

Long-Term Trash Load Reduction Plan and Assessment Strategy



Submitted by:

City of South San Francisco, 195 Belle Air Road, South San Francisco, CA 94080

In compliance with Provisions C.10.c of Order R2-2009-0074

January 31, 2014

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**CITY OF SOUTH SAN FRANCISCO
LONG-TERM TRASH LOAD REDUCTION PLAN AND
ASSESSMENT STRATEGY**

CERTIFICATION STATEMENT

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

Signature by Duly Authorized Representative:

Rob Lecel 1/31/14

Rob Lecel
Interim Environmental Compliance Supervisor

January 31, 2014

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ABBREVIATIONS

BASMAA	Bay Area Stormwater Management Agencies Association
BID	Business Improvement District
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CASQA	California Stormwater Quality Association
CDS	Continuous Deflection Separator
CEQA	California Environmental Quality Act
CY	Cubic Yards
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
GIS	Geographic Information System
MRP	Municipal Regional Stormwater NPDES Permit
MS4	Municipal Separate Storm Sewer System
NGO	Non-Governmental Organization
NPDES	National Pollutant Discharge Elimination System
Q	Flow
SFRWQCB	San Francisco Regional Water Quality Control Board
SWRCB	State Water Resource Control Board
TCD	Trash Capture Device
TMA	Trash Management Area
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 Long-Term Trash Load Reduction Plan and Assessment Strategy (Long-Term Plan) is submitted in compliance with provision C.10.c of the Municipal Regional Stormwater NPDES Permit (MRP) for Phase I communities in the San Francisco Bay (Order R2-2009-0074). The Long-Term Plan was developed using a regionally consistent outline and guidance developed by the Bay Area Stormwater Management Agencies Association (BASMAA) and reviewed by San Francisco Bay Regional Water Quality Control Board staff. The Long-Term Plan is consistent with the Long-Term Trash Load Reduction Framework developed in collaboration with Water Board staff. Its content is based on the City of South San Francisco's current understanding of trash problems within its jurisdiction and the effectiveness of control measures designed to reduce trash impacts associated with Municipal Separate Storm Sewer (MS4) discharges. This Long-Term Plan is intended to be iterative and may be modified in the future based on information gained through the implementation of trash control measures. The City of South San Francisco therefore reserves the right to revise or amend this Long-Term Plan at its discretion. If significant revisions or amendments are made by the City a revised Long-Term Plan will be submitted to the Water Board through the City's annual reporting process.

1.0 INTRODUCTION

1.1 Purpose of Long-Term Trash Reduction Plan

The Municipal Regional Stormwater National Pollutant Discharge Elimination System (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.c of the MRP requires Permittees to submit a *Long-Term Trash Load Reduction Plan* (Long-Term Plan) by February 1, 2014. Long-Term Plans must describe control measures that are currently being implemented, including the level of implementation, and additional control measures that will be implemented and/or increased level of implementation designed to attain a 70% trash load reduction by July 1, 2017, and “No Adverse Impact” by July 1, 2022.

This Long-Term Plan is submitted by the City of South San Francisco in compliance with MRP provision C.10.c. Consistent with provision C.10 requirements, the goal of the Long-Term Plan is to solve trash problems in receiving waters by reducing the impacts associated with trash in discharges from the City of South San Francisco’s municipal separate storm sewer system (MS4) that are regulated by NPDES Permit requirements. The Long-Term Plan includes:

1. Descriptions of the current level of implementation of trash control measures, and the type and extent to which new or enhanced control measures will be implemented to achieve a target of “No Adverse Impact” (i.e. full) trash reduction from MS4s by July 1, 2022, with an interim milestone of 70% reduction by July 1, 2017;
2. A description of the *Trash Assessment Strategy* that will be used to assess progress towards trash reduction targets achieved as a result of control measure implementation; and,
3. Time schedules for implementing control measures and the assessment strategy.

The Long-Term Plan was developed using a regionally consistent outline and guidance developed by the Bay Area Stormwater Management Agencies Association (BASMAA) and reviewed by the San Francisco Bay Regional Water Quality Control Board (Water Board) staff. The Long-Term Plan is consistent with the Long-Term Trash Load Reduction Framework (see section 1.2.1) developed in collaboration with Water Board staff. Its content is based on the City of South San Francisco’s current understanding of trash problems within its jurisdiction and the effectiveness of control measures designed to reduce trash impacts associated with Municipal Separate Storm Sewer (MS4) discharges. The Long-Term Plan builds upon trash control measures implemented by the City prior to the adoption of the MRP and during the implementation of the Short-Term Trash Load Reduction Plan submitted to the Water Board on February 1, 2012.

1.2 Background

1.2.1 Long-Term Trash Load Reduction Plan Framework

A workgroup of MRP Permittee, Bay Area countywide stormwater program staff and Water Board staff met between October 2012 and March 2013 to better define the process for developing and implementing Long-Term Plans, methods for assessing progress toward reduction goals, and tracking and reporting requirements associated with provision C.10. Through these discussions, an eight-step framework for developing and implementing Long-Term Plans was created by the workgroup (Figure 1).

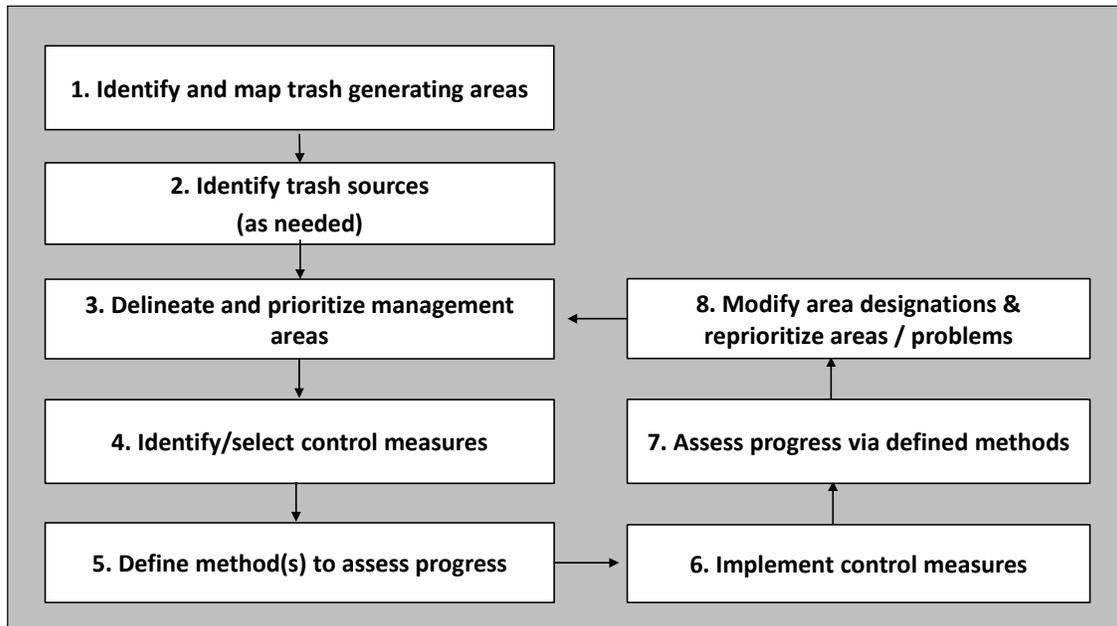


Figure 1. Eight-step framework for developing, implementing and refining Long-Term Trash Reduction Plans.

The workgroup agreed that as the first step in the framework, Permittees would identify very high, high, medium, and low trash generating areas in their jurisdictional areas. Trash generation rates developed through the *BASMAA Baseline Trash Generation Rates Project* (as discussed below) were used as a starting point for differentiating and delineating land areas with varying levels of trash generation. Permittees would then use local knowledge and field and/or desktop assessments to confirm or refine the level of trash generation for specific areas within their jurisdiction. Each Permittee would then develop a map depicting trash generation categories within their jurisdiction.

As a next step, Permittees would then delineate and prioritize Trash Management Areas (TMAs) where specific control measures exist or are planned for implementation. TMAs delineated by Permittees are intended to serve as reporting units in the future. Reporting at the management area level provides the level of detail necessary to demonstrate implementation and progress towards trash reduction targets.

Once control measures are selected and implemented, Permittees will evaluate progress toward trash reduction targets using outcome-based assessment methods. As the results of the progress

assessments are available, Permittees may choose to reprioritize trash management areas and associated control measures designed to improve trash reduction within their jurisdictions.

1.2.2 BASMAA Generation Rates Project

Through approval of a BASMAA regional project in 2010, Permittees agreed to work collaboratively to develop a regionally consistent method to establish trash generation rates within their jurisdictions. The project, also known as the *BASMAA Trash Generation Rates Project* (Generation Rates Project) assisted Permittees in establishing the rates of trash generation and identifying very high, high, medium and low trash generating areas.

The term “trash generation” refers to the rate at which trash is produced or generated onto the surface of the watershed and is potentially available for transport via MS4s to receiving waters. Generation rates do not explicitly take into account existing control measures that intercept trash prior to transport. Generation rates are expressed as trash volume/acre/year and were established via the Generation Rates Project.

In contrast to trash generation, the term “trash loading” refers to the rate at which trash from MS4s enters receiving waters. Trash loading rates are also expressed as trash volume/acre/year and are equal to or less than trash generation rates because they account for the effects of control measures that intercept trash generated in an area before it is discharged to a receiving water. Trash loading rates are specific to particular areas because they are dependent upon the effectiveness of control measures implemented within an area. Figure 2 illustrates the difference between trash generation and loading.

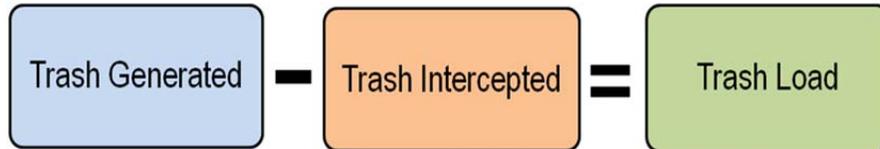


Figure 2. Conceptual model of trash generation, interception and load.

Trash generation rates were estimated based on factors that significantly affect trash generation (i.e., land use and income). The method used to establish trash generation rates 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 Roseboom 2000; Lippner et al. 2001; Armitage 2003; Kim et al. 2004; County of Los Angeles 2002, 2004a, 2004b; Armitage 2007). The method is based on a conceptual model developed as an outgrowth of these studies (BASMAA 2011b).

Trash generation 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. Trash generation rates estimated from this study are listed for each land use type in Table 1. Methods used to develop trash generation rates are more fully described in BASMAA (2011b, 2011c, and 2012).

Table 1. San Francisco Bay Area trash generation rates by land use (gallons/acre/year).

Land Use	Low ^b	Best ^b	High ^b
Commercial & Services	0.7	6.2	17.3
Industrial	2.8	8.4	17.8
Residential ^a	0.3 - 30.2	0.5 - 87.1	1.0 - 257.0
Retail ^a	0.7 - 109.7	1.8 - 150.0	4.6 - 389.1
K-12 Schools	3	6.2	11.5
Urban Parks	0.5	5.0	11.4

^a For residential and retail land uses, trash generation rates are provided as a range that takes into account the correlation between rates and household median income.

^b For residential and retail land uses: Low = 5% confidence interval; Best = best fit regression line between generation rates and household median income; and, High = 95% confidence interval. For all other land use categories: High = 90th percentile; Best = mean generation rate; and, Low = 10th percentile.

1.2.3 Short-Term Trash Load Reduction Plan

In January of 2012, the City of South San Francisco developed a Short-Term Plan that described the current level of control measures implementation and identified the type and extent to which new or enhanced control measures would be implemented to attain a 40% trash load reduction from its MS4 by July 1, 2014. Since that time, the City of South San Francisco has begun to implement its short-term plan. Control measures implemented to date are:

Full Trash Capture Treatment Devices:

- In October of 2011, the City installed 82 full-capture devices in high trash generation areas (see Figure 7 on page 18.) Maintenance of each device has been performed an average of three times per year since installation.

Plastic Bag Ban:

- Adopted ordinance on April 22, 2013 banning the distribution of single-use plastic carryout bags. Ordinance went into effect 30 days later.

Polystyrene Ban:

- City Code Enforcement Staff has enforced the polystyrene food ware packaging ban within the city. The ban took effect in October of 2008.

Public Education and Outreach Programs:

- The City staff handed out re-useable bags at farmer’s markets in 2012 and 2013.
- Starting in 2010, four City Staff began teaching high school students about stormwater issues at two high schools in the City. Issues such as litter are discussed each year as part of Sewer Science Week. The topic of litter was added in response to the MRP’s focus on trash. 75 students were taught in 2013.

