

Long-Term Trash Load Reduction Plan and Assessment Strategy

Submitted by:



The City of Daly City
333 90th Street
Daly City, CA 94015-1808

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

January 28, 2014

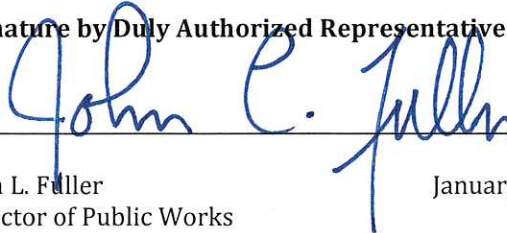
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**THE CITY OF DALY CITY
LONG-TERM TRASH LOAD REDUCTION PLAN AND
ASSESSMENT STRATEGY**

CERTIFICATION STATEMENT

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

Signature by Duly Authorized Representative:



John L. Fuller
Director of Public Works

January 28, 2014

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ABBREVIATIONS

ABAG	Association of Bay Area Governments
BASMAA	Bay Area Stormwater Management Agencies Association
BID	Business Improvement District
CalRecycle	California Department of Resources Recycling and Recovery
Caltrans	California Department of Transportation
CASQA	California Stormwater Quality Association
CDS	Continuous Deflection Separator
CEQA	California Environmental Quality Act
CY	Cubic Yards
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
GIS	Geographic Information System
GSRD	Gross Solids Removal Device
MRP	Municipal Regional Stormwater NPDES Permit
MS4	Municipal Separate Storm Sewer System
NGO	Non-Governmental Organization
NPDES	National Pollutant Discharge Elimination System
Q	Flow
SFRWQCB	San Francisco Regional Water Quality Control Board
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SWRCB	State Water Resource Control Board
TMDL	Total Maximum Daily Load
USEPA	United States Environmental Protection Agency
Water Board	San Francisco Regional Water Quality Control Board
WDR	Waste Discharge Requirements

PREFACE

This Long-Term Trash Load Reduction Plan and Assessment Strategy (Long-Term Plan) is submitted in compliance with provision C.10.c of the Municipal Regional Stormwater NPDES Permit (MRP) for Phase I communities in the San Francisco Bay (Order R2-2009-0074). The Long-Term Plan was developed using a regionally consistent outline and guidance developed by the Bay Area Stormwater Management Agencies Association (BASMAA) and reviewed by San Francisco Bay Regional Water Quality Control Board staff. The Long-Term Plan is consistent with the Long-Term Trash Load Reduction Framework developed in collaboration with Water Board staff. Its content is based on The City of Daly City'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 Daly City therefore reserves the right to revise or amend this Long-Term Plan at its discretion. If significant revisions or amendments are made by the City, a revised Long-Term Plan will be submitted to the Water Board through the City's annual reporting process.

1.0 INTRODUCTION

1.1 Purpose of Long-Term Trash Reduction Plan

The Municipal Regional Stormwater National Pollutant Discharge Elimination System (NPDES) Permit for Phase I communities in the San Francisco Bay (Order R2-2009-0074), also known as the Municipal Regional Permit (MRP), became effective on December 1, 2009. The MRP applies to 76 large, medium and small municipalities (cities, towns and counties) and flood control agencies in the San Francisco Bay Region, collectively referred to as Permittees. Provision C.10.c of the MRP requires Permittees to submit a *Long-Term Trash Load Reduction Plan* (Long-Term Plan) by February 1, 2014. Long-Term Plans must describe control measures that are currently being implemented, including the level of implementation, and additional control measures that will be implemented and/or increased level of implementation designed to attain a 70% trash load reduction by July 1, 2017, and 100% (i.e., “No Visual Impact”) by July 1, 2022.

This Long-Term Plan is submitted by The City of Daly City 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 Daly City’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 (Water Board) staff. The Long-Term Plan is consistent with the Long-Term Trash Load Reduction Framework (see section 1.2.1) developed in collaboration with Water Board staff. Its content is based on Daly City’s current understanding of trash problems within its jurisdiction and the effectiveness of control measures designed to reduce trash impacts associated with Municipal Separate Storm Sewer (MS4) discharges. The Long-Term Plan builds upon trash control measures implemented by the City prior to the adoption of the MRP and during the implementation of the Short-Term Trash Load Reduction Plan submitted to the Water Board on February 1, 2012.

1.2 Background

1.2.1 Long-Term Trash Load Reduction Plan Framework

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

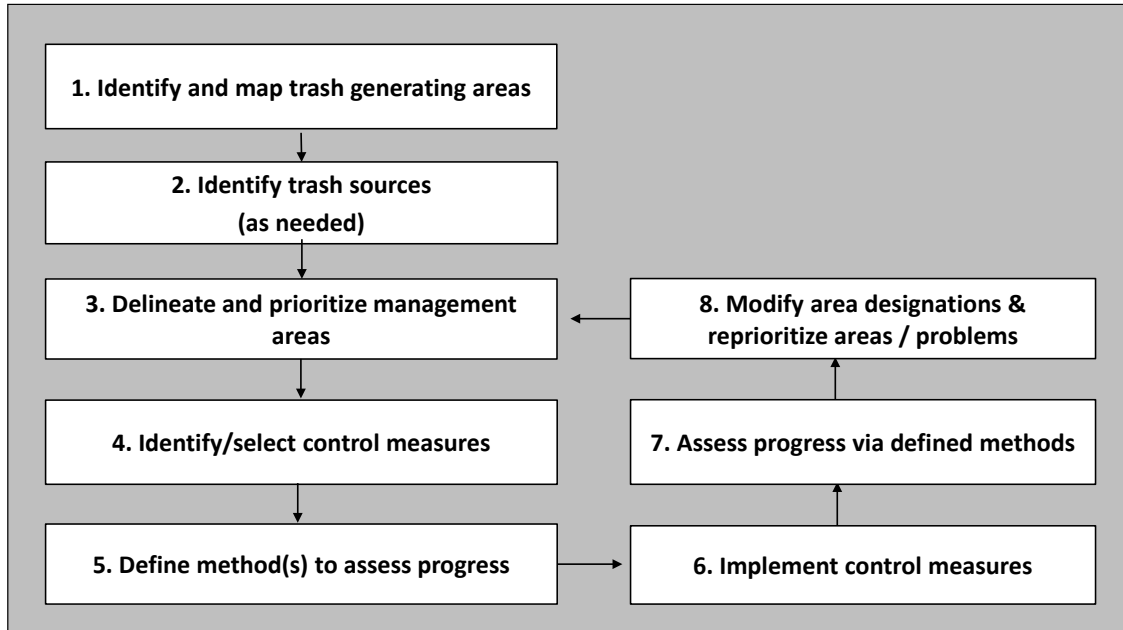


Figure 1. Eight-step framework for developing, implementing and refining Long-Term Trash Reduction Plans.

The workgroup agreed that as the first step in the framework, Permittees would identify very high, high, 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. Permittees would then use local knowledge and field and/or desktop assessments to confirm or refine the level of trash generation for specific areas within their jurisdiction. Each Permittee would then develop a map depicting trash generation categories within their jurisdiction.

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

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

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

1.2.2 BASMAA Generation Rates Project

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

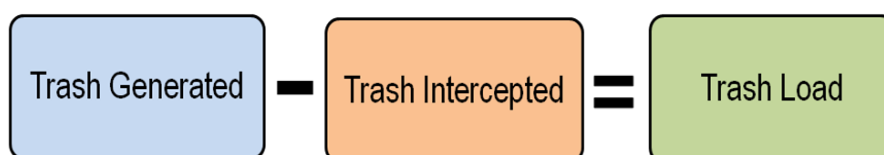


Figure 2. Conceptual model of trash generation, interception and load.

Trash generation rates were estimated based on factors that significantly affect trash generation (i.e., land use and income). The method used to 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 Water Board-recognized full-capture treatment devices installed in the San Francisco Bay area. Trash generation rates estimated from this study are listed for each land use type in **Table 1**. Methods used to develop trash generation rates are more fully described in BASMAA (2011b, 2011c, and 2012).

