CITY OF OAKLAND

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February 1, 2012

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

RE: Submittal of Baseline Trash Load and Short-Term Trash Load Reduction Plan

Dear Mr. Wolfe,

Enclosed please find the City of Oakland's *Baseline Trash Load and Short-Term Trash Load Reduction Plan* as required by Provisions C.10(a)(i) and C.10(a)(ii) of the California Regional Water Quality Control Board, San Francisco Bay Region Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit (R2-2009-0074).

I certify under penalty of law that these documents and all attachments were prepared under my direction or supervision or were prepared by our consultants or consultants of the Alameda Countywide Clean Water Program 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.

Sincerely,

Lesley Estes, Supervisor
Watershed and Stormwater Management
Department of Engineering and Construction

Enclosure

Baseline Trash Load and Short-Term Trash Load Reduction Plan

February 1, 2012

Submitted by:

City of Oakland

Public Works Agency

Watershed & Stormwater Program

250 Frank H. Ogawa Plaza

Oakland, CA 94612

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

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City of Oakland
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 this document and all attachments were prepared either under my direction or supervision, or were prepared by our consultants or consultants of the Alameda Countywide Clean Water Program 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:

2/1/12

Lesley Estes February 1, 2012

Watershed & Stormwater Management Supervisor
Department of Engineering and Construction

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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
KOCB	Keep Oakland Clean and Beautiful
LMI	Lake Merritt Institute
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, etc), or if circumstances arise during implementation that were not anticipated at the time of this submission, the City of Oakland 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 Oakland'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 Oakland 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, etc), or if circumstances arise during implementation of the Plan that were not anticipated at the time of submission, the City of Oakland 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 *Oakland*'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
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 Generation 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 Oakland's Municipal Separate Storm Sewer System (MS4). In compliance with Provision C.10.a.ii of the MRP, the City of Oakland 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 Oakland. 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 Oakland'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 1852, the City of Oakland covers 36,749 acres in Alameda County, and has a jurisdictional area of 23,682 acres. According to the 2010 Census, it has a population of 390,724, with a population density of 7,003.8 people per square mile, and average household size of 2.49. Of the 390,724 who call the City of Oakland home, 21.3% are under the age of 18, 9.3% are between 18 and 24, 33.1% are between 25 and 44, 25.2% are between 45 and 65, and 11.1% are 65 or older.

Top employers in the City of Oakland include Alameda County, Kaiser Permanente, Oakland Unified School District, City of Oakland, United States Postal Service, and the Internal Revenue Service. The median household income was $40,055 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 Loading Rates Project*. Due to the compliance timeline in the MRP, only two of three trash characterization monitoring events were used to develop trash generation rates described in BASMAA (2012a) and presented in this section. Following the completion of the third characterization event (Winter 2011/12), this section of the Short-Term Plan may be updated to reflect the most up-to-date trash generation and loading rates available. Trash generation rates based on the results of two of the three characterization events are shown in Table 2-1 for each trash loading category.

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 Oakland. The City of Oakland's jurisdictional areas includes all urban land areas within the City of Oakland 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 <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 Alameda County;

[1] From the 2000 Census. The median household income for the City of Oakland 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).

The estimate of land use information has been based on the best information available at the time the estimate was developed. Once the City of Oakland'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 Oakland are presented in Table 2-2.

Table 2-2: Jurisdictional areas and effective loading areas in the City of Oakland 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	8,748	8,662	42
Low Density Residential	6,898	6,354	31
Rural Residential	645	371	2
Commercial and Services/ Heavy, Light and Other Industrial	4,233	3,281	16
Retail and Wholesale	1,010	899	4
K-12 Schools	736	502	2
Urban Parks	1,412	636	3
TOTAL	23,682	20,706	**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 Oakland 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 Oakland are provided in Table 2-3 and areas associated with these rates are illustrated in Figure 2-1.

Baseline Street Sweeping

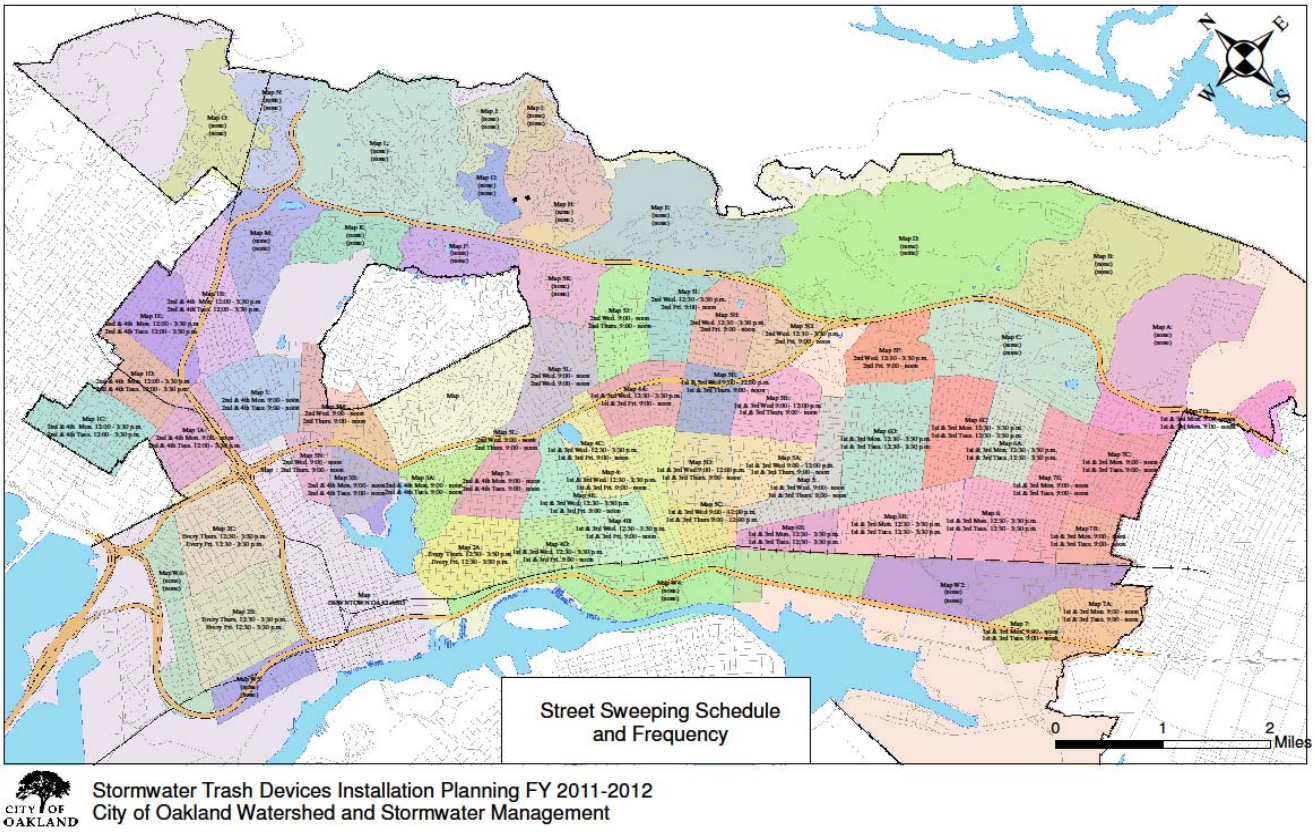
A "baseline" street sweeping program is defined as the sweeping frequency and parking enforcement implemented by the City of Oakland prior to effective date of the MRP. Baseline street sweeping differs from "enhanced" street sweeping, which includes increased parking enforcement and/or sweeping

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 frequently than the baseline ceiling, their current sweeping frequency serves as their baseline.

Existing Enhanced Street Sweeping

The City of Oakland's regular street sweeping program has is conducted at a frequency greater than the baseline ceiling described above. Since Oakland's street sweeping program is greater than the "baseline ceiling" and has been in place prior to the effective date of the MRP adoption, it's sweeping program will be termed, the Existing Enhanced Street Sweeping. Oakland's existing enhanced street sweeping program varies for different areas of the City and includes sweeping streets once per month, twice per month, once per week, three times per week or not at all. The areas west of 580 (Oakland hills), near Piedmont, and near the Bay are not swept at all. The remainder of the City has a sweeping frequency of once per week in retail areas, and twice per month in all other areas. The downtown area is swept three times per week, and most of

Figure 2.1: Street sweeping locations and frequency for City of Oakland.



West Oakland and the region southeast of Lake Merritt is swept once per week. The street sweeping schedule for the City is provided above in Figure 2.1.

Posting of parking signs and enforcement for street sweeping or the equivalent occurs everywhere there is street sweeping. The estimated trash load reduced via Oakland's existing enhanced street sweeping is presented in Table 2-2.

