Long-Term Trash Load Reduction Plan and Assessment Strategy

Submitted by:

City of San Mateo

330 W. 20th Avenue

San Mateo, CA 94403

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

January 28, 2014 (updated July 2016)

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CITY OF SAN MATEO
LONG-TERM TRASH LOAD REDUCTION PLAN
AND
ASSESSMENT STRATEGY

Certification Statement

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Signature by Duly Authorized Representative:

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Ray Towne January 28, 2014

Interim Public Works Director

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Abbreviations

ABAG	Association of Bay Area Governments
BASMAA	Bay Area Stormwater Management Agencies Association
BID	Business Improvement District
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
CY	Cubic Yards
DSMA	Downtown San Mateo Association
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
FCTD	Full-Capture Treatment Device
FY	Fiscal Year
HOA	Home Owners Association
MRP	Municipal Regional Stormwater NPDES Permit
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
PIP	Public Information and Participation
Q	Flow
SamTrans	San Mateo County Transit District
SBWMA	South Bayside Waste Management Authority
SFRWQCB	San Francisco Regional Water Quality Control Board
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SMO01	San Mateo Creek Hot Spot Site 1
SMO02	San Mateo Creek Hot Spot Site 2
SMO03	San Mateo Creek Hot Spot Site 3
SR82	State Route 82 (El Camino Real)
STOPPP	San Mateo Countywide Stormwater Pollution Prevention Program
SWRCB	State Water Resource Control Board
TMA	Trash Management Area
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
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 (Regional Water Board) staff. The Long-Term Plan is consistent with the Long-Term Trash Load Reduction Framework developed in collaboration with Regional Water Board staff. Its content is based on the City of San Mateo'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 San Mateo 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 Regional 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* 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 100% (i.e., "No Visual Impact") by July 1, 2022.

This Long-Term Plan is submitted by the City of San Mateo 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 San Mateo's municipal separate storm sewer system (MS4) that are regulated by NPDES Permit requirements. The Long-Term Plan includes:

1. Descriptions 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 100% (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 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 (Regional 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 Regional Water Board staff. Its content is based on the City of San Mateo'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 Regional 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 Regional 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).

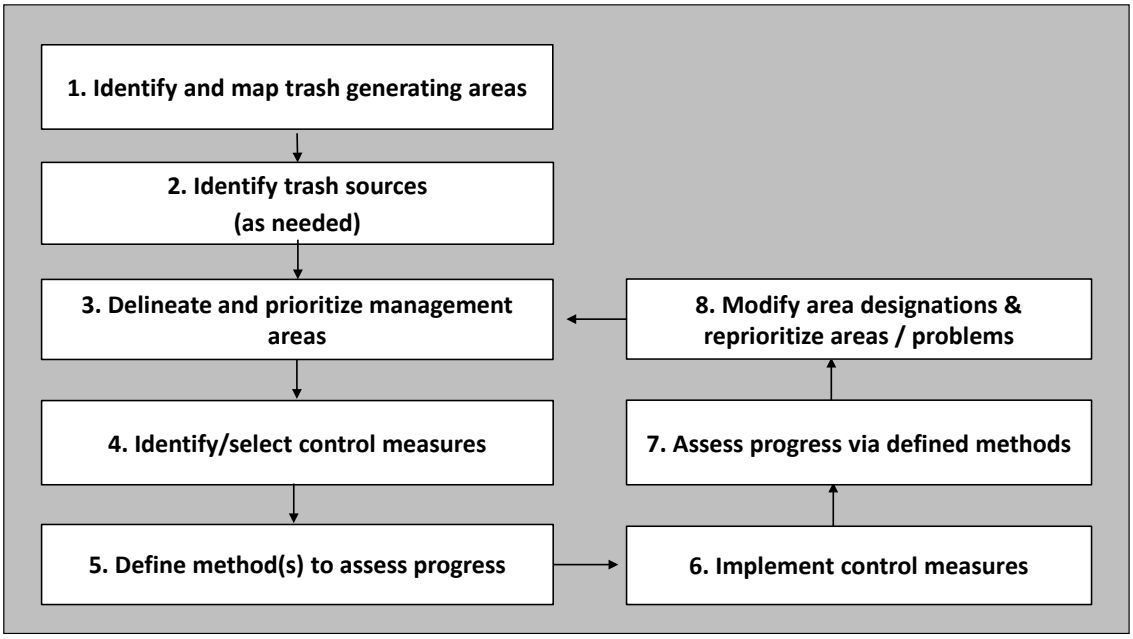

Figure 1. Eight-step framework for developing, implementing and refining Long-Term Trash Reduction Plans

The workgroup agreed that as the first step in the framework, Permittees would identify very high, high, moderate, 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. The City of San Mateo then used local knowledge and field assessments to confirm and refine the level of trash generation for specific areas within City jurisdiction. The City used this assessment to develop a map depicting trash generation categories within the City.

As a next step, the City delineated and prioritized Trash Management Areas (TMAs) where specific control measures exist or are planned for implementation. TMAs delineated by the City are intended to serve as reporting units for future planning and effectiveness assessments. 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 implemented, the City will be able to evaluate progress toward trash reduction targets using outcome-based assessment methods. As the results of the progress assessments are available, the City may choose to reprioritize trash management areas and associated control measures designed to improve trash reduction within City 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, moderate 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 the 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 Rooseboom 2000; Lippner et al. 2001; Armitage 2003; Kim et al. 2004; County of Los Angeles 2002, 2004a, 2004b; Armitage 2007). The method is based on a conceptual model developed as an outgrowth of these studies (BASMAA 2011b).

Trash generation rates were developed through the quantification and characterization of trash captured in Regional 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 (2011a, 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 February 2012, the City of San Mateo developed a *Baseline Trash Load and Short-Term Trash Load Reduction Plan* (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 the City's MS4 by July 1, 2014. Since that time, the City has begun to implement its Short-Term Plan. Control measures implemented to date via the Short-Term Plan are:

- Control Measure #1 – Full-capture treatment devices
    - Installed 147 total full-capture devices in high trash generation areas (see map). Not all of the devices included in the Short-Term Plan were installed, as some locations were subsequently found to be unsuitable (i.e., bubble-ups or areas prone to flooding). Maintenance has been performed at least one time per year since installation.
- Control Measure #2 – Improved Trash Bin/Container Management
    - Purchased 25 retro fit recycling kits for downtown City garbage cans, relocating cans for highest and best use in downtown area and establishing a liner replacement program.
    - Purchased covered debris boxes for Corporation Yard
- Control Measure #3 – Plastic Bag Ban
    - Adopted ordinance on May 6, 2013 banning single-use plastic carryout bags. Ordinance went into effect 30 days later.
- Control Measure #4 – Polystyrene Food Container Ban
    - Adopted ordinance on May 6, 2013 banning polystyrene foam food service containers. Ordinance went into effect 30 days later.
- Control Measure #5 – Enhanced on-land trash cleanups
    - Recorded illegal dumping location, date, and materials collected to determine hot spots.

  - Held First Annual Downtown Clean-up in downtown San Mateo, including 250 volunteers and the removal of 1,403 gallons of trash.

- Control Measure #6 – Enhanced Street Sweeping
  - Collecting data on volume collected by sweepers (12/2013) to compare to historical data
  - Restructured current program to minimize inconvenience to residents and make it easier for them to voluntarily comply with the street sweeping schedule and move their vehicles from the curb. This includes sweeping within an established two-hour window, as well as limiting the sweeping to one side of the street on a given day, thereby allowing residents to park on the opposite side.
  - Installed signage to restrict parking during street sweeping hours in San Mateo's "College Park" neighborhood. Included outreach and education distributed to the inhabitants of approximately 1500 homes and apartments in the neighborhood.
  - Created and maintaining the "My Street" webpage. This online tool allows residents to go online, plug in their address and view a variety of information applicable to their residence, including street sweeping days/times: http://50.63.60.127/mystreet/index.html
  - Coordinated with the solid waste collection agency (Recology) to revise street sweeping and garbage collection schedules so that, to the extent possible, conflicts between garbage pick-up and street sweeping would be reduced, thereby improving the quality of the sweep.
  - Targeting areas known to generate high levels of garbage/public dumping with enhanced street sweeping. San Mateo's "North Central" neighborhood is currently signed for restricted parking during street sweeping hours, and is swept on a weekly basis (twice as frequently as other residential neighborhoods).
- Control Measure #7 – Creek/Channel/Shoreline Cleanups
  - Evaluating participation in National River Cleanup Day – May 2014.
  - Encouraged more participation through enhanced advertising for the Bayfront Cleanup (Coastal Cleanup Day), 9/15/13, at Ryder Park in San Mateo.
  - Held a beach cleanup on Earth Day at CuriOdyssey, 4/21/13, at Coyote Point Museum in San Mateo.
  - Held a Marina Lagoon Cleanup, 4/27/13 at Marina Lagoon between San Mateo and Foster City.

Control measures described in this Long-Term Plan build upon actions taken to-date via the City of San Mateo'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's Fiscal Year 2013-14 Annual Report, scheduled for submittal to the Regional 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 San Mateo. Control measures that will be implemented by the City as a result of this Long-Term Plan are described in Section 3.0 and 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 1894, the City of San Mateo is located in San Mateo County, and has a jurisdictional area of 6,522 acres. According to the 2010 Census, it has a population of 97,207 with a population density of 8,013.7 people per square mile and average household size of 2.51. Of the 97,207 residents who call San Mateo home, 20.8% are under the age of 18, 7.1% are between 18 and 24, 31.7% are between 25 and 44, 26.0% are between 45 and 64, and 14.4% are 65 or older. The median household income was $86,772 in 2010. The City is home to San Mateo County Community College District, San Mateo Medical Center, San Mateo-Foster City School District, Franklin Templeton Investments, and the United States headquarters of Capcom.

United States Route 101 (North-South) and California State Routes 82 (North-South) and 92 (East-West) run through the City of San Mateo and are under the jurisdiction of the California Department of Transportation (Caltrans). The City also contains areas along the San Mateo Creek where homeless encampments tend to form. Fencing was installed in two problem areas in Fall 2013 to prohibit access to the Creek. Additionally, there is a neighborhood in the northern part of the City where short-term leases lead to frequent turnover and the majority of the City's reported illegal dumping.

Land uses within the City depicted in ABAG (2005) are provided in Table 2. The City is primarily comprised of residential land use. The rest of the land use is split fairly evenly between commercial and services, other, retail, schools, urban parks and industrial areas.

Table 2. Percentages of the City of San Mateo's jurisdictional area[1] within land use classes identified by ABAG (2005)

Land Use Category	Jurisdictional Area (acres)	% of Jurisdictional Area
Residential	4,687.4	67.1%
Commercial and Services	634.3	9.1%
Other	629.7	9.0%
Retail	457.5	6.6%
K-12 Schools	270.2	3.9%
Urban Parks	193.5	2.8%
Industrial	112.1	1.6%

[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
3) Direct Dumping

Stormwater and urban runoff conveyance systems (e.g., MS4s) consist of curbs and 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 mainly 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 the City's MS4 to the City's receiving waters, including the San Francisco Bay, and the protection of associated beneficial uses. However, as also discussed in this Plan, the City is taking actions to address direct dumping and, where possible, wind dispersion of trash.

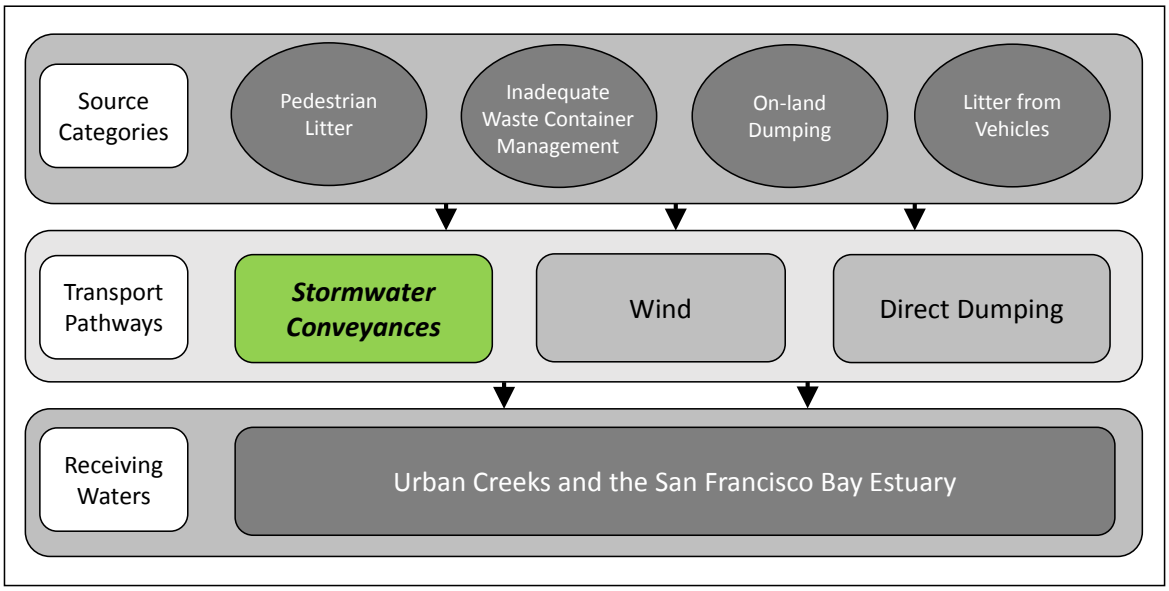

Figure 3. Trash sources categories and transport pathways to urban creeks

Actions to reduce the introduction of trash to the receiving waters via wind and direct dumping have included installation of fencing near the CalTrain station ("Darcy's Tunnel") and at Delaware Street to reduce the access for homeless and also to capture windblown trash before it enters the San Mateo Creek. The City is also evaluating the introduction of an anti-scavenging ordinance, which could help reduce the amount of trash that is dumped around the immediate area of residential and commercial bins during the rummaging process. Another potential strategy is the installation of motion-activated cameras in high dumping areas to identify illegal dumpers and use a speaker system to tell dumpers they are being recorded.