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

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

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

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

1.2.3 Short-Term Trash Load Reduction Plan

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

- **Existing Enhanced Street Sweeping** (Pre-MRP) – Citywide To-the-curb street sweeping has been in effect since Winter 2007. Sweeping trucks have been equipped with onboard cameras and GPS during the MRP period to identify trash hotspots in order to optimize service.
- **On-Land Trash Cleanups** – The City has increased the use of outside work crews to augment city street maintenance staff to clear the public rights-of-way and city parks of trash.
- **Single-Use Carryout Plastic Bag Ordinance** – Restricted the distribution of single-use plastic bags effective April 22, 2013.
- **Polystyrene Foam Food Service Ware Ordinance** – Adopted by City Council on August 13, 2012.
- **Public Education and Outreach Programs** (Pre-MRP) – Continued involvement with SMCWPPP Public Information and Participation Program. The City hosts Make a Difference Day which includes one or more trash cleanup projects. During the MRP, The City launched Daly City iHelp to enable the public to report trash and illegal dumping via smartphone app, The City's website, or voicemail. City Hall serves as a site for eWaste and Household Hazardous Waste collection several times a year.
- **Reduction of Trash from Uncovered Loads** – The City continues to enforce its effective pre-MRP contract agreements with trash haulers and independent debris box firms which may revoke business licenses in cases of non-compliance.
- **Anti-Littering and Illegal Dumping Enforcement** – The City continues to enforce its Pre-MRP illegal dumping ordinance. Allied Waste Services continues to haul illegally dumped items within 48 hours of reporting.
- **Improved Trash Bin/Container Management Activities** – Allied Waste Services continues haul trash and illegal dumping around trash bins and containers within 48 hours

of reporting. The City installed five trash and five recycling “Big Belly Solar” containers in various high trash generation areas.

- **Enhanced Storm Drain Inlet Maintenance** (Pre-MRP) – The City continues to maintain and add “Drains to Bay/Ocean” markings near catch basin inlets.
- **Improved Trash Bin/Container Management**
- **Partial-Capture Treatment Device** (Pre-MRP) – Debris removal from the Vista Grande Canal trash capture grate continues
- **Full-Capture Treatment Devices on Private Development/Redevelopment** – The City has required full-capture treatment devices during the planning process where applicable on commercial development/redevelopment projects.
- **Creek and Shoreline Cleanups** – Trash and debris continue to be removed from its three hotspots. The City has hosted or cohosted a Coastal Cleanup Day event at Thornton Beach since 2005. Volunteer groups hold annual events (e.g. Earth Day and Coastal Cleanup Day) to clean the shoreline.

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

1.3 Organization of Long-Term Plan

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

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

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

2.0 SCOPE OF THE TRASH PROBLEM

2.1 Permittee Characteristics

Incorporated in 1911, the City of Daly City is located in the northwest corner of San Mateo County. It has an area of 7.66 square miles (4,902 acres). The City has a population of 101,123, with age distribution shown in Figure 3. Its population density of 13,194 people per square mile made Daly City the twelfth most densely populated city of all cities in California (2000 Census)¹. The average household size is 3.23 with a median household income of \$68,365. Daly City can be described as a classic bedroom suburb with 83% of its workforce working outside of the city or South San Francisco (CA EDD 2010). Nearly half of the workforce (51%) works in San Francisco and 32% work in other Bay Area communities.

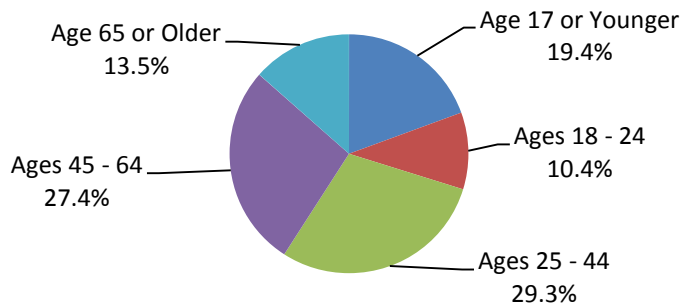


Figure 3. Age Distribution for the City of Daly City (2010 Census).

Major economic sectors within Daly City are medical services, education, retail, and local government services. Seton Medical Center, school districts (Jefferson Union High School District and Jefferson Elementary School District), all retailers in Serramonte Shopping Center taken together, and The City of Daly City are the largest employers in the city. There is minimal industrial sector activity within the city.

Daly City, known as the “Gateway to the Peninsula”, has an interstate freeway and three state highways running within the city limit. Interstate 280, State Highway 1, and State Highway 35 pose significant trash reduction challenges due to high trash generation rates and coordinating maintenance efforts with CalTRANS.

Land uses within Daly City given in ABAG (2005) are provided in Table 2. Daly City is primarily comprised of six land uses. These land uses include Residential, Retail, and K-12 Schools. “Other” land uses are mainly Urban Open Space, Rangeland, and Highways.

¹ For incorporated places with a population density over 10,000 people per square mile according to the 2000 Census, the last census these figures were compiled.

Table 2. Percentages of Daly City's jurisdictional area² within land use classes identified by ABAG (2005)

Land Use Category	Jurisdictional Area (Acres)	% of Jurisdictional Area
Commercial and Services	172.8	4.3%
Industrial	69.0	1.7%
Residential	2265.3	57.0%
Retail	307.3	7.7%
K-12 Schools	298.6	7.5%
Urban Parks	68.7	1.7%
Other	793.6	20.0%

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

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

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

² 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).

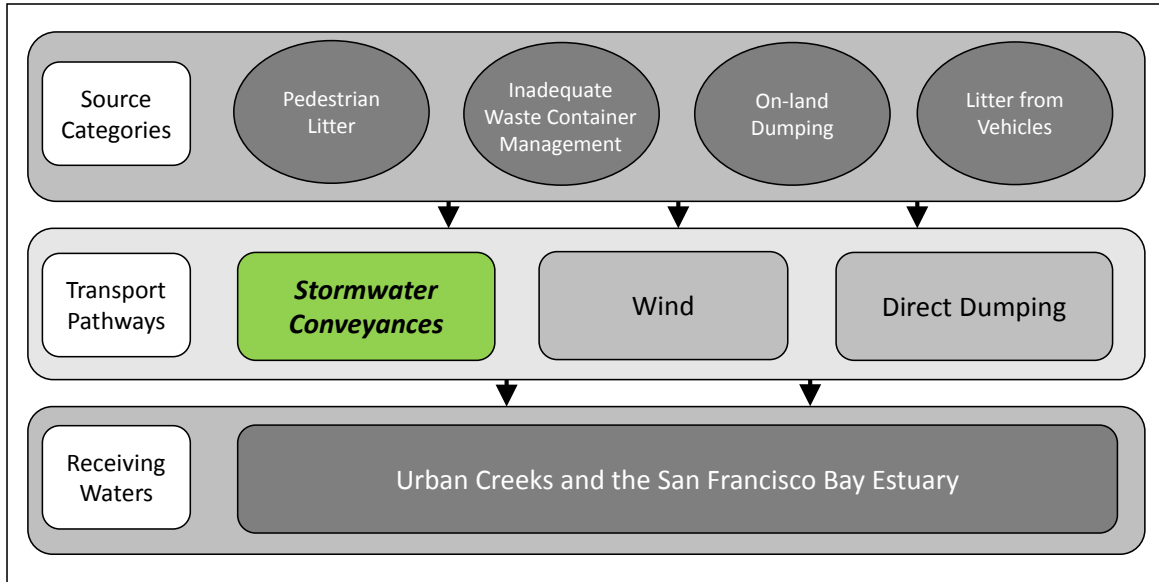


Figure 4. Trash sources categories and transport pathways to urban creeks.

Daly City has no open channels or urban creeks within its city limit. One section of the MS4 discharges into the Vista Grande Canal (shown in Figure 6) once it passes through a partial-capture grate at the city limit on its way to The Vista Grande stormwater tunnel out to the Fort Funston outfall. The canal is maintained by The City's street maintenance staff.

Shoreline cleanup is performed by a mixture of City staff and volunteers. Annual Coastal Cleanup Day of Thornton Beach in September has been a co-hosted event between the City and Bay Area Paragliders Association. The Paragliders have also run events to clean Avalon Canyon. Mussel Rock is maintained by City staff (it is city-owned land) and the volunteer Pacifica Beach Coalition has sponsored events on Coastal Cleanup Day and Earth Day. A large portion of volunteers are from local schools.

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 Daly City are described in this section and illustrated in Figure 5.

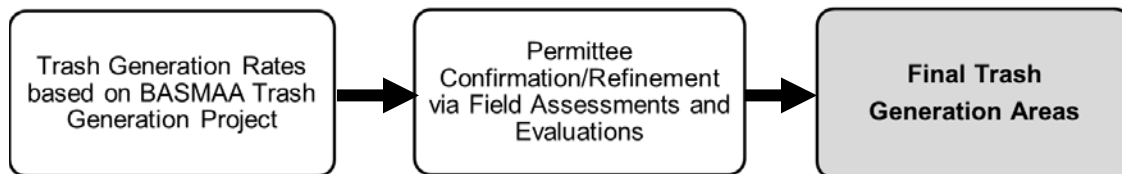


Figure 5. Trash generation area development process.