Baseline Storm Drain Inlet Maintenance

Within the City, storm drain inlets are 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 Oakland 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 Oakland does not own stormwater pump stations with trash racks that capture trash and allow for removal during maintenance. However, the County of Alameda owns a number of pump stations that have trash racks and drain portions of Oakland. For those pump stations with trash racks, the estimated volume of trash removed annually by the County 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 Oakland 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 Oakland is presented in Table 2-3. Preliminary baseline trash loading rates are presented in Figure 2-2 to provide a geographical illustration of areas with estimated low, moderate, and high trash loading rates.

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

Category	Annual Load (gallons)
Preliminary Generation Trash Load	213,762
Load Removed via Existing Enhanced Street Sweeping	103,898
Load Removed via Baseline Storm Drain Inlet Maintenance	5,493
Load Removed via Baseline Stormwater Pump Station Maintenance	5,745
Preliminary Trash Baseline Load	98,625

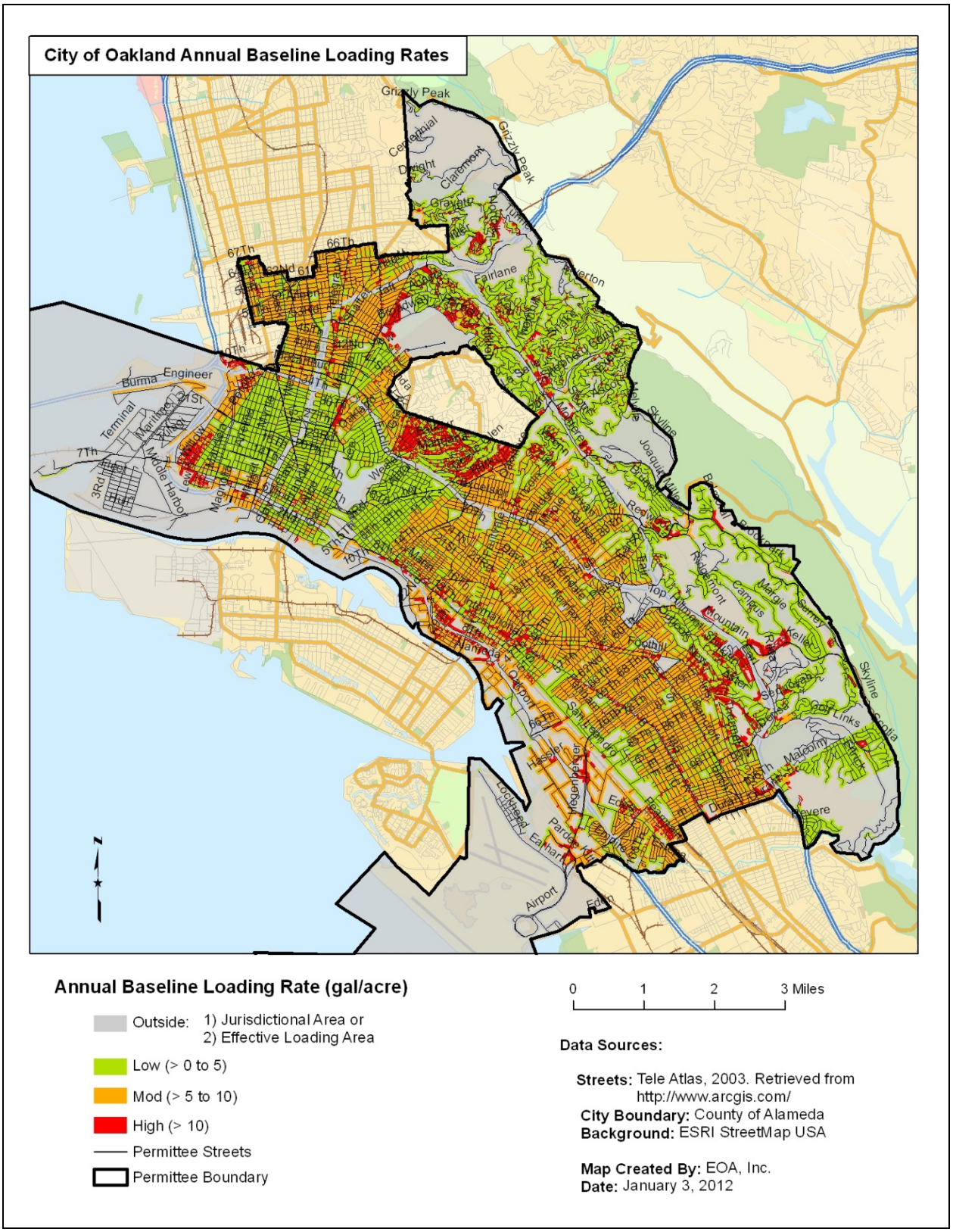


Figure 2-2: Estimated trash baseline loading rates for geographical areas in the City of Oakland.

3.0 LOAD REDUCTION CALCULATION PROCESS

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

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

Step #1: Existing Enhanced Street Sweeping
Step#2: Trash Generation Reduction
Step #3: On-land Interception
Step #4: Trash Interception in the Stormwater Conveyance System
Step #5: Trash Interception in Waterways
Step #6: Comparison to Baseline Trash Load

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

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

Step #1: Existing Enhanced Street Sweeping

Trash load reductions due to existing enhanced street sweeping implemented prior to the effective date of the MRP and conducted at levels above baseline levels are not incorporated into each Permittee's trash baseline load. Therefore, load reductions associated with existing enhanced are accounted for first in the trash load reduction calculation process. Existing enhanced street sweeping includes street sweeping conducted at a frequency greater than 1x/week for streets within retail land use areas or greater than 2x/month for streets in all other land use areas. The result of adjustments made to trash baseline loads due to the implementation of existing enhanced street sweeping is a set of **current baseline loading rates** and a **current baseline load**. The existing enhanced street sweeping for Oakland has been described above, in Section 2.0.

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 (Regional and Local)

CR-4: Reduction of Trash from Uncovered Loads

CR-5: Anti-Littering and Illegal Dumping Enforcement

CR-6: Improved Trash Bin/Container Management

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 Oakland. The enhanced control measures described are designed to reach a 40% reduction by July 1, 2014. New and enhanced control measures that are planned to be implemented by the City of Oakland include those listed in Table 4.1.

Table 4.1. Trash control measures planned to be implemented by the City of Oakland 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
Enhanced Storm Drain Inlet Maintenance
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. In fact, in 2007 the City of Oakland passed an ordinance banning the use of non-compostable plastic carry-out bags at the point of sale by retail establishments[3]. 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

On January 25, 2012, the Alameda County Waste Management Authority (StopWaste.org) adopted a countywide ordinance for all the jurisdictions within Alameda County prohibiting the distribution of single-use carryout plastic bags at the cash register at retail stores covered by the ordinance and establishing mandatory fees for other carryout bags. The ordinance will take effect on January 1, 2013 affecting all retail stores that sell packaged food in the City. Single-use plastic carryout bags are banned. A minimum fee of 10 cents will be charged for every paper carryout bag or reusable plastic carryout bag provided to the customer at the cash register. Detailed information on the action is available on the website for StopWaste.org: http://www.stopwaste.org/home/index.asp?page=33&recordid=294

Jurisdictions may decide to opt out of the ordinance. The City of Oakland is not planning to opt out.
The total percent of trash reduced from MS4s as a result of implementing this single-use carryout bag reduction ordinance will be reported in the Annual Report submitted each September to the Water Board.

This countywide ordinance is consistent with Tier 1 and Tier 2 levels described below. The City also has an ongoing public education and outreach campaign, described below in Additional Activities, promoting the use of reusable bags. Finally, the Alameda County Waste Management

[3] This ordinance was passed in July 2007 which was later rescinded in response to a lawsuit challenging the ordinance on CEQA grounds.

Authority is planning to implement a county-wide outreach and education campaign in parallel with the ordinance.

Tier 1 – Prohibit Distribution at Large Supermarkets – Adoption of a local policy or ordinance or implementation of a statewide or countywide action that prohibits large supermarkets from distributing single-use carryout plastic bags within their jurisdictional boundaries

Tier 2 - Prohibit Distribution at Retail Establishments that Sell Packaged Foods Adoption of a local policy or ordinance or implementation of a statewide or countywide action that prohibits retail establishments that sell packaged foods from distributing single-use carryout plastic bags within their jurisdictional boundaries.

Additional Activities - In addition to the adoption of a policy or ordinance described in Tiers 1 and 2, the City of Oakland has an ongoing public education campaign highlighting the benefits of reusable canvas and nylon bags. This includes distribution of recyclable bags at every citizen involvement event and distribution of bags in lieu of T-shirts to our volunteers. In addition, the City will be an active participant with the County's Waste Management Authority's outreach and education campaign for the new bag ban ordinance. As stated above this ordinance has phased implementation for a 10 cent fee on single use paper bags as an added control measures to reduce the overall usage of ALL types of single-use carryout bags (plastic et al.).

