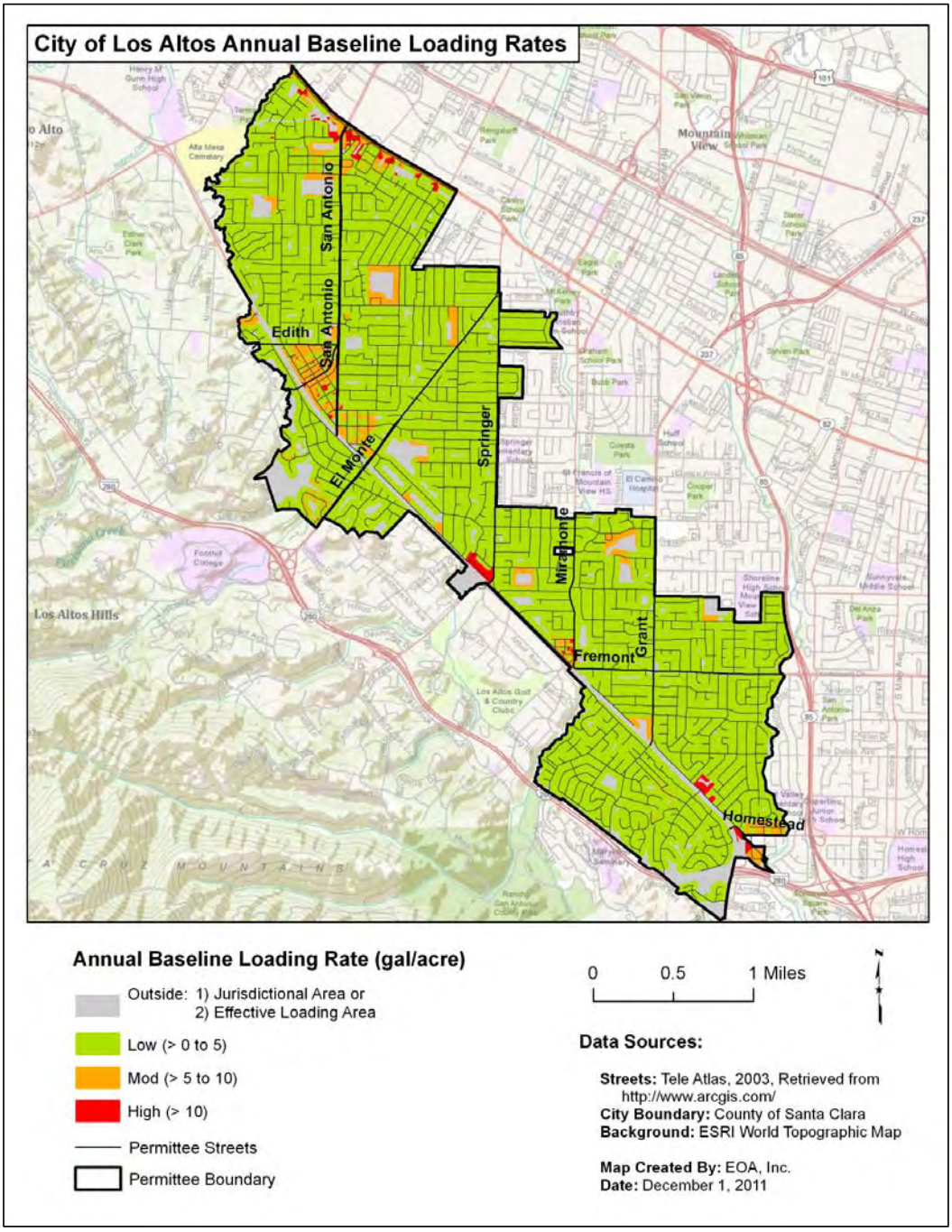

Figure 2-1: Estimated trash baseline loading rates for geographical areas in the City of Los Altos.

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

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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.

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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**.

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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.[2] 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).

[2] 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".

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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-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.

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

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Deleted: Once conveyance system loading rates are adjusted for those geographical areas treated by the control measures listed above, rates associated with the following control measure can be adjusted: ¶
QF-3b: Partial-capture Treatment Device: Enhancements to Stormwater Pump Station Trash Racks (Area-specific)¶
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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 Los Altos. 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 City of Los Altos include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by City of Los Altos 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
Activities to Reduce Trash from Uncovered Loads
Anti-Littering and Illegal Dumping Enforcement Activities
Improved Trash Bin/Container Management (Municipally or Privately-Controlled)
Full-Capture Treatment Devices
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)

CR-1: Single-use Carryout Plastic Bag Policy

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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

The City of Los Altos plans to begin the process to adopt an ordinance prohibiting large supermarkets within the City from the distribution of single-use carryout plastic bags**.** This ordinance adopted and will become effective prior to July 1, 2014. In conjunction with this ordinance the City will implement an outreach about this ordinance prior to its implementation. 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.

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Reduction from Implementing Control Measure

The City of Los Altos will receive a six percent reduction credit for implementing specific enhanced control measures described in Enhanced Level of Implementation section above. The six percent reduction credit will be applied to the City's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 4.0.

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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

The City of Los Altos plans to begin initiating the adoption of a citywide policy prohibiting food vendors from distributing polystyrene foam food and beverage ware at all City sponsored events including those on City-owned property. Additionally The City of Los Altos plans to begin initiating the adoption of an ordinance that prohibits all food vendors from distributing polystyrene foam food and beverage ware. Both the policy and the ordinance will become effective prior to July 1, 2014. The percent trash reduction from MS4s as a result of implementing the polystyrene foam food service ware policy and the ordinance will be reported in the Annual Report submitted each September.

Percent Reduction from Enhancements

The City of Los Altos will receive an eight percent reduction credit for implementing specific enhanced control measures described in *Enhanced Level of Implementation* section above. The eight percent reduction credit will be applied to the City's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

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

Prior to the effective date of the MRP, the City of Los Altos monitored the efforts of the Program's Watershed Education & Outreach campaign and provided suggestion as required. 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.

Enhanced Level of Implementation

The City of Los Altos 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)

Through participation and funding of the regional **BASMAA Youth Outreach Campaign** the City of Los Altos will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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. A brief description of the Campaign activities is provided below:

- Raising Awareness: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the City of Los Altos 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Outreach to School-age Children or Youth

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide ZunZun Program the City of Los Altos plans to continue 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 includes 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)

Through participation and funding of the **BASMAA Regional Media Relations Project**, the City of Los Altos plans to continue 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 press releases or PRs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

Percent Reduction from Enhancements

The City of Los Altos will receive a total of six percent reduction credit for implementing specific enhanced control measures described in *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%

These six percent reduction credits will be applied against the City's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

CR-4: Reduction of Trash from Uncovered Loads

Although it is currently illegal to operate a vehicle that is improperly covered and which its' contents escapes[3], vehicles remain an important 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 or private landfill and transfer station operators to educate waste haulers on securing loads and/or to enhance enforcement of existing regulations.

Baseline Level of Implementation

The baseline trash load described in Section 2.0, assumes that prior to adoption of the MRP the City of Los Altos 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 Los Altos will implement the following enhanced control measures to reduce trash from vehicles with uncovered loads prior to July 1, 2014:

1. **Require Municipal Trash Haulers to Cover Loads** – City of Los Altos begin the review and the development and inclusion of language as required in all of the City of Los Altos' hauling service contracts that requires contracted trash and construction debris haulers to cover loads when transporting trash and debris to municipally or privately-owned landfills and transfer stations. This will be in place by July 1, 2014.
2. **Implement an Enhanced Enforcement Program for Vehicles with Uncovered Loads** City of Los Altos will begin to establish an enhanced enforcement program for vehicles with uncovered loads with the goal to have it in place by July 1, 2014. Enhanced enforcement programs may include the following:
    a. Adoption of an ordinance prohibiting the all transportation of trash or debris without a cover.
    b. Citations and fines for vehicles spotted on roads in an individual Permittee's jurisdictional area with uncovered loads.

[3] 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 loads 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.

Percent Reduction from Enhancements

The City of Los Altos will receive a five percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The five 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 Los Altos. 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-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 Los Altos has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow. Currently the City of Los Altos response to complaints or calls about litter and for illegal dumping and take action a deemed necessary

Enhanced Level of Implementation

The City of Los Altos will implement the following enhanced anti-littering and illegal dumping enforcement control measures prior to July 1, 2014:

1. Thorough investigations of complaints received from an illegal dumping hotline.
2. The implementation of enforcement procedures including citations (as warranted)and a hotline with response by the City's Code Enforcement Officer.
3. The collection of evidence (e.g., names, addresses, etc.) from illegal dump sites (i.e., public and private) in an attempt to identify offenders.

Percent Reduction from Enhancements

The City of Los Altos will receive a two percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The two 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. 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 for placing incidental trash generated in public spaces that provides people with a convenient and appropriate place to dispose of trash. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of bins/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 Los Altos has not implemented enhanced trash bin/container management practices prior to effective date of the MRP. Currently the City provides trash service to businesses and residents based on their requests.

Enhanced Level of Implementation

Through a coordinated effort through the City of Los Altos' waste haulers, Mission Trails, the City will begin implementing a program that identifies businesses or households that have inadequate trash service (i.e., insufficient trash collection or use of bins which are too small). Through municipal code enforcement or other authorities, businesses/households will be required to sufficiently remedy situations of inadequate trash service. The City will implement this improved trash bin/container management practices prior to July 1, 2014:

Percent Reduction from Enhancements

The City of Los Altos will receive a three percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The three 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. 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-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 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 no trash full-capture devices have been installed.

Enhanced Level of Implementation

A total of one large trash full-capture treatment device will be installed in the City of Los Altos prior to July 1, 2014. Information on the large trash full-capture treatment is included in Table QF-6-1 and is considered an enhanced trash control measures. Table QF-6-1 also includes the area treated and the calculated trash load reduced from the full-capture treatment device which will be installed on View Street in the City. 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 141 gallons. This volume is equal to approximately a 3.3 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.

Table QF-6-1. Trash full-capture treatment devices within the jurisdictional boundaries of the City of Los Altos that are planned for installation by July 1, 2014.

Device Name	Location (Cross Streets)	Anticipated Installation Date	Total Area Treated (acres)	Trash Annual Load Reduced (gallons)
Continuous Deflective Separator	View Street (Edith & Mt. Hamilton Avenues)	December 31, 2012	76	340

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 City of Los Altos' 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

The City of Los Altos will continue to conduct annual MRP-required[4] and the volume of trash removed will be tracked to demonstrate trash loads reduced.

Percent Reduction from Enhancements

The total estimated annual volume of trash that will be reduced as a result of implementing creek/channel/shoreline cleanup at the City designated hot spot was 120 gallons in Fiscal Year 2010-2011. This volume is equal to approximately a 2.7 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 Los Altos. The value noted in this section is included in Trash Load Reduction Summary Table included in Section 5.

[4] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.

5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS

The City of Los Altos 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 summarized in Table 5-1. These enhancements, along with the6.4% trash load reduction from the City of Los Altos enhanced street sweeping, are intended to comply with the 40% trash load reduction goal in MRP provision C.10.

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

Trash Control Measure	% Reduction (Credits)	Trash Load Reduced (gallons)	Cumulative % Reduction (Compared to Baseline)
Single-use Carryout Plastic Bag Ordinance (CR-1)	6	247	5.8
Polystyrene Foam Food Service Ware Ban (CR-2)	8	329	13.5
Public Education and Outreach Programs (CR-3)	6	247	19.3
Activities to Reduce Trash from Uncovered Loads (CR-4)	5	206	24.1
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	2	82	26.0
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	3	123	28.9
Full-capture Treatment Devices (QF-5)	NA	340	36.1
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	NA	120	38.9

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

Consistent with MRP Provision C.10.d (i), the City of Los Altos 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. Estimated 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 City of Los Altos 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 City of Los Altos is currently planned to occur in a timeframe consistent with MRP requirements of not later than July 1, 2014. This schedule provides a timeframe for reducing trash discharged from the City'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 City of Los Altos may chose 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's annual reporting process.

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011e. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. 2012a Feb 2012.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. 2012b Feb 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

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Santa Clara Valley
Urban Runoff
Pollution Prevention Program

Town of Los Altos Hills

Town of Los Altos Hills

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

Town of Los Altos Hills
26379 Fremont Road
Los Altos Hills, CA 94022

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

February 1, 2012

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LOS ALTOS HILLS
CALIFORNIA

TOWN OF LOS ALTOS HILLS
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:

Richard Chiu

Richard Chiu, P.E.
Public Works Director
Town of Los Altos Hills

February 1, 2012

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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
PIP	Public Information and Participation (SMCWPPP Program)
PSA	Public Service Announcement
Q	Flow
SFRWQCB	San Francisco Bay Regional Water Quality Control Board
SMCWPPP	San Mateo Countywide Stormwater Pollution Prevention Program
SWRCB	State Water Resource Control Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
Water Board	San Francisco Bay 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 or quantification formulas), the Town of Los Altos Hills 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 Town of Los Altos Hills's annual reporting process.

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 Town of Los Altos Hills in compliance with the portions of MRP provision C.10.a.i identified as 1(a) and 3 above. In compliance with 1(b), 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 toward 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 are 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 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 toward 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) trash 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 toward load reduction goals will be demonstrated through comparisons to established baseline trash 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 a Permittee's 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 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 reduction credits (CR) or a quantification formula (QF) 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.

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 or quantification

formulas), the Town of Los Altos Hills 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 Town of Los Altos Hills's annual reporting process.

Table 1.1. Trash control measures for which load reduction credits or quantification formulas were developed to track progress toward 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: 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
Quantification Formulas
QF-1: On-land Trash Cleanups (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:

- Section 1.0: Introduction;
- Section 2.0: Baseline Trash Loading Estimate;
- Section 3.0: Trash Load Reduction Calculation Process;
- Section 4.0: Planned Implementation of New or Enhanced Control Measures;
- Section 5.0: Summary of Trash Control Measure Enhancements;
- Section 6.0: Implementation Schedule; and
- Section 7.0: References.

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 Town of Los Altos Hills' 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 Town of Los Altos Hills. If the Town 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 Town of Los Altos Hills, then the Town 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 the estimated annual trash baseline load from the Town of Los Altos Hills's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the Town of Los Altos Hills 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 (2012b) 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 Town of Los Altos Hills. 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 Town of Los Altos Hills'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 Town of Los Altos Hills is located in Santa Clara County, and has a jurisdictional area of 4,776 acres. According to the 2010 Census, it has a population of 7,922, with a population density of 900 people per square mile, and average household size of 2.78. Of the 7,922 who call the Town of Los Altos Hills home, 22.9% are under the age of 18, 4.3% are between 18 and 24, 13.7% are between 25 and 44, 36.0% are between 45 and 64, and 23.2% are 65 or older.

The Town of Los Altos Hills is almost entirely residential and had a median household income of $173,570 in 2000.[1] The Town of Los Altos Hills is entirely residential with no commercial zoning.

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 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 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.

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 Town of Los Altos Hills. The Town of Los Altos Hills's jurisdictional areas include all urban land areas within the Town of Los Altos Hills boundaries that are subject to the

[1] From the 2000 Census. The median household income for the City of San Mateo from the 2010 Census is not currently available.

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 Town'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;
- 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 Town of Los Altos Hills'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 Town of Los Altos Hills are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the Town of Los Altos Hills by land use categories identified by ABAG (2005).

Land Use Category	Jurisdictional Area (Acres)	Effective Loading Area (Acres)	% of Effective Loading Area
High Density Residential	0	-	0
Low Density Residential	0	-	0
Rural Residential	4,701	3,108	99
Commercial and Services/ Heavy, Light and Other Industrial	43	23	1
Retail and Wholesale	0	-	0
K-12 Schools	18	10	0
Urban Parks	14	6	0
TOTAL	**4,776**	**3,147**	**100%**

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 Town of Los Altos Hills 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 Town. 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 Town of Los Altos Hills 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 Town of Los Altos Hills 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 Town of Los Altos Hills's baseline street sweeping program includes sweeping residential areas twice per month during the wet season and every month and a half during the dry season. Parking enforcement signs are not posted in the Town, but cars generally do not park on Town street[2]. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the Town of Los Altos Hills, 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 Town of Los Altos Hills has an annual effectiveness rating of 5%. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Stormwater Pump Station Maintenance

The Town of Los Altos Hills does not own any stormwater pump stations with trash racks.

BASELINE TRASH LOADING ESTIMATE

The estimated baseline trash load from the Town of Los Altos Hills was calculated as the sum of the loads from the Town'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 Town of Los Altos Hills 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, high and very high trash loading rates.

[2] Considered equivalent to parking enforcement

Table 2-3: Preliminary annual trash baseline load for the Town of Los Altos Hills.

Category	Annual Load (gallons)
Preliminary Generation Trash Load	835
Load Removed via Baseline Street Sweeping	180
Load Removed via Baseline Storm Drain Inlet Maintenance	33
Load Removed via Baseline Stormwater Pump Station Maintenance	0
Preliminary Trash Baseline Load	623

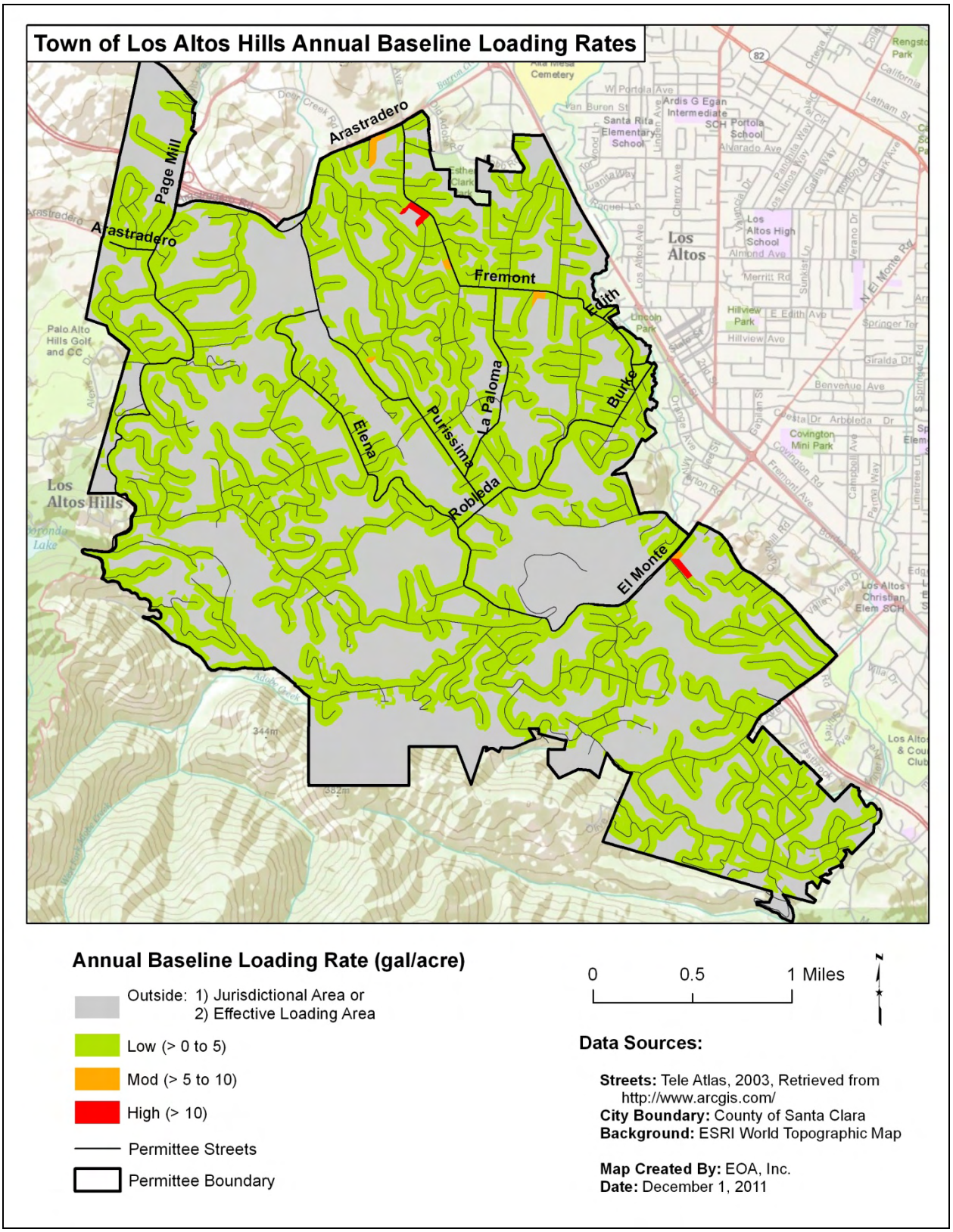

Figure 2-1: Estimated trash baseline loading rates for geographical areas in the Town of Los Altos Hills.

3.0 TRASH LOAD REDUCTION CALCULATION PROCESS

Using the guiding principles and assumptions described 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 process takes 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, this process 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 of steps as 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 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.[3] 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).

[3] 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 Devices: Curb Inlet Screens (Area-specific)
- QF-3b: Partial-capture Treatment Devices: Stormwater Pump Station Trash Rack 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 Devices: 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 <u>in-parallel</u> 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 toward MRP trash load reduction goals.

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

4.0 PLANNED ENHANCED TRASH CONTROL MEASURES

This section describes the new or enhanced trash control measures planned for implementation by the Town of Los Altos Hills. The enhanced control measures described are designed to achieve a 40% trash load reduction by July 1, 2014. New and enhanced control measures that will be implemented by Town of Los Altos Hills include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by the Town of Los Altos Hills to reach the 40% trash load reduction.

Control Measures
Polystyrene Foam Food Service Ware Ordinances
Public Education and Outreach Programs
Reduction of Trash from Uncovered Loads
Anti-Littering and Illegal Dumping Enforcement
On-land Trash Cleanups (Volunteer and/or Municipal)
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, 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

The Town of Los Altos Hills will adopt a resolution prohibiting the distribution of polystyrene foam food and beverage ware at Town-sponsored events or on Town-owned property and implement this policy by July 1, 2014. The percent trash reduction from the MS4 as a result of implementing a City-wide polystyrene foam food ware policy will be reported in the Annual Report submitted each September.

Percent Reduction from Enhancements

The Town of Los Altos Hills will receive a **2 percent** reduction credit for implementing the specific enhanced control measure described in the *Enhanced Level of Implementation* section above. The **2 percent** reduction credit will be applied to the Town of Los Altos Hills's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan is included in Section 5.0.

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 Town of Los Altos Hills will continue public education and outreach control measures that were implemented prior to the effective date of the MRP, including outreach via newsletters and website. These control measures are considered baseline because they were not related to trash reduction specifically, however, they will be enhanced to incorporate litter messaging as a priority pollutant topic. New action and actions started prior to the effective date of the MRP that the Town of Los Altos Hills plans to implement or continue into the future, with more emphasis on litter messaging, are described below:

Enhanced Level of Implementation

The Town of Los Altos Hills 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)

Through participation and funding of the regional **BASMAA Youth Outreach Campaign,** the Town of Los Altos Hills will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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. A brief description of the Campaign activities is provided below:

- Raising Awareness: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the Town of Los Altos Hills 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Outreach to School-age Children or Youths

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide ZunZun Program, the Town of Los Altos Hills plans to continue 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 includes 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)

Through participation in and funding of the **BASMAA Regional Media Relations Project**, the Town of Los Altos Hills plans to continue 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 press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

Percent Reduction from Enhancements

The Town of Los Altos Hills will receive a total of 6 percent reduction credit for implementing specific enhanced control measures described in *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%

These 6 percent reduction credits will be applied against the Town of Los Altos Hills's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

CR-4: Reduction of Trash from Uncovered Loads

Although it is currently illegal to operate a vehicle that is improperly covered and from which its contents escapes[4], 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 or private landfill and transfer station operators to educate waste haulers on securing loads and/or to enhance enforcement of existing regulations.

Baseline Level of Implementation

The baseline trash load described in Section 2.0 assumes that prior to adoption of the MRP, the Town of Los Altos Hills had 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 Town of Los Altos Hills will implement the following enhanced control measures to reduce trash from vehicles with uncovered loads prior to July 1, 2014:

Required Municipal Trash Haulers to Cover Loads – The Town of Los Altos Hills already requires its franchised waste hauler to cover loads when transporting trash and debris to the disposal site.

Implement an Enhanced Enforcement Program fro Vehicles with Uncovered Loads –The Town does not have its own police department and has contracted with the County of Santa Clara for policing service. The County Sherriff 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 causing a litter issue in Los Altos Hills.

Percent Reduction from Enhancements

The Town of Los Altos Hills will receive a **5 percent** reduction credit for implementing specific enhanced control measures described in the *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 Town of Los Altos Hills. 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 5.0.

[4] 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 loads 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 Town of Los Altos Hills has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow. Program elements are described in the *Enhanced Level of Implementation* section below.

Enhanced Level of Implementation

The Town of Los Altos Hills will implement the following enhanced anti-littering and illegal dumping enforcement control measures prior to July 1, 2014:

Anti-Littering and Illegal Dumping Enforcement Program – The Town of Los Altos Hills 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 Town of Los Altos Hills's IDDE ERP will be reviewed and updated, as needed. By July 1, 2014, City staff will prepare a fact sheet or written standard operating procedure that documents the City's anti-littering and illegal dumping enforcement protocols.

Percent Reduction from Enhancements

The Town of Los Altos Hills 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 baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Town of Los Altos Hills. 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 5.0.

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 Town of Los Altos Hills implemented the following on-land cleanup activities prior to the effective date of the MRP. Town staff performs clean-up activities when reported by residents. These control measures are considered baseline because they were accounted for in the preliminary trash generation rates established through the BASMAA *Baseline Trash Loading 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 Town of Los Altos Hills will be conducting or coordinating the following new or enhanced on-land trash cleanup activities listed below. 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. Town staff will document and pick up trash along Fremont Road, Page Mill Road, Moody Road, Purissima Road, Purissima Park and Edith Park at least six times a year.

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.

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 **120 gallons**. This volume is equal to approximately a **19.3 percent** reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Town of Los Altos Hills. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

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 citizens' 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 Town of Los Altos Hills'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 Town of Los Altos Hills will conduct MRP-required[5] and conduct or coordinate the following non MRP-required creek/channel/shoreline cleanups[6] 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. For events that involve volunteer participation, the City will provide reusable 5-gallon plastic buckets and gloves and will arrange for the disposal of collected trash.

Routine Cleanups by Municipal Staff

Town of Los Altos Hills staff will pick up in-creek/channel trash during Stormwater Collection System Screening and other routine activities. City staff is also performing regular cleanups at locations along sections of Barron Creek and Adobe Creek in Los Altos Hills. Cleanups will be performed six times a year at these locations and will be documented for tracking purposes.

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 **40 gallons**. This volume is equal to approximately a **6.4 percent** reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Town of Los Altos Hills. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

[5] Creek/channel/shoreline "Hot Spot" cleanups conducted in accordance with Permit Provision C.10.b.
[6] 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 Town of Los Altos Hills 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% trash load reduction goal in MRP provision C.10.

New and enhanced control measures and best management practices that the City plans to implement by July 1, 2014 include activities for which credit will be given toward the 40% reduction requirement (e.g., public education and outreach, anti-littering and illegal dumping enforcement), and activities for which quantification methods currently exist (e.g., on-land and in-creek/channel cleanups, full-capture treatment devices). Specific control measures are listed in Table 5-1.

Table 5-1. Planned enhanced trash control measure implementation within the jurisdictional boundaries of the Town of Los Altos Hills and associated trash load reduction.

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced (Gal/Year)	Cumulative % Reduction (Compared to Baseline)
CR-2: Polystyrene Foam Food Service Ware Policy	Policy banning the distribution of polystyrene foam food and beverage ware at Town-sponsored events or on Town-owned property.	**2%**	**12**	**2.0**
CR-3: Public Education and Outreach Programs	Outreach efforts beyond those required in the MRP	**6%**	**37**	**8.0**
CR-4: Activities to Reduce Trash from Uncovered Loads	Language in Town's hauling service contracts that requiring covered loads, and City Sheriff enforcement of the CA Vehicle Code prohibiting uncovered loads.	**5%**	**31**	**13.0**
CR-5: Anti-Littering and Illegal Dumping Enforcement Activities	Thorough investigation of reports of illegal dumping, including collection of evidence to help identify offenders, and enforcement procedures including citations.	**2%**	**12**	**15.0**
QF-1: On-Land Clean-Up	Approximately 120 gallons collected per year throughout the City.	**19.3%**	**120**	**34.3**
QF-6: Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)	Enhanced efforts throughout the year performed by City Staff. Documentation of routine cleanups performed by City staff.	**6.4%**	**40**	**40.7**

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

Consistent with MRP Provision C.10.d (i), the Town of Los Altos Hills 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 Town of Los Altos Hills 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 robust baseline load.

6.0 IMPLEMENTATION SCHEDULE

Implementation of enhanced trash control measures by the Town of Los Altos Hills 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 Town of Los Altos Hills's MS4 by 40% by July 1, 2014.

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 Town of Los Altos Hills 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 Town of Los Altos Hills's annual reporting process.

Table 6-1. Preliminary implementation schedule for enhanced trash control measures in the Town of Los Altos Hills.

Trash Control Measure	Beginning Date of Implementation
CR-2: Polystyrene Foam Food Service Ware Ban	Summer 2012
CR-3: Public Education and Outreach Programs	December 1, 2009
CR-4: Activities to Reduce Trash from Uncovered Loads	May 1, 2008
CR-5: Anti-Littering and Illegal Dumping Enforcement Activities	Prior to July 1, 2014
QF-1: On-Land Clean-Up	February 1, 2013
QF-6: Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)	February 1, 2013

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February 2012.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

Town of Los Gatos

Town of Los Gatos

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

The Town of Los Gatos
110 East Main Street
Los Gatos, CA 95030

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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TOWN OF LOS GATOS

PARKS & PUBLIC WORKS DEPARTMENT

41 MILES STREET
LOS GATOS, CA 95030

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:

Todd Capurso 1/25/12

Todd Capurso
Director of Parks & Public Works

Date

Baseline and Short-Term Trash Load Reduction Plan

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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 Town of Los Gatos 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 Town of Los Gatos' annual reporting process.

ACKNOWLEDGEMENTS

The West Valley Communities would like to acknowledge the comments, suggestions, and guidance provided by each of the participating members at regional, county-wide and local working groups to complete the Bay-Area wide Trash Short-Term Plan Template. Additionally, the West Valley Communities are thankful for the dedication and hard work of SCVURPPP Staff, West Valley Clean Water Program Staff and the members of SCVURPPPs Trash Ad Hoc Task Group, who took up the challenge to collect, categorize, and characterize the MS4 trash, and lead the way in countless hours of discussion, review, and dissection of the topic of trash.

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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 Town of Los Gatos 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 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 Town of Los Gatos 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 Town of Los Gatos' 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

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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 Town of Los Gatos' 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 Town of Los Gatos. If the Town 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 Town of Los Gatos, then the Town may individually or in collaboration with other similar agencies, develop town-specific generation rates and revise baseline load estimates presented in this section accordingly.*

This section provides an estimated annual trash baseline load from the Town of Los Gatos' Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the Town of Los Gatos worked collaboratively with other MRP Permittees through BASMAA to develop data and the process necessary to establish baseline trash loading estimate from the Town'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 Town of Los Gatos. 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 Town of Los Gatos' 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 1887, the Town of Los Gatos is located in Santa Clara County, and has a jurisdictional area of 7,281 acres. According to the 2010 Census, it has a population of 29,413, with a population density of 2,635.6 people per square mile, and average household size of 2.35. Of the 29,413 who call the Town of Los Gatos home, 22.3% are under the age of 18, 4.9% are between 18 and 24, 22.9% are

between 25 and 44, 32.0% are between 45 and 64, and 17.9% are 65 or older. The median household income was $94,319 in 2000[1]. Companies such as Netflix, Verizon, Alain Pinel Realtors, and Misson Oaks Hospital are located in the Town of Los Gatos.

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 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 with jurisdictional areas within the Town of Los Gatos. The Town of Los Gatos' jurisdictional areas include all urban land areas within the Town of Los Gatos'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 Town'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;

[1] From the 2000 Census. The median household income for the Town of Los Gatos 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 Town of Los Gatos' 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 Town's jurisdictional area. The purpose of the effective loading area is to eliminate land areas not directly contributing trash to the Town's MS4 (e.g., large backyards and rooftops). Both the jurisdictional and the effective loading areas for the Town of Los Gatos are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the Town of Los Gatos 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	129	102	2
Low Density Residential	2,456	2,297	56
Rural Residential	2,307	1,101	27
Commercial and Services/ Heavy, Light and Other Industrial	404	309	7
Retail and Wholesale	186	166	4
K-12 Schools	152	81	2
Urban Parks	144	80	2
TOTAL	**5,776**	**4,138**	**100%**

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 Town of Los Gatos 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 Town. 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 Town of Los Gatos 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 Town of Los Gatos 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 Town of Los Gatos' baseline and current street sweeping program includes sweeping streets in most residential areas and arterial roads once per month, and the downtown area once per week. Parking enforcement signs are posted in select areas of the Town. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the Town of Los Gatos prior to the effective date of the MRP, storm drain inlets are cleaned at a baseline level of one time every two years. Based on this baseline frequency and the effectiveness rating developed in BASMAA 2012, the baseline storm drain maintenance program in the Town of Los Gatos 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

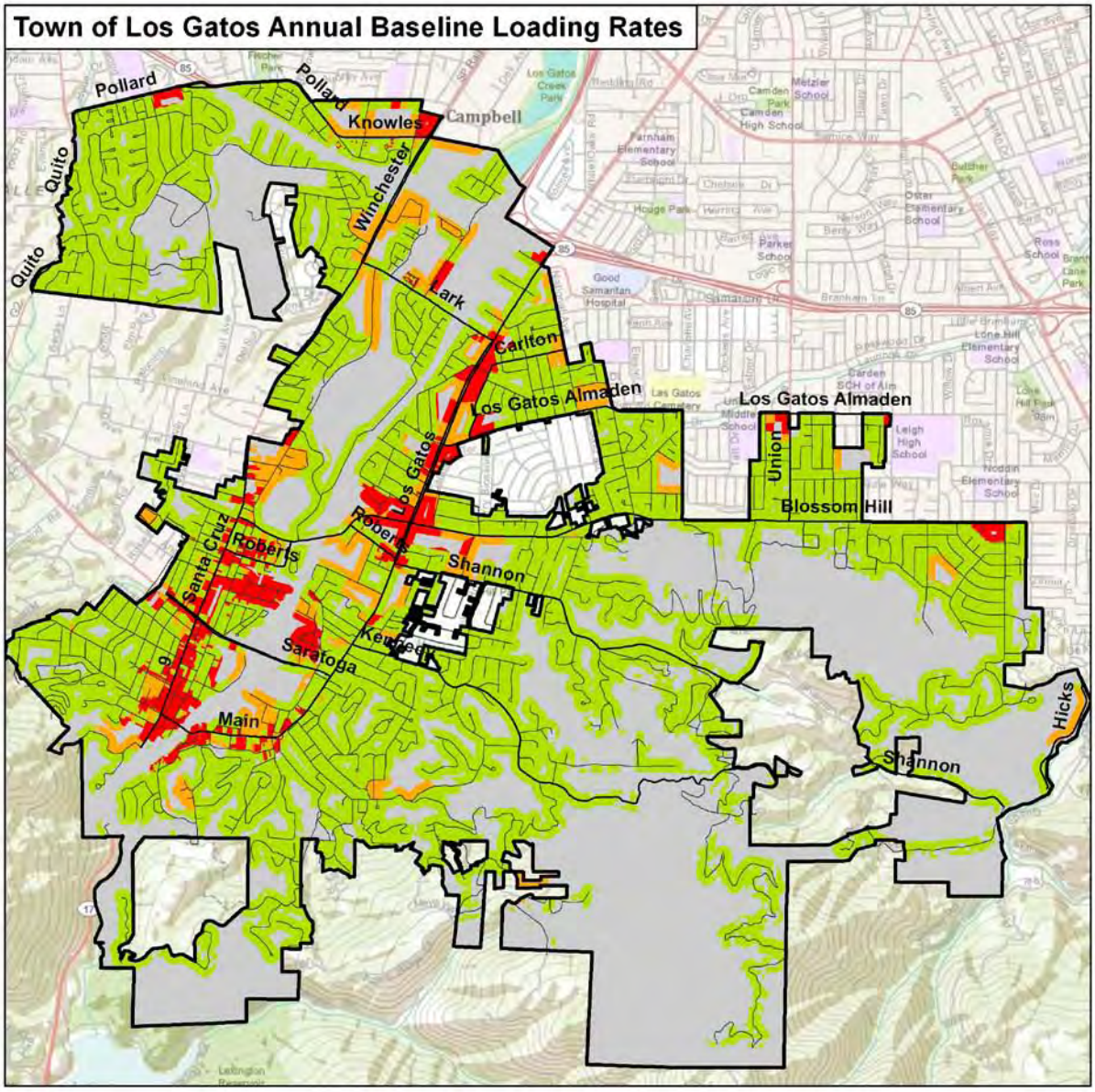
The Town of Los Gatos does not own stormwater pump stations.

Baseline Trash Loading Estimate

The estimated baseline trash load from the Town of Los Gatos was calculated as the sum of the loads from the Town'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 Town of Los Gatos 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 Town of Los Gatos.

Category	Annual Load (gallons)
Preliminary Generation Trash Load	13,224
Load Removed via Baseline Street Sweeping	3,919
Load Removed via Baseline Storm Drain Inlet Maintenance	233
Load Removed via Baseline Stormwater Pump Station Maintenance	0
Preliminary Trash Baseline Load	9,072



Annual Baseline Loading Rate (gal/acre)

- Outside: 1) Jurisdictional Area or 2) Effective Loading Area
- Low (> 0 to 5)
- Mod (> 5 to 10)
- High (> 10)
- Permittee Streets
- Permittee Boundary

0 0.5 1 Miles

Data Sources:

Streets: Tele Atlas, 2003, Retrieved from http://www.arcgis.com/
City Boundary: County of Santa Clara
Background: ESRI World Topographic Map

Map Created By: EOA, Inc.
Date: January 11, 2012

Figure 2-1: Estimated trash baseline loading rates for geographical areas in the Town of Los Gatos.

Baseline and Short-Term Trash Load Reduction Plan

West Valley Community

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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 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.[2] 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).

[2] 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 <u>in-parallel</u> 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.

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

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 Town of Los Gatos. 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 Town Of Los Gatos include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by the Town of Los Gatos 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)
OF-1 On-Land Cleanups (volunteer and/or Municipal)
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 Town of Los Gatos plans to adopt policies limiting the distribution of polystyrene foam food service ware at Town-sponsored events and on Town-owned property. Language prohibiting the distribution and purchase of polystyrene foam food and beverage ware will be incorporated into the Town's internal policies (e.g., purchasing policies and event and facility use permits and agreements) by December 31, 2012. The percent trash reduction from MS4s as a result of implementing polystyrene foam food service ware policies will be reported in the Annual Report submitted each September.

Percent Reduction from Enhancements

The Town of Los Gatos 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 Town of Los Gatos' 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 Town of Los Gatos has regularly provided public education and outreach on stormwater issues to its residents and businesses through programs such school presentations, Farmers Markets, Town events and festivals, and its partnership with the West Valley Clean Water Program (WVCWP). The Town of Los Gatos will continue any public education and outreach control measures that were implemented prior to the effective date of the MRP. These control measures are considered baseline because they were not related to trash reduction specifically however they will be enhanced to incorporate litter messaging as a priority pollution topic during the term of the MRP. New actions and the actions started prior to the effective date of the MRP that the Town of Los Gatos 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 Town of Los Gatos 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 Town of Los Gatos 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 the 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 Town of Los Gatos 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 Town of Los Gatos plans to continue 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 Town of Los Gatos 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 Town of Los Gatos is a member of the WVCWP, which sponsors public 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 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 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. Teachers 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 municipality'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 litter collected (required for the assessment) and learn about litter and other

stormwater quality issues from WCVWP 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 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 Town of Los Gatos 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 Town of Los Gatos' 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[3], 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 Town of Los Gatos 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 Town of Los Gatos has implemented the following enhanced control measures to reduce trash from vehicles with uncovered loads prior to July 1, 2014:

Require Municipal Trash Haulers to Cover Loads – The Town of Los Gatos' 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 Town's hauler is the exclusive roll-off and debris box provider for the Town, which prevents private haulers that may not be regulated to have covered loads from entering the Town.

Implement an Enhanced Enforcement Program for Vehicles with Uncovered Loads – The Town of Los Gatos partners with its Police Department to enforce the CA Vehicle Code Sections 23114 and 23115, to identify and cite vehicles with uncovered loads that are causing a litter issue.

Percent Reduction from Enhancements

The Town of Los Gatos 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 Town of Los Gatos. 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.

[3] 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 Town of Los Gatos 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 Town of Los Gatos receives complaints regarding anti-littering and illegal dumping if members of the public called the Town directly. In response, Town 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 Town of Los Gatos 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 Town of Los Gatos 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 Town's IDDE responder to thoroughly 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 Town of Los Gatos' 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 Town of Los Gatos has installed a physical barrier in the form of a gate at a hot spot identified by the Town as an ongoing problem area for illegal dumping. This gate was installed in November of 2011 to prevent cars from accessing the area and dumping. Since the installation of the gate, there have been no incidents of dumping at the site; staff will continue to monitor the area to deter future illegal dumping.

Percent Reduction from Enhancements

The Town of Los Gatos 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 Town of Los Gatos. 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 Town of Los Gatos 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, 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 Town of Los Gatos has implemented the following improved trash bin/container management practices prior to July 1, 2014:

Ensuring Adequate Private Trash Service – The Town of Los Gatos has a municipal ordinance that prohibits the collection and hauling of waste by any entity other than the Town's franchised waste hauler. In addition, the ordinance prohibits the accumulation of waste beyond what can be contained within approved receptacles. The Town of Los Gatos partners with its waste hauler to require all businesses and households within the Town 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.

Implementation of a Strategic Plan for Public Area Containers–The Town of Los Gatos will incorporate language for the strategic planning of public area trash containers into its internal operating procedures (e.g., capital improvement planning process, PPW strategic plan, etc.) by December 31, 2012. These procedures will ensure that public areas have sufficient numbers and types of containers to prevent overflow and litter generation, through ongoing monitoring and maintenance. The Town of Los Gatos currently provides recycling in its Downtown area, and has installed new trash-collection technologies in the form of Big Belly Solar Trash Compactors, which also include a recycling component, in multiple public areas (e.g., Downtown, parks and trails, bus stops, etc.).

Percent Reduction from Enhancements

The Town of Los Gatos will receive a 6 percent reduction credit for implementing specific enhanced control measures described in the *Description of Enhanced Level of Implementation* section above. The 6 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 Town of Los Gatos. 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-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 events or as ongoing events throughout the year.

Baseline Level of Implementation

The Town of Los Gatos has had ongoing on-land cleanup activities through the work of the Town's Streets and Parks Maintenance staff, as well as through volunteer activities. These groups have worked to maintain the medians, sidewalks, landscaped areas, roads, and parks and trails prior to the effective date of the MRP. These control measures are considered baseline because they were accounted for in the preliminary trash generation rates established through the BASMAA *Baseline Trash Loading 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 Town of Los Gatos will be conducting or coordinating the following new or enhanced on-land trash cleanup activities listed below. 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.

<u>Volunteer Cleanup</u>- The Town of Los Gatos began organized cleanups of known on-land litter problem areas, including homeless encampments and transient areas, in July of 2011. These cleanups occur throughout each month and are organized by the Town's Park Ranger. Bags are provided to volunteers, including the homeless population, who are instructed to clean up the sites before any trash can flow to the MS4 or creeks.

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.

Percent Reduction from Enhancements

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of implementing on-land trash cleanups is 1300 gallons. This volume is equal to approximately an 14.4 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Town of Los Gatos. This volume is a conservative estimate based on the averages of the data collected from Los Gatos' on-land

volunteer cleanups conducted since July 2011. In addition, a lower frequency of collection events and bags collected, as well as smaller bag size were assumed in the estimate than what has and will be utilized by this cleanup program during the length of this Short-Term Plan. Both values provided within this section are included in the Trash Load Reduction Summary Table included in Section 5.

QF-4: Enhanced Storm Drain Inlet Maintenance

In accordance with countywide Stormwater Conveyance System Operation and Maintenance Performance Standard (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 Town of Los Gatos currently maintains and removes material from storm drain inlets every other year. This baseline frequency is consistent with the frequency of storm drain inlet maintenance in the Town of Los Gatos prior to the effective date of the MRP.

Enhanced Level of Implementation

A total of 1720 storm drain inlets will be maintained in the Town of Los Gatos at higher-than-current frequencies prior to July 1, 2014. All storm drain inlets in the Town of Los Gatos, 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 132 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 Town of Los Gatos. 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 Pemittees 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 33 trash full-capture treatment devices have been or will be installed in the Town of Los Gatos 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 439 gallons. This volume is equal to approximately a 4.9 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the Town of Los Gatos. 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 Town of Los Gatos that are planned for installation by 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 (gals/year)
1	Private	Continuous Deflective Separator (Contech)	950 University Ave (Extra Space Storage)	Existing	1.31	`2
1	Private	Continuous Deflective Separator (Contech)	15344 National Ave (7SFU)	Existing	.32	1
1	Public	Continuous Deflective Separator (Contech)	235 W. Main	Under Construction	.48	3
1	Private	Continuous Deflective Separator (Contech)	470 N Santa Cruz (Safeway)	2011	.39	3
1	Private	Continuous Deflective Separator (Contech)	14881 National (Walker's bldg.)	TBD	.34	1
1	Private	Continuous Deflective Separator (Contech)	15400 Los Gatos Blvd.	TBD	1.76	8
25	Public	StormTek Inlet Device (Advanced Solutions)	Retail (40%); Commercial (32%); K-12 Schools (20%); High Density Residential (4%); Low Density Residential (4%)	By November 2012	105.8	442

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 citizens' 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 Town of Los Gatos' 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 Town of Los Gatos will conduct MRP-required[4] and the following non-MRP-required creek/channel/shoreline cleanups[5] 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 Town of Los Gatos 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. Every year, the WVCWP sponsors the Town of Los Gatos' MRP-required trash hot spot assessment.

In addition to the WVCWP creek cleanup events, there are several volunteer-led creek cleanup sites adopted in the West Valley communities, including Los Gatos, every Coastal Cleanup Day and National River Day. Conservatively, as there are multiple sites per each annual event, these events will continue to occur annually at at least one site in the West Valley communities per year and the volume of trash removed from these events will be tracked to demonstrate trash loads reduced.

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 530 gallons. This volume is equal to approximately a 5.8 percent reduction in the baseline trash load to urban creeks from the

[4] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.
[6]All "other" creek/channel/shoreline cleanups conducted by a municipality that are not required by Provision C.10.b.

municipal separate storm sewer system (MS4) owned and operated by the Town of Los Gatos. This volume is a conservative estimate based on the averages of the data collected from multiple creek cleanup sites and events over the past three years, including MRP-required and non-MRP-required Permittee-led and volunteer-led events. In addition, to maintain a conservative estimate of the volumes of trash collected from these events over time, lower frequencies of events and number of sites, as well as smaller bag sizes were assumed, despite historical data demonstrating higher collection rates. Both values provided within this section are included in the Trash Load Reduction Summary Table included in Section 5.

Baseline and Short-Term Trash Load Reduction Plan

West Valley Community

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5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS

The Town of Los Gatos 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 Town of Los Gatos 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 include that have or will be implemented by the Town of Los Gatos include: the adoption of a polystyrene policy that will prohibit the purchase and distribution of polystyrene at Town-sponsored events and on Town 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 Town; and the improved trash bin/container management for private and public areas through continued partnerships with the Town's franchised waste hauler and the adoption of a strategic plan that ensures effective public area container and litter management.

Additional control measures to intercept trash once it has entered the environment that will be implemented by the Town of Los Gatos include: the continued implementation of on-land cleanups by volunteers and Town staff; enhanced storm drain inlet maintenance from one time every other year to annual inspections with cleaning as needed; the installation and utilization of full-capture devices to intercept trash that has entered the MS4; 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 Town of Los Gatos and associated trash loads reduced.

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced (gals/year)	Cumulative % Reduction (Compared to Baseline)
Polystyrene Foam Food Service Ware Ban (CR-2)	Adopt policies to prohibit the distribution and purchase of polystyrene at Town-sponsored events and on Town property.	2.0%	181	2.4%
Public Education and Outreach Programs (CR-3)	Regional, county, and local advertising campaigns, youth outreach, media relations, and community events to promote litter messaging that will include evaluation components.	8.0%	723	10.4%
Activities to Reduce Trash from Uncovered Loads (CR-4)	Waste hauler agreement requires covered loads with enforcement of uncovered loads by the Police Department.	5.0%	452	15.4%
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%	361	19.4%
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 waste collection. Adoption of a strategic plan for public area containers.	6.0%	542	25.3%
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	The continued implementation of volunteer on-land cleanups surrounding litter areas, including homeless encampments.	NA	1,300	39.7%
Enhanced Storm Drain Inlet Maintenance (QF-4)	Enhanced frequency of storm drain inlet maintenance from once every other year to annual.	NA	132	41.1%
Full-Capture Treatment Devices (QF-5)	The installation of Full-Capture Devices to intercept trash in the MS4.	NA	439	46.0%
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	MRP-required and non-MRP-required creek cleanup events.	NA	530	51.8%

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

Consistent with MRP Provision C.10.d (i), the Town of Los Gatos 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 Town of Los Gatos 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 Town of Los Gatos 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 Town of Los Gatos' 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 Town of Los Gatos 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 Town of Los Gatos' annual reporting process.

Table 6-1. Preliminary implementation schedule for enhanced trash control measures in the Town of Los Gatos.

Trash Control Measure	Beginning Date of Implementation
Polystyrene Foam Food Service Ware Ban (CR-2)	December 31, 2012
Public Education and Outreach Programs (CR-3)	Already Implemented Will incorporate evaluation component into Community Outreach Events by December 31, 2012.
Activities to Reduce Trash from Uncovered Loads (CR-4)	Language already implemented in JPA Agreement and enforcement existing by Police Department.
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)	Ordinance and hauler agreement already implemented. Town operating procedures will be updated/developed to include strategic planning language for public area containers by December 31, 2012.
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Already Implemented
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

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February 2012.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Milpitas

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

City of Milpitas

455 E. Calaveras Blvd.

Milpitas, CA 95035

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

January 20, 2012

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City of Milpitas
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:

1/30/12

Thomas Williams
City Manager

January 26, 2012

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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 City of Milpitas 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 Milpitas 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 City of Milpitas 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 the 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 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 (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 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.

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 City of Milpitas 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 Milpitas 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
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
Quantification Formulas
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 Generation 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 City of Milpitas's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Milpitas 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 (2012b) 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 City of Milpitas. 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 Milpitas'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 1954, the City of Milpitas is located in Santa Clara County, and has a jurisdictional area of 8,678 acres. According to the 2010 Census, it has a population of 66,790, with a population density of 4,896.5 people per square mile, and average household size of 3.34. Of the 66,790 who call the City of Milpitas home, 22.9% are under the age of 18, 8.8% are between 18 and 24, 32.7% are between 25 and 44, 23.1% are between 45 and 64, and 9.5% are 65 or older.

Companies such as Cisco Systems, Lifescan, Inc., KLA-Tencor Corportation, Maxtor Corporation, Seagate Technology, SanDisk, and the Great Mall of the Bay Area are located in the City of Milpitas. The median household income was $84,429 in 2000[1].

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 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 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.

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 City of Milpitas. The City of Milpitas's jurisdictional areas includes all urban land areas within the City of Milpitas 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;

[1] From the 2000 Census. The median household income for the City of Milpitas 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 Milpitas'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 Milpitas are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the City of Milpitas 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	960	854	19
Low Density Residential	1,911	1,866	41
Rural Residential	147	80	2
Commercial and Services/ Heavy, Light and Other Industrial	2,058	1,017	22
Retail and Wholesale	631	411	9
K-12 Schools	238	112	2
Urban Parks	425	190	4
TOTAL	**6,371**	**4,530**	**100%**

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 Milpitas 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 Milpitas 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 Milpitas 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 City of Milpitas's baseline street sweeping program includes sweeping industrial, commercial, and residential areas twice per month, and retail areas once per week. Parking enforcement signs are not posted in the City. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

The City of Milpitas's baseline street sweeping program includes sweeping streets in most residential areas and arterial roads twice per month, and most retail areas once per week. The City's current street sweeping program is the same except some residential areas are swept once a week during the months of November and December. The City does not post parking enforcement signs for street sweeping, but

parking enforcement equivalent occurs on many arterial roads and many streets in industrial and commercial areas. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of Milpitas, 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 City of Milpitas 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 City of Milpitas owns and maintains 13 stormwater pump stations. Of these stations, ten 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 City of Milpitas 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 Milpitas 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, high and very high trash loading rates.