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 San Mateo are described in this section and illustrated in Figure 4.

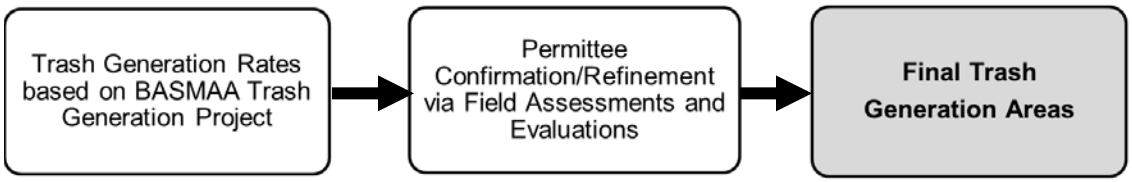

Figure 4. Trash sources categories and transport pathways to urban creeks.

As a first step, trash generation rates developed through *the BASMAA Trash Generation Rates Project* were applied to parcels within the City of San Mateo 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 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, as described in Table 3.

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

Category	Very High (purple)	High (red)	Moderate (yellow)	Low (green)
Generation Rate (gallons/acre/year)	**> 50**	**10-50**	**5-10**	**< 5**

The City 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 knowledge of trash generation and problem areas identified within the City, staff identified parcels 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 involves 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 assessment area was placed into one of four on-land assessment condition categories that are summarized in Table 4. Using the Draft Protocol the City assessed a total of 45 areas in the City to assist in refining trash generating area designations. In all, approximately 90% of the moderate and high trash areas were visited in person to assess whether the estimates were accurate. Photos were taken of certain locations for documentation and the two-person crew discussed each location to make sure the most accurate representations were depicted on the City's map.

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 (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.

b. Querying Municipal Staff

To further gain accuracy on the Trash Generation Area map, City staff was consulted to determine if any areas may not necessarily fall into modeled rates and/or may have been misrepresented on the day(s) that on-land visual assessments were conducted (e.g. due to recent sweeping or on-land cleanups).

3. Based on assessments conducted to confirm and 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 San Mateo. The City documented this process by tracking the information collected through the assessments and subsequent refinements to the Draft Trash Generation Map. The City of San Mateo's Final Trash Generation Map is included as Figure 5, which was updated in July 2016 per Order No.R2-2015-0049 Provision C.10.a.ii.

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 San Mateo assigned to each trash generation category

Trash Generation Category	Juris. Area (acres)	Commercial and Services	Industrial	Residential	Retail	K-12 Schools	Urban Parks	Other
Very High	0.4	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%*
High	301.5	0.0%	0.0%	0.0%	100%	0.0%	0.0%	0.0%
Medium	2,343.4	22.5%	4.7%	46.9%	5.1%	10.5%	7.4%	3.0%
Low	4,339.6	2.5%	0.0%	82.7%	0.9%	0.6%	0.5%	12.9%

*Comprised of transportation corridors not under City of San Mateo jurisdiction.

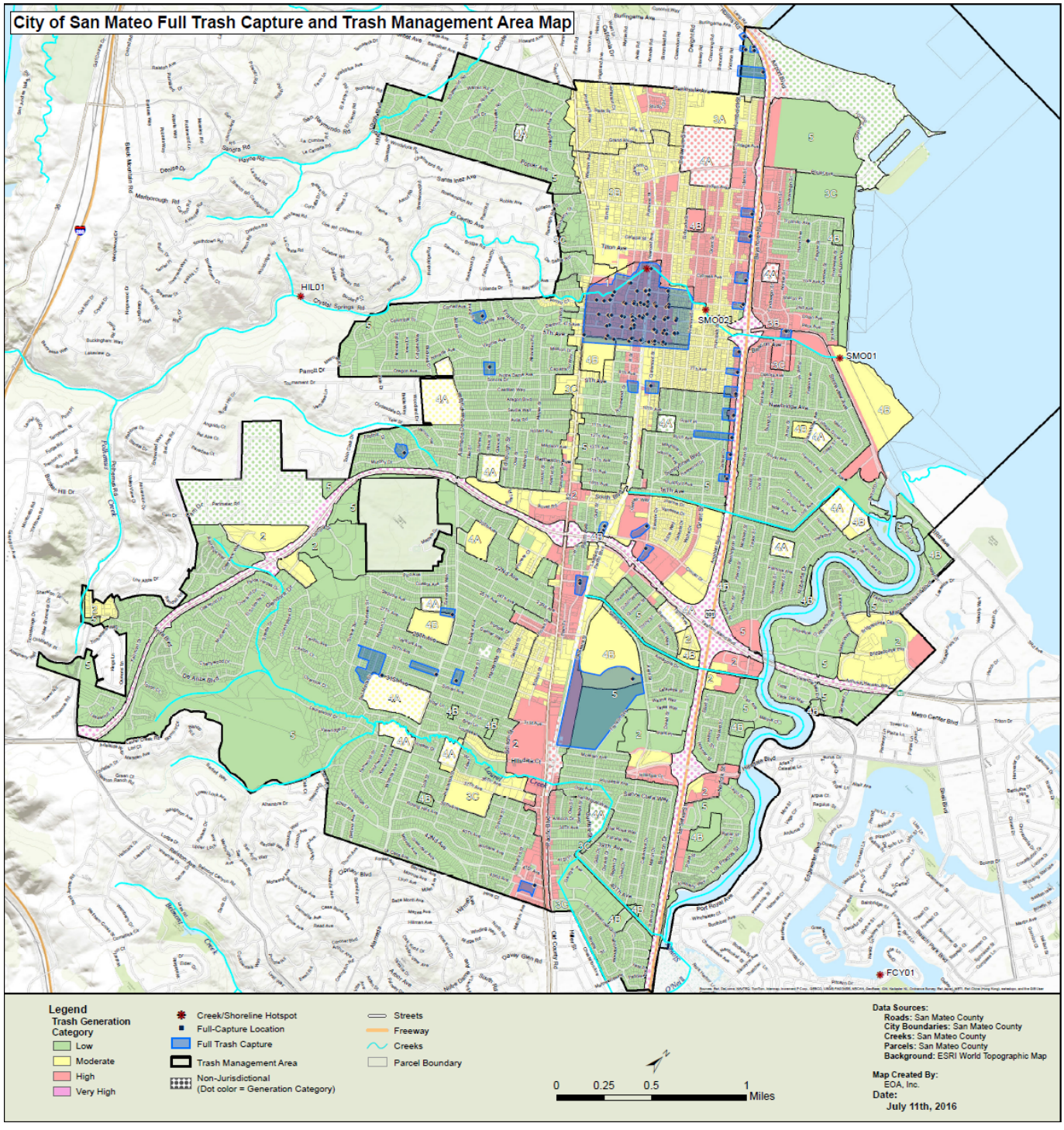

Figure 5. Final Trash Generation Map for the City of San Mateo

3.0 Trash Management Areas and Control Measures

This section describes the control measures that the City of San Mateo has or plans to implement to solve trash problems and achieve a target of no impact from trash from the City's 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, 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 the trash control strategy described in this section. If significant revisions or amendments are made, a revised Long-Term Plan will be submitted to the Regional Water Board through the City's annual reporting process.

3.1 MANAGEMENT AREA DELINEATION AND PRIORITIZATION

Consistent with the Long-Term Plan framework, the City of San Mateo 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, "5" being lowest). Prioritization was based on addressing the "high" areas first, then concentrating on "medium" areas, and finally assuring that "low" areas remain "low." City staff designated TMAs by:

- Highlighting the "high" parcels in the downtown area where the majority of the full trash capture devices have been installed (TMA #1), then
- Reaching out to the surrounding "high/medium" parcels along El Camino Real (State Route 82) and State Route 92 where there is mixed commercial use (TMA #2), then
- Expanding north to the "medium" residential and commercial areas (TMA #3), then
- Recognizing schools (TMA #4A) and the City Parks & City-owned properties (TMA #4B), since they will be managed differently than typical residential or commercial areas, and
- Identifying all remaining "low" areas, which are mostly residential (TMA #5)

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 6.

Table 6. Jurisdictional area and percentage of each Trash Management Area (TMA) comprised of trash generation categories

TMA	Jurisdictional Area (Acres)	Trash Generation Category			
		Very High	High	Moderate	Low
1	111	0%	52%	48%	0%
2	810	0%	25%	66%	8%
3	1348	0%	3%	94%	3%
4A	237	0%	0%	93%	7%
4B	268	0%	0%	87%	13%
5	4211	0%	0%	1%	99%

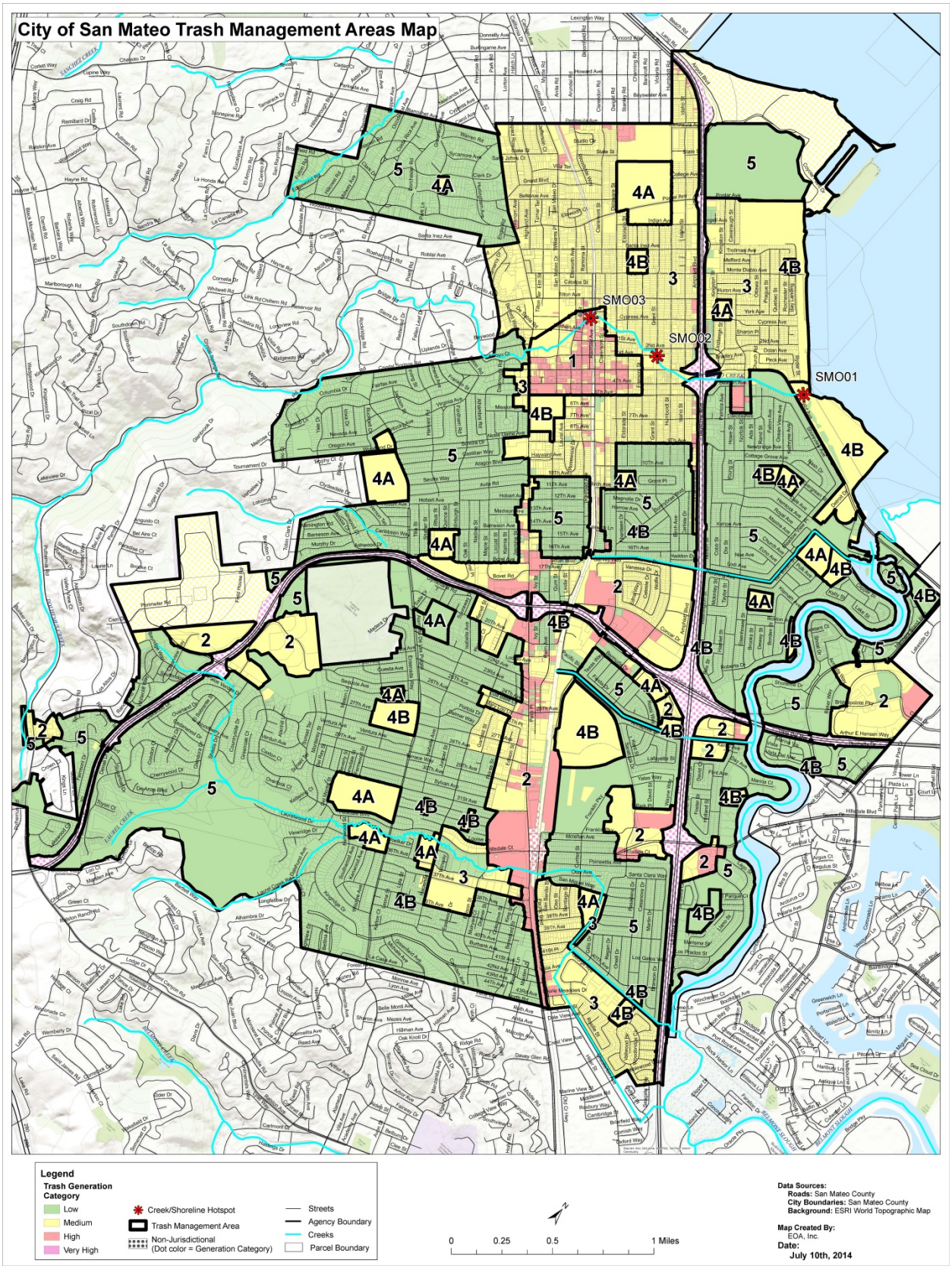

Figure 6. Trash Management Area Map for the City of San Mateo.

3.2 CURRENT AND PLANNED TRASH CONTROL MEASURES

Efforts to control trash in the City of San Mateo have been underway for years and beginning in the 2012-2013 fiscal year, a new General Fund program was created to fund stormwater operations and maintenance (O&M). Prior to this action, stormwater O&M did not have a dedicated source of funding. Functions include catch basing cleaning prior to storm events and routine storm drain cleaning and maintenance. Since the time of the MRP, the City has been working to improve trash capture through installation of full capture treatment devices, street sweeping enhancements, on-land cleanups, ordinances pertaining to trash (covered loads, bin characteristics, etc), management of homeless encampments, and public education and outreach. At the time of the Short-Term Plan, the City began escalating efforts to reduce trash entering the MS4.