Reduction from Implementing Control Measure CR-1 (Single Use Carry Out Plastic Bag Policy)

The City of Oakland 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 and methods presented in the BASMAA (2011e)*:

- Prohibit distribution of single use plastic bags at large supermarkets (6%)
- Prohibit distribution of single use bags at retailers that sell packaged food (2%)

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 Oakland has adopted an ordinance banning polystyrene foam food service ware at the point-of-sale by food vendors and city facilities. The Ordinance titled, An Ordinance to Prohibit the Use of Polystyrene Foam Disposable Food Service Ware and Require the Use of Biodegradable or Compostable disposable Food Service Ware by Food Vendors and City Facilities (No. 12747) became effective on January 26, 2007. This ban is set forth in Oakland 's City Municipal Code 8.07 Polystyrene Foam Food Service Ware. The elements of the City's ordinance are consistent with Tier 1a and Tier 1b, described below

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.

***Tier 1a – Prohibit the distribution of polystyrene foam single-use food and beverage ware at Permittee-sponsored events or on Permittee-owned property* –** Adoption of a City ordinance that prohibits food vendors from distributing polystyrene foam food and beverage ware at City-sponsored events and on City-owned property.

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

An update to Oakland City Council on this Ordinance was provided one year after implementation of the ban and documented the following enforcement actions and education and outreach events.

Oakland's Outreach and Education Campaigns on Polystyrene Food Service Ban -
• Launched a dedicated web site www.oaklandgreenware.com - January 2007
• Established Ordinance information and non-compliance/complaint tracking service through the 238-SAVE Recycling Hotline - January 2007
• Hand delivered informational flyers to approximately 100 downtown businesses - January-March 2007
• Hand delivered flyers to approximately 70 restaurants as part Small Business Recycling recruitment - March-June 2007
• Made presentations to various business associations - January-June 2007
• Provided additional information for compliance to 35 businesses after violations were reported through Recycling Hotline - January-June 2007
• Sent formal warning letters to 17 businesses for reported violations - June 2007-July 2008
• Direct mailed informational brochure to affected businesses - July 2007
• Outreach at Art & Soul and EarthEXPO festivals - 2007 and 2008

Outreach to Oakland residents, informing them of the polystyrene foam ban and how to report violations was provided through garbage bill inserts sent to 95,000 residential customers in July 2007 and October 2008.

To-date, Oakland staff has noted a high level of compliance with the polystyrene ban. Oakland intends to continue its ongoing complaint-driven hotline. If the recycling hotline receives a complaint about non-compliance, staff issues a standard enforcement letter, with follow-up letters as needed and a site visit. The City intends to issue a reminder notice about the ban to all food service vendors in the City. In addition, the City will monitor new business license approvals on an annual basis and provide outreach and education to those new businesses on the polystyrene foam ban.

Percent Reduction from Enhancements

The City of Oakland 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 and methods presented in the BASMAA (2011e)*:

- Adoption of an ordinance prohibiting use of polystyrene foam at City-sponsored events and on City-property (2%)
- Adoption of ordinance prohibiting use of polystyrene foam at all food service establishments in the City of Oakland (6%)
- Continued outreach and education and compliance efforts in support of the polystyrene ban.

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 Oakland has implemented both local and regional public education and outreach control measures prior to the effective date of the MRP. These include mailings, tabling at environmental events and distributing brochures. 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 Oakland participates in both regional and local public education and outreach control measures. The following section describes those public education and outreach actions the City plans to implement 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 Oakland 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 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.

Advertising campaign (Countywide Program)

Outreach to Alameda County youth may be limited by scope and budget of the BASMAA Regional Youth Campaign. To provide additional, needed support this campaign, the Clean Water Program will supplement the Regional Youth Outreach campaign in order to increase the number of participants in Alameda County. The Clean Water Program has been collecting contact information for Oakland (local) youth commissions to share with BASMAA so they can better target their outreach campaign.

Advertising Campaign (Local) –

To help achieve the desired 40% trash reduction, the City of Oakland's plans to implement an advertising campaign focusing with anti-littering information on billboards, banners and leaflets These planned efforts are described below:

- One electronic billboard promoting anti-littering. An example of such a billboard used on I-880 near the Oakland Coliseum for the 2011 Earth Day is shown in Figure A-1 of the Appendix.
- Local banners on anti-littering in a minimum of one Oakland neighborhood. An example of a public service banner used in Oakland's Dimond District is shown in Figure A-2 of the Appendix.
- The City of Oakland has begun to implement a new storm drain marking program. Drains are now marked with stainless steel markers that read "No Dumping, Drains to Bay/Creek/Lake." Significantly more durable than the traditional paint stencils that typically wear off after 1-2 years, these markers are warranted to last for 30 years. As such they will consistently educate the public about the connection between storm drains and the nearest receiving water. The City will continue to implement this program and over the next 3 years will install the new markers at all of the approximately 9,500 storm drains throughout the city.

- Public service leaflets promoting reporting of illegal dumping will be provided to local distribution centers including libraries, senior and recreation centers, neighborhood organizations and merchants. An example of previous such leaflets is provided in Figure A-3 in the Appendix.

Outreach to School-age Children or Youth

Outreach to School-age Children or Youth (County-wide)

The Countywide Program is currently conducting stormwater pollution prevention and anti-littering outreach to school-age children through contracts with five environmental education organizations. The current contracts expire in 2014. The Program intends to initiate new contracts for outreach to school-age children in 2014. The outreach programs will have an increased focus on anti-littering messages and will be revised to fulfill the required number of events as described in BASMAA (2011e). The City of Oakland will meet its required number of school age outreach events through the educational services programs implemented through Countywide Program.

Outreach to School-age Children or Youth (Local)

Oakland plans to continue to its public school outreach event focusing on the importance of litter reduction. These events will be hosted by the Lake Merritt Institute and will use an Enviroscape model which provides a great visual for how trash impacts our waterways. Depending on the age group, the outreach may include distribution of Clean Water Program activity books containing pages focused on the impacts of littering and what students can do to help. Oakland's outreach program to school age children is planned to be presented to over 20 different classrooms/year. In addition, the City will provide field visits for school children with its street sweeping and storm drainage staff to show the amount of litter collecting in the streets and storm drains. Using 2011 as an example, the City conducted classroom outreach that was attended by over 700 students and included 6 elementary schools, 5 middle schools, and 4 high schools.

Media Relations

BASMAA Regional Media Relations Project (Regional)

Through participation and funding of the **BASMAA Regional Media Relations Project**, the City of Oakland 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 Program)

Clean Water Program has already developed a media and community relations plan and contact list. The Program will regularly release articles and information to the appropriate publications,

blogs and community publications on litter issues. Articles will be timed with regular events, such as Earth Day in April, Coastal Cleanup Day in September, and the beginning of the rainy season, as well as other current events, if applicable. The media and community outreach list contains many smaller publications and online sites as well as larger newspapers, which will increase the chances the articles are published and read. This effort goes beyond the scope of the Regional Media Relations plan by going deeper into the community through highly localized media channels.

Media Relations (Local)

The City of Oakland has provided the Clean Water Program with a list of targeted local media and press contacts who will receive articles and information distributed through the Clean Water Program.

Community Outreach Events

Community Outreach Events (Countywide)

The Countywide Program will develop a "Litter Outreach" kit for community events. Going beyond the usual table with literature, the kit will include such interactive activities as pledge posters to foster commitment to behavior change, and directly relevant promotional items such as reusable bags. This kit will be provided to all Program member agencies for use at their local events. The City of Oakland plans to use the Litter Outreach kit at a minimum of **4** events per year.

Community Outreach Events (Local)

The City of Oakland will utilize the Litter Outreach Kit described above by participating in and conducting targeted litter outreach at a minimum of 4 of the following outreach events per year. The City will prioritize those events in neighborhoods that have been identified as requiring additional education about litter reduction.

Art and Soul Festival in downtown Oakland
Oakland Chinatown Street Festival
Temescal Street Fair
Dia De Los Muertos (Day of the Dead) in the Fruitvale Neighborhood
Out and About in Rockridge
Oaktoberfest in the Dimond District
Earth EXPO in downtown Oakland

Additionally the City of Oakland will sponsor and host a minimum of 4 outreach events specifically targeted at litter education and outreach. The City will hold those events simultaneously during the City's annual beautification and cleanup events held on Earth Day in April and Creek to Bay Day (Coastal Cleanup Day) in September to maximize publicity and participation. The City will prioritize hosting the events in neighborhoods that have been identified as requiring additional education about litter reduction.

Through these combined efforts, the City will meet its annual required allotment of 8 community outreach events per year.

At other events, such as Art & Soul, Oaktoberfest, and the Laurel Street Fair the City sponsors a "giveaway wheel " that includes questions about impacts of trash & litter and information about how to report illegal dumping, how to volunteer to help get trash off the streets and out of our waterways, etc. Finally, the City provided staff support for over 168 Adopt-A-Creek days[4] in 2011. At these events, the focus on the volunteer work is primarily trash removal.