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

Category	Annual Load (gallons)
Preliminary Generation Trash Load	38,302
Load Removed via Baseline Street Sweeping	18,764
Load Removed via Baseline Storm Drain Inlet Maintenance	977
Load Removed via Baseline Stormwater Pump Station Maintenance	1,736
Preliminary Trash Baseline Load	16,826

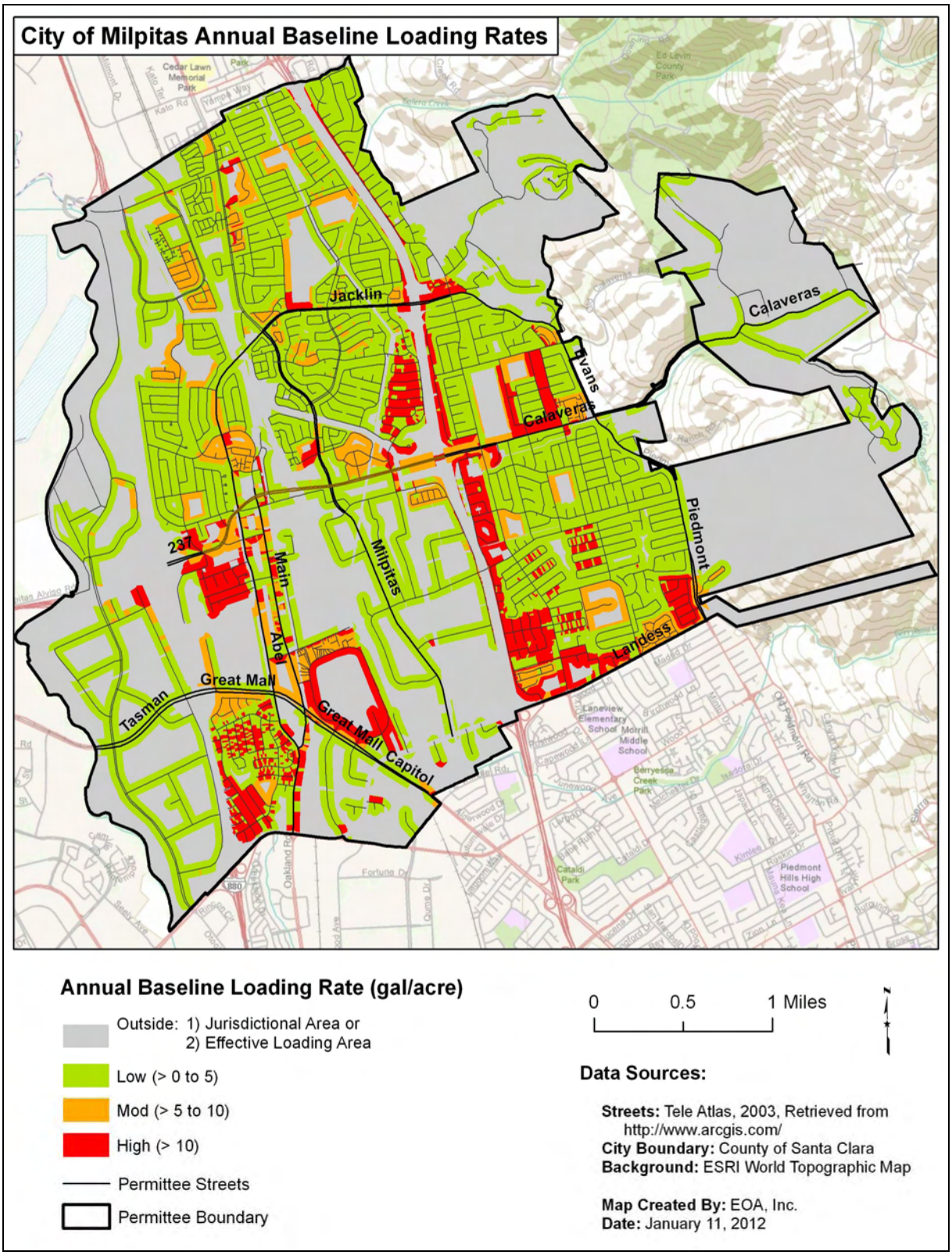

Figure 2-1: Estimated trash baseline loading rates for geographical areas in the City of Milpitas.

3.0 LOAD REDUCTION CALCULATION PROCESS

Using the guiding principles and assumptions described BASMAA (2012a), 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 2012a) 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 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.[2] 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 #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).

[2] 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-7: Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (Area-wide)

As these control measures are implemented, load reduction estimates can be calculated <u>in-parallel</u> 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.

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

4.0 ENHANCED TRASH CONTROL MEASURES

This section describes the new or enhanced trash control measures planned for implementation by the **City of Milpitas**. 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 **City of Milpitas** include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by the City of Milpitas 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
Activities to Reduce Trash from Uncovered Loads
Anti-Littering and Illegal Dumping Enforcement Activities
Improved Trash Bin/Container Management (Municipally or Privately-Controlled)
On-land Trash Pickup (Volunteer and/or Municipal)
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 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 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

The City of Milpitas plans to adopt an ordinance prohibiting the distribution of single-use carryout plastic bags**.** On September 21, 2010, the Milpitas City Council referred the evaluation of a potential ban on single-use bags to the Recycling and Source Reduction Advisory Commission and directed staff to seek consultant proposals to study a ban. At its April 26, 2011 meeting, the Commission recommended that the City Council implement the product ban. The City Council will review staff recommendation to move forward with the introduction of an ordinance upon review of the outcome of *Hilex Poly vs. Los Angeles County* suit. A staff report is prepared to recommend approval of the ban. The ordinance would be a ***Tier 3 action to Prohibit Distribution at All Retail Establishments (with the Exception of Restaurants)*** to ban single-use carry-out bags and set a fee for the use of paper bags, which must contain a minimum of 40% recycled content. The ordinance could become effective by July 1, 2013. 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.

In addition to the adoption of an ordinance described above, the City of Milpitas will also implement a public education and outreach campaign that is designed to significantly reduce the overall usage of ALL types of single-use carryout bags (plastic et al.).

Reduction from Implementing Control Measure

The City of Milpitas will receive a 12 percent reduction credit for implementing specific enhanced control measures described in Enhanced Level of Implementation section above. The 12 percent reduction credit will be applied to the City of Milpitas' baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A

summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

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

The City of Milpitas plans to adopt an ordinance banning polystyrene foam food service ware at the point-of-sale. On September 21, 2010, City Council referred the evaluation of a potential ban on expanded polystyrene food containers to the Recycling and Source Reduction Advisory Commission (RSRAC) and directed staff to seek consultant proposals to study a ban. At its April 26, 2011 meeting, the Commission recommended that the City Council support Senate Bill 568 (Lowenthal). Since SB 568 was pulled by the author last year, RSRAC has continued to review this item for recommendation to the City Council. A staff report is prepared to recommend approval of the ban. This will be a **Tier 2** action to **Prohibit the distribution of polystyrene foam single-use food and beverage ware at all food service vendors**. It includes adoption of a local ordinance or implementation of a statewide, countywide, or regional action that prohibits all food vendors from distributing polystyrene foam food and beverage ware. The ordinance will become effective by January 1, 2014. The percent trash reduction from MS4s as a result of implementing a polystyrene foam food service ware ordinance will be reported in the Annual Report submitted each September.

Percent Reduction from Enhancements

The City of Milpitas will receive an eight (8) percent reduction credit for implementing specific enhanced control measures described in *Enhanced Level of Implementation* section above. The eight (8) percent reduction credit will be applied to the City of Milpitas' baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

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 **City of Milpitas** implemented the following public education and outreach control measures prior to the effective date of the MRP. Litter abatement messages related to the residential and commercial recycling programs. 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 City of Milpitas has implemented the following public education and outreach control measures: annual participation with Pollution Prevention Week and Coastal Clean-up Day to provide advertising and city-wide doorhangers promoting anti-littering messages and creek clean-ups. Ongoing litter abatement messages in the local newspapers annual calendar and online news website, the City's website and promotion of "Clean Creeks, Clean Cars" messages throughout spring and summer. Ongoing participation in local events to exhibit storm drain diorama and display program materials. A detailed explanation follows.

Enhanced Level of Implementation

The City of Milpitas 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)

Through participation and funding of the regional **BASMAA Youth Outreach Campaign** the **City of Milpitas** will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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. A brief description of the Campaign activities is provided below:

- Raising Awareness: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the City of Milpitas 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Advertising Campaign (Local)

The City of Milpitas conducts three (3) seasonal campaigns annually: 1) in September for Pollution Prevention Week that include: citywide residential doorhangers, local newspaper advertising, in a banner advertisement of the local calendar and public service announcements on KMLP-15 and the City website (City media) with anti-litter messages and participation in annual creek cleanups; 2) in Spring to promote the "Clean Creeks, Clean Cars" message with full page advertising placement on the back cover of the *Milpitas Welcome Guide*, local newspaper advertising and on City media; 3) in Fall to promote the "Litter – It's Not Natural" message with an offer of a free reusable shopping bag in utility bills and messages placed on City media. In addition, the City's waste hauler, Allied Waste Services, places a full page advertisement in the local newspaper advising residents to move cars on sweep days.

Outreach to School-age Children or Youth

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide ZunZun Program the City of Milpitas plans to continue 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 includes 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.

Outreach to School-age Children or Youth (Local)

Additionally, the City of Milpitas offers assemblies to elementary and middle schools that feature urban run-off pollution prevention concepts and how litter ends up in creeks and the Bay. Of the nine (9) elementary and two (2) middle schools, Environmental Escapades performs at five (5) to six (6) schools per year. Teacher evaluations are positive and thank performers for reinforcing natural science concepts in an entertaining and educational manner.

Media Relations

BASMAA Regional Media Relations Project (Regional)

Through participation and funding of the **BASMAA Regional Media Relations Project**, the City of Milpitas plans to continue 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 press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

Media Relations (Countywide and/or Local)

In conjunction with local advertising campaigns, the City of Milpitas sends media releases, feature articles and community calendar announcements to the local newspaper. In September, Pollution Prevention Week is promoted with ideas to prevent run-off, reduce waste and participate in creek cleanups. Reuse tips and shopping with reusable bags are featured during the holidays and sprint to summer months. News releases are sent quarterly to the Milpitas *Post* that features a monthly environmental section that receives

Community Outreach Events

Community Outreach Event #1 (Local)

Creek Cleanups in conjunction with Coastal Cleanup Day. The City of Milpitas promotes this event and organizes volunteers to cleanup four (4) designated creek hot spots.

Community Outreach Event #2 (Local)

Medicines drop-off and mercury thermometer exchange. The City of Milpitas promotes and conducts this event which features displays of local creek maps and free reusable bags.

Community Outreach Event #3 (Local)

Landscape Water Conservation Workshop. The City of Milpitas promotes and conducts this workshop with the Bay Area Water Supply & Conservation Agency. Workshop focus on preventing water run-off from landscapes, use of pesticide alternatives and native plants

Community Outreach Event #4 (Local)

Litter pickup event. The City of Milpitas conducts annual litter pickup events at interstate intersections. This event promotes participation and organized volunteers to cleanup one to two sites annually.

Percent Reduction from Enhancements

The City of Milpitas will receive a total of 8 percent reduction credit for implementing specific enhanced control measures described in *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 Milpitas' 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.

Percent Reduction from Enhancements

The City of Milpitas will receive an eight (8) percent reduction credit for implementing specific enhanced control measures described in *Enhanced Level of Implementation* section above. The eight (8) percent reduction credit will be applied to the City of Milpitas' baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

CR-4: Reduction of Trash from Uncovered Loads

Although it is currently illegal to operate a vehicle that is improperly covered and which its' contents escapes[3], vehicles remain an important 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 or private landfill and transfer station operators to educate waste haulers on securing loads and/or to enhance enforcement of existing regulations.

Baseline Level of Implementation

The baseline trash load described in Section 2.0, assumes that prior to adoption of the MRP the City of Milpitas 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 Milpitas will implement the following enhanced control measures to reduce trash from vehicles with uncovered loads *prior to July 1, 2014:*

Implement an Enhanced Enforcement Program for Vehicles with Uncovered Loads

The Newby Island Landfill is contractually obligated to provide Household Dump Days (HDD) for Milpitas residents on second and fourth Saturdays. The City of Milpitas will implement actions with the Milpitas Police Department to establish an enhanced enforcement program for vehicles with uncovered loads traveling to the landfill on HDDs. The program will include:

-Adoption of an ordinance prohibiting the transportation of trash or debris without a cover

-Citations and fines for vehicles spotted on roads in an individual Permittee's jurisdictional area with uncovered loads, and

-Distribution of tarps for a fee to haulers or other vehicles that are Milpitas residents that arrive at the landfill on HDDs with uncovered loads. Each subsequent visit without a tarp will result in an additional fee for a tarp, prompting haulers to use their own tarp.

Percent Reduction from Enhancements

The City of Milpitas will receive a five (5) percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation*

[3] 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 loads 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.

section above. The five (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 Milpitas. 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 5.0.

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 the City of Milpitas has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow. The City's Neighborhood Services and Public Works Departments work closely to respond to reports of illegal dumping. Items dumped on public lands are collected with the area cleaned immediately. Illegal dumping on private property is reported to the property owner with frequent site checks and reporting, including the issuance of fines, until the area is cleaned-up.

Enhanced Level of Implementation

The City of Milpitas **will implement** the following enhanced anti-littering and illegal dumping enforcement control measures prior to July 1, 2014:

Anti-Littering and Illegal Dumping Enforcement Program

Anti-littering and illegal dumping enforcement to include:

-Citywide promotion of the Milpitas Police Department's business line to report illegal dumping activities to police dispatch

-Thorough investigation of complaints received to police dispatch

-Implementation of enforcement procedures including citations

-When illegal dumping activities are not in progress, referral from police dispatch to the code enforcement section for the collection of evidence from illegal dump sites to identify offenders

Percent Reduction from Enhancements

The City of Milpitas will receive a two (2) percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The two (2) 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 Milpitas. 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 5.0.

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 for placing incidental trash generated in public spaces that provides people with a convenient and appropriate place to dispose of trash. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of bins/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 Milpitas has not implemented enhanced trash bin/container management practices prior to effective date of the MRP. Prior to MRP implementation, the City of Milpitas placed garbage carts in its parks which are serviced on a weekly basis by Park Maintenance.

Enhanced Level of Implementation

The City of Milpitas will implement the following improved trash bin/container management practices prior to July 1, 2014.

Ensuring Adequate Private Trash Service – In the commercial sector, work with contracted hauler to report overloaded bins and inadequate service. Use if contractor's commercial recycling representative to follow-up with business managers to increase service. If service increase is refused, referral to City staff for follow-up and municipal code enforcement. In the residential sector, work with contracted hauler for driver support to report households with set-outs violating ordinance requirements. Contractor's customer service staff will follow-up bia phone with residential customers to advise of proper set-out requirements. If problem persists, referral to City staff for code enforcement procedures.

Implementation of a Strategic Plan for Public Area Trash Containers – Implementation of a strategic plan that:

-Evaluates service levels at high-traffic bus stops throughout the city

-Reviews placement of trash containers in city parks for service levels in picnic areas and evaluates weekly collection schedule during peak months

-Provide recommendations how trash and/or litter levels can be reduced at bus stops and parks

-Implement recommendations.

Percent Reduction from Enhancements

The City of Milpitas will receive a six (6) percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The six (6) 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 Milpitas. 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 5.0.

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 City of Milpitas implemented the following on-land cleanup activities prior to the effective date of the MRP: one-time clean-ups of targeted areas. These control measures are considered baseline because they were accounted for in the preliminary trash generation rates established through the BASMAA *Baseline Trash Loading 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 City of Milpitas will be conducting or coordinating the following new or enhanced on-land trash cleanup activities listed below. 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.

New Permittee-led On-land Cleanups
Conduct litter pickup event coordination and cleanups at interstate intersections
Ongoing illegal dump site response and abatement

New Volunteer-let On-land Cleanups
Single-day Efforts organized annually at a different school in the Milpitas Unified School District

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 260 gallons. This volume has been achieved with sporadic cleanups at interstate intersections in the past and is expected to be the minimum level that will be achieved. It is equal to approximately a 1.5 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 Milpitas. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

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 Pemittees 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 two (2) trash full-capture treatment devices have been or will be installed in the City of Milpitas prior to July 1, 2014. A list of these full-capture devices is included in Table QF-5-1. A description of these full-capture devices is also provided below. 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 2012a).

The two trash full-capture treatment devices that will be installed within two stormwater pump stations are manufactured by the Roscoe Moss Company and are known as Storm Flo Panel Screens. These screens, which are metallic, louver panels will be installed in the inclined flat form. This form involves installing individual louver panel screens side-by-side to span the width of the detention basin and/or forebay. Commercially available louvers have slot widths of 3" and openings of 0.200" that would permit passage of stormwater but retain trash and debris measuring 0.200" (5mm) and larger. This design has been designated as a "full capture system" by Los Angeles Regional Water Quality Control Board. Another form, the cylindrical form (i.e., Storm Flo Screen) has been installed as in-line trash management devices within California.

Storm Flo Panel Screens will be mounted horizontally or vertically to cover the area designed for treatment. They will be mounted on H-beam supports that are anchored in concrete at the base. Individual panel dimensions are 8 ft x 5 ft with a 1/4" thickness or can be custom made up to 8 ft x 10 ft with a 3/8" thickness.

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-5-1 is 394 gallons. This volume is equal to approximately a 2.4 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 Milpitas. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.

Table QF-5-1. Full capture treatment devices installed or planned to be installed within the City of Milpitas 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
Not yet assigned.	Public	Storm Flo Panel Screens	McCarthy Pump Station, 1005 N. McCarthy Blvd.	Late 2012	472.2 acres	264 gallons
Not yet assigned.	Public	Storm Flo Panel Screens	Bellew Pump Station, 481 Murphy Ranch Road	Late 2012	208.25 acres	131 gallons

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 City of Milpitas' 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 Milpitas will conduct MRP-required[4] and the following non MRP-required creek/channel/shoreline cleanups[5] 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.

Permittee & Volunteer Collaborative Activities

- Cleanups of School Grounds
- Removal of Homeless Encampments
- Routine or Regularly Scheduled Creek Maintenance
- Illegal Dump Site Correction
- Other On-going Cleanup Efforts Conducted by City Maintenance Crews

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 624 gallons. This volume is equal to approximately a 3.7 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 Milpitas. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

[4] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.
[6]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 Milpitas 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 4-1. The enhancements are intended to comply with the 40% trash load reduction goal in MRP provision C.10.

The control measures listed below are selected to provide an approximate 45% load reduction for the City of Milpitas. This combination of administrative, enforcement and outreach actions will prepare Milpitas to achieve and maintain required load reductions.

Control Measure
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 (Municipally or Privately-Controlled)
On-land Trash Pickup (Volunteer and/or Municipal)
Full-Capture Treatment Devices
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)

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

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced	Cumulative % Reduction (Compared to Baseline)
Existing Enhanced Street Sweeping	Parking enforcement in commercial areas.	8.1	1,359	8.1
Single-use Carryout Plastic Bag Ordinance (CR-1)	Ban on single-use bags in all retail establishments (except restaurants); fee for paper bags with minimum 40% recycled content. Includes outreach & enforcement components.	12	1,856	19.1
Polystyrene Foam Food Service Ware Ban (CR-2)	Ban in polystyrene foam food service containers in all retail and food establishments. Includes outreach and enforcement components.	8	1,237	26.5
Public Education and Outreach Programs (CR-3)	Participation with Regional Program campaigns and implementation of ongoing seasonal citywide outreach.	8	1,237	33.8
Activities to Reduce Trash from Uncovered Loads (CR-4)	Requirement of municipal trash haulers to cover loads; implementation of an enhanced enforcement program for vehicles with uncovered loads.	5	7738	38.4
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Conduct enforcement program.	2	309	40.3
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Ensure adequate private trash service; implement strategic plan for public area trash containers; add rash reduction control measures to pre-existing Business Improvement Districts.	6	928	45.8
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Conduct new permittee-led on-land trash cleanups and promote availability of volunteer led on-land cleanups.	__	260	47.3
Full-Capture Treatment Devices (QF-5)	Install trash racks in two pump stations.	__	394	49.7
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Conduct creek cleanups of four sites annually (permittee-led).	__	624	53.4

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

Consistent with MRP Provision C.10.d (i), the City of Milpitas 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 City of Milpitas 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 robust baseline load.

6.0 IMPLEMENTATION SCHEDULE

Implementation of enhanced trash control measures by the City of Milpitas 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 Milpitas' 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 City of Milpitas may chose 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 Milpitas' annual reporting process.

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

Trash Control Measure	Beginning Date of Implementation
Single-use Carryout Plastic Bag Ordinance (CR-1)	**1/01/14**
Polystyrene Foam Food Service Ware Ban (CR-2)	**1/01/14**
Public Education and Outreach Programs (CR-3)	**7/01/11**
Activities to Reduce Trash from Uncovered Loads (CR-4)	**1/01/13**
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	**1/01/13**
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	**1/01/13**
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	**5/27/12**
Enhanced Street Sweeping (QF-2)	Already Implemented
Full-capture Treatment Devices (QF-5)	**Late 2012**
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	**9/17/11**

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February 2012

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Monte Sereno

City of Monte Sereno

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

City of Monte Sereno
18041 Saratoga-Los Gatos Road
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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

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City of Monte Sereno
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:

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January 23, 2012

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Baseline and Short-Term Trash Load Reduction Plan

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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 Monte Sereno 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 Monte Sereno's annual reporting process.

ACKNOWLEDGEMENTS

The West Valley Communities would like to acknowledge the comments, suggestions, and guidance provided by each of the participating members at regional, county-wide, and local working groups to complete the Bay-Area wide, MRP Trash Short-Term Plan Template. Additionally, the West Valley Communities are thankful for the dedication and hard work of local county-wide SCVURPPP Staff, West Valley Clean Water Program Staff, and the SCVURPPP Trash Ad Hoc Task Group, who took up the challenge to collect, categorize, and characterize the MS4 trash, and lead the way in countless hours of discussion, review, and dissection of the topic of trash.

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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 Monte Sereno 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 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 Monte Sereno 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 Monte Sereno'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-4Activities 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

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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 Monte Sereno'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 Monte Sereno. 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 Monte Sereno, 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 Monte Sereno's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Monte Sereno 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 Monte Sereno. 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 Monte Sereno'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 1957, the City of Monte Sereno is located in Santa Clara County, and has a jurisdictional area of 1,027 acres. According to the 2010 Census, it has a population of 3,341, with a population density of 2,068.7 people per square mile, and average household size of 2.76. Of the 3,341 who call the City of Monte Sereno home, 24.4% are under the age of 18, 4.7% are between 18 and 24, 14.6% are

between 25 and 44, 37.0% are between 45 and 64, and 19.4% are 65 or older. The median household income was $154,268 in 2000[1]. The City of Monte Sereno is entirely residential with no commercial zoning.

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 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 the City of Monte Sereno. The City of Monte Sereno's jurisdictional areas include all urban land areas within the City of Monte Sereno 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;

[1] From the 2000 Census. The median household income for the City of Monte Sereno 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 Monte Sereno'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 Monte Sereno are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the City of Monte Sereno 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	0	0	0
Low Density Residential	223	205	28
Rural Residential	776	521	71
Commercial and Services/ Heavy, Light and Other Industrial	4	2	0
Retail and Wholesale	0	0	0
K-12 Schools	9	5	1
Urban Parks	0	0	0
TOTAL	**1,013**	**734**	**100%**

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 Monte Sereno 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 Monte Sereno 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 Monte Sereno 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 (set at 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 Monte Sereno's baseline street sweeping program includes sweeping most streets four times per year. There are many streets within the City that are not swept. Parking enforcement signs for street sweeping are not posted, but cars generally do not park on City streets[2]. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of Monte Sereno, prior to the effective date of the MRP, storm drain inlets were cleaned at a baseline level of one time per year. Based on this baseline frequency and the effectiveness rating developed in BASMAA (2012b), the baseline storm drain maintenance program in the City of Monte Sereno has an annual effectiveness rating of 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 Monte Sereno does not own stormwater pump stations with trash racks.

Baseline Trash Loading Estimate

The estimated baseline trash load from the City of Monte Sereno 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 Monte Sereno 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 Monte Sereno.

Category	Annual Load (gallons)
Preliminary Generation Trash Load	426
Load Removed via Baseline Street Sweeping	98
Load Removed via Baseline Storm Drain Inlet Maintenance	16
Load Removed via Baseline Stormwater Pump Station Maintenance	0
Preliminary Trash Baseline Load	312

[2] Considered equivalent to parking enforcement.

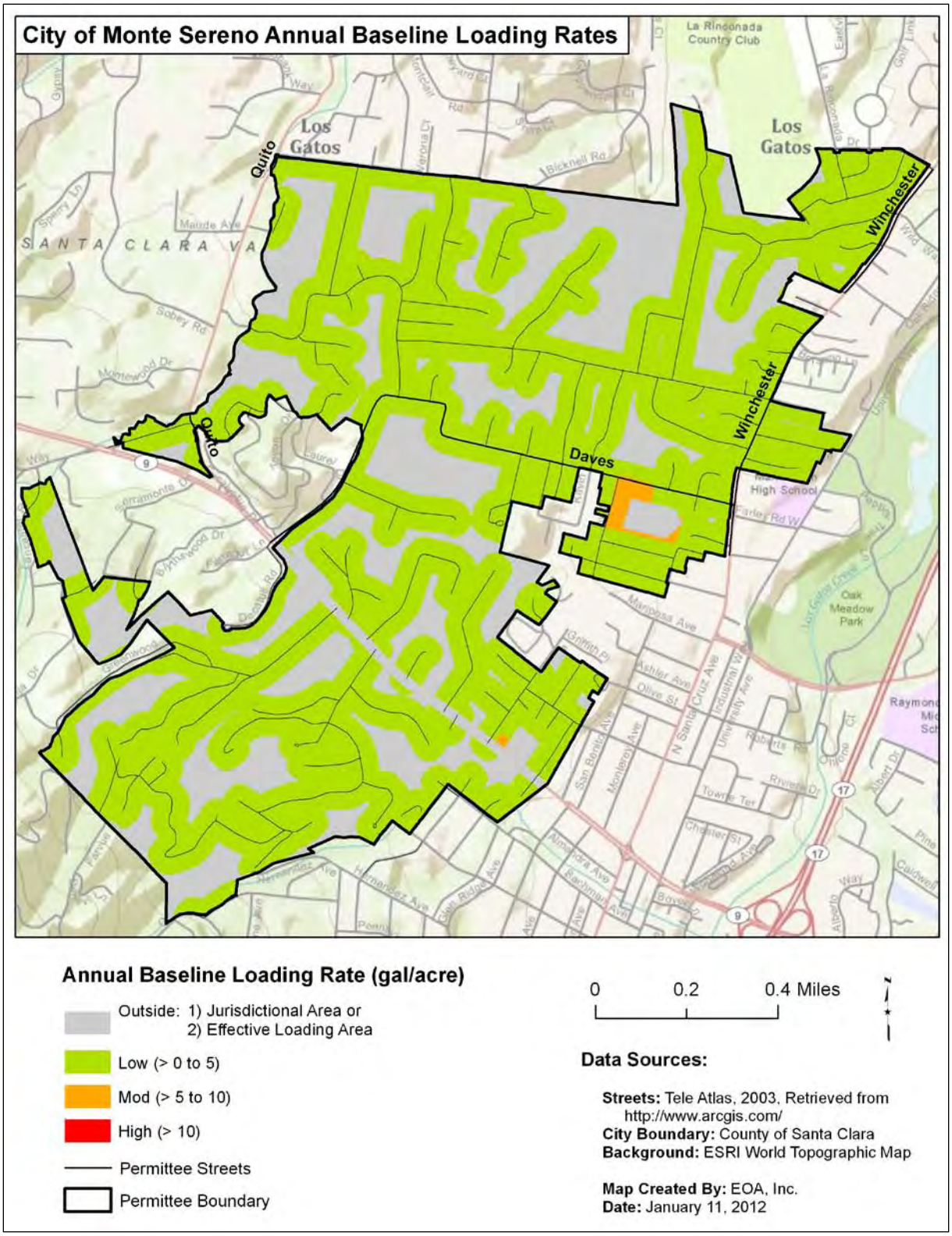

Figure 2-1: Estimated trash baseline loading rates for geographical areas in the City of Monte Sereno.

Baseline and Short-Term Trash Load Reduction Plan

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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.[3] 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).

[3] 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 <u>in-parallel</u> 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.

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

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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 Monte Sereno. 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 the City of Monte Sereno include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by the City of Monte Sereno 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-5 Full-Capture Treatment Devices

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 Monte Sereno has no commercial or retail land uses to enact a polystyrene ban. However, the City of Monte Sereno will consider adopting policies limiting the distribution and purchase 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. If approved by Council 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 Monte Sereno 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 Monte Sereno'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 Monte Sereno will continue public education and outreach control measures that were implemented prior to the effective date of the MRP, including outreach via newsletters and its partnership with West Valley Clean Water Program (WVCWP). These control measures are considered baseline because they were not related to trash reduction specifically, however they will be enhanced to incorporate litter messaging as a priority pollutant topic. New actions and the actions started prior to the effective date of the MRP that the City of Monte Sereno 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 Monte Sereno 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 Monte Sereno 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 the 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 Monte Sereno 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 Monte Sereno plans to continue 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 Monte Sereno plans to continue participation in and funding of the **BASMAA Regional Media Relations Project**, the 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 Monte Sereno is a member of the WVCWP, which sponsors public 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 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 allow for the opportunity 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 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 (when resources for giveaways are available).

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. Teachers 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 municipality'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 required monitoring of quantities and types of litter collected (required for the assessment) and learn about litter and other stormwater quality issues from WCVWP 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 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 Monte Sereno 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 Monte Sereno'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[4], 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 Monte Sereno 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 Monte Sereno has or will implement the following enhanced control measures to reduce trash from vehicles with uncovered loads prior to July 1, 2014:

Require Municipal Trash Haulers to Cover Loads – The City of Monte Sereno'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 from entering the City that may not be regulated to have covered loads.

Implement an Enhanced Enforcement Program for Vehicles with Uncovered Loads – The City of Monte Sereno Police Department 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 causing a litter issue in Monte Sereno.

Percent Reduction from Enhancements

The City of Monte Sereno 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 Monte Sereno. 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.

[4] 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 Monte Sereno 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 Monte Sereno 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 Monte Sereno will implement the following enhanced anti-littering and illegal dumping enforcement control measures prior to December 31, 2012:

Anti-Littering and Illegal Dumping Enforcement Program – The City of Monte Sereno 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 Monte Sereno's IDDE ERP will be reviewed and updated, as needed, by December 31, 2012 to include litter and illegal dumping violations.

Percent Reduction from Enhancements

The City of Monte Sereno will receive a 2 percent reduction credit for implementing specific enhanced control measures described in the *Description of Enhanced Level of Implementation* section above. The 2 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 Monte Sereno. 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 Monte Sereno 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, 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 Monte Sereno has implemented the following improved trash bin/container management practices prior to July 1, 2014:

Ensuring Adequate Private Trash Service – The City of Monte Sereno has a municipal ordinance that requires all occupied private and public properties that generate garbage or rubbish to have an approved collection receptacle that is accessible by the franchised hauler. All waste generated on any property must at all times be contained within designated receptacles and collected at a minimum of once per week by the City's hauler. The City of Monte Sereno 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.

Percent Reduction from Enhancements

The City of Monte Sereno 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 Monte Sereno. 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-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 Pemittees 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 Monte Sereno 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 77 gallons. This volume is equal to approximately a 24.8 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 Monte Sereno. 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 Monte Sereno that are planned for installation by 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
4	Public	StormTek Inlet Device (Advanced Solutions)	NE Corner of Daves @ Poppy; Across from 17851 Daves; 18216 Daves; 16160 Rose Ave	By November 2012	15.7	77

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5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS

The City of Monte Sereno 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 Monte Sereno 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 Monte Sereno 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 and monitoring; and the improved trash bin/container management for private and public areas through continued partnerships with the City's franchised waste hauler.

An additional control measure to intercept trash once it has entered the environment that will be implemented by the City of Monte Sereno includes the installation and utilization of full-capture devices to intercept trash that has entered the MS4.

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

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced (gals/year)	Cumulative % Reduction (Compared to Baseline)
Polystyrene Foam Food Service Ware Ban (CR-2)	Adopt a policy to prohibit distribution and purchase of polystyrene food ware at City-sponsored events and on City property.	2.0%	6	2.0%
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%	25	10.0%
Activities to Reduce Trash from Uncovered Loads (CR-4)	Waste hauler agreement that requires covered loads with enforcement of uncovered loads in the City by the Police Department.	5.0%	16	15.0%
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Enforcement of littering and illegal dumping through the IDDE program.	2.0%	6	17.0%
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%	9	20.0%
Full-Capture Treatment Devices (QF-5)	The installation of Full-Capture Devices to intercept trash in the MS4.	NA	77	44.8%

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

Consistent with MRP Provision C.10.d (i), the City of Monte Sereno 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 Monte Sereno 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.

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6.0 IMPLEMENTATION SCHEDULE

Implementation of enhanced trash control measures by the City of Monte Sereno 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 Monte Sereno'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 Monte Sereno 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 Monte Sereno's annual reporting process.

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

Trash Control Measure	Beginning Date of Implementation
Polystyrene Foam Food Service Ware Ban (CR-2)	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 Police Department.
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Addition of enforcement language to IDDE ERP by December 31, 2012.
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Already implemented through municipal code and hauler agreement.
Full-capture Treatment Devices (QF-5)	Install by November 2012.

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February 2012.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Mountain View

City of Mountain View

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

CITY OF MOUNTAIN VIEW

500 Castro St. Mountain View, CA 94041-2010

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

February 1, 2012

City of Mountain View
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:

Jaymae Wentker Jan 26, 2012

Jaymae Wentker Date
Fire Marshal

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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 City of Mountain View 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 City of Mountain View's annual reporting process.

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 City of Mountain View 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 the 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 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 (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 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.

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 City of Mountain View 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 Mountain View'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
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
Quantification Formulas
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 Generation 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 City of Mountain View's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Mountain View 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 (2012b) 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 City of Mountain View. 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 Mountain View'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 1902, the City of Mountain View is located in Santa Clara County, and has a jurisdictional area of 7,755 acres. According to the 2010 Census, it has a population of 74,066, with a population density of 6,034.7 people per square mile, and average household size of 2.31. Of the 74,066 who call the City of Mountain View home, 19.7% are under the age of 18, 7.3% are between 18 and 24, 38.6% are between 25 and 44, 23.8% are between 45 and 64, and 10.6% are 65 or older.

Companies such as Google, Symantec, El Camino Hospital, Microsoft, Intuit, Synopsys, Palo Alto Medical Foundation, KPMG, LinkedIn, and Omnicell are located in the City of Mountain View. The median household income was $69,362 in 2000[1].

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 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 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.

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 City of Mountain View. The City of Mountain View's jurisdictional areas includes all urban land areas within the City of Mountain View 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;
- Colleges and Universities (Private or Public);
- Non-urban Land Uses (e.g., agriculture, forest, rangeland, open space, wetlands, water);

[1] From the 2000 Census. The median household income for the City of Mountain View from the 2010 Census is not currently available.

- 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 Mountain View'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 Mountain View are presented in Table 2-2.

Table 2-2. Jurisdictional areas and effective loading areas in the City of Mountain View 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	1,497	1,326	28
Low Density Residential	1,858	1,774	37
Rural Residential	15	11	0
Commercial and Services/ Heavy, Light and Other Industrial	1,764	1,098	23
Retail and Wholesale	468	353	7
K-12 Schools	221	100	2
Urban Parks	329	123	3
TOTAL	**6,151**	**4,785**	**100%**

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 Mountain View 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 Mountain View 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 Mountain View 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 City of Mountain View's baseline street sweeping program includes sweeping nearly all streets within the City twice per month. Parking enforcement signs for street sweeping are posted on some streets in high-density residential neighborhoods, and parking enforcement equivalent occurs on some arterial streets. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of Mountain View, 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 City of Mountain View 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 City of Mountain View owns and maintains five stormwater pump stations. Of these stations, four 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 City of Mountain View 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 Mountain View 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, high and very high trash loading rates.

Table 2-3. Preliminary annual trash baseline load for the City of Mountain View.

Category	Annual Load (gallons)
Preliminary Generation Trash Load	44,736
Load Removed via Baseline Street Sweeping	16,131
Load Removed via Baseline Storm Drain Inlet Maintenance	1,430
Load Removed via Baseline Stormwater Pump Station Maintenance	1,132
Preliminary Trash Baseline Load	26,043

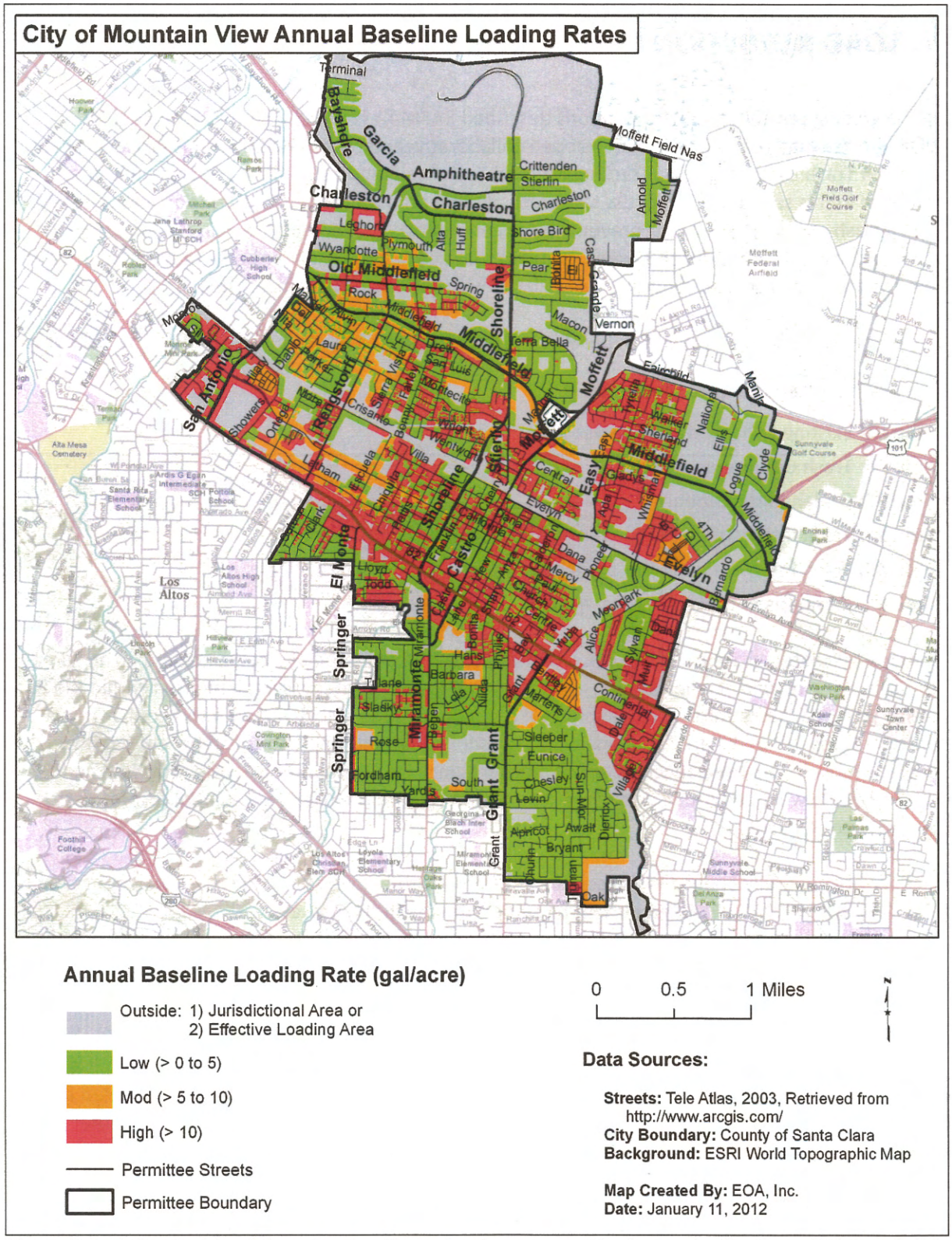

Figure 2-1. Estimated trash baseline loading rates for geographical areas in the City of Mountain View.

3.0 LOAD REDUCTION CALCULATION PROCESS

Using the guiding principles and assumptions described BASMAA (2012a), 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 2012a) 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 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.[2] 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 #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.

[2] 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".

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

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 <u>in-parallel</u> 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.

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

4.0 ENHANCED TRASH CONTROL MEASURES

This section describes the new or enhanced trash control measures planned for implementation by the City of Mountain View. 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 the City of Mountain View include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by The City of Mountain View 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
Activities to Reduce Trash from Uncovered Loads
Anti-Littering and Illegal Dumping Enforcement Activities
Improved Trash Bin/Container Management (Municipally or Privately-Controlled)
On-land Trash Pickup (Volunteer and/or Municipal)
Full-Capture Treatment Devices
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)

CR-1: Single-use Carryout Plastic Bag Ordinance

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

The City of Mountain View ***plans to adopt*** an *ordinance* prohibiting the distribution of single-use carryout plastic bags. While an exact date of when the single use carry out bag ban will be enacted is unknown, City Staff are currently developing a Work Plan Development for banning Single-Use Carry-Out Bags The implementation of this work plan and subsequent ordinance is contingent upon approval by the City Council. That said, staff is confident that the ordinance can be adopted and fully implemented prior to July 1, 2014. The ordinance is currently planned to include the following components:

- A prohibition on the provision of plastic single-use, carry-out bags at supermarkets and stores that sell prepackaged food.

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.

Percent Reduction from Enhancements

The City of Mountain View will receive an 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 City of Mountain View's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0. The City will consider expanding the scope of the plastic bag ordinance to include

prohibition of single-use, carry-out bags at all retail stores. If the ordinance is expanded, the City will receive an additional 2 percent reduction credit.

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

The City of Mountain View ***plans to adopt*** an ordinance banning polystyrene foam food service ware at the point-of-sale. A Mountain View polystyrene ordinance would most likely be similar to that adopted by Palo Alto and many other California communities, including:

- A prohibition on the use of expanded polystyrene (sometimes known as Stryrofoam®) containers by food vendors to provide prepared food or beverages to customers;
- Applicability to all City facilities and events using City facilities;
- An exemption for foods prepared or packaged outside the City limits.

The implementation adoption and implementation of the ordinance is contingent upon approval by the City Council. That said, staff is confident that the ordinance can be adopted and fully implemented prior to July 1, 2014. The percent trash reduction from MS4s as a result of implementing a polystyrene foam food service ware ordinance will be reported in the Annual Report submitted each September.

Percent Reduction from Enhancements

The City of Mountain View will receive an 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 City of Mountain View's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

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 City of Mountain View implemented various public education and outreach control measures prior to the effective date of the MRP. These outreach activities included 'tabling' the annual Arbor Day event, the Annual Art & Wine Festival, and the four, annual "Thursday Night Live" events. Typically the type of outreach material we'd provide to residents/visitors revolved around pesticide use reduction (Arbor Day), proper disposal of pharmaceuticals and other potentially hazardous household items (Art & Wine and Thursday Night Live events, and the differences between wastewater and stormwater (all events). These control measures are considered baseline because they were either not related to trash reduction specifically. New actions or actions started prior to the effective date of the MRP and continued into the future are described under the next section. 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 City of Mountain View 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)

Through participation and funding of the regional **BASMAA Youth Outreach Campaign** the City of Mountain View will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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. A brief description of the Campaign activities is provided below:

- Raising Awareness: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the City of Mountain View 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Outreach to School-age Children or Youth

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide ZunZun Program the City of Mountain View, plans to continue 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 includes 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.

Who Dirtied the Bay – 3rd Grade Education Program (Mountain View Only)

The focus of this program is on stormwater and how the pollutants impact the Baylands and Water Environment. Pollution Prevention solutions are discussed. Students also learn the difference between wastewater and stormwater (where it comes from, where it goes); the water cycle; the definition and function of a watershed; and the pricinples of, "reduce/reuse/recycle/rot/respect." Mountain View schools are reached through the Palo Alto Regional Water Quality Control Plant's school outreach program, which the city of Mountain View is a partner. The City of Palo Alto administers the program and effectiveness evaluation reports are available with the City of Palo Alto.

Media Relations

BASMAA Regional Media Relations Project (Regional)

Through participation and funding of the **BASMAA Regional Media Relations Project**, the City of Mountain View plans to continue 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 press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

Media Relations (Local)

The City of Mountain View Fire Department maintains a Facebook page which is updated multiple times a week and it used to disseminate information regarding upcoming community events, including Community Outreach activities pertaining to Trash Reduction.

Community Outreach Events (Local)

Thursday Night Live Street Fair/ Farmer's Market: City Staff will provide information and resources to the public regarding Trash Reduction and stormwater awareness. These 4 events occur every other Thursday in the months of August and September.

Arbor Day: City Staff will staff a table and provide information and resources to the public regarding Trash Reduction and stormwater awareness. This event occurs annually in early March.

Art and Wine Festival: City Staff will provide information and resources to the public regarding Trash Reduction and stormwater awareness. The Art & Wine Festival occurs Saturday and Sunday during the 2nd week of September.

Percent Reduction from Enhancements

The City of Mountain View will receive a total of 8 percent reduction credit for implementing specific enhanced control measures described in *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 Mountain View's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

CR-4: Reduction of Trash from Uncovered Loads

Although it is currently illegal to operate a vehicle that is improperly covered and which its' contents escapes[3], vehicles remain an important 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 or private landfill and transfer station operators to educate waste haulers on securing loads and/or to enhance enforcement of existing regulations.

Baseline Level of Implementation

The baseline trash load described in Section 2.0, assumes that prior to adoption of the MRP the City of Mountain View 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 Mountain View plans to, or already has implemented the following enhanced control measures to reduce trash from vehicles with uncovered loads:

- Require Municipal Trash Haulers to Cover Loads – Development and inclusion of language in a Permittee's hauling service contract(s) that requires contracted trash and construction debris haulers to cover loads when transporting trash and debris to municipally or privately-owned landfills and transfer stations;
- Adoption of an ordinance to the Mountain View City Code, Chapter 35, prohibiting the transportation of trash or debris without a cover; and
- Citations and fines for vehicles spotted on roads in an individual Permittee's jurisdictional area with uncovered loads.

The City of Montain View contracts with Recology for garbage pick-up throughout the City. The City's contract with Recology includes requirements regarding litter abatement, the covering of loads, and illegal dumping. The contract requires that Recology shall place tarps on all opendebris boxes during transport to the Disposal Site. Loads not properly covered are subject to an assessment of a fee by the operator of the Disposal Site and Recology shall be responsible for all such fees which shall be excluded from Allowable Expenses. Alternatively the facility operator may require Recology to purchase a tarp for the boxes on the vehicle. The fee as established by resolution of the city council for the truck tarp is currently set at $25.00.

[3] 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 loads 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.

Based on this enhanced level of implementation, the City goes beyond the requirement for Municipal Trash Haulers to cover loads with the adoption of the ordinance revisions and an increased awareness with enforcement by requiring payment of a fee for a tarp, if a load is uncovered.

City Police Officers write citations under the California Vehicle Code Section 23114 and 23115 for uncovered loads when they are observed, but active enforcement does not occur due to the lower priority of this issue when compared to crime suppression, traffic safety, and general calls for service.

In addition, the City has prescriptive language in municipal contracts for debris/garbage haulers that work within the city (City of Mountain View's contract with waste hauler is attached as an Addendum to this report). Haulers are required to have collection vehicles to have water-tight bodies and that the contractor places tarps over all open debris boxes during transport to the disposal site. The City of Mountain View also plans on revising its ordinance to specifically prohibit vehicles with uncovered loads by July 1, 2014.

Percent Reduction from Enhancements

The City of Mountain View 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 City of Mountain View. 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 5.0

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 the City of Mountain View has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow.

Enhanced Level of Implementation

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

- **Anti-Littering and Illegal Dumping Enforcement Program** – Successful implementation of an active anti-littering and illegal dumping enforcement program in the year of interest that includes:
    - Thorough investigations of complaints received from citizen complaints via "Ask Mountain View" (online portal) and phone calls;
    - The implementation of enforcement procedures including citations (as warranted); and,
    - The collection of evidence(e.g., names, addresses, etc.) from illegal dump sites (i.e., public and private)

In addition to responding to interagency and citizen reports of illegal dumping via phone calls during business hours, The City of Mountain View will utilize a recently introduced feature on the City's website called "Ask Mountain View". This website is a portal where citizens can directly report non-emergency illegal dumping activities via e-mail, 24 hours a day, 7 days a week, and the complaint will be forwarded to the appropriate City Staff person for follow-up and ultimately clean-up of the illegal dumping site. The enforcement options utilized by City staff are detailed in the City's Enforcement Response Plan (ERP) (City's ERP is included as an Addendum to this report).

Percent Reduction from Enhancements

The City of Mountain View will receive a 2 percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The 2 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 Mountain View. 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 5.0.

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 for placing incidental trash generated in public spaces that provides people with a convenient and appropriate place to dispose of trash. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of bins/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 Mountain View has not implemented enhanced trash bin/container management practices prior to effective date of the MRP.

Enhanced Level of Implementation

While many construction sites, food-service facilities, and industrial site inspections include inspecting the trash bin/compactor areas, the City of Mountain View has not implemented enhanced trash bin/container management actions.

The City of Mountain View plans to enact the following activities towards improving Trash Bin/ Container management:

- **Ensuring Adequate Private Trash Service** – The City will continue to implement a program that identifies businesses or households that have inadequate trash service (i.e., insufficient trash collection or use of bins which are too small); and through municipal code enforcement and other authorities requiring businesses/households to have sufficient trash receptacles for their facility. The City of Mountain View will coordinate with waste haulers to assist with the identification of subject households/businesses.

- **Successful Establishment of Business Improvement Districts with Trash Reduction Control Measures** – The City of Mountain View's Downtown area (Castro St.) is comprised of exclusively retail and food service facilities. This area is referred to as a BID. City Staff maintain this area on a daily basis including sidewalk sweeping, litter pick-up and maintenance of trash containers at least once per week.

The City of Mountain View has also implemented the following improved trash bin/container management practices:

- Twice yearly visits to the restaurants and businesses within the BID and disseminating information regarding trash/compactor/dumpster area management and stormwater awareness. These visits are out-reach based, not inspection/enforcement based and the intent is to visit these businesses in the summertime, as well as visit before the rainy/holiday season.
- If trash container/compactor/ or dumpsters and their associated areas are found to be in poor condition during these outreach visits, the facility will be notified of the violations, given an appropriate time to correct the violations, and the facility will be re-inspected within 10 business days, or before the next rain event, to ensure the corrections have been implemented.

Percent Reduction from Enhancements

The City of Mountain View will receive a 4.4 percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The 4.4 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 Mountain View. 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 5.0.

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 City of Mountain View implemented the following on-land cleanup activities prior to the effective date of the MRP.

- Routine or Regularly Scheduled Litter Pickup and Removal
- Removal of Homeless Encampments
- Illegal Dump Site Response and Abatement
- Interagency Cleanup Coordination and Cleanup
- Business Improvement District Cleanups
- Routine Cleanups of Selected Hot Spots

These control measures are considered baseline because they were accounted for in the preliminary trash generation rates established through the BASMAA *Baseline Trash Loading 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 City of Mountain View will be conducting or coordinating the following new or enhanced on-land trash cleanup activities listed below. 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.

Prior to July 1, 2014, the City of Mountain View will be conducting or coordinating the following on-land trash cleanups described below. 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 was tracked**. As a result, large items (e.g., appliances, shopping carts, furniture, mattresses, televisions, tires, lumber, etc.) removed during on-land trash cleanups is not part of the volume determination since they do not have the potential of entering the MS4.

The City of Mountain View plans to support and organize the "Keep America Beautiful" litter clean up event in the spring (March/April) time frame each year beginning in 2013. The number of clean-up sites/central collection spots may vary from year to year, depending on staffing availability, but it is our intent to start with one neighborhood check-in spot for the event that

will clean up an area approximately a half of a square mile around the check-in site. Through the annual volunteer event, coordinated by City staff, the expected waste load reduction will be approximately 100 gallons.

The City has identified 2 areas in the City that tend to accumulate trash from roadway traffic, but these areas are difficult to access on a regular basis. These areas (described in QF-1: Enhanced On-Land Trash Clean-ups chart) will be cleaned by City Crews annually in the month of April. The expected load reduction from these 2 locations is 50 gallons/ year.

City Staff and volunteers patrol Stevens Creek Trail daily and pick up trash and litter on their patrols, and report illegal dumping sites to City Staff for clean-up of such sites. These patrols occur year round, and the expected load reduction from these clean-up activities is 100 gallons/year.

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 250 gallons. This volume is equal to approximately a 0.9 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 Mountain View. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

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 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 Pemittees 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 25 trash full-capture treatment devices have been or will be installed in the City of Mountain View prior to July 1, 2014. A list of these full-capture devices is included in Table QF-6-1. All devices listed within this table are enhanced trash control measures. Table QF-6-1 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 2012a). The City of Mountain View also plans to install a full capture treatment device in cooperation with and with assistance from the Association of Bay Area Governments, in accordance with the current Municipal Regional Permit. The exact site and area treated have not yet been determined, but the device will be installed by November of 2012. This short term plan will be updated to reflect the installation of the full capture trash device when it occurs.

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 139 gallons. This volume is equal to approximately a 0.4% reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Mountain View. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

Table QF-6-1. Trash full-capture treatment devices within the jurisdictional boundaries of the City of Mountain View 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
El Camino Hospital	Private	Hydrodynamic Separator (3)	2500 Grant Rd.	2007	8.16	13
Pear Avenue Center	Private	Hydrodynamic Separator	1380 Pear Avenue	2007	1.76	5
Sierra Greens	Private	Hydrodynamic Separator	276 Sierra Vista Avenue	2007	2.58	6
Gables End	Private	Hydrodynamic Separator (3)	1950 Colony Street	2008	5.88	10
New Central Park Apts.	Private	Hydrodynamic Separator	111 Montebello Avenue	2007	9.43	38
West Dana Place	Private	Hydrodynamic Separator	125 West Dana Street	2008	2.91	13
The Vineyard	Private	Hydrodynamic Separator	465 Whisman Drive	2006	5.78	3
Charleston Plaza	Private	Hydrodynamic Separator (3)	2400 Charleston Road	2006	12.94	6
Palo Alto Medical Foundation	Private	Hydrodynamic Separator (2)	701 E. El Camino Real	2007	10.49	19
Whisman Station	Private	Hydrodynamic Separator	424 Kent Dirve	2007	11.01	55
BMW of Mountain View	Private	Hydrodynamic Separator	120 E El Camino Real	2006	2.02	12
Classics at Evandale	Private	Hydrodynamic Separator	180 Evandale Avenue	2008	3.49	30
Clyde Business Park	Private	Hydrodynamic Separator	555 Clyde Avenue	2006	3.34	4
Granada Park Townhomes	Private	Hydrodynamic Separator	205 Granada Drive	2006	2.04	1
MV Senior Center	Public	Hydrodynamic Separator	266 Escuela Avenue	2008	4.61	2
Classics at Miramonte	Private/Public	Hydrodynamic Separator (2)	1136 Miramonte Avenue	2008	7.18	13
Mondrian	Public	Hydrodynamic Separator	505 E. Evelyn Avenue	2008	6.10	32
Total						**190**

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 City of Mountain View'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 Mountain View will conduct MRP-required[4] and the following non MRP-required creek/channel/shoreline cleanups[5] 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.