Enhanced Storm Drain Inlet Maintenance:

- The City increased the cleaning of storm drain inlets from once per year to twice per year. Additionally, the inlets with trash capture devices are cleaned on average three times per year.

Creek/Channel/Shoreline Cleanups (Volunteer and Municipal):

- In 2010, a second location for the Annual Coast Cleanup event was added to clean the two MRP required hot spots. Cleanups were done in 2011, 2012 and 2013
- Six Schools conducted on-land clean-ups for Earth Day in 2013
- The City had an Earth Day Cleanup in 2012 on Littlefield Ave. This commercial site was chosen because it is near the bay and was impacted by trash.

Enhanced Trash and Recyclables Bin Management

This action was not included in the City's Short Term Plan, but has recently been initiated:

- The City's contracted hauling company, South San Francisco Scavenger Company, has agreed to do an audit of specific MFD properties in TMA #1 before June 30, 2014. Subsequent audits are possible depending on the results of this initial one.
- Refuse and recycling service levels/volumes will be audited at the properties to ensure that they are paying for the right level of service and do not have regularly overflowing bins and/or carts on and in between collection service days.
- The type of service (FEL, REL, carts) and the condition of any service equipment (trucks, bins and carts) will be audited to see if improvements can be made to reduce the amount of litter generated during the servicing of the accounts on and in between collection service days. So, for example, if lids are missing or containers are broken, those will be repaired or replaced with another style of service that will generate less litter. If a different type of truck is available to service the accounts and that different type of truck will generate less litter during collection, then that different type of service will be considered for the account.

Control measures described in this Long-Term Plan build upon actions taken to-date via City of South San Francisco's Short-Term Plan. A full description of control measures implemented via short and long-term plans is included in section 3.2. Outcomes associated with short-term plan implementation will be reported in the City of South San Francisco's Fiscal Year 2013-14 Annual Report, scheduled for submittal to the Water Board by September 15, 2014.

1.3 Organization of Long-Term Plan

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

- 1.0 Introduction;
- 2.0 Scope of the Trash Problem;
- 3.0 Trash Management Areas and Control Measures;
- 4.0 Progress Assessment Strategies; and
- 5.0 References

Section 2.0 is intended to provide a description of the extent and magnitude of the trash problem in the City of South San Francisco. Control measures that will be implemented by the City of South San Francisco as a result of this Long-Term Plan are described in section 3.0. Section 4.0 describes the methods that will be used to assess progress toward trash reduction targets.

2.0 SCOPE OF THE TRASH PROBLEM

2.1 Permittee Characteristics

Incorporated in 1908, the City of South San Francisco is located in Santa Mateo County, and has a jurisdictional area of 4,866 acres. According to the 2010 Census, it has a population of 63,632, with a population density of 2,109 people per square mile, and average household size of 3.01. Of the 63,632 who call the City of South San Francisco home, 21.7% are under the age of 18, 8.9% are between 18 and 24, 29.3% are between 25 and 44, 27.0% are between 45 and 65, and 27.0% are 65 or older. The median household income was \$61,764 in 2000. During the day, the City of South San Francisco’s population grows to over 100,000 due to the businesses in the City such as: Genentech, Amgen, Costco, Royal Laundry and Bimbo Bakeries. The City has a history of industrial use starting with stockyards and meat packing plants in the 1800’s, moving to steel and paint in the 1900’s and now to bio-tech companies.

The City is bounded on the east by the San Francisco Bay and the Santa Cruz mountains to the west. To the North are the San Bruno Mountains and the Cities of Colma, Daly City and Brisbane. On the south side is the City of San Bruno and the San Francisco International Airport. Colma Creek and Twelve Mile Creek flow through the City from the hills to the Bay.

Large trash generating areas within the City, but outside of the City’s control, include two state-owned freeways, I-280 and US-101 and the rail lines for Caltrain and BART rights of way. State Route 82 (El Camino Real) also traverses the City, but the City collects litter on the roadway through a maintenance agreement with Caltrans.

Land uses within City of South San Francisco depicted in ABAG (2005) are provided in Table 2. The City of South San Francisco is primarily comprised of three land uses. These include residential, industrial and commercial.

Table 2. Percentages of the City of South San Francisco’s jurisdictional area¹ within land use classes identified by ABAG (2005)

Land Use Category	Jurisdictional Area (acres) ¹	% of Jurisdictional Area ¹
Commercial and Services	706.8	13.1%
Industrial	1,115.2	20.7%
Residential	2,476.0	46.0%
Retail	270.4	5.0%
K-12 Schools	223.0	4.1%
Urban Parks	115.3	2.1%
Other	475.8	8.8%

¹ A Permittee’s jurisdictional area is defined as the urban land area within a Permittee’s boundary that is not subject to stormwater NPDES Permit requirements for traditional and non-traditional small MS4s (i.e. Phase II MS4s) or the California Department of Transportation, or owned and maintained by the State of California, the U.S. federal government or other municipal agency or special district (e.g., flood control district).

2.2 Trash Sources and Pathways

Trash in San Francisco Bay Area creeks and shorelines originates from a variety of sources and is transported to receiving waters by a number of pathways (Figure 3). Of the four source categories, pedestrian litter includes trash sources from high traffic areas near businesses and schools, transitional areas where food/drinks are not permitted (e.g. bus stops), and from public or private special events with high volumes of people. Trash from vehicles occurs due to littering from automobiles and uncovered loads. Inadequate waste container management includes sources such as overflowing or uncovered containers and dumpsters as well as the dispersion of household and business-related trash and recycling materials before, during, and after collection. On-land illegal dumping of trash is the final source category.

Trash is transported to receiving waters through three main pathways: 1) Stormwater Conveyances; 2) Wind; and, 3) Direct Dumping. Stormwater or urban runoff conveyance systems (e.g., MS4s) consist of curbs/gutters, and pipes and channels that discharge to urban creeks and the San Francisco Bay shorelines. Wind can also blow trash directly into creeks or the Bay. Lastly, trash in receiving waters can also originate from direct dumping into urban creeks and shorelines.

This Long-term Plan and associated trash control measures described in Section 3.0 are focused on reducing trash from one of the transport pathways illustrated in Figure 3– **stormwater conveyances**. Specifically, the Long-term Plan is focused on reducing the impacts of discharges from MS4s to San Francisco Area receiving waters and the protection of associated beneficial uses.

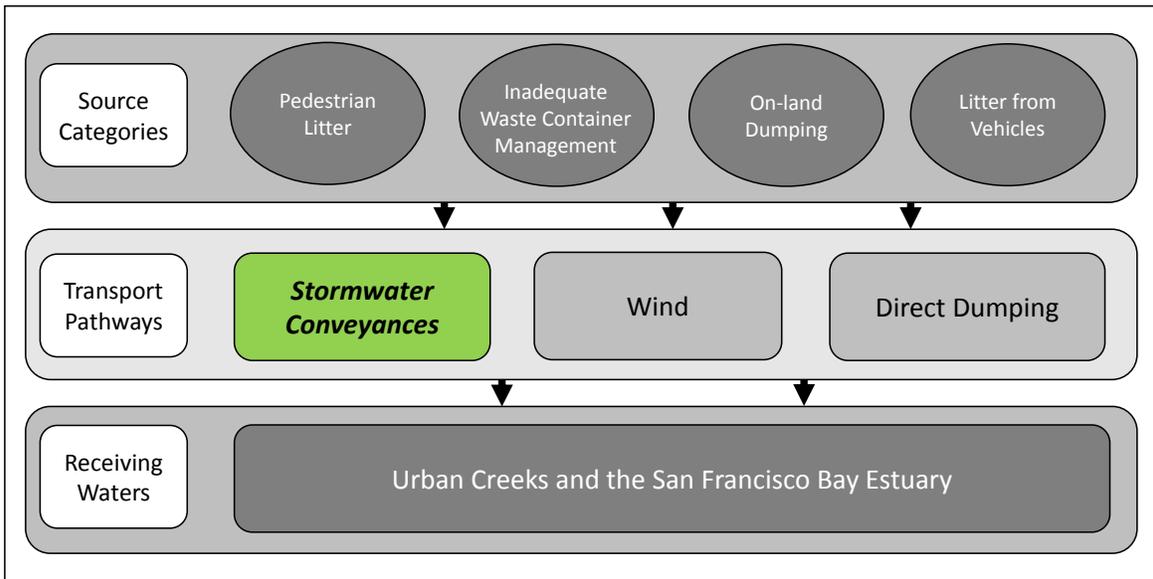


Figure 3. Trash sources categories and transport pathways to urban creeks.

In addition to the control measures described in this plan, the City of South San Francisco is fighting the spread of litter through wind and dumping pathways in several ways:

1. Adopting ordinances that reduce the amount and severity of litter: the Plastic Bag ban has reduced plastic bag litter and the Polystyrene ban has reduced the severity of litter by reducing the use and distribution of one of the worst types of litter – polystyrene foam.

2. Increasing the number and distribution of on-land clean up events: Colma Creek cleanups now occur almost every month throughout the year.
4. Sweeping streets weekly city-wide to clean up litter and reduce further wind distribution.
5. Finally the City will begin in 2014 to install barriers to prevent vehicles from entering areas that have been historically used for illegal dumping.

2.3 Trash Generating Areas

2.3.1 Generation Categories and Designation of Areas

The process and methods used to identify the level of trash generation within the City of South San Francisco are described in this section and illustrated in Figure 4.

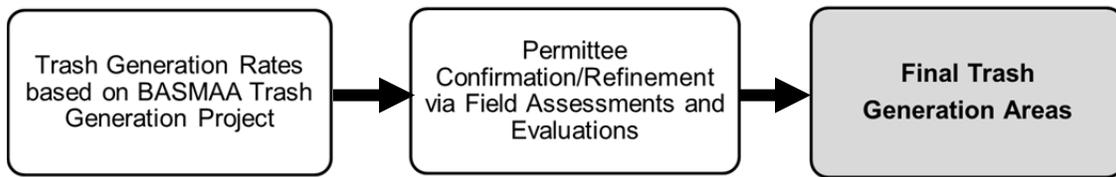


Figure 4. Trash sources categories and transport pathways to urban creeks.

As a first step, trash generation rates developed through *the BASMAA Trash Generation Rates Project* were applied to parcels within the City of South San Francisco based on current land uses and 2010 household median incomes. A Draft Trash Generation Map was created as a result of this application. The draft map served as a starting point for the City of South San Francisco to identify trash generating levels. Levels of trash generation are depicted on the map using four trash generation rate (gallons/acre/year) categories that are symbolized by four different colors illustrated in Table 3.

Table 3. Trash generation categories and associated generation rates (gallons/acre/year).

Category	Very High	High	Medium	Low
Generation Rate (gallons/acre/year)	> 50	10-50	5-10	< 5

The City of South San Francisco then reviewed and refined the draft trash generation map to ensure that trash generation categories were correctly assigned to parcels or groups of parcels. City staff refined maps using the following process:

1. Based upon the knowledge of trash generation and problem areas within the City, City staff identified areas on the draft map that potentially had incorrect trash generation category designations.
2. Trash generation category designations initially assigned to areas identified in step #1 were then assessed and confirmed/refined by the City using the methods listed below.

a. On-Land Visual Assessments

To assist Permittees with developing their trash generation maps, BASMAA developed a *Draft On-land Visual Trash Assessment Protocol (Draft Protocol)*. The Draft Protocol entails walking a street segment and visually observing the level of trash present on the roadway, curb and gutter, sidewalk, and other areas adjacent to the street that could potentially contribute trash to the MS4. Based on the level of trash observed, each segment (i.e., assessment area) was placed into one of four on-land assessment condition categories that are summarized in Table 4.

Using the Draft Protocol and the preliminary Trash Generation Map provided by the Program, City staff divided the map up into sections for field review. Staff from the Environmental Compliance program within the Public Works Department then field-assessed 6 of the proposed 9 TMAs to assist in conducting/refining trash generating area designations. Those areas were chosen because either they had higher trash levels or staff was less familiar with them. The remaining three areas were already familiar to staff and did not need field assessment. After documenting the findings, the trash levels were confirmed or revised accordingly.

Table 4. Definitions of on-land trash assessment condition categories.