During the On-land Visual Assessments, staff noted the potential sources of trash in the moderate and high trash generating areas. Sources included:

- Vehicles (moving vehicles, parked cars, uncovered loads)
- Pedestrian Litter (restaurants, convenience stores, liquor stores, bus stops, special events)
- Inadequate Waste Container Management (overflowing or uncovered receptacles/dumpsters, dispersal of household trash and recyclables before, during and after collection)
- Illegal Dumping (illegal dumping on-land, homeless encampments)

The next step in the process is determining the best management actions for each of the identified TMAs. Based on the typical sources of trash observed and anticipated success, management actions have been evaluated in the general following order:

- Full-Capture Treatment Devices
- Enhanced Street Sweeping
- On-land Trash Cleanups
- Improved Trash Bins/Container Management
- Anti-littering and Illegal Dumping Enforcement Activities
- Creek, Channel, Shoreline Cleanups
- Activities to Reduce Trash from Uncovered Loads (evaluate enhancements)

Some of the actions listed above have already begun to be implemented by the City, as described in more detail in the TMA sections that follow. Some of the actions are being enhanced or considered for expansion into additional areas.

3.2.1 Trash Management Area #1

Trash Management Area #1 consists of the majority of the installed Full-Capture Treatment Device (FCTD) treated areas. Approximately 103 acres are treated in with FCTDs in TMA #1. TMA #1 surrounds the downtown area, where there are substantial trash reduction efforts underway. In addition to the FCTD’s, the downtown area has a business improvement district which is working to keep the streets of the downtown area clean through enhanced sweeping (including sidewalks), on-land trash cleanups, trash bin relocation, retrofitting existing bins to be

dual stream containers, and a bin liner replacement program. Figure 7 illustrates the locations of the Full-Capture Treatment Devices in TMA #1.

Full Capture Device

The downtown area of the City of San Mateo contains approximately 90 FCTDs, which treats around 103 acres. Previous, current, and planned actions for FCTDs in this area are described below.

Actions Initiated Prior to December 2009
• Evaluation of FCTDs and areas best suited to installation.
Actions Initiated after December 2009 prior to July 2014
• Installation of 2 connector pipe screens at selected land uses within the City of San Mateo for a pilot study (SMCWPPP funded). • Installation of 88 FTCDs in TMA #1 was funded by the Association of Bay Area Governments (ABAG) and the California State Water Resources Control Board (State Water Board) Bay Area-Wide Trash Capture Demonstration Project through the federal American Recovery and Reinvestment Act of 2009. This funding was provided to allow municipalities to try out different types of trash capture devices, facilitate information sharing on monitoring and maintenance of devices, and help comply with MRP requirements. • Annual maintenance of devices was conducted prior to November 2013. Maintenance was performed by contractors who shoveled out any debris in the FTCD. Starting in November 2013, monthly maintenance was initiated by the City, using the vactor truck, to clean the FTCDs. The goal is to clean the devices prior to any rain events. Records are maintained on each device during maintenance to track issues, maintenance needs and perceived performance of the device.
Actions Planned July 2014 – July 2022
• Aside from continuing monthly maintenance during the October – March season, no further actions are planned because TMA #1 has been fully outfitted with FTCDs such that the entire area drains to a FTCD.

Street Sweeping

Previous, current, and planned actions for street sweeping in TMA #1 are described below.

Actions Initiated Prior to December 2009
• Installed signs to prohibit parking during sweeping hours. • City structured program to minimize inconvenience to residents and make it easier for them to voluntarily comply with the street sweeping schedule and move their vehicles from the curb. This includes sweeping within an established two-hour window, as well as limiting the sweeping to one side of the street on a given day, thereby allowing residents to park on the opposite side. • Contracted sidewalk sweeping and cleaning service to augment the street sweeping program downtown. Sidewalks are hand-swept 3 times per week, prior to street sweeping. • Purchased new sweeper trucks that use a vacuum-style sweeper. • Began sweeping three times per week.
Actions Initiated after December 2009 prior to July 2014
• Created the “My Street” webpage, which launched in October 2011. This online tool allows residents to go online, plug in their address and view a variety of information applicable to their residence, including street sweeping and leaf collection days/times: http://50.63.60.127/mystreet/index.html • Coordinated with the solid waste collection agency (Recology) in September 2011 to revise street sweeping and garbage collection schedules so that, to the extent possible, conflicts between garbage

pick-up and street sweeping would be reduced, thereby improving the quality of the sweep.

- City currently targets areas known to generate high levels of garbage/public dumping with enhanced street sweeping.

Actions Planned July 2014 – July 2022

- Conduct a comprehensive review of existing street sweeping program to improve effectiveness, enhance funding, and be more responsive to the needs of residents.
- Increase frequency of sweeping in high trash generation areas.
- Install signage to restrict parking during street sweeping in trash generation hot spots.
- Revise agreement with Caltrans to allow for full cost recovery for planned increased sweeping along El Camino Real (SR82).
- Conduct an outreach campaign to provide education to residents regarding street sweeping.
- The Public Works Commission, at their 1/8/14 meeting, voiced support for more signage, more sweeping in high trash areas and less sweeping in low trash areas. The Public Works Department is working to develop this new sweeping strategy and will present it to the Commission upon completion of plan (FY 2015-16).

City plans to evaluate the following for potential implementation prior to July 2022:

- Use of GPS devices to identify areas where sweeper drivers frequently encounter and must swerve around parked cars. GPS could also be used to monitor and ensure drivers are operating at an appropriate rate of speed to maximize debris collected.
- Modifying times that streets are swept to determine whether it is possible to sweep certain residential neighborhoods later in the morning (i.e. after 8 a.m. when people have left for work/school, etc.)
- Use of cameras mounted on sweeper vehicles to photograph license plates of vehicles parked in violation of posted signage.
- Expansion of signage to inform residents of street sweeping times and/or restrict parking; signage could be permanent or temporary.

On-land Trash Cleanups

On-land cleanups conducted by City staff and volunteers have been successful in removing trash from identified areas of high trash generation. One of the City's hot spots (SMO03) lies within TMA #1. In TMA #1 there are several avenues for on-land trash cleanup, as described in the table below.

Actions Initiated Prior to December 2009

- Contracted sidewalk cleaning service. Sidewalks are cleaned 3 times per week.

Actions Initiated after December 2009 prior to July 2014

- The First Annual Downtown Clean-up was held 4/20/13. This was a local event coinciding with Earth Day and promoted through websites, email blast, and flyers posted at local business establishments. Clean-up and Beautification event including trash removal, graffiti removal, landscaping improvements, painting, window cleaning, removal of dirt & grime. 250 volunteers took part in this event which equaled 767 hours of service. 1,403 gallons of trash were removed.
- A second Downtown cleanup was put on by the Downtown San Mateo Association (DSMA) on 9/7/13, along North B Street from 1st Ave to Tilton. The DSMA, 35 volunteers from Thrivent Financial, and City staff cleaned the sidewalks, gutters, planter boxes and storefronts along this area adjacent to the North-Central neighborhood. 1,038 gallons of litter and debris was picked up during this event. The event was publicized on the City's website at http://www.cityofsanmateo.org/index.aspx?nid=2319
- A Downtown Cleanup Mini-Event was sponsored by the DSMA on 12/7/13. Seventeen volunteers from the College of San Mateo took part in this event. They picked up approximately one 32 gallon bag of trash. The debris contents contained a few coffee cups, but mostly cigarette butts.

- The City plans to initiate a "Keep Downtown Clean" campaign for the merchants which includes:
  - The message to take pride in your business
  - Recognition for merchants who do a great job of keeping their storefront clean
  - Development and distribution of an outreach piece with cleaning tips and resource information
  - Program kick-off at the Spring Cleanup April 12, 2014
  - Review of program branding estimated to be completed before April 2014
- The City plans to initiate the DSMA Ambassador Program which includes:
  - Work directly with the merchants on keeping the Downtown clean
  - Kick off to start by March 1, 2014
  - Encourage merchant to sweep or offer to sweep for a small fee
  - List of safe cleaning supplies
  - Pull in garbage cans
  - Notify DSMA or City when they see improper behaviors such as illegal discharges or improper use of City cans

Actions Planned July 2014 – July 2022

- Enhanced outreach to businesses and residents to have more participation in organized on-land cleanups.
- The City plans to continue to hold the previous on-land cleanup events. Future events may include a cigarette butt collection contest and the City may look into trying to find corporate sponsors to help advertise and complete events.
- The City plans to look into painting koi fish pictures near storm drains for public awareness
- Review and restructure the DSMA's current business assessments for merchants
  - Goal to contribute more towards the cost of maintenance downtown

Improved Trash Bins/Container Management

Previous, current, and planned actions for improving the management of trash bins and containers in TMA #1 are described below.

Actions Initiated Prior to December 2009

- City staff identifies whether public area trash containers are sufficiently located in high trash generating areas and are adequately designed to manage trash types and amounts that typically are generated from activities occurring in these areas. Trash containers located throughout public areas within the City are numbered, and an inventory of numbered containers and their physical location is maintained in a database. City staff identifies problem areas through (1) complaints received from local residents, (2) regular inspections conducted throughout the City by the Recycling Coordinator, and (3) feedback received by the City's contracted waste hauler.
- Based on such feedback, trash containers that are in need of more frequent maintenance are scheduled for more frequent service by the City's contracted waste hauler. The City's program thus identifies where an increased level of inspection and maintenance of public area trash containers is needed at high trash generating sites; adjustments to inspection and maintenance frequencies are coordinated with and implemented by the City's contracted waste hauler.
- All businesses used their own collection containers for solid waste but were provided watertight lidded containers for recycling.

Actions Initiated after December 2009 prior to July 2014

- Beginning in 2010 all contracted waste hauler containers have lids and are watertight per the requirements of the Solid Waste Franchise Collection Agreement.
- The City developed a Strategic Plan for Public Area Trash Containers in the downtown area. The Strategic Plan includes consideration of installing specialty trash bins/containers (e.g., bins for cigarette filters) in specific locations to eliminate or reduce the prevalence of these items in stormwater,

as the need arises.

- The City has ordered 25 retrofit recycling kits for downtown City garbage cans. One side of the can will be for garbage and the second side will be for recycling. The goal is to retrofit at least 25 cans a year until all City cans offer both recycling and garbage options. Additionally, the City is currently relocating City cans for highest and best use in the downtown area as well as establishing a liner replacement program. The relocation, retrofit and liner replacement for the first 25 cans will be completed by the end of January 2014. The City has numbered all of the City garbage cans and has a map of each numbered can and its location. The numbering system will allow for ease in tracking issues with each can and issues could be submitted through the Work Order system.
- In process of ordering rain bonnets for downtown city cans to keep out rain.

Actions Planned July 2014 – July 2022

- Pilot studies for cigarette butt receptacles placed in strategic locations.
- Retrofit 25 cans per year with recycling and garbage options
- Develop twice-yearly liner inspection program with no less than annual liner replacements.

Anti-littering and Illegal Dumping Enforcement Activities

Anti-littering and illegal dumping enforcement activities also take place on a jurisdiction-wide level. However, some actions are specific to TMA #1.

Actions Initiated Prior to December 2009

- Created and implemented the "Keep San Mateo Beautiful" Program.

Actions Initiated after December 2009 prior to July 2014

- The Public Works Department installed one ash tray on the Northeast corner of East 4th Avenue and San Mateo Drive next to a City bench outside a known business where cigarette butt litter is common. Reports from the merchant who requested the ash tray is that it is being used frequently. The merchant cleans it and the City porter cleans it. This ash tray was placed with the understanding that if it becomes a nuisance instead of a benefit, the ash tray would be removed.

Actions Planned July 2014 – July 2022

- Pilot studies for cigarette butt receptacles placed in strategic locations. The DSMA and various departments at the City have started discussions on how to manage smoking and cigarette butt trash management. It is anticipated that the City will have a campaign to educate merchants about managing cigarette butts.

3.2.2 Trash Management Area #2

Trash Management Area #2 consists of few Full Capture Treatment Device treated areas. TMA #2 surrounds El Camino Real (State Route 82) and State Route 92, where there are high and medium trash generation areas. Figure 7 illustrates the locations of the Full Capture Treatment Devices in TMA #2.

Full Capture Device

TMA #2 contains 7 FCTDs, which treat around 25 acres. The area treated also includes a wet detention basin that is physically located in TMA #4B. Previous, current, and planned actions for FCTDs in this area are described below.

Actions Initiated Prior to December 2009

- Evaluation of FCTDs and areas best suited to installation.

Actions Initiated after December 2009 prior to July 2014
• Installation of several connector pipe screens at selected land uses within the City of San Mateo for a pilot study (SMCWPPP funded). • Installation of some of the FTCDs in TMA #2 was funded by the Association of Bay Area Governments (ABAG) and the California State Water Resources Control Board (State Water Board) Bay Area-Wide Trash Capture Demonstration Project through the federal American Recovery and Reinvestment Act of 2009. This funding was provided to allow municipalities to try out different types of trash capture devices, facilitate information sharing on monitoring and maintenance of devices, and help comply with MRP requirements. • Annual maintenance of devices was conducted prior to November 2013. Maintenance was performed by contractors who shoveled out any debris in the FTCD. Starting in November 2013, monthly maintenance was initiated by the City, using the Vactor truck, to clean the FTCDs. The goal is to clean the devices prior to any rain events. Records are maintained on each device during maintenance to track issues, maintenance needs and perceived performance of the device.
Actions Planned July 2014 – July 2022
• The City will continue monthly maintenance during the October – March season to prepare the FTCDs for potential rain. • The City is evaluating the appropriate device and location for a pilot study of a large FTCD, such as a Fresh Creek netting system at the Marina Lagoon Pump Station, which could capture the majority of the area drained through TMA #2.