Permittee & Volunteer Collaborative Activities

Single-day Efforts

- *National River Cleanup Day (third Saturday in May)*
- *Coastal Cleanup Day (third Saturday in September)*
- *Keep America Beautiful (annually in the month of April)*

Permittee-led Cleanup Activities

On-going Efforts

- *Removal of Homeless Encampments*
- *Routine or Regularly Scheduled Creek Maintenance*
- *Illegal Dump Site Correction*

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 700 gallons. This volume is equal to approximately a 2.7 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 Mountain View. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

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[4] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.

[6] 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 Mountain View 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.

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
On-land Trash Pickup (Volunteer and/or Municipal)
Full-Capture Treatment Devices
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)

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

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced	Cumulative % Reduction (Compared to Baseline)
Single-use Carryout Plastic Bag Ordinance (CR-1)	Tier 2: Prohibit distribution at retail establishments that sell packaged food	8	2,068	8
Polystyrene Foam Food Service Ware Ban (CR-2)	Tier 1 – Prohibit Distribution at City-sponsored events or City-owned Property	8	2,068	16
Public Education and Outreach Programs (CR-3)	Advertising campaigns, Outreach to schools & youth, Media Relations – use of free media Community outreach events	8	2,068	24
Activities to Reduce Trash from Uncovered Loads (CR-4)	Prescriptive language in municipal contracts for trash/debris haulers Enhanced enforcement program for vehicles with uncovered loads	5	1,293	29
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Anti-littering and Illegal Dumping Investigation and Enforcement program, utilizing 'Ask Mountain View", Continue enforcement (as warranted), Collect evidence to attempt to identify offenders	2	517	31
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Ensuring Adequate private trash service, and identification and enforcement of inadequate trash service for private trash/recycling containers	4.4	1,131	35.4
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Additional volunteer clean ups ~ 12 cu yard/year	NA	25	36.3
Full-capture Treatment Devices (QF-5)	26 units installed plus one City-installed device at a location TBD	NA	187	37.1
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	National River Clean Up Day Coastal Clean Up Day Trash hot spot clean up	NA	700	39.8

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

Consistent with MRP Provision C.10.d (i), the City of Mountain View 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 City of Mountain View 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 robust baseline load.

6.0 IMPLEMENTATION SCHEDULE

Implementation of enhanced trash control measures by the City of Mountain View 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 Mountain View'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 City of Mountain View 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 Mountain View's annual reporting process.

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

Trash Control Measure	Beginning Date of Implementation
Single-use Carryout Plastic Bag Ordinance (CR-1)	2014
Polystyrene Foam Food Service Ware Ban (CR-2)	2014
Public Education and Outreach Programs (CR-3)	2013
Activities to Reduce Trash from Uncovered Loads (CR-4)	2013
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	2013
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	2013
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	2013
Full-capture Treatment Devices (QF-5)	2014
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	2012

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February 2011

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

AGREEMENT BETWEEN

THE CITY OF MOUNTAIN VIEW
AND
FOOTHILL DISPOSAL COMPANY, INC.

FOR COLLECTION OF SOLID WASTE AND CERTAIN RECYCLABLE MATERIALS

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AGREEMENT BETWEEN THE CITY OF MOUNTAIN VIEW AND FOOTHILL DISPOSAL COMPANY, INC. FOR COLLECTION OF SOLID WASTE

THIS AGREEMENT is dated for identification this 1st day of July, 1993 and is made by and between the CITY OF MOUNTAIN VIEW, a municipal corporation of the State of California (hereinafter "City") and FOOTHILL DISPOSAL COMPANY, INC., a California corporation (hereinafter "Contractor").

RECITALS

This Agreement is entered into with reference to the following facts and circumstances:

1. The provision of adequate and reliable Solid Waste Collection and disposal is essential to the health, safety and well-being of residents of the City.

2. The State of California has found and declared that the rapidly increasing volume of Solid Waste resulting from population growth, industrial expansion and other factors requires an organized and comprehensive approach to Solid Waste management.

3. As an essential part of the State of California's comprehensive program for Solid Waste management, the State has declared that it is in the public interest for local governmental agencies to make adequate provision for Solid Waste handling, and the promotion of Recycling and reuse of materials which would otherwise be disposed of in landfills.

4. The State of California has recognized in Public Resources Code, Section 40059 that the City may determine aspects of Solid Waste handling which are of local concern, including frequency of Collection, methods of Collection and transportation, level of services, charges and fees.

5. The Charter of the City authorizes the City Council to grant by ordinance a franchise for furnishing the City and its inhabitants Solid Waste removal, and Chapter 16 of the Mountain View Municipal Code requires the City Council to provide for the Collection of Solid Waste within the City by the issuance of one or more exclusive franchises or nonexclusive contract or licenses to disposal service operators upon terms and conditions to be established in the applicable franchise or license.

6. Contractor collects and transports Solid Waste in the City pursuant to that certain agreement entitled, "Garbage Disposal Agreement," dated October 10, 1985. Contractor collects and transports Residential Recyclable Materials in the City pursuant

to that certain "Agreement Between the City of Mountain View and Foothill Disposal Company to Provide Curbside Collection and Mobile Drop-Off Recycling Programs," dated June 15, 1987 and collects and transports Multi-Unit Residential Recyclable Materials pursuant to that certain agreement entitled, "An Agreement Between the City of Mountain View and Foothill Disposal Company to Provide Multi-Unit Residential Recycling Collection Service," dated May 23, 1991.

7. In order to institute a comprehensive approach to the Collection of Solid Waste and certain Recyclable Materials, City and Contractor desire to terminate the aforementioned existing agreements and enter into this Agreement.

8. On _____, the City Council approved and authorized the City Manager to execute this Agreement.

NOW, THEREFORE, in consideration of the mutual covenants and agreements contained herein, the parties agree as follows:

ARTICLE I. DEFINITIONS.

For purposes of this Agreement, unless a different meaning is clearly required, the following terms shall have the following meanings:

1.1 Agreement. "Agreement" shall mean this Agreement between City and Contractor for Collection of Solid Waste and Certain Recyclable Materials, including all recitals, exhibits and attachments, and any amendments thereto.

1.2 Allowable Expenses. "Allowable Expenses" is defined in Article VIII of this Agreement.

1.3 Application Rate Year. "Application Rate Year" shall mean the Rate Year new rates will be effective for which a Rate Application has been filed pursuant to Article VIII of this Agreement.

1.4 Biomedical Waste. "Biomedical Waste" shall mean Solid Waste which is likely to be infectious, pathological or biohazardous, originating from residences, hospitals, public or private medical clinics, departments of research laboratories, pharmaceutical industries, blood banks, forensic medical departments, mortuaries, veterinary facilities and other similar facilities and includes (without limitations) equipment, instruments, utensils, fomites, laboratory Solid Waste (including pathological specimens and fomites attendant thereto), surgical facilities, equipment, bedding and utensils (including pathological specimens and disposal fomites attendant thereto), sharps (hypodermic needles, syringes, etc.), dialysis unit Solid Waste, chemotherapeutic Solid Waste, animal carcasses, offal and body parts, biological materials (vaccines, medicines, etc.), and other similar materials, but excluding any such Solid Waste which

is reasonably determined by Contractor to be noninfectious, nonpathological and nonbiohazardous.

1.5 City. "City" shall mean the City of Mountain View, a municipal corporation, and all of the territory lying within the municipal boundaries of the City as presently existing or as such boundaries may be modified during the Term.

1.6 City Council. "City Council" shall mean the City Council of the City of Mountain View, California.

1.7 Collection. "Collection" shall mean (a) pickup of Solid Waste and its transportation to the Disposal Site; and/or (b) pickup and disposition (other than by disposal) of certain Recyclable Materials, as the context requires.

1.8 Commercial. "Commercial" shall mean any of the land uses categorized "Commercial" or "Professional" by Chapter 36 (Zoning) of the Mountain View City Code. In general, commercial land uses will have bin service rather than can service.

1.9 Contractor. "Contractor" shall mean Foothill Disposal Company, Inc.

1.10 Contractor's Payments. "Contractor's Payments" shall mean the payments made to Contractor pursuant to Article VIII of this Agreement.

1.11 Contractor's Revenue. "Contractor's Revenue" shall equal all revenues from all sources derived by Contractor in connection with the performance of services which Contractor is granted an exclusive right to perform by this Agreement.

1.12 Construction and Demolition Debris. "Construction and Demolition Debris" shall mean used or discarded construction materials removed from premises during the construction, demolition or renovation of a structure.

1.13 Cost of Living Adjustment. For purposes of this Agreement, a dollar figure shall be "adjusted by the CPI Adjustor" by increasing (or decreasing, as appropriate) the dollar figure by an amount equal to the dollar figure multiplied by the CPI Adjustor expressed as a fraction.

1.14 Cost of Living Adjustor. The "Cost of Living Adjustor" shall be the percent change in the December-to-December Consumer Price Index for all Urban Consumers, as reported for San Francisco-Oakland-San Jose area by the United States Bureau of Labor Statistics. In the event that the Consumer Price Index is not available or is no longer published, the Cost of Living Adjustor shall be based on another then-published index which is generally considered to be a reliable replacement for the Consumer Price Index for commercial agreements, or, if no such generally accepted

replacement index exists, such other index as is mutually agreed on by the City and the Contractor.

1.15 County. "County" shall mean the County of Santa Clara, a political subdivision of the State of California.

1.16 Curbside. "Curbside" shall mean the designated location for collection of Recyclable Materials, Yard Trimmings or Solid Waste as described in Chapter 16 of the City Code.

1.17 Customer. "Customer" shall mean any Person in City receiving Collection services by Contractor pursuant to Agreement.

1.18 Delivery. "Delivery" of Solid Waste by a Generator shall be deemed to occur when Solid Waste is deposited in a receptacle or at a location that is designated for Collection pursuant to the City's Municipal Code.

1.19 Designated Waste. "Designated Waste" shall mean non Hazardous Waste which may pose special disposal problems because of its potential to contaminate the environment and which may be disposed of only in Class II disposal sites, or Class III disposal sites, as those terms are now defined, pursuant to a variance issued by the California Department of Health Services. Designated Waste consists of those substances classified as designated waste by the State of California, in 23 California Code of Regulations, Section 2522.

1.20 Disposal Site(s). "Disposal Site(s)" shall mean the Solid Waste handling facility or facilities designated by the City for the disposal (by Contractor) of Solid Waste collected by the Contractor.

1.21 Environmental Laws. "Environmental Laws" shall mean all Federal and State statutes, County and City ordinances concerning public health, safety and the environment, including, by way of example and not limitation, the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 USC §9601 *et seq.*; the Resource Conservation and Recovery Act, 42 USC §6901 *et seq.*; the Federal Clean Water Act, 33 USC §1251 *et seq.*; the Toxic Substances Control Act, 15 USC §2601 *et seq.*; the Emergency Planning and Community Right to Know Act, 42 USC §1101 *et seq.*; the Occupational Safety and Health Act, 29 USC §651 *et seq.*; the California Hazardous Waste Control Act, California Health and Safety Code §25100 *et seq.*; the California Toxic Substances Account Act, California Health and Safety Code §25300 *et seq.*; the Porter-Cologne Water Quality Control Act, Cal. Water Code §13000 *et seq.*; the Safe Drinking Water and Toxic Enforcement Act, Cal. Health & Safety Code §25249.5 *et seq.*; as currently in force or as hereafter amended, and all rules and regulations promulgated thereunder.

1.22 Fiscal Year. "Fiscal Year" shall mean the Contractor's fiscal year. Initially, the Contractor's Fiscal Year shall commence on October 1 and end on September 30. Contractor shall provide the City with reasonable notice if the fiscal year is modified.

1.23 Generator. "Generator" shall mean the Person who produces Solid Waste, Recyclable Materials or Yard Trimmings and shall ordinarily be the occupant of the Premises at which the materials are produced.

1.24 Hauling Service. "Hauling Service" shall mean any business entity (other than Contractor) which provides the service of collecting or disposing of Solid Waste or Recyclable Materials; provided that a business entity which collects or disposes of its own Solid Waste or Recyclable Materials as an incidental part of a business activity whose primary purpose is unrelated to the collection and disposal of Solid Waste or Recyclable Materials shall not be deemed a Hauling Service by virtue of that activity.

1.25 Hazardous Waste. "Hazardous Waste" shall mean all material defined or characterized as hazardous waste by the Federal Solid Waste Disposal Act, as amended, including the Resource Conservation and Recovery Act of 1976 (42 USC §6901 *et seq.*) and all future amendments thereto, or regulations promulgated thereunder; all material defined or characterized as hazardous waste by the principal agencies of the State (including, without limitation, the Department of Health Services and the California Waste Management Board) having jurisdiction over hazardous waste generated by facilities within the State, and pursuant to any applicable State or local law or ordinance, and all future amendments thereto, or regulations promulgated thereunder, including without limitation the California Integrated Solid Waste Management Act of 1989; radioactive wastes; any sewage sludge or other residue from wastewater treatment facilities; those substances or items which require special or extraordinary handling or disposal due to their hazardous, harmful, toxic or dangerous character or quality; and those substances and items which are not normally disposed of by the generally accepted sanitary landfill disposal methods.

1.26 Household Hazardous Waste. "Household Hazardous Waste" shall mean Hazardous Waste generated at Residential Premises within the City.

1.27 Industrial. "Industrial" shall mean any of the land uses categorized "industrial" or "manufacturing" by Chapter 36 (Zoning) of the Mountain View City Code. In general, Industrial land uses will have bin service rather than can service.

1.28 Junk Dealer. "Junk Dealer" shall mean a person who lawfully, and in accordance with all City ordinances, collects (without any charge to the Generator) or purchases used articles for purposes of restoration and/or resale and includes antique dealers, used building supply dealers, and automobile salvagers.

1.29 Maximum Return. The "Maximum Return" shall equal the Projected Contractor's Revenues multiplied by twelve-hundredths (.12).

1.30 Minimum Return. The "Minimum Return" shall equal the Projected Contractor's Revenues multiplied by six hundredths (.06).

1.31 Multi-Unit Residential Premises. "Multi-Unit Residential Premises" shall mean all individual Premises which contain five or more residential units, which is not a mobile home park, including, but not limited to, condominiums, apartments and planned unit developments. In general, Multi-Unit Residential Premises will have bin service; however, smaller complexes may have can service.

1.32 Ordinary Services. "Ordinary Services" shall mean those services, other than Special Services, which Contractor is granted an exclusive right to perform by this Agreement.

1.33 Owner. "Owner" shall mean the person holding the legal title to the real property constituting the Premises to which Collection services are to be provided under this Agreement.

1.34 Person. "Person" shall mean any individual, firm, association, organization, partnership, corporation, business trust, joint venture, the United States, the State of California, the County of Santa Clara, and special-purpose districts.

1.35 Premises. "Premises" shall mean any land or building in the City, as defined in the City Code Section 16.1, where Solid Waste or Recyclable Materials are generated or accumulated.

1.36 Pretax Income. "Pretax Income" shall equal Projected Contractor's Revenues (or Projected Contractor's Revenues as adjusted by the CPI Adjustor, as appropriate) less Projected Allowable Expenses.

1.37 Projected Allowable Expenses. "Projected Allowable Expenses" is defined in Article VIII of this Agreement.

1.38 Projected Contractor's Revenues. "Projected Contractor's Revenues" is defined in Article VIII of this Agreement.

1.39 Rate Year. "Rate Year" shall mean the twelve (12) month period commencing July 1 of any calendar year and ending June 30 of the following calendar year.

1.40 Recycling. "Recycling" shall mean the process of collecting, transporting, sorting, cleansing, treating and reconstituting Solid Waste materials and returning them

to use and/or sale in the form of raw materials for new, reused or reconstituted products.

1.41 Recyclable Materials. "Recyclable Materials" shall mean all Solid Waste that is capable of undergoing Recycling.

1.42 Residential. "Residential" shall mean any of the land uses categorized "residential" by Chapter 36 (Zoning) of the Mountain View City Code. In general, Residential land uses will have can rather than bin service.

1.43 Single-Unit Residential Premises. "Single-Unit Residential Premises" shall mean all individual Premises which contain four or less residential units that receive individual can service. This includes mobile home parks.

1.44 Solid Waste. "Solid Waste" shall mean all putrescible and nonputrescible solid, semisolid and liquid matter accumulated, discarded, or delivered within the City for Collection and disposal at the direction of City, as long as these materials are not Hazardous Waste.

1.45 Source-Separated Recyclables. "Source-Separated Recyclables" shall mean Recyclable Materials that have undergone Source Separation.

1.46 Source Separation. "Source Separation" shall mean the segregation, by the Generator, of Recyclable Materials from other Solid Waste materials prior to Collection of the materials.

1.47 Special Services. "Special Services" shall mean key services, toter rentals, bin rentals, roll-out services, steam cleaning services, bin painting services and any other services mutually agreed by the parties to be a Special Service.

1.48 Special Waste. "Special Waste" shall mean those materials which consist of or contain pollutants which, under ambient environmental conditions at a sanitary landfill or other waste management facility could be released at concentrations in excess of applicable water quality standards or objectives, or which could cause degradation of waters of the State, and which may only be discharged at waste management units that are designated either "Class I" or Class II" by the California Solid Waste Management Board, or successor agency.

1.49 Term. "Term" shall mean the term of this Agreement as set forth in Article 4.

1.50 Toters. "Toters" is a trade name for a specific brand of portable wheeled Solid Waste Collection carts. As used herein, the term includes the carts made by that manufacturer or any substantially similar type of wheeled device purchased by City or

offered for rent by Contractor to residents for use in the Solid Waste collection or Recycling program.

1.51 Transfer Station. "Transfer Station" shall mean the Sunnyvale Materials Recovery and Transfer (SMaRT) Station, a Solid Waste handling and Recyclable Materials processing facility located at 301 Carl Road, Sunnyvale, California, 94089.

1.52 Yard Trimmings. "Yard Trimmings" shall mean tree trimmings, grass cuttings, dead plants, leaves, branches and dead trees (not more than six inches (6") in diameter) and similar materials generated at Premises.

ARTICLE II. REPRESENTATIONS AND WARRANTIES OF THE CONTRACTOR

2.1 Corporate Status. Contractor is a corporation duly organized, validly existing and in good standing under the laws of the State of California. It is qualified to transact business in the State of California and has the corporate power to own its properties and to carry on its business as now owned and operated and as required by this Agreement.

2.2 Corporate Authorization. Contractor has the authority to enter into and perform its obligations under this Agreement. The Board of Directors of Contractor (or the shareholders if necessary) have taken all actions required by law, its articles of incorporation, its bylaws or otherwise to authorize the execution of this Agreement. The person signing this Agreement on behalf of Contractor has authority to do so.

ARTICLE III. RIGHTS AND PRIVILEGES AND EXCLUSIONS FROM SCOPE OF SERVICES

3.1 Rights and Privileges. Pursuant to California Public Resources Code Section 40059 and the City Code of the City of Mountain View Section 16.17, City hereby grants to Contractor the exclusive right and privilege, during the term of this Agreement, to collect and transport Solid Waste and Recyclable Materials generated in the City as detailed in Exhibit A to this Agreement, "Services to be Provided by Contractor," except as excluded below in Section 3.2. This Agreement grants contractual rights only and shall not be deemed to be a grant of a franchise. However, the City reserves the right, but not the obligation, to award Contractor a franchise at any time. In addition, on any anniversary date of this Agreement, Contractor may request that a franchise be awarded.

3.2 Scope of Services; Exclusions. To the extent permitted by law, the rights and privileges granted to Contractor shall be exclusive for the services detailed in Exhibit A, "Services to be Provided by Contractor," except as to the following categories of materials listed in subsections (a) through (k) in this Section. The granting of the rights and privileges shall not preclude the categories of materials listed in subsections

(a) through (k) from being delivered to and collected and transported by others, provided that nothing in this Agreement is intended to or shall be construed to excuse any person from obtaining any authorization from City which is otherwise required by law:

a. Commercial/Industrial Recyclable Materials that Generator is selling or giving to another Hauling Service or directly to a Recycling processor, provided that no compensation of any kind is given to either the Hauling Service or processor for any purpose, including, but not limited to, the storage, collection or disposal of such materials.

b. Yard Trimmings removed from Premises by a gardening, landscaping, or tree trimming contractor as an incidental part of a total service offered by that contractor rather than as a Hauling Service and tree trimmings, clippings, and all similar materials generated at parks, golf courses and other City-maintained premises, which are collected and transported by City to the Disposal Site;

c. Construction Debris or Demolition Debris generated at a Premises by a licensed construction contractor and removed from the Premises by that licensed construction contractor as an incidental part of the construction or demolition services provided by the licensed construction contractor at the Premises;

d. Nonputrescible Solid Waste of the type typically collected by a Junk Dealer separated by the Generator for Collection and transportation by a Junk Dealer, but not as a Hauling Service;

e. Animal waste and remains from slaughterhouses or butcher shops for use as tallow;

f. Hazardous Waste, including Household Hazardous Waste;

g. Designated Waste;

h. Solid Waste which is generated at any Residential Premises and which is transported personally by the Owner or occupant of such Premises to a licensed Solid Waste disposal or transfer facility in a manner consistent with the City Municipal Code and other applicable laws;

i. Biomedical Waste;

j. Special Waste;

k. By-products of sewage treatment, including sludge, grit and screenings;

3.2.1 Contractor acknowledges and agrees that City may permit other persons besides Contractor to collect any or all materials excluded from the scope of Contractor's exclusive services by this Section without seeking or obtaining approval of Contractor.

3.2.2 Contractor shall retain the exclusive rights granted by this Section unless and until this Agreement is terminated as provided in Article XI.

3.3 Enforcement of Contractor's Exclusive Rights. The City shall use all reasonable efforts to enforce the exclusive rights and privileges granted to the Contractor pursuant to this Agreement to prevent Hauling Services from providing services in the City which the Contractor is entitled to provide on an exclusive basis pursuant to this Agreement. In the event that the Contractor reasonably believes that a Hauling Service is providing such services in the City, it shall notify the City thereof, together with the basis of such belief. In addition, the City shall cooperate with the Contractor's efforts to protect its exclusive rights and privileges under this Agreement. Reasonable costs expended by the Contractor in protecting its rights shall constitute an Allowable Expense.

ARTICLE IV. TERM OF AGREEMENT

4.1 Term. The term of this Agreement shall be ten (10) years, commencing at 12:01 a.m. on April 27, 1993 and expiring at midnight April 26, 2003. City shall have an option to extend this term for two (2) additional terms of five (5) years each.

ARTICLE V. COLLECTION AND TRANSPORTATION SERVICES

5.1 General. The work to be done by Contractor pursuant to this Agreement shall include the furnishing of all labor, supervision, equipment, materials, supplies and all other items necessary to perform the services required. The enumeration of, and specification of requirements for, particular items of labor or equipment shall not relieve Contractor of the duty to furnish all others, as may be required, whether enumerated or not.

The work to be done by Contractor pursuant to this Agreement shall be accomplished in a thorough and workmanlike manner so that the customers within the City are provided reliable and courteous Solid Waste and Recyclable Materials collection at all times. The enumeration of, and specification of requirements for, particular aspects of service quality shall not relieve Contractor of the duty of accomplishing all other aspects in the manner provided in this Section, whether such other aspects are enumerated elsewhere in the Agreement or not.

Contractor shall perform all work in accordance with Exhibit A, all sections of which are incorporated herein whether or not such sections are specifically referred to in any other section of this Agreement.

5.2 Contingency Plan. Contractor shall keep on file and provide to City upon request a written contingency plan demonstrating Contractor's arrangements to provide vehicles and personnel and to maintain uninterrupted service during mechanical breakdowns, strikes, work stoppages and other concerted job actions, and other similar events.

5.3 Residential Solid Waste Collection Services. Contractor shall collect all Solid Waste generated at Residential Premises within City and delivered for Collection at the designated collection center or location. Solid Waste shall be collected from such Premises at the frequencies and in the manner described in Exhibit A, Sections 1.4 (Curbside Services for Residential Premises) and 1.5 (Services for Multiple-Unit Residential Premises).

5.4 City Facilities Collection. Contractor shall collect all Solid Waste generated at designated Premises owned and/or operated by the City, at no charge to the City. Expenses associated with such collection shall be included as Allowable Expenses in the calculation of collection rates pursuant to Article VIII. Contractor shall make such collections Monday through Saturday, and in cases of emergency, if requested by City, on Sunday. The facilities to be provided service initially, together with the type and frequency of service, are listed on Attachment 1 to Exhibit A, which Attachment may be reasonably modified or expanded by City.

Contractor shall provide the following additional collection and consulting services:

- Collection of Solid Waste from all City-owned sidewalk litter containers;
- Collection of beverage containers and other Recyclable Materials from special events as listed in Exhibit A, Section 1.4.3 and Section 1.4.4;
- Collection of Recyclable Materials containers from City facilities.
- Collection of Solid Waste from litter containers in City parks and Recyclable Materials from Recycling containers, if requested by City;
- Review of plans for new development with regard to Solid Waste service issues; all in accordance with the standards and requirements set out in Exhibit A, Section 1.7 (City Facilities).

5.5 Commercial and Industrial Solid Waste Collection Services. Contractor shall collect all Solid Waste generated at Commercial and Industrial Premises within City and delivered for Collection at a designated location. These materials shall be Collected from such Premises at the frequencies and in the manner described in Exhibit A, Section 1.6.

5.6 Recycling Programs.

a. Residential and Recyclable Materials. Contractor shall collect Recyclable Materials from all Single-Unit and Multiple-Unit Residential Premises in the City. Recyclable Materials shall be collected from Residential Premises at the frequencies and in the manner described in Exhibit A, Section 1.4.9.

b. Commercial and Industrial Recycling. Contractor shall collect and transport, as directed by the City, Recyclable Materials as defined in this Agreement, from Commercial and Industrial Generators who choose not to sell or give away (free of charge to the Generator) the Recyclable Materials to another Hauling Service or processor. Collection of these Recyclable Materials shall be conducted as arranged by the City, with input from the Commercial or Industrial Generator and/or the Contractor from time to time. The City reserves the right to prescribe the types of materials to be collected by Contractor. Recyclable Materials shall be collected from Commercial and Industrial Generators in the manner described in Exhibit A, Section 1.6.5.

At the time of drafting of this Agreement, the parties acknowledge that Contractor will not be required to collect commercial or industrial recyclable materials. However, the City may require Contractor to begin such collection by specifying the type of the materials to be collected. In the event the City requires Contractor to collect commercial or industrial recyclables, the total costs of such collection during the Rate Year in which such collection is begun will be includable as an Allowable Expense pursuant to Section 8.4(a)(2) in the Rate Application filed for the Rate Year subsequent to the year in which such collection is begun. These costs will be recoverable in full during that subsequent Rate Year in addition to the projected costs of such collection during the subsequent Rate Year.

c. Notwithstanding any other provision of this Agreement, Generators shall not be required to deliver to Contractor any Recyclable Materials that a Generator is able to sell or donate to another individual or entity, so long as no compensation of any kind is given by the Generator to the individual or entity to which the Recyclable Materials are sold or donated including, but not limited to, the storage, collection or disposal of Solid Waste or Recyclable Materials.

5.7 Yard Trimmings Collection. Contractor shall collect separated Yard Trimmings from all Residential Premises on Curbside service biweekly (every other

week) on the same day of the week as Solid Waste and Recyclable Materials Collection. Contractor shall collect separated Yard Trimmings from Multiple-Unit Residential Premises as directed by City. The collection of Yard Trimmings material shall be performed in accordance with additional standards and requirements set forth in Exhibit A, Sections 1.4.10 and 1.5.4.

5.8 Other Solid Waste Collection Services. Contractor shall provide other Collection services as requested by Generators in the City or by the City on an on-call basis, including, but not limited to, drop box service and special pickups of bulky waste on the following terms:

a. Contractor shall provide bin rentals, at the request of Generators, at the rates approved in accordance with Article VIII.

b. Contractor shall, at the request of Generators, wash dumpsters at the rates approved in accordance with Article VIII.

c. Contractor shall, at the request of Generators, provide roll-out services at the rates approved in accordance with Article VIII.

d. Spring and Fall Special Collections. Contractor shall provide separate Solid Waste and Yard Trimmings collections for all residents two (2) times a year on specific Saturdays or other times as agreed upon by City and Contractor at no additional cost. Items which may be excluded are: large or extra-heavy items such as automobile bodies, transmissions, concrete, major appliances ("white goods"), water heaters and large pieces of lumber.

e. Contractor shall provide additional, as opposed to normal, Collection services as directed by and needed by City by reason of floods, earthquakes, other "acts of God," war, civil insurrection, riots, acts of any government (including judicial action) and other similar catastrophic events as outlined in Contractor's Emergency Response Plan incorporated herein and made a part hereof as Exhibit E, unless they are prevented from doing so in accordance with Section 11.5 of this Agreement. Any expenses incurred by Contractor in the provision of such services shall be reimbursed as indicated in Section 8.4.a.5, "Extraordinary Costs."

5.9 Hours of Collection. Collection of Solid Waste, including Recyclable Materials, may occur only within hours authorized by the City. Except as may be required in the event of an emergency, Contractor may not collect materials in Residential areas or within 300' of Residential areas earlier than 7:00 a.m. or later than 5:00 p.m., and may not collect materials in other areas earlier than 6:30 a.m. or later than 6:00 p.m.

If the City amends its Municipal Code to further limit hours of operation, then the more restrictive requirement (i.e., the later start time and the earlier time after which operations shall cease) shall control.

5.10 Collection Standards.

a. Care of Private Property. Contractor shall use due care when handling Solid Waste containers provided by Generators. Containers shall not be thrown from trucks or roughly handled in a manner likely to result in damage to the containers. Containers shall be returned to the Collection point upright, with lids properly secured.

Contractor shall ensure that its employees close all gates opened by them in making collections, unless otherwise directed by the Generator, and avoid crossing landscaped areas and climbing or jumping over hedges and fences.

City shall refer complaints about damage to private property to Contractor. Contractor shall make arrangements to immediately repair all damage to private property caused by its employees.

b. Noise. Contractor shall conduct all Solid Waste and Recyclable Materials Collection services as quietly as practicable, avoiding any unnecessary noise, and shall conform to any Federal, State, County and City statutes or ordinances regulating noise levels permissible during the collection of Solid Waste. All vehicles used by Contractor to perform services under this Agreement shall conform to State regulations regarding permissible noise levels for such vehicles. City may conduct random checks of noise emission levels to ensure compliance with this Section.

5.11 Litter Abatement.

a. Minimization of Spills. Contractor shall use due care to prevent Solid Waste or Recyclable Materials from being spilled or scattered during the Collection or transportation process. If any Solid Waste or Recyclable Materials are spilled, the Contractor shall promptly clean up all spilled materials before continuing to the next collection location. Contractor shall not transfer loads from one vehicle to another on any public street, unless it is necessary to do so because of mechanical failure or accidental damage to a vehicle.

b. Cleanup. The Contractor shall clean up litter in the immediate vicinity of any Solid Waste or Recyclable Materials storage area (including the areas where Collection bins and debris boxes are delivered for Collection), when Contractor has caused the litter. The Contractor shall discuss instances of repeated spillage not caused by it directly with the Generator responsible and will report such instances to

City. City will attempt to rectify such situations with the Generator if Contractor has already attempted to do so without success.

c. Illegal Dumping. Contractor shall have the responsibility to collect and dispose of Solid Waste that has been bagged or otherwise consolidated for disposal but deposited at locations other than those designated for collection of Solid Waste pursuant to this Agreement, so long as such improperly deposited Solid Waste does not contain Biomedical Waste, Designated Waste or Hazardous Waste. The expenses associated with the collection and disposal of improperly deposited Solid Waste shall be considered an Allowable Expense for rate-setting purposes pursuant to Article VIII.

d. Covering of Loads. Contractor shall place tarps on all open debris boxes during transport to the Disposal Site. Loads not properly covered are subject to assessment of a fee by the operator of the Disposal Site and Contractor shall be responsible for all such fees which shall be excluded from Allowable Expenses. Alternatively, the facility operator may require Contractor to purchase a tarp for the boxes on the vehicle.

5.12 Transportation and Delivery of Solid Waste and Recyclable Materials. Contractor shall transport and deliver all Solid Waste and Recyclable Materials collected under Sections 5.3, 5.4, 5.5, 5.6, 5.7 and 5.8 to the Disposal Site designated by the City. Unless otherwise specified, this site will be the Transfer Station.

City will pay all transfer and disposal fees and charges imposed by the operator of the Disposal Site on Solid Waste and Recyclable Materials collected by Contractor under this Agreement. Such fees and charges are a cost of the City's and shall not be included as Allowable Expenses of Contractor for purposes of calculating Contractor's payments under Section 8.3. Contractor shall maintain accurate records of the quantities of Solid Waste and Recyclable Materials delivered to the Transfer Station and will cooperate with City in any audits or investigations of such deliveries.

Contractor shall cooperate with the operator of the Transfer Station with regard to operations therein, including, for example, complying with directions from the operator to unload Collection vehicles in designated areas, accommodating to maintenance operations and construction of new facilities, cooperating with its Hazardous Waste Exclusion Program (HWEP), and so forth. Cooperation with the HWEP may entail inspection of up to one (1) truckload per day, randomly selected. Costs incurred due to inspection of more than one (1) truck per day will be reimbursed based on actual costs by the City with the Contractor's Payment provided for in Section 8.3.

5.13 Vehicles.

a. General. Contractor shall provide a fleet of Collection vehicles sufficient in number and capacity to efficiently perform the work required by the Agreement in strict accordance with its terms. Contractor shall have available during Collection hours on Collection days at least one (1) backup vehicle to respond to complaints and emergencies. Contractor shall not commingle equipment with that of a subsidiary, or use equipment for collection other than specified in this Agreement, without prior written approval of City except on an emergency basis.

b. Specifications. All vehicles used by Contractor in providing Collection services shall be registered with the California Department of Motor Vehicles. All such vehicles shall comply with County standards for maintaining leakproof bodies to prevent leakage, spillage or overflow. All such vehicles shall comply with U.S. Environmental Protection Agency noise emission regulations, currently codified at 40 CFR Part 205, to the extent applicable, and other applicable noise control regulations, and shall incorporate reasonably available noise control features throughout the entire vehicle. All vehicles shall be painted in a uniform manner that does not create a resemblance between Contractor's vehicles and City utility vehicles. Contractor shall confer with the City prior to purchasing any new vehicles for use in newly-instituted programs regarding the collection of Solid Waste or Recyclable Materials. The specifications for all vehicles shall be submitted to City for approval prior to their use.

c. Vehicle Identification. Contractor's name, local telephone number, and a unique vehicle identification number designated by Contractor for each vehicle shall be prominently displayed on all vehicles, including the rear of vehicle, in letters and numbers no less than three inches (3") high. All vehicles used for Collection in the City shall have placed thereon the words "Serving the Citizens of Mountain View" or similar terminology acceptable to the City. Contractor shall not place the City's logo on its vehicles.

d. Cleaning and Maintenance.

1. General. Contractor shall maintain all of its properties, facilities, and equipment used in providing service under this Agreement in a safe, neat, clean and operable condition at all times.

2. Cleaning. Vehicles used in the Collection of Solid Waste and Recyclable Materials shall be thoroughly washed and steam-cleaned both inside and outside as necessary to maintain trucks in a neat and clean condition. City may inspect vehicles at any time to determine compliance with sanitation requirements. Contractor shall make vehicles available to the Santa Clara County Health Department for inspection, at any frequency it requests.

3. Painting. All vehicles used in Collection of Solid Waste and Recyclable Materials shall be repainted in a uniform fashion as necessary. City may inspect vehicles at any time to determine compliance with painting requirements.

4. Maintenance. Contractor shall (a) inspect each vehicle daily to ensure that all equipment is operating properly; and (b) perform all scheduled maintenance functions in accordance with the manufacturer's specifications and schedule. Vehicles which are not operating properly shall be taken out of service until they are repaired and do operate properly. Contractor shall keep accurate records of all vehicle maintenance, recorded according to date and mileage and shall make such records available to the City upon request.

5. Repairs. Contractor shall repair, or arrange for the repair of, all of its vehicles and equipment for which repairs are needed because of accident, breakdown or any other cause so as to maintain all equipment in a safe and operable condition. If an item of repair is covered by a warranty, Contractor shall obtain warranty performance. Contractor shall maintain accurate records of repair, which shall include the date/mileage, nature of repair and the signature of a maintenance supervisor that the repair has been properly performed.

6. Inventory. Contractor shall furnish sufficient equipment to provide all service required under this Agreement, including backup Collection vehicles. Contractor shall maintain and furnish the City a written inventory of all vehicles, including Collection vehicles and collection containers, used in providing service. The inventory shall list all vehicles by manufacturer, identification number, date of acquisition, type, capacity and decibel rating. Collection containers shall be listed by size and type.

7. Storage. Contractor shall arrange to store all collection containers, vehicles and other equipment in safe and secure location(s).

e. Operation. Vehicles shall be operated in compliance with the California Vehicle Code and all applicable safety and local laws and ordinances.

5.14 Personnel.

a. General. Contractor shall furnish such qualified drivers, mechanical, supervisory, clerical and other personnel as may be necessary to provide the services required by this Agreement in a safe and efficient manner.

b. Driver Qualifications. All drivers shall be trained and qualified in the operation of collection vehicles and must have in effect a valid license, of the appropriate class, issued by the California Department of Motor Vehicles.

c. Uniforms. Contractor shall require its drivers and helpers to wear clean, standardized uniforms bearing the Contractor's name, and an identification badge or other means of identifying the employee.

d. Safety Training. Contractor shall provide suitable operational and safety training for all of its employees who utilize or operate vehicles or equipment for Collection of Solid Waste and Recyclable Materials or who are otherwise directly involved in such Collection and shall have a written Injury and Illness Prevention Program as required by Cal-OSHA under Title 8, General Safety Orders, Section 3203 and/or CSO 1509, and Contractor shall comply with all State and Federal safety standards. Contractor shall train its employees involved in Solid Waste Collection to identify, and not to collect, Hazardous Waste or Biomedical Waste.

e. Gratuities. Contractor shall not permit its employees to demand, solicit or accept, directly or indirectly, any additional compensation or gratuity from members of the public for the Collection of Solid Waste or Recyclable Materials under this Agreement.

f. Employee Conduct and Courtesy. Contractor shall use its best efforts to ensure that all employees present a neat appearance and conduct themselves in a courteous manner. Contractor shall regularly train its employees in customer courtesy, shall prohibit the use of loud or profane language, and shall instruct Collection crews to perform the work as quietly as possible. If any employee is found not to be courteous or not to be performing services in the manner required by this Agreement, Contractor shall take appropriate corrective measures, including, but not limited to, transfer, discipline or termination in a manner consistent with the Contractor's collective bargaining agreement with its employees.

g. Provision of Field Supervision. Contractor shall designate one (1) qualified employee as supervisor of field operations. The field supervisor will devote at least fifty percent (50%) of his or her time in the field checking on Collection operations, including responding to complaints.

ARTICLE VI. OTHER COLLECTION-RELATED SERVICES, STANDARDS AND AGREEMENTS

6.1 Records and Reports: Collection Operations. Contractor shall compile, on a daily basis, records of its Solid Waste and Recyclable Materials Collection operations covering those aspects of its operations and in such detail as the City may prescribe. Such records shall include, but are not limited to:

- Quantities of Recyclable Materials collected per route, reported monthly, in tons, by material type;

- Number of pickups in various Recycling programs;

- Contractor shall maintain accurate cost information for various collection programs and shall provide reports at City's request;

- Customer complaints, including the name and address of the complainant, the date, time and nature of the complaint, and the nature and date of resolution;

- Other data City may require to satisfy reporting requirements pursuant to State and Federal mandates.

6.2 Inspection by City. The City shall have the right, but not the obligation, to observe and inspect all of the Contractor's operations involved in providing services under this Agreement. Any such inspection shall be conducted in a manner that does not unreasonably interfere with the business operations of the Contractor. During any such inspection, the City shall have the right to enter any of Contractor's facilities, speak to any of Contractor's employees and receive a response to any questions directed at such employees regarding Contractor's operations that do not seek privileged or personal information, and review and make copies of (at City's expense) all of Contractor's operational and business records related to the performance of services under this Agreement. To the extent appropriate, Contractor shall have the opportunity to mark as "Confidential" pursuant to Section 6.3 any documents copied by the City. The City has the right to conduct, and Contractor must cooperate in, a management audit to verify that services provided under this Agreement are being provided in accordance with its terms and in as effective and cost-efficient a manner as is reasonably possible.

6.3 Designation of Confidential Information.

Contractor may identify any documents or portions of documents submitted to or copied by the City as containing confidential trade secrets. Contractor shall prominently mark any information which it claims confidential with the mark "CONFIDENTIAL" at the time of submittal to or copying by the City. The City shall not disclose such documents or portions of documents to the public until receipt of any request for disclosure of the information pursuant to the Public Records Act. Within five (5) days of receiving any request for disclosure of documents or portions of documents identified by Contractor as confidential, the City shall provide Contractor written notice of the request. Contractor shall have five (5) days within which to respond in writing to the request before the City may disclose any such requested documents or portions of documents. In the event the City determines in good faith that the requested documents or portions of documents contain confidential trade secrets, the City shall not disclose them without the prior consent of Contractor or

unless required to do so by a court of law. In the event the City elects not to disclose such documents or portions of documents, Contractor shall reimburse the City for any costs or legal fees incurred as a result of the City's election, and shall hold the City harmless against any liability arising therefrom. The Contractor understands and acknowledges that the City must comply with the State of California Public Records Act as set forth in Government Code §§6250, *et seq.*

6.4 Performance Audit.

6.4.1 Conduct of Audit. Once every three (3) years, the City may conduct, at City expense, and Contractor must cooperate in, a performance audit to determine whether the Contractor's services are being provided in accordance with the terms of this Agreement and in as efficient a manner as is consistent with the requirements of this Agreement. The performance audit shall be performed by a qualified independent consultant to be selected by City with input from Contractor.

6.4.2 Contractor's Right to Comment. Contractor shall be provided access prior to final draft or final written report prepared by the consultant regarding the performance audit and shall have a minimum of ten (10) working days or as otherwise agreed by both parties following receipt of the draft or final written report to submit written comments to the City and the consultant. Upon request of either party, the City and the Contractor shall promptly thereafter meet to discuss whether any changes should be made in Contractor's operations as a result of the performance audit. The City shall have no right to require the Contractor to make any particular changes in its operations as a result of the performance audit that would require Contractor to increase Contractor's costs that would not be considered an Allowable Expense. At a minimum, Contractor shall implement those changes, at City's request, that improve service at the same cost or retain the same service at a lower cost.

6.5 Public/Customer Service and Accessibility.

a. Office. Contractor shall establish and maintain a business office located in the City for purposes of carrying out its obligations under this Agreement.

b. Office Hours. Contractor's office shall be open to the public from 7:30 a.m. to 4:30 p.m.—Monday through Friday. The office may be closed on Saturdays and Sundays and those holidays listed on Exhibit A, Section 1.2.

c. Availability of Representatives. A representative of the Contractor shall be available during office hours to communicate with the public in person and by telephone.

d. Telephone. Contractor shall maintain a telephone in operation at its office during business hours. Contractor shall install telephone equipment sufficient

to handle the volume of calls typically experienced on the busiest days. Contractor shall arrange for this telephone number to be listed in all telephone directories generally distributed in the City. Contractor shall also maintain an emergency telephone number for use during other than normal business hours. The emergency telephone number shall not be publicly listed or otherwise made available to the general public, but it shall be disclosed to appropriate City personnel and emergency response teams. Contractor shall connect the emergency telephone number to an answering service during hours when its office is closed and shall designate a representative to be accessible for contact by the answering service during such times.

e. Maps, Schedules, Consumer Information. Contractor shall maintain maps and schedules of all Collection and disposal routes and shall update such maps and schedules whenever a significant change occurs. Contractor shall have such maps and schedules available for inspection by City at its business office.

6.6 Service Complaints. Contractor shall be responsible for the prompt and courteous attention to, and prompt and reasonable resolution of, all Generator complaints relating to service. Contractor shall respond to all complaints from Generators within eight (8) working hours. In particular, if a complaint involves a failure to collect Solid Waste or Recyclable Materials from Premises, required by this Agreement, Contractor shall collect the Solid Waste or Recyclable Materials in question within such eight (8) hour period, provided it has been delivered for Collection in accordance with the City's Municipal Code. Contractor shall provide to the City on a quarterly basis a spreadsheet listing the customer complaints received during the prior quarter. The spreadsheet shall list each complaint grouped according to the nature of the complaint and the resolution or other comments regarding the complaint.

6.7 Compliance with Service Standards. The parties acknowledge that consistent, reliable Solid Waste and Recyclable Materials Collection service is of utmost importance to City and that City has considered and relied on Contractor's representations as to its commitment to providing high quality service in awarding the Agreement to it. The parties further recognize that objective standards of performance are necessary and appropriate to ensure consistent and reliable service.

6.7.1 Performance Standards. In recognition of the foregoing, the parties have agreed that the following standards of performance shall be observed by the Contractor:

(1) Commencement of service to a new Customer account within seven (7) days after order;

(2) Collection of Solid Waste or Recyclable Materials which have been properly delivered for Collection from an established customer account on the scheduled Collection day;

(3) Avoidance of damage to private property;

(4) Return of emptied refuse cans to the curb, placed upright with lids secured, and retrieval of carts moved by others which have been reported to Contractor by the Customer or the City;

(5) Avoidance of excessive noise, as described in this Agreement;

(6) Avoidance of discourteous behavior;

(7) Cleanup of materials spilled by Contractor from Solid Waste containers (cans, carts, bins or debris boxes);

(8) Collection of materials within authorized hours;

(9) Response to Customer complaints within eight (8) working hours;

(10) Report of Customer complaints to City as required by Section 6.4;

(11) Submittal of the report on the annual audit of billings on the day the report is required by Section 6.16;

(12) Submittal of the Annual Rate Application or Financial Statements on the day required by Section 8.3.

6.7.2 Failure to Observe Performance Standards. In the event that the Contractor is found to have engaged in repeated uncorrected violations of the performance standards set forth in this Section, the Contractor can be subject to sanction as herein provided. For purposes of this Section, "repeated uncorrected violations" shall mean more than five violations of the performance standards during any two-month period that, as to any violations capable of correction, are not corrected within twenty-four (24) hours from the time at which the Contractor is notified of the violation.

6.7.3 Administrative Hearing. If the City has reason to believe that the Contractor has engaged in repeated uncorrected violations of the performance standards, the City shall notify the Contractor in writing of the date and nature of each such uncorrected violation. The City may then conduct an administrative hearing regarding the violations contained in the written notice to determine whether repeated uncorrected violations have occurred. The hearing shall be conducted by the City Manager or designee. Both the City and the Contractor shall be permitted to introduce

evidence at the hearing regarding the Contractor's compliance with the performance standards. The City acknowledges that reported violations of the performance standards by Contractor's Customers do not conclusively establish the existence of such violations; however, Customer's testimony may be used as part of the overall information gathered to establish the existence of a violation.

6.7.4 Sanction. In the event that the City Manager or designee concludes, on the basis of evidence introduced at the administrative hearing, that the City has proven to a preponderance of the evidence that the Contractor has engaged in repeated uncorrected violations of the performance standards as indicated in Section 6.7.1, the City Manager or designee may require the payment by the Contractor of a fine. The amount of the fine shall be set at the discretion of the City Manager or designee, but in no event shall the City Manager or designee assess a total of more than $25,000 of fines pursuant to this Section during any calendar year, with a maximum of $1,000 per violation.

6.8 City's Right to Direct Termination of Service to Premises. The City may direct the Contractor to suspend or terminate waste Collection services from any Premises if the Owner or occupant thereof (or other party responsible for payment of City's utility bills) is delinquent in payment of such bills. City shall indemnify and hold Contractor harmless from any liability or operational costs associated with Contractor's suspending or terminating service pursuant to directions of the City under this Section. Contractor will promptly implement City directions to suspend or terminate service.

6.9 Change in Scope of Work; Pilot Programs. The City may, without amending this Agreement, direct Contractor to cease performing one or more of the types of Collection services described in Article V, may direct Contractor to modify the scope of one (1) or more of such services, or may direct Contractor to perform additional Solid Waste or Recyclable Materials Collection services. Such direction shall not alter or limit in any way the exclusive rights granted in Article III, which may not be altered other than through amendment of this Agreement pursuant to Section 14.6. City and Contractor shall work cooperatively to determine the nature and scope of the changes and to accomplish them in a prompt and efficient manner utilizing existing staff and equipment when possible.

Pilot programs and innovative services which may entail new Collection methods, different types of services and/or new requirements for Generators are included among the type of changes which City may direct pursuant to this Section.

The rights accorded City pursuant to this Section are not intended to change the scope of rights or financial return accorded Contractor under this Agreement. City acknowledges that changes directed pursuant to this Section may result in an increase in operating costs or a decrease in operating revenues for Contractor or may result in the obsolescence of capital equipment acquired by

Contractor to perform the services required by this Agreement. To the extent any such directions result in a change in the financial return accorded Contractor for the performance of services under this Agreement, the Payments established pursuant to Article VIII shall be adjusted pursuant to Section 8.6 to compensate Contractor fully for such changes. In the event any direction results in the obsolescence of capital equipment, Contractor shall attempt to mitigate any resulting losses, but Contractor shall be fully compensated for any such losses during the establishment of Payments under Article VIII. Contractor will perform the new or changed service while the appropriate adjustment in Payments is being determined; provided, that any such adjustment shall compensate Contractor for any change in financial return as a result of performing such services prior to the adjustment.

6.10 Title to Solid Waste and Recyclable Materials.

a. General. Solid Waste collected by the Contractor shall be the property of City from the time it is placed into Contractor's collection vehicle until it has been properly delivered to the Transfer Station, at which time it shall become the property of the owner or operator of the Transfer Station.

b. Commercial and Industrial Recycling. Material collected from Commercial and Industrial Generators shall be and remain the property of City from the time it is placed in Contractor's Collection vehicle until it is sold or properly delivered to a Recycling operation, including the Transfer Station.

c. Residential and Yard Trimmings Recycling. Recyclable Material collected as a part of these programs shall be and remain the property of City from the time it is placed in Contractor's Collection vehicle until it is sold or properly delivered to a Recycling operation, including the Transfer Station.

6.11 Nondiscrimination. Contractor shall not discriminate in the provision of service or the employment of persons engaged in performance of this Agreement on any arbitrary basis, including but not limited to, race, color, religion, sex, age, physical handicap, sexual orientation or medical condition in violation of any applicable Federal or State law.

6.12 Affirmative Action Program. Contractor shall comply with the City's Affirmative Action Program, the requirements of which are described in the Affirmative Action Certificate signed by the Contractor, a copy of which is attached hereto as Exhibit B.

6.13 Change in Collection Schedule. Contractor shall notify City and the public two weeks prior to any change in Collection operations which results in a change in the day on which Solid Waste or Recyclable Materials Collection occurs at Residential

Premises. Contractor will comply with the requirements in Exhibit A regarding notice to Customers of changes in operations.

6.14 Transition to Next Contractor. In the event that Contractor is not awarded an agreement to continue to provide Solid Waste or Recyclable Materials Collection services, or services under this Agreement are terminated for other reasons, Contractor shall cooperate fully with City and the subsequent contractor(s) to ensure an orderly and effective transition. Contractor may, but shall not be required to, sell or provide to the next contractor its assets and trade secret information. Contractor waives any right to which it otherwise might be entitled under Public Resources Code Sections 49520 and 49523 to serve as the exclusive provider of Solid Waste handling services to the City for a period longer than the term of this Agreement as determined pursuant to Article IV.

6.15 Report of Accumulation of Solid Waste; Unauthorized Dumping. Contractor shall direct its drivers to note (a) the addresses of any Premises at which they observe that Solid Waste is accumulating and is not being delivered for Collection and (b) the address, or other location description, at which Solid Waste has been dumped in an apparently unauthorized manner. Contractor shall deliver the address or description to City within eight (8) working days of such observation.

6.16 Audit of City Billings. Contractor, at City's request, shall audit City's billings to Generators. The purpose of the audit is to determine that the amount which the City is billing each Generator is correct in terms of the level of service (i.e., frequency of collection, size of container, location of container) being provided to such Generator by Contractor. The Contractor shall submit a written report on that audit and will not be obligated to audit the entire list of customers more frequently than once a year. Contractor may also conduct once annually an audit of City's billings to Generators in order to determine that the City is billing customers properly and is compensating Contractor properly pursuant to the provisions of this Agreement. Expense incurred by Contractor for conducting said audit shall not be considered an Allowable Expense.

6.17 Name. Contractor shall not use a firm name containing the words "City," "Mountain View," or other words implying municipal ownership.

ARTICLE VII. SERVICE FEE

7.1 Amount. The parties acknowledge that a Service Fee of approximately eight percent (8%) of current Solid Waste Fund costs is appropriate payment for the services provided by the City in connection with this Agreement. However, in order to provide the City with maximum flexibility in setting solid waste collection rates, without prejudice to the interests of Contractor, the Service Fee shall be based on the Contractor's Revenue rather than on total Fund costs. Accordingly, Contractor shall

pay to the City a Service Fee equal to twenty percent (20%) of Contractor's Payments, calculated prior to the deduction from Contractor's Payments of Items (i), (ii) and (iii) of Section 8.3.