On-land Assessment Condition Category	Summary Definition
A (Low)	Effectively no trash is observed in the assessment area.
B (Medium)	Predominantly free of trash except for a few pieces that are easily observed.
C (High)	Trash is widely/evenly distributed and/or small accumulations are visible on the street, sidewalks, or inlets.
D (Very High)	Trash is continuously seen throughout the assessment area, with large piles and a strong impression of lack of concern for litter in the area.

b. Querying Municipal Staff

Input from City Staff in the Streets and Sewer Maintenance programs and Street Sweeping crew in the Public Works Department and the Maintenance Crew and Common Greens Maintenance crews in the Parks Department was involved in the assessment. Field knowledge was gathered and this input provided additional insight into the littering patterns and potential sources around the City.

c. Viewing Areas via Google Maps – Street View

City staff and Consultants used both Google Maps and Google Earth to view specific areas and better understand actual land uses and demographics. Observations were made and conditions were documented. The trash control measures chosen were partly based on the information gathered and the delineation of the TMAs was informed as well.

3. Based on assessments conducted to confirm/refine trash generation category designations, the City created a final trash generation map that depicts the most current understanding of trash generation within the City of South San Francisco. The City documented this process by tracking the information collected through the assessments and subsequent refinements to the Draft Trash Generation Map. The City’s Final Trash Generation Map is included as Figure 5.

2.3.2 Summary of Trash Generating Areas and Sources

Summary statistics for land use and trash generation categories generated through the mapping and assessment process are presented in Table 5.

Table 5. Percentage of jurisdictional area within the City of South San Francisco assigned to each trash generation category.

Trash Generation Category	Jurisdictional Area (Acres)	Commercial and Services	Industrial	Residential	Retail	K-12 Schools	Urban Parks	Other
Very High	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High	337.4	0.0%	0.0%	21.3%	78.7%	0.0%	0.0%	0.0%
Medium	2,320.6	29.6%	47.4%	9.6%	0.1%	9.4%	3.9%	0.0%
Low	2,724.4	0.7%	0.6%	80.0%	0.1%	0.1%	0.9%	17.5%

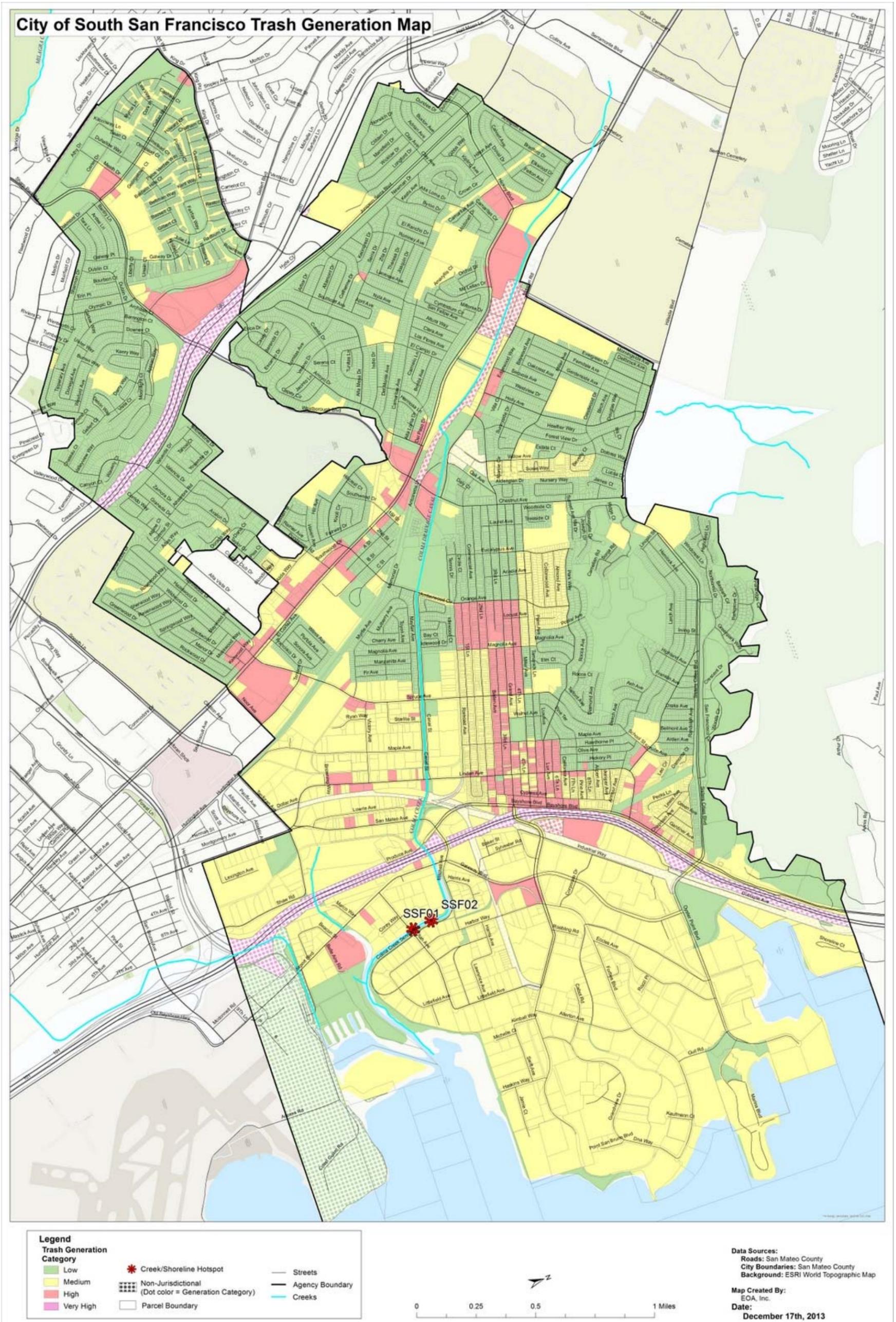


Figure 5. Final Trash Generation Map for the City of South San Francisco

3.0 TRASH MANAGEMENT AREAS AND CONTROL MEASURES

This section describes the control measures that the City of South San Francisco has implemented or plans to implement to solve trash problems and achieve a target of “No Adverse Impact” (i.e. full) trash reduction from their MS4 by July 1, 2022. The selection of control measures described in this section is based on the City’s current understanding of trash problems within its jurisdiction and the effectiveness of control measures designed to reduce trash impacts associated with MS4 discharges. Information on the effectiveness of some trash control measures is currently lacking and therefore in the absence of this information, the City based its selection of control measures on existing effectiveness information, their experience in implementing trash controls and knowledge of trash problems, and costs of implementation. As knowledge is gained through the implementation of these control measures, the City may choose to refine their trash control strategy described in this section. If significant revisions or amendments are made, a revised Long-Term Plan will be submitted to the Water Board through the City of South San Francisco’s annual reporting process.

3.1 Management Area Delineation and Prioritization

Consistent with the long-term plan framework, the City of South San Francisco delineated and prioritized trash management areas (TMAs) based on the geographical distribution of trash generating areas, types of trash sources, and current or planned control measure locations. TMAs are intended to form the management units by which trash control measure implementation can be tracked and assessed for progress towards trash reduction targets. Once delineated, TMAs were also prioritized for control measure implementation (“1” being highest priority, “9” being lowest). Prioritization was based on addressing the “high” areas first, then concentrating on “medium” areas, and finally assuring that “low” areas remain “low.” Table 6 below gives a description of each TMA and the portion of the City’s Jurisdictional Area that it occupies.

Table 6. Trash Management Areas and Descriptions

TMA	% of Jurisdictional Area	Description
1	6%	This TMA includes the downtown area with its commercial and retail businesses, City Hall and single family residential parcels. Trash devices treating 19 acres of surface area have been installed, but additional high areas require treatment.
2	4%	Contains the surrounding “high and medium” parcels along El Camino Real (State Route 82) where there is mixed commercial and high trash generation use.
3	1%	Designates high trash areas in the hills at shopping centers.
4	8%	Chosen for the medium trash areas west of US-101 in the industrial and older residential neighborhoods.
5	19%	The industrial area east of US-101 and the largest TMA in the City needing trash capture.
6	1%	A non-jurisdictional area operated by the County of special concern.
7	5%	Medium generating areas throughout the City such as schools and parks etc.
8	4%	Recognizes the large and “low” level Genentech campus - cleaned by its workers.
9	51%	Identifies all remaining “low” areas, which are mostly residential.

A map depicting the City’s TMAs is included as Figure 6. All jurisdictional areas within the City are included within a TMA. The amount of jurisdictional land area and associated trash condition categories for each TMA are included in Table 7. The total jurisdictional area in acres is: 5,382.

Table 7. Jurisdictional area and percentage of each Trash Management Area (TMA) comprised of trash generation categories

TMA	Jurisdictional Area (Acres)	Trash Generation Rate			
		Very High	High	Medium	Low
1	344.9	0.0%	34.1%	62.7%	3.2%
2	234.9	0.0%	52.6%	46.2%	1.2%
3	72.7	0.0%	58.8%	41.2%	0.0%
4	440.1	0.0%	3.9%	93.6%	2.5%
5	1,037.4	0.0%	3.2%	96.3%	0.5%
6	46.6	0.0%	0.0%	94.7%	5.3%
7	253.6	0.0%	0.0%	98.6%	1.4%
8	199.1	0.0%	0.0%	99.5%	0.5%
9	2,753.3	0.0%	0.1%	2.3%	97.6%

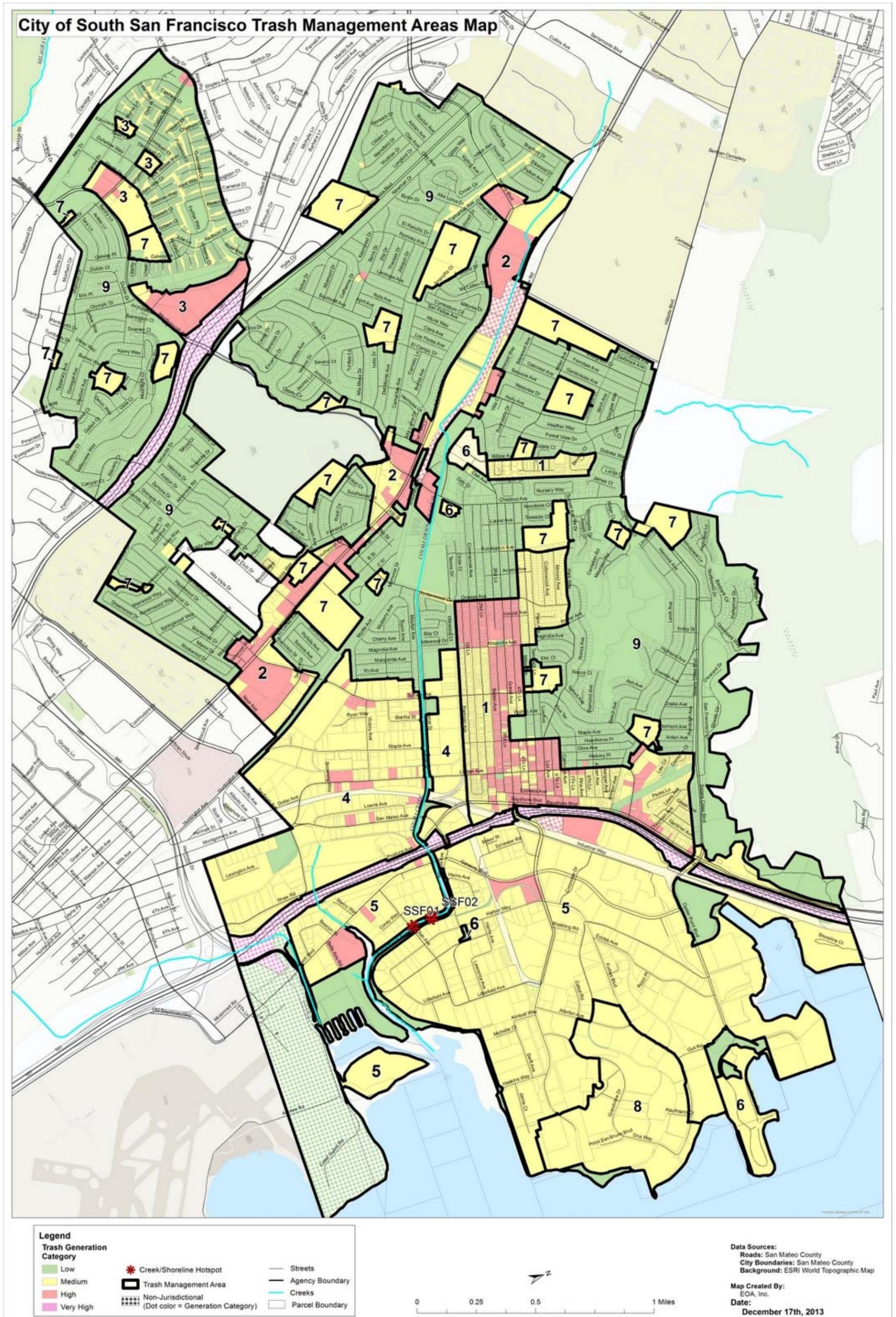


Figure 6. Trash Management Area Map for the City of South San Francisco.

