

Long-Term Trash Load Reduction Plan and Assessment Strategy

Submitted by:
Town of Portola Valley
765 Portola Road
Portola Valley, CA 94028

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

February 1, 2014

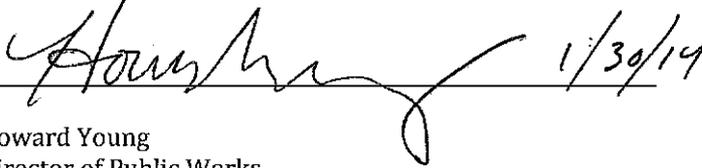
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**Town of Portola Valley
LONG-TERM TRASH LOAD REDUCTION PLAN AND
ASSESSMENT STRATEGY**

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:


Howard Young
Director of Public Works

January 30, 2014

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ABBREVIATIONS

BASMAA	Bay Area Stormwater Management Agencies Association
BID	Business Improvement District
CASQA	California Stormwater Quality Association
EIR	Environmental Impact Report
EPA	Environmental Protection Agency
MRP	Municipal Regional Stormwater NPDES Permit
MS4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
PIP	San Mateo Countywide Water Pollution Prevention Program's Public Information and Participation Program
SMCWPPP	San Mateo Countywide Water Pollution Prevention Program
SWRCB	State Water Resource Control Board
Water Board	San Francisco Regional Water Quality Control Board

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 Town of Portola Valley'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 Town of Portola Valley therefore reserves the right to revise or amend this Long-Term Plan at its discretion. If significant revisions or amendments are made by Portola Valley, a revised Long-Term Plan will be submitted to the Water Board through Portola Valley'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 Town of Portola Valley 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 Portola Valley’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 Portola Valley’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 Portola Valley 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).

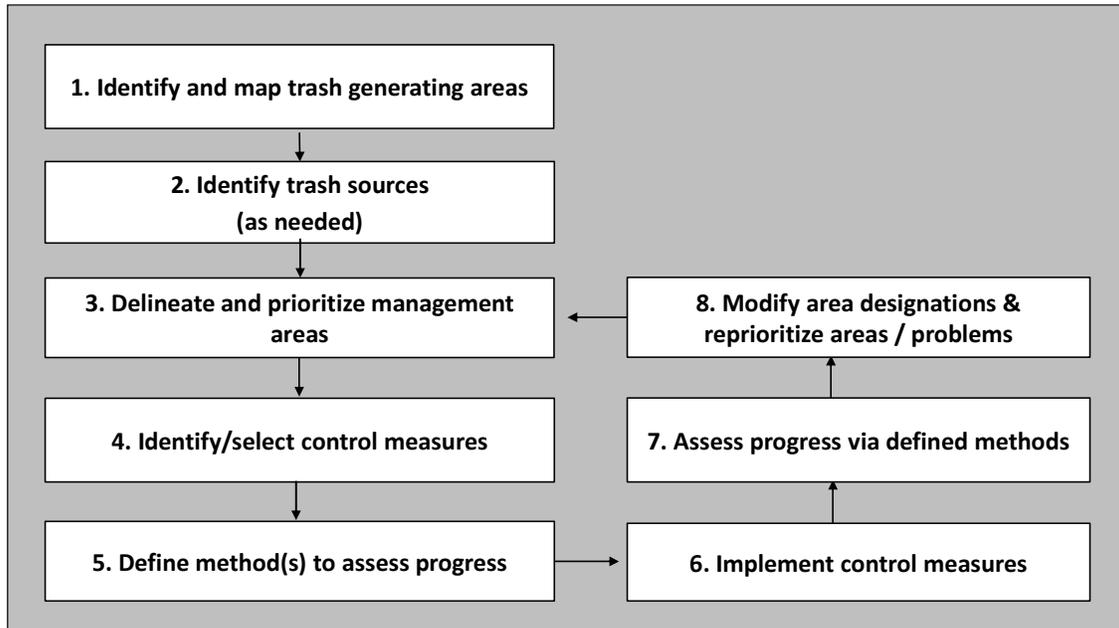


Figure 1. Eight-step framework for developing, implementing and refining Long-Term Trash Reduction Plans.