7.2 Time and Method of Payment. City shall deduct the monthly Service Fee from the revenues otherwise due to Contractor from the City under Section 8.3 or 8.4.

ARTICLE VIII. COMPENSATION

8.1 General. The "Contractor's Payment" determined in accordance with Section 8.3 shall be the full, entire and complete payment due to Contractor for performing the services required by this Agreement.

8.2 Billing by City. In accordance with the rate schedule established pursuant to this Agreement, the City shall prepare, mail and collect bills for Solid Waste and Recyclable Materials Collection services provided by Contractor under this Agreement, as a part of the municipal utility billing system.

8.3 Contractor's Payments and Contractor's Percentage.

a. Contractor's Payments. The "Contractor's Payments" shall equal the gross amount of billings by the City for Ordinary Services multiplied by the Contractor's Percentage, plus the gross amount of billings by the City for Special Services, less the following items: (i) amounts previously billed that have been determined to be uncollectable by the City's Finance and Administrative Services Director or his/her designee, in the exercise of his or her discretion, (ii) any fines assessed pursuant to Section 6.7, and (iii) the cost of any insurance purchased by the City pursuant to Section 9.2.e [i.e., Contractor's Payments = (billings for Ordinary Services x Contractor's Percentage) + billings for Special Services – (uncollectable amounts + fines + City-paid insurance costs)].

The City shall remit to Contractor on or before the tenth (10th) day of each month or other times as necessary a sum equal to the Contractor's Payments less the Service Fee, for billings of the previous month. The City shall have the right, if necessary, to pay Contractor an estimated payment of Contractor's Payments on the tenth day of any month and to reconcile such estimate to actual Contractor's Payments when making the subsequent month's payment.

Upon termination of this Agreement, Contractor shall be entitled to be paid for all services performed during the term of this Agreement, even though those services may be billed and collected by City following the termination of this Agreement. Contractor shall be permitted reasonable access to the records of City regarding waste Generators and collections pursuant to this Section.

b. Contractor's Percentage. Contractor and City recognize that a portion of the total revenues collected by the City through its billings for Solid Waste and Recyclable Materials collection services is attributable to Contractor for the services which Contractor is granted an exclusive right to perform by this Agreement and a portion attributable to other Solid Waste program services provided by the City for disposal of Solid Waste and other purposes. The "Contractor's Percentage" is the percentage of the total amount of revenue collected by the City that is attributable to Contractor's performance of Ordinary Services and shall be established annually by the City no later than thirty (30) days after rates become effective. For any Application Rate Year, the "Contractor's Percentage" shall be set by the City at a level reasonably estimated to cause Contractor to receive the Allowed Contractor's Revenues for the Application Rate Year as determined pursuant to Section 8.4.a.3.

8.4 Calculation of Allowed Contractor's Revenues. The Allowed Contractor's Revenues for Rate Years beginning July 1, 1996, shall be determined as described in this Section.

a. Rate Application by Contractor.

1. General. On or before January 31 of each year during the term of this Agreement, beginning on January 31, 1996, Contractor shall submit to City a rate adjustment application and rate review report (collectively, the "Rate Application"), showing the actual Allowable Expenses incurred by Contractor for the Fiscal Year preceding the Application Rate Year, together with unaudited financial statements and other financial information within reason to allow City to perform a rate review. See Exhibit F for example format of such information. The Rate Application shall include the Contractor's (a) actual prior fiscal year and first-quarter results, (b) projections of Revenues and Allowable Expenses for the remainder of the Fiscal Year in which an application is submitted, and (c) projections of Contractor's anticipated Revenues and Allowable Expenses for the fiscal year succeeding the Application Rate Year. In addition to specifying the projected Allowable Expenses and Revenues for the Application Rate Year, the Rate Application shall also include the following information:

(a) The rate of increase, if any, in Allowable Expenses from the then current Rate Year to the Application Rate Year;

(b) A calculation of the projected Pretax Income of the Contractor for the Application Rate Year; and

(c) Any changes in Contractor's Revenues which may be required for such Application Rate Year, as determined in accordance with Section 8.4.a.3.

In the event that the City disputes any portion of the Rate Application, or requires additional information or clarification from the Contractor with respect to the Rate Application, it shall notify the Contractor in writing. The Contractor shall respond to such notice within 10 days after receipt thereof. If appropriate, the Contractor shall modify the Rate Application to reflect any such dispute of the City.

The rates adopted must be reasonably expected to result in the generation of Contractor Revenues in an amount at least equal to the Contractor's Revenues identified in the Rate Application (as such Application may be adjusted to comply with the provisions of this Section 8.4).

2. Allowable Expenses. "Allowable Expenses" shall mean all reasonable costs incurred by Contractor in connection with or arising from Contractor's provision of Solid Waste and Recyclable Materials handling services under this Agreement, except those costs specifically excluded. "Allowable Expenses" shall only include those costs which would be reasonably incurred by a contractor in light of generally prevailing industry practices and standards, or as otherwise required pursuant to this Agreement, and shall not include those costs incurred as the result of the misconduct of the Contractor. Specifically, "Allowable Expenses" shall not include any fines or penalties payable by the Contractor for failing to comply with applicable law. All costs incurred by Contractor for collection of Recyclable Materials which are outside the scope of this Agreement are excluded from Allowable Expenses. Separate records shall be kept for all revenues received and all expenses incurred for services provided outside of the scope of this Agreement. Allowable costs may include, by way of illustration and not limitation, the following:

(a) The costs of complying with all applicable laws, regulations or orders now existing or hereafter enacted or amended, including but not limited to California Public Resources Code §§40000, *et seq.*;

(b) Labor costs, including but not limited to supervisory labor, directly or indirectly associated with Solid Waste and Recyclable Materials handling services, including but not limited to salary and wages, health, pension and retirement benefits, payroll taxes, Workers' Compensation benefits and Employee Stock Option Plan expenses; provided, however, that Employee Stock Option Plan expenses for an Application Rate Year shall not exceed the Employee Stock Option Plan expenses projected for the Fiscal Year 1993 of Two Hundred Fifty Thousand Dollars ($250,000);

(c) Equipment costs, including but not limited to depreciation, vehicle registration fees, motor fuel, oil, tires, repairs and maintenance of equipment, uniforms, tools and parts (provided, however, that "Allowable Expenses" shall not include costs incurred for the purchase of equipment which the Contractor depreciates);

(d) Premiums for performance bonds and insurance policies in the amounts and coverages required by City;

(e) Administrative costs, including but not limited to officer salaries, administrative staff, data processing, billing, postage and supplies;

(f) Utilities costs;

(g) Employee training, safety and education costs;

(h) Marketing, promotion and public education costs, including but not limited to those which from time to time may be required for compliance with California Public Resources Code §§40000, *et seq.*, and any and all additions and amendments thereto;

(i) Equipment rental or leasing or facility rental and leasing costs, container costs and other capital expenditures, including but not limited to depreciation, repairs, maintenance and replacement of the same;

(j) Professional fees;

(k) Costs for financial and other reporting, accounting and regulatory processes associated with or required by this Agreement or under law, including but not limited to those which from time to time may be required for compliance with California Public Resources Code §§40000 *et seq.*, and any and all additions and amendments thereto;

(l) Parent company overhead expenses incurred in connection with services provided pursuant to this Agreement, calculated as provided in Section 8.4.a.4. of this Agreement;

(m) Costs associated with designing, developing and compiling rate applications and participating in the rate setting process;

(n) Business taxes and real and personal property taxes;

(o) Depreciation and interest expense, provided that the following items of interest and depreciation shall not be considered an Allowable Expense:

(1) Any past, present or future interest expense related to the acquisition of Contractor or an affiliate of Contractor, or the acquisition by Contractor of another corporate entity; and

(2) Any past, present or future depreciation costs associated with a step up in the cost basis of any assets acquired by Contractor from an affiliate of Contractor;

(p) Service fees or business license fees associated with the provision of services under this Agreement;

(q) Any other surcharges, taxes or fees imposed upon Contractor or levied by Federal, State or local governments in connection with Contractor's provision of Solid Waste and Recyclable Materials services under this Agreement but excluding taxes based on income.

For purposes of calculating Contractor's Revenues under this Section, Projected Allowable Expenses for an Application Rate Year shall not exceed Projected Allowable Expenses for the Rate Year prior to the Application Rate Year (as identified in the Rate Year's Rate Application), as adjusted by the CPI Adjustor, except as permitted by Section 8.4.a.5.

3. Allowed Contractor's Revenue. For any Application Rate Year, Contractor shall be entitled to receive Allowed Contractor's Revenues as determined pursuant to this Section.

(i) For purposes of this Section, the "Projected Contractor's Revenues" equal the total of Contractor's Revenues reasonably projected to be received by Contractor during an Application Rate Year.

(ii) For purposes of this Section, "Projected Allowable Expenses" equal the total projected Allowable Expenses for an Application Rate Year as calculated pursuant to Section 8.4.a.2.

(iii) If, for any Application Rate Year, Projected Contractor's Revenues result in a Pretax Income equal to or greater than the Maximum Return, Allowed Contractor's Revenues shall equal the Projected Contractor's Revenues.

(iv) If, for any Application Rate Year, Projected Contractor's Revenues result in a Pretax Income less than the Maximum Return, Allowed Contractor's Revenues shall be determined as follows:

(a) If, for any Application Rate Year, Projected Contractor's Revenues, after being adjusted by the CPI Adjustor, result in a Pretax Income less than or equal to the Minimum Return, Allowed Contractor Revenues shall equal Projected Allowable Expenses plus the Minimum Return.

(b) If, for any Application Rate Year, Projected Contractor's Revenues, after being adjusted by the CPI Adjustor, result in a Pretax Income greater than the Minimum Return and less than or equal to the Maximum Return, Allowed Contractor Revenues shall equal the Projected Contractor Revenues, as adjusted by the CPI Adjustor.

(c) If, for any Application Rate Year, Projected Contractor's Revenues, after being adjusted by the CPI Adjustor, result in a Pretax Income greater than the Maximum Return, Allowed Contractor Revenues shall equal the Projected Allowable Expenses plus the Maximum Return.

4. Parent Company Overhead Expenses. Without the prior written consent of the City, for any Fiscal Year, the amount of parent company overhead expenses permitted as an Allowable Expense under Section 8.4.a.2(1) of this Agreement shall not exceed the amount of parent company overhead expenses of One Hundred Eighty-Three Thousand One Hundred Twenty Dollars ($183,120) incurred for Fiscal Year 1992, increased each year by the CPI Adjustor.

5. Extraordinary Costs Or Cost Savings. In the event that it is anticipated that extraordinary costs will be incurred by Contractor during an Application Rate Year or extraordinary cost savings will be experienced by Contractor during an Application Rate Year, the Projected Allowable Expenses for the Application Rate Year will be increased or decreased, as appropriate, by the projected amount of the extraordinary costs or cost savings. "Extraordinary Costs" or "Extraordinary Cost Savings" shall include, without limitation, costs or cost savings incurred or experienced as a result of:

(a) A modification or renegotiation by City and Contractor of any agreement regarding the handling of Solid Waste and/or Recyclable Materials;

(b) A change in requirements for collection, treatment or processing requirements for Solid Waste or Recyclable Materials prior to its disposal either by action of City or of any Federal, State, County or other governmental agency;

(c) The occurrence of an event which would excuse performance pursuant to Section 11.5;

(d) An increase or decrease in the number of Generators, whether caused by Customer growth and/or annexation, to the extent such increase causes Contractor to incur increased or additional capital and noncapital expenditures or caused by Customer loss to the extent such decrease causes Contractor decreased capital and noncapital expenditures.

(e) An extraordinary increase or decrease in the cost of essential goods or services used by Contractor in the performance of services under this Agreement that is beyond the reasonable control of Contractor, or as otherwise approved by the City. For purposes of this Section, "essential goods or services" shall include the capital or lease cost of equipment, as well as other goods and services regularly employed by Contractor.

6. Variances from Projections. The Contractor shall retain any income from actual costs during any year being less than those projected for that year. Similarly, the Contractor shall not be compensated for actual costs during any year that are greater than those projected for that year. In addition, calculations of Contractor's Payment for future years shall not attempt to adjust for past variances of actual costs from those which had been projected. Nothing in this section shall prevent the City from bringing an action or proceeding under Article XII to recoup prior overpayments due to subsequently discovered fraud or misrepresentation in financial data submitted by it to the City.

8.5 Rate Calculation. The City shall establish the rates to be charged Customers for Solid Waste and Recyclable Materials Collection services by ordinance or resolution for the types of services provided. No later than June 1 of any year in which Contractor has submitted a Rate Application, City shall review the Rate Application to determine the compliance of such Application with the provisions of Section 8.4 and take such action as is necessary to adopt a new rate schedule for the Application Rate Year reflecting the Rate Application, as such Rate Application may be modified by Contractor or by City no later than June 30. However, no rate review application request will be granted to Contractor prior to receipt and review of the annual audited financial statements under Section 8.8. The City shall not make any retroactive adjustment to compensate for any delay in calculating the Contractor's Payment which results from the failure of the Contractor to respond promptly and completely to requests of the City for information related to any of the calculations required by this section or receipt of audited Financial Statements.

8.6 Adjustments for Changes. If the City has directed a change in scope of work under Section 6.9 and either party believes that such change will increase or decrease the costs of providing service, the party which believes the Contractor's Payments should be adjusted shall, within thirty (30) calendar days, submit to the other party a proposed adjustment and the parties shall thereafter meet and discuss the matter. Contractor shall promptly provide all relevant schedules, supporting documentation and other financial information requested by the City to evaluate the necessity for an adjustment and the amount thereof. The City Manager or his/her designee shall participate in key meetings regarding those adjustments.

Within ninety (90) days of the submission of the proposed adjustment, the City (pursuant to a recommendation from the City Manager) will determine the amount

of the adjustment, if any, and shall thereafter adjust the Contractor's Payments accordingly. Any adjustments will be made effective as of the date the change in service is implemented. For purposes of providing new services, the adjustment shall be the agreed-upon costs with an annual profit margin of 8 percent.

If Contractor is dissatisfied with the recommendation of the City Manager or his/her designee, it may appeal that decision to the City Council. If an appeal is to be taken, Contractor shall promptly (in any case, within 15 days of its receipt of the City Manager's decision) submit a full written statement of (a) each item with which it disagrees; (b) the reasons for its disagreement; (c) the amount which it believes the Contractor's Payments should be adjusted for each such item and shall submit copies of all financial and operational data on which it relies. The City Council will consider the appeal at a public meeting held within 60 days after the filing of the Contractor's appeal.

8.7 Additional Review for Material Changes.

a. Allowed Contractor's Revenue established pursuant to this Article VIII is calculated to cover certain expenses and costs that are of a contingent and uncertain nature and that must be estimated several months before they are incurred. Therefore, in addition to the review described in Section 8.4 above, Allowable Contractor's Revenue and the Contractor's Percentage and/or the rates established pursuant to Section 8.5 may be further adjusted during a Rate Year upon written request of Contractor if Contractor can demonstrate materially increased costs to be incurred by Contractor in connection with or arising from Contractor's provision of services under this Agreement, due to any of the following causes:

(1) A modification or renegotiation by the City and the Contractor of any agreement regarding the collection or disposal of Solid Waste and/or Recyclable Materials that causes a material change in the obligations of Contractor under this Agreement;

(2) A change in the requirements for collection, treatment or processing of Solid Waste and/or Recyclable Materials prior to their disposal, either by action of the City or of any Federal, State, County, local or other governmental agency, or a change in the level of fees or other charges levied by such agencies in connection with the provision of solid waste handling services; or

(3) The occurrence of extraordinary and unanticipated costs not within the control of Contractor incurred by Contractor in connection with the provision of services under this Agreement.

b. For purposes of this Section, Contractor shall not incur "materially increased costs" as a result of any particular event or cause unless that event or cause

can be reasonably expected to increase Contractor's Allowable Expenses for the Rate Year by greater than 1 percent of the Allowable Contractor's Revenue for that Rate Year.

c. Upon receiving Contractor's written request for additional review and such information deemed necessary to support such request, the City shall have sixty (60) days to act upon the request.

8.8 Maintenance of Financial Records.

a. General. In order to effectuate the annual Rate Application Process pursuant to Section 8.4 and the occasional reviews of adjustments under Section 8.6 due to changes directed by the City, which reviews may or may not coincide with the Rate Application Process, it is necessary for Contractor to maintain accurate, detailed financial information in a consistent format and to make such information available to City in a timely fashion. It is also necessary, in order to assure the public of the accuracy of the review processes, for the Contractor's financial records to be confirmed by an audit conducted by an independent certified public accountant whose report thereon is forwarded to the City on a regular basis. This section is intended to effectuate these requirements.

b. Contractor's Accounting Records. Contractor shall maintain in its office accurate and complete accounting records containing the underlying financial and operational data relating to, and the bases for computation of, all costs associated with providing service under this Agreement. Separate costs shall be maintained for the various collection programs outlined in this Agreement. The accounting records shall be prepared on an accrual basis, in accordance with Generally Accepted Accounting Principles consistently applied. The Contractor will adhere throughout the Term to "Generally Accepted Accounting Principles" then in effect, published by the American Institute of Certified Public Accountants. The operating year for both accounting and all other record keeping purposes shall be the Fiscal Year.

c. Annual Audit. The City, at its own expense, may conduct an annual audit to ascertain compliance with this Agreement, such audit may be performed by an independent certified public accountant selected by the City. Contractor shall make all of its financial statements, internal audits and any other reasonable information requested available to the auditor. This audit shall be conducted in an efficient and timely manner, in order not to delay unnecessarily the rate review process. The results of this audit may be used by the City in its consideration of subsequent Rate Applications submitted by Contractor under this Section.

d. Retention of Records. Contractor shall retain all records and data required to be maintained under this Agreement for a period of at least three (3) years following the close of each of Contractor's Fiscal Years, and for such further time as may

be designated by City to enable it to complete any review or audit commenced during such three (3) year period.

e. Delivery of Financial Reports to City. Contractor shall deliver to City the financial reports, in the format and at the time required by Section 8.4. In addition, Contractor shall provide City with financial information in such format, and at such times, as City may reasonably require to monitor Contractor's financial activities and conduct the rate review processes described in this article.

f. Delivery of Financial Statements, Other Documents, and Auditor's Report. No later than March 31 of each year, Contractor shall deliver to City five (5) copies of its audited financial statements for its preceding Fiscal Year together with such other documents as may be required by City which shall show in detail the financial condition of the Contractor and the results of its operations under this Agreement. These statements shall have been examined by and shall be accompanied by the report of an independent certified public accountant containing such accountant's representation that it has examined the Contractor's financial statements in accordance with Generally Accepted Auditing Standards. The City may prescribe the contents of supplemental schedules to be included with the financial statements required.

g. Affiliated Companies. Contractor's accounting records shall be maintained on a basis showing the results of Contractor's operations under this Agreement separately from any other operations of the Contractor or its Affiliates. The assets, liabilities, revenues, expenses and net worth associated with providing service to City shall not be combined, consolidated or in any other way incorporated with those of any other operations conducted by Contractor not pertaining to this Agreement or with those of "Affiliated" companies," as defined below.

If Contractor claims as Allowable Expenses, any costs incurred pursuant to any contracts or financial arrangements with Affiliated companies, the City's rights to inspect records, and obtain financial data shall extend to such Affiliate or Affiliates to the extent necessary to justify such Allowable Expense.

h. Definition of "Affiliate." For purposes of this Agreement, all businesses, (including corporations, limited and general partnerships and sole proprietorships) which are directly or indirectly related to Contractor by virtue of direct or indirect ownership interests or common management shall be deemed to be "Affiliated" with Contractor and included within the term "Affiliates" as used herein. An Affiliate shall include a business in which Contractor owns a direct or indirect ownership interest, a business which has a direct or indirect ownership interest in Contractor and/or a business which is also owned, controlled or managed by any business or individual which has a direct or indirect ownership interest in Contractor.

i. Review of Audited Financial Statement. City may, with its own employees or by means of a consultant, review the audit plan of any of the independent certified public accountants whose opinions on the audited financial statements are to be furnished pursuant to Section 8.8(f). The City has the right, but not the obligation, to review the Parent Company's overhead allocation to the Contractor and affiliates. If such review gives rise to any questions, or differences of opinion regarding Contractor's compliance with the Agreement, Contractor and its accountant(s) shall meet with City, and its consultant if any, to discuss the issues involved.

Because the audit plan and work papers for the annual audit of the Parent Company contain confidential information that is not relevant to this Agreement, the City shall not be given access to such documents. However, Contractor shall be required to provide sufficient financial information to the City to permit the City to confirm the accuracy and propriety of the overhead allocation from the Parent Company and any other services provided by the Parent Company that are not included in the overhead allocation.

ARTICLE IX. INDEMNITY, INSURANCE, BOND

9.1 Indemnification. Contractor shall defend, indemnify and hold harmless the City, its officers, employees and agents, from and against any and all loss, liability, penalty, forfeiture, claim, demand, action proceeding or suit, of any and every kind and description including, but not limited to, injury to and death of any person and damage to property or for contribution or indemnity claimed by third parties arising or resulting from and in any way connected with (1) the negligence or willful misconduct of Contractor, its officers, employees, agents and/or subcontractors in performing services under this Agreement; (2) the failure of the Contractor, its officers, employees, agents and/or subcontractors to comply in all respects with the provisions of this Agreement, applicable laws (including, without limitation, the Environmental Laws) and regulations, and/or applicable permits and licenses; and/or (3) the acts or omissions of Contractor, its officers, employees, agents and/or subcontractors in performing services under this Agreement for which strict liability is imposed by law (including, without limitation, the Environmental Laws). The foregoing indemnity shall apply regardless of whether such loss, liability, penalty, forfeiture, claim, demand, action, proceeding, suit, injury, death or damage is also caused in part by the negligence of others, including that of any of the indemnitees.

Contractor further agrees to and shall, upon demand of City, at Contractor's sole cost and expense, defend (with attorneys reasonably acceptable to the City) City, its officers, employees, and agents against any claims, actions, suits or other proceedings, whether judicial, quasi-judicial or administrative in nature, arising or resulting from any events described in the immediately preceding paragraph.

The Contractor's duty to indemnify and defend shall survive the expiration or earlier termination of this Agreement.

9.2 Insurance.

a. Types and Amounts of Coverage. Contractor, at Contractor's sole cost and expense, shall procure and furnish to City, concurrently with signing of this Agreement, and maintain in force at all times during the Term the following types and amounts of insurance:

1. Workers Compensation and Employer's Liability. Contractor shall maintain Workers Compensation insurance covering its employees in statutory amounts and otherwise in compliance with the laws of the State of California. Contractor shall maintain Employer's Liability insurance in an amount not less than One Million Dollars ($1,000,000) per accident or disease.

2. Commercial General and Auto Liability. Contractor shall maintain comprehensive general liability insurance with a combined single limit of not less than Ten Million Dollars ($10,000,000) per occurrence covering all claims and all legal liability for personal injury, bodily injury, death, and property damage, including the loss of use thereof, arising out of, or occasioned in any way by Contractor's performance of, or its failure to perform, services under this Agreement. The insurance required by this subsection shall include:

(a) Premises Operations;

(b) Independent Contractor's Protective;

(c) Products and Completed Operations;

(d) Personal Injury Liability with Employment Exclusion deleted;

(e) Broad Form Blanket Contractual, including Contractor's Obligation, under Section 9.1;

(f) Owned, Non-Owned, and Hired Motor Vehicles to include hazardous waste transportation exposure when transporting hazardous waste for the City;

(g) Broad Form Property Damage, including Completed Operations.

3. Physical Damage. Contractor shall maintain comprehensive (fire, theft and collision) physical damage insurance covering the vehicles and equipment used in providing service to the City under this Agreement, with a deductible not greater than Twenty-Five Thousand Dollars ($25,000.00). The Contractor may satisfy the requirements of this Section 3 through the use of self-insurance provided by Norcal Waste Systems, Inc.

4. Company Ratings. The insurance policies required by this Section shall be issued by an insurance company or companies authorized to do business in the State of California and with a rating in the most recent edition of *Best's Insurance Reports* of Size Category IX or larger and a rating classification of B+ or better.

b. Required Endorsements.

1. The Workers' Compensation policy shall contain an endorsement in substantially the following form: "Thirty (30) days prior written notice shall be given to the City of Mountain View in the event of cancellation, reduction in coverage, or nonrenewal of this policy. Such notice shall be sent to:

City Manager
City of Mountain View
P.O. Box 7540
500 Castro Street
Mountain View, CA 94039-7540

2. The Commercial General and Auto Liability policy shall contain endorsements in substantially the following form: "Thirty (30) days prior written notice shall be given to the City of Mountain View in the event of cancellation, reduction of coverage, or nonrenewal of this policy. Such notice shall be sent to:

City Manager
City of Mountain View
P.O. Box 7540
500 Castro Street
Mountain View, CA 94039-7540

(a) "The City of Mountain View, its officers, employees, and agents are additional insureds on this policy."

(b) "This policy shall be considered primary insurance as respects any other valid and collectible insurance maintained by the City of Mountain View, including any self-insured retention or program of self-insurance, and any other such insurance shall be considered excess insurance only."

(c) "Inclusion of the City of Mountain View as an insured shall not affect the City's rights as respects any claim, demand, suit or judgment brought or recovered against the Contractor. This policy shall protect Contractor and the City in the same manner as though a separate policy had been issued to each, but this shall not operate to increase the company's liability as set forth in the policy beyond the amount shown or to which the company would have been liable if only one party had been named as an insured."

c. Delivery of Proof of Coverage. Contractor shall furnish the City, concurrent with the execution of this Agreement, certificates of each policy of insurance required hereunder, in form and substance satisfactory to City. Such certificates shall show the type and amount of coverage, effective dates and dates of expiration of policies and shall have all required endorsements. If the City requests, copies of each policy, together with all endorsements, shall also be promptly delivered to City. Renewal certificates will be furnished periodically to City to demonstrate maintenance of the required coverages throughout the Term.

d. Other Insurance Requirements.

1. In the event any services are delegated to a subcontractor, the Contractor shall require such subcontractor to provide statutory Workers Compensation insurance and employer's liability insurance for all of the subcontractor's employees engaged in the work. The liability insurance required by Subsection 9.2.a.2 shall cover all subcontractors or the subcontractor must furnish evidence of insurance provided by it meeting all of the requirements of this Section 9.2.

2. The Contractor shall comply with all requirements of the insurers issuing policies. The carrying of insurance shall not relieve Contractor from any obligation under this Agreement. If any claim is made by any third person against the Contractor or any subcontractor on account of any occurrence related to this Agreement, the Contractor shall promptly report the facts in writing to the insurance carrier and to the City.

The Commercial General and Auto Liability insurance required by Section 9.2.a.2 shall be written on an "occurrence," rather than a "claims-made" basis; claims-made policies are not acceptable.

e. Absence of Insurance. If Contractor fails to procure and maintain any insurance required by this Agreement, the City may take out and maintain, at the Contractor's expense, such insurance as it may deem proper and deduct the cost thereof from any moneys due the Contractor.

9.3 Faithful Performance Bond. Contractor shall furnish the City, concurrent with the execution of this Agreement and maintain throughout the life of this

Agreement, a bond securing the Contractor's faithful performance of its obligations under this Agreement. The principal sum of the bond shall be Three Hundred Thousand Dollars ($300,000). The form of the bond shall be as set out in Exhibit D. The bond shall be executed as surety by a corporation authorized to issue surety bonds in the State of California, with a financial condition and record of service satisfactory to the City. On July 1, 1998 (and thereafter on each fifth anniversary of July 1, 1998 if this Agreement is renewed), the amount of the Bond shall be increased by the compounded cumulative CPI amount, calculated from date hereof, and thereafter from the last date of increase, each time it is renewed.

ARTICLE X. CITY'S RIGHT TO PERFORM SERVICE

10.1 General. In the event that the Contractor, for any reason whatsoever, fails, refuses or is unable to collect and transport Solid Waste and/or Recyclable Materials which it is required by this Agreement to collect and transport, at the time and in the manner provided in this Agreement, for a period of more than seventy-two (72) hours, then the City shall have the right, but not the obligation, upon notice to Contractor, (a) to perform, or cause to be performed, such services itself with its own or other personnel without liability to Contractor and/or (b) to take possession of any or all of Contractor's land, equipment and other property used or useful in the Collection and transportation of Solid Waste and/or Recyclable Materials, and to use such property to collect and transport any Solid Waste and/or Recyclable Materials generated within the City. Notice of the Contractor's failure, refusal or neglect to collect and transport Solid Waste or Recyclable Materials may be faxed to the Contractor at its principal office and shall be effective immediately. Written confirmation of such faxed notification shall be sent to Contractor within twenty-four (24) hours of the faxed notification.

10.2 Consent to Temporary Possession for Service Interruptions Caused by Events Beyond the Contractor's Control. If the interruption or discontinuance in service described in Section 10.1 is caused by any of the reasons listed in Section 11.5, the City shall pay to Contractor the actual reasonable rental value of the equipment, and facilities, possession of which is taken by the City, for the period of the City's possession, but the City is excused from any other obligation to pay Contractor moneys under this Agreement for such period.

10.3 Temporary Possession for Service Interruptions Caused by Other Events. If the interruption or discontinuance of service described in Section 10.1 is caused by any event other than those listed in Section 11.5, the City may take possession of and use all of the Contractor's property described above, paying Contractor the actual costs incurred by Contractor as a result of the taking of possession as compensation.

Contractor further agrees that in such event:

(a) It will fully cooperate with City to effect the transfer of possession of property to the City for City's use.

(b) It will, if City so requests, keep in good repair and condition all of such property, provide all motor vehicles with fuel, oil and other service, and provide such other service as may be necessary to maintain said property in operational condition.

(c) City may immediately engage all or any personnel necessary or useful for the collection and transportation of Solid Waste and/or Recyclable Materials, including, if City so desires, employees previously or then employed by Contractor. Contractor further agrees, if City so requests, to furnish City the services of any or all management or office personnel employed by Contractor whose services are necessary or useful for Solid Waste and/or Recyclable Materials collection and transportation operations.

The City's exercise of its rights under this Article X: (a) does not constitute a taking of private property for which compensation must be paid, (b) will not create any liability on the part of City to Contractor, and (c) does not exempt Contractor from the indemnity provisions of Section 9.1, which are meant to extend to circumstances arising under this Section, provided that Contractor is not required to indemnify City against claims and damages arising from the negligence of City officers, employees and agents in the operation of collection vehicles during the time the City has taken possession of such vehicles.

10.4 Duration of City's Possession. City has no obligation to maintain possession of Contractor's property and/or continue its use in collecting and transporting Solid Waste and/or Recyclable Materials for any period of time and may at any time, in its sole discretion, relinquish possession to the Contractor. The City's right to retain temporary possession of Contractor's property, and to provide Solid Waste and Recyclable Materials collection services, shall continue until Contractor can demonstrate to the City's satisfaction that it is ready and able to resume such services.

10.5 Contractor Obligation to Reimburse City for Costs in Certain Circumstances. If the interruption or discontinuance of service described in Section 10.1 is caused by any event other than those listed in Section 11.5 and the City elects to utilize a third-party Hauling Service to provide services during such interruption or discontinuance, the Contractor shall be obligated to reimburse the City for any reasonable costs which the City incurs (including fees payable to such third-party Hauling Service) which are in excess of the amount which the Contractor would have been entitled to for the period of such interruption or discontinuance.

ARTICLE XI. DEFAULT AND REMEDIES

11.1 Events of Default. Each of the following shall constitute an event of default ("Event of Default") hereunder:

a. Contractor materially fails to perform its obligations under this Agreement, or any present or future supplement to this Agreement, and fails to cure such breach within seven (7) days of receiving notice from the City specifying the breach;

b. Any representation or disclosure made to City by Contractor in connection with or as an inducement to entering into this Agreement or any future amendment to this Agreement, which proves to be false or misleading in any material respect as of the time such representation or disclosure is made, whether or not any such representation or disclosure appears as part of this Agreement;

c. There is a seizure or attachment of, or levy on, the operating equipment of Contractor, including without limit its vehicles, maintenance or office facilities, or any part thereof;

d. Contractor files a voluntary petition for debt relief under any applicable bankruptcy, insolvency, debtor relief, or other similar law now or hereafter in effect, or shall consent to the appointment of or taking of possession by a receiver, liquidator, assignee, trustee, custodian, sequestrator (or similar official) of the Contractor for any part of Contractor's operating assets or any substantial part of Contractor's property, or shall make any general assignment for the benefit of Contractor's creditors, or shall fail generally to pay Contractor's debts as they become due or shall take any action in furtherance of any of the foregoing;

e. A court having jurisdiction shall enter a decree or order for relief in respect of the Contractor, in any involuntary case brought under any bankruptcy, insolvency, debtor relief, or similar law now or hereafter in effect, or Contractor shall consent to or shall fail to oppose any such proceeding, or any such court shall enter a decree or order appointing a receiver, liquidator, assignee, custodian, trustee, sequestrator (or similar official) of the Contractor or for any part of the Contractor's operating equipment or assets, or orders the winding up or liquidation of the affairs of Contractor;

f. Contractor fails to provide reasonable assurances of performance as required under Section 11.6.

11.2 Right to Terminate Upon Default. Upon a default by Contractor, as indicated in Section 11.1, the City shall have the right to terminate this Agreement upon

a further fifteen (15) days written notice, but without the need for any hearing, suit or legal action.

11.3 Possession of Property Upon Termination. In the event of termination for default, the City shall have the right to take possession of any and all of Contractor's land, equipment, and other property used or useful in the collection and transportation of Solid Waste and/or Recyclable Materials and to use such property to collect and transport any Solid Waste and/or Recyclable Materials generated within the City. The City shall have the right to retain the possession of such property until other suitable arrangements can be made for the provision of Solid Waste and/or Recyclable Materials collection services, which may include entering into an agreement with another waste hauling company. The Contractor shall be entitled to the reasonable actual rental value of such property, which shall be offset against any damages due the City for the Contractor's default. Contractor shall furnish the City with route information and other data as necessary for City to provide collection and transportation of Solid Waste and Recyclable Materials.

11.4 City's Remedies Cumulative; Specific Performance. The City's right to terminate the Contract under Section 11.2 and to take possession of the Contractor's properties under Section 11.3 are not exclusive, and the City's termination of the Contract shall not constitute an election of remedies. Instead, they shall be in addition to any and all other legal and equitable rights and remedies which the City may have. By virtue of the nature of this Agreement, the urgency of timely, continuous and high-quality service, the lead time required to effect alternative service, and the rights granted by City to the Contractor, the remedy of damages for a breach hereof by Contractor is inadequate and City shall be entitled to injunctive relief.

11.5 Excuse From Performance. The parties shall be excused from performing their respective obligations hereunder in the event they are prevented from so performing by reason of floods, earthquakes, other "acts of God," war, civil insurrection, riots, acts of any government (including judicial action), and other similar catastrophic events which are beyond the control of and not the fault of the party claiming excuse from performance hereunder. Labor unrest, including but not limited to strike, work stoppage or slowdown, sick-out, picketing, or other concerted job action is not an excuse from performance and Contractor shall be obligated to continue to provide service notwithstanding the occurrence of any or all of such events.

The party claiming excuse from performance shall, within two (2) days after such party has notice of such cause, give the other party notice of the facts constituting such cause and asserting its claim to excuse under this Section.

In the event that either party validly exercises its rights under this Section, the parties hereby waive any claim against each other for any damages sustained thereby.

The partial or complete interruption or discontinuance of Contractor's services caused by one or more of the events described in this Section shall not constitute a default by Contractor under this Agreement. Notwithstanding the foregoing, however, (a) the existence of an excuse from performance will not affect the City's rights under Sections 10.1 and 10.2, and (b) if Contractor is excused from performing its obligations hereunder for any of the causes listed in this Section for a period of fourteen (14) days or more, the City shall nevertheless have the right, in its sole discretion, to terminate this Agreement by giving ten (10) days notice, in which case the provisions of Section 11.3 will apply.

11.6 Right to Demand Assurances of Performance. If Contractor (a) repeatedly fails to comply with the performance standards described in Section 6.7; (b) is the subject of any labor unrest including work stoppage or slowdown, sick-out, picketing or other concerted job action; (c) appears in the reasonable judgment of City to be unable to regularly pay its bills as they become due; or (d) is the subject of a civil or criminal proceeding brought by a Federal, State, regional or local agency for violation of an Environmental Law, the City may, at its option and in addition to all other remedies it may have, demand from Contractor reasonable assurances of timely and proper performance of this Agreement, in such form and substance as the City may require. If Contractor fails or refuses to provide satisfactory assurances of timely and proper performance in the form and by the date required by City, such failure or refusal shall be an event of default for purposes of Section 11.1.

ARTICLE XII. DISPUTE RESOLUTION

12.1 Dispute Resolution.

a. Continued Performance. In the event of a dispute arising under this Agreement, other than a dispute arising over rate adjustments as provided in Article VIII above, the parties shall continue performance of their respective obligations under this Agreement and shall attempt to resolve such dispute in a cooperative manner.

b. Call for Mediation. If the parties are unable to resolve a dispute arising under this Agreement in a cooperative manner, either party may call for nonbinding mediation. In such event, the City and Contractor shall use their best efforts to agree on and appoint a mutually acceptable mediator. Upon such appointment, the parties shall conduct such mediation as soon as practicable. Any costs and expenses of the mediator shall be shared equally by the City and the Contractor.

ARTICLE XIII. OTHER AGREEMENTS OF THE PARTIES

13.1 Relationship of Parties. The parties intend that Contractor shall not perform the services as an officer or employee of the City nor as a partner of or joint venturer with the City. No employee or agent of Contractor shall be or shall be deemed to be an employee or agent of the City. Except as expressly provided herein, Contractor shall have the exclusive control over the manner and means of conducting the Solid Waste and/or Recyclable Materials collection services performed under this Agreement, and all persons performing such services. Contractor shall be solely responsible for the acts and omissions of its officers, employees, subcontractors and agents. Neither Contractor nor its officers, employees, subcontractors and agents shall obtain any rights to retirement benefits, workers' compensation benefits, or any other benefits which accrue to City employees by virtue of their employment with the City.

13.2 Compliance with Law. In providing the services required under this Agreement, Contractor shall at all times, at its sole cost, comply with all applicable laws of the United States, the State of California and the City and with all applicable regulations promulgated by Federal, State, regional or local administrative and regulatory agencies, now in force and as they may be enacted, issued or amended during the Term.

13.3 Governing Law. This Agreement shall be governed by, and construed and enforced in accordance with, the laws of the State of California.

13.4 Jurisdiction. Any lawsuits between the parties arising out of this Agreement shall be brought and concluded in the courts of the State of California, which shall have exclusive jurisdiction over such lawsuits. With respect to venue, the parties agree that this Agreement is made in and will be performed in Santa Clara County.

13.5 Assignment. Except as provided in Section 11.6, neither party shall assign its rights nor delegate or otherwise transfer its obligations under this Agreement to any other person without the prior written consent of the other party. Any such assignment made without the consent of the other party shall be void and the attempted assignment shall constitute a material breach of this Agreement.

For purposes of this Section, "assignment" shall include, but not be limited to, (a) a sale, exchange or other transfer of substantially all of Contractor's assets dedicated to service under this Agreement to a third party; (b) a sale, exchange or other transfer of 30 percent or more of the outstanding common stock of Contractor to a person other than the current shareholder(s) (sales, exchanges and/or other transfers between such shareholders not being assignments); (c) any reorganization, consolidation, merger, recapitalization, stock issuance or reissuance, voting trust, pooling agreement, escrow arrangement, liquidation or other transaction to which

Contractor or any of its shareholders is a party which results in a change of ownership or control of 30 percent or more of the value or voting rights in the stock of Contractor; and (d) any combination of the foregoing (whether or not in related or contemporaneous transactions) which has the effect of any such transfer or change of ownership. For purposes of this Section, the term "proposed assignee" shall refer to the proposed transferee(s) or other successor(s) in interest pursuant to the assignment.

Contractor acknowledges that this Agreement involves rendering a vital service to City's residents and businesses, and that City has selected Contractor to perform the services specified herein based on (a) Contractor's experience, skill and reputation for conducting its Solid Waste and Recyclable Materials management operations in a safe, effective and responsible fashion, at all times in keeping with applicable waste management laws, regulations and good waste management practices, and (b) Contractor's financial resources to maintain the required equipment and to support its indemnity obligations to City under this Agreement. City has relied on each of these factors, among others, in choosing Contractor to perform the services to be rendered by Contractor under this Agreement.

If Contractor requests City's consideration of and consent to an assignment, City may deny or approve such request in its complete discretion. No request by Contractor for consent to an assignment need be considered by City unless and until Contractor has met the following requirements:

(a) Contractor shall undertake to pay City its reasonable expenses for attorney's fees and investigation costs necessary to investigate the suitability of any proposed assignee, and to review and finalize any documentation required as a condition for approving any such assignment;

(b) Contractor shall furnish City with audited financial statements of the proposed assignee's operations for the immediately preceding three (3) operating years;

(c) Contractor shall furnish City with satisfactory proof: (i) that the proposed assignee has Solid Waste and Recyclable Materials management experience that is specific to collection, transporting, processing and disposal on a scale equal to or exceeding the scale of operations conducted by Contractor; (ii) that in the last five (5) years, the proposed assignee has not suffered any citations or other censure from any Federal, State or local agency having jurisdiction over its waste management operations due to any significant failure to comply with State, Federal or local waste management laws and that the assignee has provided the City with a complete list of such citations and censures; (iii) that the proposed assignee has at all times conducted its operations in an environmentally safe and conscientious fashion; (iv) that the proposed assignee conducts its Solid Waste and Recyclable Materials management practices in accordance with sound management practices in full compliance with all

Federal, State and local laws regulating the collection and disposal of waste, including hazardous waste as identified in Title 22 of the California Code of Regulations; (v) of any other information required by City to ensure the proposed assignee can fulfill the terms of this Agreement in a timely, safe and effective manner.

Under no circumstances shall any proposed assignment be considered by City if Contractor is in default at any time during the period of consideration.

13.6 Subcontracting. Contractor shall not engage any subcontractors without the prior written consent of the City.

13.7 Performance of Work by Affiliates. Collection and/or transportation services under this Agreement may be provided by affiliates of Contractor on a temporary or emergency basis with consent of the City, not to exceed thirty (30) days, provided that the costs by affiliates do not exceed the cost of services as provided by Contractor and such costs of services can be separately identified in accordance with this Agreement. If collection and/or transportation services are provided by affiliates, Contractor shall be entitled to revenues as provided for in this Agreement.

13.8 Binding on Successors. The provisions of this Agreement shall inure to the benefit of and be binding on the successors and permitted assigns of the parties.

13.9 Parties in Interest. Nothing in this Agreement, whether express or implied, is intended to confer any rights on any persons other than the parties to it and their representatives, successors and permitted assigns.

13.10 Waiver. The waiver by either party of any breach or violation of any provisions of this Agreement shall not be deemed to be a waiver of any breach or violation of any other provision nor of any subsequent breach of violation of the same or any other provision. The subsequent acceptance by either party of any moneys which become due hereunder shall not be deemed to be a waiver of any preexisting or concurrent breach or violation by the other party of any provision of this Agreement.

13.11 Condemnation. The City fully reserves the rights to acquire the Contractor's property utilized in the performance of this Agreement, by purchase or through the exercise of the right of eminent domain, in accordance with the procedure described in Section 1205 of the City Charter.

13.12 Notice. All notices, demands, requests, proposals, approvals, consents and other communications which this Agreement requires, authorizes or contemplates shall, except as provided in Section 10.1, be in writing and shall either be personally delivered to a representative of the parties at the address below or be deposited in the United States mail, first-class postage prepaid, addressed as follows:

If to City:

City Manager
City of Mountain View
P.O. Box 7540
500 Castro Street
Mountain View, CA 94039-7540

with a copy to the Finance and Administrative Services Director and Public Works Director.

If to Contractor:

Foothill Disposal Company
935 Terra Bella Avenue
Mountain View, CA 94043
Attention: Steve Fraguglia

The address to which communications may be delivered may be changed from time to time by a notice given in accordance with this Section.

Notice shall be deemed given on the day it is personally delivered or, if mailed, three days from the date it is postmarked.

13.13 Representatives of the Parties. References in this Agreement to the "City" shall mean the City Council, and all actions to be taken by the City shall be taken by the City Council except as provided below. The City Council may delegate authority to the City Manager, and the City Manager may delegate to other City officials and may permit such officials, in turn, to delegate some or all of such authority to subordinate officers. The Contractor may rely upon actions taken by such delegates if they are within the scope of the authority properly delegated to them. The Contractor shall, within 30 days after this Agreement is signed by both parties, designate in writing a responsible officer who shall serve as the representative of the Contractor in all matters related to the Agreement and shall inform the City in writing of such designation and of any limitations upon his or her authority to bind the Contractor. Unless otherwise specified, Steve Fraguglia will act as Contractor's designee. The City may rely upon action taken by such designated representative as actions of the Contractor unless they are outside the scope of the authority delegated to him/her by the Contractor as communicated to City.

13.14 Location of Contractor's Facilities. The Contractor may not relocate its existing vehicle yard from its present location at 935 Terra Bella Avenue, Mountain View, California, without the prior written consent of the City, subject to the provisions of this Section. The City may not withhold its consent to a proposed relocation of the

Contractor's Facility unless the City can identify within ten (10) days an alternative to the location proposed by the Contractor. Such alternative (i) must be of a sufficient size so as to accommodate operations required under this Agreement, (ii) must be available for lease or purchase, (iii) must be usable as a vehicle yard without extraordinary capital expenditures by the Contractor, and (iv) must comply with the lease cost limits stated in subsection (1) below unless the City agrees that any increase in cost above the limit constitutes Allowable Expenses. In the event that the City identifies an alternative meeting the requirements of the preceding sentence, the Contractor must either (i) utilize the alternative site identified by the City or another site approved by the City, or (ii) continue operations at its present location; provided, however, that if Contractor elects to continue operations at its present location, it may continue to propose new locations for the City's approval. Notwithstanding the foregoing, at all times during the term of this Agreement, the Contractor must operate the buy-back/dropoff center described in Exhibit A and a business office at a site within the geographical boundaries of the City.

In addition to the foregoing, in the event that the Contractor relocates its facilities as described above:

(1) The total lease or other occupancy costs which the Contractor claims as an Allowable Expense (including costs related to the buy-back center and office maintained within the City) may not exceed Fifteen Thousand Dollars ($15,000) per month in constant 1996 dollars;

(2) Costs associated with the relocation by the Contractor shall not constitute an Allowable Expense for purposes of this Agreement, and the Contractor may not claim that such costs constitute extraordinary costs pursuant to Section 8.4.a.5 hereof; provided, however, that the Contractor may claim as an Allowable Expense moving costs associated with the relocation of office, shop and yard equipment;

(3) The Contractor may not claim as Allowable Expenses any net increases in operating costs which result from the relocation (including, but not limited to, increases in fuel consumption or driver compensation which may result from such new location) which are in excess of the operating costs which would have been applicable had the Contractor not relocated; provided, however, that Contractor may claim as an Allowable Expense under Section 8.4.a.5 any increase in lease costs as a result of the relocation up to the limit stated in subsection (1) above; and

(4) If the Contractor or any Affiliate utilizes the new facility to provide services in municipalities other than the City, the Contractor shall be required to allocate any costs incurred at or in connection with the new facility in a manner reasonably satisfactory to the City.

ARTICLE XIV. MISCELLANEOUS AGREEMENTS

14.1 Exhibits. Each of the Exhibits, identified as Exhibits "A" through "F," is attached hereto and incorporated herein and made a part hereof by this reference.

14.2 Entire Agreement. This Agreement, including the Recitals, Exhibits and Attachments, represents the full and entire Agreement between the parties with respect to the matters covered herein.

14.3 Section Headings. The article headings and section headings in this Agreement are for convenience of reference only and are not intended to be used in the construction of this Agreement nor to alter or affect any of its provisions.

14.4 References to Laws. All references in this Agreement to laws shall be understood to include such laws as they may be subsequently amended or recodified, unless otherwise specifically provided.

14.5 Interpretation. This Agreement shall be interpreted and construed reasonably and neither for nor against either party, regardless of the degree to which either party participated in its drafting.

14.6 Amendment. This Agreement may not be modified or amended in any respect except by a writing signed by the parties.

14.7 Severability. If any nonmaterial provision of this Agreement is for any reason deemed to be invalid and unenforceable, the invalidity or unenforceability of such provision shall not affect any of the remaining provisions of this Agreement which shall be enforced as if such invalid or unenforceable provision had not been contained herein.

14.8 Counterparts. This Agreement may be executed in counterparts; each of which shall be considered an original.

14.9 Actions of the City in its Governmental Capacity. Nothing in this Agreement shall be interpreted as precluding the City from enforcing the provisions

of applicable law or otherwise limiting the rights and obligations of the City in its governmental or regulatory capacity.

IN WITNESS WHEREOF, City and Contractor have executed this Agreement as of the day and year first above written.

APPROVED AS TO CONTENT:

"CITY":
CITY OF MOUNTAIN VIEW,
a municipal corporation

_____
Public Works Director

By: _____
City Manager

FINANCIAL APPROVAL:

"CONTRACTOR":
FOOTHILL DISPOSAL COMPANY

_____
Finance and Administrative
Services Director

By: _____
President

APPROVED AS TO FORM:

By: _____
Secretary

_____
City Attorney

PJK/FIN-3*S
546-3-18-94R*S3

CITY OF MOUNTAIN VIEW
ENFORCEMENT RESPONSE PLAN

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CITY OF MOUNTAIN VIEW
ENFORCEMENT RESPONSE PLAN

I. BACKGROUND

A. SUMMARY OF ENFORCEMENT RESPONSE PLAN

The City of Mountain View's Fire and Environmental Protection Division (FEPD) is responsible for ensuring compliance with permit requirements, regulations, local ordinances and California State statutes to protect the public health and the environment. To achieve this goal, the FEPD has established this Enforcement Response Plan (Plan) to regulate businesses, commercial operations, industrial activities, construction activities and investigate environmental crimes.

The objective of this Plan is to ensure consistent enforcement of California's building, fire and environmental laws and regulations. The contents of this Plan are regularly communicated to all staff personnel. The Plan serves as a guidance document for enforcement options the FEPD may pursue for inspection violations, complaints and emergency hazardous materials and environmental incidents.

B. PURPOSE OF THIS DOCUMENT

Many of the State and Federal oversight agencies for the various environmental and consolidated programs require the local administering agency to maintain a written "Enforcement Response Plan (ERP)" establishing procedures to enforce the laws and regulations for their particular programs. In an effort to avoid separate ERPs for each program administered by the City, this single comprehensive ERP, which covers all programs, was developed.

The purpose of the City's ERP is to prescribe consistent inspection and enforcement options within the FEPD when dealing with environmental and consolidated programs. The ERP also outlines the enforcement actions that can be used by the City in administering these programs to achieve compliance in a consistent, efficient and timely manner.

The environmental and consolidated programs administered by the FEPD include:

- Hazardous Materials Program.
- Toxic Gas Program.
- Underground Storage Tank Program.
- Aboveground Storage Tank Program (Spill Prevention Control and Countermeasure Plan).
- Industrial Pretreatment Program (Sanitary Sewer Discharges).
- Hazardous Waste Generator On-site Treatment Program (Tiered Permitting).
- Commercial/Industrial Stormwater Inspection Program (Storm Sewer Discharges).
- Construction Site Stormwater Inspection Program (Storm Sewer Discharges).
- Illicit Discharge Detection and Elimination Program (Storm Sewer Discharges).
- Fire Code Program.

II. LEGAL AUTHORITY

The environmental and consolidated programs, and the legal authority for each program administered by the FEPD within the Mountain View city limits, are listed below:

Environmental Program	Authority
• Hazardous Materials/Toxic Gas Program	Chapter 24, MVCC; and H&S Code, Division 20, Chapter 6.95 and Title 19 CCR Section 2620-2732
• Fire Code Program	Chapter 14, MVCC, CFC/IFC
• Underground Storage Tank Program	H&S Code, Division 20, Chapter 6.7 and Title 23, Division 3, Chapter 16 CCR
• Industrial Pretreatment Program (Sanitary Sewer Discharges)	Chapter 35, MVCC and 40 CFR
• Santa Clara Valley Urban Runoff Program (Storm Sewer Discharges)	Chapter 35, MVCC
• Hazardous Waste Generator On-site Treatment (Tiered Permitting)	H&S Code, Division 20, Chapter 6.5 and Division 4.5, Title 22 CCR
• Aboveground Storage Tank Program Spill Prevention Control and Countermeasure Plan	H&S Code, Division 20, Chapter 6.67, Section 25270.5(c)

III. INSPECTION PROCESS (see attached flow diagram)

The following narrative describes a typical step-by-step inspection process.

A. INITIAL INSPECTION

An initial inspection may be conducted for a variety of reasons. These include:

- Routine or regularly scheduled inspection (example: an annual inspection of a toxic gas facility or a wastewater discharger regulated under a Federal category).

- Nonroutine inspection (example: an unannounced inspection of a painting contractor to assure that quantities of flammable liquids have not been increased to exceed his permit amounts).

- Referral from an engine company or other fire inspector (example: an engine company calls to say they inspected a new woodworking facility which did not have hazardous materials permit).

- Referral from a City employee/division (example: personnel from the City's "Streets" Division call to report they witnessed a restaurant employee washing floor mats into the alley which discharges into the storm drain).

- Referral from neighboring facility or resident (example: a neighborhood resident calls to complain they saw a carpet cleaning company dumping wastewater into the street).

The general inspection process includes the following:

- An inspector may enter and inspect a factory, plant, construction site, disposal site, transfer facility, or any establishment or any other place or environment, where hazardous materials or hazardous wastes are stored, handled, processed, disposed of or being treated to recover resources.

- An inspector may carry out sampling activities, including obtaining samples from any individual or taking samples from the property of any person or from any vehicle in which any inspector reasonably believes has transported or is transporting hazardous waste. However, upon request, split samples shall be given to the person from whom, or from whose property or vehicle, the samples were obtained.