3.2 Current and Planned Trash Control Measures

The City of South San Francisco does not have a severe trash problem. Zero percent of the City's jurisdictional area generates "very high" levels and only 11% of the City's area is in the "high" category. Over half of the City is already in compliance with the long term "No Adverse Impact" goal.

During the last four years, City staff has analyzed several options for reducing trash generation in the City and options for capturing that trash which does make it into the MS4 system. In preparation of the City's Short Term Trash Plan, many measures were analyzed and some were chosen for implementation. Of those options several have been implemented as described in section 1.2.3 of this plan. In preparation for the development of the Long Term Trash Plan, staff came together again to discuss the City's strategy. On December 4th, 2013, the Environmental Program staff held a meeting with managers of the following City programs:

- Park Maintenance
- Common Greens
- Building Maintenance
- Public Works Street Maintenance
- Public Works Sewer Maintenance
- Public Works Street Sweeping

The assembled staff discussed the Long Term Plan, the purpose and goals of the plan, the elements of the City's Short Term Plan and what had been achieved to date, and what actions the City would take in the future to comply with the MRP and meet the goals of the City. Staff strategized what actions would have the most support from the City Council, Management staff and the public, and what actions were the most effective, both financially and environmentally.

Some actions, such as enhanced street sweeping measures, have been studied by City staff but were not implemented for various reasons including: resistance by the public to the proposed changes and a perceived intensity of funding/staffing resources of implementation compared with a perceived low level of environmental benefit and trash reduction. The City spends considerable funds on cleaning streets, picking up litter, cleaning stormdrains and removing illegally dumped materials. For years street sweeping has been performed on a higher level than what was required by the stormwater permit in the pre-MRP period.

Therefore, City staff began to look at the option of adding more full capture trash devices as the primary way of implementing the long term MRP requirements. The first step in that process was for City engineering and environmental programs staff to make an initial assessment of the high trash generating TMAs and the watersheds within those TMAs. Taking the existing storm drain system into account, known utility issues, groundwater levels and public right of way areas where devices could be installed, staff overlaid that information with high and medium trash generation areas are within those TMAs. This work has generated a draft list of where trash capture devices could be effectively installed to capture that trash. The list is shown in Table 8 below.

Additionally, the City wants to take advantage of the existing and proposed stormwater pump stations that the City operates. Based on the experience of other jurisdictions, installation of full trash capture in these pump stations may be a more cost effective way of capturing trash. So pump station retrofits and addition of trash capture to new pump stations planned is also part of the list of planned projects.

This draft list is a starting point and will need to be further refined over time. The City has planned on contracting with an engineering firm to complete a Stormdrain Master Plan that would further investigate the feasibility of device locations and catchment areas. The Master Plan is already identified and funded in the City’s current Capital Improvement Plan (CIP) for implementation.

The City plans on dealing with trash capture device installations in an iterative approach. Devices and locations will be planned, designed and constructed over the next eight years. After each device is installed, testing and monitoring will provide data for staff that will inform the next device installation. The City expects to learn from each installation and possible modifications to the list are likely. Each year the City will detail any changes to the list in the Annual report to the Water Board.

The CIP will be presented to the City Council in June of 2014 for adoption. Following adoption of the CIP, the first item of business will be for the City to contract with an engineering firm to develop the Stormwater System Master Plan. This plan will generate the data needed to delineate the catchment areas for each device and consider engineering aspects of each project resulting in specifications for the construction bidding process.

The draft rollout schedule for the CIP is shown in Table 8 below.

Table 8. Capital Improvement Plan Implementation Schedule

Project #	Project Location	Project Description	TMA	Fiscal Year of Implementation
1	Citywide Plan	Stormdrain Master Plan	Citywide	14-15
2	South Linden	Full Capture Device Added to Previously Planned Pump Station Retrofit	4	14-15
3	Airport Blvd.	Full Capture Device Added to Previously Planned New Pump Station	5	14-15
4	Airport Blvd at Armour	New Large Capture Device	1	15-16
5	Airport Blvd at California	New Large Capture Device	1	15-16
6	Hickey at El Camino Real	New Large Capture Device	2	16-17
7	Westborough Blvd at US 280	New Large Capture Device	3	17-18
8	North Canal at Linden Avenue	New Large Capture Device	4	18-19

Beyond the installation of full capture devices, the City will continue to sweep weekly on a citywide basis and collect litter through on-land cleanups and public litter containers. Outreach to the public in general and to specific targeted audiences will also continue through efforts being coordinated at the County-wide level and locally. The City will continue to sponsor annual Coastal Cleanup location events and other cleanup events which target the City’s two hot spot areas on the banks of Colma Creek.

More work with the City’s trash hauler, South San Francisco Scavenger Co. is also planned. The company has agreed to audit a neighborhood of the City in TMA #1 where trash levels on the street are higher than other parts of the City. This audit will occur before June 30, 2014 and the results of that audit will generate data for possible further audits in TMA#1 as well as other TMA’s around the City that have trash levels needing action.

In Sections 3.1.2 through 3.1.12 below, actions are described that the City has used and is planning to use to control trash. For actions that have been implemented for many years and were implemented before adoption of the MRP on December 1, 2009, the term “Pre-MRP Action” is used. For actions that have been implemented since the MRP adoption and through June 30, 2014, the term “New/Enhanced Post-MRP Actions Initiated” is used. For measures to be implemented after June 30, 2014, the term “New/Enhanced Post-MRP Actions Planned” is used.

3.2.1 Jurisdiction-wide Control Measures

Summary:

The City controls and reduces litter jurisdiction-wide using behavior change strategies since the primary way that litter gets into the environment is through people’s behavior. Long term success can be accomplished using an array of the following methods:

1. Polystyrene Ban
2. Plastic Bag Ban
2. School Education
3. Public Outreach and Information
4. Improved Trash Container Management
5. Stormdrain Inlet Cleaning

Polystyrene Ban

Pre-MRP Actions:

Polystyrene Ban: The City adopted this ordinance in 2008. The ordinance bans all types of polystyrene foodware and requires compostable or recyclable foodware. Enforcement is complaint driven and also done by the City’s Code Enforcement division when doing business inspections.

Link to the City’s ordinance: www.ssf.net/index.aspx?nid=265

New Enhanced Post-MRP Actions Initiated:

City Code Enforcement Staff will continue to enforce the polystyrene food ware packaging ban within the city.

Plastic Bag Ban

Pre-MRP Actions:

Stores voluntarily limited bag distribution and/or gave customers a discount for bringing their own bags. The City distributed re-usable bags to the public in 2008 at a public event.

New/Enhanced Post-MRP Actions Initiated:

Plastic Bag Ban: The City adopted this ordinance in 2013. The ordinance bans plastic bags and requires that a 10 cent fee be charged on other types of bags. All retail stores except restaurants are covered by the ban. San Mateo County enforces it.

Link to the City’s ordinance: www.ssf.net/index.aspx?nid=1482

School Education

Pre-MRP Actions:

High School:

Sewer Science Week

City Staff teach high school students about sanitary sewer science and some stormwater issues at two high schools in the City.

Elementary School:

Banana Slug School Assembly Program

SMCWPPP organizes School assemblies each year.

New/Enhanced Post-MRP Actions Initiated:

High School Outreach:

Starting in 2010, four City Staff began teaching high school students about stormwater issues at two high schools in the City. Issues such as litter are discussed each year as part of Sewer Science Week. The topic of litter was added in response to the MRP's focus on trash. 75 students were taught in 2013.

Engine Lab: On February 12th, 2013, 53 ninth grade students at El Camino High School received a presentation through SMCWPPP. Content was focused on water pollution prevention problems and solutions, with an emphasis on litter prevention and student involvement through topics of science, environmental science, and small engine repair classes.

Surveys results indicated the following:

95% agreed or strongly agreed with the statement "I learned something new about watersheds, storm drains, and water pollution in the bay and ocean.

88% agreed or strongly agreed with the statement "I learned new ways to protect the San Mateo County watersheds.

93% agreed or strongly agreed with the statement "I would recommend this presentation to my friends."

Elementary School Outreach:

On November 2, 2012, 300 students at Martin Elementary School learned about litter and stormwater topics through a performance by the Banana Slug String Band (a two to four-person musical theatrical team that specializes in school assemblies) as part of the SMCWPPP contract for schools in the County. The show, entitled "We All Live Downstream," provided information about storm drains, watersheds, the marine environment, and tips to keep water clean. The show used songs and activities to engage students on the topic. Survey results indicated the following:

86% understood that stormwater flows directly into the bay or ocean.

94% answered correctly on questions related to the type of pollution often impacting storm drains.

95% understand that pollution in the storm drain sickens or kills marine life.

81% chose not littering as a way to prevent pollution.

86% liked the presentation.

New/Enhanced Post-MRP Actions Planned:

The City plans to continue the outreach to the schools and consider enhancing it in future years.

Public Outreach and Information

Continued Pre-MRP Actions:

Annual Coast Cleanup Event along the Bay Trail.

New/Enhanced Post-MRP Actions Initiated:

The City staff handed out 400-500 re-useable bags at farmer's markets in 2012 and 2013. An Earth Clean-up Event will be done in April 2014. The City will conduct a cleanup and outreach event on International Rivers Day in May 2014.

New Enhanced Post-MRP Actions Planned:

In FY 13-14 for 6 to 8 months, the City has contracted with the local Century Theater movie complex in San Bruno to show anti-littering public service announcement videos from the "Be The Street" regional campaign. The City is planning to make the Earth Day and International Rivers Day clean-ups annual events.

Improved Trash Container Management

Continued Pre-MRP Actions:

The City's contracted waste and recyclables hauler, South San Francisco Scavenger Company, continually works with customers to right-size their containers and service levels to avoid overloaded bins and carts that spill trash out on the roadway during and in between collection days.

New/Enhanced Post-MRP Actions Initiated:

In January of 2014, City staff received a commitment from South SF Scavenger to do an audit of a Multi-family neighborhood in TMA#1 by June 30, 2014.

New/Enhanced Post-MRP Actions Initiated/Planned:

In FY 14-15, after the audit is completed in TMA#1 (described below in 3.2.2) and depending on the success of that action, additional audits will be considered for other parts of the City that have litter problems.

By 7/1/17, the City will install twenty four additional 55-gallon trash cans (including 12 with polyethylene trash can domes to place in high use, windy locations. A map of the locations will be created by FY 2016-17.

Stormwater Inlet Cleaning

Continued Pre-MRP Actions:

The City cleans all the stormwater inlets/catch basins at least once per year.

New/Enhanced Post-MRP Actions Initiated:

After the small trash capture devices were installed in October of 2011, City crews now clean those 82 catch basins an average of three times per year: before, during and after storm events. (see Figure 7 - Full Trash Capture Map below.

3.2.2 Trash Management Area #1

Summary:

Acres: 345

Portion of City: 6%

Typical Land Uses: Commercial, Government (City Hall) and Residential

Typical Parcel Sizes: Small and Medium

Trash Generation Levels: Medium (63%), High (34%) and Low (3%)

Primary Trash Sources: Retail food businesses, pedestrians, vehicles, illegal dumping, windblown trash and improper trash area management

Description: This TMA includes the downtown area with its commercial and retail businesses, City Hall and single family residential parcels. Trash devices treating 19 acres of surface area have been installed, but additional high areas require treatment.

In addition to the Jurisdiction-wide Measures in 3.2.1 the following controls are for TMA#1:

Full-Capture Treatment Devices

Pre-MRP Actions:

No full-capture trash devices were installed in the City of South San Francisco prior to the MRP.

New/Enhanced Post-MRP Actions Initiated:

October 2011: 5% of the 345 acre area (18.81 acres of medium level generation) is now being treated with full-capture trash devices. (See Figure 7 – Full Trash Capture Map below.)

New/Enhanced Post-MRP Actions Planned:

The City will install in FY 15-16 one or two large Full-Capture Trash Devices to treat this area after the Stormdrain Master Plan is completed in FY 14-15. The City needs a storm drain master plan to determine what improvements need to be constructed in the storm drain system. The City will issue a Request for Proposals so engineering consultants can evaluate the storm drain system and prepare the storm drain master plan.

After each full capture trash capture device is installed in the TMA, the City will assess the trash levels remaining and consider additional devices as necessary. Updates to this long term plan and the device installation list in the City's Capital Improvement Program will occur with each annual report as necessary.