Percent Reduction from Enhancements

The City of Oakland 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 Oakland'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] Any trash reduction credits for Oakland's Adopt-A-Creek days are not calculated in this control measure and, instead, are included in will be discussed and calculated in control measure QF-6, the Volunteer Creek Clean Up.

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[5], 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 Oakland 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 Oakland has implemented and plans to continue implementation of the following enhanced control measures to reduce trash from vehicles with uncovered loads that went into effect prior to July 1, 2014.

These requirements to require contracted trash and construction debris haulers to cover their load to cover loads when transporting trash and debris to municipally or privately-owned landfills and transfer stations has been incorporated into the City's franchise agreement for waste management services. The specific franchise agreement language is shown in Figure A-4 of the Appendix.

Oakland will continue implementation of its franchise agreement with our waste hauler requiring municipal trash haulers to cover their loads when providing garbage service to all property types. Section 8.28.280 of this ordinance dictates citations and fines for vehicles spotted on roads in an individual Permittee's jurisdictional area with uncovered loads. This municipal code is found on the City's website at : http://library.municode.com/mobile/contents.aspx?clientID=16308&chosenNode=16308_1777.16308_1429.16308_1.#16308_1777.16308_1429.16308_1.

Percent Reduction from Enhancements

The City of Oakland will receive a total of 1 percent reduction credit for implementing specific enhanced control measures described in *Enhanced Level of Implementation* section above. This

[5] 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 is comprised of the following credits, consistent with the *Load Reduction Tracking Method*:

- Prescriptive language in municipal waste haulers franchise agreement requiring coverage of hauled loads. – 1%

This 1 percent reduction credit will be applied against the City of Oakland'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-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 Oakland has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow. The program that was administered prior to MRP adoption included:

- Distribution of public leaflets to promote reporting of illegal dumping
- Bulky waste pick-up for every resident in a single family home and occupants of 2-4 unit buildings and an optional second appointment for the first 500 callers
- Response to public complaints of illegal dump areas in City.

Enhanced Level of Implementation

The City of Oakland will implement the following enhanced anti-littering and illegal dumping enforcement control measures post MRP adoption and plans to continue implementation at a comparable level prior to July 1, 2014.

Use of Surveillance Cameras –The City has installed surveillance cameras equipped with a Bay Alarm system at 16 high priority illegal dumping sites, to deter illegal dumping activities and to collect evidence that will aid in the identification, capture, and prosecution of illegal dumping offenders.

In addition, the City has installed “dummy cameras” at an additional 30 priority sites in an effort to deter illegal dumping. Out of a total 83 identified “high priority” illegal dumping sites in Oakland, the City will have deterrence devices at 46 of those locations.

Percent Reduction from Enhancements

The City of Oakland will receive a total of 2 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*:

- Installation and use of surveillance cameras at over 50% of identified illegal dumping hot spots. – 2%

This 2 percent reduction credit will be applied against the City of Oakland’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-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 Oakland has not implemented enhanced trash bin/container management practices prior to effective date of the MRP.

Enhanced Level of Implementation

The City of Oakland has implemented the following trash bin/container management practices pre-MRP adoption and plans to continue implementation of this comparable level of effort prior to July 1, 2014.

Oakland's Municipal Code Section (OMC) 8.28.100 includes a requirement for adequate garbage service for all property types. This code is enforced through the requirements provided in OMC Section 8.28.280. This municipal code is found on the City's website at : http://library.municode.com/mobile/contents.aspx?clientID=16308&chosenNode=16308_1777.16308_1429.16308_1.#16308_1777.16308_1429.16308_1

Residential subscription to garbage service is enforced by a property lien system described in OMC Sections 8.28.170-8.28.270. Enforcement for commercial customers is on a complaint-driven basis.

Percent Reduction from Enhancements

The City of Oakland will receive a total of 1 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*:

- Ordinance requiring appropriate trash service for all residents. – 1%

This 1 percent reduction credit will be applied against the City of Oakland'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.

QF-1: 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 baseline trash load described in Section 2.0, assumes that the City of Oakland has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow. The program that was administered prior to MRP adoption included the following on-land cleanup:

- City organized and supported Earth Day Cleanup Event (annually since 2006)
- Routine & Complaint driven clean-ups of illegal dumping areas
- City support for volunteer-driven Adopt-a-Spot programs
- Keep Oakland Clean & Beautiful (KOCB) Clean Up Events

Pre-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

Post MRP adoption and prior to July 1, 2014, the City of Oakland plans to increase participation for on-land trash cleanups **by 10%**. These **additional** on-land cleanups will be conducted or coordinated each year and the number of volunteer hours spent on these efforts and the on-land trash collected will be used to demonstrate the enhanced trash loads reduced. Currently, the number of volunteer hours spent on these KOCB efforts has been documented. City staff intends to improve record keeping of *the trash* collected at these volunteer events. Our estimate of an anticipated 15% increased participation in KOCB volunteer clean-ups will yield **additional** 4200 gallons/year of trash prior to July 1, 2014.

Please note that the KOCB volunteers only remove trash that can be hand carried. Volunteers are instructed to contact City personnel for removal of any large items. As a result, large items (e.g., appliances, shopping carts, furniture, mattresses, televisions, tires, lumber, etc.) are not collected during these on-land trash cleanups are not part of the volume determination.

Percent Reduction from Enhancements

The total estimated annual volume of trash that will be reduced beginning July 1, 2014 as a result of implementing **additional,** post MRP-adoption on-land trash cleanups is calculated to be 4,200 gallons per year. This volume will be reduced from the baseline trash load to urban creeks

from the municipal separate storm sewer system (MS4) owned and operated by the City of Oakland. 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.

Level of Implementation

The street sweeping trash load reduction was described in Section 2.0 and incorporates the trash load reductions due to Oakland's "existing enhanced baseline" street sweeping. Please refer to that section for a description of Oakland's street sweeping control measure.

Percent Reduction from Enhancements

The total estimated annual volume of trash that will be reduced by July 1, 2014 as a result of the existing enhanced baseline street sweeping is 5413 gallons. As described in Trash Load Reduction Summary Table included in Section 5, this volume is equal to approximately a 5.5% 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 Oakland.

QF-3: Partial-Capture Treatment Devices

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

Baseline Level of Implementation

Curb Inlet Screens and Litter Booms/Curtains

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

Stormwater Pump Station Racks

Similar to the devices described above, some Permittees within the Bay area have installed and maintained trash racks on their stormwater pump stations. Existing pump station trash racks are assumed to remove roughly 25% of the trash that enters the pump station (BASMAA 2011e). The baseline trash load removed via these devices is accounted for in baseline trash loads.

In Oakland, there is a trash rack at the Ettie Street Pump Station.

Enhanced Level of Implementation

A total of 6 partial-capture treatment devices have been installed in the City of Oakland prior to July 1, 2014 and includes booms at Lake Merritt and inlet screens in downtown Oakland. A list of these partial-capture devices is included in Table QF-4-1. All devices listed within the table are enhanced trash control measures. Calculation of loads reduced from the inlet screen devices will be consistent with the approach described in the *Trash Load Reduction Tracking Method Report* (BASMAA 2011e). Calculations of loads reduced from trash collection at the booms is based on records of trash collected from Lake Merritt.

<u>Partial Capture Devices</u>

Partial Capture Devices – Booms

Lake Merritt has 3 booms placed at key outfalls in Lake Merritt. These booms were installed pre-MRP and are shown in Figure A-5 in the Appendix.. The trash captured in the partial capture devices (booms) at Lake Merritt is contracted out to Lake Merritt Institute for its removal. These booms and contracts will continue to be implemented through July 1 2014.

The LMI removes the trash and hauls it in a truck used solely by LMI trash removal. The truck is transported to the dump only when full and its capacity is 2 -3 cubic yards. In analyzing the truck loads from the last two years, the City estimated a low and high trash removal of between 17,000 and 25,000 gallons/year. Basing our plan on the conservative, lower, volume of trash removed, the City plans to continue to remove 17,000 gallons/year with these booms at Lake Merritt.

Partial Capture Devices - Inlet Screens

The City has installed 3 inlet screens in downtown Oakland pre MRP and has plans to install an additional 3 inlets in downtown Oakland (see Figure A-6 in the Appendix for the locations) post MRP. Using the approached described in the *Trash Load Reduction Tracking Method Report* (BASMAA 2011e), these inlet screens will collect 238 gallons/year of trash.

Storm drainage staff estimate that the existing inlet screens produces one cubic yard (or 201 gallons) of trash/year/inlet for a total of 606 gallons/year. The City will closely monitor and record the maintenance and screening of the inlet screens for the next few months to determine the actual volume of trash reduced. The actual volumes will be provided in the final Trash Plan submitted by the City.

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 238 gallons/year for the inlet screens and 17,000 gallons/year from the booms on Lake Merritt: for a total of 17,238 gallons/year.

This volume is equal to approximately a 17 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 Oakland. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.