Street Sweeping

Previous, current, and planned actions for street sweeping in TMA #2 are described below.

Actions Initiated Prior to December 2009
• City structured program to minimize inconvenience to residents and make it easier for them to voluntarily comply with the street sweeping schedule and move their vehicles from the curb. This includes sweeping within an established two-hour window, as well as limiting the sweeping to one side of the street on a given day, thereby allowing residents to park on the opposite side. • Began sweeping area every other week.
Actions Initiated after December 2009 prior to July 2014
• Created the “My Street” webpage, which launched in October 2011. This online tool allows residents to go online, plug in their address and view a variety of information applicable to their residence, including street sweeping and leaf collection days/times: http://50.63.60.127/mystreet/index.html • Coordinated with the solid waste collection agency (Recology) in September 2011 to revise street sweeping and garbage collection schedules so that, to the extent possible, conflicts between garbage pick-up and street sweeping would be reduced, thereby improving the quality of the sweep.
Actions Planned July 2014 – July 2022
• Conduct a comprehensive review of existing street sweeping program to improve effectiveness, enhance funding, and be more responsive to the needs of residents. • Increase frequency of sweeping in high trash generation areas. • Install signage to restrict parking during street sweeping in trash generation hot spots. • Revise agreement with Caltrans to allow for full cost recovery for planned increased sweeping along El Camino Real (SR82). • Conduct an outreach campaign to provide education to residents regarding street sweeping. • The Public Works Commission, at their 1/8/14 meeting, voiced support for more signage, more sweeping in high trash areas and less sweeping in low trash areas. The Public Works Department is working to develop this new sweeping strategy and will present it to the Commission upon completion

of plan (FY 2015-16).

City plans to evaluate the following for potential implementation prior to July 2022:

- Use of GPS devices to identify areas where sweeper drivers frequently encounter and must swerve around parked cars. GPS could also be used to monitor and ensure drivers are operating at an appropriate rate of speed to maximize debris collected.
- Modifying times that streets are swept to determine whether it is possible to sweep certain residential neighborhoods later in the morning (i.e. after 8 a.m. when people have left for work/school, etc.)
- Use of cameras mounted on sweeper vehicles to photograph license plates of vehicles parked in violation of posted signage.
- Expansion of signage to inform residents of street sweeping times and/or restrict parking; signage could be permanent or temporary.

On-land Trash Cleanups

Previous, current, and planned actions for on-land trash cleanups in TMA #2 are described below.

Actions Initiated Prior to December 2009
• The City's Park Department cleaned litter from the medians and sound walls.
Actions Initiated after December 2009 prior to July 2014
• The City's Park Department's current contractor, Loral, cleans all litter in the medians and along the sound walls. Any large items such as furniture or mattresses are reported to the Solid Waste Coordinator for next day pickup by Recology.
Actions Planned July 2014 – July 2022
• Continue to clean medians and sound walls. • Explore opportunities for groups to perform on-land trash cleanups in TMA#2. • Coordinate with CalTrans on cleanup of trash at the interface of City/Caltrans jurisdiction.

Improved Trash Bins/Container Management

Previous, current, and planned actions for improved bin and container management in TMA #2 are described below.

Actions Initiated Prior to December 2009
• Trash bins at bus stops along State Routes 82 and 92 are under SamTrans jurisdiction.
Actions Initiated after December 2009 prior to July 2014
• Coordinating with SamTrans on ways to improve their maintenance and service schedules and the current conditions of their garbage cans at bus stops along State Routes 82 and 92.
Actions Planned July 2014 – July 2022
• Continue to work with SamTrans to improve their maintenance and service schedules and the current conditions of their garbage cans at bus stops along State Routes 82 and 92.

3.2.3 Trash Management Area #3

Trash Management Area #3 consists of a few Full Capture Treatment Device treated areas. TMA #3 surrounds the northern area of the City, where there are mostly medium trash generation areas. TMA #3 surrounds the residential and commercial areas in this part of the City. Unique trash problems in this area include many multi-family units which house more than the lease

agreement allows. Therefore, trash often exceeds the bin-size that is required for the residence. Figure 7 illustrates the locations of the Full Capture Treatment Devices in TMA #3.

Full Capture Device

TMA #3 contains 39 FCTDs, which treats around 40 acres. Previous, current, and planned actions for FCTDs in this area are described below.

Actions Initiated Prior to December 2009
• Evaluation of FCTDs and areas best suited to installation.
Actions Initiated after December 2009 prior to July 2014
• Installation of FTCDs in TMA #3 was funded by the Association of Bay Area Governments (ABAG) and the California State Water Resources Control Board (State Water Board) Bay Area-Wide Trash Capture Demonstration Project through the federal American Recovery and Reinvestment Act of 2009. This funding was provided to allow municipalities to try out different types of trash capture devices, facilitate information sharing on monitoring and maintenance of devices, and help comply with MRP requirements. • Annual maintenance of devices was conducted prior to November 2013. Maintenance was performed by contractors who shoveled out any debris in the FTCD. Starting in November 2013, monthly maintenance was initiated by the City, using the Vactor truck, to clean the FTCDs. The goal is to clean the devices prior to any rain events. Records are maintained on each device during maintenance to track issues, maintenance needs and perceived performance of the device.
Actions Planned July 2014 – July 2022
• The City will continue monthly maintenance during the October – March season to prepare the FTCDs for potential rain. • The City is evaluating the appropriate device and location for a pilot study of a large FTCD, such as a Fresh Creek netting system at the Coyote Point Pump Station or Poplar Pump Station, which could capture the majority of the area drained through TMA #3.

Street Sweeping

Previous, current, and planned actions for street sweeping in TMA #3 are described below.

Actions Initiated Prior to December 2009
• City structured program to minimize inconvenience to residents and make it easier for them to voluntarily comply with the street sweeping schedule and move their vehicles from the curb. This includes sweeping within an established two-hour window, as well as limiting the sweeping to one side of the street on a given day, thereby allowing residents to park on the opposite side. • City installed signage to restrict parking during street sweeping hours in the College Park neighborhood in September 2009. This successful project included outreach and education distributed to the inhabitants of approximately 1500 homes and apartments in the neighborhood. • Began sweeping 2 times per month.
Actions Initiated after December 2009 prior to July 2014
• Created the “My Street” webpage, which launched in October 2011. This online tool allows residents to go online, type in their address and view a variety of information applicable to their residence, including street sweeping and leaf collection days/times: http://50.63.60.127/mystreet/index.html • Coordinated with the solid waste collection agency (Recology) in September 2011 to revise street sweeping and garbage collection schedules so that, to the extent possible, conflicts between garbage pick-up and street sweeping would be reduced, thereby improving the quality of the sweep. • City began targeting areas known to generate high levels of garbage/public dumping with enhanced

street sweeping. The City's "North Central" neighborhood is currently signed for restricted parking during street sweeping hours, and is swept on a weekly basis (twice as frequently as other residential neighborhoods).
Actions Planned July 2014 – July 2022
• Conduct a comprehensive review of existing street sweeping program to improve effectiveness, enhance funding, and be more responsive to the needs of residents. • Increase frequency of sweeping in high trash generation areas. • Install signage to restrict parking during street sweeping in trash generation hot spots. • Revise agreement with Caltrans to allow for full cost recovery for planned increased sweeping along El Camino Real (SR82). • Conduct an outreach campaign to provide education to residents regarding street sweeping. • The Public Works Commission, at their 1/8/14 meeting, voiced support for more signage, more sweeping in high trash areas and less sweeping in low trash areas. The Public Works Department is working to develop this new sweeping strategy and will present it to the Commission upon completion of plan (FY 2015-16). City plans to evaluate the following for potential implementation prior to July 2022: • Use of GPS devices to identify areas where sweeper drivers frequently encounter and must swerve around parked cars. GPS could also be used to monitor and ensure drivers are operating at an appropriate rate of speed to maximize debris collected. • Modifying times that streets are swept to determine whether it is possible to sweep certain residential neighborhoods later in the morning (i.e. after 8 a.m. when people have left for work/school, etc.) • Use of cameras mounted on sweeper vehicles to photograph license plates of vehicles parked in violation of posted signage. • Expansion of signage to inform residents of street sweeping times and/or restrict parking; signage could be permanent or temporary.

On-land Trash Cleanups

Previous, current, and planned actions for on-land trash cleanups in TMA #3 are described below. One of the City's hot spots (SMO02) lies within TMA #3.

Actions Initiated Prior to December 2009
• Area was part of the pilot study to evaluate trash sources and control measures at an in-stream trash accumulation area in San Mateo County (STOPPP 2005). This site is addressed through Coastal Cleanup Day and regular Parks Division Maintenance.
Actions Initiated after December 2009 prior to July 2014
• Increased advertisement for on-land trash cleanups.
Actions Planned July 2014 – July 2022
• The City plans to continue to hold the previous on-land cleanup events. Future events may include a cigarette butt collection contest and the City may look into trying to find corporate sponsors to help advertise and complete events.

Improved Trash Bins/Container Management

Previous, current, and planned actions for improved bin and container management in TMA #3 are described below.

Actions Initiated Prior to December 2009
• All residents used their own collection containers for solid waste and were provided 17 gallon tubs (no lids) for curbside recycling. • All businesses used their own collection containers for solid waste but were provided watertight lidded containers for recycling.
Actions Initiated after December 2009 prior to July 2014
• Beginning in 2010 all contracted waste hauler containers have lids and are watertight per the requirements of the Solid Waste Franchise Collection Agreement. • The City is currently relocating City cans for highest and best use as well as establishing a liner replacement program. The City has numbered all of the City garbage cans and has a map of each numbered can and its location. The numbering system will allow for ease in tracking issues with each can and issues could be submitted through the Work Order system. • In process of ordering rain bonnets for downtown city cans to keep out rain.
Actions Planned July 2014 – July 2022
• Coordinate with contracted waste hauler to determine control measures for overfilled bins, and the debris that blows out of overfilled bins that are unable to close fully. • Anti-scavenging ordinance to restrict disruption of material in bins. • Retrofit City cans with recycling and garbage options. • Develop twice-yearly liner inspection program for City cans with no less than annual liner replacements.

3.2.4 Trash Management Area #4

Trash management Area #4 consists of schools and City-owned parks and facilities. Four connector pipe screens and one wet detention basin lie within TMA #4.

Secondary-Trash Management Area #4A

Secondary-Trash Management Area #4A consists of schools in the City of San Mateo. As Figure 6 depicts, TMA #4A is scattered throughout the City, wherever the schools are located. The City felt it was necessary to make schools a secondary-TMA because trash control in these areas is different than controls utilized in the City-owned parks and facilities. Unique trash problems at schools include seasonality as well as contained areas, typically surrounded by fencing. The main mechanism for trash control at schools is public outreach and education, as detailed in Section 3.2.6. There is one connector pipe screen located in TMA #4A, which treats approximately one acre.

Full Capture Device

TMA #4A contains 1 FCTD, which treats approximately 1 acre. Previous, current, and planned actions for FCTDs in this area are described below.

Actions Initiated Prior to December 2009
• Evaluation of FCTDs and areas best suited to installation.
Actions Initiated after December 2009 prior to July 2014
• Installation of the FTCD in TMA #4A was funded by the Association of Bay Area Governments (ABAG) and the California State Water Resources Control Board (State Water Board) Bay Area-Wide Trash

Capture Demonstration Project through the federal American Recovery and Reinvestment Act of 2009. This funding was provided to allow municipalities to try out different types of trash capture devices, facilitate information sharing on monitoring and maintenance of devices, and help comply with MRP requirements.

- Annual maintenance of the device was conducted prior to November 2013. Maintenance was performed by contractors who shoveled out any debris in the FTCD. Starting in November 2013, monthly maintenance was initiated by the City, using the Vactor truck, to clean the FTCDs. The goal is to clean the devices prior to any rain events. Records are maintained on each device during maintenance to track issues, maintenance needs and perceived performance of the device.

Actions Planned July 2014 – July 2022

- The City will continue monthly maintenance during the October – March season to prepare the FTCDs for potential rain.
- The City is evaluating whether there are any additional locations in TMA #4A that are appropriate for installation of new devices.

Secondary-Trash Management Area #4B

Secondary-Trash Management Area #4B consists of City-owned parks and facilities. As Figure 6 depicts, TMA #4B is scattered around the City, where the parks and facilities are located. The City felt it was necessary to make the City-owned parks and facilities a secondary-TMA because trash control in these areas is different than, for example, the residential streets they are surrounded by, and also quite different than the controls implemented for schools, which are part of the same Primary TMA. There are three connector pipe screens and one wet detention basin in TMA #4B, treating approximately 21 acres. Unique trash problems in parks include homeless encampments, public events and parties. For these reasons and others, the City Parks Department cleans the parks frequently. Another issue that Parks Division frequently encounters is domestic dumping in parks. Illegally dumped items in parks are removed by Parks Division staff or in the same manner as other illegally dumped items throughout the City.

The Parks Division keeps track of the tons of trash removed from Park bins and picked-up off the ground (Table 7). This information is useful for tracking source reduction efforts, for assessing quarter-to-quarter loads, and for staffing and bin planning purposes.