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, Portola Valley 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, Portola Valley has begun to implement its short-term plan. Control measures implemented to date via the short-term trash reduction plan are:

- **Single-Use Carryout Bag Policies**
 On January 23, 2013, the Town adopted a Reusable Bag Ordinance by reference to San Mateo County’s Reusable Bag ordinance adopted on October 23, 2012. As part of outreach efforts, the Town of Portola Valley met with each of the local businesses to discuss the Reusable Bag Ordinance.
- **Polystyrene Foam Food Service Ware Policies**
 The Town of Portola Valley has adopted a Prohibition on the Use of Polystyrene Based Disposable Food Service Ware by Food Vendors by reference to San Mateo County’s Prohibition on the Use of Polystyrene Based Disposable Food Service Ware by Food Vendors. This ordinance bans food vendors from providing prepared food in disposable food service containers made from expanded polystyrene foam.
- **Street Sweeping**
 In the Town of Portola Valley, the street sweeping program includes sweeping streets in residential areas four times per year, and sweeping the two arterial roads, Alpine Road and Portola Road twice per month. Parking enforcement signs for street sweeping are not posted in the Town, but parking enforcement equivalent exists for all streets within the Town.
- **On Land Trash Pickup**
 There are two main arterial roads in Town, Alpine Road and Portola Road. To address on-land trash, to help support daily trash removal by the Town’s maintenance staff, a private firm consisting of two day laborers has been contracted to assist visible trash along the main arterials and its shoulders.

- **Storm Drain Inlet Maintenance**
 Within the Town, there are approximately 425 storm drain inlets. These were cleaned one time per year prior to the effective date of the MRP. Currently, the Town has increased the frequency of cleaning and inspection to twice a year. In the future, the Town expects to keep the schedule of twice per year to inspect and clean their 425 storm drain inlets. All inspections and cleaning is done by the Town’s maintenance staff.
- **Anti-Littering and Illegal Dumping Enforcement Actions**
 The Town of Portola Valley has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow and pick up with its own crews with assistance by two day laborers. The Town of Portola Valley has also adopted an ordinance to address anti-littering as well.

Control measures described in this Long-Term Plan build upon actions taken to-date via Town of Portola Valley’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 Town of Portola Valley’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 Town of Portola Valley. Control measures that will be implemented by the Town of Portola Valley 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 1964, the Town of Portola Valley covers 5,787 acres in Santa Mateo County, and has a jurisdictional area of 4,577 acres. According to the 2010 Census, it has a population of 4,353, with a population density of 478.7 people per square mile, and average household size of 2.47. Of the 4,353 who call the Town of Portola Valley home, 23.0% are under the age of 18, 3.3% are between 18 and 24, 12.4% are between 25 and 44, 34.4% are between 45 and 65, and 26.9% are 65 or older.

The Town of Portola Valley is almost entirely residential. The median household income was \$158,217 in 2000,

According to the 2013 San Mateo County Homeless Census and Survey, there were a total of 2 homeless people counted in the town. Because Portola Valley is a rural community with little access to transit or services, homeless people may not find the town as attractive as more urbanized areas of the region.

Land uses within Portola Valley depicted in ABAG (2005) are provided in Table 2. The Town of Portola Valley is primarily comprised of a two land uses. These include residential and other areas (natural open space). Because the Town is primarily comprised of residential areas and natural open space, commercial, industrial, and retail uses make up a minimal percentage of the Town.

Table 2. Percentages of the Portola Valley's jurisdictional area¹ within land use classes identified by ABAG (2005)

Land Use Category	Jurisdictional Area (acres)	% of Jurisdictional Area
Commercial and Services	34.6	0.6%
Industrial	5.6	0.1%
Residential	2,269.2	39.2%
Retail	13.2	0.2%
K-12 Schools	69.6	1.2%
Urban Parks	22.4	0.4%
Other (natural open space)	3,375.6	58.3%

2.2 Trash Sources and Pathways

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

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

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).