As a first step, trash generation rates developed through *the BASMAA Trash Generation Rates Project* were applied to parcels within The City of Daly City based on current land uses and 2010 household median incomes. A Draft Trash Generation Map was created as a result of this application. The draft map served as a starting point for The City of Daly 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 illustrated in Table 3.

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

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

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

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

a. On-Land Visual Assessments

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

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 or Members of the Public

City staff found instances in the original trash generation map where the map did not reflect rates that matched field observations. Although high density land use does correctly describe a senior mobile home park, staff theorized that the correct demographics were not applied. On-land assessment confirmed that this park should generate low levels of trash, not high levels.

Staff also suggested turning City Hall from a moderate trash generator (service land use) to low-level generator due to daily maintenance by the City's Parks maintenance staff.

- Based on assessments conducted to confirm/refine trash generation category designations, the City created a final trash generation map that depicts the most current understanding of trash generation within The City of Daly City. 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 Daly City's Final Trash Generation Map is included as Figure 6.

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.

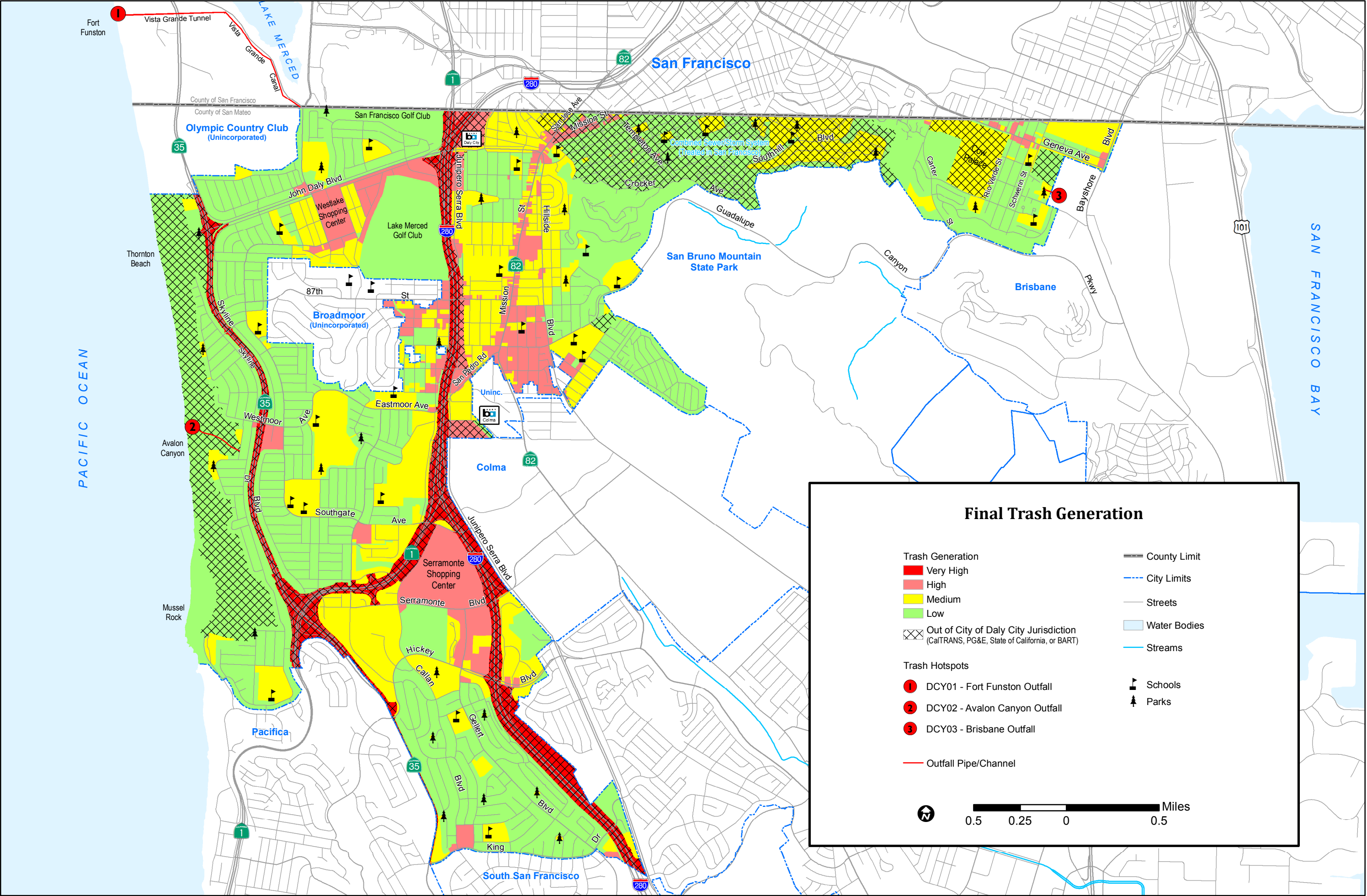


Figure 6 - Final Trash Generation Map for The City of Daly City

Table 5. Percentage of jurisdictional area within The City of Daly City assigned to each trash generation category.

Trash Generation Category	Commercial and Services	Industrial	Residential	Retail	K-12 Schools	Urban Parks	Other
Very High	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High	0.0%	0.0%	26.4%	73.6%	0.0%	0.0%	0.0%
Medium	17.0%	6.8%	40.0%	0.0%	29.4%	6.8%	0.0%
Low	0.0%	0.0%	68.6%	0.3%	0.0%	0.0%	31.1%

3.0 TRASH MANAGEMENT AREAS AND CONTROL MEASURES

This section describes the control measures that the City of Daly City has or plans to implement to solve trash problems and achieve a target of 100% (i.e. full) trash reduction from their MS4 by July 1, 2022. The selection of control measures described in this section is based on the City of Daly City's current understanding of trash problems within its jurisdiction and the effectiveness of control measures designed to reduce trash impacts associated with MS4 discharges. Information on the effectiveness of some trash control measures is currently lacking and therefore in the absence of this information, the City based its selection of control measures on existing effectiveness information, their experience in implementing trash controls and knowledge of trash problems, and costs of implementation. As knowledge is gained through the implementation of these control measures, the City may choose to refine their trash control strategy described in this section. If significant revisions or amendments are made, a revised Long-Term Plan will be submitted to the Water Board through the City of Daly City's annual reporting process.

3.1 Management Area Delineation and Prioritization

Consistent with the long-term plan framework, the City of Daly City delineated and prioritized trash management areas (TMAs) based on boundaries set by non-jurisdictional areas and the geographical distribution of trash generating areas. After these two considerations, current or planned control measure locations were taken into account. 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, or simply stated to "turn the map green". TMA prioritization was kept in mind during delineation for control measure implementation. Existing neighborhoods familiar to staff and the public are delimited by freeways and highways. Taking this into account, since trash rate generation is based on land use and demographics and neighborhoods are formed on similarities of these characteristics, delineating TMAs was a simple matter. City staff used the following procedure to designate TMAs:

- 1) City staff looked at non-jurisdictional areas and how they might possibly shape TMAs. Freeways and highways provide large buffer zones (120 ft. or greater) between potential TMAs. Interstate 280 cuts the city into western and eastern halves. Highway 1 cuts northwest from southwest. TMA #1 was determined to be west of Highway 35 (Figure 6) in the neighborhood traditionally known as "Skyline". The non-jurisdictional combined sewer/storm system cuts TMA #7 off from the rest of the city, the neighborhood known as "Bayshore". Both of these areas are mostly single-family Residences and "green".
- 2) The remaining areas were deemed too large to exist without dividing them further. City staff looked at the trash generation map and tried to group homogeneous areas together with prioritization in mind. If medium and high generating areas could be grouped together, they would become higher priority TMAs than areas that were mostly lower generating "green" TMAs. The minor arterial street Hillside Boulevard separates TMA #5, "Original Daly City" which contains commercial Mission St (Hwy 82) and high generating residential neighborhoods from TMA #6, "Hillside" a mostly green residential neighborhood with some moderate trash generating areas. Westmoor Avenue/Eastmoor Avenue separates the established St Francis neighborhood (TMA #3)

of single-family residences, four schools, and two neighborhood developments from TMA #2, “Westlake” which is a combination of the single-family homes, Westlake Shopping Center and nearby high density apartments, plus the Sullivan Corridor in the southeast (the most non-homogeneous area in the city) with almost all land uses.