On-land Trash Cleanups

Pre-MRP Actions:

The downtown area has the most on-land cleanup efforts of any heavily trash-impacted part of the City. There are 42 public litter containers on the sidewalks on Grand Avenue, and 6 containers on Hazelwood Drive that are serviced three times per week by South San Francisco Scavengers on Monday, Wednesday, and Friday. City employees service all other containers, 15 containers on Linden and those on Grand Avenue and Hazelwood Avenue on Tuesday and Thursday.

New/Enhanced Post-MRP Actions Planned:

By 7/1/17, the City will install twenty four additional 55-gallon trash cans (including 12 with polyethylene trash can domes to place in high use, windy locations. A map of the locations will be created in FY 2014-15.

Street Sweeping

Pre-MRP Actions:

The downtown area (Grand Ave and Linden Ave) is swept six days a week, (Monday through Saturday) by a City-operated MadVac (small sweeper) which sweeps the street, removes trash in hard to sweep areas and at the intersections.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Improved Trash Container Management

Pre-MRP Actions:

The City's contracted waste and recyclables hauler, South San Francisco Scavenger Company, continually works with customers to right-size their containers and service levels to avoid overloaded bins and carts that spill trash out on the roadway during and in between collection days.

New/Enhanced Post-MRP Actions Initiated:

City staff has identified an area within TMA#1 that needs attention from the hauling company. The City considered adding public litter containers on the street corners in this area, but is concerned that area residents may illegally use the containers for their household trash if they do not have adequate on-site service for their residences. Similarly the City does not want to devote scarce and expensive on-land cleanup efforts to this area when the source of the problem may be handled by some attention from the hauling company. Therefore at the request of the City, South SF Scavenger agreed in January of 2014, to do an audit of the MFD properties in the area described below before June 30, 2014. Subsequent audits are possible depending on the results of this initial one.

The audit will cover the following items:

1. Refuse and recycling service levels/volumes at the properties to ensure that they are paying for the right level of service and do not have regularly overflowing bins and/or carts on and in between collection service days.
2. The type of service (FEL, REL, carts) and the condition of any service equipment (trucks, bins and carts) to see if improvements can be made to reduce the amount of litter generated during the servicing of the accounts on and in between collection service days. So, for example, if lids are missing or containers are broken, those will be repaired or replaced with another style of service that will generate less litter. If a different type of truck is available to service the accounts and that different type of truck will generate less litter during collection, then that different type of service will be considered for the account.

The audit will be on the following streets:

Grand Ave, Willow Street and off of Willow Street on: Brusco Way, Susie Way, Susie Court, Sandra Court, Brosnan Court and Marcie Circle.

New/Enhanced Post-MRP Actions Planned:

After the audit is done, a summary of the findings would be emailed to the City. If successful, this control action will be considered for other TMA's in the City, if the hauler agrees.

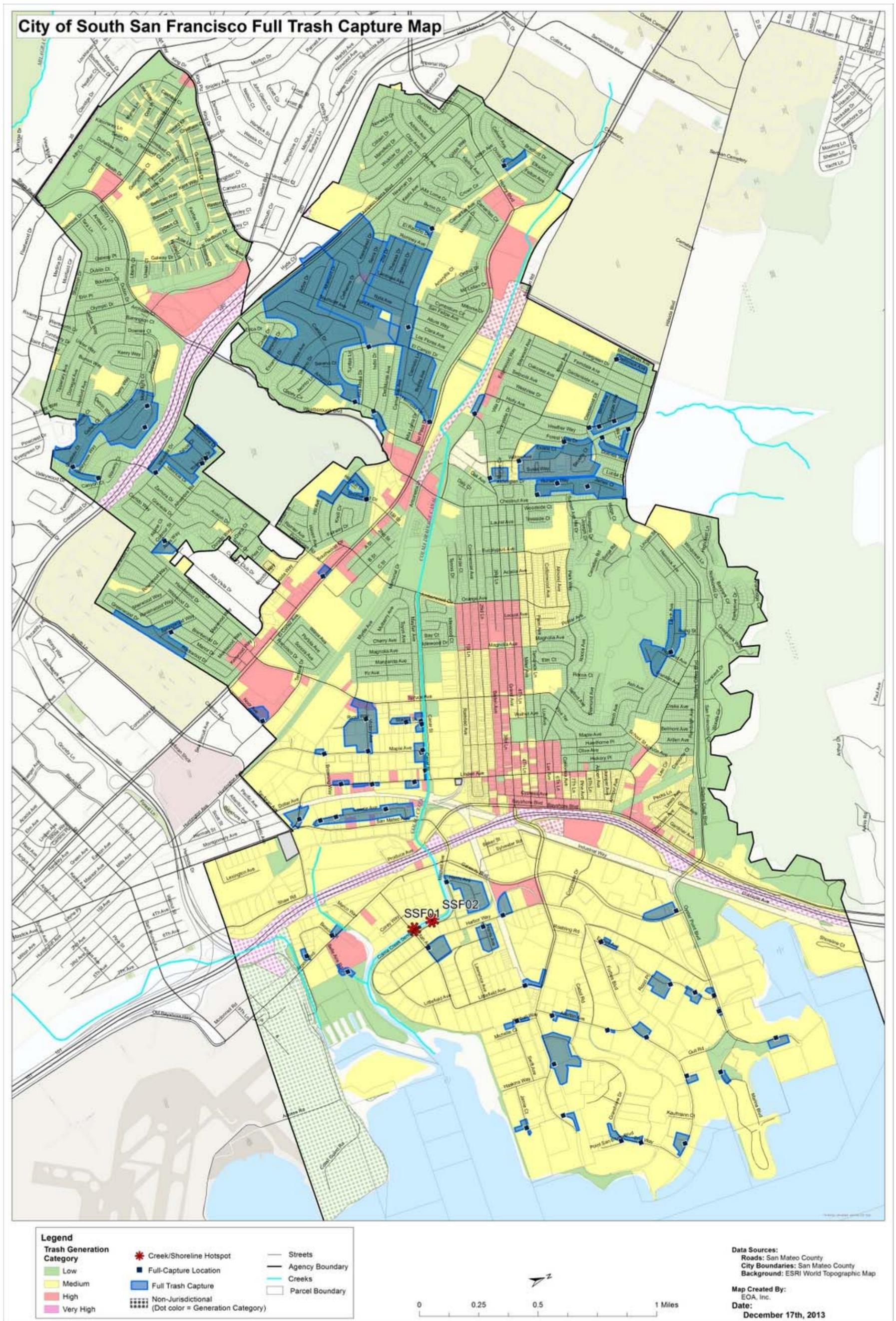


Figure 7. Full Trash Capture Device Map for the City of South San Francisco

3.2.3 Trash Management Area #2

Summary:

Acres: 235

Portion of City: 4%

Typical Land Uses: Commercial Properties along El Camino Real (SR-82)

Typical Parcel Sizes: All sizes

Trash Generation Levels: Medium (53%) and High (46%) and Low (1%)

Primary Trash Sources: Retail food businesses, Pedestrians and Vehicles.

Description: This TMA contains the surrounding “high and medium” parcels along El Camino Real (State Route 82) where there is mixed commercial and high trash generation use.

In addition to the Jurisdiction-wide Measures in 3.2.1 the following controls are for TMA#2:

Full-Capture Treatment Devices

Pre-MRP Actions:

No full-capture trash devices were installed in the City of South San Francisco prior to the MRP.

New/Enhanced Post-MRP Actions Initiated:

October 2011: 2% of the 235 acre area (3 acres of high level and 1.6 acres of medium level generation) is now being treated with full-capture trash devices.

New/Enhanced Post-MRP Actions Planned:

The City will install in FY 16-17 one large Full-Capture Trash Devices to treat this area using the Stormdrain Master Plan that is scheduled for completion in FY 14-15. The City needs a storm drain master plan to determine what improvements need to be constructed in the storm drain system. The City will issue a Request for Proposals so engineering consultants can evaluate the storm drain system and prepare the storm drain master plan.

It is likely that in TMA#2, additional trash capture devices will be necessary. Therefore after the first device is installed in the TMA, the City will assess the trash levels remaining and consider additional devices as necessary. Updates to this long term plan and the device installation list in the City’s Capital Improvement Program will occur with each annual report as necessary.

If upon discovery that the full capture device approach is not adequate for reaching the “No Adverse Impact” level required by the MRP by 2022, the City will consider other non-capture actions to take such as on-land cleanups, street sweeping and further product related ordinances.

On-land Trash Cleanups

Continued Pre-MRP Actions:

The City has a freeway maintenance agreement with Caltrans. The Maintenance Agreement goes back to 1972. The most recent citywide revisions occurred in 1990 and later in 2006 additions were made for the Oyster Point Interchange. The City is responsible for SR-82 (El Camino Real) litter removal. All other routes, such as I-280, US 101 and Skyline Blvd within the city limits, are maintained by Caltrans. The City also empties City trash cans placed along El Camino Real.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Street Sweeping

Continued Pre-MRP Actions:

The City sweeps curbs weekly and median islands monthly of El Camino Real.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Enhanced Trash Container Management

Pre-MRP Actions:

The City's contracted waste and recyclables hauler, South San Francisco Scavenger Company, continually works with customers to right-size their containers and service levels to avoid overloaded bins and carts that spill trash out on the roadway during and in between collection days.

New/Enhanced Post-MRP Actions Initiated/Planned:

City staff will consider this TMA for commercial waste audits from the City's contracted hauler, South SF Scavenger, in FY 14-15, if the audit in TMA #1 is successful and the hauler agrees.

3.2.4 Trash Management Area #3

Summary:

Acres: 73

Portion of City: 1%

Typical Land Uses: Commercial Properties and Shopping Centers west of I-280.

Typical Parcel Sizes: All sizes

Trash Generation Levels: Medium (59%) and High (41%)

Primary Trash Sources: Retail food businesses, Pedestrians and Vehicles.

Description: This TMA contains high trash areas in the hills at shopping centers.

In addition to the Jurisdiction-wide Measures in 3.2.1 the following controls are for TMA#3:

Full-Capture Treatment Devices

Pre-MRP Actions:

No full-capture trash devices were installed in the City of South San Francisco prior to the MRP.

New/Enhanced Post-MRP Actions Initiated:

No full-capture trash devices have been installed in this TMA at this point.

New/Enhanced Post-MRP Actions Planned:

The City will install in FY 17-18 one large Full-Capture Trash Device to treat this area using the Stormdrain Master Plan that is scheduled for completion in FY 14-15. The City needs a storm drain master plan to determine what improvements need to be constructed in the storm drain system. The City will issue a Request for Proposals so engineering consultants can evaluate the storm drain system and prepare the storm drain master plan.

It is likely that in TMA#3, additional trash capture devices will be necessary. Therefore after the first device is installed in the TMA, the City will assess the trash levels remaining and consider additional devices as necessary. Updates to this long term plan and the device installation list in the City's Capital Improvement Program will occur with each annual report as necessary.

If upon discovery that the full capture device approach is not adequate for reaching the "No Adverse Impact" level required by the MRP by 2022 in this TMA, the City will consider other non-capture actions to take such as on-land cleanups, street sweeping and further product related ordinances.

Street Sweeping

Continued Pre-MRP Actions:

The area is swept weekly.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Enhanced Trash Container Management

Pre-MRP Actions:

The City's contracted waste and recyclables hauler, South San Francisco Scavenger Company, continually works with customers to right-size their containers and service levels to avoid overloaded bins and carts that spill trash out on the roadway during and in between collection days.

New/Enhanced Post-MRP Actions Initiated/Planned:

City staff will consider this TMA for commercial waste audits from the City's contracted hauler, South SF Scavenger, in FY 14-15, if the audit in TMA #1 is successful and the hauler agrees.

3.2.5 Trash Management Area #4

Summary:

Acres: 440

Portion of City: 8%

Typical Land Uses: Commercial, Industrial and Residential Properties west of US-101.

Typical Parcel Sizes: All sizes

Trash Generation Levels: Medium (93.5%) and High (4%) and Low (2.5%)

Primary Trash Sources: Illegal dumping, Pedestrians and Vehicles.

Description: Chosen for the medium trash areas west of US-101 in the industrial and older residential neighborhoods.

In addition to the Jurisdiction-wide Measures in 3.2.1 the following controls are for TMA#4:

Full-Capture Treatment Devices

Pre-MRP Actions:

No full-capture trash devices were installed in the City of South San Francisco prior to the MRP.

New/Enhanced Post-MRP Actions Initiated:

October 2011: 9% of the 440 acre area (4.5 acres of high level and 32 acres of medium level and 4 acres of low level generation) is now being treated with full-capture trash devices.