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

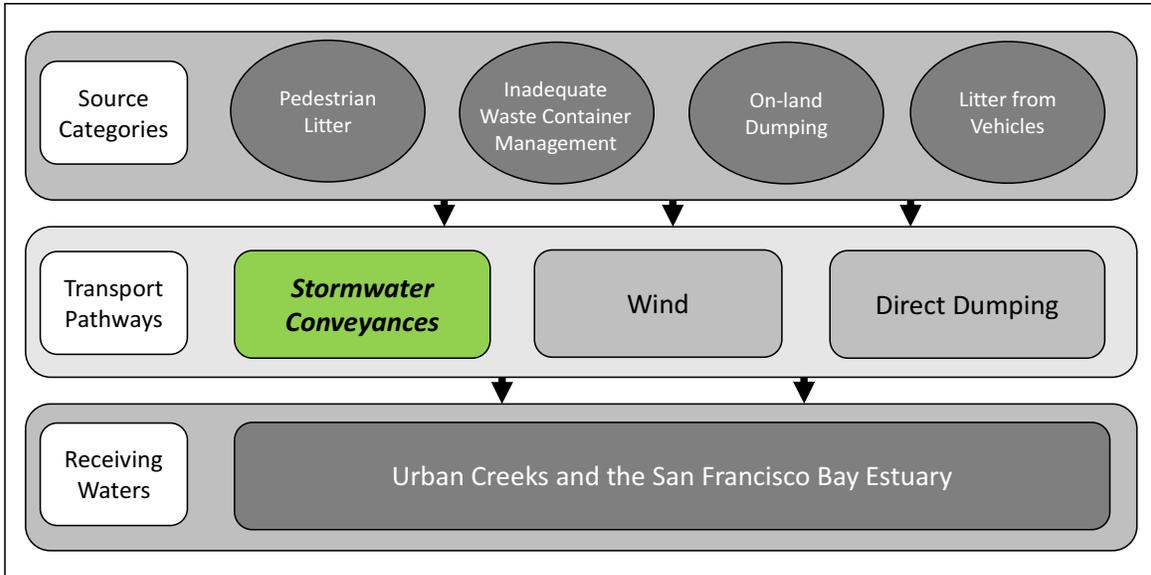


Figure 3. Trash sources categories and transport pathways to urban creeks.

Town Staff performed field assessments of trash generation areas to identify and refine modeled trash generation rates. Historical maintenance information was also used to make the determination of medium and low trash areas. The measures described below addresses Wind and Direct Dumping transport pathways. Trash sources identified included littering from pedestrian and vehicles, and wind-blown trash.

Because Portola Valley is a rural community with little access to transit or services, homeless people may not find the town as attractive as more urbanized areas of the region. Therefore, trash related to homeless encampments will be very minimal.

Trash management actions performed to date include on-land cleanups by our maintenance staff. Future actions include more frequent cleanups or the use of contracted personal to conduct cleanups.

These management areas are the Town’s Ford Field Parking lot and Rossotti Field Parking lot. Actions include more frequent pick-ups and cleanups.

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 Town of Portola Valley are described in this section and illustrated in Figure 4.

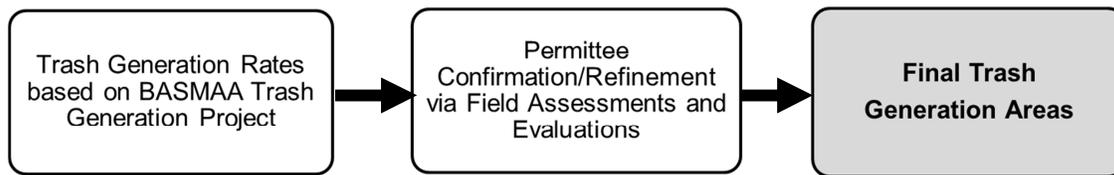


Figure 4. Trash sources categories and transport pathways to urban creeks.

As a first step, trash generation rates developed through *the BASMAA Trash Generation Rates Project* were applied to parcels within the Town of Portola Valley 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 Town of Portola Valley 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 Town of Portola Valley then reviewed and refined the draft trash generation map to ensure that trash generation categories were correctly assigned to parcels or groups of parcels. Portola Valley staff refined maps using the following process:

1. Based upon our knowledge of trash generation and problem areas within the Town , 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 Town of Portola Valley 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

Town assessed a total of 2 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.

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

2.3.2 Summary of Trash Generating Areas and Sources

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

Table 5. Percentage of jurisdictional area within the Town of Portola Valley assigned to each trash generation category.