Table QF-3-1: Partial Capture Treatment Devices in Oakland

Device ID	Public or Private	Location (Cross Streets)	Installation Date	Total Area Treated (acres)	Load Reduction (gallons/year)
Booms (3)	*Public*	Lake Merritt Outfalls	Pre-MRP	Unknown	17,000
Inlet Screens	Public	Curb Inlet Screens: 2nd & East 18th	Post MRP	1.7	202
Inlet Screen	Public	Curb Inlet Screens: E 18th St/5th Ave and E 18th St/Park Blvd2nd & East 18th	Post MRP	7.5	36

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 Oakland 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 Oakland prior to the effective date of the MRP. Per table 2.3, this baseline level of inlet maintenance will reduce the trash load by 5493 gallons/year.

Enhanced Level of Implementation

The City plans to increase the maintenance of its storm drain inlets from 1x year to 2x year for 1875 inlets (or ¼ of its total drain inlets in City) prior to July 1, 2014. The particular inlets chosen for increased maintenance are determined by an evaluation of the City's drainage "hot spots" and in response to call-in complaints on our City hotline. 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 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 enhanced storm drain inlet maintenance is 1373 gallons/year in the baseline trash load to urban creeks from the municipal separate storm sewer system (MS4) owned and operated by the City of Oakland. This volume is equal to ¼ of the calculated trash reduction for inlet maintenance for the entire city. Both the baseline level and enhanced values discussed 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 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 8 trash full-capture treatment devices have been or will be installed in the City of Oakland 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 2011e).

Device Name	Location (Cross Streets)	Installation Date	Total Area Treated (acres)	Load Reduction (gallons/year)
CDS -1	Intersection of Bellevue and Staten Avenues	**Pre-MRP**	19.6	76
CDS-2	Intersection of Grand and Euclid Avenues	**Pre- MRP**	25.8	83
CDS-3	Intersection of 27th and Valdez Streets	**Pre-MRP**	58.9	268
CDS-4	Intersection of 22nd and Valley Streets	**Pre-MRP**	102.3	324
CDS-5	Intersection of Perkins Street & Bellevue Avenue	**2010**	75.3	293
CDS-6	Intersection of 73rd Avenue and International Boulevard	**To be installed late 2012**	421.4	1,396
CDS-7	Alameda Avenue near Fruitvale	**To be installed late 2012**	149.0	415
CDS-8	High Street near the bridge to Alameda	**To be installed late 2012**	36.9	71

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

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 3073 gallons/year. This volume is equal to approximately a 3.1% 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 Oakland. Both values provided within this section are included in Trash Load Reduction Summary Table included in Section 5.

Based on estimates of the trash collected from all five existing CDS units, City maintenance staff project that the CDS units collect 11,000 gallons per year. The City will closely monitor and record the maintenance and clean-out of the CDS units for the next few months to verify the actual volume of trash reduced. The actual volumes will be provided in the final Trash Plan submitted by the City.

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 Oakland'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. . The program that was administered prior to MRP adoption included the following creek/shoreline cleanups:

- Creek-to-Bay Day (annually since 2006)
- Adopt-a-Creek Programs (Multiple clean-up events for over 20 creeks around the City)

The City has tracked and recorded the amount of trash removed for each of its Creek-to-Bay days annually since 2006. Based on the average annual amount collected from each annual event, the City plans to remove 7200 pounds of trash per year or an estimated annual volume of 11,520 gallons/trash/year per Creek-to-Bay day event.[6]

The City also supports adopt-a-creek programs on over 20 different Creeks in the City. Each of these sites holds multiple volunteer clean-up days each year. In calculating the volume of trash anticipated to be collected from the Adopt-A-Creek locations, the City will only include trash collected from the following sites (those creeks with the highest incidence of trash):

Marj Saunders Park, Wood Park, Barry Place, (Sausal Creek watershed);

Cesar Chavez Park, Peralta Hacienda Park, Peralta Creek Park (Peralta Creek watershed)

Arroyo Viejo Park (Arroyoe Viejo Creek); and

Oak Glen Park (Glen Echo Creek Watershed).

Based on multiple clean-up events at these sites, the City intends to collect an average of 258 gallons /year from these Adopt-a-Creek programs prior to July 1, 2014. The City intends to work with the volunteers at these specific sites to help maintain consistent and accurate records of the volume of trash collected per event.

[6] This estimate assumes that one pound of trash collected in volunteer clean-up events is equal to 1.6 gallons of trash. This conversion factor is based on a review of past clean-up events where we have both the volume and weight data.

Enhanced Level of Implementation

The City of Oakland will continue to conduct its MRP-required[7] creek/channel/shoreline cleanups and its ongoing MRP-required creek/channel/shoreline cleanups[8] described above. Both types of cleanups are conducted each year and the level of effort (and assumed trash removal) is intended to remain the same as it is currently.

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 gallons/year. The total estimated volume to be reduced is 11728 gallons including:

- 11,520 gallons from annual Creek-to-Bay day
- 258 gallons from specific, high-trash, Adopt-A Creek Programs

This volume is equal to approximately a 12 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 Oakland. 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 Oakland 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.

[7] 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.

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

Trash Control Measure	Summary Description of Control Measure	% Reduction (Credits)	Trash Load Reduced (gallon/year)	Cumulative % Reduction (Compared to Baseline)
Existing Enhanced Street Sweeping (QF-2)	*3 x week in downtown Oakland and 2 or 3 x month in other sections of City*	NA	5,413	5.5%
Single-use Carryout Plastic Bag Ordinance (CR-1)	Ordinance banning single use bags in large supermarkets and all retailers selling packaged food	8%	7,457	13%
Polystyrene Foam Food Service Ware Ban (CR-2)	Ordinance banning polystyrene at City-sponsored events and food service establishments	8%	7,457	20.6%
Public Education and Outreach Programs (CR-3)	Media, advertising and school education campaigns	8%	7,457	28.2%
Activities to Reduce Trash from Uncovered Loads (CR-4)	Ordinance requiring municipal hauler to cover loads	1%	932	29.1%
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	Surveillance cameras at greater 50% City's illegal dumping hotspots	2%	1,864	31.0%
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Ordinance requiring appropriate trash service for all residents	1%	932	32.0%
Enhanced On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	*Increase of 10% over pre-MRP volunteer land-based clean-ups*	NA	4,200	36.2%
Curb Inlet Screens & Booms(Partial-capture Treatment Device) (QF-3a)	*6 screens in Downtown Oakland inlets*	NA	17,238	53.7%
Enhanced Storm Drain Inlet Maintenance (QF-4)	*Maintenance 2 x year for ¼ of all storm drains inlets.*	NA	1,373	55.1%
Full-capture Treatment Devices (QF-5)	*8 CDS units*	NA	2,926	58.0%
Enhanced Pump Station Trash Rack Cleaning (Partial-capture Treatment Device) (QF-3b)	*Trash Rack at Ettie Street Pump Station*	NA	5,745	-
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Annual Earth Day and Targeted Adopt-a-creek clean-ups	NA	11,778	70%

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

Consistent with MRP Provision C.10.d (i), the City of Oakland 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 Oakland 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 Oakland 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 Oakland'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, etc), or if circumstances arise during implementation of the Plan that were not anticipated at the time of submission, the City of Oakland 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 Oakland's annual reporting process.

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Table 6-1. Preliminary implementation schedule for enhanced trash control measures in the Oakland

Trash Control Measure	Beginning Date of Implementation
Single-use Carryout Plastic Bag Ordinance (CR-1)	January 1, 2013
Polystyrene Foam Food Service Ware Ban (CR-2)	Pre-MRP
Public Education and Outreach Programs (CR-3)	January 1, 2012
Activities to Reduce Trash from Uncovered Loads (CR-4)	Pre-MRP
Anti-Littering and Illegal Dumping Enforcement Activities (CR-5)	January 1, 2011
Improved Trash Bin/Container Management (Municipally or Privately-Controlled) (CR-6)	Pre-MRP
On-land Trash Cleanups (Volunteer and/or Municipal) (QF-1)	January 1, 2012
Enhanced Street Sweeping (QF-2)	Pre-MRP
Curb Inlet Screens (Partial-capture Treatment Device) (QF-3a)	April 1, 2012
Enhanced Storm Drain Inlet Maintenance (QF-4)	January 1, 2012
Full-capture Treatment Devices (QF-5)	5 Units are Pre-MRP 3 Units are December 2012
Litter Booms (Partial-capture Treatment Device) (QF-3c)	Pre-MRP
Creek/Channel/Shoreline Cleanups (Volunteer and/or Municipal) (QF-6)	Pre-MRP

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APPENDIX

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

February 1, 2012

Submitted by:

City of Oakland

Public Works Agency

Watershed & Stormwater Program

250 Frank H. Ogawa Plaza

Oakland, CA 94612

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

OAKLAND
OAKLAND
EARTHDAY 2010
CLEAN IT
GREEN IT
MEAN IT
SATURDAY · APRIL 17
OaklandEarthDay.com
CLEARCHANNEL

STASH THE TRASH

...keep Dimond clean

KEEP OAKLAND BEAUTIFUL

Keep Dimond Clean!