New/Enhanced Post-MRP Actions Planned:

The City will install in FY 14-15 a Full-Capture Trash Device at an existing Stormwater Pump Station to treat this area. Additionally, the City will install in FY 18-19 one large Full-Capture Trash Device in this area using the Stormdrain Master Plan that is scheduled for completion in FY 14-15. The City needs a storm drain master plan to determine what improvements need to be constructed in the storm drain system. The City will issue a Request for Proposals so engineering consultants can evaluate the storm drain system and prepare the storm drain master plan.

After the devices are installed, the City will assess the trash levels remaining and consider additional devices as necessary. Updates to this long term plan and the device installation list in the City's Capital Improvement Program will occur with each annual report as necessary.

If upon discovery that the full capture device approach is not adequate for reaching the "No Adverse Impact" level required by the MRP by 2022 in this TMA, the City will consider other non-capture actions to take such as on-land cleanups, street sweeping and further product related ordinances.

Partial-Capture Treatment Devices

Pre-MRP Actions:

The City has three partial-capture trash devices installed. The three devices are trash racks and are located at the Lindenville, South Maple and San Mateo Ave. stormwater pump stations. These devices are cleaned and inspected on an annual basis.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

On-land Trash Cleanups

Continued Pre-MRP Actions:

The City collects illegally dumped material in the area on an as-needed basis.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Street Sweeping

Continued Pre-MRP Actions:

The area is swept weekly.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Enhanced Trash Container Management

Pre-MRP Actions:

The City's contracted waste and recyclables hauler, South San Francisco Scavenger Company, continually works with customers to right-size their containers and service levels to avoid overloaded bins and carts that spill trash out on the roadway during and in between collection days.

New/Enhanced Post-MRP Actions Initiated/Planned:

City staff will consider this TMA for commercial waste audits from the City's contracted hauler, South SF Scavenger, in FY 14-15, if the audit in TMA #1 is successful and the hauler agrees.

3.2.6 Trash Management Area #5

Summary:

Acres: 1,037

Portion of City: 19%

Typical Land Uses: Commercial and Industrial Properties east of US-101.

Typical Parcel Sizes: Medium and Large

Trash Generation Levels: Medium (96%) and High (3%) and Low (.5%)

Sources: Illegal Dumping, Pedestrians and Vehicles.

Description: The industrial area east of US-101 and the largest TMA in the City needing trash capture.

In addition to the Jurisdiction-wide Measures in 3.2.1 the following controls are for TMA#5:

Full-Capture Treatment Devices

Pre-MRP Actions:

No full-capture trash devices were installed in the City of South San Francisco prior to the MRP.

New/Enhanced Post-MRP Actions Initiated:

October 2011: 5% of the 1,037 acre area (53 acres of medium level generation) is now being treated with full-capture trash devices.

New/Enhanced Post-MRP Actions Planned:

A new stormwater Pump station at South Airport and Mitchell Ave will be installed in FY 14-15 that will include a full trash capture device. Using the Stormdrain Master Plan that is scheduled for completion in FY 14-15, the City will have at its disposal more information in the future to work with.

It is possible that in TMA#5, additional trash capture devices will be necessary. Therefore after the first device is installed in the TMA, the City will assess the trash levels remaining and consider additional devices as necessary. Updates to this long term plan and the device installation list in the City's Capital Improvement Program will occur with each annual report as necessary.

If upon discovery that the full capture device approach is not adequate for reaching the "No Adverse Impact" level required by the MRP by 2022 in this TMA, the City will consider other non-capture actions to take such as on-land cleanups, street sweeping and further product related ordinances.

On-land Trash Cleanups

Continued Pre-MRP Actions:

The City collects illegally dumped material in the area on an as-needed basis.

The company Amgen in TMA 5 has landscapers that collect trash on a regular basis.

New/Enhanced Post-MRP Actions Initiated/Planned:

The City is in the process of obtaining information about their collection schedule. The City has a working relationship with AMGEN and other companies in TMA 5 and will further efforts to gather information from them.

Street Sweeping

Continued Pre-MRP Actions:

The area is swept weekly.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Enhanced Trash Container Management

Pre-MRP Actions:

The City's contracted waste and recyclables hauler, South San Francisco Scavenger Company works with customers to right-size their containers and service levels to avoid overloaded bins and carts that spill trash out on the roadway during and in between collection days.

New/Enhanced Post-MRP Actions Initiated/Planned:

City staff will consider this TMA for commercial waste audits from the City's contracted hauler, South SF Scavenger, in FY 14-15, if the audit in TMA #1 is successful and the hauler agrees.

Illegal Dumping Controls

Continued Pre-MRP Actions:

The City cleaned up illegal dumping on an on-call basis.

New/Enhanced Post-MRP Actions Initiated/Planned:

Barriers will be installed in two locations in FY 13-14.

3.2.7 Trash Management Area #6

Summary:

Acres: 47

Portion of City: 1%

Typical Land Uses: County and regional properties. One by I-280 and one by the shore east of US-101.

Typical Parcel Sizes: Large

Trash Generation Levels: Medium (95%) and Low (5%)

Sources: Illegal Dumping, Pedestrians and Vehicles.

Description: A non-jurisdictional area of special concern operated by San Mateo County.

In addition to the Jurisdiction-wide Measures in 3.2.1 the following controls are for TMA#6:

Full-Capture Treatment Devices

Pre-MRP Actions:

No full-capture trash devices were installed in the City of South San Francisco prior to the MRP.

New/Enhanced Post-MRP Actions Initiated:

October 2011: 1% of the 47 acre area (.38 acres of medium level generation) is now being treated with full-capture trash devices.

New/Enhanced Post-MRP Actions Planned:

There are no additional actions planned for this TMA at this time.

On-land Trash Cleanups

Continued Pre-MRP Actions:

The City collects illegally dumped material in the area on an as-needed basis.

The County and regional agencies in these areas collect trash around their properties with their own staff.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Street Sweeping

Continued Pre-MRP Actions:

The area is swept weekly.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

3.2.8 Trash Management Area #7

Summary:

Acres: 254

Portion of City: 5%

Typical Land Uses: Parks, Schools and Churches spread around the City mostly in the hills.

Typical Parcel Sizes: Medium to Large

Trash Generation Levels: Medium (98.5%) and Low (1.5%)

Sources: Illegal Dumping, Pedestrians and Vehicles.

Description: Medium-level generating areas throughout the City such as schools and parks etc.

In addition to the Jurisdiction-wide Measures in 3.2.1 the following controls are for TMA#7:

Full-Capture Treatment Devices

Pre-MRP Actions:

No full-capture trash devices were installed in the City of South San Francisco prior to the MRP.

New/Enhanced Post-MRP Actions Initiated:

October 2011: 5% of the 254 acre area (13.4 acres of medium level generation) is now being treated with full-capture trash devices.

New/Enhanced Post-MRP Actions Planned:

There are no additional actions planned for this TMA at this time.

On-land Trash Cleanups

Continued Pre-MRP Actions:

The City Parks department collects litter on the ground and in 129 public litter containers in the parks on a weekly basis. The frequency of service has been set based on use. Cans are serviced to prevent overflow. Problematic park trash can locations and overflowing issues are adjusted within park sites to reduce overflowing at approximately 2% of the locations. Adjustments are permanent, approximately 3-4 per year.

Illegally dumped material in the area is collected on an as-needed basis. Funded service levels provide minimum of 2 times during 5-day business week check of trash cans. Cans that are 75% full are emptied to prevent overflowing. Current funding provides weekend staffing to check and empty cans at 6 high trash areas on Saturday and Sunday. They do Restrooms and prep picnic areas for permit customers and then do trash runs. Parks high trash areas emptied 4-6 times a week, although there are seasonal variations.

Current cleanup frequency is 7 days per week in high use parks and 5 days per week in low use parks. Manual cleanup consists of trash pick-up with a pick stick and bucket which are emptied into area trash receptacles. Trash receptacles are emptied when full. 15 staff members conduct cleanups totaling 11,700 hours per year.

4,257 gallons per week of litter are collected (60% full x 129 x55 gal/container.)

New/Enhanced Post-MRP Actions Initiated:

The City coordinates special site cleanups when volunteer and city resources available.

2013 Park Community Clean Data:

Locations:	Hours spent:	Volumes collected:
1) Orange Memorial Park	12 volunteers + 4 staff (96 hrs.)	2,400 gallons
2) Sign Hill:	6 volunteers + 2 staff (150 hrs.)	15,000 gallons
3) Sellick Park:	8 volunteers + 2 staff (360 hrs.)	<u>4,000 gallons</u>
Total Volume of Litter Collected		21,400 gallons

Parks Division purchased 30 additional Polyethylene trash can domes to limit litter blowing away in windy, high trash areas and developed areas. Additionally, the City revised “new construction” trash can standard to include partial covers on cans to minimize litter escape. Twenty four new permanent trash cans with partial covers were installed at 5 new sites (Centennial Walkway (approx. 10), Dog Park (6), Paradise Valley (2), Westborough (8), and Orange Memorial Park-Expanded Playground Area (2).

New/Enhanced Post-MRP Actions Planned:

2014 events: Projected: 25,000 gallons of litter and non-greenwaste debris will be collected. Existing trash receptacles will be replaced with standardized trash receptacles and will be GIS mapped. Between July 1, 2014 and July 1, 2022 the City will add twenty four 55 gallon trash cans (including 12 with polyethylene trash can domes to place in high use, windy locations in City parks or other locations (see Jurisdiction-wide measures.)

Street Sweeping

Continued Pre-MRP Actions:

The area is swept weekly.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

3.2.9 Trash Management Area #8

Summary:

Acres: 199

Portion of City: 4%

Typical Land Uses: Genentech Corporate Campus

Typical Parcel Sizes: Large

Trash Generation Levels: Medium (99.5%) and Low (.5%)

Sources: Retail Food Businesses, Pedestrians and Vehicles.

Description: This TMA recognizes the large and “low” trash-level Genentech campus.

In addition to the Jurisdiction-wide Measures in 3.2.1 the following controls are for TMA#8:

Full-Capture Treatment Devices

Pre-MRP Actions:

No full-capture trash devices were installed in the City of South San Francisco prior to the MRP.

New/Enhanced Post-MRP Actions Initiated:

October 2011: 3% of the 199 acre area (5 acres of medium level generation) is now being treated with full-capture trash devices.

New/Enhanced Post-MRP Actions Planned:

There are no additional actions planned for this TMA at this time.

On-land Trash Cleanups

Continued Pre-MRP Actions:

Genentech landscapers are on site 5 days a week to collect trash and to landscape the facility and do an excellent job of keeping the campus and surrounding streets very clean.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Street Sweeping

Continued Pre-MRP Actions:

The area is swept weekly.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

3.2.10 Trash Management Area #9

Summary:

Acres: 2,753

Portion of City: 51%

Typical Land Uses: Residential areas in the western and northern hilly parts of the City and some large clean parks.

Typical Parcel Sizes: Small (except for the parks)

Trash Generation Levels: Low (97.5%) and Medium (2.5%)

Sources: Illegal Dumping, Pedestrians and Vehicles.

Description: Identifies all remaining “low” areas, which are mostly residential.

In addition to the Jurisdiction-wide Measures in 3.2.1 the following controls are for TMA#9:

Full-Capture Treatment Devices

Pre-MRP Actions:

No full-capture trash devices were installed in the City of South San Francisco prior to the MRP.

New/Enhanced Post-MRP Actions Initiated:

October 2011: 12% of the 2,753 acre area (325 acres of low level generation and 1.3 acres of medium level generation) is now being treated with full-capture trash devices.

New/Enhanced Post-MRP Actions Planned:

There are no additional actions planned for this TMA at this time.

On-land Trash Cleanups

Continued Pre-MRP Actions:

2 part-time employees collect litter in the City, and more employees as necessary when additional cleanup is identified. In 2012: 3,096 total hours of City staff time was spent conducting cleanups within identified public rights-of-way. Total volume of trash removed: Average of 287 cubic yards per month.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

Street Sweeping

Continued Pre-MRP Actions:

The area is swept weekly.

New/Enhanced Post-MRP Actions Initiated/Planned:

There are no additional actions planned for this TMA at this time.