Trash Generation Category	Jurisdictional Area (Acres)	Commercial and Services	Industrial	Residential	Retail	K-12 Schools	Urban Parks	Other
Very High	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
High	0.0	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Medium	4.6	0.0%	0.0%	0.0%	33.3%	0.0%	66.7%	0.0%
Low	5,785.5	0.6%	0.1%	39.2%	0.2%	1.2%	0.3%	58.3%

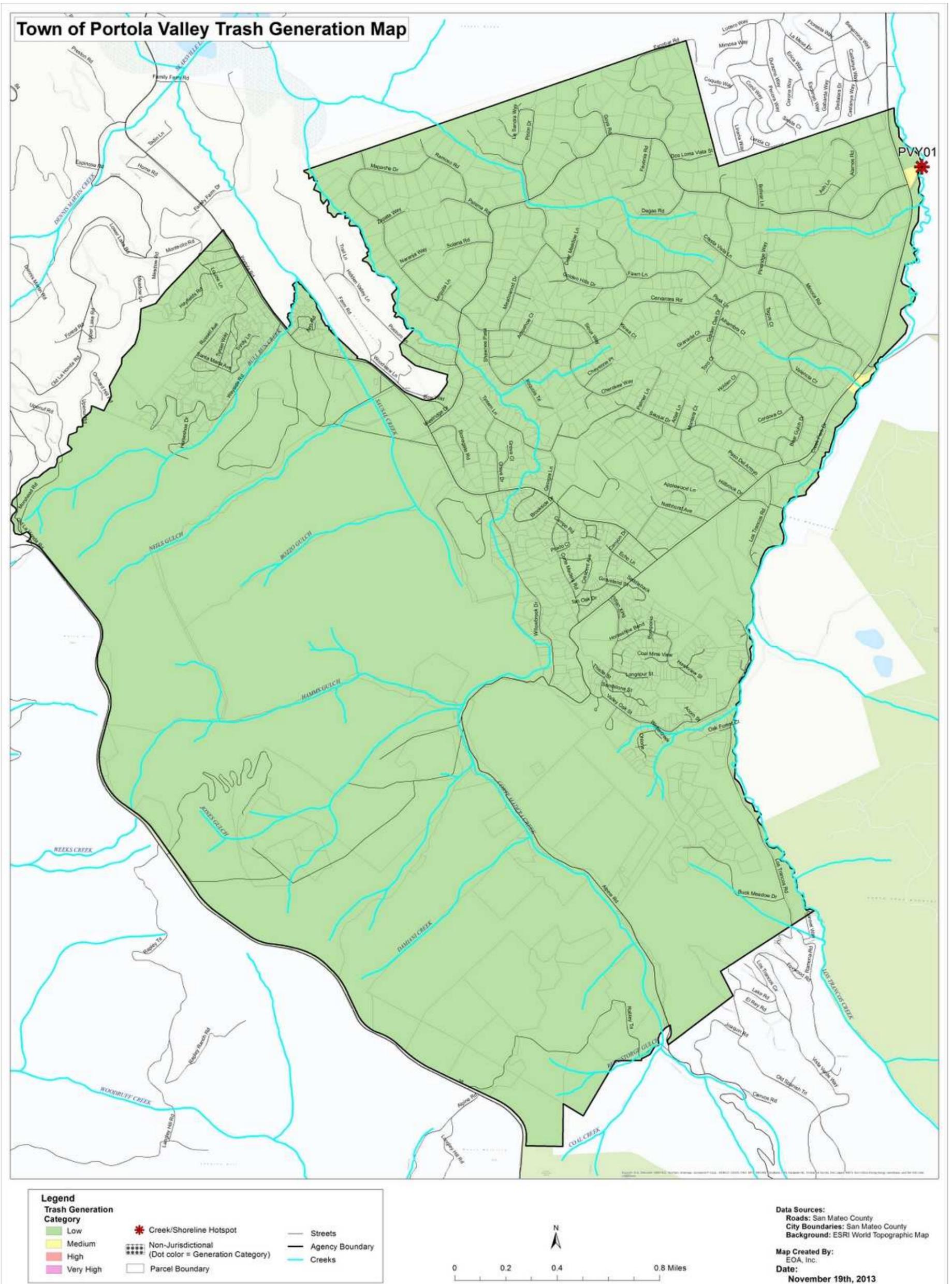


Figure 5. Final Trash Generation Map for the Town of Portola Valley

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3.0 TRASH MANAGEMENT AREAS AND CONTROL MEASURES

This section describes the control measures that the Town of Portola Valley 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 Town of Portola Valley'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 Town 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 Town 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 Portola Valley's annual reporting process.