Friends of Sausal Creek
PROMOTING WATERSHED AWARENESS

CITY OF OAKLAND

HOW TO SAFELY DISPOSE OF DEBRIS, WASTE AND RECYCLABLES

Here's what you can do:

1. **HAUL IT YOURSELF TO A TRANSFER STATION**
   Call Davis Street at (510) 638-2303 or City of Berkeley at (510) 981-7270 for hours and fees.

2. **MAKE A FREE BULKY WASTE APPOINTMENT**
   Call Waste Management of Alameda County (WMAC) at (510) 613-8710 to schedule a bulky pickup appointment, or to rent a dumpster.

3. **USE THE HOUSEHOLD HAZARDOUS WASTE DROP-OFF**
   Alameda County Hazardous Waste Program accepts paints, cleaners, batteries, automotive fluids, etc. Call (800) 606-6606 or visit www.household-hazwaste.org

4. **FIND HELPFUL INFORMATION ON REUSE AND RECYCLING**
   Call Oakland Recycles at (510) 238-7283 or visit www.oaklandrecycles.com

5. **HELP KEEP OAKLAND CLEAN AND BEAUTIFUL**
   For volunteer opportunities call (510) 238-7630 or visit www.oaklandpw.com

HELP STOP ILLEGAL DUMPING – WHAT YOU CAN DO

To report a pile of illegally dumped material call (510) 615-5566. If you witness illegal dumping in progress, call 911.

1. **LIGHT OUTDOOR AREAS** — including parking areas.
2. **MAINTAIN CLEAR VISIBILITY** — from inside your home to the street, sidewalk, and parking areas.
3. **MAINTAIN YOUR PROPERTY'S PHYSICAL APPEARANCE** — by cutting weeds and picking up litter. Trim bushes to 36" high and tree limbs 7' from ground. Remove graffiti within 24-48 hours.
4. **DEFINE YOUR PROPERTY BOUNDARIES** — with plants, paving, short walls or fences.
5. **USE SURVEILLANCE CAMERAS** — to deter illegal dumping. If a vehicle license plate is captured, it can assist in enforcement.
6. **VOLUNTEER FOR ADOPT-A-SPOT VOLUNTEER PROGRAMS** — take an active role in keeping your neighborhood clean. Call (510) 238-7630 or visit www.oaklandpw.com
7. **ENCOURAGE YOUR NEIGHBORS TO JOIN YOU IN THESE EFFORTS!**

ACCREDITED AGENCY A•P•W•A

PWA/DFE/KOCB/July2011

PUBLIC WORKS CALL CENTER
(510) 615-5566
pwacallcenter@oaklandnet.com

Brought to you by the City of Oakland, Public Works Agency

A. Integrated Solid Waste Management Performance Standards

EXHIBIT A

SOLID WASTE AND YARD WASTE COLLECTION PERFORMANCE STANDARDS

The performance standards outlined herein apply to Solid Waste and Yard Waste collection and are intended to serve as a guideline for Contractor in providing reliable, courteous and high-quality service. These standards are in addition to service requirements detailed in the Agreement between the City and Contractor. The enumeration of, and specifications of requirements for, particular aspects of service quality shall not relieve Contractor of the duty to provide expert and professional service. All services are to be completed in a timely and professional manner.

1. COLLECTION SCHEDULE

1.1 **Collection Hours.** Collection of Solid Waste and Yard Waste may only occur within hours authorized by the City Representative. Hours for residential collection are limited to 6:00 a.m. to 6:00 p.m. Contractor will promptly resolve any complaints of noise during the morning or evening hours of the day to the reasonable satisfaction of the City Representative.

1.2 **Collection Frequency.** Contractor shall provide one Solid Waste pickup per week and one Yard Waste pickup bi-weekly, unless otherwise directed by the City's Representative, at the curbside for all Single Family Dwellings with the exception of backyard service for frail senior citizens and disabled Customers and for Customers paying an additional charge for backyard service. The City may direct Contractor to pickup Yard Waste on a schedule less frequently than bi-weekly, however, Contractor is only obligated to pick up (in addition to Solid Waste) either Recyclables or Yard Waste each week in recycling sectors C and D. Contractor shall pick up Yard Waste in recycling sectors A and B bi-weekly unless directed by City to pick up on a less frequent schedule. Contractor may provide and charge for less-than-weekly Solid Waste service for those residential customers receiving reduced service as of the execution of this Agreement. Any additional residential customers requesting reduced services shall require the approval of the City.

1.3 **Day of Service.** Contractor shall provide Solid Waste and Yard Waste collection on the same day of the week.

1.4 **Businesses.** Contractor shall provide weekly (at a minimum) collection of Solid Waste from Businesses with containers sized to appropriately service the needs of the Customer and collection on a frequency as required by

the Customer.

1.5 **Holidays.** Contractor need not provide collection services on holidays. Holidays, currently, are defined as New Year's Day, Independence Day, Labor Day, Thanksgiving Day and Christmas Day. Contractor shall service accounts which fall on holidays on the next working day. Contractor shall be responsible to adequately notify Customers and the City at least thirty (30) days in advance of changes in the Solid Waste of Yard Waste collection day because of a holiday schedule.

2. **GENERAL REQUIREMENTS**

2.1 **Care of Private Property.** Reasonable care shall be used by Contractor's employees in handling all collection containers and enclosures, and all damage caused thereto by the negligence or carelessness of Contractor's employees shall be promptly adjusted with the owner thereof. All collection containers after emptying thereof by Contractor's employees shall be returned to within five (5) feet of the location from which the same were picked up by the Contractor's employees, upright with lids properly secured, and Contractor's employees shall use all reasonable means to insure same are not deposited in a manner that blocks any driveway, sidewalk or street. Contractor shall ensure that its employees close all gates opened by them in making collections, unless otherwise directed by the Customer, and avoid crossing landscaped areas and climbing or jumping over hedges and fences. The City shall refer complaints about damage to private property to Contractor. Contractor shall repair all damage to private property caused by its employees.

2.2 **Noise.** All Solid Waste and Yard Waste collection operations shall be conducted as quietly as possible and shall conform to applicable Federal, State, County and City noise level regulations, including the requirement that the noise level during the stationary compaction process not exceed seventy-five (75) decibels at a distance of twenty-five (25) feet and at a height of five (5) feet from the collection vehicle. The City may conduct random checks of noise emission levels to ensure such compliance.

2.3 **Record of Non-Collection.** Contractor may refuse the collection of any Solid Waste or Yard Waste set-out for collection under the following circumstances: (i) the Solid Waste contains Hazardous Wastes or other materials prohibited from disposal as identified in the Oakland Municipal Code in excess of de ninimis quantities

permitted by Section 1.21 of the Agreement; (ii) the Yard Waste contains contaminants or other materials prohibited from disposal as identified in the Oakland Municipal Code. If Solid Waste or Yard Waste is rejected for collection, Contractor shall leave a multi-lingual red tag (English, Spanish, Chinese, and any other languages specified by the City Representative) provided at Contractor's cost at least 2"x6" in size, on which Contractor has provided Contractor's telephone number and indicated the reasons for Contractor's refusal to collect the Solid Waste or Yard Waste, giving reference to the section of the Oakland Municipal Code or to the section of this Agreement which has been violated, and which gives grounds for Contractor's refusal. At the City's request, a copy of any non-collection tag, along with the name and address of the party tagged shall be delivered to the City Representative within 24 hours of the City's request. Contractor shall provide the City with a monthly log of all non-collection complaints by category.

In addition, Contractor shall maintain, at Contractor's place of business, a log book listing all complaints and taggings. Said log book shall contain the names and addresses of parties involved, date of such complaint or tagging, nature of same and date and manner of disposition of each case. Such log shall be kept so that it may conveniently be inspected by a representative of the City upon request.

3. LITTER ABATEMENT

3.1 Minimization of Spills. Contractor shall use due care to prevent Solid Waste and Yard Waste from being spilled or scattered during the collection or transportation process. If any Solid Waste or Yard Waste is spilled during collection, Contractor shall promptly clean-up all spilled materials. Each collection vehicle shall carry a broom and shovel at all times for this purpose.

3.2 Clean-up. During the collection or transportation process, the Contractor shall clean up litter in the immediate vicinity of any Solid Waste or Yard Waste storage area (including the areas where collection bins are delivered for collection) whether or not Contractor has caused the litter. Contractor shall also collect Solid Waste and Yard Waste placed for collection in excess of the capacity of the container or the volumetric or weight limits on Yard Waste, subject to Contractor's right to bill the Customer a surcharge for the excess amount (Overage), as provided in this Agreement. Contractor shall discuss instances of repeated spillage not caused by it directly with the Customer and will

report such instances on its log book.