- 3) For the last TMA, TMA #4 “Serramonte”, city staff chose not to split the area at Hickey Boulevard. The area south of Hickey Boulevard is mostly “green” residential area (with the exception of the neighborhood shopping center, King Plaza). Trash reduction efforts in this TMA will be concentrated in the regional shopping center, Serramonte Center, and the commercial strip Gellert Boulevard.

The decision was made to prioritize TMAs in terms of “greenness”, from least green as high priority to most green as low priority. Therefore, TMAs with the smallest percentages in the “Low” trash generating category are the highest priority.

A map depicting the City’s TMAs is included as Figure 7. 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 and priority are included in Table 6.

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

TMA	Jurisdictional Area (Acres)	Trash Generation Category				Priority
		Very High	High	Moderate	Low	
1	632.0	0.0%	0.1%	6.0%	93.9%	7
2	853.8	0.0%	12.5%	17.1%	70.4%	6
3	512.6	0.0%	3.1%	35.4%	61.5%	3
4	825.6	0.0%	16.7%	28.1%	55.3%	2
5	438.3	0.0%	29.4%	53.7%	16.9%	1
6	415.3	0.0%	1.7%	28.4%	69.9%	4
7	305.3	0.0%	3.3%	21.1%	75.6%	5

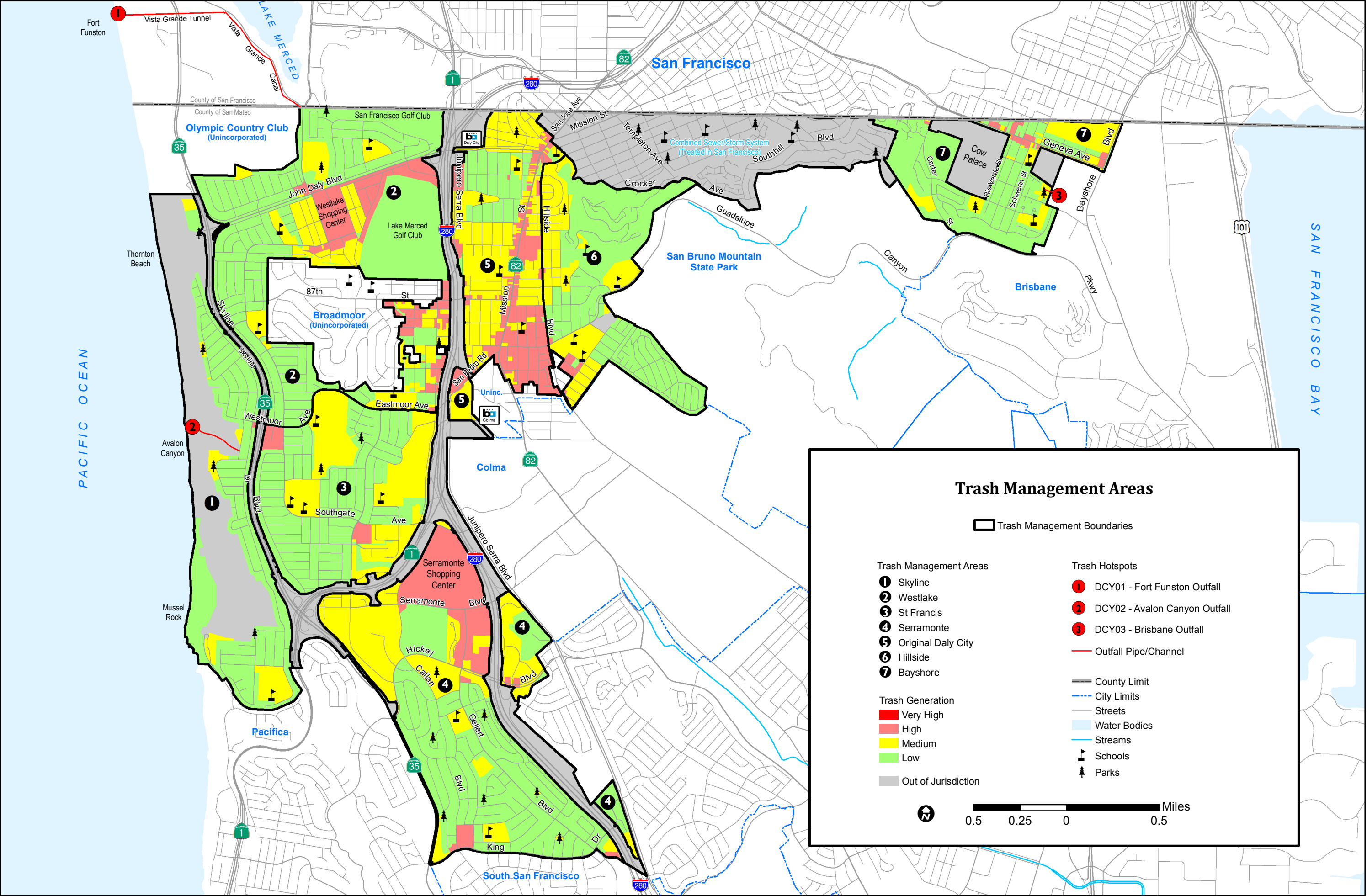


Figure 7 - TrashManagement Area Map for The City of Daly City

3.2 Current and Planned Trash Control Measures

Daly City currently employs trash control measures as described in the Short-Term Trash Load Reduction Plan (see previous section). Current control measures include:

- **Enhanced Street Sweeping** - Citywide To-the-curb street sweeping has been in effect since Winter 2007. Total length swept is 116 street centerline miles or 239 curb miles. “No Parking” enforcement continues to be provided by Daly City Police Assistants. Sweeping trucks have been equipped with onboard cameras and GPS during the MRP period to identify trash hotspots in order to optimize service into the long term (after July 1, 2014).
- **On-Land Trash Cleanups** – Currently, City staff directs outside work crews to keep the public rights-of-way and city parks clean. These work crews are provided by programs such as the San Mateo County Court Workers Program and The San Mateo County Sheriff’s Work Program. This labor is to offset the loss of city staff due to budget challenges faced by public agencies during the economic downturn of 2008. Pre-MRP, 2,200 hours were utilized. The current level of 7,500 hours before July 1, 2014 is projected to ramp up to 10,000 hours by 2016. Citizens have been reporting requests for litter removal using the “Citizens Service Request Page” (developed in-house) via The City’s website since the mid 2000’s. This webpage has been replaced by “Daly City iHelp” in April 2013, a hosted site in which citizens may report requests via smartphone app, the city’s website, or voicemail.
- **Single-Use Carryout Plastic Bag Ordinance**
- **Polystyrene Foam Food Service Ware Ordinance**
- **Public Education and Outreach Programs**
- **Reduction of Trash from Uncovered Loads**
- **Anti-Littering and Illegal Dumping Enforcement**
- **Improved Trash Bin/Container Management Activities** - The City installed five trash and five recycling “Big Belly Solar” containers in various high trash generation areas within the city. These are “smart”, self-compacting containers with sensors to ensure optimal service. Alerts are generated if a door is open or there are compaction issues so that the possibility of overflow is minimized. Management of these containers is aided with information accessible via website. Heat maps of all Big Belly Solar containers in the city showing collection frequency and volume may show the need to alter the collection schedule or locations where additional containers may be installed in the future.
- **Enhanced Storm Drain Inlet Maintenance** – Approximately 90% of all citywide storm inlets are marked with “Drains to Ocean/Bay” legends. All inlets are anticipated to be marked by July 1, 2014. Inlets are inspected and cleaned annually. Inlets determined to need more frequent cleaning through inspection and operations history may be cleaned prior to storm events.
- **Partial-Capture Treatment Device at Vista Grande Canal**
- **Full-capture Treatment Devices** – The installation of inlet filters in about 74 catch basins is planned prior to July 1, 2014. A total of 77 acres of high trash generation area are to be treated in two trash management areas. These devices are to be cleaned with vacuum

trucks) and a preliminary maintenance route has been mapped. Maintenance frequency is to be determined since this is the first full-capture project, although it is anticipated that maintenance will be more frequent around storm events.