Table 7. Tons of trash removed from City Parks each Quarter

FY	Q1	Q2	Q3	Q4	TOTAL
2002-03	37.63	14.38	8.3	42.13	102.44
2003-04	NA	17.8	NA	35.34	53.14
2004-05	38	NA	12.39	38.09	88.48
2005-06	50.46	22.81	17.74	47.01	138.02
2006-07	53.24	21.62	21.78	46.58	143.22
2007-08	40.36	24	26.48	43.46	134.30
2008-09	48.74	28	14.18	43.75	134.67
2009-10	43.89	26.64	21.57	37.85	129.95
2010-11	45.17	25.58	12.33	40.05	123.13
2011-12	45.25	25.37	17.37	35.27	123.26
2012-13	45.57	25.24	20.24	32.19	123.24

2013-14	45.45	0	0	0	45.45

NA = not available
All numbers provided are tons

Full Capture Device

TMA #4B contains 3 connector pipe screens and 1 wet detention basin, which treats around 21 acres. Previous, current, and planned actions for FCTDs in this area are described below.

Actions Initiated Prior to December 2009

- Evaluation of FCTDs and areas best suited to installation.
- Installation of a wet detention basin at Bay Meadows, which treats 83 acres, was part of the Bay Meadows Development Project. The basin was designed to function as a primary stormwater BMP for the Phase II development and to provide a minimum volume of 600,000 gallons of water for emergency services. The Project was approved in 2007. The City follows the Operations and Maintenance Manual for the Bay Meadows Park Pond for all maintenance activities.

Actions Initiated after December 2009 prior to July 2014

- Installation of the connector pipe screens in TMA #4B was funded by the Association of Bay Area Governments (ABAG) and the California State Water Resources Control Board (State Water Board) Bay Area-Wide Trash Capture Demonstration Project through the federal American Recovery and Reinvestment Act of 2009. This funding was provided to allow municipalities to try out different types of trash capture devices, facilitate information sharing on monitoring and maintenance of devices, and help comply with MRP requirements.
- Annual maintenance of the device was conducted prior to November 2013. Maintenance was performed by contractors who shoveled out any debris in the FTCDs. Starting in November 2013, monthly maintenance was initiated by the City, using the Vactor truck, to clean the FTCDs. The goal is to clean the devices prior to any rain events. Records are maintained on each device during maintenance to track issues, maintenance needs and perceived performance of the device.

Actions Planned July 2014 – July 2022

- The City will continue monthly maintenance during the October – March season to prepare the FTCDs for potential rain.
- The City is evaluating whether there are any additional locations in TMA #4B that are appropriate for installation of new devices.

On-land Trash Cleanups

Parks Division staff and per diem staff are responsible for keeping the City's parks clean. These efforts were noticed during the on-land visual assessments, as the parks in general are very clean. One of the City's hot spots (SMO01) lies within TMA #4B. Previous, current, and planned actions for on-land trash cleanups in TMA #4B are described below.

Actions Initiated Prior to December 2009

- Began operating 6 days a week (no Wednesdays) from April to November and 2 days a week from December through March. Most shifts are 8 hours and the truck is run by 1 per diem employee.
- From May through October extra staff is brought in on weekends to clean the parks and picnic areas.
- In the early to mid-2000's the Shoreline area was developed that included several new parks and, therefore, more on-land cleanup efforts.

Actions Initiated after December 2009 prior to July 2014

- Casanova and Laurelwood Park were remodeled in 2010-2011 so the amount of use and trash increased and staff adjusted accordingly to clean these parks.
- In 2013 two new parks were open at Bay Meadows, so additional on-land cleanup began.

Actions Planned July 2014 – July 2022

- Continue existing practices for cleaning trash in parks.
- Explore opportunities for volunteer cleanups, park 'adoption', and anti-littering campaigns in parks.
- The City plans to continue to hold the previous on-land cleanup events. Future events may include a cigarette butt collection contest and the City may look into trying to find corporate sponsors to help advertise and complete events.

Improved Trash Bins/Container Management

Previous, current, and planned actions for improved bin and container management in TMA #4B are described below.

Actions Initiated Prior to December 2009

- Began emptying bins daily in parks.
- In the early to mid-2000's the Shoreline area was developed that included several new parks and, therefore, new bins.
- From 2006-2009 Allied Waste supplied cardboard event boxes with plastic liners for garbage and recycling. The boxes would be placed by either or both Allied Waste and City staff throughout the event. The liners would be collected and taken to a service location where Allied Waste would service the collection containers. The City would average approximately 40 percent diversion at these events. This system was not optimal because the boxes were not good in poor weather conditions such as wind or rain. They would fall over and debris could fall out. If someone forgot to put in a liner the debris at time fell through the bottom of the box.

Actions Initiated after December 2009 prior to July 2014

- From 2009-2010 the South Bayside Waste Management Authority (SBWMA,) of which the City is one of twelve member agencies, purchased Clear Stream A-frame event carts for all members use at special events. The carts were specific for compost, recycling and garbage collection. SBWMA and City staff would set up, breakdown and transfer the collected materials to the correct service collection container. This system was not optimal because the A-frames were would fall over in the wind, the compost bags were small and had a very short shelf life and would weaken causing the bag to break and debris to fall to the ground.
- Starting in 2010, City staff orders sets (one for garbage, one for recycling and one for compost) of 96 gallon, lidded collection carts from Recology the first week of February each year for all City sponsored events throughout the calendar year. The majority of the City's events take place in city parks. The 96 gallon carts are the same collection carts used by the franchise hauler for residential use. Residents and park participants are familiar with their labeling and color coding (blue for recycling, green for compost and black for garbage) for easy recognition. The carts are placed, monitored and collected by City staff. All locations are litter free after the event due to staff's efforts. The carts are water tight and not affected by weather. They are serviced by Recology the following morning. The City has been able to increase waste diversion to approximately 78 - 90% diversion depending on the type of event by these efforts.
    - 12 sets to Central Park. Central Park hosts "Music in the Park" every Thursday night for seven weeks in the summer with approximately 1,200 to 2,000 attendees and food vendors,
    - 8 sets to Beresford Park/Senior Center
    - 10 sets to Park Corporation Yard for use at all events not at Central or Beresford Parks
- The City has purchased six covered debris boxes for the Corporation Yard. Currently, the Corporation Yard has six uncovered boxes. This replacement should help cut down litter generated at the yard.
- Coordinates with Recycling Coordinator to ensure appropriate bins are delivered to parks for special events.
- Casanova and Laurelwood Park were remodeled in 2010-2011 so the amount of use and trash increased and bin placement was adjusted accordingly.
- In 2013 two new parks were open at Bay Meadows, so new bins were installed.

Actions Planned July 2014 – July 2022
• Explore vault garbage systems at outlying parks to reduce labor hours of emptying bins daily. • Continue existing efforts.

3.2.5 Trash Management Area #5

Trash Management Area #5 consists of the remaining "low" areas that were not captured as part of one of the other four TMAs. As Figure 6 depicts, TMA #5 is scattered around the City, where the remaining "low" areas are located. TMA #5 also contains as few Full Capture Treatment Devices, and indicated in Figure 7.

Full Capture Device

TMA #5 contains 6 FCTDs, which treat around 86 acres. The area treated includes a wet detention basin that is physically located in TMA #4B. Previous, current, and planned actions for FCTDs in TMA #5 are described below.

Actions Initiated Prior to December 2009
• Evaluation of FCTDs and areas best suited to installation.
Actions Initiated after December 2009 prior to July 2014
• Installation of connector pipe screens at selected land uses within the City of San Mateo for a pilot study (SMCWPPP funded). • Installation of additional FTCDs in TMA #5 was funded by the Association of Bay Area Governments (ABAG) and the California State Water Resources Control Board (State Water Board) Bay Area-Wide Trash Capture Demonstration Project through the federal American Recovery and Reinvestment Act of 2009. This funding was provided to allow municipalities to try out different types of trash capture devices, facilitate information sharing on monitoring and maintenance of devices, and help comply with MRP requirements. • Annual maintenance of devices was conducted prior to November 2013. Maintenance was performed by contractors who shoveled out any debris in the FTCD. Starting in November 2013, monthly maintenance was initiated by the City, using the Vactor truck, to clean the FTCDs. The goal is to clean the devices prior to any rain events. Records are maintained on each device during maintenance to track issues, maintenance needs and perceived performance of the device.
Actions Planned July 2014 – July 2022
• The City will continue monthly maintenance during the October – March season to prepare the FTCDs for potential rain. • The City is evaluating the appropriate devices and locations for a pilot study of FTCDs, such as a Fresh Creek netting system at the 3rd/Detroit Pump Station.

Street Sweeping

Previous, current, and planned actions for street sweeping in TMA #5 are described below.

Actions Initiated Prior to December 2009
• City structured program to minimize inconvenience to residents and make it easier for them to voluntarily comply with the street sweeping schedule and move their vehicles from the curb. This includes sweeping within an established two-hour window, as well as limiting the sweeping to one side of the street on a given day, thereby allowing residents to park on the opposite side. • Began sweeping area twice a month.
Actions Initiated after December 2009 prior to July 2014

- Created the "My Street" webpage, which launched in October 2011. This online tool allows residents to go online, plug in their address and view a variety of information applicable to their residence, including street sweeping and leaf collection days/times: http://50.63.60.127/mystreet/index.html
- Coordinated with the solid waste collection agency (Recology) in September 2011 to revise street sweeping and garbage collection schedules so that, to the extent possible, conflicts between garbage pick-up and street sweeping would be reduced, thereby improving the quality of the sweep.

Actions Planned July 2014 – July 2022

- Conduct a comprehensive review of existing street sweeping program to improve effectiveness, enhance funding, and be more responsive to the needs of residents.
- Conduct an outreach campaign to provide education to residents regarding street sweeping.
- The Public Works Commission, at their 1/8/14 meeting, voiced support for more signage, more sweeping in high trash areas and less sweeping in low trash areas. The Public Works Department is working to develop this new sweeping strategy and will present it to the Commission upon completion of plan (FY 2015-16).

City plans to evaluate the following for potential implementation prior to July 2022:

- Use of GPS devices to identify areas where sweeper drivers frequently encounter and must swerve around parked cars. GPS could also be used to monitor and ensure drivers are operating at an appropriate rate of speed to maximize debris collected.
- Modifying times that streets are swept to determine whether it is possible to sweep certain residential neighborhoods later in the morning (i.e. after 8 a.m. when people have left for work/school, etc.)
- Use of cameras mounted on sweeper vehicles to photograph license plates of vehicles parked in violation of posted signage.
- Expansion of signage to inform residents of street sweeping times and/or restrict parking; signage could be permanent or temporary.

On-land Trash Cleanup

Previous, current, and planned actions for on-land cleanups in TMA #5 are described below.

Actions Initiated Prior to December 2009

- City Parks Department cleans up medians and in parks.

Actions Initiated after December 2009 prior to July 2014

- Earth Day at CuriOdyssey, at Coyote Point Museum in San Mateo. This is a local event coinciding with Earth Day and promoted countywide via website, email blast and a banner in downtown Burlingame. Beach clean-up and Citizen Science event with message focusing on environmentally responsible pest control. 646 visitors attended the event in 2013. The first two hours the event focused on the beach clean-up.

Actions Planned July 2014 – July 2022

- Explore opportunities for volunteer cleanups, area 'adoption', and anti-littering campaigns specific to certain neighborhoods and areas.
- The City plans to continue to hold the previous on-land cleanup events. Future events may include a cigarette butt collection contest and the City may look into trying to find corporate sponsors to help advertise and complete events.

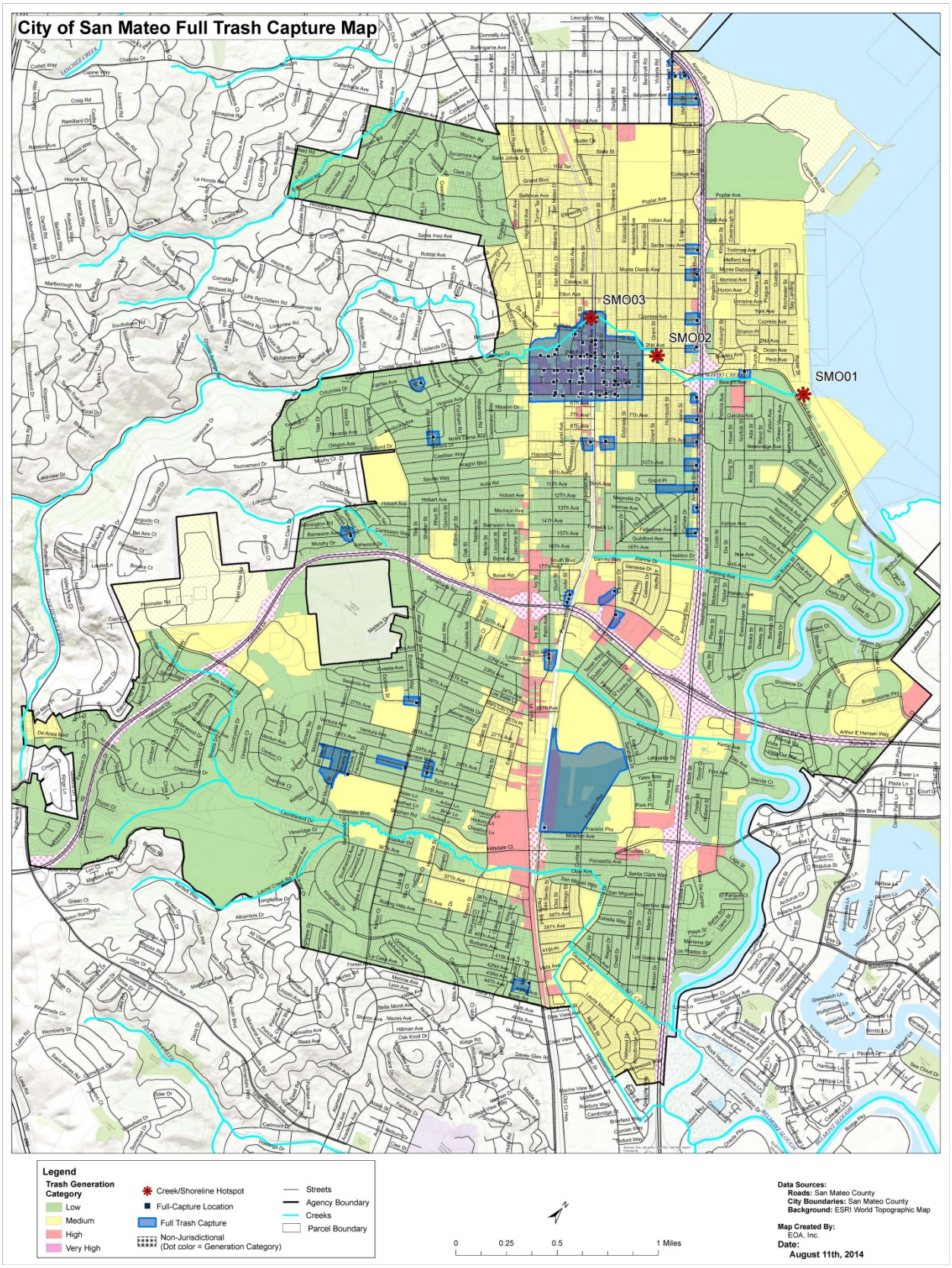

Figure 7. Trash Full Capture Device Map for the City of San Mateo

3.2.6 Jurisdiction-wide Control Measures

Many of the control measures utilized by the City of San Mateo are jurisdiction-wide measures, especially though measures that are implemented through City Ordinances.