3.3 **Covering of Loads.** Contractor shall cover all open debris boxes during transport.

3.4 **Oil or Other Vehicle Fluid Spills.** Contractor is responsible for cleaning-up all oil or vehicle fluid spills immediately and must notify the City within 24 hours of each such spill. All vehicles must carry an acceptable absorbent material to use in the event of spills. Repair for damages caused by oil or other vehicle fluid spills shall be at Contractor's expense. Contractor shall provide a suitable safety training program for all of its employees and shall be responsible for informing its employees of the proper procedures to follow in the event of an oil or vehicle fluid spill.

4. **VEHICLES**

4.1 **General.** Contractor shall provide a fleet of collection vehicles sufficient in number and capacity to efficiently perform the work required by this Agreement in strict accordance with its terms. Contractor shall have available on collection days sufficient back-up vehicles for each type of collection vehicle used (i.e., rear loader, front loader, roll-off, etc.) to respond to complaints and emergencies.

4.2 **Specifications.** All vehicles used by Contractor in providing Solid Waste and Yard Waste collection services shall be registered with the California Department of Motor Vehicles. All such vehicles shall have water-tight bodies designed to prevent leakage, spillage or overflow. All such vehicles shall comply with U.S. Environmental Protection Agency noise emission regulations and other applicable noise control regulations.

4.3 **Vehicle Identification.** Contractor's name, local telephone number, and a unique vehicle identification number designed by Contractor for each vehicle shall be prominently displayed on all vehicles, in letters and numbers no less than two and one-half (2-1/2) inches high. Identification numbers shall be located on the front and back of the vehicle.

4.4 **Equipment Inventory.** Contractor shall furnish sufficient equipment to provide all service required under this Agreement, including back-up collection vehicles. If requested by the City, Contractor shall promptly furnish a written inventory of all vehicles, including collection vehicles, used in providing service. The inventory shall list all vehicles by manufacturer, ID number, date of

acquisition, type and capacity.

4.5 **Cleaning and Maintenance.** 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. Vehicles used in the collection of Solid Waste and Yard Waste shall be thoroughly washed and thoroughly steam cleaned on a regular basis as to present a clean appearance. All graffiti shall be removed immediately. City may inspect vehicles at any time to determine compliance with sanitation requirements. Contractor shall make vehicles available to the Alameda County Health Department for inspection, at any frequency it requests.

Contractor shall (i) inspect each vehicle daily to ensure that all equipment is operating properly. Vehicles which are not operating properly shall be taken out of service until they are repaired and do operate properly; and (ii) perform all scheduled maintenance functions in accordance with the manufacturer's specifications and schedule. 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.

Contractor shall arrange to store all vehicles and other equipment in safe and secure location(s) in accordance with the City's applicable zoning regulations.

Vehicles shall be operated in compliance with the California Vehicle Code, and all applicable safety and local ordinances. Contractor shall not load vehicles in excess of the manufacturer's recommendations or limitations imposed by state or local weight restrictions on vehicles.

5. **COLLECTION CONTAINERS**

5.1 **General.** Contractor shall provide bins and drop boxes for storage of Solid Waste which shall be designed and constructed to be water tight so as to prevent the leakage of liquids. All containers with the capacity of one cubic yard or more shall meet applicable Federal regulations and Solid Waste bin safety. All containers shall be a standard color (subject to City Approval) and shall prominently display the name and telephone number of Contractor.

5.2 **Cleaning, Painting and Maintenance.** Contractor shall steam clean and repaint all containers on a regular basis so as to present a clean appearance. All containers

shall be maintained in a functional condition. All graffiti shall be removed on an on-going basis. If there are repeated incidents of graffiti being placed on a container at the service location, the City and Contractor will discuss with the Customer ways of reducing such incidents.

5.3 **Repair and Replacement.** Contractor shall repair or replace all containers damaged by collection operations. Contractor shall be solely responsible for the replacement of any damaged, destroyed, or stolen Solid Waste and Yard Waste containers within five (5) business days of notification by Customer or the City.

5.4 **Change in Service Level.** For Customers who request a change in service level, Contractor shall provide a larger or smaller cart to said Customer within seven (7) days of the request. The Customer's bill shall be adjusted accordingly to reflect Customer's new level of service.

5.5 **Solid Waste Container.** Contractor shall provide and deliver a standard container to each Single Family Dwelling (a pre-assembled, 35 gallon, wheeled cart, or a 20 gallon wheeled mini-can), the color of which is subject to the review and approval of the City. Contractor shall have available, and provide upon request, 20 gallon, 35 gallon, 64 gallon and 96 gallon wheeled carts or their comparable equivalent.

5.6 **Yard Waste Container.** Contractor shall provide and deliver to each Single Family Dwelling with one unit a pre-assembled, 64 gallon, wheeled cart, the color of which is subject to the review and approval of the City. Contractor will provide written notice to owners of all Single Family Dwellings with two through four units of the availability of separate Yard Waste collection and directions on how it can be subscribed for. The City shall review and approve the form and content of such notice. The notice, or a revised update, will be sent to non-subscribing Single Family Dwelling owners annually, and whenever Contractor has become aware of a change in ownership of such non-subscribing Single Family Dwelling.

5.7 **Ownership of Containers.** Contractor shall be the owner of all containers provided to Customers for Solid Waste and Yard Waste service.

6. **PERSONNEL**

6.1 **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.

6.2 **Driver Qualifications.** All drivers shall be trained and qualified in the operation of waste collection vehicles and must have in effect a valid license, of the appropriate class, issued by the California Department of Motor Vehicles.

6.3 **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 or Yard Waste or who are otherwise directly involved in such collection. Contractor shall train its employees involved in Solid Waste collection to identify, and not to collect, Hazardous Waste or Unacceptable Waste.

6.4 **No Gratuities.** Contractor shall not permit its employees to demand or solicit, directly or indirectly, any additional compensation or gratuity from members of the public for the collection of Solid Waste or Yard Waste under this Agreement.

6.5 **Employee Conduct and Courtesy.** Contractor shall use its best efforts to assure 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 all appropriate corrective measures.

6.6 **Provision of Field Supervision.** Contractor shall designate an adequate number of field supervisors to check on collection operations, including responding to complaints.

6.7 **Identification.** All representatives of Contractor shall display and/or provide proper identification or documentation exhibiting their association with Contractor while operating in the field.

6.8 **Uniforms.** Uniforms shall be worn by all of Contractor's field employees.

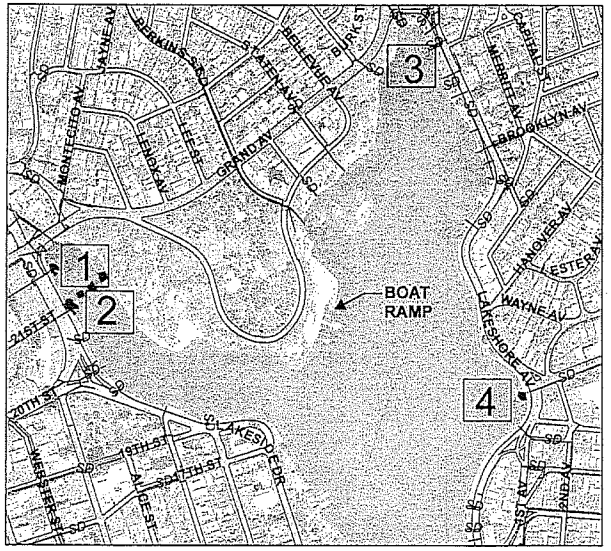
7. SERVICE COMPLAINTS

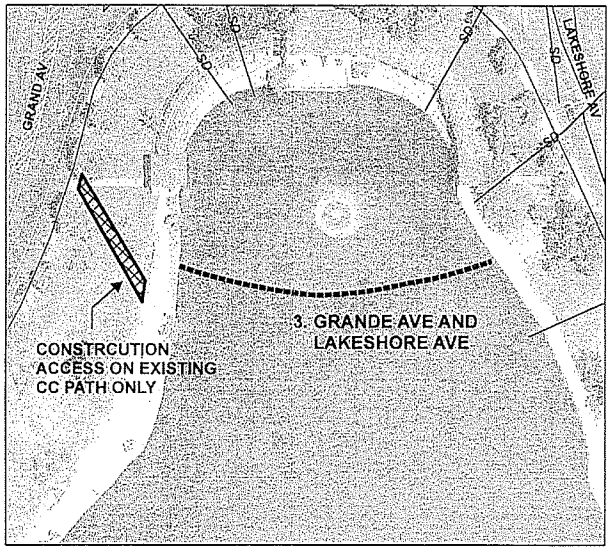
7.1 **General.** Contractor shall maintain a written log of all oral and written service complaints registered with Contractor from Customers within the City. Contractor shall be responsible for the prompt and courteous attention to, and prompt and reasonable solution of, all Customer complaints. Contractor shall record in a separate log all complaints, noting the name and address of complainant, date and time of complaint, nature of complaint, and nature and date of resolution. This complaint log shall be retained by Contractor. Such log shall be kept so that it may conveniently be inspected by representatives of the City upon request.