3.2.11 Creek and Shoreline Hot Spot Cleanups

Table 9. Hot Spot Cleanup Results Summary FY10-13

Trash Hot Spot	FY 2012-13 Clean-up Dates	FY 2012-13 Volume of Trash Removed (cubic yards)	FY 2011-12 Volume of Trash Removed (cubic yards)	FY 2010-11 Volume of Trash Removed (cubic yards)	Dominant Type(s) of Trash	Trash Sources (where possible)
SSF01	9/15/2012 2/2/2013 2/3/2013 6/19/2013	12.68	0.99	3.01	Plastic Bags, Styrofoam, Convenience/Fast Food items, Bottles (plastic or glass), Other plastic products, Cigarette butts, Wood debris, Furniture, Tires, Bags of trash, Appliances, Pallets	Litter, Illegal dumping, Trash accumulation, Outfall
SSF02	9/15/2012 2/2/2013 2/3/2013 6/19/2013		1.49	2.85	Plastic Bags, Styrofoam, Convenience/Fast Food items, Bottles (plastic or glass), Other plastic products, Cigarette butts, Wood debris, Furniture, Tires, Bags of trash, Appliances, Pallets	Litter, Illegal dumping, Trash accumulation, Outfall
Totals		12.68	2.48	5.86		

Pre-MRP Actions:

The Annual Coast Cleanup event was located in one spot on the Bay Trail.

New/Enhanced Post-MRP Actions Initiated:

Hot Spot Cleanups:

Table 9 above summarizes the results of the required annual cleanup events at the City's two hot spots since the MRP was adopted. In FY 12-13 there were eight single-day creek clean-ups in Colma Creek at the Hot Spot locations in addition to the mandatory Hot Spot clean-up in September 2012, for a total of nine creek clean-ups. Three clean-ups were City-led and six were a collaborative effort between the City and volunteers.

California Coastal Cleanup Day:

The City added a 2nd annual location for Coast Cleanup Day in 2010 at the Colma Creek hotspots. California Coastal Cleanup Day, held each year on the third Saturday in September, is a great opportunity to get many residents of all ages actively involved with the problems associated with litter. SMCWPPP coordinated the event and completed the following tasks on behalf of the City and other member agencies:

1. Outreach materials such as posters and postcards provided by the Coastal Commission were disseminated to public schools, libraries, community centers, non-profit organizations, churches, youth groups, site captains, and all jurisdictions in the County. These materials were also handed out at outreach events.
2. An article was written in the San Mateo County Environmental Health newsletter, "Pollution Prevention Post" (Fall 2012) which informed residents about the event and where to find a location list of cleanup sites in San Mateo County. A total of 2,901 copies were distributed throughout the County to libraries, residents, and local businesses.
3. A press release was developed and sent out on August 20, 2012 describing the event and encouraging readers to go to flowstobay to find out how to participate. The following papers picked up the press release and ran articles or added the event to their public calendars (or both): Pacifica Tribune, San Mateo Daily Journal, Half Moon Bay Review and Coastsider, Latino Post, plus six local Patches (online news outlets by Patch.com, with a focus on a single city). ABC 7 News did a television broadcast news story on the cleanup effort at Thornton Beach in Daly City, and FOX 2 News did a television broadcast story on the cleanup effort at Ryder Park in San Mateo.
4. The event was posted on the flowstobay web site home page, as well as in the online calendar. A special section of the website dedicated to litter prevention, located in the Community Section of the website, also contained pages devoted to Coastal Cleanup Day that provided residents with logistical information for the event, including a new Google map of sites. Several environmental groups included the event their own web calendars.
5. SMCWPPP used Twitter and Facebook to draw attention to the event as the date approached. In all, 49 Twitter feeds and 17 Facebook postings were issued to promote the event.
6. All public schools were sent a memo which contained information about two ways that schools could support CCD: by displaying posters on campus on the first day of school where staff, students, and parents would see them; and to participate in a school or classroom cleanup activity on Friday, September 15- the day before Coastal Cleanup Day. Participating students were asked to pick up litter around campus and record what they found on data cards. All the supplies needed were provided, and the students were counted among the thousands that participated.
7. A site captain's meeting was held to disseminate the latest information from the Coastal Commission to the site captains, along with materials that would be needed to conduct the event. They were trained in signing in volunteers and providing safety talks. In an effort to move toward a change in reporting methods, captains were also trained in how to report their findings using volume measurements and gallons. Both weight and volume numbers were requested in the final reporting. Since SMCWPPP began coordinating the event for San Mateo County in 2005, the increase in volunteers who have turned out for Coastal Cleanup Day has grown by roughly 450%. The amount of debris removed from waterways has more than doubled. An estimated total of nearly 245,000 pounds of debris has been removed since 2005.

New Enhanced Post-MRP Actions Planned:

The City is planning to conduct Earth Day and International Rivers Day clean-ups in April and May of 2014 respectively and make these annual events.

3.2.12 Summary of Trash Control Measures

The control measures listed below are believed to achieve the full trash reduction level in each management area.

After each full capture trash capture device is installed in the TMAs indicated below, the City will assess the trash levels remaining and consider additional devices as necessary. Updates to this long term plan and the device installation list in the City’s Capital Improvement Program will occur with each annual report as necessary.

An “X” in the Pre-MRP column denotes an existing measure as of 2009 and those measures will be continued. In the 2nd and 3rd columns an “X” denotes a new measure to be implemented in that time period. All measures will continue in future years if existing and/or once implemented.

Jurisdiction-wide Management Actions

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Polystyrene Ordinance	X	-	-
Plastic Bag Ordinance	-	X	-
School Education	X	X	-
Public Outreach and Information	X	X	X
Improved Trash Container Management	-	-	X
Stormwater Inlet Cleaning	X	X	-

Trash Management Area 1

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Full-Capture Treatment Devices – small and large	-	X	X
On-Land Cleanups	X	-	X
Street Sweeping	X	-	-
Improved Trash Container Management	-	X	X

Trash Management Area 2

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Full-Capture Treatment Devices – small and large	-	X	X
On-Land Cleanups	X	X	X
Street Sweeping	X	-	-
Improved Trash Container Management	-	-	X

Trash Management Area 3

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Full-Capture Treatment Devices - large	-	-	X
On-Land Cleanups	X	-	-
Street Sweeping	X	-	-
Improved Trash Container Management			X

Trash Management Area 4

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Full-Capture Treatment Devices – small and large	-	X	X
Partial-Capture Treatment Devices - large	X		
Street Sweeping	X	-	-
On-Land Cleanups	X	X	-
Improved Trash Bin/ Container Management		X	-

Trash Management Area 5

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Full-Capture Treatment Devices – small and large	-	X	X
On-Land Cleanups	X	X	X

Street Sweeping	X	-	-
Illegal Dumping Controls	-	X	X
Improved Trash Container Management	X	-	X

Trash Management Area 6

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Full-Capture Treatment Devices - small	-	X	-
On-Land Cleanups	X	-	-
Street Sweeping	X	-	-

Trash Management Area 7

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Full-Capture Treatment Devices - small	-	X	-
On-Land Cleanups	X	X	X
Street Sweeping	X	-	-

Trash Management Area 8

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Full-Capture Treatment Devices - small	-	X	-
On-Land Cleanups	X	-	-
Street Sweeping	X	-	-

Trash Management Area 9

Control Measure	Pre-MRP (Before 2009)	2009-2014	2014-2022
Full-Capture Treatment Devices - small	-	X	-
On-Land Cleanups	X	-	-
Street Sweeping	X	-	-

3.3 Control Measure Implementation Schedule

Table 10. City of South San Francisco trash control measure implementation schedule.

Key: X = Action Implemented, **Light Green**= Initial Measures Implemented & On-going, **Dark Green**= Additional Measures Implemented & On-Going

Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term								
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014 ^a	FY 2014-2015	FY 2015-2016	FY 2016-2017 ^b	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022 ^c	
Jurisdiction-wide Control Measures															
Polystyrene Ordinance	X														
Plastic Bag Ordinance					X										
School Education	X	X	X												
Public Outreach and Information	X		X		X	X	X								
Improved Trash Container Management							X								
Stormdrain Inlet Cleaning	X			X											
Creek and Shoreline Hot Spot Cleanups															
On-Land Cleanup	X	X		X		X									
TMA #1															
Full Capture Treatment Device				X				X							
On-Land Cleanup	X								X						
Weekly City-wide Street Sweeping	X														
Improved Trash Container Management						X									
TMA #2															
Full Capture Treatment Device				X					X						
On-Land Cleanup	X														
Weekly City-wide Street Sweeping	X														

Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term								
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014 ^a	FY 2014-2015	FY 2015-2016	FY 2016-2017 ^b	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022 ^c	
Improved Trash Container Management							X								
TMA #3															
Full Capture Treatment Device										X					
On-Land Cleanup	X														
Weekly City-wide Street Sweeping	X														
Improved Trash Container Management							X								
TMA #4															
Full Capture Treatment Device				X			X				X				
Partial-Capture Treatment Devices	X						X								
On-Land Cleanup	X														
Weekly City-wide Street Sweeping	X														
Improved Trash Container Management							X								
TMA #5															
Full Capture Treatment Device				X			X								
On-Land Cleanup	X														
Weekly City-wide Street Sweeping	X														
Illegal Dumping Controls	X					X	X								
Improved Trash Container Management							X								
TMA #6															
Full Capture Treatment Device				X											
On-Land Cleanup	X														
Weekly City-wide Street Sweeping	X														
TMA #7															
Full Capture Treatment Device				X											

Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014 ^a	FY 2014-2015	FY 2015-2016	FY 2016-2017 ^b	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022 ^c
On-Land Cleanup	X			X		X								
Weekly City-wide Street Sweeping	X													
TMA #8														
Full Capture Treatment Device				X										
On-Land Cleanup	X													
Weekly City-wide Street Sweeping	X													
TMA #9														
Full Capture Treatment Device				X										
On-Land Cleanup	X													
Weekly City-wide Street Sweeping	X													

^aJuly 1, 2014 - 40% trash reduction target

^bJuly 1, 2017 - 70% trash reduction target

^cJuly 1, 2022 - 100% trash reduction target

4.0 PROGRESS ASSESSMENT STRATEGY

Provision C.10.a.ii of the MRP requires Permittees to develop and implement a 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 targets. Early into the MRP, Permittees decided to work collaboratively to develop a trash load reduction tracking method through the Bay Area Stormwater Management Agencies Association (BASMAA). Permittees, Water Board staff and other stakeholders assisted in developing Version 1.0 of the tracking method. On behalf of all MRP Permittees, the Bay Area Stormwater Management Agencies Association (BASMAA) submitted Version 1.0 to the Water Board on February 1, 2012.

The Trash Assessment Strategy (Strategy) described in this section is intended to serve as Version 2.0 of the trash tracking method and replace version 1.0 previously submitted to the Water Board. The Strategy is specific to Permittees participating in the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), including the City of South San Francisco. The City intends to implement the Strategy in phases and at multiple geographical scales (i.e., jurisdiction-wide and trash management area) in collaboration with SMCWPPP. Pilot implementation is scheduled for the near-term and as assessment methods are tested and refined, the Strategy will be adapted into a longer-term approach. The Strategy selected by the City is described in the following sections.

4.1 SMCWPPP Pilot Assessment Strategy

The following SMCWPPP Pilot Trash Assessment Strategy (SMCWPPP Pilot Strategy) was developed by SMCWPPP on behalf of the City and other San Mateo County Permittees. The SMCWPPP Pilot Strategy will be implemented at a pilot scale on a countywide basis and includes measurements and observations in the City of South San Francisco

4.1.1 Management Questions

The SMCWPPP Pilot Strategy is intended to answer the following core management questions over time as trash control measures outlined in section 3.0 are implemented and refined:

- Are the MS4 trash load reduction targets being achieved?
- Have trash problems in receiving waters been resolved?
- If trash problems in receiving waters exist, what are the important sources and transport pathways?

The SMCWPPP Pilot Strategy, including indicators and methods, is summarized in this section and fully described in the SMCWPPP Pilot Trash Assessment Strategy, a compendium document submitted to the Water Board on February 1, 2014 on behalf of all SMCWPPP Permittees (SMCWPPP 2014).

4.1.2 Indicators of Progress and Success

The management questions listed in the previous section will be addressed by tracking information and collecting data needed to report on a set of key environmental indicators. Environmental indicators are simple measures that communicate what is happening in the environment. Since trash in the environment is very complex, indicators provide a more practical and economical way to track the state of the environment than if we attempted to record every possible variable.

With regard to municipal stormwater trash management, indicators are intended to detect progress towards trash load reduction targets and solving trash problems. Ideally, indicators should be robust and able to detect progress that is attributable to multiple types of trash control measure implementation scenarios. Assessment results should also provide Permittees with an adequate level of confidence that trash load reductions from MS4s have occurred, while also assessing whether trash problems in receiving waters have been resolved. Indicators must also be cost effective, relatively easy to generate, and understandable to stakeholders.