- An inspector may stop and inspect any vehicle reasonably suspected of transporting hazardous wastes when accompanied by a uniformed peace officer in a clearly marked vehicle.

- An inspector may inspect and copy any records, reports, test results or other information required to carry out enforcement of the environmental programs listed in this Plan.

- An inspector may photograph any waste, waste or hazardous materials container, waste or hazardous materials container label, vehicle, waste

treatment process, waste disposal site or condition constituting a violation of law found during an inspection.

During the inspection, the inspector shall comply with all reasonable security, safety and sanitation measures. In addition, the inspector shall comply with reasonable precautionary measures specified by the operator.

At the conclusion of the inspection, the inspector shall deliver to the operator of the facility or site a written Notice of Inspection ("NOI") which identifies all violations alleged by the inspector, lists required corrective actions and lists compliance deadlines. All violations must be corrected within the prescribed time to avoid further enforcement action(s). Immediate action shall be taken to stop active releases of polluted waste (see Major "Significant" Violations in Section IV.B) to an exposed surface, gutter, storm drain or other drainage facility that could run off or drain to a storm drain system. Immediate mitigation measures for polluted waste releases are also required. For violations that are not active releases, but threaten a release to a storm drain system (see Minor "Nonsignificant" Violations in Section IV.A), the City's goal is to ensure corrective action before the next rain event, but no more than 10 business days after the violations are discovered. If more than 10 business days are required for corrective action, rationale for the extension shall be provided in writing to the City within 24 hours of notification of the violation, and the explanation shall be recorded in the City's database.

When the number, type or complexity of the violations warrant such actions, the inspector may prepare a separate supplemental inspection report which fully details all observations made at the facility or site, all alleged violations, the factual basis for alleging those violations, and any corrective actions that should be taken by the operator of the facility or site which were not included in the original NOI. The inspector shall provide a copy of the supplemental inspection report to the operator within one week of the inspection. The inspection report includes all pertinent information, including, but not limited to, documents, photographs and sampling results concerning the alleged violations. If sampling or laboratory results are not available at the time that the inspection report is prepared, that fact is contained in the report. Those results are provided to the operator within five working days of their receipt by the inspector.

The time period required by the above paragraph may be extended as a result of a natural disaster, inspector illness or other circumstances beyond the control of the inspector if the Fire Department so notifies the operator and provides the inspection report to the operator in a timely manner after the reason for the delay is ended.

Information from the supplemental inspection report or NOI may be withheld by the Fire Department, if necessary, to a criminal investigation or other ongoing investigation in which the Fire Department determines, in writing, that disclosure of the information will result in a substantial probability of destruction of evidence, intimidation of witnesses or other obstruction of justice.

The Fire Department shall, at the operator's request, discuss the supplemental inspection report with the operator and determine whether the operator's responses and documented or proposed corrective actions would be sufficient to comply with the requirements, or if any allegation of a violation is unwarranted.

The operator of the site or facility, which receives a supplemental inspection report or NOI pursuant to the above, shall submit a written response to the Fire Department within 30 days or less, as specified by the inspector, of receipt which shall include a statement documenting corrective actions taken by the operator or proposing corrective actions, which will be taken by the operator, for purposes of compliance or disputing the existence of the violation.

Upon receiving the written response from the operator, the Fire Department, upon the request of the operator, will meet and confer with the operator regarding any questions, concerns or comments that the operator may have concerning the inspection report. The Fire Department will, within five working days of receipt of a response, which documents or proposes corrective action, or which disputes the existence of a violation, determine whether the corrective actions documented or proposed to be taken by the operator, if implemented as stated or proposed, will achieve compliance, or whether a violation is still alleged, as applicable, and submits a written copy of that determination to the operator, in the form of a Notice of Violation (NOV) or other appropriate document. If the Fire Department fails to make the determination and submit a copy of the determination within five working days from the date of receipt of the operator's response, the Fire Department may not seek penalties for continuing violations or any alleged new violations caused by the corrective actions taken by the operator, until the Fire Department submits the determination to the operator and provides the operator with a reasonable time in which to make necessary operational modifications which differ from those proposed to the Fire Department.

In lieu of requiring the operator of the site or facility to submit a written response to the Fire Department as described above, the Fire Department

may waive this requirement and choose to conduct follow-up inspections to verify compliance, as described in the sections of this Plan, entitled "First Reinspection," "Second Reinspection" and "Third Reinspection."

Whenever information, including, but not limited to, documents, photographs and sampling results, has been gathered, the Fire Department notifies the person whose facility was inspected prior to public disclosure of the information, and upon request of that person, submits a copy of any information to that person for the purpose of determining whether trade secret information, as defined in Health and Safety (H&S) Code Section 25713, or facility security would be revealed by the information. "Public disclosure" shall not include review of the information by a court of competent jurisdiction or an administrative law judge. That review may be conducted in camera at the discretion of the court or judge.

B. FIRST REINSPECTION

The first reinspection is conducted to visually evaluate the progress made toward complying with the initial NOI. If all violations noted in the initial NOI have been corrected, the enforcement process ends. If not, any remaining minor violations are recorded in the first reinspection record. This record again includes an NOI which specifies the time by which compliance shall be achieved.

C. SECOND REINSPECTION

The second reinspection is conducted to visually evaluate the progress made toward complying with the NOI issued in the first reinspection. If all violations noted in the first reinspection NOI have been corrected, the enforcement process ends. If not, any remaining minor violations are recorded in the second reinspection NOI. This record includes a Notice of Violation or Compliance Order (CO) which specifies the time by which compliance shall be achieved.

The second reinspection, and all subsequent inspections, are billed to the responsible party on a per-hour basis as approved in the City of Mountain View Master Fee Schedule.

Note: The "second reinspection" in the inspection process does not apply to stormwater violations that pose a threatened release to a storm drain system. These violations shall be corrected before the next rain event, or within 10 business days after they are discovered, whichever arrives first. If these violations are not corrected within this time, the City will escalate the

enforcement process and immediately issue a "Notice of Violation," described in Section III.D below.

D. NOTICE OF VIOLATION/COMPLIANCE ORDER

A "Notice of Violation/Compliance Order" may be issued to the responsible party when:

- Major violations are discovered.
- Minor violations have not been corrected or substantially corrected after the second reinspection.
- Minor violations that have been corrected are repeatedly observed during subsequent inspections.

The NOV/CO is sent to the facility owner, facility manager, site supervisor or environmental contact of the responsible party, via certified or registered mail, as well as a copy to his/her manager or the business owner. It restates information already provided to the responsible party during the previous inspection, but emphasizes the severity of the situation, and provides written notice to owners or senior managers. The NOV/CO includes:

- An enumeration of the violations found.
- The inspection date(s).
- A directive to cease the violation immediately (if applicable).
- A directive to investigate the cause of the problem (if applicable).
- A directive to report the findings of the investigation and provide evidence of return to compliance (if applicable).
- A directive to proceed with corrective actions.
- A directive to complete prescribed corrective actions by a certain date.
- An administrative penalty (if applicable).

The NOV/CO may also stipulate a follow-up inspection date during which the inspector will visually evaluate the progress made toward complying with the violations recorded in the Notice.

E. THIRD REINSPECTION

If all violations noted in the second reinspection NOI or the NOV/CO have been corrected, the enforcement process ends. If not, any remaining violations are recorded in the third reinspection NOI, and enforcement action is escalated to the next step. A description of the "Enforcement Options" available to the City is provided in Section V.B of this Plan.

This inspection is billed to the responsible party on a per-hour basis as approved in the City of Mountain View Master Fee Schedule.

IV. CATEGORIZATION OF VIOLATIONS

The information below describes the two basic types of violations ("major" and "minor") for all programs <u>except: (1) the hazardous waste generator; and (2) tiered permitting programs</u>. Violation classifications for these two programs are discussed separately at the end of this section.

A. MINOR ("NONSIGNIFICANT") VIOLATIONS

The majority of violations observed during the course of the initial inspection are minor violations and do not require immediate corrective action. The following examples describe minor violations:

- Failure to completely update an Environmental Compliance Plan (ECP).
- Failure to keep secondary containment dry.
- Failure to calibrate a pH probe.
- Threaten release to the storm drain system.

The procedures for documenting these violations and corrective actions are described below.

Facility owners, managers or operators will be notified of minor violations observed during an inspection either verbally or in writing. Verbal warnings of violations or potential violations are documented by the inspector in the facility file or database. Written notification of minor violations will be included in a Notice of Inspection. An NOI, which establishes the time compliance required, is given to the facility operator before leaving the site. A facility which receives an NOI is given not more than 30 days from the date

of receipt of the NOI in which to achieve compliance with the permit conditions, rule, regulation, standard or other requirement cited on the NOI. At the discretion of the inspector, the responsible party, who is an owner or operator of or an employee of the facility, shall, within five working days of achieving compliance, sign the NOI and return it to the Fire Department, stating that the facility has complied with the NOI. In lieu of submitting this statement, the inspector may verify that compliance has been achieved during a follow-up inspection.

Stormwater violations where a threatened release to a storm drain system (see Minor "Nonsignificant" Violations in Section IV.A) is observed shall be corrected before the next rain event, or within 10 business days after the violations are discovered, whichever arrives first. If these violations are not corrected within this time, the City will issue an NOV that may include an administrative penalty. If more than 10 business days are required for corrections, rationale for the extension shall be provided in writing to the City, and the explanation shall be recorded in the City's database.

A single NOI is issued for all minor violations cited during the same inspection and the NOI separately lists each of the cited minor violations and the manner in which each of the minor violations may be brought into compliance.

A corrective action will not be issued for any minor violation which is corrected immediately in the presence of the inspector. Immediate compliance of a minor violation will be noted as such in the NOI, and the facility will not be subject to any further enforcement action by the Fire Department for these violations.

Except as otherwise provided below, an NOI is the only means by which the Fire Department shall cite a minor violation. The Fire Department does not take any other enforcement action against a facility which has received an NOI if the facility complies with this section.

If a facility that receives an NOI disagrees with one or more of the alleged violations listed on the NOI, the owner shall give the inspector, who issued the NOI, written notice of disagreement. If the issuing agency takes administrative enforcement action on the basis of the disputed violation, that action may be appealed.

Notwithstanding any other provision of this Plan, if a facility fails to comply with an NOI within the prescribed period, or if the Fire Department determines that the circumstances surrounding a particular minor violation

or combination of minor violations are such that immediate enforcement is warranted to prevent harm to the public health or safety or the environment, the Fire Department may take any needed enforcement action authorized under applicable Federal, State and local codes and ordinances.

Notwithstanding any other provision of this section, if the Fire Department determines that the circumstances surrounding a particular minor violation or combination of minor violations are such that the assessment of a civil penalty pursuant to this chapter is warranted or is required, in addition to issuance of an NOI, the Fire Department shall assess that civil penalty in accordance with applicable Federal, State and local laws, regulations and ordinances if the Fire Department makes written findings that set forth the basis for that determination.

An NOI issued to a facility pursuant to this section shall contain an explicit statement that the facility may be subject to reinspection by the Fire Department. Nothing in this section shall be construed as preventing the reinspection of a facility to ensure compliance with the applicable environmental programs or to ensure that minor violations cited in an NOI have been corrected and that the facility is in compliance.

Nothing in this section shall be construed as preventing the Fire Department from requiring a facility to submit reasonable and necessary documentation to support the facility's claim of compliance.

B. MAJOR ("SIGNIFICANT") VIOLATIONS

Typically, if a major violation is observed, immediate action is taken by the inspector to mitigate the problem. A major violation is defined as one which represents a "significant threat to human health and safety or the environment." Major violations would also include chronic violations or violations committed by recalcitrant violators.

The following examples describe major violations:

- Hazardous or unsafe conditions: for example, an employee is seen welding near a gasoline tank.

- Illegal discharge to sanitary sewer: for example, a laboratory is discharging acidic solutions directly into the sanitary sewer without treatment.

- Illegal discharge to storm sewer: for example, a commercial facility is discharging vehicle wash water directly to the ground, which flows to a nearby storm drain.

- Illegal disposal of hazardous materials/waste: for example, an automotive repair facility dumps waste oil onto the fence line of the property.

- Active releases of polluted waste to an exposed surface, gutter, storm drain or other drainage facility that could run off or drain to a storm drain system.

When immediate action is taken, the NOI will usually require the responsible party to immediately cease the noncompliant action and may provide for appropriate follow-up by a certain time, typically within several hours.

C. HAZARDOUS WASTE GENERATOR AND TIERED PERMITTING VIOLATION CATEGORIZATION

Pursuant to H&S Code Section 25187.8, and the State Enforcement Response Policy, hazardous waste generator and tiered permitting violations fall under three categories:

- Class I violations.

- Class II violations.

- Minor violations.

Class I violation means any of the following:

(1) A deviation from the requirements of Chapter 6.5, or any regulation, standard, requirement, or permit or interim status document condition adopted pursuant to Chapter 6.5, where:

(a) The deviation represents a significant threat to human health or safety or the environment because of one or more of the following:

(i) The volume of the waste.

(ii) The relative hazardousness of the waste.

(iii) The proximity of the population-at-risk.

(b) The deviation is significant enough that it could result in a failure to accomplish any of the following:

(i) Ensure that hazardous waste is destined for, and delivered to, an authorized hazardous waste facility.

(ii) Prevent releases of hazardous waste or constituents to the environment during the active or postclosure period of facility operation.

(iii) Ensure early detection of releases of hazardous waste or constituents.

(iv) Ensure adequate financial resources in the case of releases of hazardous waste or constituents.

(v) Ensure adequate financial resources to pay for facility closure.

(vi) Perform emergency clean-up operations of, or other corrective actions for, releases.

(2) The deviation is a Class II violation which is a chronic violation or committed by recalcitrant violator.

Class I violations are addressed through a formal enforcement action.

Examples of Class I violations include, but are not limited to, the following:

(1) A violation that results in a release or serious threat of release of hazardous waste to the environment, for example:

(a) Incompatible wastes stored adjacent to each other with no physical barrier for separation.

(b) Waste stored or transported in incompatible, damaged or deteriorated container.

(c) Failure to transfer wastes from deteriorated containers into sound containers.

(2) A violation that involves the failure to assure that groundwater will be protected, for example:

(a) Failure to implement a groundwater monitoring program with regularly scheduled sampling activities.

(b) Failure to implement a groundwater monitoring program where all required parameters are not being analyzed.

(c) Failure to perform the required statistical analysis on monitoring data.

(3) A violation that involves the failure to assure that proper closure and postclosure activities will be undertaken, for example:

(a) Failure of an owner/operator to develop closure or postclosure plans.

(4) A violation that involves the failure to assure that hazardous wastes will be destined for and delivered to permitted or interim status facilities, for example:

(a) Failure to manifest hazardous waste.

(b) Use of an unregistered hazardous waste transporter.

(c) Treatment, storage or disposal at an unauthorized point.

(5) Class I or II violations by a recalcitrant or chronic violator, including one who is violating outstanding enforcement orders, for example:

(a) Failure to correct violations in accordance with a schedule of compliance.

(6) A violation that involves failure to establish or maintain appropriate financial mechanisms to assure closure, postclosure and liability coverage, for example:

(a) Failure by an owner/operator to establish or maintain a financial assurance instrument.

Class II violation means the following:

A deviation from the requirements specified in Chapter 6.5 of the H&S Code, or regulations, permit or interim status document conditions, standard or requirements adopted pursuant to that chapter, that is not a Class I violation.

Examples of Class II violations include, but are not limited to, the following:

(1) Failure of a generator to keep a copy of each manifest for at least three years.

(2) Failure to maintain a copy of the closure plan at the facility.

(3) Failure to submit the annual report in a timely manner.

(4) Failure to maintain an adequate contingency plan.

(5) Failure to adequately document hazardous waste training.

(6) Failure to note the date and nature of any repairs in the inspection log.

(7) Minor deficiencies in other recordkeeping requirements.

(8) Failure to update closure costs for inflation (although this may be Class I if such costs exceed $100,000).

(9) Failure to properly notify regulatory agency at least 60 days prior to performing hazardous waste treatment.

Class II violations are addressed through informal enforcement actions.

Minor violations, as defined in H&S Code Section 25117, include, but are not limited to, the following:

A deviation from the requirements of this chapter, or any regulation, standard, requirement, or permit or interim status document condition adopted pursuant to Chapter 6.5 that is not a Class I or Class II violation.

A minor violation does not include any of the following:

(1) Any knowing, willful or intentional violation of this chapter.

(2) Any violation of this chapter that enables the violator to benefit economically from noncompliance, either by reduced costs or competitive advantage.

(3) Any Class II violation that is a chronic or a violator is recalcitrant.

Minor violations are addressed by a Notice to Comply as specified in H&S Code Section 25187.8.

V. ENFORCEMENT ACTIONS

A. ENFORCEMENT PHILOSOPHY

The City of Mountain View's enforcement philosophy is to allow the responsible party every opportunity to succeed in complying with the directives issued. To promote this approach, inspection staff is trained to consider their primary function as that of educator, facilitator and compliance assistance resource, and secondarily as enforcing agent. City staff shall explain and document all violations and offer options available for compliance. City staff may provide the responsible party lists of contractors, vendors and other environmental professionals if requested, or if the inspector feels that such outside help is needed by the responsible party to achieve compliance. The City does not make recommendations on selecting third-party contractors. City staff shall work cooperatively with the responsible party during large or extended compliance projects to ensure that progress is continually being made toward full compliance.

If compliance is not achieved in a timely manner, enforcement actions may be undertaken. The FEPD's enforcement goals are to:

- Deprive violations or any significant benefit gained from the violations.
- Initiate and conclude enforcement actions in a timely manner.
- Provide clear and concise direction and reporting.
- Return violators to compliance.
- Recover costs associated with damages to public infrastructure or the environment that occur as a result of the violation(s).

B. ENFORCEMENT OPTIONS

The inspector has a number of enforcement actions from which to choose. Enforcement actions are graduated in their severity based upon the frequency and severity of the violations being considered.

1. Verbal Warning

A "verbal warning" is only used for minor violations and is intended to educate facility personnel about problems or areas of concern that may be formally identified and documented during future inspections if immediate measures are not taken to correct the violation.

2. Written Notice

Written notices are issued in the form of a "Notice of Inspection (NOI)," "Notice of Violation (NOV)," "Compliance Order (CO)" and "Administrative Citation (AC)."

An NOI is issued at the time of the inspection and lists the violations that were observed, and lists due dates for corrections that are required to achieve compliance. An NOV is issued after an inspection or reinspection. Issuance of an NOV is described in Section III.D of this Plan.

A Compliance Order may be issued when the violation(s) identified in the NOI/NOV is not corrected after the second or subsequent reinspections, or within the time specified in the NOI/NOV.

An Administrative Citation may be issued when the violation(s) identified in the CO is not corrected within the time specified in the CO.

3. "Stop Use" Notice

A "Stop Use" notice can address a specific piece of equipment that is unapproved; equipment that has not been permitted; equipment illegally discharging wastewater to the sanitary or storm sewer system; or when unpermitted hazardous materials are moved into a structure. The inspector places the red "Stop Use" notice on the applicable piece of equipment. Should the inspector find that this equipment is being used after the notice is in place, a citation, infraction fine or administrative penalty can be immediately assessed. The notice remains in place until

the equipment is approved, permitted or removed from service and shall only be removed by the inspector.

A "Stop Use" notice can also be applied to the entire facility. In this case, the Fire Marshal submits a letter to the City's Building Official requesting that he authorize PG&E to shut down the power to the facility. The power remains shut off until compliance is achieved.

4. "Stop Work" Order

A "Stop Work" order can be used at construction sites or where improvements to an existing facility are under way. Issuance of the "Stop Work" order is coordinated with the City's Building Official who will post the Stop Work order to prohibit further work until compliance is demonstrated. Examples of situations when a "Stop Work" order could be used are when the installation of unpermitted wastewater processing equipment occurs; building alterations or improvements occur without benefit of the necessary building permits; or a construction site where the owner or contractor have failed to install adequate sediment and erosion controls.

5. Citation (Criminal)

Hazardous Materials Specialists and the Fire Marshal are all authorized to issue field citations. Such a citation requires the inspector and responsible party to appear before a judge within 45 days. The judge makes the final determination on any compliance extensions and fines.

6. Amend Existing Permit

The inspector may choose to amend the responsible party's existing permit with additional or modified requirements. For example, a facility which has continually failed to update its ECP as required by ordinance may be additionally required in their permit to provide ECP updates every quarter.

7. Issue Provisional Permit

The inspector may choose to issue a provisional permit in place of the responsible party's full-term permit. Provisional permits describe the limited conditions under which the responsible party may continue its hazardous materials storage/use or wastewater discharge. Provisional permits are issued for a limited length of time (usually no more than six

months). At the time of expiration of the provisional permit, the responsible party is required to have displayed full compliance with the directives issued so that a full-term permit can be reissued.

8. Suspend/Revoke Permit

The inspector may choose to suspend or revoke the responsible party's hazardous materials or industrial pretreatment permit. In such case, the applicable hazardous materials or wastewater producing equipment must be removed from the site within 15 days of written notice. Failure to remove the materials or equipment can result in issuance of a citation. Once the responsible party is able to demonstrate compliance with the directives issued, it must reapply for a full-term permit.

9. Civil/Criminal Litigation

Depending on the extent and severity of violations, as well as the degree to which the responsible party shows a genuine interest in correcting the violations, the inspector may refer the case to the District Attorney or City Attorney to pursue either civil or criminal litigation.

10. Administrative Enforcement Orders

The City of Mountain View has adopted a policy on administrative enforcement orders for use in all local programs, including the unified programs. The procedure allows for monetary penalties and the use of a local hearing officer instead of an administrative law judge. See the separate "Administrative Enforcement Orders" binder for all forms and instructions on this procedure.

C. CONFIDENTIALITY

To maintain confidentiality, all enforcement action files are accessible only to the Fire Marshal, City Attorney and inspector in charge of the enforcement case. When an enforcement action is initiated, the file is physically separated from the facility's Business Plan, as well as all other associated public files, and is placed in a separate file cabinet in the Fire Marshal's office. This office is locked when not occupied. The file is not released to the public until the case is settled and/or closed.

D. RECOVERY OF CITY CLEAN-UP COSTS

If the responsible party does not remove abandoned hazardous materials or clean up discharged materials from City or public property (such as gutters, storm drains and creeks), the City may conduct the work and bill the responsible party for the City's time and materials. This billing procedure is conducted separately from any penalty action taken (described below).

E. PENALTIES/FINES

The main purpose of a penalty/fine is to create an incentive for future compliance and to insure that the responsible party does not financially benefit from a failure to comply with the environmental programs administered by the City. The City has a number of penalties/fines it can assess the responsible party. They include:

Penalty Type	Limits	Authority	Assessed By	Comments
Infraction	$100 for first offense; $200 for second offense within the same year; $500 per each additional offense within the same year.	MVCC 24.10.0	City of Mountain View Fire and Environmental Protection Division	Usually included in the "Notice of Violation."
Civil	Not to exceed $500 per day per violation (Hazardous Materials Ordinance). Not to exceed $25,000 per day per violation (Wastewater Discharge Ordinance).	MVCC 24.10.0 MVCC 35.32.15.2	City of Mountain View City Attorney or Santa Clara County District Attorney	May be initiated at any point in the enforcement process.

Penalty Type	Limits	Authority	Assessed By	Comments
Administrative Complaint*	$2,000/day for failing or refusing to furnish technical/ monitoring reports; $3,000/day for failing or refusing to timely comply with industrial pretreatment or urban runoff compliance schedules; $3,000 per day per violation for discharges in violation of any wastewater discharge limitation, permit condition or requirement; $10 per gallon for wastewater discharges in violation of any prohibition issued by City; $500 for each violation of the California Fire Code (Chapter 14, MVCC); and $750 for each violation of the Hazardous Materials Ordinance (Chapter 24, MVCC).	MVCC 35.32.15.4	City of Mountain View Fire and Environmental Protection Division	Usually included in a "Notice of Violation"; responsible party may request hearing prior to payment.
Criminal	As established by H&S Code	NA	City of Mountain View City Attorney or Santa Clara County District Attorney	May be initiated at any point in the enforcement process.

* It should be noted that issuance of an administrative penalty (as part of an administrative complaint) requires a hearing on the complaint within 60 days, unless the responsible party waives his/her right to the hearing. The responsible party has further recourse to appeal the hearing officer's decision to the City Council.

In determining the type and amount of the penalty/fine, the inspector considers all relevant circumstances, including the following:

- Extent of harm or potential harm caused by the violation.
- The nature and persistence of the violation.
- The length of time over which the violation has occurred.

- The frequency of past violations.
- The responsible party's record of maintenance.
- Corrective action, if any, taken by the responsible party.
- The extent of negligence of willful misconduct of the responsible party.
- The ability of the responsible party to pay the penalty/fine.

The following matrix is used as a general guideline in establishing penalty/fine assessments:

Violation Examples	Infraction Penalty	Civil Penalty	Administrative Penalty	Criminal Penalty
Failure to update an Environmental Compliance Plan	X			
Failure to obtain applicable permits (example: storage/use of permittable quantities of hazardous materials, discharging process wastewater to the sanitary sewer without a permit)		X	X	X
Major violations (example: illegal disposal of hazardous materials/waste, illegal discharge to storm drain, etc.)		X	X	X
Minor violations, including administrative violations (example: failure to provide alarm on a pH probe, failure to provide emergency response training documentation, etc.)	X		X	

F. PROCEDURE FOR REFERRALS TO CITY ATTORNEY OR DISTRICT ATTORNEY

During initial evaluation of a case for referral to the City Attorney or District Attorney for criminal investigation, the following three factors are considered:

- Intent.
- Hazardous or harmful nature of the pollutant and/or threat to human health and the environment.

- Extent of violation. If the conduct appears to be intentional, reckless or constitutes a serious threat to human health and the environment, the case should be pursued criminally.

Prosecution, civil or criminal, by the City Attorney or Santa Clara County District Attorneys' Office is the means by which compliance is obtained and by which violators are assessed financial penalties and, if appropriate, by incarceration.

Enforcement by prosecution in the court system presents two tasks: (1) Collection of evidence, for example, by observation and taking notes, photographs, sampling, sample analysis, interviews and records research; and (2) Preparation of written reports for submission to the City Attorney or District Attorney.

Criteria for use: Major violations.

Routine inspections, filed complaints and emergency Hazardous Materials incident procedures:

1. Notify Fire Marshal and submit referral package to City Attorney or District Attorneys' Office Deputy District Attorney (DA) within 15 days. For law enforcement assistance, the DA will notify the District Attorneys' Office Investigator.

2. If necessary, obtain a search warrant. The Deputy District Attorney will prepare an affidavit for the court, and the inspector's signature is required.

3. Coordinate facility inspection, assemble inspection team and collect evidence.

4. Prepare and submit a report to the City Attorney or District Attorney within 30 days of receiving the sample analysis results. The standardized enforcement report is the key document that brings together all correspondence, sample analysis results, relevant documents and photographs which are required for a successful criminal or civil prosecution.

5. When the report is submitted, the City Attorney or District Attorney will file either civil or criminal complaint and recommend fines (not more

than $25,000 per day per violation) and proposed sentence (State prison) for the court.

6. The district inspector will be notified of the pretrial date and the trial date.

The case is concluded when the defendant either: (1) agrees to settle; or (2) the judicial forum proceedings determine responsibility.

G. INTERAGENCY ENFORCEMENT COORDINATION

If the inspector identifies violations for which other agencies may have responsibility, it is the policy of the Mountain View Fire and Environmental Protection Division to coordinate with these other agencies. Depending on the nature of the violations, the inspector may immediately contact the appropriate agencies. A phone call and explanation of the situation can often provide enough information to determine whether a joint inspection is necessary or a simple referral is appropriate. Violations that do not need immediate attention may be referred via written notification.

The CUPA technical committee acts as a vehicle for developing joint PA and CUPA-coordinated enforcement procedures and policies; e.g., case development, referral procedures, civil and criminal procedures as well as administrative actions.

The Mountain View Fire and Environmental Protection Division reviews the minutes of the Northern California CUPA Forum's monthly meetings to ascertain regional CUPA implementation, integration and enforcement region-wide. If necessary, additional meetings with other local agencies affected by the Unified Program are held. The meetings focus on standardization and consistency of permitting, inspection and enforcement, and fee assessment activities.

1. Monterey Regional Environmental Task Force:

This task force attendees includes representative of Monterey County, San Benito County, Santa Cruz County, U.S. Attorney's Office, Santa Clara County District Attorney Investigator, Deputy District Attorney, Federal EPA, California EPA, Department of Toxic Substances Control, Federal Bureau of Investigations, County Agricultural Commission Office, Navel Intelligence Services, Bureau of California Regional Water Quality Board, California Fish and Game, Bay Area Air Quality Management District, fire departments, police departments, city code

enforcement officers, wastewater treatment agencies (POTW), storm-water pollution prevention inspectors and local city attorneys.

2. California Regional Water Quality Control Board—San Francisco Bay Region

For stormwater-related violations or persistent enforcement cases where the City's enforcement tools are not adequate to achieve compliance, the City will refer the case to the California Regional Water Quality Control Board—San Francisco Bay Region (Water Board). Referral to the Water Board may be coordinated with a DA referral.

EA/8/FIR
151-05-10-10RP-E^

APPENDIX A
SAMPLE: OFFICIAL NOTICE OF INSPECTION

APPENDIX B

SAMPLE: NOTICE OF VIOLATION

APPENDIX C
SAMPLE: COMPLIANCE ORDER

APPENDIX D
SAMPLE: ADMINISTRATIVE CITATION

APPENDIX E

SAMPLE: "STOP USE" NOTICE

APPENDIX F

SAMPLE: CITATION

APPENDIX G

SAMPLE: PROVISIONAL PERMIT

APPENDIX H

SAMPLE: REFERRAL TO CITY ATTORNEY/DISTRICT ATTORNEY

APPENDIX I

SAMPLE: ADMINISTRATIVE ENFORCEMENT ORDER

APPENDIX J

SAMPLE: ENFORCEMENT ESCALATION PROCESS

APPENDIX K

SAMPLE: ENVIRONMENTAL ENFORCERS IN SANTA CLARA COUNTY

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Palo Alto

City of Palo Alto

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

City of Palo Alto

250 Hamilton Avenue

Palo Alto, CA 94301

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

February 1, 2012

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CITY OF PALO ALTO
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:

Joe Teresi

Joe Teresi
Senior Engineer

February 1, 2012

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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 City of Palo Alto 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 Palo Alto's annual reporting process.

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 City of Palo Alto 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 2012a) 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 the 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 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 (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 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 (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 City of Palo Alto 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 Palo Alto'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
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
Quantification Formulas
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;
- Baseline Trash Loading Estimate;
- Load Reduction Calculation Process
- Enhanced Trash Control Measures
- Summary of Trash Control Measure Enhancements
- 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 Generation 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 City of Palo Alto's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Palo Alto 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 City of Palo Alto. 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 Palo Alto'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 1894, the City of Palo Alto is located in Santa Clara County, and has a jurisdictional area of 15,569 acres. According to the 2010 Census, it has a population of 64,403, with a population density of 2,497.5 people per square mile, and average household size of 2.41. Of the 64,403 who call the City of Palo Alto home, 23.4% are under the age of 18, 4.9% are between 18 and 24, 26.6% are between 25 and 44, 28.0% are between 45 and 64, and 17.1% are 65 or older.

Companies such as Hewlett-Packard, Vmware, Tesla Motors, Ning, IDEO, Palantire Technologies, and Facebook are located in the City of Palo Alto. The median household income was $119,046 in 2000[1].

[1] From the 2000 Census. The median household income for the City of Palo Alto from the 2010 Census is not currently available.

Default Trash Generation Rates (Regional Approach)

A set of default trash generation rates was developed via the BASMAA regional collaborative project (BASMAA 2012b). 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 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 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.

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 City of Palo Alto. The City of Palo Alto's jurisdictional areas includes all urban land areas within the City of Palo Alto 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;
- 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 Palo Alto'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 Palo Alto are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the City of Palo Alto 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	701	652	11
Low Density Residential	4,004	3,502	62
Rural Residential	179	101	2
Commercial and Services/ Heavy, Light and Other Industrial	1,563	752	13
Retail and Wholesale	365	308	5
K-12 Schools	230	102	2
Urban Parks	1,689	260	5
TOTAL	**8,732**	**5,677**	**100%**

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 Palo Alto 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 Palo Alto 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 Palo Alto 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 City of Palo Alto's baseline street sweeping program includes sweeping streets in residential areas and arterial roads twice per month, and sweeping retail areas once per week. The City's current street sweeping program includes sweeping residential areas and arterial roads once per week, and retail areas three times per week. Posting of parking enforcement signs for street sweeping is limited to a residential area north of downtown. Parking enforcement equivalent exists on many arterial roads throughout the City. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of Palo Alto, 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 City of Palo Alto 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 City of Palo Alto owns and maintains eight stormwater pump stations. Of these stations, four 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 City of Palo Alto 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 Palo Alto 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, high and very high trash loading rates.

Table 2-3: Preliminary annual trash baseline load for the City of Palo Alto.

Category	Annual Load (gallons)
Preliminary Generation Trash Load	31,955
Load Removed via Baseline Street Sweeping	14,443
Load Removed via Baseline Storm Drain Inlet Maintenance	876
Load Removed via Baseline Stormwater Pump Station Maintenance	1,710
Preliminary Trash Baseline Load	**14,926**

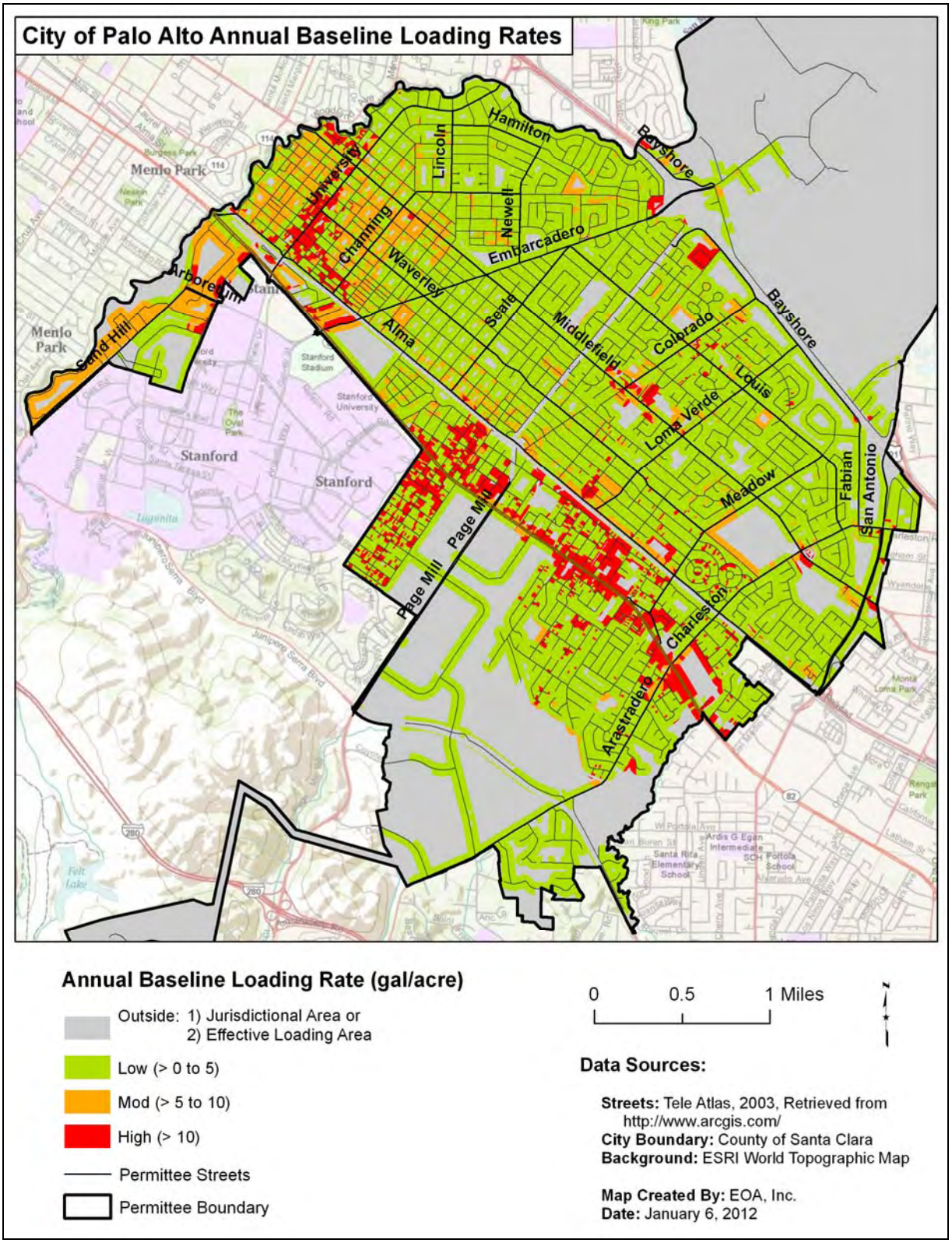


Figure 2-1: Estimated trash baseline loading rates for geographical areas in the City of Palo Alto.

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 2012a) 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 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.[2] 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 #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).

[2] 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-7: Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (Area-wide)

As these control measures are implemented, load reduction estimates can be calculated <u>in-parallel</u> 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.

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

4.0 ENHANCED TRASH CONTROL MEASURES

This section describes the new or enhanced trash control measures planned for implementation by the City of Palo Alto. 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 the City of Palo Alto include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by the City of Palo Alto 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
Activities to Reduce Trash from Uncovered Loads
Improved Trash Bin/Container Management (Municipally or Privately-Controlled)
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

The City of Palo Alto has adopted an ordinance (Palo Alto Municipal Code Chapter 5.35) prohibiting the distribution of single-use carryout plastic bags at large supermarkets (those with gross annual sales of $2 million or more). The ordinance provides that supermarkets may provide only reusable bags or recyclable paper bags to their customers. The ordinance also strongly encourages supermarkets to educate their staff to promote reusable bags as the best option for checkout bags and to post signs encouraging customers to use reusable bags. The ordinance became effective on September 18, 2009. City of Palo Alto staff members promote the use of reusable bags by giving out free bags and other promotional items (e.g. stickers and magnets reminding folks to bring their reusable bags to the store) prior to and during the initial days of the bag ban and on an ongoing basis at public outreach events, participation in the regional Bring Your Own Bag (BYOB) advertising campaign, and by assisting regulated stores with public outreach through use of in-store promotional materials (e.g. signs, reusable bag displays, etc.). City of Palo Alto staff members have verified through periodic site visits that 100% of regulated supermarkets are in full compliance with the provisions of the ordinance. 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.

Reduction from Implementing Control Measure

The City of Palo Alto will receive a 6 (six) percent[3] reduction credit for implementing specific enhanced control measures described in Enhanced Level of Implementation section above. The 6 (six) percent reduction credit will be applied to the City of Palo Alto'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 5.0.

[3] The actual trash load reduction realized for the City of Palo Alto's Single-use Carryout Plastic Bag Policy is 5.0 percent due to the effects of the trash load reduction derived from the City's existing enhanced street sweeping program.

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

The City of Palo Alto has adopted an ordinance (Palo Alto Municipal Code Chapter 5.30) banning food vendors from providing prepared food in disposable food service containers made from expanded polystyrene or non-recyclable plastic. Food vendors are defined as any establishments which provide prepared and ready-to-consume food or beverages for public consumption, including but not limited to any store, supermarket, delicatessen, restaurant, retail food vendor, sales outlet, shop, cafeteria, catering truck or vehicle, sidewalk or other outdoor vendor, or caterer. The ordinance also prohibits all city facilities, city-managed concessions, city-sponsored events, and city-permitted events from using disposable food service containers made from expanded polystyrene or non-recyclable plastic. The ordinance became effective on April 22, 2010. Foods prepared or packaged outside the City of Palo Alto and coolers and ice chests that are intended for reuse are exempt from the ordinance, although purveyors of food prepared or packaged outside the City are encouraged to follow the provisions of the ordinance. City of Palo Alto staff members notified the affected facility owners in advance about the polystyrene ban by conducting two informational public meetings, notifying individual owners by mailed post card, placing paid advertisements in local newspapers, and site visits to a majority of food service facilities within the city. Through follow-up site visits, food service facility source control inspections, and customer referrals, City of Palo Alto staff members have verified that approximately 95% of regulated food vendors are in full compliance with the provisions of the ordinance. The percent trash reduction from MS4s as a result of implementing a polystyrene foam food service ware ordinance will be reported in the Annual Report submitted each September.

Percent Reduction from Enhancements

The City of Palo Alto will receive an 8 (eight) percent[4] reduction credit for implementing specific enhanced control measures described in *Enhanced Level of Implementation* section above. The 8 (eight) percent reduction credit will be applied to the City of Palo Alto'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 5.0.

[4] The actual trash load reduction realized for the City of Palo Alto's Polystyrene Foam Food Service Ware Policy is 6.6 percent due to the effects of the trash load reduction derived from the City's existing enhanced street sweeping program.

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

Beginning prior to the effective date of the MRP and continuing into the future, the City of Palo Alto (both as an individual entity and in conjunction with SCVURPPP and/or BASMAA) has implemented and will continue to implement a number of robust public education and outreach control measures related to source control and stormwater pollution prevention. Although these control measures included trash reduction messages, they are considered baseline measures because they are not focused specifically on trash reduction.

Enhanced Level of Implementation

The City of Palo Alto will implement the following public education and outreach control measures in conjunction with SCVURPPP and/or BASMAA prior to July 1, 2014. In addition, although not specifically listed below, the City of Palo Alto will increase emphasis on the trash reduction message in its own ongoing source control and pollution prevention programs.

Litter Reduction Advertising Campaigns

BASMAA Youth Outreach Campaign (Regional)

Through participation and funding of the regional **BASMAA Youth Outreach Campaign**, the City of Palo Alto will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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. A brief description of the Campaign activities is provided below:

- Raising Awareness: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the City of Palo Alto 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Outreach to School-age Children or Youth

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide ZunZun Program, the City of Palo Alto plans to continue 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 includes 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)

Through participation and funding of the **BASMAA Regional Media Relations Project**, the City of Palo Alto plans to continue 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 press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

Percent Reduction from Enhancements

The City of Palo Alto will receive a total of 6 (six) percent reduction credit for implementing specific enhanced control measures described in *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%

These 6 (six) percent[5] reduction credits will be applied against the City of Palo Alto'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 5.0.

[5] The actual trash load reduction realized for the City of Palo Alto's Public Education and Outreach Programs is 4.9 percent due to the effects of the trash load reduction derived from the City's existing enhanced street sweeping program.

CR-4: Reduction of Trash from Uncovered Loads

Although it is currently illegal to operate a vehicle that is improperly covered and which its' contents escapes[6], vehicles remain an important 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 or private landfill and transfer station operators to educate waste haulers on securing loads and/or to enhance enforcement of existing regulations.

Baseline Level of Implementation

The baseline trash load described in Section 2.0, assumes that prior to adoption of the MRP the City of Palo Alto had 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 Palo Alto has implemented the following enhanced control measures to reduce trash from vehicles with uncovered loads: **1)** The City's contract with its municipal trash hauler (Green Waste) contains language requiring covered loads when transporting trash and debris to the transfer station. **2)** Palo Alto Municipal Code Section 5.20.160 requires that all solid waste and recyclable materials hauled by any person over public streets in the city shall be securely tied and covered during hauling thereof so as to prevent leakage, spillage, or blowing and prohibits any person from allowing any solid waste or recyclable materials of any kind whatsoever to leak, spill, blow or drop from any vehicle on any public street within the city. This Code section is enforced by the Palo Alto Police Department. Violators are subject to an administrative penalty of $250. **3)** The City of Palo Alto is a partner agency in the Sunnyvale Materials Recovery and Transfer (SMaRT) Station. The SMaRT Station has a tarp distribution program which requires vehicles that arrive with uncovered loads to purchase a tarp at a cost of $15.00. Each subsequent visit to the transfer station with an uncovered load will result in an additional fee for a tarp, prompting haulers to change their behavior by covering their loads in order to avoid additional tarp fees.

[6] 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 loads 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.

Percent Reduction from Enhancements

The City of Palo Alto will receive a 5 (five) percent[7] reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The 5 (five) 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 Palo Alto. 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 5.0.

[7] The actual trash load reduction realized for the City of Palo Alto's Efforts to Reduce Trash from Uncovered Loads is 4.2 percent due to the effects of the trash load reduction derived from the City's existing enhanced street sweeping program.

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 for placing incidental trash generated in public spaces that provides people with a convenient and appropriate place to dispose of trash. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of bins/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 Palo Alto has not implemented enhanced trash bin/container management practices prior to effective date of the MRP. 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 Palo Alto has implemented the following improved trash bin/container management practices. The City of Palo Alto has a number of municipal ordinances regulating the maintenance of trash/recyclables containers by private residents and businesses. Palo Alto Municipal Code Sections 5.20.040, 5.20.080, 5.20.130, and 5.20.180 require residents and businesses to 1) utilize the trash/recyclables collection services of the City's contracted hauler; 2) procure a sufficient number of containers to hold all solid waste created, produced or accumulated on the premises during a one-week period, unless a more frequent collection schedule has been arranged; 3) maintain the trash/recyclables bins, boxes, and containers on their premises, and the area in which they are located, in a good, usable, clean and sanitary condition, and ensure that the lid or cover on the bin, box, or container is kept fully closed in a manner that prevents leakage, spillage and the escape of odors, and that no solid waste or recyclable materials are placed outside of the bin, box, or container; and 4) keep their premises in a clean and sanitary condition and not cause, suffer or permit any solid waste to accumulate in, on or about such premises for a period in excess of one calendar week, respectively. In order to ensure that trash/recyclables containers for residents and businesses are properly sized, the City's trash hauler (Green Waste) works with customers during the establishment of new refuse collection services to recommend a suitably-sized container based on the occupant load and use of the premises. Language in the City's municipal trash hauling contract requires Green Waste staff to monitor and take corrective actions in response to missing/overflowing trash &

recyclables bins. Problem locations identified by collection vehicle drivers in the field are conveyed to Green Waste office staff for investigation and resolution. Green Waste staff work with customers to ensure that missing containers are replaced and/or that undersized containers are replaced with larger units in order to prevent future overflow conditions.

The Palo Alto Downtown Business and Professional Association is a Business Improvement District (BID) serving the City of Palo Alto's University Avenue Business District. The Association, funded through annual dues paid by businesses with the District, conducts various activities on behalf of its members that benefit the businesses within the BID. One of the Association's most successful programs is the Downtown Streets Team. The Downtown Street Team is an innovative program that provides meaningful community-based employment opportunities for local homeless individuals. The Association pays the Downtown Streets Team to hand sweep parking lots, garages, alleys, and plaza areas throughout the District on a daily basis. In addition, City of Palo Alto staff members use blowers to push trash and debris from District sidewalks and from behind parking stops and tree wells into the street on street sweeping days in order to allow the sweepers to pick up sidewalk-based debris as well as street-based debris. Lastly, the District sidewalks are mechanically swept and vacuumed by City staff on a daily basis using a small-scale sweeper known as the Green Machine. Together these various elements comprise a highly effective trash reduction program in Palo Alto's Downtown Business District.

Percent Reduction from Enhancements

The City of Palo Alto will receive a 6.5 percent[8] reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The 6.5 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 Palo Alto. 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 5.0.

[8] The actual trash load reduction realized for the City of Palo Alto's Improved Trash Bin/Container Management Program is 5.3 percent due to the effects of the trash load reduction derived from the City's existing enhanced street sweeping program.

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 City of Palo Alto's baseline street sweeping program includes sweeping at a frequency of once time per week on average in retail areas and two times per month on average in all other areas, coupled with the parking enforcement program described below.

The City of Palo Alto uses multiple parking prohibition strategies to enhance the effectiveness of street sweeping by ensuring that sweepers have clear access to the curb during sweeping operations. The first strategy is to perform street sweeping in selected districts at a specific time of day when parked cars are typically not present. The strategy of sweeping commercial districts during the early morning hours (prior to the operating hours for adjacent businesses) is particularly effective. Although not by specific intent, sweeping efficiency is nevertheless also enhanced along the multiple stretches of roadway within the City of Palo Alto where parking is prohibited 24/7 by signage for traffic management purposes. Lastly, the City of Palo Alto also has one street sweeping district in the Downtown North residential neighborhood where a "No Parking on Sweeping Day" program has been implemented due to an historical problem with a chronically high volume of parked cars. Streets in this neighborhood have been posted with permanent "No Parking on Sweeping Day" signs in order to improve street sweepers' access to the curb. All of the streets in the City of Palo Alto where parked cars are not present during street sweeping due to the implementation of one of the strategies described above have been entered into a GIS database. Increased street sweeping efficiency rates have been applied to these streets when calculating the trash reduction achieved through the City's baseline street sweeping program.

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 2012a). A list of planned enhancements is included in Table QF-2-1 and illustrated in Figure QF-2-1. Enhancements include:

The City of Palo Alto sweeps its streets more frequently than the Baseline level. Actual sweeping frequencies are three times per week in retail (business district) areas and one time per week in all other areas.

Percent Reduction from Enhancements

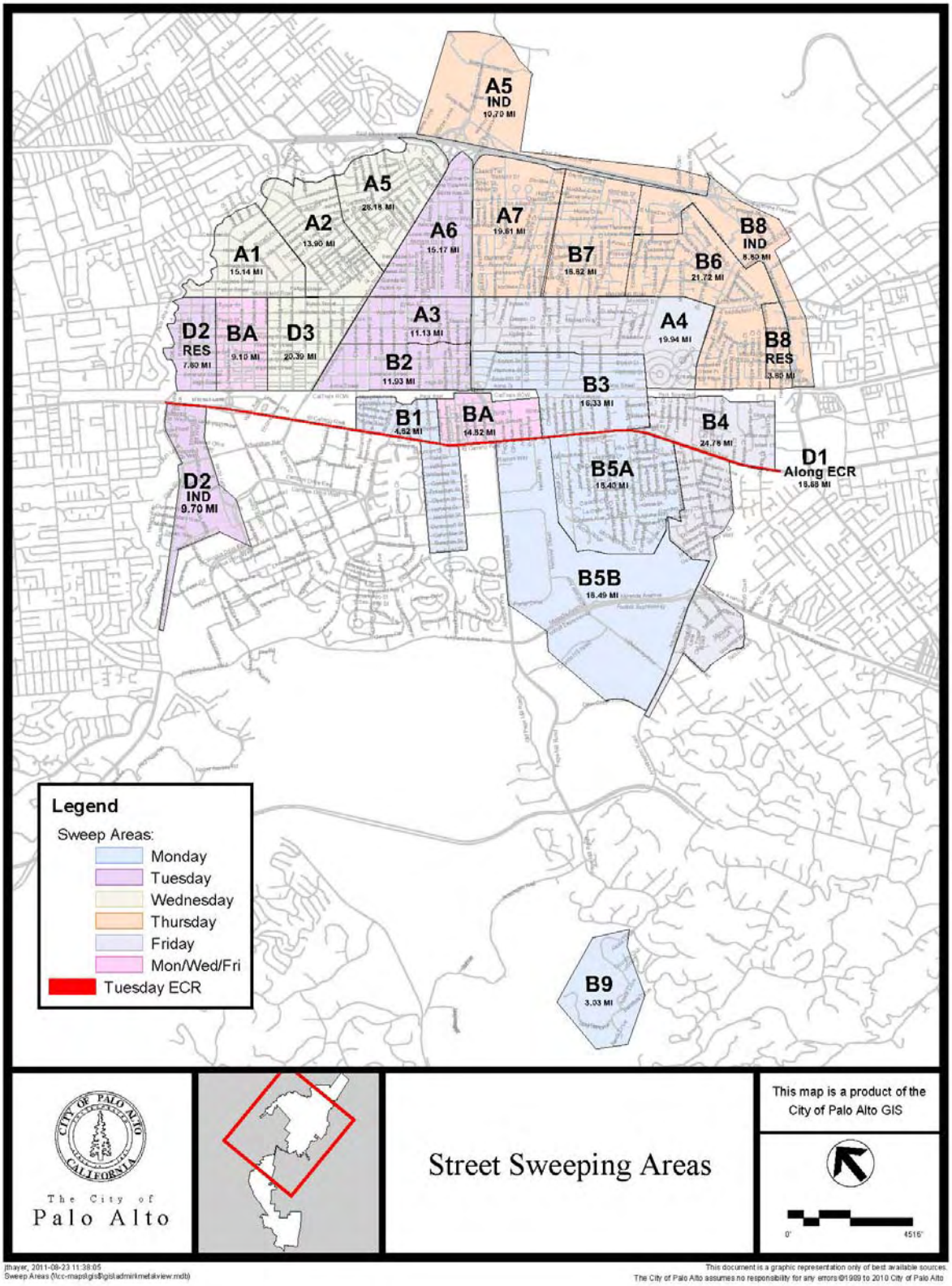
The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of enhanced street sweeping is 2,618 gallons. As described in Trash Load Reduction Summary Table included in Section 5.0, this volume is equal to approximately a 17.5 percent reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Palo Alto.

Table QF-2-1. Planned enhanced street sweeping program in the City of Palo Alto.

Route ID	Approximate Length Swept (curb miles)	Baseline		Enhanced	
		Frequency	Parking Enforcement	Frequency	Parking Enforcement
A1	15.14	2x per month	"No Parking" on selected streets	1x per week	Unchanged from Baseline
A2	13.90	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
A3	11.13	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
A4	19.94	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
A5	26.18	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
A5 IND	10.70	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
A6	15.17	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
A7	19.61	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B1	14.82	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B2	11.93	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B3	16.33	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline

Route ID	Approximate Length Swept (curb miles)	Baseline		Enhanced	
		Frequency	Parking Enforcement	Frequency	Parking Enforcement
B4	24.78	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B5A	18.40	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B5B	18.49	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B6	21.72	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B7	18.82	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B8 RES	3.80	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B8 IND	8.80	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
B9	3.03	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
BA	23.92	1x per week	"No Parking" on selected streets	3x per week	Unchanged From Baseline
D1	18.68	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
D2 RES	7.60	2x per month	"No Parking" on Sweeping Day Program	1x per week	Unchanged From Baseline
D2 IND	9.70	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline
D3	20.39	2x per month	"No Parking" on selected streets	1x per week	Unchanged From Baseline

Figure QF-2-1: Planned enhanced street sweeping program in the City of Palo Alto.