- **Full-Capture Treatment Devices in Private Development/Redevelopment**
- **Large Full-Capture Treatment Device** – A large, linear radial gross solids removal device (GSRD) was planned to treat stormwater run-off from approximately 175 acres in the majority of Serramonte Shopping Center and neighboring commercial and residential areas. During the preliminary design, the project was deemed beyond budget in the short term. The project may be revisited if the budget situation improves and if grant funding opportunities become available in the future.
- **Creek and Shoreline Cleanups**

3.2.1 Trash Management Area #1 - Skyline

There are few trash problems in this TMA as it is 93% “green” and therefore it is the lowest priority TMA in the city. The City will continue to optimize existing services.

- **Enhanced Street Sweeping** – all streets have been swept to the curb one day a week since before the adoption of the MRP. This is equivalent to 10.0 miles of street centerlines or 17.1 curb miles. Sweeping trucks have been equipped with onboard cameras and GPS units during the MRP period (Summer 2013) to identify trash hotspots in order to optimize service into the long term (after July 1, 2014).
- **On-Land Trash Cleanups** – weekly trash routes driven by city street maintenance staff during the pre-MRP era have been gradually replaced by outside labor in areas as needed during the MRP era. The use of outside labor will increase after July 1, 2014. Citizens have become the city’s “eyes” by reporting cleanup requests. Reporting is expected to increase into the long term as more citizens become aware of Daly City iHelp.
- **Enhanced Storm Drain Inlet Maintenance** – along with routine maintenance, city staff marked 180 catch basins with “Flows to Bay/Ocean” legends prior to December 2009. These legends have been refreshed as needed after this date. The city plans to have an asset management system operational by Fall 2015. Data collected from work orders and service requests generated by this system will aid in optimizing maintenance schedules.

3.2.2 Trash Management Area #2 – Westlake

Large apartment complexes, Westlake Shopping Center, and the mixed-use Sullivan Avenue corridor are the largest trash challenges in this TMA. Aggressive street sweeping and on-land cleanup are employed to mitigate the problem. Bans on Plastic bags and polystyrene food containers have had a huge positive impact. Burlington Coat Factory had three full-capture devices installed when it was remodeled in 2011. The City may look into installing full-capture filter inserts in the future. The partial-capture treatment device continues to remove larger trash on its way to hot spot DCY01 at the Fort Funston outfall. This TMA is 70% “green”, which makes it a medium priority (fourth out of the seven TMAs).

- **Enhanced Street Sweeping** – all streets have been swept to the curb one day a week since before the adoption of the MRP. This is equivalent to 27.7 miles of street centerlines or 46.5 curb miles. Sweeping trucks have been equipped with onboard cameras and GPS units during the MRP period (Summer 2013) to identify trash hotspots in order to optimize service into the long term (after July 1, 2014).
- **On-Land Trash Cleanups** – weekly trash routes driven by city street maintenance staff during the pre-MRP era have been gradually replaced by outside labor in areas as needed during the MRP era. The use of outside labor will increase after July 1, 2014. Citizens have become the city’s “eyes” by reporting cleanup requests. Reporting is expected to increase into the long term as more citizens become aware of Daly City iHelp.
- **Partial-Capture Treatment Device** (installed Pre-MRP) – Debris removal from the Vista Grande Canal trash capture grate continues. The entire canal receives annual cleaning of vegetation, silt, and trash. The grate is inspected after every quarter-inch storm event and cleaned if necessary. No changes are planned in the future.
- **Enhanced Storm Drain Inlet Maintenance** – along with routine maintenance, city staff marked 590 catch basins with “Flows to Bay/Ocean” legends prior to December 2009. These legends have been refreshed as needed after this date. The city plans to have an asset management system operational by Fall 2015. Data collected from work orders and service requests generated by this system will aid in optimizing maintenance schedules.
- **Improved Trash Bin/Container Management Activities** - The City installed one trash and one recycling “Big Belly Solar” container in Westlake Park prior to July 1, 2014. The effectiveness of these containers is being evaluated and long-term deployment is pending.
- **Private Full-Capture Treatment Devices (MRP)** – Burlington Coat Factory (3 devices, 2.0 acres), CVS (6 devices, 1.1 acre treated). These filter insert devices were installed a condition of development/redevelopment and are required to be maintained by the property manager. There are no reporting requirements.

3.2.3 Trash Management Area #3 – St. Francis

Skyline Plaza and St Francis Square neighborhood shopping centers are the high trash generating areas of this TMA. These shopping center areas are small when compared to the medium trash-generating Westmoor High School, three elementary schools, and the medical services complex around Seton Medical Center. The City will continue to optimize services in TMA. Although this TMA is 62% “green”, most of the “non-green” area is moderate in trash generating. Its priority is third highest out of the seven TMAs.

- **Enhanced Street Sweeping** – all streets have been swept to the curb one day a week since before the adoption of the MRP. This is equivalent to 15.8 miles of street centerlines or 29.0 curb miles. Sweeping trucks have been equipped with onboard cameras and GPS units during the MRP period (Summer 2013) to identify trash hotspots in order to optimize service into the long term (after July 1, 2014).

- **On-Land Trash Cleanups** – weekly trash routes driven by city street maintenance staff during the pre-MRP era have been gradually replaced by outside labor in areas as needed during the MRP era. The use of outside labor will increase after July 1, 2014. Citizens have become the city’s “eyes” by reporting cleanup requests. Reporting is expected to increase into the long term as more citizens become aware of Daly City iHelp.
- **Enhanced Storm Drain Inlet Maintenance** – along with routine maintenance, city staff marked 300 catch basins with “Flows to Bay/Ocean” legends prior to December 2009. These legends have been refreshed as needed after this date. The city plans to have an asset management system operational by Fall 2015. Data collected from work orders and service requests generated by this system will aid in optimizing maintenance schedules.

3.2.4 Trash Management Area #4 – Serramonte

The Serramonte TMA is 55% “green”. The non-“green” areas are split mainly between high trash generating Serramonte Shopping Center (regional), commercial strip along Gellert Blvd (including Gellert Marketplace), and moderate generating apartment complexes and medical services buildings. This TMA is the second highest priority in the city. A CalTRANS fence bordering state Highway 1 poses a problem. Cooperation efforts with CalTRANS have had limited success in the past. The problem may benefit from early discussions of SMCWPPP permittees approaching CalTRANS as a group in the future. A large full-capture device to treat 177 acres (most of it high trash generating) was postponed due to budgetary constraints. This project may be revisited if the budget situation improves in the future.

- **Enhanced Street Sweeping** – all streets have been swept to the curb one day a week since before the adoption of the MRP. This is equivalent to 22.0 miles of street centerlines or 33.8 curb miles. Sweeping trucks have been equipped with onboard cameras and GPS units during the MRP period (Summer 2013) to identify trash hotspots in order to optimize service into the long term (after July 1, 2014).
- **On-Land Trash Cleanups** – weekly trash routes driven by city street maintenance staff during the pre-MRP era have been gradually replaced by outside labor in areas as needed during the MRP era. The use of outside labor will increase after July 1, 2014. Citizens have become the city’s “eyes” by reporting cleanup requests. Reporting is expected to increase into the long term as more citizens become aware of Daly City iHelp.
- **Enhanced Storm Drain Inlet Maintenance** – along with routine maintenance, city staff marked 420 catch basins with “Flows to Bay/Ocean” legends prior to December 2009. These legends have been refreshed as needed after this date. The city plans to have an asset management system operational by Fall 2015. Data collected from work orders and service requests generated by this system will aid in optimizing maintenance schedules.
- **Improved Trash Bin/Container Management Activities** - The City installed one trash and one recycling “Big Belly Solar” container in Gellert Park prior to July 1, 2014. The effectiveness of these containers is being evaluated and long-term deployment is pending.
- **Private Full-Capture Treatment Devices** – Dick’s Sporting Goods (0.1 acres treated with nine insert filters) will open in Serramonte Shopping Center in Spring 2014 (MRP); and

Gellert Marketplace (6.7 acres treated with 14 insert filters) is planned to open before the end of FY 2015-16 (Post-MRP). These filter insert devices were installed a condition of development/redevelopment and are required to be maintained by the property manager. There are no reporting requirements.

- **Large Full-Trash Capture Device (Plan on hold)** – Serramonte Shopping Center GSRD (177 acres – 85.0 acres moderate generating, 67.8 acres high generating). May become feasible when budget is available, aided with future grant funding before FY 2021-2022.

3.2.5 Trash Management Area #5 – Original Daly City

This is the highest priority TMA in the city at 16.6% “green”. Mission Street (Hwy 82) commercial corridor and East Market Street neighborhood are high trash generating areas. The City is installing filter inserts in 65 catch basins that will treat 70 acres, mostly residential (Figure 8) in February 2014 (MRP). Knowledge gained in maintaining this full capture area will serve as a basis for future full capture projects. Mission Street is swept five days a week. Mission Street will benefit if efforts of SMCWPPP permittees for increased cooperation with CalTRANS and samTRANS are successful.