Improved Trash Bins/Container Management

While control measures are in place or will be implemented in specific TMAs, there is also an element of bin and container management that is jurisdiction-wide.

Actions Initiated Prior to December 2009

- The City has a Garbage Ordinance (Section 7.32 of the San Mateo Municipal Code) that requires residences and business to obtain and maintain adequate trash/recycling service, and watertight trash receptacles are required for any premises that accumulate solid waste. The Franchise Agreement between the City and the contracted solid waste hauler also requires that all containers must be watertight and have hinged lids. The Agreement requires the contracted waste hauler to replace carts that have been stolen, lost, damaged, or destroyed within 5 business days of receiving notification. The Recycling Coordinator and the City's contracted waste hauler work together to identify non-compliant residents and businesses and resolve such incidents. Violations of the City's Solid Waste Ordinance are referred to Code Enforcement for follow-up, which may include citations or administrative fees. Code Enforcement issues Public Service Announcements that list types of violations for which citations are issued, including no garbage service, the accumulation of garbage, litter and debris, and refuse containers stored in public view. Complaints regarding violations and inadequate service are received by the Recycling Coordinator and the contracted waste hauler and are resolved as described above.
- The City has implemented a program that identifies businesses and households that have inadequate trash service (i.e., insufficient trash collection or use of bins which are too small). Implementation of this program element is initiated through (1) complaints received from local residents, (2) regular inspections conducted throughout the City by the Recycling Coordinator, and (3) feedback received by the City's contracted waste hauler. Businesses or households that fail to obtain adequate trash service are referred to the City's Code Enforcement Department for follow-up, which may include citations and/or administrative fees.
- City staff identifies whether public area trash containers are sufficiently located in high trash generating areas and are adequately designed to manage trash types and amounts that typically are generated from activities occurring in these areas. Trash containers located throughout public areas within the City are numbered, and an inventory of numbered containers and their physical location is maintained in a database. City staff identifies problem areas through (1) complaints received from local residents, (2) regular inspections conducted throughout the City by the Recycling Coordinator, and (3) feedback received by the City's contracted waste hauler. Based on such feedback, trash containers that are in need of more frequent maintenance are scheduled for more frequent service by the City's contracted waste hauler. The City's program thus identifies where an increased level of inspection and maintenance of public area trash containers is needed at high trash generating sites; adjustments to inspection and maintenance frequencies are coordinated with and implemented by the City's contracted waste hauler.

Actions Initiated after December 2009 prior to July 2014

- The Franchise Agreement signed in 2011 (and extending until 2020) with the contracted waste hauler includes a section pertaining to containers:

8.05 CONTAINERS

*A. **General**. Contractor shall provide all Carts, Bins, Compactors, Kitchen Pails, and Drop Boxes, as appropriate, to all Customers as part of its obligations under this Agreement. As of the Commencement Date, all Single-Family Carts and Kitchen Pails must be new while other Containers may be used. Contractor-provided Containers shall be designed and constructed to be watertight and prevent the leakage of liquids. All Carts shall be manufactured by injection or rotational molding methods; contain post-consumer content; and meet the Cart design and performance requirements provided in Attachment D – Container Specifications. Carts provided to Customers shall have a*

useful life of ten (10) years as evidenced by a manufacturer's warranty or other documentation acceptable to the Agency.

All Containers with a capacity of one (1) cubic yard or more shall meet applicable federal, State, and local regulations for Bin safety; shall be covered with attached lids; and shall have the capability to be locked if required or requested by Customer or Agency.

All Containers shall be maintained in a safe, serviceable, and functional condition.

Actions Planned July 2014 – July 2022

- Coordinate with contracted waste hauler to determine control measures for overfilled bins, and the debris that blows out of overfilled bins that are unable to close fully.

Anti-littering and Illegal Dumping Enforcement Activities

Actions Initiated Prior to December 2009

- The City implemented a program which instructed a specific street crew to pick up reported illegal dumping. They were also instructed to pick up debris at known hot spots. Additionally, Allied Waste, the franchise hauler at the time, would pick up large items upon the City's request.

Actions Initiated after December 2009 prior to July 2014

- The current illegal dumping program has been in effect since 2010. The City of San Mateo has implemented an efficient program for responding to reports of illegal dumping. Reported illegally dumped items are picked up by Recology, the City's currently contracted waste hauler, within 24 hours of being reported. Additionally, Recycling Coordinators coordinate twice weekly debris pickups throughout the City with Recology. Debris removed from dump sites typically includes couches, mattresses, TVs and appliances, carpet, strollers and car seats, bags of trash, other furniture and construction debris. Smaller trash items having the potential to enter the storm drain system are picked up at the same time that the larger items are removed.
- All items picked-up by waste haulers is recorded and can be sorted by location, date and materials collected. In 2012 and 2013, respectively, 1,736 and 1,410 reports of illegal dumping were logged and removed.
- Evaluating the introduction of an anti-scavenging ordinance, which could help reduce the amount of trash that is dumped around the immediate area of residential and commercial bins during the rummaging process.
- The Franchise Agreement signed in 2011 (and extending until 2020) with the contracted waste hauler includes a section pertaining to litter and illegal dumping:

8.02 COLLECTION STANDARDS

I. Litter Abatement

1. Minimization of Spills. If any Solid Waste, Targeted Recyclable Materials, or Organic Materials are spilled or scattered during Collection or transportation operations, the Contractor shall promptly clean up all spilled and scattered materials. Contractor shall use due care to prevent vehicle oil, vehicle fuel, or other liquids from being spilled during Collection or transportation operations including maintenance of the Collection vehicles to minimize and correct any leaks. Contractor shall ensure that all liquid spills or leaked liquids fluids are cleaned up promptly on the same day that they occur.

Contractor shall not transfer loads from one vehicle to another on any public street, unless it is necessary to do so because of mechanical failure, emergency (e.g., combustion of material in the vehicle), accidental damage to a vehicle, or unless approved by the Agency.

2. Clean-Up. During Collection operations, the Contractor shall clean-up litter in the immediate vicinity of any Container storage area (including the areas where Containers are delivered for Collection) if Contractor's actions are the cause of the litter. Each Collection vehicle shall be equipped with protective gloves, a broom, and shovel at all times for cleaning up litter. Absorbent material shall be carried on each Collection vehicle at all times and used by Contractor for cleaning up liquid spills. The Contractor shall document and discuss

instances of repeated spillage not caused by it with the Customer where spillage occurs, and Contractor shall report such instances to Agency. If the Contractor has attempted to have a Customer stop creating spillage but is unsuccessful, the Agency will attempt to rectify such situation with the Customer.

3. *Covering of Loads. Contractor shall cover all open Drop Boxes with an Agency-approved cover, at the Collection location before transporting materials to the Designated Transfer and Processing Facility.*

5.09 ABANDONED WASTE CLEANUP COLLECTION SERVICE

Contractor shall provide abandoned waste cleanup collection service within one (1) Business Day of being notified by Agency, SBWMA, Customer, or Contractor's vehicle drivers and route supervisors of the occurrence of abandoned waste or illegal dumping, at no additional cost to Agency or Customer. If a report of abandoned waste or illegal dumping is received by Contractor from a party other than Agency, Contractor shall notify Agency of the reported location within one (1) Business Day and shall notify Agency of the estimated or actual time Contractor Collected the material or will Collect the material. This service shall require Contractor to Collect all abandoned or illegally dumped Solid Waste, Recyclable Materials and Organic Materials. This service does not include Collection of litter or litter abatement activities.

For abandoned Recyclable Materials, Organic Materials, and Solid Waste, Contractor shall dispatch its regular route drivers to provide Collection service. For Bulky Items, Contractor shall dispatch a flatbed truck to provide Collection service. For other items including, but not limited to, Hazardous Waste, Household Hazardous Waste and Sharps, Contractor shall promptly notify Agency.

All abandoned or illegally dumped materials Collected by Contractor shall be transported to the SRDC for processing, with the exception of scrap metal, and all related diversion statistics will be included in the appropriate reports to the Agency for all materials collected. Contractor shall be allowed to transport scrap metal directly to a licensed scrap metal recycler. Contractor shall, to the greatest extent possible, deliver all reusable non-metal abandoned waste items to organizations such as Society of St. Vincent de Paul and Goodwill Industries, or other organizations as directed by Agency.

Actions Planned July 2014 – July 2022

- The City may pursue grant funding for the installation of motion-activated cameras in high dumping areas to identify illegal dumpers and use a speaker system to tell dumpers they are being recorded. Cameras could be relocated once specific locations are addressed.
- The City will evaluate whether a cell phone application for reporting illegal dumping may be worthwhile. The City already has a similar "app" for reporting graffiti.

Activities to Reduce Trash from Uncovered Loads

The following City Ordinance language from 1996 pertains to the transportation of covered loads:

7.32.020 VEHICLE—COVER REQUIRED.

No person shall use any vehicle for the conveyance or removal of solid waste unless such vehicle is staunch, tight and closely covered with a wooden or metal cover so as wholly to prevent leakage or smell. No person shall use any vehicle for the conveyance or removal of solid waste unless such vehicle is provided with a cover securely fastened over the top thereof, and be so constructed as to prevent the deposit of such solid waste, or any portion thereof, in or upon the street through which such vehicle may be driven. (Ord. 1996-9 § 2, 1996; Prior code § 106.02).

Additionally, the landfills have postage signage that they will not accept any trucks into their facilities that are not covered.

Single-Use Carryout Bag Policies

On May 6, 2013, the City Council adopted an Ordinance adding Chapter 5.86, Reusable Bags, to the San Mateo Municipal Code Title 5 – Business License and Regulations Code. The Ordinance had been introduced to the City Council at the April 15, 2013 meeting and the City Council approved the Negative Declaration for the reusable bag ordinance at that time. The noticing for the April 15, 2013 City Council meeting, where the proposed Municipal Code amendments were first introduced, satisfied all public noticing requirements to date. The Ordinance became effective June 5, 2013.

The County of San Mateo prepared and certified a Program Environmental Impact Report for the proposed ordinance. The Final Program EIR examined the potential environmental impacts associated the adoption of the proposed ordinance in the Program EIR Study Area, which consists of the County, the 18 cities within the County, and the six neighboring cities listed the preparation of the Draft Program EIR, scoping meetings were held throughout the County. The City of San Mateo hosted a scoping meeting on April 19, 2012. The Draft Program EIR was issued with a 45-day public review period, from June 22, 2012 to August 6, 2012. The Final

Program EIR, which incorporated the Draft Program EIR by reference, as well as responses to comments received on the Draft Program EIR, was issued with a 10-day public review period from August 31, 2012 to September 10, 2012. These documents are available online on the Bag Ban webpage on the San Mateo County Environmental Health website at the following link: http://smchealth.org/BagBan

The Final Program EIR estimated the volume of current plastic bag usage within the Study Area at 552 million bags per year. With the proposed ordinance's regulations in effect, it is estimated that 95 percent of that volume would be replaced by a combination of paper (165,879,409) and reusable (6,911,642) bags, leaving 27 million plastic bags still used each year.

The City of San Mateo "tiered" off of the County of San Mateo's Program EIR and prepared a Negative Declaration to further evaluate the environmental impact of the proposed Reusable Bag Ordinance on City of San Mateo retailers under the provisions of the California Environmental Quality Act (CEQA). The City prepared the Initial Study and Negative Declaration, which identified and discussed potential environmental impacts of the ordinance, and found that the proposed ordinance would not have a significant effect on the environment. The public review and comment period on the Initial Study/Negative Declaration was March 15, 2013 through April 3, 2013 (20-day public review period). No comments were received during the public comment period for the City's Negative Declaration.