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 2012a). The baseline trash load removed via these devices is accounted for in baseline trash loads.

Trash racks are installed at the following stormwater pump stations owned and maintained by the City of Palo Alto: Matadero Creek Stormwater Pump Station (Colorado Ave. near West Bayshore Rd.), Adobe Creek Storm Water Pump Station (East Meadow Drive near Fabian Way), Airport Storm Water Pump Station (Embarcadero Rd. at Palo Alto Airport), and San Francisquito Creek Stormwater Pump Station (East Bayshore Rd. at San Francisquito Creek).

Enhanced Level of Implementation

A total of one partial-capture treatment device has been installed in the City of Palo Alto. Since June 2009, a litter boom has been deployed annually during the dry season across Matadero Creek upstream of West Bayshore Road. City staff worked cooperatively with the Santa Clara Valley Water District to obtain an encroachment permit allowing seasonal placement of the boom. In accordance with the permit, the boom must be removed each year prior to the start of the rainy season so as not to cause potential flow blockages during storm events. The boom floats on the surface of the water and has a suspended curtain that captures near-surface debris. The amount of debris trapped by the boom is monitored periodically by City staff, and the debris is photographed, removed and measured on an as-needed basis. This partial-capture device is included in Table QF-3-1 as an enhanced trash control measure. Calculation of loads reduced from this partial-capture device 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 deploying the partial-capture treatment device listed in Table QF-3-1 is 90 gallons. This volume is equal to approximately a 0.6 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 Palo Alto. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

Table QF-3-1. Partial capture treatment devices installed or planned to be installed within the City of Palo Alto 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 (gallons)
1	Public	Matadero Creek litter boom	Matadero Creek upstream of West Bayshore Road	June 8, 2009	N/A	90

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 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 Pemittees 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 two trash full-capture treatment devices will be installed in the City of Palo Alto 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 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 414 gallons. This volume is equal to approximately a 2.8 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 Palo Alto. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

Table QF-5-1. Trash full-capture treatment devices within the jurisdictional boundaries of the City of Palo Alto 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)	Estimated Trash Load that will be Reduced
1	Public	Contech CDS	3875 Park Boulevard (at Ventura Avenue)	October 1, 2012	126.08	258
2	Public	Contech CDS	4032 Park Boulevard (at Maclane Street)	October 1, 2012	41.91	155

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 City of Palo Alto'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 Palo Alto will conduct the MRP-required[9] creek/channel/shoreline cleanups listed below. These cleanups will be conducted each year and the volume of trash removed will be tracked to demonstrate trash loads reduced.

National River Clean-Up Day (annually on the third Saturday in May)

- Matadero Creek downstream of East Bayshore Road
- Adobe Creek downstream of East Bayshore Road

Coastal Clean-Up Day (annually on the third Saturday in September)

- Matadero Creek downstream of East Bayshore Road
- Adobe Creek downstream of East Bayshore Road

These annual creek clean-up events are conducted with volunteers coordinated by City of Palo Alto staff members. Staff conduct outreach to attract volunteers, provide the bags/equipment needed for the clean-ups, supervise the volunteers during the clean-ups, and measure and document the amount of trash collected during each clean-up event.

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 700 gallons. This volume is equal to approximately a 4.7 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 Palo Alto. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

[9] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.

5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS

The City of Palo Alto 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% trash load reduction goal in MRP provision C.10.

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

Trash Control Measure	Summary Description Control Measure Action	% Reduction (Credits)	Trash Load Reduced	Cumulative % Reduction (Compared to Baseline)
Single-use Carryout Plastic Bag Ordinance (CR-1)	Local ordinance banning distribution of single-use carryout plastic bags at large supermarkets	6	738	5.0
Polystyrene Foam Food Service Ware Ban (CR-2)	Local ordinance banning distribution of polystyrene foam food service ware by all food vendors	8	985	11.6
Public Education and Outreach Programs (CR-3)	Participation in regional advertising campaigns, outreach to youth, and media relations	6	738	16.5
Activities to Reduce Trash from Uncovered Loads (CR-4)	Regulation of local trash hauler; ordinance and enforcement actions prohibiting uncovered loads; distribution of tarps at transfer station	5	615	20.7
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Tier 2 Private Program: ordinance and enforcement actions requiring proper trash containers; Downtown Streets Team performs hand sweeping in downtown business district	6.5	799	26.0
Enhanced Street Sweeping (QF-2) – (Existing and Future Enhanced)	Commercial : 3x per week Residential: 1x per week	NA	2,618	43.5
Full-capture Treatment Devices (QF-5)	Two large full-capture devices (Contech CDS) to be installed on Park Blvd.	NA	414	46.3
Litter Booms (Partial-capture Treatment Device) (QF-3c)	Matadero Creek litter boom	NA	90	46.9
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Semi-annual clean-up events at Matadero & Adobe Creek trash hot spots	NA	700	51.6

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

Consistent with MRP Provision C.10.d (i), the City of Palo Alto 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 City of Palo Alto 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 robust baseline load.

6.0 IMPLEMENTATION SCHEDULE

Implementation of enhanced trash control measures by the City of Palo Alto 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 City of Palo Alto'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 City of Palo Alto may chose 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 Palo Alto's annual reporting process.

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

Trash Control Measure	Beginning Date of Implementation
Single-use Carryout Plastic Bag Ordinance (CR-1)	September 18, 2009
Polystyrene Foam Food Service Ware Ban (CR-2)	April 22, 2010
Public Education and Outreach Programs (CR-3)	December 2009
Activities to Reduce Trash from Uncovered Loads (CR-4)	Pre-MRP
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Pre-MRP
Enhanced Street Sweeping (QF-2)	Pre-MRP
Full-capture Treatment Devices (QF-5)	October 2012
Litter Booms (Partial-capture Treatment Device) (QF-3c)	June 2009
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	May 2010

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of San Jose

City of San Jose

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

City of San José
200 E. Santa Clara Street, San José, CA 95113
In compliance with Provisions C.10.a(i) and C.10.a(ii) of Order R2-2009-0074

CITY OF SAN JOSE
CAPITAL OF SILICON VALLEY

1/27/12

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CITY OF SAN JOSÉ
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:

NAPP FUKUDA
Acting Deputy Director
Environmental Services
Watershed Protection

Date: January 27, 2012

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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 City of San José 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 San José's annual reporting process.

The San José City Council maintains discretion over the level of expenditures for control measures and service level implementation in accordance with the City's annual budgeting process, City Charter, and San José Municipal Code. Funding and direction for on-going implementation level and establishment of new control measures as outlined in this Plan are subject to annual appropriation by San José City Council and other Policy actions as needed. Inclusion in this Plan does not obligate the City to implementation of a proposed action. Any changes from the proposed implementation level or adjustments to the Plan will be reported in the annual reporting process.

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 City of San José 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 by 2014). 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 the 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 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 (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 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.

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 City of San José 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 San José'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
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
Quantification Formulas
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)

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 Generation 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 City of San José's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of San José 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 City of San José. 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 San José'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 City of San José is located in Santa Clara County, and has a jurisdictional area of 114,511 acres. According to the 2010 Census, it has a population of 945,942, with a population density of 5,256.2 people per square mile, and average household size of 3.09. Of the 945,942 who call the City of San José home, 24.8% are under the age of 18, 9.5% are between 18 and 24, 31.1% are between 25 and 44, 24.5% are between 45 and 65, and 10.1% are 65 or older.

Companies such as Cisco Systems, IBM, eBay, Hitachi, Xilinx, Sanmina-SCI, and Adobe Systems are located in the City of San José. The median household income was $70,243 in 2000[1].

[1] From the 2000 Census. The median household income for the City of San José from the 2010 Census is not currently available.

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 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 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.

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

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

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 City of San José. The City of San José's jurisdictional areas includes all urban land areas within the City of San José 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;
- 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 San José'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 San José are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the City of San José 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	7,043	6,238	10.6
Low Density Residential	41,085	39,452	66.8
Rural Residential	2,039	1,592	2.7
Commercial and Services/ Heavy, Light and Other Industrial	9,821	5,764	9.8
Retail and Wholesale	3,708	2,680	4.5
K-12 Schools	3,338	1,661	2.8
Urban Parks	3,931	1,674	2.8
TOTAL	**70,965**	**59,061**	**100%**

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 San José 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 San José 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 San José 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 City of San José's street sweeping program includes four routes with four different sweeping frequencies. The residential route (RSS) sweeping frequency is once a month and includes most

residential streets. The arterial route (ACB) sweeping frequency is twice a month, and includes most arterial roads. The north business district route (NBD) sweeping frequency is once per week and includes many arterial roads and streets around the downtown area. The central business district route (CBD) sweeping frequency is twice a week and includes most of the downtown area. For RSS and ACB routes, there is no difference between baseline and current street sweeping. For the NBD route, the baseline street sweeping frequency is twice per month through non-retail areas. For the CBD route, the baseline street sweeping frequency is once per week through retail areas, and twice per month through non-retail areas. Parking enforcement signs for street sweeping exist on many residential streets and some arterial roads. Parking enforcement equivalent exists on approximately half of the CBD and NBD routes, and does not exist on the RSS or ACB routes. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of San José, 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 City of San José 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 City of San José owns and maintains 25 stormwater pump stations. Of these stations, 13 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 City of San José 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. Based on this calculation the City of San José's estimated baseline trash load is **972 cubic yards/year.** The preliminary annual trash baseline load for the City of San José is presented in Table 2-3. Preliminary baseline trash loading rates are presented in Figure 2-1a though Figure 2-1e 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 San José.

Category	Annual Load (gallons)	Annual Load (cubic yards)
Preliminary Generation Trash Load	302,474	1,743

Load Removed via Baseline Street Sweeping	122,060	703
Load Removed via Baseline Storm Drain Inlet Maintenance	9,021	52
Load Removed via Baseline Stormwater Pump Station Maintenance	2,721	16
Preliminary Trash Baseline Load	168,672	972

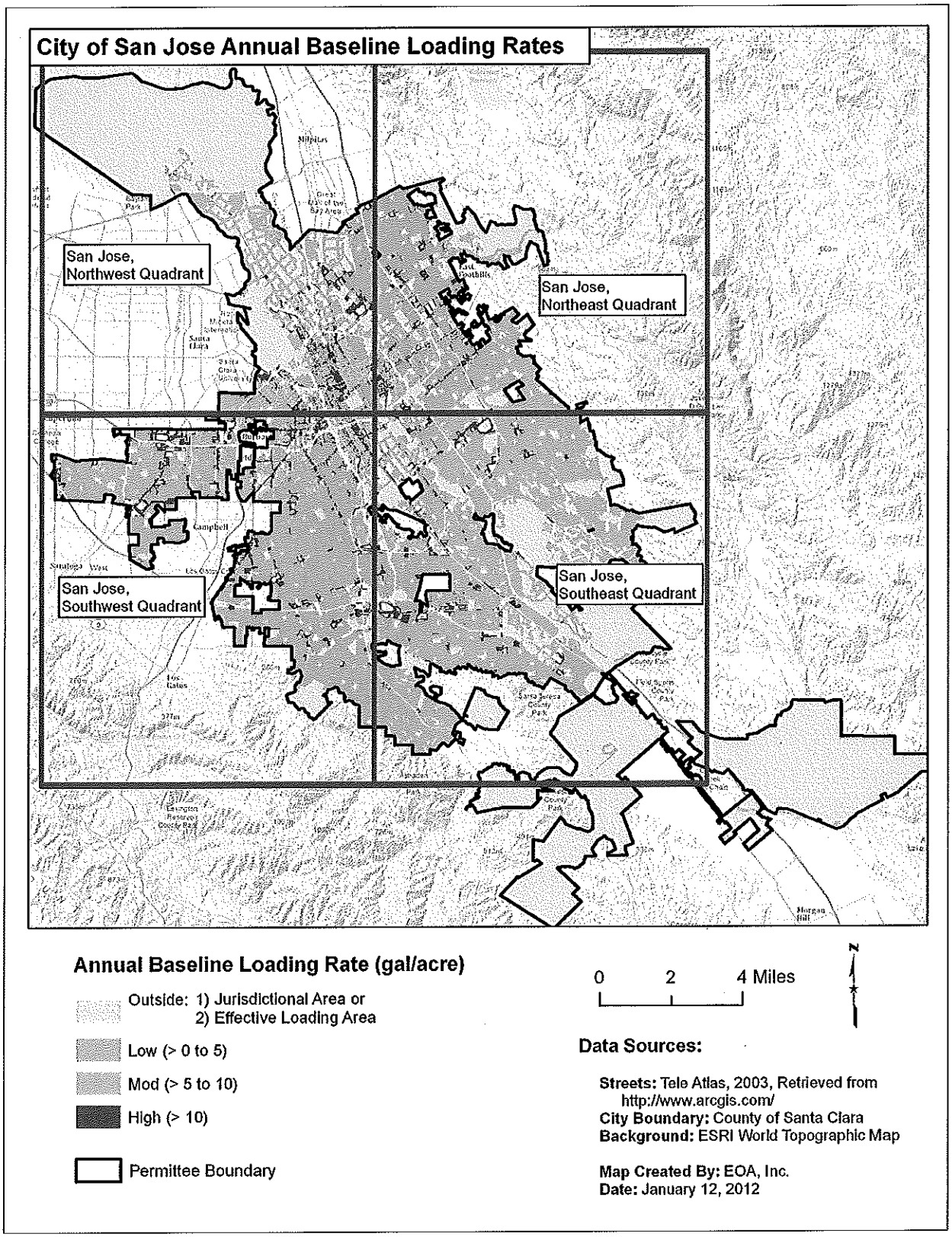

Figure 2-1a: Estimated trash baseline loading rates for geographical areas in the City of San José.

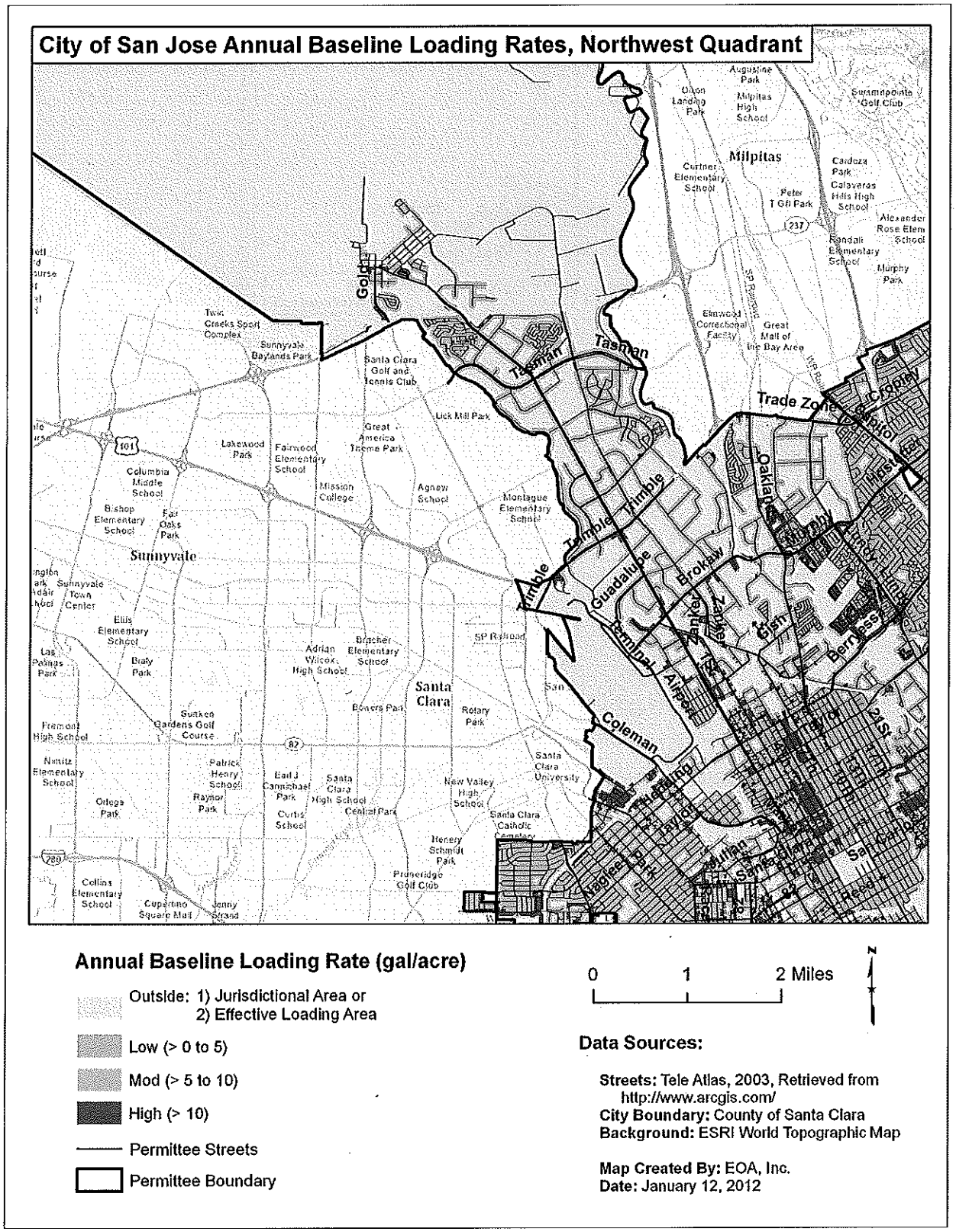

Figure 2-1b: Estimated trash baseline loading rates for geographical areas in the City of San José's Northwest Quadrant.

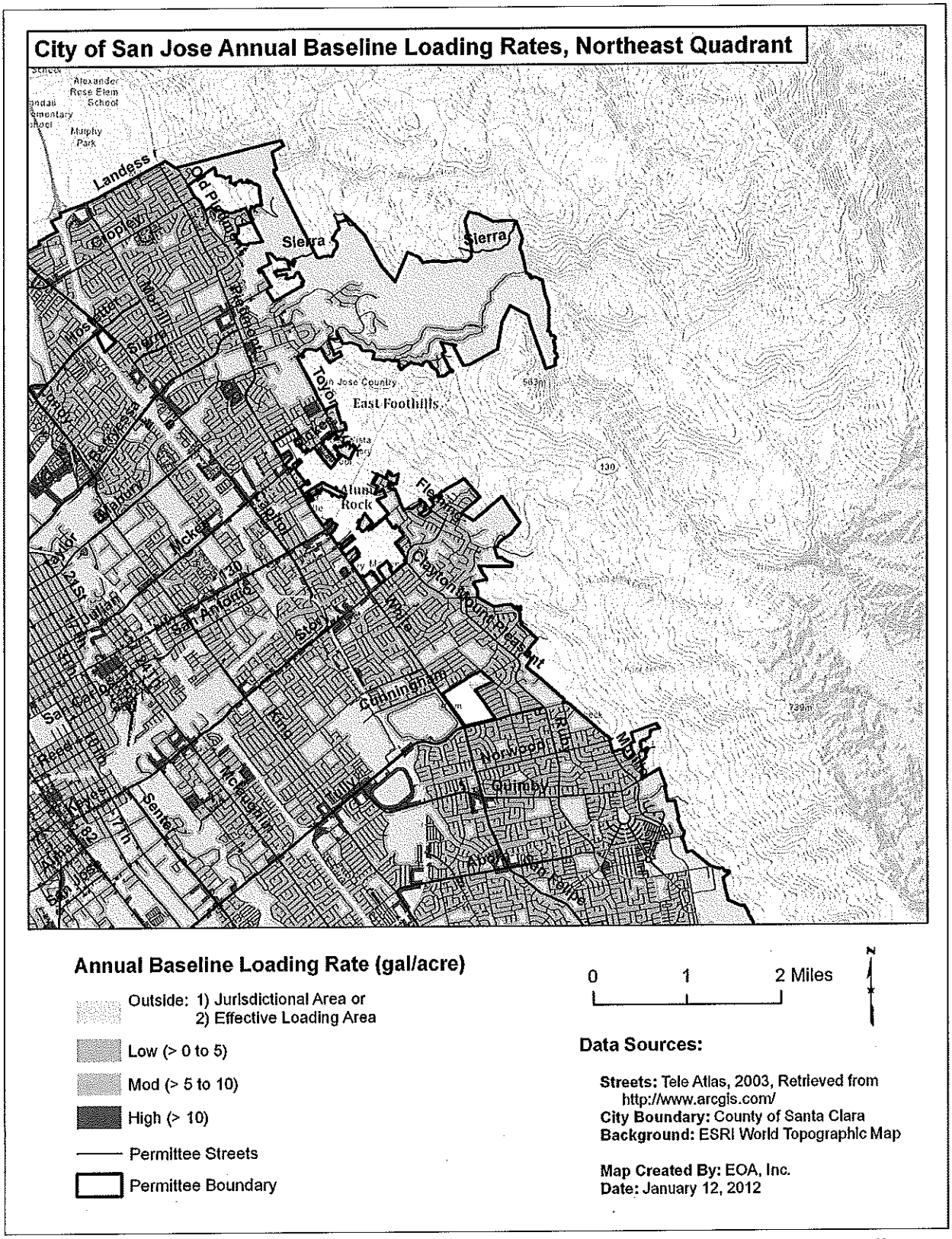

Figure 2-1c: Estimated trash baseline loading rates for geographical areas in the City of San José's Northeast Quadrant.

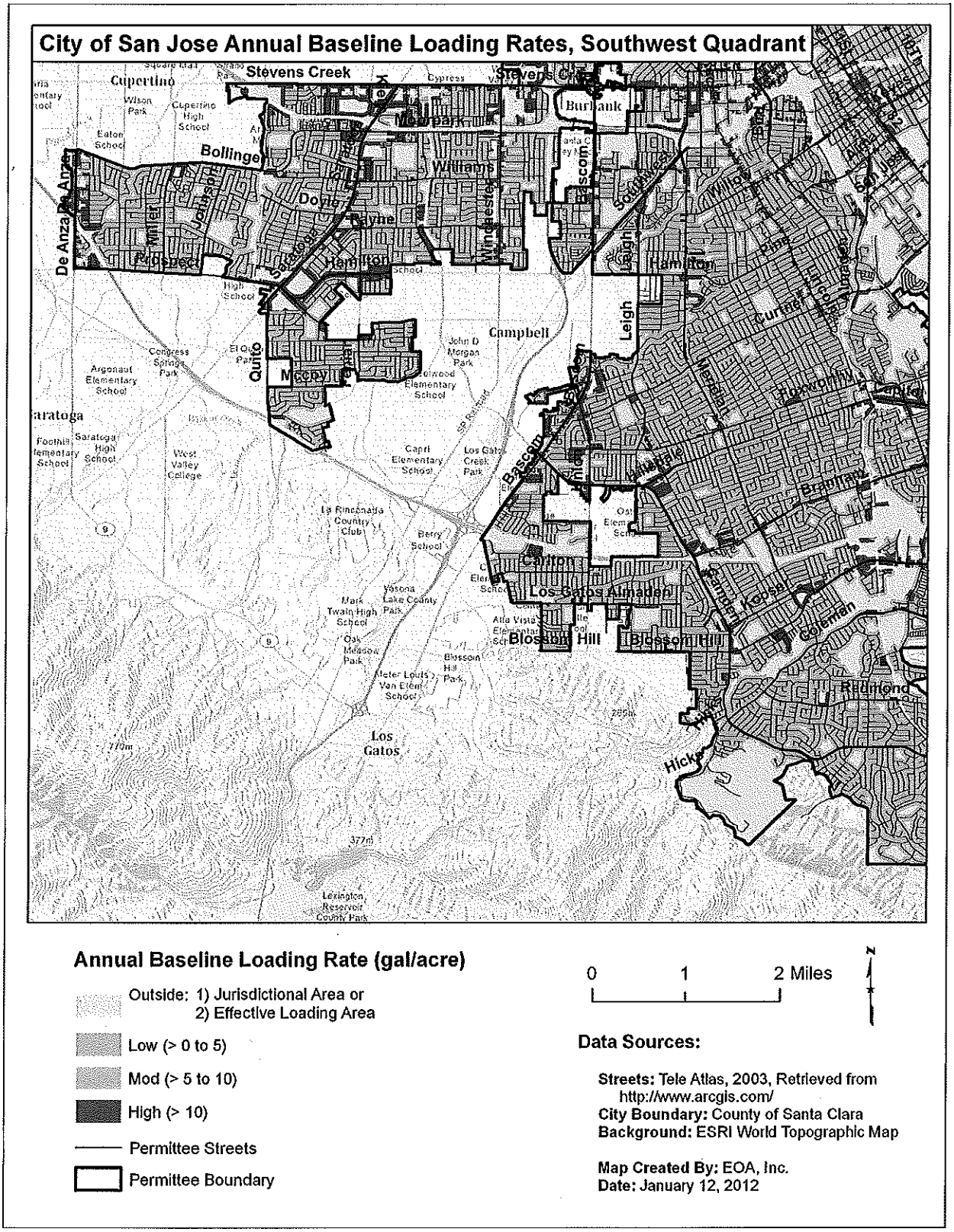

Figure 2-1d: Estimated trash baseline loading rates for geographical areas in the City of San José's Southwest Quadrant.

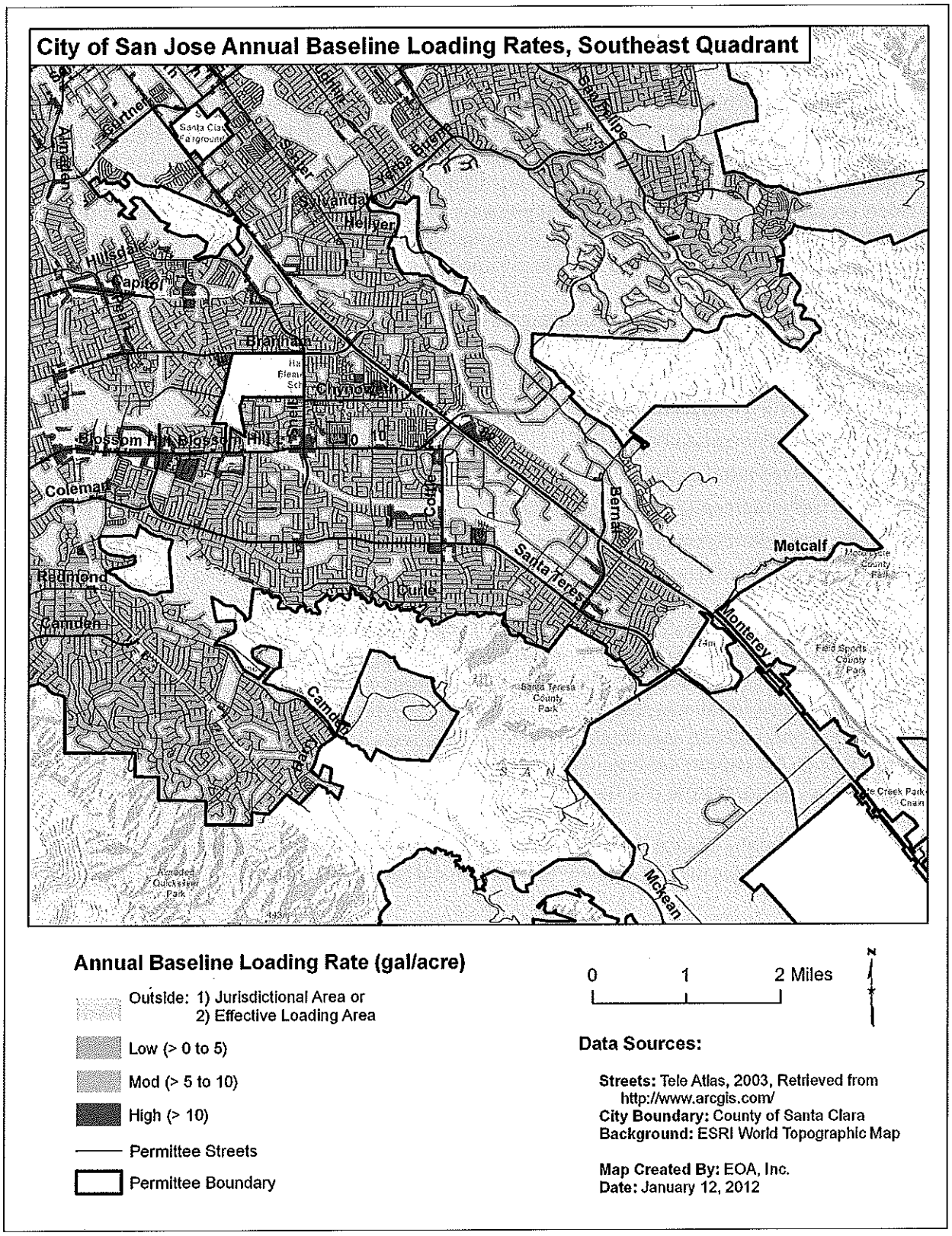

Figure 2-1e: Estimated trash baseline loading rates for geographical areas in the City of San José's Southeast Quadrant.

3.0 LOAD REDUCTION CALCULATION PROCESS

Using the guiding principles and assumptions described BASMAA (2012a), 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 2012a) and is briefly summarized in this section. The process takes 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, 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, 3 (on-land cleanup) 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 (street sweeping)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 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 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.[2] 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).

[2] 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-7: Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (Area-wide)

As these control measures are implemented, load reduction estimates can be calculated <u>in-parallel</u> 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 City of San José. 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 City of San José include those listed in Table 4-1.

Table 4-1: Trash control measures that will be implemented by City of San José 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
Activities to Reduce Trash from Uncovered Loads
Anti-Littering and Illegal Dumping Enforcement Activities
Improved Trash Bin/Container Management (Municipally or Privately-Controlled)
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 Ordinance

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 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 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

The City of San José adopted a "Bring Your Own Bag" ordinance prohibiting the distribution of single-use carryout plastic bags in December 2010. Effective January 1, 2012, the ordinance applies to all grocery and retail stores located within or doing business within the City limits. It prohibits single-use plastic bags and allows for the sale of recycled content paper bags for a minimum price. The minimum price for each paper bag is currently set at 10 cents and will increase to 25 cents beginning January 1, 2014. Public eating establishments as well as non-profit charitable reusers are exempt from the ordinance; protective bags without handles, such as those used to hold produce or bulk items, are allowed under the ordinance. Supplemental Food Program or WIC Program transactions can be exempt from the costs of recycled paper bags at checkout until January 1, 2014.

Implementation of San José's Bring Your Own Bag ordinance was accompanied by significant outreach to consumers as well as businesses. Several notification letters as well as retailer Frequently Asked Questions, customer factsheet, ordinance brochure, and supplier lists for recycled paper bag and reusable bag suppliers were sent to all retailers. Retailer outreach was also conducted through vendor education meetings, retail property managers, and chambers of commerce. Posters, tent-cards, and window clings were developed and provided to retailers to utilize to educate their customers. Outreach to the general public included distributing reusable bags and promotion items that included a 'Bring reusable bags' reminders such as dry erase grocery lists at community events. Paid advertising included grocery cart ads, participation in a regional radio campaign through the Bay Area Recycling Outreach Coalition (BayROC) with additional radio spots purchased by the City of San José, print advertisements, bus advertising, press events, and social media. In addition, a hotline and email were set up to respond to retailer and consumer questions.

Compliance with the ordinance will be verified on a complaint basis. Complaints are received by a live person during business hours and a recording outside of business hours. Each complaint is investigated by the City; possible enforcement action includes fines up to $1,000.

Reduction from Implementing Control Measure

The City of San José will receive a 12 percent reduction credit for implementing specific enhanced control measures described in Enhanced Level of Implementation section above. The 12 percent reduction credit will be applied to the City of San José'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 in Table 5-1A. The total percent of credit for 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.

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

Effective May 1, 2010, the City of San José adopted a policy prohibiting food vendors from distributing polystyrene foam food and beverage ware at large events on Permitee-owned property. The City established the Zero Waste Events program to support waste prevention and reduction, recycling, and composting efforts at events held in the City of San José. For events with 1,000 attendees of more, the Zero Waste Events team collects and reviews materials management plans, loans eco-station waste diversion supplies, and verifies compliance with City solid waste policies at the event. For events that target a high level of waste diversion the Green Events team can provide acknowledgement with a Green Event certification. The percent trash reduction from MS4s as a result of implementing a polystyrene foam food service ware ordinance will be reported in the Annual Report submitted each September.

In March 2012, the City will also be considering an amendment to the City's Environmental Preferable Procurement Policy to formalize the current Purchasing practice to not stock or provide EPS products and to expand the prohibition to cover vendors, Permitee-sponsored events, and other users of City facilities.

The City is considering actions to reduce polystyrene foam food service ware litter from food service vendors. In 2011, the City initiated its Green-To-Go stakeholder process to gather input and feedback on policy alternatives for reducing litter from polystyrene foam food service ware from key stakeholders including restaurant operators, non-governmental organizations, plastics and container manufacturer industry, and the general public. The City also continues to work towards countywide and statewide actions, and explore options for moving the City toward actions to reduce polystyrene foam food ware litter. Timing of actions based on this additional research and analysis, could support the City's efforts towards reaching the Permit's 70% trash reduction goal by 2017.

Percent Reduction from Enhancements

The City of San José will receive a 2 percent reduction credit for the adopted policy prohibiting the distribution of polystyrene foam food and beverage ware at Permittee-sponsored events or on Permitee-owned property, as described in *Enhanced Level of Implementation* section above. The 2 percent reduction credit will be applied to the City of San José's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5 in Table 5-1A.

If after further consideration the City of San José implements a citywide prohibition of polystyrene foam food ware or other action to eliminate expanded polystyrene foam food ware litter, as described in *Enhanced Level of Implementation* section above, it will receive a 6 percent reduction credit. The 6 percent reduction credit will be applied to the City of San José's baseline trash load and would support the City's efforts towards compliance with the 70% trash load reduction goal in MRP provision C.10 should it be implemented by 2017.

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 San José implemented the following public education and outreach control measures prior to the effective date of the MRP. The City participates in a multi-media county-wide outreach and education campaign called Watershed Watch, as part of SCVURPPPP, an association of thirteen cities and towns in the Santa Clara Valley, the County of Santa Clara, and the Santa Clara Valley Water District. The City also conducts outreach at public events targeted at youth and the general public. The City individually and as part of SCVURPPP has promoted messages related to a variety of stormwater pollutants such as motor oil, pesticides, mercury, and pet waste. These control measures are considered baseline because either the outreach message was not specifically related to trash reduction or was a time specific campaign. 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 City of San José will implement the following public education and outreach control measures prior to July 1, 2014.

Advertising Campaigns –

BASMAA Youth Outreach Campaign (Regional)

Through participation and funding of the regional BASMAA Youth Outreach Campaign the City of San José will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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. A brief description of the Campaign activities is provided below:

- Raising Awareness: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the City of San José 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Outreach to School-age Children or Youth –

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide ZunZun Program the City of San José plans to continue 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 includes 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.

Creeks Come to Class and Don Edwards Environmental Education Center Partnership (Local)

In addition to the Zun Zun assemblies, the City of San José will continue to implement its local stormwater education programs, the Creeks Come to Class presentations and the field trip program at the Don Edwards San Francisco Bay Wildlife Refuge. For the Creeks Come to Class program a San José Park Rangers visit elementary school classrooms and conduct activities focused on preventing pollution to our neighborhood creeks, including litter and trash pollution. Park Rangers use a model of a watershed to demonstrate how litter and other pollution can travel through the stormdrain system from neighborhoods to local creeks. The Park Rangers also teach about the importance of the riparian habitat and what children can do to protect it. The City also has a partnership the Don Edwards San Francisco Bay National Wildlife Refuge Environmental Education Center in Alviso (EEC) to provide fieldtrip opportunities for middle and high school students. The field trip program includes classroom presentations, teacher-led activities and a field trip to the EEC, which teach students about water use and watershed stewardship, including prevention of pollution like litter that can harm wildlife and water quality in the San Francisco Bay.

Media Relations (Use of Free Media) –

BASMAA Regional Media Relations Project (Regional)

Through participation and funding of the BASMAA Regional Media Relations Project, the City of San José plans to continue 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 press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

Community Outreach Events –

The City of San José will organize and participate in neighborhood outreach events focused on litter prevention and other trash reduction actions in high priority communities where litter is prevalent. The City of San José Anti-Litter Program attends community festivals and resource fairs throughout the year encourage community clean-up of trash in the environment and offering supplies. In addition starting in FY 09-10 the City has undertaken a Bring Your Own Bag education campaign whereby City Staff attend community events and distribute reusable bags, collect pledges to prevent litter with reusable products, and educate the public about the impacts of litter on the environment. The City outreach events and programs work with community partners and festivals, in order to maximize the reach of the messages in the community. The complete list of outreach events attended by the City to promote litter prevention messages will be reported in the Annual Report submitted each September to the Water Board.

Percent Reduction from Enhancements

The City of San José will receive a total of 8 percent reduction credit for implementing specific enhanced control measures described in *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 San José'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 5 in Table 5-1A.

CR-4: Reduction of Trash from Uncovered Loads

Although it is currently illegal to operate a vehicle that is improperly covered and which its' contents escapes[3], vehicles remain an important 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 or private landfill and transfer station operators to educate waste haulers on securing loads and/or to enhance enforcement of existing regulations.

Baseline Level of Implementation

The baseline trash load described in Section 2.0, assumes that prior to adoption of the MRP the City of San José 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 San José continues to implement the following enhanced control measures to reduce trash from vehicles with uncovered loads prior to July 1, 2014.

Require Municipal Trash Haulers to Cover Loads – The City of San José has included language in **Title 9.10.550 of the San José Municipal Code**, and in hauling service contracts, that requires contracted trash, recycling, commercial, and construction debris haulers to collect and transport material in such a way that no material spills out of the container or collection vehicle. Any spill or material blown out of the collecting or transporting container or vehicle must be immediately cleaned up.

Implement an Enhanced Enforcement Program for Vehicles with Uncovered Loads – The City of San José is considering establishing an enhanced enforcement program for vehicles with uncovered loads. This enhanced enforcement program may include the following:

- Enforcement of the City's ordinance prohibiting the transportation of trash or debris without a cover;
- Citations and fines for vehicles spotted on roads in the City's jurisdictional area with uncovered loads; or,
- Distribution of tarps for a fee to haulers or other vehicles that arrive at landfills and transfer stations with uncovered loads. Each subsequent visit without a tarp will result in an additional fee for a tarp, prompting haulers to bring their own tarp.

[3] 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 loads 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.

Percent Reduction from Enhancements

The City will receive a 1 percent reduction for language included in hauling service contracts that requires contracted trash, recycling, commercial, and construction to collect and transport material in such a way that no material spills out, as described in *Enhanced Level of Implementation* section above. The 1 percent reduction credit will be applied to the City of San José's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5 in Table 5-1A.

If the City moves forward with the implementation of an enhanced enforcement program for vehicles with uncovered loads the City would receive a 4 percent reduction, as described in the *Enhanced Level of Implementation* section above. The 4 percent reduction credit would be applied to the City of San José's baseline trash load and would be intended to support the City's efforts towards compliance with the 70% trash load reduction goal in MRP provision C.10 and would be implemented by 2017. A summary of all load reductions anticipated through existing and proposed trash control measures are included in Section 5 in Table 5-1B.

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, code enforcement, or public works/environmental services 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 San José has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow. The City of San José has a well established Anti-Litter Program which provides supplies for volunteer litter cleanups and responds to illegal dumpsites reported by the community, and works to abate illegal dumpsites on a limited basis.

Enhanced Level of Implementation

The City of San José is considering establishing and implementing an active anti-littering and illegal dumping enforcement program. If implemented, the City intends to develop an enforcement program that would investigate complaints of illegal dumping, collect evidence (e.g., names, addresses, etc.) from illegal dump sites in an attempt to identify offenders, and proceed with enforcement procedures including citations (as warranted).

Percent Reduction from Enhancements

If the City moves forward with implementation of an enhanced enforcement program, the City would receive a 2 percent reduction, as described in the *Enhanced Level of Implementation* section above. The 2 percent reduction credit would be applied to the City of San José's baseline trash load and support the City's efforts towards compliance with the 70% trash load reduction goal in MRP provision C.10 if implemented by 2017. A summary of all load reductions anticipated through existing and proposed trash control measures are included in Section 5 in Table 5-1B.

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 for placing incidental trash generated in public spaces that provides people with a convenient and appropriate place to dispose of trash. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of private bins/containers and public containers 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 San José has not implemented enhanced trash bin/container management practices prior to effective date of the MRP.

Enhanced Level of Implementation

The City of San José proposes to implement the following improved trash bin/container management practices prior to July 1, 2014.

Ordinance for Appropriate Trash Services for Private Properties – The City of San José has included language in **Title 9.10.530 and 9.10.540 of the San José Municipal Code** that grants the City authority to require adequate service level of trash collection and prohibits overfilled and overflowing rubbish containers. The City also requires its commercial service provider to evaluate the service level of each commercial customer to ensure adequate service level. When solid waste service level is deemed to be insufficient, the contractor shall adjust the service level appropriately and provide the City with a report of this action. The administrative framework for these actions is memorialized in the standard contract compliance documentation submitted to the City per the agreement with its solid waste service provider.

Successful Establishment of Business Improvement Districts with Trash Reduction Control Measures – The City supported the successful establishment of the Downtown San José Business Improvement District (BID)[4] . The Downtown San José BID, among its enhanced services, incorporates sidewalk sweeping, litter pickup and maintenance of public area trash

[4] BIDs are districts or areas in central cities in which the private sector delivers services for revitalization beyond what the local government can reasonably be expected to provide. The property or business owner within the BID pays a special tax or assessment to cover the cost of services. Cities provide some oversight but the BID controls its finances.

containers at least once per week in this retail/wholesale and commercial area. An area-specific credit of 50% will be given for the BID successfully established within a Permittee's jurisdictional area that has specific trash reduction language in the agreement. For the Downtown San José BID, the area specific credit accounts for a 0.6 percent reduction.

Identification and Enforcement of Adequate Private Trash Service– The City of San José is considering establishing an enforcement program for ensuring adequate trash collection services. The program will identify businesses and/or households that have inadequate trash service (i.e., insufficient trash collection or use of bins which are too small), and require the businesses/households to sufficiently remedy the issue with appropriate sizing of containers or frequency of service.

Percent Reduction from Enhancements

The City of San José will receive a 1 percent reduction credit for having included language in the municipal code requiring appropriate trash services for private properties, as described in the *Enhanced Level of Implementation* section above. The existing Downtown San José Business Improvement District's enhanced trash management actions will result in the estimated cleanup of 5.2 cubic yards annually. This volume will account for a 0.6 percent reduction. In total, the 1.6 percent reduction will be applied to the City of San José's baseline trash load. This percent reduction is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5 in Table 5-1A.

If the City moves forward with implementation of an enforcement program for ensuring adequate trash collection services the City would receive a 2 percent reduction credit, as described in the *Enhanced Level of Implementation* section above. The 2 percent reduction credit would be applied to the City of San José's baseline trash load and support the City's efforts towards compliance with the 70% trash load reduction goal in MRP provision C.10 if implemented by 2017. A summary of all load reductions anticipated through existing and proposed trash control measures are included in Section 5 in Table 5-1B.

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 may be conducted as single-day events or throughout the year.

Baseline Level of Implementation

The City of San José implemented the following on-land cleanup activities prior to the effective date of the MRP. The City has established an Anti-Litter Program which provides volunteer opportunities for individuals and groups, as well as organizing the annual Great American Litter Pick-Up. Municipal crews also remove litter from parks, streets and City-owned properties. These control measures are considered baseline because they were accounted for in the preliminary trash generation rates established through the BASMAA *Baseline Trash Loading Rates Project*. New or enhanced actions that began or are planned to begin after the effective date of the MRP are described under the next section.

Enhanced Level of Implementation

Prior to July 1, 2014, the City of San José will conduct or coordinate the following new or enhanced on-land trash cleanup activities listed below. 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. For on-going cleanup programs that existed prior to the MRP adoption, the City of San José will quantify only the volume of trash removed that exceeds the average volume of trash removed by that same program prior to the adoption of the MRP.

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.

Enhanced or On-Going Permittee-led On-land Cleanups:

- ***Illegal Dump Site Response and Abatement:*** The San Jose Department of Transportation operated a complaint truck that responds to and removes items abandoned in the public right of way, including alleyways. Currently this program is intended to continue at its existing level.

- ***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. Currently the largest event, coordinated by the Anti-Litter Program, is the annual Great

American Litter Pickup Event. The Anti-Litter Program continues to promote and expand the volunteer base of the Great American Litter Pickup Event each year.

Enhanced or On-Going Volunteer-led On-land Cleanups:

- ***Single-day Efforts:*** Anti Litter Program operates a 'Shed' Program which allows volunteer groups and organizations to borrow supplies from the Anti-Litter Program to organize a litter cleanup event at the location of their choice. This program can flexibly accommodate the participation of a broad range of volunteer groups, from the Boy Scouts to a company day-of-service.

- ***Year-Round Efforts:*** Anti Litter Program coordinates the broad Pick-Up San José Program. Individual residents joint the Pick-Up San Jose program and are provided supplies to remove litter in their neighborhood and nearby litter hot spots. The Anti-Litter Program continues to promote and recruit new volunteers to this program.

Percent Reduction from Enhancements

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of implementing on-land trash cleanups is 135.15 cubic yards. This volume will account for a 13.9% 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 San José. Both values provided within this section are included in Trash Load Reduction Summary in Section 5 in Table 5-1A. The enhanced volume of trash collected reported above was the result of an increased number of volunteers participating at litter cleanup events since the adoption of the MRP. The volume was quantified by calculating the difference between the average volume of trash collected from the Anti-Litter Program volunteer events annually for four years prior to the adoption of the MRP and after the adoption of the MRP.

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 trash load reduction tracking method (BASMAA 2012a) establishes a frequency ceiling for a baseline street sweeping program; these frequencies are 1x/week for retail land uses and 1x/month for all other land uses. This baseline street sweeping program is incorporated into the baseline trash load described in Section 2.0. Municipalities whose existing street sweeping programs sweep more frequently than this baseline may account for trash reductions attributable to the frequencies above this ceiling via the trash load reduction tracking method.

The City of San José's baseline street sweeping program includes multiple sweeper routes, conducted in-house and contractually, that serve different land uses at different frequencies. A general summary of these routes, frequencies, and land uses is provided in Table QF-3-1 and displayed in Figure QF-3-1. Some of these frequencies exceed the baseline described above; reductions due to existing sweeping that exceeds the baseline level are referred to as existing enhanced street sweeping and described in more detail in the "Percent Reduction from Enhancements" section.

Table QF-3-1: Existing street sweeping program in the City of San José.

Route	*Frequency*	*Predominant Land Use*
Residential (RSS)	1x/month	Residential
Arterials and Commercial Streets and Bikeways (ACB)	2x/month	Retail & Industrial/Commercial
Neighborhood Business Districts (NBD)	1x/week	Retail
Central Business District (CBD)	2x/week	Retail

Parking enforcement control measures or their equivalency serve to increase sweeper efficiency. Traditional parking enforcement includes signage on streets indicating sweeping schedules and 'no-parking is allowed' during scheduled street sweeping and enforcement of parking prohibitions via citations. Parking enforcement equivalency may be achieved due to the timing of sweeping (no parked cars), no parking being allowed, or the lack cars parked on street segments. As described in the Section 2.0, many residential and some arterial streets have parking enforcement signs. It is assumed that approximately half of the NBD and CBD routes have parking enforcement equivalency due to off hours sweeping. This information along with the data for signed streets will be re-verified and, if necessary, updated in the City of San José's next reporting period.

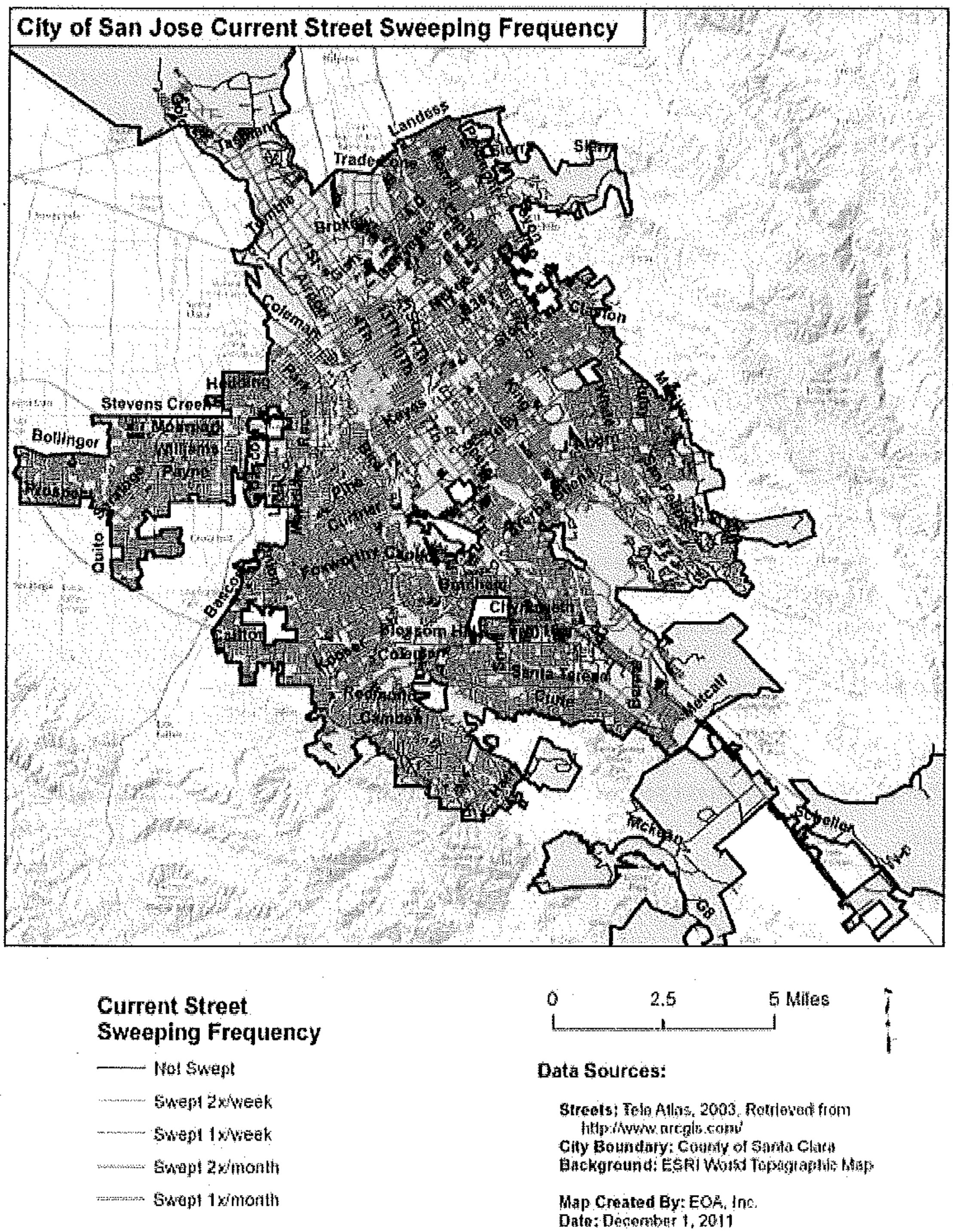

Figure QF-3-1. Current street sweeping frequencies in the City of San José.

Enhanced Level of Implementation

Enhancements to street sweeping frequencies and parking enforcement (or equivalent measures) will be used to calculate loads reduced from enhanced street sweeping, consistent with the trash load reduction tracking method (BASMAA 2012a). The City of San José is considering adding parking restrictions to 40 additional curb miles (CM) within residential neighborhoods as part of enhanced levels of implementation.

Percent Reduction from Enhancements

Current sweeping by the City of San José that exceeds the baseline frequencies results in a 1% reduction, and an estimated of 8.3 cubic yards of trash removed. A summary of all load reductions anticipated through existing trash control measures are included in Section 5 in Table 5-1A.

If implemented, the enhancement of the street sweeping program to include an additional 40 CM would result in an estimated reduction of 6.5 cubic yards. As described in Trash Load Reduction Summary Table 5-1B, this volume is equal to approximately a 0.7 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 San José. The .07 percent reduction would be applied to the City of San José's baseline trash load and support the City's efforts towards compliance with the 70% trash load reduction goal in MRP provision C.10 if implemented by 2017. A summary of all load reductions anticipated through existing and proposed trash control measures are included in Section 5 in Table 5-1B.

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.

The City of San José currently does not have any such devices installed.

Enhanced Level of Implementation

The City proposes to install up to 400 partial-capture treatment devices (automated retractable screens over storm inlets) in residential areas by July 1, 2014. 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 would be reduced as a result of the proposed implementation of partial-capture treatment devices in residential land uses would be 9.9 cubic yards. This volume would be 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 City of San José. Both values provided within this section are included in Trash Load Reduction Summary in Section 5 in Table 5-1B.

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 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 Pemittees 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 nine continuous deflection separation devices have been or will be installed in the City of San José prior to July 1, 2014. Two devices were installed in 2011 and up to seven additional units are scheduled for installation in 2012. A list of these full-capture devices is included in Table QF-6-1. All devices listed within this table are enhanced trash control measures. The estimated reduction from these units is 29.5 cubic yards. This volume is equal to approximately a 3 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 San José. Table QF-6-1 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 2012a).

A total of 118 connector pipe screens have been installed in the City of San José. The locations of these units are included in Table QF-6-2. The actual locations are under verification, and if needed, update locations will be reported with City of San José's next reporting period. The estimated reduction from these units is 7.4 cubic yards. This volume is equal to approximately a 0.8 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 San José. 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 36.9 cubic yards. This volume is equal to approximately a 3.8 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 San José. Both values provided within this section are included in Trash Load Reduction Summary in Section 5 in Table 5-1B.