3.1 Management Area Delineation and Prioritization

Consistent with the long-term plan framework, the Town of Portola Valley 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. The Town of Portola Valley's primary management areas were selected based on the spatial distribution of trash generating areas and the location of specific existing or planned management actions within Town's jurisdiction. Town staff used the following procedure to designate TMAs:

The Town worked with Countywide Program staff to develop a draft final trash generation rate map. During development, the town identified medium and low trash generating areas based on land use categories. Town Staff also performed field assessments of these areas to refine modeled trash generation rates.

Town Staff performed field assessments of trash generation areas to identify and refine modeled trash generation rates. Historical maintenance information was also used to make the determination of medium and low trash areas. Trash sources identified included littering from pedestrian and vehicles, and wind-blown trash. In addition, hotspot areas were identified by our maintenance staff.

Because the Town is of rural character, and comprised mainly of residential and open space lands, the areas identified were places that saw the heaviest public use.

A map depicting the Town's TMAs is included as Figure 6. All jurisdictional areas within Portola Valley 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 Rate			
		Very High	High	Medium	Low
1	4.6	0.0%	0.0%	100.0%	0.0%
2	5,785.5	0.0%	0.0%	0.0%	100.0%

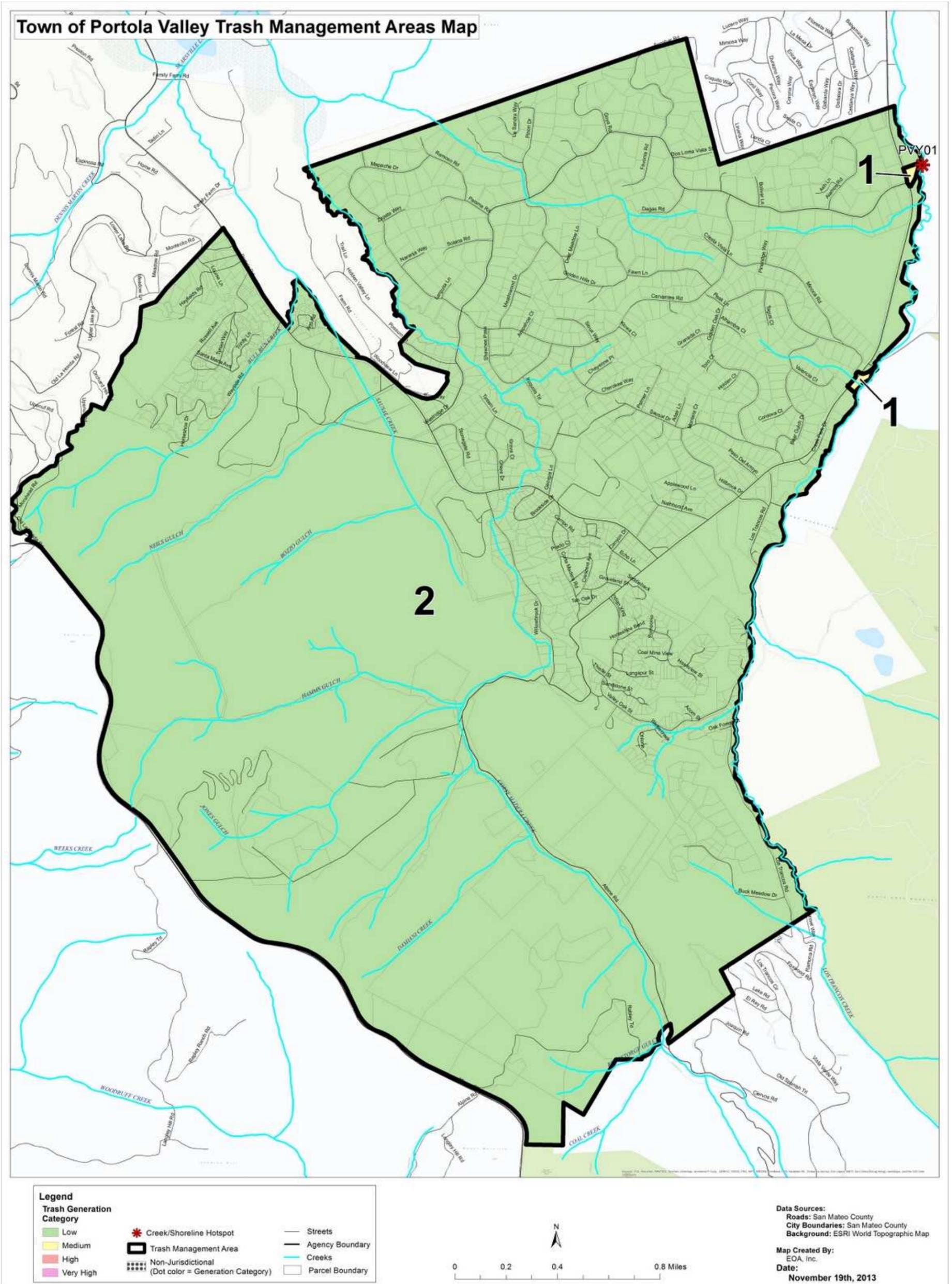


Figure 6. Trash Management Area Map for the Town of Portola Valley.

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3.2 Current and Planned Trash Control Measures

The Town is of rural character with low traffic volumes. A manual on-land roadside trash pickup service occurs twice per month on main arterials along the scenic corridor. This effort is an enhancement in addition to Town maintenance crews regular roadside clean ups and in addition to the bi-weekly scheduled street sweeping. This Town program contracts to a private firm to provide 2 laborers to come out on a routine bi-weekly basis to walk and pick up trash on the Towns arterial roads and its shoulders. Time spent is approximately 16 work-hours per visit or 384 work-hours per year. The laborers use 2 five gallon trash bags to collect trash along the roadside. The level of service is high since all inspection and pick up is via walking close to the roadsides. Trash levels and types vary. Approximately 24 on-land cleanups are scheduled per year. The Town believes this program is very effective in collecting litter.

3.2.1 Trash Management Area #1-Ford Field and Rossotti Field Parking Lots

Ford Field, located on Alpine Road, one of two arterial roads located in the Town of Portola Valley is a natural turf baseball field has historically been utilized for Little League practices and games. It is adjacent to Los Trancos Creek and the Alpine Trail.

Rossotti Field, located on Alpine Road, one of two arterial roads located in Portola Valley, is a natural turf, standard size soccer field used for youth and adult league practices and games. It is adjacent to Los Trancos Creek and the Alpine Trail.