On April 15, 2013, staff received an email from a resident who objected to the reusable bag ordinance. During public comment at the April 15th City Council when the City Council introduced the proposed ordinance, the resident shared his feedback on a study that highlighted the health risks associated with unwashed reusable bags. Staff and Council acknowledged his concerns. Staff and Council shared that based on their review of the study, and the response by health officers about the credibility of the study in question and general bag safety, the City was not in agreement that a reusable bag ordinance presented a community health risk. Staff committed to educating and reminding citizens to wash their reusable bags. In addition, staff emailed the resident the day following the introduction and thanked him for his comments, and reiterated that we are committed to sharing outreach material on reusable bag cleanliness.

Some excerpts from the Ordinance are provided here and the full Ordinance language can been viewed at: http://qcode.us/codes/sanmateo/ in Chapter 5.86.

(a) No retail establishment shall provide a single-use carry-out bag to a customer at the check stand, cash register, point of sale or other point of departure for the purpose of transporting food or merchandise out of the establishment except as provided in this section.

(b) On or before December 31, 2014, a retail establishment may make available for sale to a customer a recycled paper bag or a reusable bag for a minimum charge of $0.10.

(c) On or after January 1, 2015, a retail establishment may make available for sale to a customer a recycled paper bag or reusable bag for a minimum charge of $0.25.

(d) Notwithstanding this section, no retail establishment may make available for sale a recycled paper bag or a reusable bag unless the amount of the sale of such bag is separately itemized on the sale receipt.

(e) A retail establishment may provide one or more recycled paper bags at no cost to any of the following individuals; a customer participating in the California Special Supplement Food Program for Women, Infants, and Children pursuant to Article 2 (commencing with Section 123275) of Chapter 1 of Part 2 of Division 106 of the Health and Safety Code; a customer participating in the Supplemental Food Program pursuant to Chapter 10 (commencing with Section 15500) of Part 3 of Division 9 of the California Welfare and Institutions Code; and a customer participating in CalFresh pursuant to Chapter 10 (commencing with Section 18900) of Part 6 of Division 9 of the California Welfare and Institutions Code. (Ord. 2013-7 § 1)

In addition to the City's enforcement mechanisms set forth in Title 1 of the municipal code, the City has authorized the County of San Mateo's Environmental Health Division to enforce chapter 5.86 of the municipal code, including, without limitation, the authority to hold hearings, issue administrative fines, and retain collected fines. (Ord. 2013-7 § 1).

Regarding outreach efforts for this Ordinance, the City used the following mechanisms:

- Reusable bag give-a-ways,
- Town Hall meetings,
- Articles published in HOA newsletters
- Social media outreach (e.g., San Mateo Patch, Facebook),
- Personal outreach to business owners (making the effort to provide information in the languages spoken by the business owners)
- Hot line for questions.

Polystyrene Foam Food Service Ware Policies

On May 6, 2013, the City Council adopted an Ordinance adding Chapter 5.89, Polystyrene Based Disposable Food Service Ware, to the San Mateo Municipal Code Title 5 – Business License and Regulations Code. The Ordinance had been introduced to the City Council at the April 15, 2013 meeting and the City Council approved the Negative Declaration for the polystyrene ban at that time. The noticing for the April 15, 2013 City Council meeting, where the proposed Municipal Code amendments were first introduced, satisfied all public noticing requirements to date. The Ordinance became effective June 5, 2013.

Preparation of an environmental impact assessment was required under the provisions of the California Environmental Quality Act (CEQA). The public review period for the Draft Negative Declaration began on March 15, 2013 and extended to April 3, 2013 (20 day public review period). No comments on the Initial Study/Negative Declaration were received during the official public comment period, however on April 15, 2013, the City received a letter from the American Chemistry Council opposing the polystyrene ban, citing several concerns. Their opposition is listed below with staff's responses:

- *Establish recycling and composting standard for all materials.* Waste providers in San Mateo County do not currently recycle polystyrene. All polystyrene goes directly to landfill.
- *Polystyrene bans do not reduce litter.* While litter may or may not be reduced, banning polystyrene decreases the lifespan of litter.
- *Banning polystyrene negatively affects the environment because alternative materials generate more greenhouse gas emissions.* The County of San Mateo has stated that the study used for this claim was done in Seattle and "cannot be readily applied to San Mateo County."
- *Alternatives to polystyrene will cost businesses 2-3 times more than polystyrene.* The unit cost for alternative materials is often only $0.01-$0.02 more and in some cases can be less expensive.

Some excerpts from the Ordinance are provided here and the full Ordinance language can been viewed at: http://qcode.us/codes/sanmateo/ in Chapter 5.89

No vendor shall use polystyrene-based disposable food service ware when providing prepared food. (Ord. 2013-6 § 1)

With the following exemptions:

(a) Automatic Exemptions. The following uses are exempt from the provisions of this chapter:
(1) Prepackaged food; and
(2) Polystyrene coolers and ice chests intended for reuse.

(b) Special Requests for an Exemption. Any food vendor may seek an exemption from the requirements of this chapter upon demonstrating that strict application of the requirements would cause undue hardship.

(1) An "undue hardship" shall be found in:
(A) Situations unique to the food vendor where a suitable alternative does not exist for a specific application; or
(B) Situations where no reasonable feasible available alternative exists to a specific and necessary container prohibited by this chapter.

(2) The application process for exemption shall be as follows:
(A) The food vendor seeking an exemption shall submit a written exemption request to the San Mateo County Director of Environmental Health.
(B) A written exemption request shall include all information and documentation necessary for the San Mateo County Director of Environmental Health to make a finding that imposition of this chapter would cause an undue hardship as described above.
(C) The San Mateo County Director of Environmental Health may require the applicant to provide additional information in order to make a determination regarding the exemption application.

(D) Exemption decisions are effective immediately and are final and not subject to appeal.

(E) The San Mateo County Director of Environmental Health may grant an exemption for a period of up to one year upon a finding that the food vendor seeking the exemption has demonstrated that strict application of the specific requirement would cause undue hardship as defined above.

(3) If a food vendor granted an exemption wishes to have the exemption extended, it must re-apply for the exemption prior to the expiration of the one-year exemption period and demonstrate continued undue hardship. Extensions may be granted for intervals not to exceed one year. (Ord. 2013-6 § 1)

In addition to the City's enforcement mechanisms set forth in Title 1 of the municipal code, the City has authorized the County of San Mateo's Environmental Health Division to enforce chapter 5.89 of the municipal code, including, without limitation, the authority to act on requests for undue hardship exemptions, hold hearings, issue administrative fines and retain collected fines. (Ord. 2013-6 § 1).

Regarding outreach efforts for this Ordinance, the City used the following mechanisms:

- Town Hall meetings
- Articles published in HOA newsletters
- Social media outreach (e.g., San Mateo Patch, Facebook)
- Personal outreach to business owners (making the effort to provide information in the languages spoken by the business owners)
- Hot line for questions.

Public Education and Outreach Programs

The City participates in Countywide public outreach programs, as well as conducting City-specific measures.

Actions Initiated Prior to December 2009
• SMCWPPP Public Information and Participation Program (Countywide). Through participation and funding of the San Mateo Countywide Water Pollution Prevention Program's (SMCWPPP) Public Information and Participation program (PIP), the City of San Mateo plans to continue implementing litter reduction outreach to school-age children and youth. SMCWPPP currently oversees a contract to provide direct outreach to grades K-5 in a school setting on behalf of all permittees. The contract is currently held by the Banana Slug String Band, which performs a presentation called "We All Live Downstream." Through songs and interactive exercises, the message of not putting anything in the storm drains (including trash) is delivered, along with basic concepts of the water cycle and the impact of pollution on aquatic life. In addition, SMCWPPP has developed a presentation entitled "Water Pollution Prevention: Problems and Solutions that is delivered to high school students. This presentation is dedicated to watershed and storm drain education, and the impact of litter on local creeks and waterways. Both efforts are managed to ensure that schools in each community in the County are reached. For communities without High Schools, the feeder schools in neighboring communities are specifically targeted for presentations. In addition to outreach at the school sites, a number of student activity guides and coloring books related to watershed health and littering are provided to children who attend outreach events. Schools are also directly targeted in promotion of Coastal Cleanup Day. PIP also participates in a regional anti-littering campaign developed by BASMAA targeted at youth ages 14 to 24. As acting chair of the BASMAA PIP committee, SMCWPPP PIP has participated in the development and dissemination of campaign materials, and has conducted local events on behalf of all jurisdictions to promote the campaign. The campaign, entitled "Be The Street

You Want to See", will soon transition from building a community of youth dedicated to not littering to engaging that community in action.

- SMCWPPP, through its PIP program, plans to continue to conduct community outreach events on behalf of Permittees who request support. Outreach materials related to litter that are distributed include, in addition to the children's materials listed above under Outreach to School-age Children or Youth, a promotional sign for cigarette smokers to discourage cigarette litter, and pocket ashtrays are given out. A general stormwater pollution prevention flyer in English and Spanish that includes litter reduction in its messaging is distributed. In addition to table outreach events conducted for specific Permittees, PIP also conducts a Countywide Event aimed to reach residents from throughout the County. PIP manages an online calendar which promotes cleanup events by non-profit organizations throughout the County.
- Coastal Cleanup Day Promotion (Countywide). On the countywide level, SMCWPPP also conducts annual press releases for Coastal Cleanup Day, and uses Twitter to promote cleanup events. These releases are intended to gain support and assistance for cleanup events conducted each September in local water bodies.

Actions Initiated after December 2009 prior to July 2014

- In FY 2012, PIP completed its 7th year acting as the county coordinator for Coastal Cleanup Day, increasing volunteer participation by 400% in that time, and trash removal increased by 300%. During the term of the MRP, new outreach materials have been disseminated to the public, including reusable shopping bags to encourage reduction in use of plastic carryout bags PIP has supported a countywide ban on carryout bags that began implementation on April 22, 2013. In addition, spring cleanups taking place in individual jurisdictions are promoted under one theme by PIP, entitled Spring Cleaning SMC. PIP assists in directing volunteers to cleanup events in their communities. SMCWPPP conducted a total of 11 outreach events on behalf of various jurisdictions within the County in the 2012-13 fiscal year (FY). SMCWPPP will also continue maintaining an online calendar of cleanups on a monthly basis. In addition to using the SMCWPPP website, www.flowstobay.org , to promote cleanups, PIP is actively involved in social media platforms such as Facebook, Twitter, YouTube, and Instagram to deliver anti-littering and cleanup messages.
- BASMAA Regional Media Relations Project (Regional). Through participation and funding of the BASMAA Regional Media Relations Project, the City of San Mateo is continuing to implement a media relations project partially designed to reduce littering from target audiences in the Bay Area. The goal of the BASMAA Media Relations Project is to generate media coverage that encourages individuals to adopt behavior changes to prevent water pollution, including littering. At least two press releases or PSAs focus on litter issues each year (e.g., creek clean-up activities, preventing litter by using reusable containers, etc.). In FY 2012-13, the Media Relations project developed a press release new and recent bag bans in cities around the region. The pitch included information on the litter caused by plastic bags. Information ran on KBAY, KCBS and on eight Bay Area Patch.com sites.
- Local Program. In addition to the Countywide efforts described in the Public Information and Outreach Section of the SMCWPPP FY 2012-13 Annual Report, the City participated in various other public education and outreach activities in FY 2012-13. These activities are described in Section C.7 of this report, and included:
    - California Coastal Cleanup Day in San Mateo County
    - San Mateo County Fair booth
    - Bayfront Cleanup
- <u>BASMAA Youth Outreach Campaign (Regional).</u> Through participation and funding of the regional BASMAA Youth Outreach Campaign, the City is implementing an outreach campaign designed to reduce littering from the target audience in the Bay Area. The Youth Outreach Campaign was launched in September 2011 and aims to increase the awareness of Bay Area Youth (ages 16-24) on litter and stormwater pollution issues, and eventually change their littering behaviors. Combining the ideas of Community Based Social Marketing with traditional advertising, the Youth Campaign aims to engage youth to enable the peer-to-peer distribution of Campaign messages. The Campaign will at least run through FY 2013-14. A brief description of the Campaign activities is provided below:

  Raising Awareness: The Campaign is raising awareness of the target audience on litter and stormwater pollution issues. Partnerships with youth commissions, high schools, and other youth

focused organizations have been developed to reach the target audience. Messages targeted to youth have been created and distributed via paid advertising, email marketing, Campaign website and social networking sites (e.g., Facebook and Twitter).

Engage the Youth: The advertisements encourage the audience to participate in the Youth Campaign by joining a Facebook page, entering a contest, taking an online quiz, etc., and providing their contact information. At the beginning of FY 2012-13, a video contest was launched to get Bay Area youth further involved in the Campaign. An online voting system was used to select the winning entry. Media advertising was conducted to promote the winning entry.

Change Behaviors: To move the audience along the behavior change continuum, the Campaign is using electronic platforms such as email marketing and social networking sites to encourage participants to engage in increasingly more difficult behavior changes, such as participating in a clean-up, organizing a clean-up, etc.

Maintain Engagement: The Campaign continues to interact with the target audience through email marketing and social media websites.

The Youth Campaign includes a pre and post campaign survey to evaluate the effectiveness of outreach. The pre-campaign survey was conducted in FY 2011-12 and the post campaign survey will begin in FY 2013-14. Other evaluation mechanisms, such as website hits, number of youth engaged in the Campaign's social networking website, etc. are also being used to evaluate its effectiveness in increasing awareness and changing behavior.

Activities in FY 2012-13 included maintaining the website www.BetheStreet.org, Facebook page, and Instagram account. A video contest asking participants to submit their best anti-litter video was also conducted. The "Be the Street" campaign received 52 entries in response to the contest. The winning video was promoted on television, Pandora (online music site), YouTube, Google, and Facebook.