Table QF-5-1: Continuous deflective separators trash full-capture treatment devices within the jurisdictional boundaries of the City of San José that are planned for installation by July 1, 2014[5].

Device ID	Public or Private	Device Name	Location (Cross Streets)	Installation Date/Anticipated Installation Date	Estimated Total Area Treated (Acres)	Trash Load Reduced (Cubic Yards)
1	Public	Wool Creek	Rock Springs Drive	Installed Summer 2011	48	1.3
2	Public	Bulldog Boulevard	24th Street	Installed Summer 2011	207	9.0
3	Public	Virginia Street	Palm Street	Planned for Summer 2012	223	11.7
4	Public	Woodborough Drive	Woodborough Court	Planned for Summer 2012	105	3.3
5	Public	William Street Park	East Williams Street	Planned for Summer 2012	74	0.2
6	Public	7th Street	Phelan Avenue	Planned for Summer 2012	178	2.5
7	Public	Balbach Street	Almaden Avenue	Planned for Summer 2012	38	1.6
8	Public	Pierce Avenue	Almaden Avenue	Planned for Summer 2012	58	3.0
9	Public	South Sunset Avenue	Shortridge Avenue	Planned for Summer 2012	173	4.1

[5] Units 3-9 are proposed units and thus subject to change. Information updates regarding these devices will be provided via Annual Reports submitted by the City of San José.

Table QF-5-2: Connector pipe screens trash full-capture treatment devices within the jurisdictional boundaries of the City of San José that are planned for installation by July 1, 2014.

City Inlet ID	BASMAA Device ID	Public or Private	Location	Installation Date/Anticipated Installation Date	Total Area Treated (Acres)
5270	SJ01	Public	End of Dobbin Drive in cul-de-sac, (northeastern-most catch basin)	November 2007	1.97 (estimated)
17588	SJ02	Public	End of Dobbin Drive in cul-de-sac, (northwestern-most catch basin)	November 2007	1.97 (estimated)
5269	SJ03	Public	End of Dobbin Drive in cul-de-sac, southside	November 2007	1.97 (estimated)
5275	SJ04	Public	Dobbin Drive about 325 ft east of SJ05, southside (near entrance to Chong's Produce)	November 2007	1.97 (estimated)
5278	SJ05	Public	Dobbin Drive about 750 ft east of North King Rd, northside (near entrance to Eastern – the Furniture Company)	November 2007	1.97 (estimated)
5279	SJ06	Public	Corner of North King Rd and Dobbin Dr (on Dobbin Drive, northside)	November 2007	1.97 (estimated)
5363	SJ07	Public	In front of 697 Lenfest Road (Jalimex Foods Corporation), about 400 ft south of Maybury Road, Westside	November 2007	1.97 (estimated)
5367	SJ08	Public	Lenfest Road, about 175 ft south of Nicora Avenue, Westside	November 2007	1.97 (estimated)
5380	SJ09	Public	Las Plumas and Nipper avenues (on Las Plumas Avenue, northside), western-most of the two catch basins	November 2007	1.97 (estimated)
5379	SJ10	Public	Las Plumas and Nipper avenues (on Las Plumas Avenue, northside), about 50 ft east of SJ09	November 2007	1.97 (estimated)
5323	SJ11	Public	In front of 551 Avalani Ave., at bend of the road, northside	November 2007	1.97 (estimated)
5322	SJ12	Public	In front of 589 Avalani Ave. (small apartment building), near bend of the road, southside	November 2007	1.97 (estimated)
9883	SJ13	Public	NE corner of Alum Rock and North Sunset avenues	June 2008	1.97 (estimated)
29592	SJ14	Public	About 75 feet south of the corner of Mervyn's Way and South Capitol Avenue, near East Capitol Expressway entrance road (adjacent to Mt Hamilton CTA on South Capitol Avenue)	June 2008	1.97 (estimated)

City Inlet ID	BASMAA Device ID	Public or Private	Location	Installation Date/Anticipated Installation Date	Total Area Treated (Acres)
10614	SJ15	Public	Corner of Leeward Drive and north entrance to Dumont Circle (on Dumont Circle, northside)	November 2007	1.97 (estimated)
10637	SJ16	Public	Leeward Drive, about 250 ft south of north entrance to Dumont Circle, eastside	November 2007	1.97 (estimated)
10634	SJ17	Public	South of corner of Leeward Drive and Leeward Court (on Leeward Drive, eastside)	November 2007	1.97 (estimated)
10623	SJ18	Public	Corner of Leeward Drive and Arden Way (on Leeward Drive, near street sign), eastside	November 2007	1.97 (estimated)
29636	SJ19	Public	Story Road, adjacent to Home Depot, near main entrance	June 2008	1.97 (estimated)
29619	SJ20	Public	SW corner of Story Road and South White Road (on Story Road, adjacent to Burger King)	June 2008	1.97 (estimated)
10861	SJ21	Public	NE corner of Story Road and South White Road (on Story road, adjacent to 76 gas station)	November 2007	1.97 (estimated)
10776	SJ22	Public	NW corner of Murtha and Farringdon drives (on Murtha Drive)	June 2008	1.97 (estimated)
10778	SJ23	Public	SE corner of Murtha and Farringdon drives (on Farringdon Drive)	June 2008	1.97 (estimated)
29634	SJ24	Public	Corner of South White Road and Candler Avenue (on Candler Avenue, near Murtha Drive)	June 2008	1.97 (estimated)
10831	SJ25	Public	Corner of Mount Vista and Mount Polomar drives (on Mount Polomar Drive, under tree, westside)	June 2008	1.97 (estimated)
10830	SJ26	Public	Corner of Mount Vista and Mount Polomar drives, (on Mount Polomar Drive, eastside)	June 2008	1.97 (estimated)
7568	SJ27	Public	Alvin Avenue and Fontaine Road (on Alvin Avenue, near entrance to U.S. Post Office and stop light pole/newspaper stand)	June 2008	1.97 (estimated)
7565	SJ28	Public	Alvin Ave between Fountaine Road and Burdette Drive, eastside	June 2008	1.97 (estimated)
7509	SJ29	Public	Flanigan Drive about 175 ft west of South Kind Road	June 2008	1.97 (estimated)
7557	SJ30	Public	Corner of Tully Road and Seacliff Way (on Tully Road, near street pole adjacent to Huong Lan Sandwiches)	June 2008	1.97 (estimated)
7553	SJ31	Public	NE corner of Tully Road and South King Road (on South King Road, adjacent to Pho Bang)	November 2007	1.97 (estimated)

City Inlet ID	BASMAA Device ID	Public or Private	Location	Installation Date/Anticipated Installation Date	Total Area Treated (Acres)
7537	SJ32	Public	Tully Road between South King Road and Huran Drive, near shopping center sign, southside	November 2007	1.97 (estimated)
7546	SJ33	Public	NE corner of Tully Road and Huran Drive (on Tully Road, near stop light, adjacent to Kragen-O'Reilly Auto Parts)	November 2007	1.97 (estimated)
7520	SJ34	Public	NE corner of Tully Road and Quimby Road (on Tully Road, next to street light, near entrance to shopping center)	November 2007	1.97 (estimated)
18495	SJ35	Public	Corner of Senter Road and Wool Creek Drive (on Wool Creek Drive, adjacent to fire hydrant), northside	March 2011	1.97 (estimated)
12116	SJ36	Public	Santee River Court about 275 ft west of Lone Bluff Way, adjacent to "No Parking" sign, northside	March 2011	1.97 (estimated)
15812	SJ37	Public	Corner of East Capitol Expressway and Tuers Road (on Tuers Road, on one-way entrance road, adjacent to Denny's Restaurant), eastside	March 2011	1.97 (estimated)
7887	SJ38	Public	East Capitol Expressway about 375 ft east of Senter Road, adjacent to baseball field, southside	March 2011	1.97 (estimated)
37465	SJ39	Public	Corner of Tenley Drive and Albemar court (on Tenley Drive), eastside	March 2011	1.97 (estimated)
36128	SJ40	Public	Michaelangelo Drive, about 50 ft west of Evergreen Village Square (in front of Quiznos Sub), northside	March 2011	1.97 (estimated)
34941	SJ41	Public	SE corner of Fontenay Way and Trabuco Court (on Fontenay Way, adjacent to street light)	March 2011	1.97 (estimated)
14600	SJ42	Public	Delta Road between Linkfield and Pinot Blanc ways, about 120 ft west of Pinot Blanc Way, (adjacent to street light and wooden fence), southside	March 2011	1.97 (estimated)
14788	SJ43	Public	Corner of Paseo de Arboles and San Felipe Road (on Paseo de Arboles, adjacent to stop light), southside	March 2011	1.97 (estimated)
32930	SJ44	Public	Corner of Hillstone and Byington drives (on Hillside Drive, adjacent to street light), northside	March 2011	1.97 (estimated)
27007	SJ45	Public	In front of 5845 Scenic Meadow Lane, adjacent to driveway and yellow fire hydrant, westside	April 2011	1.97 (estimated)
30435	SJ46	Public	800 Rue Ferrari	March 2011	1.97 (estimated)
31432	SJ47	Public	Las Colinas Lane about 250 ft west of Great Oaks Boulevard, (directly across from catch basin at driveway	March 2011	1.97 (estimated)

City Inlet ID	BASMAA Device ID	Public or Private	Location	Installation Date/Anticipated Installation Date	Total Area Treated (Acres)
			entrance), northside		
23019	SJ48	Public	In front of 6309 Channel Dr. (at bend in the road, under the tree), westside	March 2011	1.97 (estimated)
4507	SJ49	Public	Corner of Finchwood and Royalwood Way (in front of 796 Finchwood Way), southside	March 2011	1.97 (estimated)
7016	SJ50	Public	Grimley Lane and Cold Creek Way (on Cold Creek Way, adjacent to trees and ground ivy), eastside	March 2011	1.97 (estimated)
18675	SJ51	Public	Almaden Expressway about 525 ft south of Coleman Road, adjacent to exit road from Almaden Lake Park and "No Parking" sign, eastside	March 2011	1.97 (estimated)
38136	SJ52	Public	Blossom Hill Road about 400 ft east of Santa Teresa Boulevard (adjacent to Party city parking lot and two small trees), northside	April 2011	1.97 (estimated)
22146	SJ53	Public	Corner of Santa Teresa Boulevard and Thornwood Drive in right-turning lane (on Santa Teresa Boulevard near stop light, adjacent to Mandarin Gourmet restaurant), eastside	March 2011	1.97 (estimated)
20049	SJ54	Public	Corner of Michon Dr and Cordoy Lane (on Cordoy Lane, under tree, directly across street from 5057 Cordoy Lane), eastside	March 2011	1.97 (estimated)
8439	SJ55	Public	Union Avenue and Woodard Road (on Union Avenue, near PG&E electric box and stop light, adjacent to Rangoli Indian Restaurant), westside	March 2011	1.97 (estimated)
18364	SJ56	Public	In front of 2666 S. Bascom Ave. (adjacent to green PG&E electric box and driveway to Lunardi's Market between Union and Curtner avenues), eastside	April 2011	1.97 (estimated)
1862	SJ57	Public	In front of 967 Twin Brook Dr., under tree, 15 ft north of Twin Brook Court, westside	April 2011	1.97 (estimated)
1154	SJ58	Public	Corner of Payne Avenue and Essex Way (on Essex Way adjacent to yellow fire hydrant), westside	April 2011	1.97 (estimated)
2478	SJ59	Public	Essex Way about 150 ft south of Payne Avenue, in front of first house after condominiums, westside	April 2011	1.97 (estimated)
1857	SJ60	Public	Corner of Littleoak Drive and Littleoak Circle (on Littleoak Circle, under street light), northside	April 2011	1.97 (estimated)

City Inlet ID	BASMAA Device ID	Public or Private	Location	Installation Date/Anticipated Installation Date	Total Area Treated (Acres)
1003	SJ61	Public	SW corner of Royal Ann Drive and Tartarian Way (in front of 1411 Tartarian Way, adjacent to small tree), westside1.97 (estimated)	April 2011	1.97 (estimated)
2973	SJ62	Public	In front of 2105 Forest Ave., directly across from Di Salvo Avenue (at entrance to O'Connor Hospital, adjacent to blue O'Connor Hospital sign and crosswalk), westside	April 2011	1.97 (estimated)
25078	SJ63	Public	In parking lot bordered by West Julian Street and North Almaden Boulevard	April 2011	1.97 (estimated)
26376	SJ64	Public	Poco Way about 225 ft east of McCreery Avenue (or 30 ft east of large driveway), in front of 1897 Poco Way Units 302/303, southside	March 2011	1.97 (estimated)
25790	SJ65	Public	North 1st Avenue and Century Center Court (on Center Center court, adjacent to stop sign), southside	March 2011	1.97 (estimated)
25941	SJ66	Public	Ridder Park Drive about 225 ft south of the bend in the road, near northernmost entrance to the San José Mercury News parking lot (directly across from catch basin adjacent to Interstate 880), eastside	March 2011	1.97 (estimated)
26313	SJ67	Public	Near cornder of Kruse and Dado Street (on Dado Street, about 50 ft west of bend in the road with Kruse Street, directly across screet from large tank farm, adjacent to street light), northside	March 2011	1.97 (estimated)
35247	SJ68	Public	Baypointe Parkway about 325 ft south of Descanso Drive, adjacent to large driveway, eastside	April 2011	1.97 (estimated)
28049	SJ69	Public	NW corner of Murphy and Ringwood avenues (on Ringwood Avenue, in front of Willow Lake Apartments), adjacent to street light, westside	March 2011	1.97 (estimated)
24193	SJ70	Public	Old Stone Place about 125 ft south of Old Post Way, at bend in the road, adjacent to driveway, westside	March 2011	1.97 (estimated)
22541	SJ71	Public	In front of 895 Creek Pointe Drive, at bend in the road with Salt Take Drive, westside	March 2011	1.97 (estimated)
21182	SJ72	Public	Proud Drive about 200 ft north of Vistaview Drive, (adjacent to green PG&E electric box), westside	March 2011	1.97 (estimated)
10652	SJ73	Public	Corner of Tallahassee Drive and Samoa Way (on Samoa Way, adjacent to crosswalk and school crossing sign),	November 2007	1.97 (estimated)

City Inlet ID	BASMAA Device ID	Public or Private	Location	Installation Date/Anticipated Installation Date	Total Area Treated (Acres)
			northside, behind 1196 Tallahassee Dr.)		
26118	SJ74	Public	Corner of El Rancho Verde Drive and Palacio Verde court (on Palacio Verde Court, adjacent to tree and "Not a Through Street" sign, eastside), eastside1.97 (estimated)	November 2007	1.97 (estimated)
26121	SJ75	Public	Corner of El Rancho Verde Drive and Palacio Verde Court (on Palacio Verde Court, adjacent to street light and stop sign), westside	November 2007	1.97 (estimated)
26105	SJ76	Public	El Rancho Verde Drive about 175 ft west of José Figueres Avenue (or about 60 ft west of Aquacate Court), northside	November 2007	1.97 (estimated)

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 City of San José'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

The City of San José will annually conduct MRP-required[6] and the following non MRP-required creek/channel/shoreline cleanups[7] 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. For existing creek cleanup programs, the City of San José will quantify and take credit for only the volume of trash removed that exceeds the average volume of trash removed by that same program prior to the adoption of the MRP.

<u>City & Volunteer Collaborative Activities</u>

Single-day Efforts

- *National River Cleanup Day (third Saturday in May)*
- *Coastal Cleanup Day (third Saturday in September)*
- *Other Organized Single-day Events*

<u>City-led Cleanup Activities</u>

On-going Efforts

- *Removal of Homeless Encampments*
- *Trash Hot Spot Cleanups*
- *Other On-going Cleanup Efforts*

<u>Clean Creeks, Healthy Communities</u>

On June 7, 2011, the City of San José entered into an agreement with the US EPA to fund the Clean Creeks, Healthy Communities Project (CCHCP), a pilot program designed to reduce trash along a targeted three mile reach of Coyote Creek. The CCHCP leverages the resources of homeless community service providers, the City, the Santa Clara Valley Water District, and others to employ homeless people to clean the targeted area of Coyote Creek. Along a parallel track, the project seeks to engage communities living immediately adjacent to the creek in order to raise creek awareness and develop local stewards. In the first three months of the project,

[6] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.

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

the homeless participants working in the grant project area removed an additional 401 cubic yards of debris from the Coyote Creek project area. This volume of material is not included in the enhanced clean-up reduction calculation. Currently, this pilot project continues in a start-up mode. However, the CCHCP appears to have significant potential for reducing trash from Coyote Creek and can serve as a model and scaled in order to clean-up other creeks in San José. The City hopes to engage in discussions with Regional Board staff as to the best means of incorporating successes of the CCHCP, and similar efforts into trash reduction calculations hereafter.

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 103.7 cubic yards. This volume is equal to approximately a 10.7 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 San José. Both values provided within this section are included in Trash Load Reduction Summary in Section 5 in Table 5-1A.

5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS

The City of San José is committed to reducing the potential for trash impacts in locate water bodies in the San Francisco Bay Area. Based on the crediting methodology developed by BASMAA and assessment of the programs and policies that already implemented or programmed, the City will be able to reach and exceed the trash load reduction requirement of 40% by 2014. This can be attributed to early investments made by the City to address trash such as the City's adoption of the nation's most comprehensive Single-use Carryout Plastic Bag Ordinance, installation of structural retrofits for full trash capture, as well as other litter prevention and cleanup efforts. In addition the City will continue to enhance outreach to the public on trash pollution at both a local level and through the Watershed Watch campaign and the BASMAA regional campaign. The City will also promote increasing the number of volunteers participating in litter cleanup from neighborhoods and waterways, and municipal staff will continue to lead the cleanup of trash hot sports in creeks. The already implemented or programmed enhanced trash control measures as described in Section 3.0 are also listed in Table 5-1A. These enhancements are intended to demonstrate compliance with the 40% trash load reduction goal in MRP provision C.10.

The City of San José is considering additional trash control measure enhancements that will support the City's early efforts toward the 70% trash reduction goal by 2017. These candidate enhancements may establish enforcement of trash from uncovered loads, deter illegal dumping activities, and improve trash and recycling container management. In addition to these preventative measures the City of San José may expand the existing street sweeping program and add partial trash capture devices such as automated retractable screens and continuous deflection separation units. Any action the City takes to address polystyrene foam food service ware litter from eating establishments will also contribute towards the 70% goal. These candidate enhanced trash control measures which are under consideration as described in Section 3.0 are also listed in Table 5-1B and are would support the City's efforts towards compliance with the 70% trash load reduction goal in MRP provision C.10 and may be implemented by 2017.

Table 5-1A: Ongoing and already programmed trash control measure implementation within the jurisdictional boundaries of the City of San José and associated trash loads reduced.

Trash Control Measure	Summary Description Control Measure Action	% Reduction (Credits)	% Reduction (Quantifications)	Trash Load Reduced (Cubic Yards)	Cumulative % Reduction (Compared to Baseline)
Existing Enhanced Street Sweeping	Sweeping above baseline frequency	NA	0.8	8.0	0.8
Single-use Carryout Plastic Bag Ordinance (CR-1)	Ordinance prohibiting single-use plastic bags and assessing a fee on recycled paper bags	12.0	NA	115.7	12.7
Polystyrene Foam Food Service Ware Ban (CR-2)	Policy prohibiting food vendors from distributing polystyrene foam food and beverage ware at City sponsored events	2.0	NA	19.3	14.7
Public Education and Outreach Programs (CR-3)	Advertising campaign, outreach to school-aged children or youth, media relations, and community outreach events	8.0	NA	77.1	22.6
Activities to Reduce Trash from Uncovered Loads (CR-4)	Contract requirements for municipal trash haulers to cover load	1.0	NA	9.6	23.6
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Ordinance for appropriate trash services for private properties and establishment of Downtown San José BID	1.6	NA	15.4	25.2
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Enhanced Volunteer Clean-up	NA	13.9	135.2	39.1
Full-capture Treatment Devices (QF-5)[8]	Installation of 118 connector pipe screens	NA	0.8	8.2	40.0
Full-capture Treatment Devices (QF-5)	Installation of up to 9 HDS	NA	3.5	33.8	43.4
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Annual cleanup of 32 Trash Hot Spots	NA	10.7	103.7	54.1

[8] The percentage of trash reduction compared to baseline trash load achieved by the full capture treatment devices will change dependent on the percent of trash reduction achieved through preventative methods.

Table 5-1B: Enhanced trash control measure under consideration for implementation within the jurisdictional boundaries of the City of San José and associated trash loads reduced.*

Trash Control Measure	Summary Description Control Measure Action	% Reduction (Credits)	% Reduction (Quantifications)	Trash Load Reduced (Cubic Yards)	Cumulative % Reduction (Compared to Baseline)
Existing Enhanced Street Sweeping	Sweeping above baseline frequency	NA	0.8	8.0	0.8
Single-use Carryout Plastic Bag Ordinance (CR-1)	Ordinance prohibiting single-use plastic bags and assessing a fee on recycled paper bags	12.0	NA	115.7	12.7
Polystyrene Foam Food Service Ware Ban (CR-2)	Policy for prohibiting food vendors from distributing polystyrene foam food and beverage ware at City sponsored events	2.0	NA	19.3	14.7
Public Education and Outreach Programs (CR-3)	Advertising campaign, outreach to school-aged children or youth, media relations, and community outreach events	8.0	NA	77.1	22.6
Activities to Reduce Trash from Uncovered Loads (CR-4)	Contract requirements for municipal trash haulers to cover load, **potential enhanced enforcement program for vehicles with uncovered loads**	1.0 **4.0**	NA	48.2	27.6
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	**Potential Anti-litter and illegal dumping enforcement program**	**2.0**	**NA**	**19.3**	**29.6**
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Ordinance for appropriate trash services for private properties, Downtown BID, **potential program for identification and enforcement for inadequate trash service**	1.6 **2.0**	NA	34.7	33.2
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Enhanced Volunteer Clean-up	NA	13.9	135.2	47.1
Enhanced Street Sweeping (QF-2)	**Potential Expansion of 'no parking' enforcement on 40 curb miles**	**NA**	**0.7**	**6.5**	**47.7**
Curb Inlet Screens (Partial-capture Treatment Device) (QF-3a)	**Installation of up to 400 ARS**	**NA**	**1.0**	**9.9**	**48.8**
Full-capture Treatment Devices (QF-5)	Installation of 118 connector pipe screens	NA	0.8	7.4	49.5
Full-capture Treatment Devices (QF-5)	Installation of up to 9 HDS	NA	3.0	29.1	52.5
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Annual cleanup of 32 Trash Hot Spots	NA	10.7	103.7	63.2

*Enhanced trash control measures under consideration for implementation are indicated in bold font and categories with additional percent reductions are shaded.

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

Consistent with MRP Provision C.10.d (i), the City of San José 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 City of San José 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 robust baseline load.

6.0 IMPLEMENTATION SCHEDULE

Implementation of enhanced trash control measures by the City of San José 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 City of San José'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 City of San José may chose 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 San José's annual reporting process.

The San José City Council maintains discretion over the level of expenditures for control measures and service level implementation in accordance with the City's annual budgeting process, City Charter, and Municipal Code. Funding and direction for on-going implementation level and establishment of new control measures as outlined in this Plan are subject to annual appropriation by San José City Council and other policy actions as needed. Inclusion in this Plan does not obligate the City to implementation of a proposed action. Any changes from the proposed implementation level or adjustments to the Plan will be reported in the annual reporting process.

Table 6-1. Preliminary implementation schedule for enhanced trash control measures in the San José

Trash Control Measure	Beginning Date of Implementation
Single-use Carryout Plastic Bag Ordinance (CR-1) Prohibits the Distribution of Single-use Bags at all Retail Establishments (with the exception of restaurants)	**FY 10-11 and 11-12**
Polystyrene Foam Food Service Ware Ban (CR-2) Prohibit Distribution at Permittee-sponsored Events or Permittee-owned Property	**FY09-10**
Public Education and Outreach Programs (CR-3) Advertising campaign, outreach to school-aged children or youth, media relations, and community outreach events	**FY09-10**
Activities to Reduce Trash from Uncovered Loads (CR-4) Prescriptive Language in Municipal Contracts for Trash and Debris Haulers	**Currently Implemented**
Activities to Reduce Trash from Uncovered Loads (CR-4) Implementation of an Enhanced Enforcement Program for Vehicles with Uncovered Loads	**Under consideration for implementation by 2017***
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5) Anti-Littering and Illegal Dumping Investigation and Enforcement Program	**Under consideration for implementation by 2017***
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6) Development and Approval of Ordinance (or equivalent) for Appropriate Trash Services (Bin/Enclosure Design) for Private Properties	**Currently Implemented**
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6) Identification and Enforcement of Inadequate Trash Service for Private Trash and Recycling Bins/Containers	**Under consideration for implementation by 2017***
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6) Successful Establishment of Each Business Improvement District (BID) that Includes Trash Reduction Control Measures	**Currently Implemented**
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1) Volunteer cleanup and the Anti-Litter Volunteer Program	**FY09-10**

Enhanced Street Sweeping (QF-2) Expansion of 'no parking' enforcement on 40 curb miles	**Under consideration for implementation by 2017***
Curb Inlet Screens (Partial-capture Treatment Device) (QF-3a) 400 Curb Inlet Screens	**FY12-13***
Full-capture Treatment Devices (QF-5) 118 connector pipe screens	**FY 07-08, 09-10, and 10-11**
Full-capture Treatment Devices (QF-5) 9 Hydrodynamic Separators	**FY10-11 and 11-12**
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6) 32 trash Hot Spot Cleanups, and volunteer cleanup events	**FY09-10**

*These are proposed actions that will contribute towards the City's efforts to reach the 70% trash reduction by 2017. Actual implementation dates may change based on City evaluation.

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. January 2012.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. January 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Santa Clara

City of Santa Clara

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

City of Santa Clara

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

January 23, 2012

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CITY OF SANTA CLARA
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:

Dave Staub 1/23/12
Acting Assistant Director of Streets &
Automotive Services

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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 City of Santa Clara 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 Santa Clara's annual reporting process.

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 City of Santa Clara 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 the 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 2012a).

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 (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 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.

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 City of Santa Clara 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 Santa Clara'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
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
Quantification Formulas
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

In compliance with Provision C.10.a.ii of the MRP, City of Santa Clara worked collaboratively with other MRP Permittees through BASMAA to develop data and the process necessary to establish baseline trash loading estimates to MS4s. 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 municipal separate storm sewer systems (MS4s), while acknowledging that uncertainty in trash loads still exists.

Step #1: Conduct literature review

Step #2: Develop conceptual model

Step #3: Develop and implement sampling and analysis plan

Step #4: Test conceptual model

Step #5: Develop default trash generation rates

Step #6: Develop trash baseline loading rates by adjusting trash generation rates based on existing levels of control measure implementation

Step #7: Apply trash baseline loading rates and calculate baseline load

Through the collaborative BASMAA project, default baseline trash generation rates (volume per area) for wet and dry seasons 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 applicable jurisdictional areas within the City of Santa Clara. Trash generation rates were then adjusted based on baseline street sweeping and storm drain inlet maintenance conducted in each applicable area. The sum of the trash loads (i.e., rate multiplied by area) from each jurisdictional area represents the City of Santa Clara's baseline trash load from its MS4. A full description of the methods by which trash baseline loads were developed is included in BASMAA

This section provides a summary of land use characteristics and demographics in the City of Santa Clara's that, based on the results of the BASMAA *Trash Generation Rates Project*, appear to affect trash generation rates. The process by which the City of Santa Clara's trash baseline loading estimate was developed is also more fully described below.

Default Trash Generation Rates (Regional Approach)

A set of default trash generation rates for wet and dry seasons were 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 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 (Fall/Winter 2011), this section of the Plan will 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 Trash Generation Rates.

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

Permittee Characteristics

Incorporated in 1852, the City of Santa Clara is located in Santa Clara County, and has a jurisdictional area of 11,628 acres. According to the 2010 Census, it has a population of 116,468, with a population density of 6,327.3 people per square mile, and average household size of 3.18. Of the 116,468 who call the City of Santa Clara home, 21.3% are under the age of 18, 10.7% are between 18 and 24, 36.0% are between 25 and 44, 22.0% are between 45 and 64, and 10% are 65 or older.

Companies such as Intel, Applied Materials, Sun Microsystems, NVIDIA, Agilent Technologies, and Westfield Valley Fair Mall are located in the City of Santa Clara. The median household income was $69,466 in 2000[1].

Land Use

Default trash baseline generation rates presented in Table 2-1 were applied to effective loading areas with jurisdictional areas within the City of Santa Clara. The City of Santa Clara's jurisdictional areas includes all urban land areas within the City of Santa Clara 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;
- 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).

[1] From the 2000 Census. The median household income for the City of Santa Clara from the 2010 Census is not currently available.

Once the City of Santa Clara's jurisdictional area was delineated, an effective trash loading area was developed by creating a 200-foot buffer around all 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 Santa Clara are presented in Table 2-

Table 2-2: Jurisdictional areas and effective loading areas in the City of Santa Clara 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	1,767	1,537	20
Low Density Residential	3,277	3,152	41
Rural Residential	61	51	1
Commercial and Services/ Heavy, Light and Other Industrial	3,712	1,981	26
Retail and Wholesale	767	569	7
K-12 Schools	414	235	3
Urban Parks	272	156	2
TOTAL	**11,628**	**7,680**	**100%**

Regional default trash generation rates developed through the BASMAA regional collaborative project were applied to effective loading areas within the City of Santa Clara 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 Santa Clara 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 Santa Clara 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 City of Santa Clara's baseline street sweeping program includes sweeping industrial, commercial and residential areas twice per month, and sweeping retail areas once per week. Parking enforcement signs

are not posted in the City. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of Santa Clara, 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 City of Santa Clara has an annual effectiveness rating of 5%. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Stormwater Pump Station Maintenance

The City of Santa Clara owns and maintains 21 stormwater pump stations. Of these stations, 11 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 City of Santa Clara 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 Santa Clara 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, high and very high trash loading rates.

Table 2-3: Preliminary annual trash baseline load for the City of Santa Clara.

Category	Annual Load (gallons)
Preliminary Generation Trash Load	64,636
Load Removed via Baseline Street Sweeping	22,038
Load Removed via Baseline Storm Drain Inlet Maintenance	2,130
Load Removed via Baseline Stormwater Pump Station Maintenance	2,109
Preliminary Trash Baseline Load	38,359

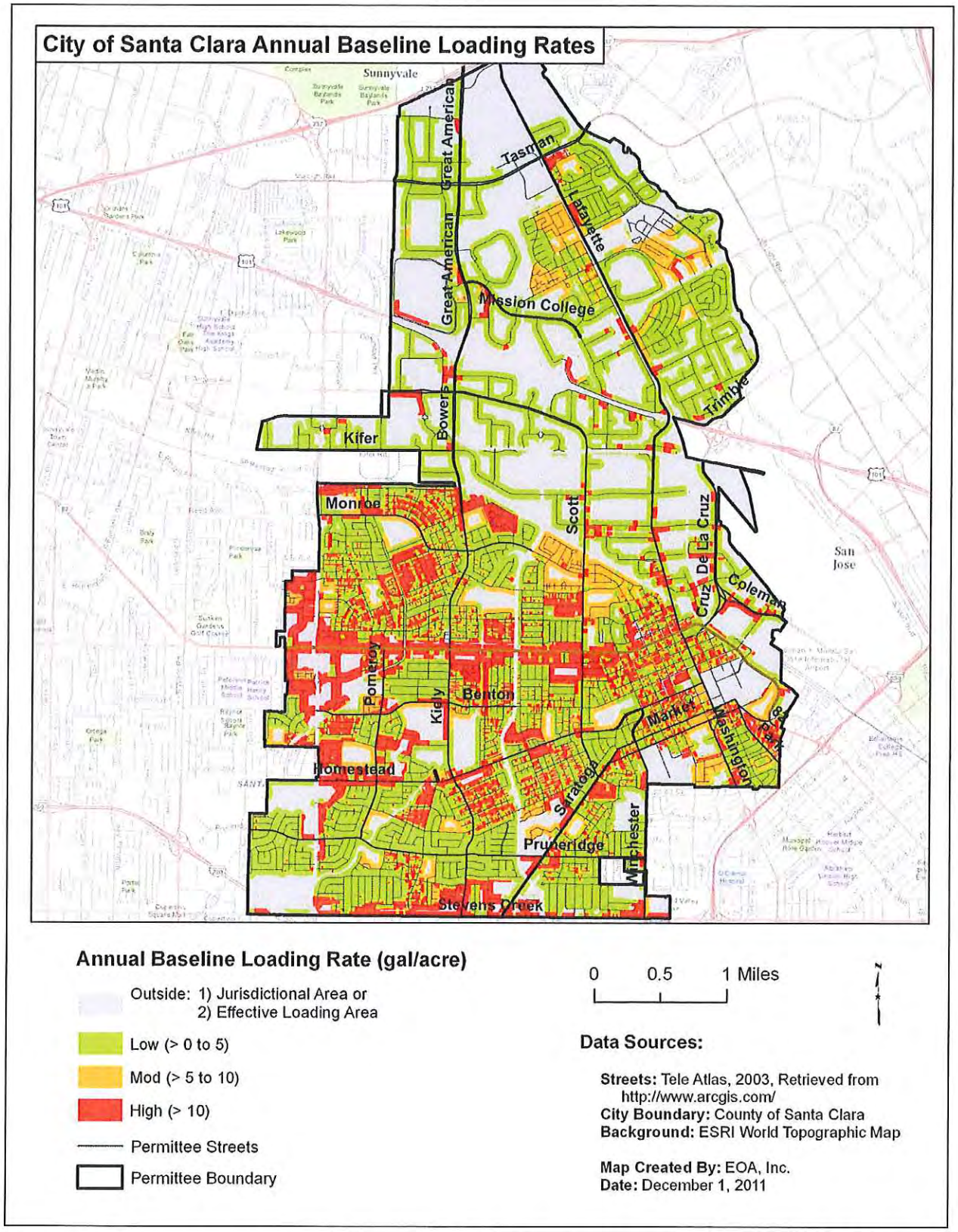

Figure 2-1: Estimated trash baseline loading rates for geographical areas in the City of Santa Clara.

3.0 LOAD REDUCTION CALCULATION PROCESS

Using the guiding principles and assumptions described BASMAA (2012a), 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 2012a) 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-6)

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.[2] 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).

[2] 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-7: Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (Area-wide)

As these control measures are implemented, load reduction estimates can be calculated <u>in-parallel</u> 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 City of Santa Clara. 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 the City of Santa Clara include those listed in Table 4.1.

Table 4.1. Trash control measures that will be implemented by the City of Santa Clara to reach the 40% trash load reduction.

Control Measure
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 (Municipally or Privately-Controlled)
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)

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 Santa Clara implemented the following public education and outreach control measures prior to the effective date of the MRP. The City of Santa Clara currently hosts a booth to educate students about urban runoff pollution prevention at its annual Arbor Day festival. Staff also conducts presentations to classrooms using the Enviroscape interactive education tool. The City of Santa Clara uses its quarterly newspaper, Inside Santa Clara, its website, and its cable channel to promote awareness of urban runoff pollution prevention and encourage audiences to take appropriate actions to minimize it. These control measures are considered baseline because they were either not related to trash reduction specifically, nor are they 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 City of Santa Clara 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)

Through participation and funding of the regional **BASMAA Youth Outreach Campaign,** the City of Santa Clara will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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 run from FY 11-12 through FY 13-14 at least. A brief description of the Campaign activities is provided below:

- Raising Awareness: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the City of Santa Clara 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Outreach to School-age Children or Youth

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide ZunZun Program, the City of Santa Clara plans to continue 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 includes 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)

Through participation and funding of the **BASMAA Regional Media Relations Project**, the City of Santa Clara plans to continue 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 press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

Percent Reduction from Enhancements

The City of Santa Clara will receive a total of six percent reduction credit for implementing specific enhanced control measures described in *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 - 0%

These 6% reduction credits will be applied against the City of Santa Clara's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012a). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

CR-4: Reduction of Trash from Uncovered Loads

Although it is currently illegal to operate a vehicle that is improperly covered and by which improper coverage its' contents escape[3], vehicles remain an important 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 or private landfill and transfer station operators to educate waste haulers on securing loads and/or to enhance enforcement of existing regulations.

Baseline Level of Implementation

The baseline trash load described in Section 2.0, assumes that prior to adoption of the MRP, the City of Santa Clara 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 Santa Clara will develop and include language in future solid waste collection service agreements that requires contracted solid waste collection companies to cover loads when transporting trash and debris to solid waste facilities. This language will be implemented in the next round of non-exclusive franchise agreements that will have an effective date of July 1, 2013. The City currently has non-exclusive franchise agreements with ten (10) solid waste collection companies.

Percent Reduction from Enhancements

The City of Santa Clara will receive a 1% reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The 1% 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 Santa Clara. 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 5.0.

[3] 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 loads 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 Santa Clara has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow. The City of Santa Clara currently issues citations to littering/illegal dumping offenders caught in the act.

Enhanced Level of Implementation

The City of Santa Clara will implement enhanced anti-littering and illegal dumping enforcement control measures prior to July 1, 2014. The City has a current dial-a-tip hotline to report graffiti vandalism. The City will encourage callers to report illegal dumping activities on the hotline, as well. The City of Santa Clara will investigate the complaints to collect evidence to determine the responsible party and issue citations as applicable.

Percent Reduction from Enhancements

The City of Santa Clara will receive a two percent reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The 2% 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 Santa Clara. 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 5.0.

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 for placing incidental trash generated in public spaces that provides people with a convenient and appropriate place to dispose of trash. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of bins/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 Santa Clara has not implemented enhanced trash bin/container management practices prior to effective date of the MRP. Prior to December 1, 2009, the City of Santa Clara provided single-family home residents with 18-gallon open top containers to store rigid recyclable materials and residents placed mixed paper in open top paper bags for collection. The wind blowing lighter weight recyclables out of the open top containers was a problem associated with this collection system. The City of Santa Clara has developed solid waste enclosure guidelines, but does not have an ordinance that requires sufficient space for both recycling and garbage containers.

Enhanced Level of Implementation

The City of Santa Clara will implement improved solid waste container management practices by July 1, 2014. On December 7, 2009, the City of Santa Clara implemented a single-stream recycling program in which single-family residents were provided with a lidded cart for storage of recyclable materials, so the wind cannot blow recyclables out of the container if the lid is closed. The City of Santa Clara will adopt a mandatory recycling ordinance that mirrors the requirements set for in Assembly Bill 341 and mandates that all properties be designed with enclosures or sufficient space to adequately store both garbage and recycling containers. The City of Santa Clara will use Street Department staff to respond to complaints from the public and solid waste collection company personnel regarding overflowing containers. City Staff will have ability as applicable to issue notices of violation, citations, and to increase customers' garbage service to necessary levels to sufficiently contain all solid waste generated. The City of Santa Clara will install and maintain additional garbage and recycling containers at public properties that generate large amounts of trash. City Staff will check containers on a regular basis (daily to weekly depending on need). A strategic plan for public area trash containers will be developed and implemented by July 1, 2014.

Percent Reduction from Enhancements

The City of Santa Clara will receive a 6% reduction credit for implementing specific enhanced control measures described in *Description of Enhanced Level of Implementation* section above. The 6% 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 Santa Clara. 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 5.0.

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 City of Santa Clara implemented the following on-land cleanup activities prior to the effective date of the MRP. Parks Department staff collects litter and trash from Public Parks. The Street Department responds to and abates illegal dumping complaints on public property. The Police Department coordinates with the Street Department to clean homeless encampments as necessary. 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 City of Santa Clara will conduct enhanced on-land trash cleanup activities. The Parkways and Boulevards Division of the Street Department will manually remove trash from center median islands and parkway strips on weekly basis. The volume of trash removed will be tracked on employee daily timecards and tabulated into a monthly activity report that will be use to track the amount of 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.

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 1,873 gallons. This volume is equal to approximately a 4.9% reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Santa Clara. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

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 City of Santa Clara's baseline street sweeping program includes sweeping industrial, commercial and residential areas twice per month, and sweeping retail areas once per week. Parking enforcement signs are not posted in the City.

Enhanced Level of Implementation

The City of Santa Clara's existing enhanced street sweeping program includes sweeping at a frequency above the baseline ceiling described in Section 2.0. Specifically, the City sweeps residential areas three times per month on average. All street sweeping is performed by City employed personnel. The City has three full-time street sweeper operators.

Although residential street sweeping routes are scheduled to be swept on a weekly basis, residential routes are not always completed at this frequency due to limited staffing to cover employee vacations and sick days. Residential street sweeping routes include frontages in front of most K-12 schools and public parks. Each street sweeper operator maintains eight (8) industrial routes, which include retail and commercial property frontages. The street sweeper operators complete one industrial route each workshift, which equates to sweeping approximately twice per month.

The total estimated annual volume of trash that is already reduced due to existing enhanced street sweeping is 2,341 gallons. This volume is equal to approximately a 6.1% reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Santa Clara. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

The City of Santa Clara is currently sweeping residential routes, which comprise about 50% of the City's land-use area three times per month, as compared to the baseline of two times per month. The retail areas, which comprise less than 7% of the City's land-use are swept twice per month, as compared to the baseline of weekly sweeping. The rest of the commercial/industrial routes are swept twice per month, which is in line with the baseline for sweeping in those land-use areas.

The City of Santa Clara plans to enhance its street sweeping program significantly prior to July 1, 2013. The City of Santa Clara will increase the frequency that industrial routes (including retail areas) are swept. Industrial street sweeping routes will be swept three times per month. The City of Santa Clara will also implement a parking enforcement program prior to July 1, 2013. The parking enforcement program will include posting streets for "No Parking" between designated hours on certain days of the week for street sweeping. The Police Department will be advised of areas with parking controls so applicable citations can be issued for violations. The City of Santa Clara has not selected specific routes

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 2012a).

The City of Santa Clara will analyze industrial sweeping routes to determine which streets are the most prone to trash, and have problems with vehicles parked on the street during sweeping events. The decision of which streets to enact parking enforcement controls on will be made after the completion of this analysis. The City of Santa Clara will reduce 3,597 gallons of trash reaching the MS4 by implementing future enhancements, which translates into a seven and 9.3% reduction.

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 5,938 gallons. As described in Trash Load Reduction Summary Table included in Section 4, this volume is equal to approximately a 15.4 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 Santa Clara.

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 2012a). The baseline trash load removed via these devices is accounted for in baseline trash loads.

The City of Santa Clara cleans its stormwater pump station wetwells once a year as part of its dry season maintenance program. In addition, the City of Santa Clara cleans the trash racks at each pump station following every storm event as part of the routine maintenance program.

Enhanced Level of Implementation

A total of 86 partial-capture treatment devices have been or will be installed in the City of Santa Clara 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 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 partial-capture treatment devices listed in Table QF-3-1 is 873 gallons. This volume is equal to approximately a 2.3% reduction in the baseline trash load to urban creeks from the municipal

separate storm sewer system (MS4) owned and operated by the City of Santa Clara. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

Table QF-3-1. Partial capture treatment devices installed or planned to be installed within the City of Santa Clara 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
QF-3a	*Public*	*Catch Basin Screen*	Benton @ Los Padres	Installed	2	7
QF-3a	*Public*	*Catch Basin Screen*	Bowe @ Moonlight alley (2 units)	Installed	4	14
QF-3a	*Public*	*Catch Basin Screen*	Chapman @ The Alameda (2 units)	Installed	4	14
QF-3a	*Public*	*Catch Basin Screen*	Bowers @ El Camino Real	Installed	2	7
QF-3a	*Public*	*Catch Basin Screen*	Benton @ Chapel	Installed	2	7
QF-3a	*Public*	*Catch Basin Screen*	Alviso @ College (2 units)	Installed	4	14
QF-3a	*Public*	*Catch Basin Screen*	Harrison @ Monroe	Installed	2	7
QF-3a	*Public*	*Catch Basin Screen*	Benton @ The Alameda	Installed	2	7
QF-3a	*Public*	*Catch Basin Screen*	75 Locations to be Determined at a later date	July 1, 2013	150	420

QF-4: Enhanced Storm Drain Inlet Maintenance

In accordance with countywide Stormwater Conveyance System Operation and Maintenance Performance Standards, storm drain inlets are maintained at least once per year by Permittees. Permittees who have enhanced storm drain inlet maintenance by increasing the frequency of cleanouts may use the load of trash reduced to 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 Santa Clara currently maintains and removes material from storm drain inlets at least once per year. This baseline frequency is consistent with the frequency of storm drain inlet maintenance in the City of Santa Clara prior to the effective date of the MRP.

Enhanced Level of Implementation

A total of 3,700 storm drain inlets will be maintained in the City of Santa Clara at higher frequencies prior to July 1, 2014. The City of Santa Clara will clean storm drain inlets at least twice per year on average. 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 273 gallons. This volume is equal to approximately a 0.7% reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Santa Clara. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

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 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 Pemittees 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 two trash full-capture treatment devices have been or will be installed in the City of Santa Clara 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 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 869 gallons. This volume is equal to approximately a 2.3% reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Santa Clara. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

Table QF-5-1. Trash full-capture treatment devices within the jurisdictional boundaries of the City of Santa Clara 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
FCT-2HF	*Public*	*Fresh Creek Technologies, Inc. End of Pipe Netting Trash Trap (2 netting systems)*	Westside Stormwater Retention Basin at 2900 Old Mountain View Alviso Road (cross street of Great America Parkway)	June 2012	825 acres	869 gallons (2.2%)

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 City of Santa Clara'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 Santa Clara will conduct MRP-required[4] and the following non-MRP-required creek/channel/shoreline cleanups[5] 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 Santa Clara will clean five trash hotspots during the Coastal Clean-Up event each September and remove homeless encampments on an as-needed basis.

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 125 gallons. This volume is equal to approximately 0.3% reduction in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Santa Clara. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.0.

[4] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.
[6] 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 Santa Clara 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 4-1. The enhancements are intended to comply with the 40% trash load reduction goal in MRP provision C.10.

The City of Santa Clara plans to implement multiple control measures to achieve the 40% trash load reduction goal. The City of Santa Clara will enact the following trash control measures which are covered in the Credits (CR) section of this plan: conduct public education and outreach programs targeted at reducing trash; include language requiring loads to be covered in non-exclusive franchise agreements; include littering/illegal dumping with the graffiti hotline and conduct investigations and enforcement actions as applicable; provide residents with carts with lids instead of open top containers, require solid waste enclosures to be designed to adequately store containers, and implement an enforcement program to ensure that solid waste customers have adequately sized containers.

In addition, the City of Santa Clara will implement trash control measures that are covered in the Quantifications (QR) section of this plan. These measures include: cleaning trash from traffic medians and islands on a weekly basis; cleaning industrial street sweeping routes more frequently and implement parking enforcement in certain areas on sweeping days; installing partial capture faceplates on inlets with significant amounts of trash; cleaning all storm drain inlets twice per year; installing full trash capture netting systems at the Westside storm retention basin; and participating in the annual coastal clean-up day.

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

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced	Cumulative % Reduction (Compared to Baseline)
Existing Enhanced Street Sweeping	Continue existing enhanced street sweeping activity above baseline	6.1	2341	6.1
Public Education and Outreach Programs (CR-3)	Conduct public education and outreach programs targeted at reducing trash/litter	6.0	2162	11.7
Activities to Reduce Trash from Uncovered Loads (CR-4)	Include language requiring solid waste loads to be covered in non-exclusive franchise agreements	1.0	360	12.7
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Include litter/illegal dumping with the graffiti hotline and conduct investigations and enforcement actions as applicable	2.0	721	14.6
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Provide residents with recycling carts with lids instead of open top containers, require solid waste enclosures to be designed to adequately store containers, and implement an enforcement program to ensure that solid waste customers have adequately sized containers.	6.0	2162	20.2
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Clean trash from traffic medians and islands on a weekly basis	NA	1873	25.1

Enhanced Street Sweeping (QF-2) – (To be Implemented at a future date)	Implement a parking enforcement program and increase sweeping frequencies in commercial/industrial/retail land uses	NA	2886	34.4
Curb Inlet Screens (Partial-capture Treatment Device) (QF-3a)	Install partial trash capture devices (curb inlet screens) on inlets with significant amounts of trash	NA	873	36.7
Enhanced Storm Drain Inlet Maintenance (QF-4)	Increase inlet cleaning to two times per year	NA	273	37.4
Full-capture Treatment Devices (QF-5)	Install two Fresh Creek Technologies end of pipe netting systems at Westside Storm Retention Basin	NA	869	39.7
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Participate in the annual Coastal Clean-Up Day	NA	125	40.0

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

Consistent with MRP Provision C.10.d (i), the City of Santa Clara 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 City of Santa Clara 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 robust baseline load.

6.0 IMPLEMENTATION SCHEDULE

Implementation of enhanced trash control measures by the City of Santa Clara 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 Santa Clara'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 City of Santa Clara may chose 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 Santa Clara's annual reporting process.

Table 5-1. Preliminary implementation schedule for enhanced trash control measures in the City of Santa Clara

Trash Control Measure	Beginning Date of Implementation
Public Education and Outreach Programs (CR-3)	Implemented
Activities to Reduce Trash from Uncovered Loads (CR-4)	July 1, 2013
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	July 1, 2013
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Partially Implemented / Complete by July 1, 2013
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	Implemented
Future Enhanced Street Sweeping (QF-2)	July 1, 2013
Curb Inlet Screens (Partial-capture Treatment Device) (QF-3a)	Partially Implemented / Complete by July 1, 2013
Enhanced Storm Drain Inlet Maintenance (QF-4)	Implemented
Full-capture Treatment Devices (QF-5)	October 31, 2012
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Implemented

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February 2011

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Saratoga

City of Saratoga

Baseline Trash Load and Short-Term Trash Load Reduction Plan

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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CITY OF SARATOGA

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Incorporated October 22, 1956

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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."

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February 1, 2012

Baseline and Short-Term Trash Load Reduction Plan

West Valley Community

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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

The West Valley Communities would like to acknowledge the comments, suggestions, and guidance provided by each of the participating members at regional, county-wide and local working groups to complete the Bay-Area wide, MRP Trash Short-Term Plan Template. Additionally, the West Valley Communities are thankful for the dedication and hard work of local county-wide SCVURPPP Staff, West Valley Clean Water Program Staff, and the SCVURPPP Trash Ad Hoc Task Group, who took up the challenge to collect, categorize, and characterize the MS4 trash, and lead the way in countless hours of discussion, review, and dissection of the topic of trash.

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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.

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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[1].

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;

[1] 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
TOTAL	**6,861**	**5,536**	**100%**

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[2]. 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
Preliminary Trash Baseline Load	5,289

[2] Considered equivalent to parking enforcement.

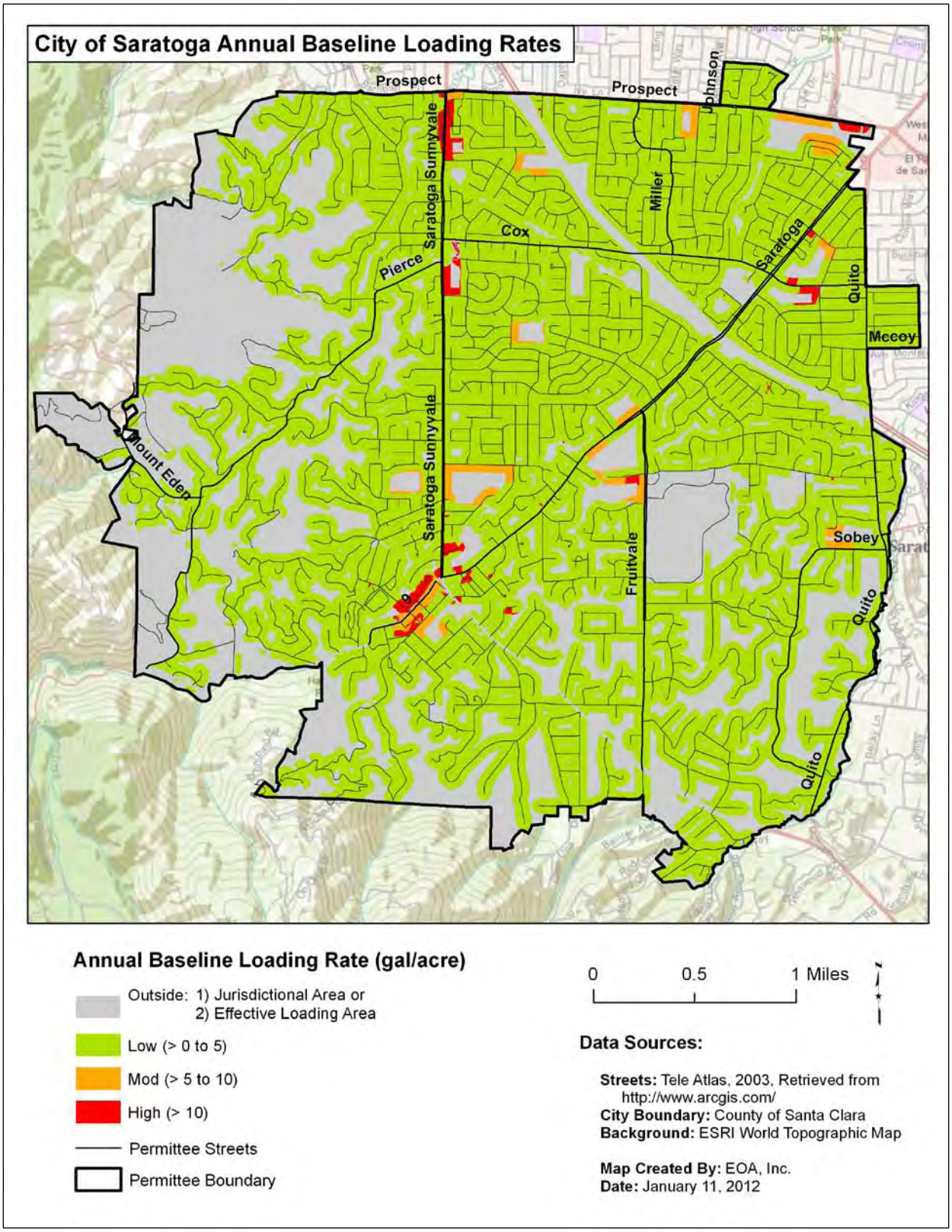

Figure 2-1: Estimated trash baseline loading rates for geographical areas in the City of Saratoga.