Any trash related problems are confined to the parking lot area adjacent to Ford Field and not on the field itself. Potential sources of trash are from parking lot users and individuals related to any construction on-site. The dominant types of trash found in the parking lot are sports balls, convenience/fast food items and construction debris.

Full Capture Treatment Devices

The Town of Portola Valley is exempt from MRP Permit Provision C.10.a.iii due having a population of 4,353 (2010 Census) and 9 acres of retail/wholesale land. As a result, the Town of Portola Valley does not currently have, nor plans to install trash full capture devices.

Street Sweeping

Actions Initiated Prior to and Continued After the MRP:

The Town is of rural character with low traffic volumes. The Town of Portola Valley's current street sweeping program includes sweeping streets in residential areas four times per year, and sweeping two arterial roads (Portola and Alpine Roads) twice per month. Alpine Road is approximately 6 miles long, while Portola Road is approximately 4 miles long.

Parking enforcement signs for street sweeping are not posted in the Town, but parking enforcement equivalent exists for all streets within the Town.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

The Town plans to continue its street sweeping program in residential areas four times per year, and sweeping two arterial roads (Portola and Alpine Roads) bi-monthly. Because the Town believes that any potential trash hotspots are located in two confined areas, where it is most easily

accessible by foot, any future plans to increase street sweeping will not help address this issue. Therefore, there will be no planned changes to the frequency of the street sweeping program.

Future Actions Planned Between July 2014 and July 2022:

The Town believes that the street sweeping program offers a satisfactory result where no additional measures to address trash removal is needed. The Town will still continue its street sweeping following the same schedule as it occurs now.

On Land Trash Cleanup

Actions Initiated Prior to and Continued After the MRP:

The Town is of rural character with low traffic volumes. Manual on-land roadside trash pickup service occurs twice per month on main arterials, Alpine Road and Portola Road and along the scenic corridor. This effort is an enhancement and in addition to Town maintenance crews, regular roadside clean ups and in addition to the bi-weekly scheduled street sweeping. This Town program contracts to a private firm to provide 2 laborers to come out on a routine bi-weekly basis to walk and pick up trash on the Towns arterial roads and its shoulders. Time spent is approximately 16 work-hours per visit or 384 work-hours per year. The laborers use 2 five gallon trash bags to collect trash along the roadside. The level of service is high since all inspection and pick up is via walking close to the roadsides. Trash levels and types vary. Approximately 24 on-land cleanups occur per year. The Town believes this program is very effective in collecting litter.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

The Town plans to continue its manual on-land roadside trash pickup service that occurs twice per month on its two arterial roads, Alpine Road and Portola Road. This effort is an enhancement and in addition to Town maintenance crews regular roadside clean ups. Because roadside trash is very minimal, and mostly found in the Ford Field and Rossotti Field parking lots, there are no plans to change the frequency of on-land trash pickup.