In addition to the Countywide efforts the City participates in various other public education and outreach activities as discussed in other sections of this Plan:

- Downtown Cleanup
- Earth Day at CuriOdyssey
- Marina Lagoon Cleanup

Actions Planned July 2014 – July 2022

- The City would like to expand Public Outreach and Education through the exploration of bill stuffers, printing brief, pointed messages on garbage bills, creating an outreach pamphlet, holding neighborhood workshops (as necessary) regarding street sweeping, downtown banners, and social media avenues. These efforts shall begin in 2014.

3.2.7 Creek and Shoreline Hot Spot Cleanups

There are three hotspots in the City of San Mateo, based on MRP guidelines to cleanup selected Trash Hot Spots to a level of "no visual impact" at least one time per year for the term of the MRP. Trash Hot Spots shall be at least 100 yards of creek length or 200 yards of shoreline length.

The City of San Mateo's three hot spots are described below and are labeled in Figure 5, Figure 6, and Figure 7. Details from the last three years of cleanup activities are provided in Table 8.

SMO01 – A public area located at the mouth of San Mateo Creek, within the San Mateo Shoreline Parks. The cleanup area begins at the street crossing J. Hart Clinton Drive, extending downstream under the Bay Trail pedestrian bridge to the interface with San Francisco Bay. This site is addressed through Coastal Cleanup Day and regular Parks Division Maintenance.

SMO02 – A public area located on San Mateo Creek at Gateway Park between East 3rd Avenue and 2nd Avenue. The cleanup area begins upstream of the pedestrian bridge and extends downstream to the East 3rd Avenue bridge. This location was selected based on a pilot study to

evaluate trash sources and control measures at an in-stream trash accumulation area in San Mateo County (STOPPP 2005). This site is addressed through Coastal Cleanup Day and regular Parks Division Maintenance.

SMO03 – A public area located on San Mateo Creek adjacent to the Caltrain San Mateo Station, between North B Street and Railroad Avenue. The cleanup area begins near the exit of Darcy's tunnel (channels creek beneath downtown San Mateo), and extends downstream under the pedestrian bridge, the Caltrain railway and Railroad Avenue Bridges. This location was selected based on a unified stream assessment in six watersheds in San Mateo County (SMCWPPP 2007) and the FY 2007-08 Trash Assessments in Urban Creeks in San Mateo County (SMCWPPP 2008). This site is addressed through Coastal Cleanup Day and periodic removal of homeless camp debris.

Table 8. City of San Mateo Trash Hot Spot Assessments

Trash Hot Spot	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 of Trash	Trash Sources (where possible)
SMO01	2.10	0.3	2	Bottles (plastic or glass), Plastic Bags, Other plastic products, Glass pieces, Convenience/ Fast Food items	Trash accumulation, Litter
SMO02	0.95	0.1	2	Bottles (plastic or glass), Other plastic products, Cigarette butts, Plastic Bags, Convenience/Fast Food items, Wood debris, Appliances	Trash accumulation, Litter
SMO03	2.69	1.7	10	Plastic Bags, Bottles (plastic or glass), Cigarette butts, Paper and cardboard, Fabric and cloth, Mattresses, Furniture, Appliances	Trash accumulation, Litter, Illegal dumping, Homeless encampments
TOTALS	**5.74**	**2.1**	**14**		

Previous, current and planned activities for creek and shoreline hot spot cleanups are described below.

Actions Initiated Prior to December 2009

- 2013 marked the 29th Annual Bayfront cleanup. Volunteers picked up debris and litter along the Bayfront Trail, Marina Lagoon, and Tidelands Park. Bayfront Cleanup (Coastal Cleanup Day), 9/15/13, at Ryder Park in San Mateo. The City encourages more volunteers through enhanced advertising. Bayfront Cleanup (Coastal Cleanup Day), 9/15/13, at Ryder Park in San Mateo. This was a local event coinciding with a statewide event. Promoted through websites, email blast, flyers posted at all City facilities and many neighborhood businesses, newspaper and radio ads as well as TV coverage at the event. Trash removal event with a wide range of participants of all age groups. Volunteers picked up trash along the Bayfront & further upstream in San Mateo Creek. Estimated overall attendance was 997 with all 997 through the booth. Close to 1,000 lbs of recycling and approximately 4,900 lbs of trash was removed.

Actions Initiated after December 2009 prior to July 2014

- Evaluating participation in National River Cleanup Day – May 2014.
- The City is working to encourage more volunteers through enhanced advertising.
- Earth Day at CuriOdyssey, 4/21/13, included an organized beach cleanup at Coyote Point Museum in San Mateo. 1,000 gallons of litter was picked-up during this event.

- The City organized a Marina Lagoon Cleanup, 4/27/13 at the Marina Lagoon between San Mateo and Foster City. This event was promoted through HOA newsletters, website, and email blast. This event included residents who live along Marina Lagoon. There were 40 volunteers/residents who removed 3 cubic yards of trash.

Actions Planned July 2014 – July 2022

- The City plans to continue to hold the previous on-land cleanup events. Future events may include a cigarette butt collection contest and the City may look into trying to find corporate sponsors to help advertise and complete events.

3.2.8 Summary of Trash Control Measures

It is believed that the control measures described above, over time, will appropriately achieve the "full" trash reduction level in each management area. The highlights of the activities for each trash management area are provided below.

Trash Management Area 1

- Full-Capture Treatment Devices – evaluated locations, increased maintenance, installed 90 devices.
- Street-sweeping – signed some areas, sweeping 3x/week, evaluation of more signage, higher frequency, put sweeping schedule on website, reviewing schedules
- On-land cleanups – Hot spot SMO03 cleanup, organized downtown cleanups, blowing sidewalks, outreach to public for cleanups
- Improved bin/container management – retrofitting existing bins with dual-stream lids, revising bin locations, mapping bins locations, implementing liner replacement program, cigarette butt receptacle pilot study, rain-bonnets for City bins
- Anti-littering and illegal dumping enforcement activities – cigarette butt receptacle pilot studies, Keep San Mateo Beautiful program

Trash Management Area 2

- Full-Capture Treatment Devices – evaluated locations, increased maintenance, installed 7 devices, evaluating additional locations for installation.
- Street-sweeping – sweeping every other week, evaluation of signage, higher frequency, put sweeping schedule on website, reviewing schedules
- On-land cleanups – Continue to clean medians and sound walls, explore opportunities for groups to perform on-land trash cleanups, coordinate with CalTrans on cleanup of trash at the interface of City/Caltrans jurisdiction
- Improved bin/container management – coordinating with SamTrans on bins at bus stops

Trash Management Area 3

- Full-Capture Treatment Devices – evaluated locations, increased maintenance, installed 39 devices, evaluating additional locations for installation.
- Street-sweeping – sweeping 2x/month, evaluation of signage, higher frequency, put sweeping schedule on website, reviewing schedules
- On-land cleanups – Hot spot cleanup, advertising cleanup events, consider corporate sponsors, consider cigarette butt collection contests.

- Improved bin/container management – retrofitting City bins with dual-stream lids, developing liner replacement program for City cans, adding rain-bonnets to City bins

Trash Management Area 4A

- Full-Capture Treatment Devices – evaluated locations, increased maintenance, installed 1 device, evaluating additional locations for installation.
- Public outreach and education to school age children and the community at large.

Trash Management Area 4B

- Full-Capture Treatment Devices – evaluated locations, increased maintenance, installed 3 devices and 1 wet detention basin, evaluating additional locations for installation.
- On-land cleanups – Hot spot SMO01 cleanup, cleaning frequently, adding cleaning/staff as new parks are developed.
- Improved bin/container management – emptying daily, installing new bins in new parks, purchased covered debris boxes for Corporation Yard, bring in special bins for special events at parks, evaluating vault-style bin at outlying parks.

Trash Management Area 5

- Full-Capture Treatment Devices – evaluated locations, increased maintenance, installed 6 devices, evaluating additional locations for installation.
- Street-sweeping – sweeping 2x/month, evaluation of signage, higher frequency, put sweeping schedule on website, reviewing schedules
- On-land cleanups – Earth Day beach cleanup, evaluation of additional cleanup locations.

3.3 CONTROL MEASURE IMPLEMENTATION SCHEDULE

Some trash control measures are already underway, some are planned for the near-term, some are planned for the longer-term, and some are planned for evaluation before implementation. Table 9 provides a matrix of the timeline for control measures in each TMA, the jurisdiction-wide controls, and the creek and shoreline hotspot cleanups.

Table 9. City of San Mateo Trash Control Measure Implementation Schedule

Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14[a]	FY 2014-15	FY 2015-16	FY 2016-17[b]	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22[c]
TMA #1														
Full-Capture Treatment Device		X	X	X	X	X								
Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Improved Bin/Container Management						X	X	X	X	X	X	X	X	X
On-land Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Anti-littering/Illegal Dumping Enforcement		X	X	X	X	X	X	X	X	X	X	X	X	X
TMA #2														
Full-Capture Treatment Device		X	X	X	X	X	X	X						
Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Improved Bin/Container Management						X	X	X	X					
On-land Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TMA #3														
Full-Capture Treatment Device		X	X	X	X	X				X	X			
Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Improved Bin/Container Management						X	X	X	X	X	X	X	X	X
On-land Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TMA #4A														
Full-Capture Treatment Device		X	X	X	X	X						X	X	X
Public Education/Outreach	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TMA #4B														
Full-Capture Treatment Device		X	X	X	X	X						X	X	X
Improved Bin/Container Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X
On-land Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-10	FY 2010-11	FY 2011-12	FY 2012-13	FY 2013-14[a]	FY 2014-15	FY 2015-16	FY 2016-17[b]	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22[c]
TMA #5														
Full-Capture Treatment Device		X	X	X	X	X						X	X	
Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
On-land Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Jurisdiction-wide Control Measures														
Improved Bin/Container Management	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Anti-littering/Illegal Dumping Enforcement	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Covered loads	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Single-use Plastic Bag Ban					X									
Polystyrene Ban					X									
Public Education/Outreach	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Creek and Shoreline Hot Spot Cleanups														
Annual Cleanups		X	X	X	X	X	X	X	X	X	X	X	X	X
Enhanced Cleanups							X	X	X	X	X	X	X	X

[a]July 1, 2014 - 40% trash reduction target
[b]July 1, 2017 - 70% trash reduction target
[c]July 1, 2022 – "no impact" 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, Regional 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 Regional 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 Regional Water Board. The Strategy is specific to Permittees participating in the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), including the City of San Mateo. 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 San Mateo.

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 Regional 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 San Mateo 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 San Mateo 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 Regional 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, moderate 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 10.

Table 10. 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 San Mateo 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 Regional Water Board. The City of San Mateo 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 San Mateo 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, 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 ADDITIONAL PROGRESS ASSESSMENTS

The City of San Mateo has already begun implementing a few additional progress assessments for monitoring trash load reduction. Information on the loads collected by street sweepers was historically collected. It was decided to begin collecting this information again to use as one tool to assess how much trash is being gathered by the sweepers and also as a tool to assess whether as much trash is being found on the streets. Additionally, the Parks Department has been collecting information on tons of trash removed from the City's parks each quarter (as summarized in

Table 7). This data can be used to assess changes in trash loads in the parks. Finally, the City is considering implementing a “cigarette butt collection contest” as part of the on-land cleanups at the City’s hot spots. This information would be useful in tracking cigarette butt control measures such as devoted butt receptacles and proposed bans on smoking and/or use of plastic filters on cigarettes.

4.4 LONG-TERM ASSESSMENT STRATEGY

The City of San Mateo 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 Regional Water Board with the FY 2015-16 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.

4.5 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 11. 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 11. City of San Mateo 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					
Additional Assessments (City of San Mateo)										
Sweeper Load Data Collection	X	X	X	X	X	X	X	X	X	X
Park Trash Removal Data Collection	X	X	X	X	X	X	X	X	X	X
Cigarette Butt Collection Contest(s)			X	X	X	X				
Long-Term Trash Assessment Strategy (SMCWPPP)						X	X	X	X	X

[a]July 1, 2014 - 40% trash reduction target
[b]July 1, 2017 - 70% trash reduction target
[c]July 1, 2022 - 100% trash reduction target

5.0 References

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

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

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

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

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

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

ABAG (Association of Bay Area Governments). 2005. Bay Area Land Use Geographical Information Systems Datalayer.

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

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

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

BASMAA (Bay Area Stormwater Management Agencies Association). 2012. Trash Baseline Generation Rates: Technical Report. Prepared by EOA, Inc. February 1, 2012.

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

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

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

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

Lippner, G., R. Churchwell, R. Allison, G. Moeller, and J. Johnston 2001. A Scientific Approach to Evaluating Storm Water Best Management Practices for Litter. Transportation Research Record. TTR 1743, 10-15.

SMCWPPP (San Mateo Countywide Water Pollution Prevention Program). Unified Stream Assessment in Six Watersheds in San Mateo County, California. 2007. August.

SMCWPPP (San Mateo Countywide Water Pollution Prevention Program). 2008. FY 2007-08 Trash Assessment in Urban Creeks in San Mateo County, California. Prepared for the San Mateo Countywide Water Pollution Prevention Program by EOA, Inc., 1410 Jackson St., Oakland, CA. August.

SMCWPPP (San Mateo Countywide Water Pollution Prevention Program). 2014. Pilot Trash Assessment Strategy. Prepared by EOA. February 1.

STOPPP. (San Mateo Countywide Stormwater Pollution Prevention Program). 2005. Pilot Study to Identify Trash Sources and Management Measures at an In-stream Trash Accumulation Area. San Mateo County, California.