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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.[3] 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).

[3] 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 <u>in-parallel</u> 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.

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

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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 WCVWP 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[4], 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.

[4] 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 Pemittees 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[5] and the following non-MRP-required creek/channel/shoreline cleanups[6] 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.

[5] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.
[6] 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.

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February 2012.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 2012.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

Santa Clara Valley
Urban Runoff
Pollution Prevention Program

City of Sunnyvale

City of Sunnyvale

Baseline Trash Load and Short-Term Trash Load Reduction Plan

Submitted by:

City of Sunnyvale

Environmental Services Department

P.O. Box 3707

Sunnyvale, CA 94088-3707

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

FEBRUARY 1, 2012

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BASELINE TRASH LOAD
AND
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:

1-24-12

John Stufflebean
Director of Environmental Services

Date

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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., experience with implementation, revisions to baseline loading estimates or quantification formulas altering load reduction credits), the City of Sunnyvale 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 City of Sunnyvale's annual reporting process.

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 City of Sunnyvale 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, 2012a). Lastly, the *Trash Load Reduction Tracking Method Technical Report* (BASMAA 2012b) 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 Loading 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 Loading 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 the 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 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 2012a).

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 2012b). 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 Trash Loading 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 2012b).

In efforts to reduce trash discharged from MS4s, Permittees may choose to implement control measures that are not included in Table 1.1 as described more fully in BASMAA (2012b). 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., experience with implementation, revisions to baseline loading estimates or quantification formulas altering load reduction credits), the City of Sunnyvale 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 Sunnyvale'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
Single-use Carryout Plastic Bag Ordinances
Polystyrene Foam Food Service Ware Policies and 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
Quantification Formulas
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 City of Sunnyvale's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Sunnyvale 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, and 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 City of Sunnyvale. 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 Sunnyvale'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

Sunnyvale's history has always been based on its economy. Initially the area's open spaces and fertile soils were ideal for fruit orchards that supported the first residents. With the arrival of the railroads in 1864, the economic base of the community began to expand as canneries were built near the rail lines to process the fruit from surrounding orchards. In 1906, the Hendy Iron Works was relocated from San Francisco to Sunnyvale, continuing the area's industrial development. The City was incorporated in 1912.

By 1940, the City's population had grown to about 4,400 and the Hendy Iron Works was taken over by Westinghouse to support the war effort. After World War II, the defense related industries capitalized on the presence of the Moffett Naval Air Station, with Lockheed Missiles and Space Company moving to

Sunnyvale in 1956, and soon becoming the City's largest employer. The 1950s and 1960s became the period of largest growth for the community, resulting in a population of 96,000 by 1970.

Sunnyvale is the second largest city in Santa Clara County and the fifth largest in the San Francisco Bay area with a current residential population of 141,099. The City has a workforce of approximately 118,450 and a daytime population of 230,000. According to the 2010 Census, the City has a population density of 6,173.9 people per square mile, and average household size of 2.56. Of the residents who call the City of Sunnyvale home, 22.4% are under the age of 18, 6.7% are between 18 and 24, 36.3% are between 25 and 44, 23.4% are between 45 and 64, and 11.2% are 65 and older. The median household income was $88,364 in 2009[1].

Approximately 55.5% of residents have a Bachelor Degree or higher. The largest employers in Sunnyvale are Lockheed Martin Space Systems; Northrup Grumman Marine; Yahoo, Inc. (Headquarters); Network Appliance, Inc (Headquarters); Palm, Inc. (Headquarters); and Juniper Networks (Headquarters. There are 52 shopping centers/complexes and about 315 restaurants. The City maintains 20 public parks, two golf courses, and 51 tennis courts. There are 26 public and private schools (elementary, middle, and high schools) and approximately 132 multi-purpose sports fields. The City sponsors annual events such as the Art and Wine Festival, Summer Music Series, Hands on the Arts, Downtown Association Holiday Tree Lighting, and the State of the City Address.

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 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 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] Business and Economic Fact Sheet for Sunnyvale CA, November 2011. Available at http://sunnyvale.ca.gov/Portals/0/Sunnyvale/OCM/ED-GeneralFiles/Business%20Economic%20Fact%20Sheet%2011-29-11%20update.pdf

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 City of Sunnyvale. The City of Sunnyvale's jurisdictional areas includes all urban land areas within the City of Sunnyvale 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 the County of Santa Clara;
- 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 Sunnyvale'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 Sunnyvale are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the City of Sunnyvale 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	2,772	2,584	28%
Low Density Residential	3,847	3,802	41%
Rural Residential	5	4	0%
Commercial and Services/ Heavy, Light and Other Industrial	3,962	1,906	21%
Retail and Wholesale	711	563	6%
K-12 Schools	442	239	3%
Urban Parks	366	157	2%
TOTAL	**11,105**	**9,254**	**100%**

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 Sunnyvale 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 Sunnyvale 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 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 so as 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 City of Sunnyvale's baseline street sweeping program includes sweeping industrial, commercial, retail and residential areas twice per month, with downtown areas swept once per week. Parking enforcement equivalent occurs on all arterial roads within the City, and posting of parking enforcement signs is limited to the downtown area in the City. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

The City of Sunnyvale's baseline street sweeping program goes beyond the regionally defined street sweeping criterion. The current street sweeping program includes sweeping nearly all streets every

other week and the downtown area three times per week. Parking enforcement signs for street sweeping are not posted within the City, but parking enforcement equivalent exists on most arterial roads. The estimated trash load reduced via baseline street sweeping is presented in Table 2-3.

Baseline Storm Drain Inlet Maintenance

Within the City of Sunnyvale, 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 City of Sunnyvale 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 City of Sunnyvale owns and maintains two stormwater pump stations. Both pump stations have trash racks that capture trash and allow for removal during maintenance. 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 City of Sunnyvale 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 Sunnyvale 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, high and very high trash loading rates.

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

Category	Annual Load (gallons)
Preliminary Generation Trash Load	83,678
Load Removed via Baseline Street Sweeping	36,643
Load Removed via Baseline Storm Drain Inlet Maintenance	2,352
Load Removed via Baseline Stormwater Pump Station Maintenance	897
Preliminary Trash Baseline Load	43,786

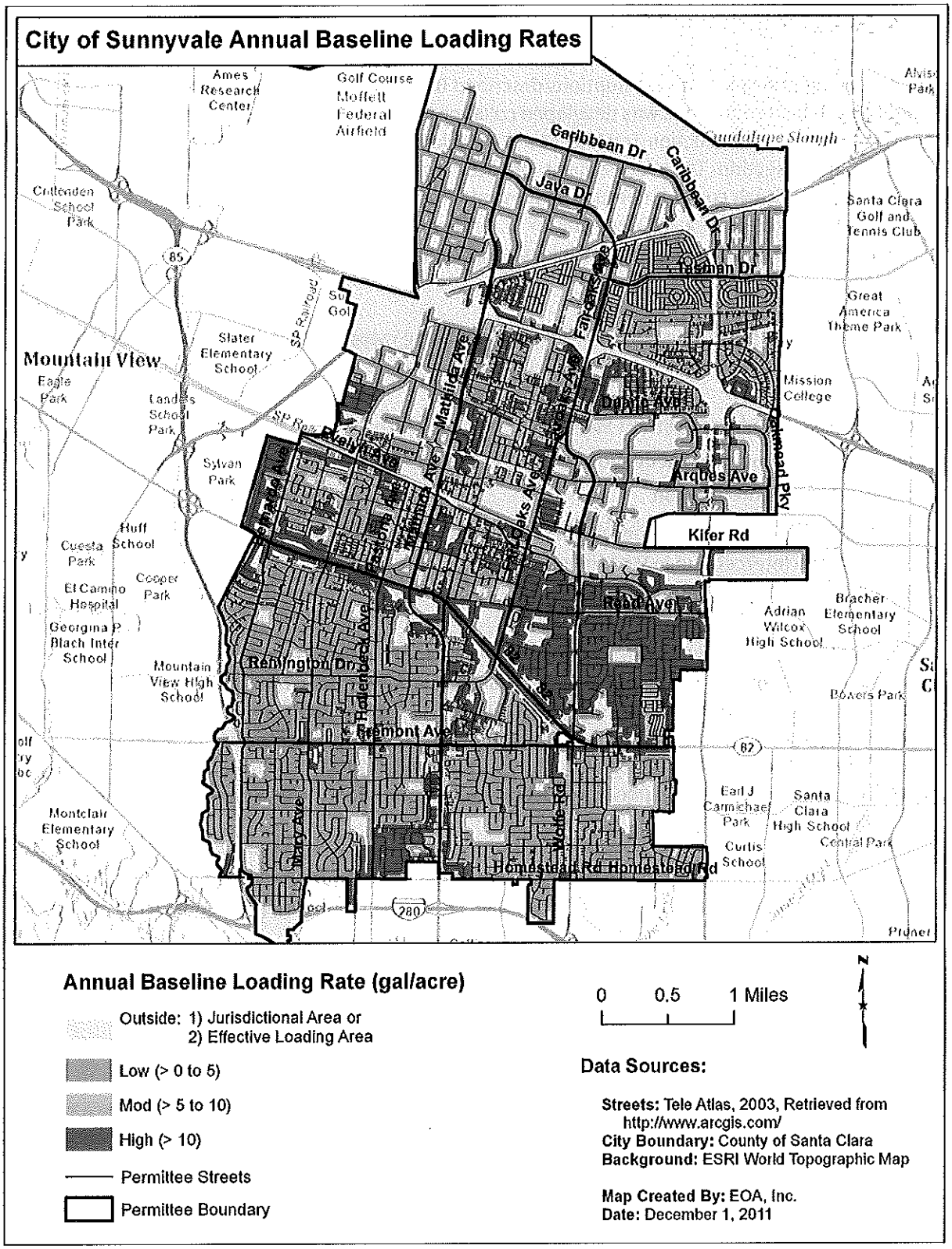

Figure 2-1: Estimated trash baseline loading rates for geographical areas in the City of Sunnyvale.

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 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, it minimizes over estimating trash load reductions associated with specific control measures that overlap.

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 control measures 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.[2] Therefore, reductions in current baseline loading rates are adjusted uniformly based on the implementation of the control measure and the associated credit attributed.

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 #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).

[2] 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-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 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.

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

4.0 ENHANCED TRASH CONTROL MEASURES

This section describes the new or enhanced trash control measures planned for implementation by the City of Sunnyvale. 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 the City of Sunnyvale include those listed in Table 4.1.

Table 4-1. Trash control measures that are planned for implementation by the City of Sunnyvale to reach the 40% trash load reduction.

Control Measure
Single-use Carryout Plastic Bag Ordinance
Polystyrene Foam Food Service Ware Policies
Public Education and Outreach Programs
Activities to Reduce Trash from Uncovered Loads
Improved Trash Bin/Container Management
On-land Trash Pickup (Volunteer and/or Municipal)
Full-Capture Treatment Devices
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal)

CR-1: Single-use Carryout Plastic Bag Ordinance

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 stormwater 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 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, some Permittees within the Bay Area have enacted ordinances on Single-use Carryout Plastic Bags. To avoid penalizing these early implementers, an ordinance 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 Sunnyvale City Council adopted an ordinance prohibiting the distribution of single-use carryout plastic bags on December 13, 2011 (SMC 5.38 - Plastic Carryout Bags). Based on the language in SMC 5.38, the City believes that it meets the criteria set out for Tier 3[3] of the Load Reduction Tracking Method Technical Report for enhanced control measures to reduce single-use plastic bag usage. Additionally, the City believe that due to its ordinance requiring that a fee be issued for the distribution of paper bags, the City meets the criteria for additional load reduction credits described in the Load Reduction Tracking Method Technical Report. The City will also initiate a public outreach campaign to promote the use of reusable bags and to help ensure the successful reduction in bag usage as identified in the ordinance.

The SMC 5.38 includes the following criteria and elements:

- It applies to the following retail establishments on June 20, 2012:
    - Full-line self service retail store with gross annual sales of two million dollars or more that sells a line of dry grocery, canned goods or non-food items and some perishable items;
    - Store of at least 10,000 square feet of retail space that sells any perishable or non-perishable goods, including but not limited to: clothing, food, or personable items and generates sales or use tax; or

[3] Tier 3 criteria = Adoption of a local 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 within their jurisdictional boundaries.

  - Drug store, pharmacy, supermarket, grocery store, convenience food store, food mart or other entity engaged in the retail sale of a limited line of goods that includes milk, bread, soda, and snack foods, including those stores with a Type 20 or 21 license issued by the Department of Alcoholic Beverage Control.
- It applies to the additional following retail establishments on March 20, 2013:
  - Store of less than 10,000 square feet of retail space that sells any perishable or non-perishable goods including, but not limited to, clothing, food, or personal items, and generates sales or use tax pursuant to the Bradley-Burns Uniform Local Sales and Use Tax Law.
- None of these retail establishments shall provide any customer a plastic carry-out bag for groceries at the point of sale. The ordinance does not apply to plastic produce bags or product bags.
- Store shall make only recyclable paper bags or reusable bags available for the purpose of carrying away goods or other materials from the point of sale. Stores that provide customers with a recyclable paper carry-out bag must charge the customer $0.10 per bag, with stores indicating on the customer receipt the number of bags provided and total amount charged. After January 1, 2014, the charge to customers will go up to $0.25 per bag. Stores may not reimburse customers for any portion of the cost of a bag.

Stores are required to report on a quarterly basis to the Environmental Services Department Director on the number of bags sold, the amount of monies collected, and any efforts the store has taken to promote the use of reusable bags by customers. If reports are not received, then enforcement measures as outlined in SMC 5.38.080 (Enforcement and violation penalty) will be implemented and the store will be subject to fines as described in that chapter. The Director of the Environmental Services Department or his/her delegated staff is responsible for enforcing the requirements of SMC 5.38. This includes investigating violations, issuing fines, and entering any store during business hours. Written warning notices will be issued for violations of the ordinance, with penalties payable by the operator of the store to the Solid Waste Management Fund, to assist the Department with the costs of implementing and enforcing the requirements of the chapter.

Stores must provide at the point of sale, free of charge either reusable bags or paper carryout bags or both (at the store's option) to any customer participating in the California Special Supplemental Food Program for Women, Infants, and Children, pursuant to specific chapters within the Health and Safety Code.

The ordinance does not apply to charitable organizations that reuse and recycle donated goods or materials and receive more than fifty percent of revenues from the handling and sale of those donated goods or materials.

The City has previously initiated public outreach and educational efforts to encourage the use of reusable bags by residents through its website and other printed media. Enhancements and additional outreach efforts to educate the public, with a focus on making behavioral changes will be implemented to reduce the number of single-use bags used within the City. This may involve working directly with retail establishments to provide low-cost reusable bags, assisting with signage to remind patrons to bring their own bags, and the use of free or low-cost media options to promote reusable bag usage.

Reduction from Implementing Control Measure

The City of Sunnyvale will receive a 12% reduction credit for implementing specific enhanced control measures described in Enhanced Level of Implementation section above. The 12% reduction credit will be applied to the City of Sunnyvale's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012b). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

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

The City of Sunnyvale plans to revise the City's current Environmental Procurement Policy (EPP), which requires staff to consider the long-term environmental impacts of purchasing any materials, products, or services, to specifically require the use of non-Expanded Polystyrene (EPS) alternatives for cups and food service items. This will prohibit the purchase and use of use EPS food service ware at City-sponsored events and on City-owned property. City Solid Waste Division staff review applications for City event permits and include requirements to follow the City's EPP Policy. Enforcement of the policy is done by the Solid Waste Division. Outreach to the public about alternatives will be done by Environmental Services Department staff.

The EPP may include language such as:

- The purchase, use and distribution of expandable polystyrene (Styrofoam) products by any City staff, attendee, vendor, caterer, supplier, of any City-sponsored or employee events or on City-owned property is prohibited;
- Alternative food service ware that is reusable, biodegradable, compostable, or recyclable should be used instead;
- Exemptions could be granted in the following circumstances: Health and/or safety operational issues are demonstrated;
- Emergency circumstances when alternatives do not exist.

The City Policy is planned to become effective by December 1, 2013 or earlier, pending approvals of the City Manager and Executive Leadership Team (ELT), using the approval process outlined in the City's Policy Manual. The percent trash reduction from MS4s as a result of implementing an EPS food service ware prohibition policy will be reported in the Annual Report submitted each September. The implementation of this policy will meet the requirements of Tier 1a of the *Load Reduction Tracking Method Technical Report.*

The Sunnyvale City Council will be ranking study issues for 2012 and included on their list is a citywide ban on EPS. Based on the results of that study session, Council will direct staff as to the next steps to take, which may include development of an ordinance to ban the use of EPS for food service ware used by businesses within the City.

The change in the City's Policy Manual to include the prohibition of food vendors from distributing polystyrene foam food ware at City-sponsored events or on City-owned property will be developed in 2012, after the Study Issue on a citywide ban on EPS is complete. If this city policy is not adopted by the ELT and City Manager per the criteria for adoption set in the City's Policy Manual, an alternative element will be identified for this plan equal to the 2% reduction in trash loading rate that is proposed for this plan element.

Percent Reduction from Enhancements

The City of Sunnyvale will receive a 2% reduction credit for implementing specific enhanced control measures described in *Enhanced Level of Implementation* section above. The 2% reduction credit will be applied to the City of Sunnyvale's baseline trash load. This percent reduction credit is consistent with methods presented in the BASMAA (2012b). A summary of all load reductions anticipated through the implementation of this plan are included in Section 5.0.

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 City of Sunnyvale implemented the following public education and outreach control measures prior to the effective date of the MRP. Since FY 05-06, the City's Environmental Outreach program has included litter prevention messages as part of its local advertising efforts (e.g., bus-back ads, theater ads, City Quarterly Reports, utility bill inserts, etc.) as well as including litter prevention as part of the school outreach program messages (see City of Sunnyvale Stormwater Annual Reports FY 05-06 through FY 09-10 for details on the City's Environmental Outreach program). Beginning after MRP adoption, the current level of outreach efforts and messages on litter prevention were increased in early 2010 and will continue on through the MRP term. The early implementation of these messages and control measures should not be considered baseline as they were implemented prior to MRP adoption and will continue to be implemented through the term of the MRP, with additional enhancements.

Enhanced Level of Implementation

The City of Sunnyvale has implemented the following public education and outreach control measures prior to July 1, 2014 and will continue implementation to that date:

<u>Litter Reduction Advertising Campaigns</u>

BASMAA Youth Outreach Campaign (Regional)

Through participation and funding of the regional **BASMAA Youth Outreach Campaign** the City of Sunnyvale will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 (post-MRP effective date) and aims to increase the awareness of 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. A brief description of the Campaign activities is provided below:

- <u>Raising Awareness</u>: The Campaign will begin by raising awareness of the 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, 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: 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 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 be used to evaluate its effectiveness in increasing awareness and changing behavior.

Watershed Watch Campaign (Countywide)

In addition to the BASMAA Campaign, the City of Sunnyvale 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 conducts media advertising that includes anti-litter messages. Anti-litter advertisements for television, print, transit, and radio have been developed and are used each year and will continue in the future. A telephone survey is conducted every five years to measure the effectiveness of outreach and increase in awareness about liter and stormwater related messaging.

Advertising Campaign (Local)

The City of Sunnyvale will continue its own local advertising campaigns and efforts to reduce litter with messages such as "Protect our Waterways – Please Don't Litter" and "If it Flows Down the Street, It Ends Up in the Creek", which are part of the Utility Bill inserts, Bus-Back advertising, and local Theater screen advertising. Examples of advertising used by the City each year are included in the C.7 section of the Sunnyvale Annual Stormwater Permit Report.

Outreach to School-age Children or Youth

ZunZun (Countywide)

Through participation and funding of the SCVURPPP countywide **ZunZun Program**, the City of Sunnyvale plans to continue 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 provide a list of schools for ZunZun to contact. In addition to schools with high Hispanic populations, the list includes 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.

Outreach to School-age Children or Youth (Local)

The City plans to continue to implement Sunnyvale's school and youth outreach program where Sunnyvale staff schedule and provide stormwater pollution prevention presentations in kindergarten and 5th grade classrooms. The presentations include litter pollution prevention as an important element of the lesson. In FY 09-10, 893 students in these grades were reached and in FY 10-11, through 64 classroom presentations, 1256 students received the messages. The activities include the use of the **Enviroscape Model** (with litter as one of the pollutants of concern and samples of water taken from the area around the Pacific "garbage patch" are shown and discussed) or a hands-on activity called "Who Dirtied the Bay" is provided. Detailed information on the Sunnyvale school outreach programs is available in the C.7 section of the Stormwater Permit Annual Report. Teachers are provided with presentation evaluation forms and information that is returned on the effectiveness of the presentations is tabulated and reported annually.

Media Relations

Through participation and funding of the **BASMAA Regional Media Relations Project**, the City of Sunnyvale plans to continue 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 press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.).

The City also makes extensive use of free media to focus on litter reduction and clean-up activities for local participation. City Environmental Outreach prepares messages for the Sunnyvale Quarterly (sent to all residents and businesses either electronically or by hard copy), electronic message boards in the Library and Public Safety and on the City's website. Public Service Announcements for local litter clean up events were picked up by KLIV and KRTY with information on the events and how to participate. The Sunnyvale Community/Neighborhood Association E-news, the Community Cable TV, KSUN, the City's online Community Calendar, Yahoo Groups and Yahoo Upcoming Events Calendar, Mercury News upcoming events calendar, and the City's Twitter account are all used to promote upcoming litter cleanup activities and events.

Community Outreach Events

City Environmental Outreach staff reaches the community as a whole though a number of annual events such as the State of the City and, presentations through the speaker's bureau to community service groups, neighborhood groups, and business groups. In FY 10-11, the City staff attended twelve community events and made presentations about litter issues and litter pollution prevention. Staff will be implementing additional effectiveness measurements.

Example of measurements include things like documenting additional requests for information, setting up local litter prevention actions (e.g., clean ups), or to take action requesting a "give–away", such as a reusable bag.

The City also participates in three regional litter clean up events and promotes participation in them through paid-local newspaper advertising, flyers/posters, and free electronic media. In addition, in FY 11-12 the City began making presentations to and working with local faith-based groups, schools, clubs, and neighborhood associations to provide information on how they can reduce litter by encouraging groups to hold neighborhood litter clean up events. Staff will be able to evaluate the effectiveness of these outreach presentations by the number of groups who actually schedule a local litter pick-up event, where the City provides bags, gloves, and a location to properly dispose of the litter, and tracks the quantity of litter collected.

Percent Reduction from Enhancements

The City of Sunnyvale will receive a total of 8% reduction credit for implementing specific enhanced control measures described in 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 % reduction credits will be applied to the City of Sunnyvale'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 5.0.

CR-4: Reduction of Trash from Uncovered Loads

Although it is currently illegal to operate a vehicle that is improperly covered and which its' contents escapes[4], vehicles remain an important 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 or private landfill and transfer station operators to educate waste haulers on securing loads and/or to enhance enforcement of existing regulations.

Baseline Level of Implementation

The baseline trash load described in Section 2.0 assumes that prior to adoption of the MRP the City of Sunnyvale 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 Sunnyvale revised SMC 8.16 (Solid Waste Management and Recycling) of the Sunnyvale Municipal Code to implement the following enhanced control measures, effective December 1, 2011. SMC 8.16.190 *Vehicles, conveyances, and containers - Applicable Regulations* has been amended to include that:

(a) All vehicles, conveyances, or containers used for hauling solid waste within the city shall be of such construction as to comply with all laws, rules, and regulations of the state of California pertaining thereto, and shall be of a types and construction to prevent leakage, spillage, or overflow. This ordinance is intended to implement the requirements of Vehicle Code section 23114 or its successor statute.

and

(b) Any operator of an open bed truck hauling waste and recyclables for disposal at the SMaRT Station will be subject to a fee for which the operator will receive a tarp to be used for covering debris and solid waste.

The fee as established by resolution of the city council for the truck tarp is currently set at $15.00.

Based on this enhanced level of implementation, the City goes beyond the requirement for Municipal Trash Haulers to cover loads with the adoption of the ordinance revisions and an increased awareness with enforcement by requiring payment of a fee for a tarp, if a load is uncovered.

[4] 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 loads 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.

City Patrol Officers write citations under the California Vehicle Code Section 23114 and 23115 for uncovered loads when they are observed, but active enforcement does not occur due to the lower priority of this issue when compared to crime suppression, traffic safety, and general calls for service. However, through a contract basis, Environmental Services Department may provide funding to Public Safety so that Officers could be assigned on overtime to monitor traffic coming to the SMaRT Station and issue citations for uncovered loads. This active enforcement would be considered implementation of an enhanced enforcement program for vehicles with uncovered loads and would receive the maximum percent reduction credit for this activity. The active enforcement with overtime contract pay for Public Safety Officers is planned for FY 12-13.

In addition, the City has prescriptive language in municipal contracts for debris/garbage haulers that work within the city. Per requirements of the contract (5.12 and 5.14), haulers are required to have collection vehicles to have water-tight bodies and that the contractor places tarps over all open debris boxes during transport to the disposal site.

Percent Reduction from Enhancements

These 5% reduction credit will be applied to the City of Sunnyvale's baseline trash. 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 5.0.

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 for placing incidental trash generated in public spaces that provides people with a convenient and appropriate place to dispose of trash. The design and size of public area trash containers vary widely, depending on their setting and use.

The effectiveness of bins/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 Sunnyvale has not implemented enhanced trash bin/container management practices prior to effective date of the MRP.

The Sunnyvale Municipal Code, SMC 8.16.040 and 050 establish the requirements for solid waste containers, maintenance, and their removal. As part of the Franchise Hauler contract for the City, Solid Waste Division staff perform annual "ride-alongs" with the collection vehicle drivers and identify waste containers that are either improperly sized or their frequency of collection is insufficient, causing potential releases of solid waste on a property. Standard operating procedures have been developed for staff who perform these inspections with the hauler drivers and subsequent notification or enforcement that may be required if a problem is observed.

Enhanced Level of Implementation

The City of Sunnyvale has implemented or will implement the following improved trash bin/container management practices to ensure adequate private trash service prior to July 1, 2014:

Solid Waste Division staff will continue to enforce the requirements of SMC 8.15.040 and .050 to ensure that businesses and households have sufficient trash collection frequencies and that the trash bins/containers are of an adequate size to hold the quantity of trash generated to prevent unintended releases of trash. The City will continue to include language in its contract with its Franchise Waste Hauler to allow City staff to go out with drivers on their routes and identify problematic properties. The contract also includes requirements for ensuring container lids are

properly closed after emptying and for cleaning up litter in the vicinity of any solid waste storage bins.

Solid Waste Program staff will continue with follow up and enforcement with property owners where bin sizing, placement, collection frequency and failures to comply with municipal code are noted.

The City has one Business Improvement District BID in the downtown Murphy Street historical area. The Public Works Department currently provides street sweeping in the Murphy Avenue core area bounded by Frances Street, Evelyn Avenue, Sunnyvale Avenue, and Washington Avenue. Sweeping and litter pick up services are provided three times per week, and a street cleaning unit for sidewalks is also used weekly. Adjacent city-owned parking lots in this area are part of a special Parking District, and are swept three times per week as well. An area specific credit of 50% for this area is being sought for these streets and parking lot areas. The establishment of additional BIDs is not being considered at this time.

Percent Reduction from Enhancements

These 3.1% reduction credit will be applied to the City of Sunnyvale's baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Sunnyvale. 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 5.0.

QF-1: On-Land Trash Cleanups (Volunteers & 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 events or throughout the year.

Baseline Level of Implementation

The City of Sunnyvale implemented minimal on-land cleanup activities prior to the effective date of the MRP. These cleanup events 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 City of Sunnyvale will be conducting or coordinating the following on-land trash cleanups listed below. 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.

- The City of Sunnyvale plans to support and organize the "Keep America Beautiful" litter clean up event in the spring (March/April) time frame each year. The number of clean up sites/central collection spots may vary from year to year, depending on staffing availability, but it is our intent to maintain up to four neighborhood check-in spots for the event that will clean up an area approximately one square mile around each of the check-in sites.

- The City also plans to sponsor at least one additional volunteer event each year, similar to what was done in FY 11-12 by supporting the "Knock out Litter" event held by local faith-based groups and a youth boxing club. Through the two annual volunteer events, coordinated by City staff, the expected waste load reduction will be 12 cubic yards or 324 cubic feet per year (2,083 gallons).

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 2,083 gallons. This volume is equal to approximately a 4.7 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 Sunnyvale. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.

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 City of Sunnyvale's baseline street sweeping program includes sweeping at a frequency of two times per month on average in retail areas and two times per month on average in all other areas. Sweeping in the downtown Murphy Street Business Improvement District (BID) retail area occurs three times per week.

Parking is prohibited along the major arterial roadways (e.g., Mathilda Avenue, Sunnyvale-Saratoga Road, and significant portions of El Camino Real). A list of all streets with parking prohibitions is available upon request and has been utilized to calculate the baseline trash load reduction via street sweeping actions. The downtown business district has parking enforcement between 2 AM and 7 AM, to allow for sweeping of streets and city parking lots. These parking prohibitions allow sweepers access to the curb.

Enhanced Level of Implementation

Due to the existing enhanced street sweeping that City of Sunnyvale conducts in the Murphy Street Business Improvement District (BID), which is above the baseline street sweeping frequency ceiling of 1x/week for streets within retail land use areas or greater than 2x/month for streets in all other land use areas, the City removes an estimated 745 gallons of trash annually.

At this time, the City of Sunnyvale is not considering implementation of additional enhanced street sweeping by increasing sweeping frequency or including additional parking enforcement for additional areas of Sunnyvale.

Percent Reduction from Enhancements

The total estimated annual volume of trash that is reduced as a result of implementing existing enhanced street sweeping is 745 gallons. This volume is equal to approximately a 1.7 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 Sunnyvale. Values provided within this section are included in 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 *Trash Load Reduction Tracking Method Report* (BASMAA 2012b). 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 77 trash full-capture treatment devices (Storm Tek, AS-2 inlet screens) were installed in the City of Sunnyvale as of August 18, 2011. In addition, the City has approved installation of 11 large full-trash capture devices (e.g., vortex-separator and continuous deflection-type devices) that treat stormwater from parking lots of new and redevelopment projects starting in 2003. City staff inspects these units on a regular basis for compliance with their stormwater management plans. Of the 11, six have been constructed. Additional private units will be added upon their completion and inspection by staff. A list of these full-capture devices is included in Table QF-6-1. All devices listed within this table are enhanced trash control measures. Table QF-6-1 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 2012b).

Percent Reduction from Enhancements

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of installing and implementing maintenance of full-capture devices is 1527 gallons. This volume is equal to approximately a 3.5 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 Sunnyvale. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.

Table QF-6-1. Trash full-capture treatment devices within the jurisdictional boundaries of the City of Sunnyvale 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
S075-315	Public	AS-ST 3-G Inlet Screen	N. Stelling and Homestead Road SW corner	8/18/2011	0.85	
S086-312	Public	AS-ST 3-G Inlet Screen	Near 1565 Hollenbeck Ave	8/17/2011	3.10	
S162-309	Public	AS-ST 3-G Inlet Screen	Fremont and Bernardo intersection SE corner	8/16/2011	2.40	
S162-307	Public	AS-ST 3-G Inlet Screen	Near 1000-1096 Fremont Ave, east of Bernardo Ave	8/16/2011	1.57	
S163-307	Public	AS-ST 3-G Inlet Screen	Fremont Ave, 2 lots west of Wright Ave intersection	8/16/2011	2.44	
S163-309	Public	AS-ST 3-G Inlet Screen	Fremont & Wright, SW corner	8/16/2011	1.32	
S163-310	Public	AS-ST 3-G Inlet Screen	Fremont & Wright SE corner	8/16/2011	0.61	
S164-301	Public	AS-ST 3-G Inlet Screen	Fremont & Mary SW corner	8/16/2011	0.97	
S164-302	Public	AS-ST 3-G Inlet Screen	Fremont & Mary SE corner	8/16/2011	0.63	
S165-301	Public	AS-ST 3-G Inlet Screen	Fremont (westbound) near Fremont Terrace W. intersection	8/17/2011	0.63	
S165-306	Public	AS-ST 3-G Inlet Screen	East of Fremont Ave & Warner Ave intersection	8/16/2011	1.61	
S165-314	Public	AS-ST 3-G Inlet Screen	Fremont & Nelson, SW corner	8/17/2011	3.27	
S166-323	Public	AS-ST 3-G Inlet Screen	Fremont & Hollenbeck, SW corner	8/16/2011	2.09	
S166-324	Public	AS-ST 3-G Inlet Screen	Fremont & Hollenbeck, SE corner	8/16/2011	0.80	
S166-325	Public	AS-ST 3-G Inlet Screen	Fremont & Oxbow Ct, SW corner	8/16/2011	0.90	

Device ID	Public or Private	Device Name	Location (Cross Streets)	Installation Date/Anticipated Installation Date	Total Area Treated (acres)	Trash Load Reduced
S166-326	Public	AS-ST 3-G Inlet Screen	Fremont & Oxbow Ct, SE corner	8/16/2011	0.50	
S166 - no number	Public	AS-ST 3-G Inlet Screen	Fremont Ave. westbound lane, opposite Cordilleras Ave	8/17/2011	0.91	
S167-306	Public	AS-ST 3-G Inlet Screen	Fremont & Los Arboles intersection, SW corner	8/16/2011	8.47	
S167-310	Public	AS-ST 3-G Inlet Screen	Fremont & Sydney Dr., SW corner	8/16/2011	2.60	
S168-304	Public	AS-ST 3-G Inlet Screen	SE Corner Sydney & Fremont	8/16/2011	0.38	
S168-303	Public	AS-ST 3-G Inlet Screen	526 W. Fremont Ave, in front of Post Office	8/16/2011	0.98	
S168-306	Public	AS-ST 3-G Inlet Screen	Near 168 E. Fremont Ave (gas station)	8/17/2011	1.80	
S168-301	Public	AS-ST 3-G Inlet Screen	NW corner Fremont & SV Saratoga	8/17/2011	1.55	
S168-305	Public	AS-ST 3-G Inlet Screen	1323 Sunnyvale Saratoga Rd (Dairy Belle)	8/17/2011	1.39	
S168-307	Public	AS-ST 3-G Inlet Screen	Near 115A E. Fremont Ave & intersection SV-Saratoga Rd	8/17/2011	0.72	
S172-332	Public	AS-ST 3-G Inlet Screen	Fremont Ave, Eastbound lane 2 lots west of Wolfe	8/17/2011	1.43	
S172-327	Public	AS-ST 3-G Inlet Screen	Fremont & Wolfe intersection, SW corner	8/17/2011	2.52	
S172-328	Public	AS-ST 3-G Inlet Screen	Wolfe Road, Near 1313 S. Wolfe - (Wendy's)	8/17/2011	4.03	
S172-345	Public	AS-ST 3-G Inlet Screen	Fremont & Wolfe intersection NW corner	8/17/2011	1.35	
S208-304	Public	AS-ST 3-G Inlet Screen	NW corner Remington & SV Saratoga	8/17/2011	1.85	
S208-305	Public	AS-ST 3-G Inlet Screen	SW corner Remington & SV Saratoga	8/17/2011	1.82	
S208-306-	Public	AS-ST 3-G Inlet Screen	SE corner Remington & SV Saratoga	8/17/2011	1.08	

Device ID	Public or Private	Device Name	Location (Cross Streets)	Installation Date/Anticipated Installation Date	Total Area Treated (acres)	Trash Load Reduced
S233-318	Public	AS-ST 3-G Inlet Screen	Northbound lanes SV Saratoga, 200 Yd S of Cumulus Ave	8/17/2011	0.82	
S233 -no number	Public	AS-ST 3-G Inlet Screen	Southbound lanes SV Saratoga, 200 Y N of Remington Ave int.	8/17/2011	1.03	
S248-302	Public	AS-ST 3-G Inlet Screen	Mathilda & SV Saratoga intersection	8/17/2011	0.89	
S248-312	Public	AS-ST 3-G Inlet Screen	SV Saratoga & Crawford Dr., NW corner	8/17/2011	0.68	
S248-313	Public	AS-ST 3-G Inlet Screen	SV Saratoga & Crawford Dr., SW corner	8/17/2011	5.38	
S273-no # B	Public	AS-ST 3-G Inlet Screen	SV Saratoga (south lane) near Fall River	8/17/2011	0.43	
S273-no # A	Public	AS-ST 3-G Inlet Screen	SV Saratoga South lane, S of PG&E Tower	8/17/2011	0.46	
S273-304	Public	AS-ST 3-G Inlet Screen	Mathilda Ave Northbound, N of Fall River Terrace	8/17/2011	1.11	
S274-301	Public	AS-ST 3-G Inlet Screen	Mathilda Southbound lane, near 585 Amherst	8/18/2011	1.64	
S274-302	Public	AS-ST 3-G Inlet Screen	Mathilda Northbound, S. of 988 Mathilda (Cherry Orchard)	8/18/2011	0.98	
S287-312	Public	AS-ST 3-G Inlet Screen	Mathilda & El Camino intersection, SW corner	8/18/2011	1.50	
S287-307	Public	AS-ST 3-G Inlet Screen	Mathilda & El Camino intersection NW corner	8/18/2011	0.78	
S314-304	Public	AS-ST 3-G Inlet Screen	Mathilda & W. Olive intersection SW corner	8/18/2011	1.49	
S314-303	Public	AS-ST 3-G Inlet Screen	Mathilda & W. Olive, NW corner	8/18/2011	0.26	
S314-305	Public	AS-ST 3-G Inlet Screen	Mathilda & E. Olive SE corner	8/18/2011	2.71	
S314-309	Public	AS-ST 3-G Inlet Screen	Mathilda & All America Way, NW corner	8/18/2011	0.42	
S327-305	Public	AS-ST 3-G Inlet Screen	Mathilda & Iowa, SW corner	8/18/2011	1.08	

Device ID	Public or Private	Device Name	Location (Cross Streets)	Installation Date/Anticipated Installation Date	Total Area Treated (acres)	Trash Load Reduced
S327-308	Public	AS-ST 3-G Inlet Screen	Mathilda & Iowa, NW corner	8/18/2011	0.53	
S327-307	Public	AS-ST 3-G Inlet Screen	Mathilda & Iowa, NE corner	8/18/2011	0.28	
S327-306	Public	AS-ST 3-G Inlet Screen	Mathilda & Iowa, SE corner	8/18/2011	1.72	
S327-309	Public	AS-ST 3-G Inlet Screen	Mathilda & McKinley SW Corner	8/18/2011	2.32	
S327-311	Public	AS-ST 3-G Inlet Screen	Mathilda & McKinley NW corner	8/18/2011	0.33	
S327-310	Public	AS-ST 3-G Inlet Screen	Mathilda & McKinley SE corner	8/18/2011	1.10	
S353-306	Public	AS-ST 3-G Inlet Screen	Mathilda & Washington SW corner	8/18/2011	2.31	
S353-312	Public	AS-ST 3-G Inlet Screen	Mathilda & Washington SE corner	8/18/2011	1.12	
S353-334	Public	AS-ST 3-G Inlet Screen	Washington eastbound lane, west of Frances int.	8/18/2011	0.17	
S353-335	Public	AS-ST 3-G Inlet Screen	Washington Eastbound lane at Frances Ave int.(Macys)	8/18/2011	0.54	
S353-no#	Public	AS-ST 3-G Inlet Screen	Washington & Town Center Alley, west side.	8/18/2011	0.24	
S353-349	Public	AS-ST 3-G Inlet Screen	Frances & Evelyn, SE corner	8/18/2011	2.41	
S432-304	Public	AS-ST 3-G Inlet Screen	W. Maude Ave & San Angelo inters. , SE corner (7-11 store)	8/18/2011	1.42	
S448 - 304	Public	AS-ST 3-G Inlet Screen	Maude eastbound, near 678 W. Maude (Bakery)	8/18/2011	1.41	
S193-320	Public	AS-ST 3-G Inlet Screen	Svale-Saratoga & Westside Dr intersection - Westside inlet	1/10/2008	1.65	
S193-321	Public	AS-ST 3-G Inlet Screen	Svale-Saratoga & Westside Dr. intersection - SV-Saratoga inlet	1/10/2008	1.64	
S398-301	Public	AS-ST 3-G Inlet Screen	155 Acalanes Ave, across from Coronado intersection	1/10/208	2.11	

Device ID	Public or Private	Device Name	Location (Cross Streets)	Installation Date/Anticipated Installation Date	Total Area Treated (acres)	Trash Load Reduced
S432-320	Public	AS-ST 3-G Inlet Screen	240 W. Maude (in front of liquor store)	1/10/2008	2.02	
S432-321	Public	AS-ST 3-G Inlet Screen	340 W. Maude - (in front of KFC)	1/10/2008	1.98	
S452-307	Public	AS-ST 3-G Inlet Screen	Intersection of Caliente Ave & Bernal Ave, SW corner	1/10/2008	2.10	
S470-301	Public	AS-ST 3-G Inlet Screen	785 Morse - in front of Columbia Neighborhood Cent.	9/22/2008	2.12	
S470-303b	Public	AS-ST 3-G Inlet Screen	-825 Morse Ave - in front of Columbia Middle School	1/10/2008	2.17	
S489-311	Public	AS-ST 3-G Inlet Screen	Near 828 W. Awhanee	1/10/2008	1.32	
S629-313	Public	AS-ST 3-G Inlet Screen	Intersection of Caribbean Dr & Geneva Ave, SW corner	1/10/2008	1.72	
S653-304	Public	AS-ST 3-G Inlet Screen	Intersection of Caribbean Dr. & Borregas Ave, NW corner	1/10/2008	1.67	
S75-313	Public	AS-ST 3-G Inlet Screen	Intersection of Homestead Rd & Hollenbeck Ave, NW corner	9/22/2008	1.31	
S75-314	Public	AS-ST 3-G Inlet Screen	Intersection of Homestead Rd & N. Stelling Ave, SE corner	1/10/2008	1.19	
(Mathilda overpass project CDS)	Public	Contech Unit	400-438 W. Evelyn Ave	6/1/2012	(10.24 acres for entire project	
(Mathilda overpass project CDS)	Public	Contech Unit	400-470 W. California Ave	6/1/2012	(10.24 acres for entire project	
Subtotal for all 77 small units, based on BASMAA Load Calculator Tool						903

Device ID	Public or Private	Device Name	Location (Cross Streets)	Installation Date/Anticipated Installation Date	Total Area Treated (acres)	Trash Load Reduced (Gallons)
	Private - retail	Contech unit – hydrodynamic separator	398 W. El Camino Real, and Mathilda Ave Cherry Glenn Plaza intersection	2009	0.77	
	Private - residential	CDS units	707 S. Mathilda - Classics at Las Palmas (residential)	2009	2.4	
	Private -retail	CDS units	811 E. Arques Ave, (Lowes)	2008	15.07	
	Private - commercial	CDS units	111 Java Drive (Java Metro Center)	2009	12.7	
	Private - retail	CDS Units	782 E. El Camino Real (Walgreens & Panda Express)	2009	2.28	
	Private - retail	CDS Units	2502 Towncenter Lane – Towncenter mixed use project	2010	35.5	
	Private		[5]More to be added			
Subtotal for 6 large units, based on BASMAA Load Calculator tool						624
Combined total for all Trash Full-Capture Devices						1527

[5] Additional private units will be added, once installations are complete and inspections have been done by Sunnyvale staff.

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 City of Sunnyvale'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 Sunnyvale will conduct MRP-required[6] and the following non-MRP required creek/channel/shoreline cleanups[7] 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.

Single Day Efforts:

- National River Clean Up Day (third Saturday in May)
- Coastal Clean Up Day (third Saturday in September)

The City has sponsored cleanup sites for these events since 2008, and will continue to do so in the future. Based on previous collection efforts, we estimate that approximately 1,400 gallons of debris will be collected annually via these two events.

Permittee-Led Clean Up Activities:

City staff has performed the five trash hot spot clean up actions required in accordance with provision C.10.b since May 2010 (post-MRP effective date). The hot spot clean ups will continue to occur through the course of this permit. New locations may need to be identified if the quantity of debris collected continues to be reduced at some locations. Based on previously collected data, we have estimated that less than 175 gallons of trash will be collected from the five hot spots.

Additionally, City staff, in cooperation with volunteers conducted a homeless/litter clean up in April 2011 along a portion of the Sunnyvale East Channel, near the John W. Christian Green Belt area. The City intends to continue performing this type of clean up, on an as-needed basis in the future. Due to the uncertainty of this type of clean up being needed on an annual basis, we

[6] Creek/channel/shoreline cleanups conducted in accordance with Permit Provision C.10.b.
[6] All other creek/channel/shoreline cleanups conducted by a municipality that are not required by Provision C.10.b.

have not included that as an item for a percent reduction here. However, we will track the quantity of debris collected, if an event occurs, and will include that information in our annual report.

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 approximately 1,575 gallons. This volume is equal to approximately a 3.6 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 Sunnyvale. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.

5.0 SUMMARY OF TRASH CONTROL MEASURE ENHANCEMENTS

The City of Sunnyvale 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.

- The City is implementing a Single Use Carryout Plastic Bag Ordinance, which was approved by Council on December 6, 2011, with an effective date of June 20, 2012. The City will apply the maximum 12% reduction credit for this action to help meet the trash load reduction goal.

- Council will be considering a citywide Polystyrene Foam Food Service Ware prohibition in a study session to be scheduled for 2012. The results of that session will determine if the City will seek to develop an ordinance to institute a citywide prohibition for its use by businesses. In the interim, City staff will pursue the adoption of a revision of city policy, under the current Environmentally Preferable Purchasing Policy to prohibit the purchase or use of expanded polystyrene (EPS) products for use at city-sponsored events or on city-owned property. Pending approval by the City Manager and Executive Leadership Team, it is anticipated that this will become effective by December 1, 2013. In the event the policy is not approved, an alternative element will be identified for this plan that will equal the 2% reduction in trash loading rate that is proposed for prohibitions at events and City-owned property.

- The City will continue to implement and enhance its public education and outreach program, especially to school-age children. Our currently implement program is very robust and has included a litter prevention element in outreach messages for the past several years. The City will apply the maximum 8% reduction credit allowed for enhanced control measures.

- An uncovered load ordinance became effective on December 1, 2011. The City has had prescriptive language regarding contract haulers bringing debris to the SMaRT Station since September 30, 2010 Environmental Services Division will work with Public Safety to allow for an enhanced enforcement program for uncovered loads. This would allow the City to apply the maximum 5% reduction credit for implementing this action.

- City staff will continue to enforce the requirements of SMC 8.15.040 and .050 to ensure that businesses and households have sufficient trash collection frequencies and that the trash bins/containers are of an adequate size to hold the quantity of trash generated to prevent unintended releases of trash. City staff will continue with follow up and enforcement with property owners where bin sizing, placement, collection frequency and failures to comply with municipal code are noted. Additionally, the City will continue to support the Business Improvement District BID in the downtown Murphy Street historical area, where sweeping and litter pick up services are provided three times per week, and a street cleaning unit for sidewalks is also used weekly. The City will receive a 3.1% reduction credit for implementing these actions.

- City staff will continue to organize and sponsor land-based trash clean ups such as the Great American Litter Pick Up and local faith-based or community group clean ups such as the "Knock Out Litter" event held in October 2011. The estimated annual reduction for these types of events will be approximately 4.7% of the baseline trash load. Quantities of debris collected at these events will be tracked to demonstrate the reduction.

- The City has installed 77 small full-trash capture devices and two large devices (Contech-type units) since 2008. The estimated trash load reduction from all small devices is 2.1%. Only a few of the privately installed full-trash capture devices have been included in the percent reduction calculated for full-trash capture devices. The estimated load reduction from these large devices is 1.4%. This will provide the City a 3.5 % reduction in litter from the MS4. More treated areas may be added as private projects are completed and inspections by City staff are done.

- The City will continue to sponsor at least two single-day, creek/channel or shoreline clean up events each year. In addition, City staff will continue with the 5 trash hot-spot clean ups annually. Based on the average quantity of debris collected through these efforts in the past, the City estimates that a 3.6% reduction in the trash load can be reached. The volume of debris collected at these events will continue to be tracked and reported on annually, to demonstrate the reduction.

Based on calculations presented in Table 5.1, the City estimates that a 43.2% reduction from the baseline load estimate can be achieved, if all elements of this plan are implemented.

Table 5-1. Planned enhanced trash control measure implementation within the jurisdictional boundaries of the City of Sunnyvale and associated trash loads reduced. (Baseline load 43,318 gallons)

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced	Cumulative % Reduction (Compared to Baseline)
Existing Enhanced Street Sweeping	Sweeping frequency of 3x per week in Murphy St. Business Improvement District	NA	745	1.7
Single-use Carryout Plastic Bag Ordinance (CR-1)	Tier 3- Prohibit distribution at retail establishments with the exception of restaurants	12.0%	5,165	13.5
Polystyrene Foam Food Service Ware Ban (CR-2)	Tier 1– Prohibit Distribution at City-sponsored events or City-owned Property	2.0%	861	15.5
Public Education and Outreach Programs (CR-3)	• Advertising campaigns • Outreach to schools & youth • Media Relations – use of free media • Community outreach events	8.0%	3,443	23.3
Activities to Reduce Trash from Uncovered Loads (CR-4)	• Prescriptive language in municipal contracts for trash/debris haulers • Enhanced enforcement program for vehicles with uncovered loads	5.0%	2,152	28.2
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Ensuring Adequate private trash service: Tier 2 – Development of an ordinance and identification and enforcement of inadequate trash service for private trash/recycling containers	3.1%	1,347	31.3
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	GALP and additional volunteer clean ups ~ 12 cu yard/year	NA	2,083	36.1
Full-capture Treatment Devices (QF-5)	• 77 City owned small devices, • Mathilda Overpass - 2 large devices (under construction) • 6 Privately owned/maintained large devices at retail businesses and high density residential properties.	NA	1,527	39.6
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	• National River Clean Up Day • Coastal Clean Up Day • Trash hot spot cleanups	NA	1,575	43.2

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

Consistent with MRP Provision C.10.d (i), the City of Sunnyvale 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 City of Sunnyvale 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).

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 City of Sunnyvale 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 City of Sunnyvale's MS4 by 40%.

Based on new information that becomes available during the implementation of this Short-Term Plan (e.g., experience with implementation, revisions to baseline loading estimates or quantification formulas altering load reduction credits), the City of Sunnyvale may chose 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 annual reporting process.

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

Trash Control Measure	Beginning Date of Implementation
Single-use Carryout Plastic Bag Ordinance (CR-1)	June 20, 2012
Polystyrene Foam Food Service Ware Ban (CR-2)	December 1, 2013
Public Education and Outreach Programs (CR-3)	December 1, 2009
Activities to Reduce Trash from Uncovered Loads (CR-4)	December 1, 2011
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	December 1, 2012
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	March, 2008
Full-capture Treatment Devices (QF-5)	Small Units: • January 2008 - City began installation • August 2011 - City began installation Large units: Installations began in 2004
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	May 2008

7.0 REFERENCES

Allison R.A. and F.H.S. Chiew 1995. Monitoring stormwater pollution from various land uses in an urban catchment. Proceedings from the 2nd International Symposium on Urban Stormwater Management, Melbourne, 551-516.

Allison, R.A., T.A. Walker, F.H.S. Chiew, I.C. O'Neill and T.A McMahon 1998. From Roads to rivers: Gross pollutant removal from urban waterways. Report 98/6. Cooperative Research Centre for Catchment Hydrology. Victoria, Australia. May 1998.

Armitage, N. 2001. The removal of Urban Litter from Stormwater Drainage Systems. Ch. 19 in Stormwater Collection Systems Design Handbook. L. W. Mays, Ed., McGraw-Hill Companies, Inc. ISBN 0-07-135471-9, New York, USA, 2001, 35 pp.

Armitage, N. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.

Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.

Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Prestoria.

Armitage, N. and A. Rooseboom 2000. The removal of urban litter from stormwater conduits and streams: Paper 1 – The quantities involved and catchment litter management options. Water S.A. Vol. 26. No. 2: 181-187.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011a. Progress Report on Methods to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems and Track Loads Reduced. February 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011b. Method to Estimate Baseline Trash Loads from Bay Area Municipal Stormwater Systems: Technical Memorandum #1. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011c. Sampling and Analysis Plan. Prepared by EOA, Inc. April 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2011d. Trash Load Reduction Tracking Method: Technical Memorandum #1 – Literature Review. Prepared by EOA, Inc. May 2011.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012a. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 1.

BASMAA (Bay Area Stormwater Management Agencies Association). 2012b. Trash Load Reduction Tracking Method: Technical Report. Prepared by EOA, Inc. February 1.

County of Los Angeles. 2002. Los Angeles County Litter Monitoring Plan for the Los Angeles River and Ballona Creek Trash Total Maximum Daily Load. May 30, 2002.

County of Los Angeles. 2004a. Trash Baseline Monitoring Results Los Angles River and Ballona Creek Watershed. Los Angeles County Department of Public Works. February 17, 2004.

County of Los Angeles 2004b. Trash Baseline Monitoring for Los Angles River and Ballona Creek Watersheds. Los Angeles County Department of Public Works. May 6, 2004.

County of Los Angeles, Department of Public Works, Environmental Programs Division. 2007. *An Overview of Carryout Bags in Los Angeles County: A Staff Report to the Los Angeles County Board of Supervisors.* Alhambra, CA. http://dpw.lacounty.gov/epd/PlasticBags/PDF/PlasticBagReport_08-2007.pdf. August 2007.

Kim, L.H, M. Kayhanian, M.K. Stenstrom 2004. Event mean concentration and loading of litter from highways during storms. Science of the Total Environment Vol 330: 101-113.

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