- **Full-Capture Treatment Devices** – The installation of inlet filters in about 66 catch basins is planned prior to July 1, 2014 (Figure 8). A total of 70 acres of high trash generation area are to be treated. These devices are to be cleaned with vacuum trucks and a preliminary maintenance route has been mapped. Maintenance frequency is to be determined since this is the first full-capture project, although it is anticipated that maintenance will be more frequent around storm events. More devices may be installed along Mission St in the long term, depending on the results of this pilot program.
- **Private Full-Capture Treatment Devices (0.4 acres)** – One “Up-Flo” treatment device treats several inlets in a Shell Gasoline station before it flows in the MS4. These filter insert devices were installed a condition of development/redevelopment and are required to be maintained by the property owner. There are no reporting requirements.
- **Enhanced Street Sweeping** – all streets have been swept to the curb at least one day a week since before the adoption of the MRP. This is equivalent to 22.0 miles of street centerlines or 33.8 curb miles. Mission St (Highway 82), the main commercial strip in the city is swept five times a week. School St, a mixed-use commercial/ residential street is swept three times a week. The commercial triangle formed by San Pedro Road, Junipero Serra Boulevard, and Washington Street is swept three times a week. Sweeping trucks have been equipped with onboard cameras and GPS units during the MRP period (Summer 2013) to identify trash hotspots in order to optimize service into the long term (after July 1, 2014).
- **On-Land Trash Cleanups** – weekly trash routes driven by city street maintenance staff during the pre-MRP era have been gradually replaced by outside labor in areas as needed during the MRP era. The use of outside labor will increase after July 1, 2014. Citizens have become the city’s “eyes” by reporting cleanup requests. Reporting is expected to increase into the long term as more citizens become aware of Daly City iHelp.

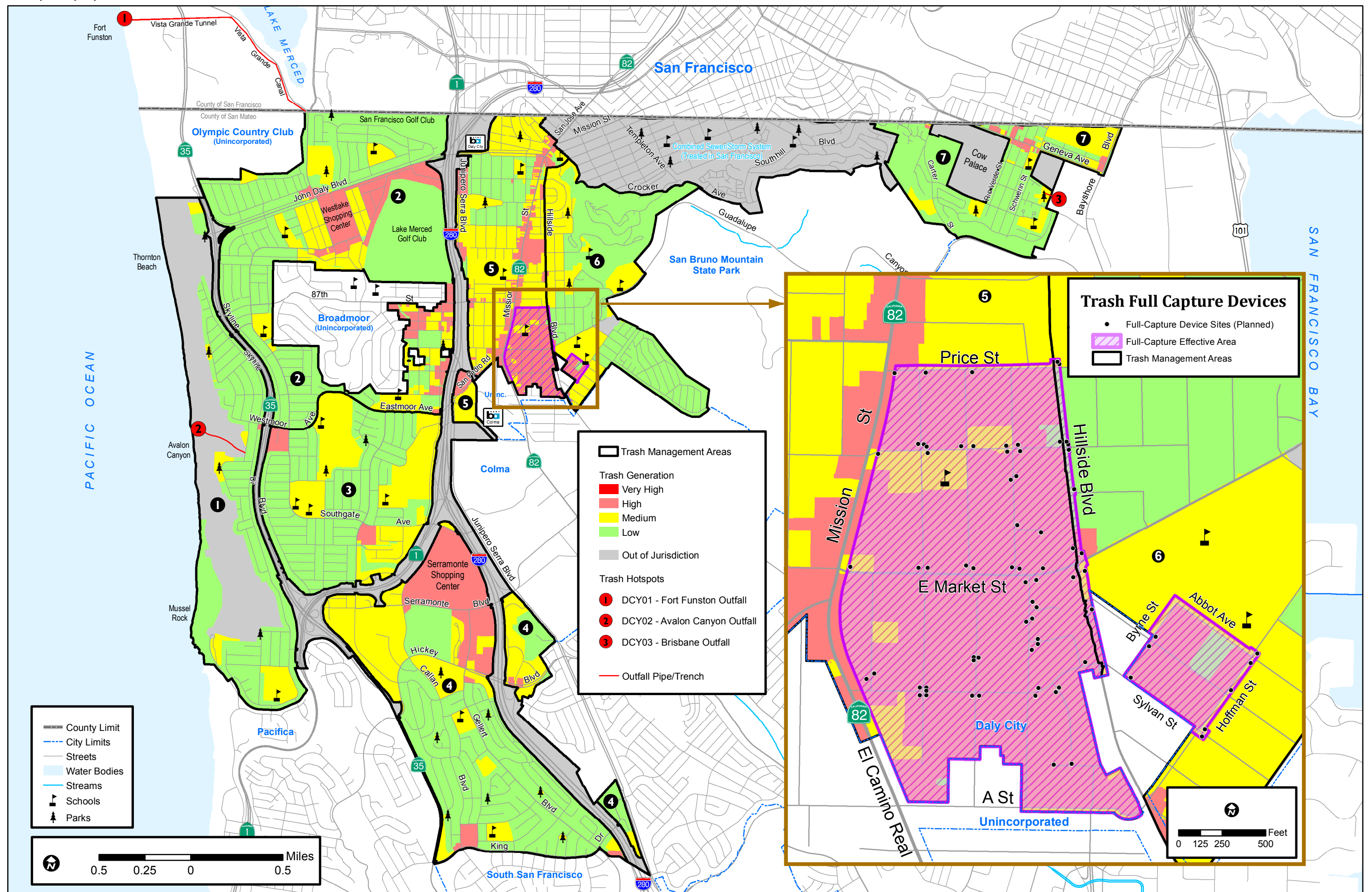


Figure 8 - Trash Full Capture Device Map for The City of Daly City

- **Enhanced Storm Drain Inlet Maintenance** – along with routine maintenance, city staff marked 237 catch basins with “Flows to Bay/Ocean” legends prior to December 2009. These legends have been refreshed as needed after this date. The city plans to have an asset management system operational by Fall 2015. Data collected from work orders and service requests generated by this system will aid in optimizing maintenance schedules.
- **Improved Trash Bin/Container Management Activities** - The City installed one trash and one recycling “Big Belly Solar” container in two locations prior to July 1, 2014: Top of the Hill (Mission St and John Daly Blvd) and War Memorial Community Center. The effectiveness of these containers is being evaluated and long-term deployment is pending.

3.2.6 Trash Management Area #6 – Hillside

The only large high trash generating area in this TMA will be treated by eight full capture filter inserts (treating seven acres) in February 2014 (MRP). The remaining “non-green” area is moderate generating single family residences. At 70% “green”, this TMA is fifth highest in priority of the city’s seven TMAs.

- **Full-capture Treatment Devices** – The installation of inlet filters in about 8 catch basins is planned prior to July 1, 2014. A total of 7 acres of high trash generation area are to be treated. These devices are to be cleaned with vacuum trucks and a preliminary maintenance route has been mapped. Maintenance frequency is to be determined since this is the first full-capture project, although it is anticipated that maintenance will be more frequent around storm events. No further full-capture devices are anticipated in the future.
- **Enhanced Street Sweeping** – all streets have been swept to the curb one day a week since before the adoption of the MRP. This is equivalent to 13.9 miles of street centerlines or 16.6 curb miles. Sweeping trucks have been equipped with onboard cameras and GPS units during the MRP period (Summer 2013) to identify trash hotspots in order to optimize service into the long term (after July 1, 2014).
- **On-Land Trash Cleanups** – weekly trash routes driven by city street maintenance staff during the pre-MRP era have been gradually replaced by outside labor in areas as needed during the MRP era. The use of outside labor will increase after July 1, 2014. Citizens have become the city’s “eyes” by reporting cleanup requests. Reporting is expected to increase into the long term as more citizens become aware of Daly City iHelp.
- **Enhanced Storm Drain Inlet Maintenance** – along with routine maintenance, city staff marked 205 catch basins with “Flows to Bay/Ocean” legends prior to December 2009. These legends have been refreshed as needed after this date. The city plans to have an asset management system operational by Fall 2015. Data collected from work orders and service requests generated by this system will aid in optimizing maintenance schedules.
- **Improved Trash Bin/Container Management Activities** - The City installed one trash and one recycling “Big Belly Solar” container in Hillside Park prior to July 1, 2014. The effectiveness of these containers is being evaluated and long-term deployment is pending.