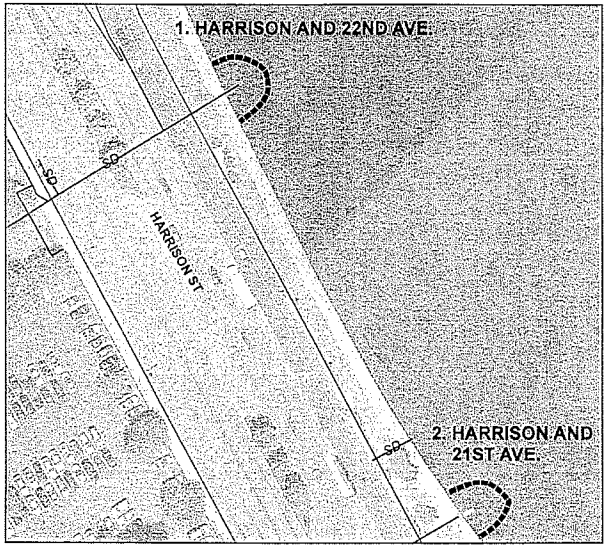
7.2 **Response to Complaints.** Contractor shall respond to all complaints from Customers within twenty-four (24) hours, weekends and holidays excluded. In particular, if a complaint involves a failure to collect Solid Waste or Yard Waste from the Customer, as required by this Agreement, Contractor shall collect the Solid Waste or Yard Waste within such twenty-four (24) hour period, provided it has been delivered for collection in accordance with the Oakland Municipal Code, unless Contractor and Customer agree upon a different timeframe.

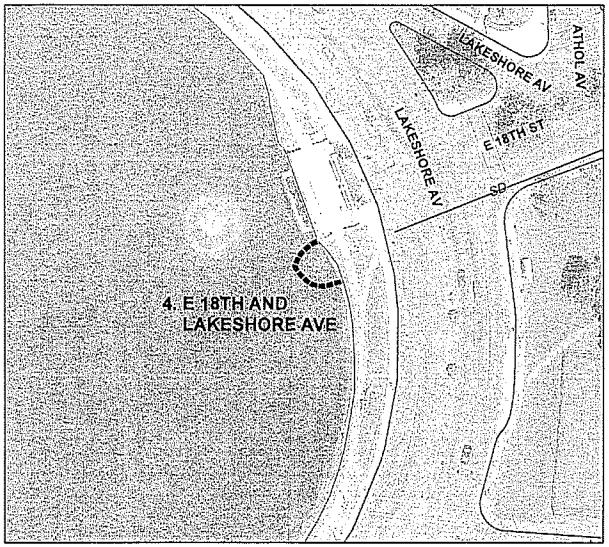
8. UNAUTHORIZED DUMPING

8.1 **Report of Accumulation of Solid Waste.** Contractor shall direct its drivers to note (i) the addresses of any premises at which they observe that Solid Waste is accumulating and is not being delivered for collection; and (ii) 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 the City within one working day of such observation.









Project No. C392020
Installation of Trash Containment Boom in Lake Merritt (2011)

NOTES

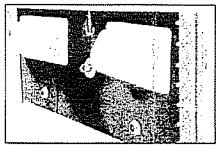
INSTALL NEW BOOM USING EXISTING ANCHORS

REMOVE AND DISPOSE OF EXISTING BOOM

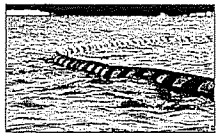
WATER ACCESS FROM BOAT RAMP ONLY

BOOM LENGTHS

1.	22ND AND HARRISON	80 FEET.
2.	21ST AND HARRISON	100 FEET.
3.	GRANDE AVE AND LAKESHORE	255 FEET.
4.	E18TH AND LAKESHORE	70 FEET.



PETRO BARRIER
TRASH CONTAINMENT
BOOM



Operating Environment:	Marine Harbor/Offshore
Freeboard:	11 in. (279 mm)
Draft:	13 in. (330 mm)
End Connectors:	Non-Corrosive
Flotation:	Durable and Replaceable
Grab Tensile Strength:	1,500 lbs./in.
Color:	Low visibility/Black
Other:	Bottom weighted/ Self-righting Corrosion resistant

300 Feet

N E S W

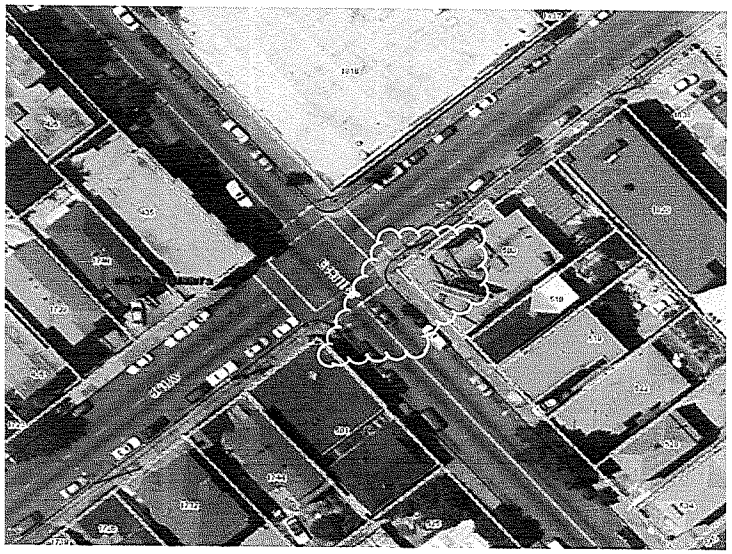
CITY OF OAKLAND

Water Boards

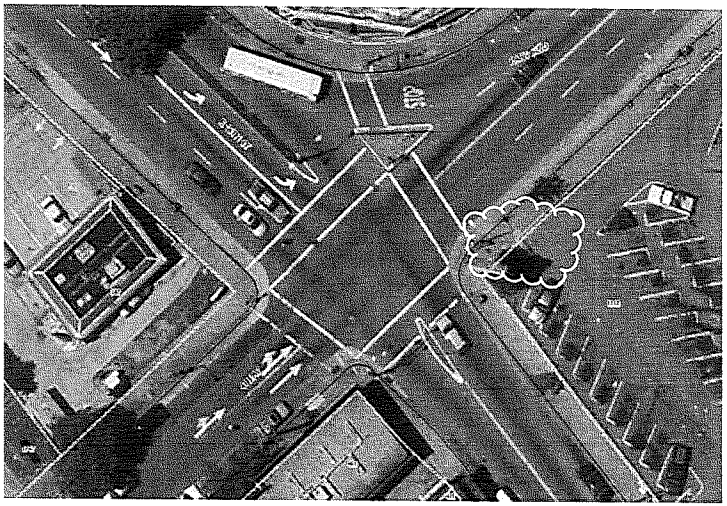
Clean Water

Lake Merritt Trash Boom Replacement 2011
Watershed and Stormwater Management

C392020 - Installation of Stormwater Inlet Screens
March 2012



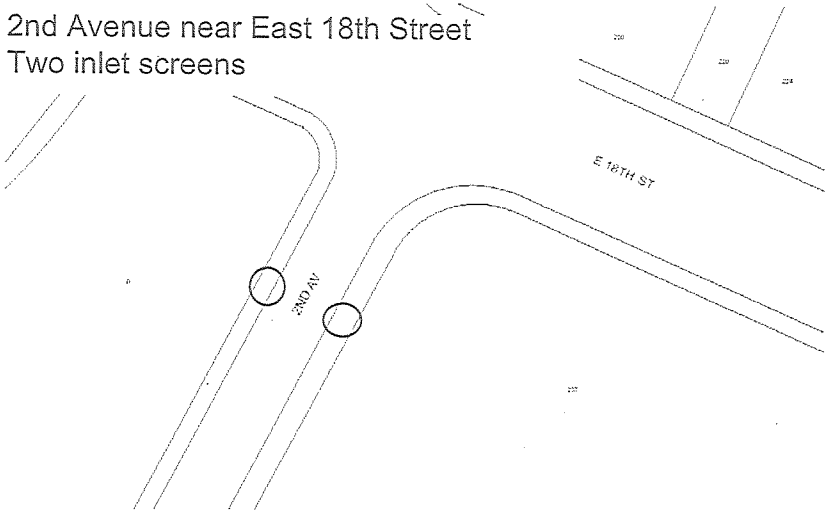
East 18th Street & 5th Avenue
Three inlet screens



East 18th Street & Park Boulevard
One inlet screens

C392020 - Installation of Stormwater Inlet Screens
March 2012

2nd Avenue near East 18th Street
Two inlet screens



- Field verify existing dimensions of inlets
- Fabricate screens to fit each inlet
- Install inlet screens
- See attached for the manufacturing details and costs