Primary and secondary indicators that SMCWPPP Permittees will use to answer core management questions include:

Primary Indicators:

- 1-A Reduction in the level of trash present on-land and available to MS4s
- 1-B Effective full capture device operation and maintenance

Secondary Indicators:

- 2-A Successful levels of trash control measures implementation
- 2-B Reductions in the amount of trash in receiving waters

In selecting the indicators above, the City of South San Francisco in collaboration with SMCWPPP and other SMCWPPP Permittees recognize that no one environmental indicator will provide the information necessary to effectively determine progress made in reducing trash discharged from MS4s and improvements in the level of trash in receiving waters. Multiple indicators were therefore selected.

The ultimate goal of municipal stormwater trash reduction strategies is to reduce the impacts of trash associated with MS4s on receiving waters. Indicators selected to assess progress towards this goal should ideally measure outcomes (e.g., reductions in trash discharged). The primary indicators selected by SMCWPPP are outcome-based and include those that are directly related to MS4 discharges. Secondary indicators are outcome or output-based and are intended to provide additional perspective on and evidence of, successful trash control measure implementation and improvements in receiving water condition with regard to trash.

As described in Section 2.2, trash is transported to receiving waters from pathways other than MS4s, which may confound our ability to observe MS4-associated reductions in creeks and shorelines. Due to this challenge of linking MS4 control measure implementation to receiving water conditions, the receiving water based indicator is currently considered a secondary indicator. Evaluations of data on the amount of trash in receiving waters that are conducted over time through the Pilot Assessment Strategy will assist the City in further determinations of the important sources and pathways causing problems in local creeks, rivers and shorelines.

4.1.3 Pilot Assessment Methods

This section briefly summarizes the preliminary assessment methods that the City of South San Francisco will implement through the SMCWPPP Pilot Strategy to generate indicator information described in the previous section. Additional information on each method can be found in the SMCWPPP Pilot Trash Assessment Strategy submitted to the Water Board by SMCWPPP on behalf of the City.

1-A. On-land Visual Assessments

As part of the Trash Generation Map assessment and refinement process (see Section 2.3.1), a draft on-land visual assessment method was developed to assist Permittees in confirming and refining trash generating area designations (i.e., very high, high, medium and low trash generating categories). The draft on-land visual assessment method is intended to be a cost-effective tool and provide Permittees with a viable alternative to quantifying the level of trash discharged from MS4s. As part of BASMAA’s *Tracking California’s Trash* grant received from the State Water Resources Control Board (see Section 4.2), quantitative relationships between trash loading from MS4s and on-land visual assessment condition categories will be established. Condition categories defined in the draft on-land assessment protocol are listed in Table .

Table 11. Trash condition categories used in the draft on-land visual assessment protocol.

Trash Condition Category	Summary Definition
A (Low)	Effectively no trash is observed in the assessment area.
B (Moderate)	Predominantly free of trash except for a few pieces that are easily observed.
C (High)	Trash is widely/evenly distributed and/or small accumulations are visible on the street, sidewalks, or inlets.
D (Very High)	Trash is continuously seen throughout the assessment area, with large piles and a strong impression of lack of concern for litter in the area.

On-land visual assessments will be conducted in trash management areas within the City of South San Francisco as part of the SMCWPPP Pilot Trash Assessment Strategy. On-land assessments are intended to establish initial conditions and detect improvements in the level of trash available to MS4s over time. More specifically, on-land visual assessment methods will be conducted in areas not treated by trash full capture devices in an attempt to evaluate reductions associated with other types of control measures. Assessment methods for areas treated by full capture devices are described in this next section.

Given that the on-land assessment method and associated protocol have not been fully tested and refined, initial assessments will occur at a pilot scale in the City and in parallel to the *Tracking California’s Trash* project. The frequency of assessments and number of sites where assessments will occur during the pilot stage are more fully described in the SMCWPPP Pilot Trash Assessment Strategy (SMCWPPP 2014).

1-B. Full Capture Operation and Maintenance Verification

Consistent with the MRP, adequate inspection and maintenance of trash full capture devices is required to maintain full capture designation by the Water Board. The City of South San Francisco is currently developing an operation and maintenance verification program (Trash O&M Verification Program), via SMCWPPP, to ensure that devices are inspected and maintained at a level that maintains this designation.

The SMCWPPP Trash O&M Verification Program will be modeled on the current O&M verification program for stormwater treatment controls implemented consistent with the Permit new and redevelopment requirements. Additional details regarding the Trash O&M Verification Program can be found in the SMCWPPP Pilot Trash Assessment Strategy (SMCWPPP 2014).

2-A. Control Measure Effectiveness Evaluations

In addition to on-land trash assessments and full capture operation and maintenance verification, the City will also conduct assessments of trash control measures implemented within their jurisdictional area. Assessment methods will be selected based on trash sources and the type of control measure being implemented. Control measure effectiveness evaluations are more fully described in the SMCWPPP Pilot Trash Assessment Strategy. The following are example assessment methods that may be used to demonstrate successful control measure implementation and progress towards trash reduction targets:

- Product-related Ordinances – Annually tracking and reporting the % of businesses in compliance with the ordinance and the percentage requiring a response.
- Street Sweeping – Reporting the frequency of sweeping and ability to sweep to the curb in specific areas where enhanced sweeping is implemented; and/or documenting the level of trash on streets directly after street sweeping during wet and dry weather seasons.
- Public/Private Trash Container Management – Reporting the magnitude and extent of enhanced actions; and/or visually assessing and documenting conditions around public trash containers before and after implementing enhanced control measures.
- Targeted Outreach and Enforcement – Reporting the magnitude and extent of enhanced actions; tracking and reporting the % increase in enforcement actions; and/or visually assessing and documenting the conditions in targeted areas before and after implementing control measures.
- Public Outreach Campaigns – Reporting the magnitude and extent of enhanced actions, and/or conducting pre and post campaign surveys.
- On-land Cleanups and Enforcement – Reporting the magnitude and extent of enhanced actions; visually assessing and documenting the conditions in targeted areas before and after control measure implementation; and/or tracking the volumes of trash removed.
- Illegal Dumping Prevention – Reporting the magnitude and extent of enhanced actions; and/or tracking and reporting improvements in the number of incidents.
- Business Improvement Districts – Reporting the magnitude and extent of enhanced actions; and/or visually assessing and documenting the conditions in BID areas before and after implementing control measures.

- Prevention of Uncovered Loads - Reporting the magnitude and extent of enhanced actions; tracking and reporting the decreases in the number of incidents; and/or visually assessing and documenting the conditions in targeted areas before and after implementing control measures.
- Partial Capture Devices – Reporting the magnitude and extent of enhanced actions; and/or visually assessing and the amount of trash in storm drains or downstream of partial capture devices.

2-C. Receiving Water Condition Assessments

The ultimate goal of stormwater trash management in the Bay Area is to significantly reduce the amount of trash found in receiving waters. In the last decade, San Mateo County Permittees and volunteers have collected data on the amounts of trash removed during cleanup events. More recently, Permittees have conducted trash assessments in creek and shoreline hotspots using standardized assessment methods. In an effort to answer the core management question *Have trash problems in receiving waters been resolved?*, the City of South San Francisco plans to continue conducting receiving water condition assessments at trash hot spots a minimum of one time per year. Assessment will be conducted consistent with Permit hot spot cleanup and assessment requirements. Additional information on receiving water assessment methods can be found in the SMCWPPP Pilot Trash Assessment Strategy (SMCWPPP 2014).

4.2 BASMAA “Tracking California’s Trash” Project

The SMCWPPP Pilot Assessment Strategy described in the previous section recognizes that outcome-based trash assessment methods needed to assess progress toward trash reduction targets are not well established by the scientific community. In an effort to address these information gaps associated with trash assessment methods, the Bay Area Stormwater Management Agencies Association (BASMAA), in collaboration with SMCWPPP, the 5 Gyres Institute, San Francisco Estuary Partnership, the City of Los Angeles, and other stormwater programs in the Bay Area, developed the *Tracking California’s Trash* Project. The Project is funded through a Proposition 84 grant awarded to BASMAA by the State Water Resources Control Board (SWRCB) who recognized the need for standardized trash assessment methods that are robust and cost-effective.

The Project is intended to assist BASMAA member agencies in testing trash assessment and monitoring methods needed to evaluate trash levels in receiving waters, establish control measures that have an equivalent performance to trash full capture devices, and assess progress in trash reduction over time. The following sections provide brief descriptions of tasks that BASMAA will conduct via the three-year Project. Full descriptions of project scopes, deliverables, and outcomes will be developed as part of the task-specific Sampling and Analysis Plans required by the SWRCB during the beginning of the Project. The Project is currently underway and will continue through 2016.

4.2.1 Testing of Trash Monitoring Methods

BASMAA and the 5 Gyres Institute will evaluate the following two types of assessment methods as part of the Project:

- **Trash Flux Monitoring** – Trash flux monitoring is intended quantify the amount of trash flowing in receiving waters under varying hydrological conditions. Flux monitoring will be tested in up to four receiving water bodies in San Francisco Bay and/or the Los Angeles areas. Methods selected for evaluation and monitoring will be based on a literature review conducted during this task and through input from technical advisors and stakeholders. Monitoring is scheduled to begin in 2014 and will be completed in 2016.
- **On-land Visual Assessments** – As part of the Project, BASMAA will also conduct an evaluation of on-land visual assessment methods that are included in the SMCWPPP Pilot Assessment Strategy. The methods are designed to determine the level of trash on streets and public right-of-ways that may be transported to receiving waters via MS4s. BASMAA plans to conduct field work associated with the evaluation of on-land visual assessment at a number of sites throughout the region. To the extent practical, sites where the on-land methods evaluations take place will be coordinated with trash flux monitoring in receiving waters. On-land assessments will occur in areas that drain to trash full capture devices, and all sites will be assessed during wet and dry weather seasons in order to evaluate on-land methods during varying hydrologic conditions. Monitoring is scheduled to begin in 2014 and will be completed in 2016.

4.2.2 Full Capture Equivalent Studies

Through the implementation of BASMAA's *Tracking California's Trash* grant-funded project, a small set of "Full Capture Equivalent" projects will also be conducted in an attempt to demonstrate that specific combinations of control measures will reduce trash to a level equivalent to full capture devices. Initial BMP combinations include high-frequency street sweeping, and enhanced street sweeping with auto-retractable curb inlet screens. Other combinations will also be considered. Studies are scheduled to begin in 2014 and will be completed in 2016.

4.3 Long-Term Assessment Strategy

The City of South San Francisco is committed to implementing standardized assessment methods post-2016 based on the lessons learned from pilot assessments and studies that will occur between 2014 and 2016. Assessment activities described in the previous sections will evaluate the utility of different assessment methods to demonstrate progress towards trash reduction targets and provide recommended approaches for long-term implementation. Lessons learned will be submitted to the Water Board with the FY 2015-2016 Annual Report and a revised Strategy will be developed and submitted, if necessary. The revised Strategy will include agreed upon assessment methods that will be used to demonstrate progress during the remaining term of trash reduction requirements. Reporting using the new/revised methods will begin with the FY 2016-17 Annual Report.

4.4 Implementation Schedule

The implementation schedule for the SMCWPPP Pilot Implementation Strategy, BASMAA's *Tracking California's Trash* project, and the Long-Term Assessment Strategy are included in Table 12. Load reduction reporting milestones are also denoted in the table. The schedule is consistent with the

need for near-term pilot assessment results to demonstrate progress toward short-term targets, while acknowledging the need for testing and evaluation of assessment methods and protocols prior to long-term implementation. For more detailed information on implementation timelines, refer to the SMCWPPP Pilot Trash Assessment Strategy (SMCWPPP 2014) and monitoring plans developed as part of BASMAA’s Tracking California’s Trash project.

Table 12. City of South San Francisco trash progress assessment implementation schedule.

Trash Assessment Programs and Methods	Prior to FY 2013-14	Fiscal Year								
		2013-14 ^a	2014-15	2015-16	2016-17 ^b	2017-18	2018-19	2019-20	2020-21	2021-22 ^c
Pilot Trash Assessment Strategy (SMCWPPP)										
On-land Visual Assessments										
Initial (Baseline) Assessments	X									
Pilot Progress Assessments		X	X	X	X					
Full Capture Operation and Maintenance Verification			X	X	X					
Control Measure Effectiveness Evaluations	X	X	X	X	X					
Receiving Water Condition Assessments	X	X	X	X	X					
Tracking California’s Trash Project (BASMAA)										
Testing of Trash Monitoring Methods										
Trash Flux Monitoring Protocol Testing			X	X	X					
On-land Visual Assessment Evaluations			X	X	X					
Full Capture Equivalent Studies			X	X	X					
Long-Term Trash Assessment Strategy (SMCWPPP)										
						X	X	X	X	X

^aJuly 1, 2014 - 40% trash reduction target

^bJuly 1, 2017 - 70% trash reduction target

^cJuly 1, 2022 - 100% trash reduction target.

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