3.2.7 Trash Management Area #7 – Bayshore

The commercial corridor of Geneva Avenue is the biggest trash challenge in this TMA. This is a low priority TMA, sixth out of the seven TMAs at 76% “green”. The City will continue to optimize services in this area.

- **Enhanced Street Sweeping** – all streets have been swept to the curb one day a week since before the adoption of the MRP. This is equivalent to 8.6 miles of street centerlines or 14.2 curb miles. Sweeping trucks have been equipped with onboard cameras and GPS units during the MRP period (Summer 2013) to identify trash hotspots in order to optimize service into the long term (after July 1, 2014).
- **On-Land Trash Cleanups** – weekly trash routes driven by city street maintenance staff during the pre-MRP era have been gradually replaced by outside labor in areas as needed during the MRP era. The use of outside labor will increase after July 1, 2014. Citizens have become the city’s “eyes” by reporting cleanup requests. Reporting is expected to increase into the long term as more citizens become aware of Daly City iHelp.
- **Enhanced Storm Drain Inlet Maintenance** – along with routine maintenance, city staff marked 211 catch basins with “Flows to Bay/Ocean” legends prior to December 2009. These legends have been refreshed as needed after this date. The city plans to have an asset management system operational by Fall 2015. Data collected from work orders and service requests generated by this system will aid in optimizing maintenance schedules.

3.2.8 Jurisdiction-wide Control Measures

Jurisdiction-wide control measures are city trash-reduction policies through the enforcement of ordinances, reaching out to the public, and cooperation with outside agencies to achieve the common reduction goals. City ordinances have been passed to reduce sources of trash before they have a chance to get into the environment. Public education and outreach seeks to enlist the public’s help as a stakeholder in the trash reduction process. Education and outreach are achieved with the help from SMCWPPP through the Public Information and Participation Program (PIP).

- **Single-use Carryout Plastic Bag Ordinance** - No single-use carryout bag policies were adopted prior to the adoption of the MRP. On January 14, 2013 the City Council added Chapter 8.68 to the Daly City Municipal Code which restricts the distribution of single-use plastic bags effective April 22, 2013. The ordinance states that 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 section 8.68. The Environmental Health Division of the County of San Mateo will enforce this ordinance within the City of Daly City.
- **Polystyrene Foam Food Service Ware Ban** - Polystyrene foam food service ware at City-owned facilities and City-sponsored events was banned via a City Manager directive prior to the adoption of the MRP. On July 23, 2012 the Daly City, City Council adopted added Chapter 8.62 to the Daly City Municipal Code prohibiting food vendors in Daly City from using polystyrene-based takeout food containers. The ordinance prohibits all food vendors in Daly City, including restaurants, delis, cafes, markets, fast food establishments, vendors at

fairs, and food trucks from dispensing prepared food in polystyrene containers. The ordinance will be enforced by the San Mateo County Department of Environmental Health.

- **Public Education and Outreach programs** - Pre-MRP public education and outreach efforts included developing and distributing brochures and other print media; posting messages on websites, attending community outreach events, and conducting media advertising which increase public awareness about the impacts of litter. These efforts are continuing. Planned Post-MRP efforts will include:
 - Through participation and funding of the regional BASMAA Youth Outreach Campaign the City will implement an outreach campaign designed to reduce littering from the target audience in the Bay Area.
 - Through participation and funding of the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), the City plans to continue to implement litter reduction outreach to school-age children and youth.
 - Through participation and funding of the BASMAA Regional Media Relations Project, the City plans to continue to implement a media relations project partially designed to reduce littering from target audiences in the Bay Area.
 - SMCWPPP, through its Public Information and Participation (PIP) program, plans to continue to conduct community outreach events on behalf of Permittees.
- **Reducing Trash from Uncovered Loads** - The City has included language in its hauling service contract which requires its contracted municipal trash hauler to cover loads when transporting trash and debris to landfills or transfer stations. Moreover, the City has an exclusive trash hauling agreement and no commercial haulers or independent debris box companies can obtain a business license or operate within Daly City; therefore compliance with, and the effectiveness of the covered load ordinance is very high. The City will continue to include language in contracts requiring municipal trash haulers to cover loads when transporting trash and debris to transfer stations.
- **Anti-littering and Illegal Dumping Enforcement** - The City continues to enforce its pre-MRP illegal dumping ordinance. Allied Waste continues to respond to illegal dumping calls and removes materials within 48 hours.

3.2.9 Creek and Shoreline Hot Spot Cleanups

Three hot spots (Figure 6) are cleaned annually before onset of the storm season by city staff in compliance with the MRP. Daly City has no open waterways within its jurisdictional area; however

hotspot DCY02 (in TMA #1) at Avalon Canyon outfall is within the city limit. All hot spots are discharge points of stormwater collected only by inlets and conveyed by a closed drainage system. Approximately 0.36 cubic yards of trash per year (FY2010 – FY2013 three-year average) has been removed from the Avalon Canyon hot spot. The hotspot at Fort Funston outfall (DCY01, its source originating in TMA #2) is in the City of San Francisco, and has an average of 2.0 cubic yards removed per year. The last hot spot (DCY03 just outside TMA #7) is the outfall which discharges in the City of Brisbane, at a rate of 0.38 cubic yards per year on the average. City staff continues to conduct visual inspections to determine if the frequency of cleanup needs to be increased. No additional types of activity are planned for the future.

3.2.10 Summary of Trash Control Measures

The City feels that the actions described in the previous section, when taken together, are sufficient to mitigate adverse impacts of trash in the long run. The City will continue to provide services through enhanced street sweeping and increasing on-land cleanup, and will become smarter in deploying its forces through the gathering and analyzing of data (street sweeping truck cameras and GPS, and asset management). The citizens will become more aware of trash problems and how to lessen the impacts through public education and outreach programs. The public will continue to be encouraged to actively participate by volunteering and by reporting problems via Daly City iHelp. The sources of trash have been reduced by ordinances. If any trash has made it this far, full-trash capture or large trash capture devices installed by the city will catch it before it enters the MS4.

Trash Management Area 1 - Skyline

- Enhanced Street Sweeping
- On-Land Trash Cleanup
- Enhanced Storm Drain Inlet Maintenance
- Jurisdiction-wide Control Measures

Trash Management Area 2 - Westlake

- Enhanced Street Sweeping
- On-Land Trash Cleanups
- Partial-Capture Treatment Device
- Enhanced Storm Drain Inlet Maintenance
- Improved Trash Bin/Container Management Activities
- Jurisdiction-wide Control Measures
- Private Full-Capture Devices

Trash Management Area 3 - St. Francis

- Enhanced Street Sweeping
- On-Land Trash Cleanups
- Enhanced Storm Drain Inlet Maintenance
- Jurisdiction-wide Control Measures

Trash Management Area 4 - Serramonte

- Enhanced Street Sweeping
- On-Land Trash Cleanups
- Enhanced Storm Drain Inlet Maintenance
- Improved Trash Bin/Container Management Activities
- Jurisdiction-wide Control Measures

Trash Management Area 5 – Original Daly City

- Full-Capture Catch Basin Filters – Planned to treat 70 acres
- Enhanced Street Sweeping
- On-Land Trash Cleanups
- Enhanced Storm Drain Inlet Maintenance
- Improved Trash Bin/Container Management Activities
- Jurisdiction-wide Control Measures

Trash Management Area 6 - Hillside

- Full-Capture Catch Basin Filters – Planned to treat seven acres
- Enhanced Street Sweeping
- On-Land Trash Cleanups
- Enhanced Storm Drain Inlet Maintenance
- Improved Trash Bin/Container Management Activities
- Jurisdiction-wide Control Measures

Trash Management Area 7 - Bayshore

- Enhanced Street Sweeping
- On-Land Trash Cleanups
- Enhanced Storm Drain Inlet Maintenance
- Jurisdiction-wide Control Measures

3.3 Control Measure Implementation Schedule

Most of the control measures will have been implemented before the end of the MRP period, July 1, 2014. The full implementation schedule is given in Table 7.

Table 7. The City of Daly City's trash control measure implementation schedule.

Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014 ^a	FY 2014-2015	FY 2015-2016	FY 2016-2017 ^b	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022 ^c
TMA #1 - Skyline														
Enhanced Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
On-Land Trash Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Enhanced Storm Drain Inlet Maintenance	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TMA #2 - Westlake														
Enhanced Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
On-Land Trash Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Partial-Capture Treatment Device	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Enhanced Storm Drain Inlet Maintenance	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Improved Trash Bin/Container Management				X	X	X	X	X	X	X	X	X	X	X
TMA #3 - St Francis														
Enhanced Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
On-Land Trash Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Enhanced Storm Drain Inlet Maintenance	X	X	X	X	X	X	X	X	X	X	X	X	X	X
TMA #4 - Serramonte														
Enhanced Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
On-Land Trash Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Enhanced Storm Drain Inlet Maintenance	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Improved Trash Bin/Container Management				X	X	X	X	X	X	X	X	X	X	X
Large GSRD Trash Capture Device (Planned)														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

Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014 ^a	FY 2014-2015	FY 2015-2016	FY 2016-2017 ^b	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022 ^c
TMA #5 – Original Daly City														
Enhanced Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
On-Land Trash Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Enhanced Storm Drain Inlet Maintenance	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Improved Trash Bin/Container Management				X	X	X	X	X	X	X	X	X	X	X
Full-Capture Treatment Devices – 70 Acre City Project						X	X	X	X	X	X	X	X	X
TMA #6 – Hillside														
Enhanced Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
On-Land Trash Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Enhanced Storm Drain Inlet Maintenance	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Improved Trash Bin/Container Management				X	X	X	X	X	X	X	X	X	X	X
Full-Capture Treatment Devices – 7 Acre City Project						X	X	X	X	X	X	X	X	X
TMA #7 - Bayshore														
Enhanced Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X
On-Land Trash Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Enhanced Storm Drain Inlet Maintenance	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Jurisdiction-wide Control Measures														
Single-Use Carryout Plastic Bag Ordinance					X	X	X	X	X	X	X	X	X	X
Polystyrene Foam Food Service Ban				X	X	X	X	X	X	X	X	X	X	X
Public Education and Outreach	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Activities to Reduce Trash from Uncovered Loads	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Enhanced Street Sweeping	X	X	X	X	X	X	X	X	X	X	X	X	X	X

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Trash Management Area and Control Measures	Pre-MRP	Short-Term					Long-Term							
		FY 2009-2010	FY 2010-2011	FY 2011-2012	FY 2012-2013	FY 2013-2014 ^a	FY 2014-2015	FY 2015-2016	FY 2016-2017 ^b	FY 2017-2018	FY 2018-2019	FY 2019-2020	FY 2020-2021	FY 2021-2022 ^c
Creek and Shoreline Hot Spot Cleanups														
Hot Spot Cleanups	X	X	X	X	X	X	X	X	X	X	X	X	X	X

^aJuly 1, 2014 - 40% trash reduction target

^bJuly 1, 2017 - 70% trash reduction target

^cJuly 1, 2022 - 100% trash reduction target

4.0 PROGRESS ASSESSMENT STRATEGY

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

The Trash Assessment Strategy (Strategy) described in this section is intended to serve as Version 2.0 of the trash tracking method and replace version 1.0 previously submitted to the Water Board. The Strategy is specific to Permittees participating in the San Mateo Countywide Water Pollution Prevention Program (SMCWPPP), including The City of Daly City. 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 Daly City.

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 (i.e., 40%, 70%, and No Adverse Impacts) being achieved?
- Are there trash problems in receiving waters (e.g., creeks and rivers)?
- If trash problems in receiving waters exist, what are the important sources and transport pathways?

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

4.1.2 Indicators of Progress and Success

The management questions listed in the previous section will be addressed by tracking information and collecting data needed to report on a set of key environmental indicators. Environmental indicators are simple measures that communicate what is happening in the environment. Since

trash in the environment is very complex, indicators provide a more practical and economical way to track the state of the environment than if we attempted to record every possible variable.

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

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

Primary Indicators:

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

Secondary Indicators:

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

In selecting the indicators above, The City of Daly City 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 Daly City will implement through the SMCWPPP Pilot Strategy to generate indicator information described in the previous section. Additional information on each method can be found in the SMCWPPP Pilot Trash Assessment Strategy submitted to the Water Board by SMCWPPP on behalf of the City.

1-A. On-land Visual Assessments

As part of the Trash Generation Map assessment and refinement process (see Section 2.3.1), a draft on-land visual assessment method was developed to assist Permittees in confirming and refining trash generating area designations (i.e., very high, high, 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 8.

Table 8. 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 Daly City as part of the SMCWPPP Pilot Trash Assessment Strategy. On-land assessments are intended to establish initial conditions and detect improvements in the level of trash available to MS4s over time. More specifically, on-land visual assessment methods will be conducted in areas not treated by trash full capture devices in an attempt to evaluate reductions associated with other types of control measures. Assessment methods for areas treated by full capture devices are described in this next section.

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

1-B. Full Capture Operation and Maintenance Verification

Consistent with the MRP, adequate inspection and maintenance of trash full capture devices is required to maintain full capture designation by the Water Board. The City of Daly City 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 – Descriptions of outreach efforts, tracking and reporting business compliance rates, or other metrics of control measure performance.
- Street Sweeping- Identification sweeping frequency and the ability to sweep to the curb by primary TMA, including any enhancements that have been implemented; and any other metrics demonstrating the enhanced performance of street sweeping.
- Public/Private Trash Container Management - Descriptions of control measures implemented to prevent overflowing trash containers or promoting the more effective use of public/private bins, including any new or enhancements to existing actions; and any other metrics demonstrating the performance of the control measure.
- Public Outreach and Education – Descriptions of outreach and education actions specific to trash deduction, including the number of events conducted within the municipality; descriptions of effectiveness measurements, including the results of pre- and post-implementation surveys or other metrics.
- On-land Cleanups and Enforcement – Descriptions of on-land cleanup actions, including any enhancements that have been implemented; identification of whether on-land cleanup are Permittee or volunteer-led; or other metrics of control measure performance.
- Storm Drain Inlet Maintenance – Descriptions of the level of maintenance, including any enhancement to maintenance frequency; the numbers of inlets where enhanced maintenance is being implemented; and any other metrics demonstrating the performance of inlet maintenance.
- Anti-littering and Illegal Dumping Prevention/Enforcement - Descriptions of control measures implemented to prevent littering and illegal dumping, including any new or

enhancements to existing actions; descriptions and results of enhanced enforcement actions; and any other metrics demonstrating the performance of the control measure.

- Prevention of Uncovered Loads - Descriptions of control measures implemented to prevent trash dispersion from uncovered loads, including any new or enhancements to existing actions; descriptions and results of enhanced enforcement actions; and any other metrics demonstrating the performance of the control measure.
- Partial Capture Devices - Descriptions, numbers and types of devices implemented; maintenance frequencies by device or groups of devices; and any other metrics demonstrating the partial capture device performance.
- Other Control Measures - Descriptions of control measures implemented to prevent or intercept trash before discharge to receiving waters, and any other metrics demonstrating the performance of the control measure.

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 Daly City plans to continue conducting receiving water condition assessments at trash hot spots a minimum of one time per year. Assessment will be conducted consistent with Permit hot spot cleanup and assessment requirements. Additional information on receiving water assessment methods can be found in the SMCWPPP Pilot Trash Assessment Strategy (SMCWPPP 2014).

4.2 BASMAA “Tracking California’s Trash” Project

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

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

4.2.1 Testing of Trash Monitoring Methods

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

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

4.2.2 Full Capture Equivalent Studies

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

4.3 Long-Term Assessment Strategy

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

4.4 Implementation Schedule

The implementation schedule for the SMCWPPP Pilot Implementation Strategy, BASMAA's *Tracking California's Trash* project, and the Long-Term Assessment Strategy are included in Table 9. 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 9. The City of Daly City's trash progress assessment implementation schedule.

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

^aJuly 1, 2014 - 40% trash reduction target

^bJuly 1, 2017 - 70% trash reduction target

^cJuly 1, 2022 - 100% trash reduction target

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. 2003. The removal of urban solid waste from stormwater drains. Prepared for the International Workshop on Global Developments in Urban Drainage Management, Indian Institute of Technology, Bombay, Mumbai India. 5-7 February 2003.
- Armitage, N. 2007. The reduction of urban litter in the stormwater drains of South Africa. Urban Water Journal Vol. 4, No. 3: 151-172. September 2007.
- Armitage N., A. Rooseboom, C. Nel, and P. Townshend 1998. "The removal of Urban Litter from Stormwater Conduits and Streams. *Water Research Commission* (South Africa) Report No. TT 95/98, Pretoria.
- 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.
- 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.
- CA EDD (State of California Employment Development Department) 2010. Labor Force and Unemployment Rate for Cities and Census Designated Places. CA.Gov.Web. March 2010.
- 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). 2014. Pilot Trash Assessment Strategy. Prepared by EOA. February 1.