Future Actions Planned Between July 2014 and July 2022:

Because the Town believes that any potential trash hotspots are located in two confined areas, there are no future plans to increase the frequency of on-land trash pickup. The Town believes that with the efforts of Town maintenance staff and manual on-land roadside trash pickup, the current frequency is more than adequate to address trash in TMA #1.

Enhanced Storm Drain Inlet Maintenance

Actions Initiated Prior to and Continued After the MRP:

The Town is of rural character with an informal rural type storm drain system. As an added enhancement, the Town Maintenance crew inspects and cleans each storm drain twice per year. Town has approx. 425 rural type storm drains. This additional clean up adds approx. 80 work hours to the typical annual maintenance of the Towns storm drains. The Town is rural in nature and the majority of debris related to storm drains consists almost all of tree fallen leaves.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

The town plans to continue to inspect and clean each storm drain twice per year. Because the majority of debris related to storm drains consists almost all of tree fallen leaves, and current efforts to mitigate on-street trash, the Town believes that it will continue this current schedule.

Future Actions Planned Between July 2014 and July 2022:

Because the Town believes that any potential trash hotspots are located in two confined areas, there are no future plans to increase storm drain inlet maintenance. The Town believes that because any potential on-street trash is mitigated very efficiently, in 2014-2022 there will be no changes to future actions from July 2014-July 2022.

Anti-Littering and Illegal Dumping Enforcement Activities

Actions Initiated Prior to and Continued After the MRP:

The Town of Portola Valley has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow and pick up with its own crews. The Town of Portola Valley has adopted anti-litter ordinance Ch. 8.10.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

The Town of Portola Valley will continue to implement the following anti-littering and illegal dumping enforcement control measures prior to July 1, 2014: Town ordinance Ch. 8.10 - This Ordinance provides enforcement for anti-littering and illegal dumping activities. The Town of Portola Valley is a small community. Any problems relating to anti-littering and illegal dumping become very evident to residents and Town personnel. Violations can be reported to five members of the Building, Planning, and Public Works Divisions. Penalties for violations range from \$100-\$1,000 and are considered a misdemeanor.

Future Actions Planned Between July 2014 and July 2022:

Because the Town believes that any potential trash hotspots are located in two confined areas, there are no future plans to increase the frequency of trash pickup by the Town's maintenance staff. The Town believes that based on the type of trash found, the only change will be to Town ordinance Ch. 8.10 in July 2014, which specifically addresses anti-littering and illegal dumping.

3.2.2 Trash Management Area #2- All other areas in Portola Valley

Full Capture Treatment Devices

The Town of Portola Valley is exempt from MRP Permit Provision C.10.a.iii due having a population of 4,353 (2010 Census) and 9 acres of retail/wholesale land. As a result, the Town of Portola Valley does not currently have, nor plans to install trash full capture devices.

Street Sweeping

Actions Initiated Prior to and Continued After the MRP:

The Town is of rural character with low traffic volumes. The Town of Portola Valley's current street sweeping program includes sweeping streets in residential areas four times per year, and sweeping two arterial roads (Portola and Alpine Roads) twice per month. Alpine Road is approximately 6 miles long, while Portola Road is approximately 4 miles long.

Parking enforcement signs for street sweeping are not posted in the Town, but parking enforcement equivalent exists for all streets within the Town.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014 :

The Town plans to continue its street sweeping program in residential areas four times per year, and sweeping two arterial roads (Portola and Alpine Roads) bi-monthly. Because the Town believes that any potential trash hotspots are located in two confined areas, where it is most easily accessible by foot, any future plans to increase street sweeping will not help address this issue. Therefore, there will be no planned changes to the frequency of the street sweeping program.

Future Actions Planned Between July 2014 and July 2022:

The Town believes that the street sweeping program offers a satisfactory result where no additional measures to address trash removal is needed. The Town will still continue its street sweeping following the same schedule as it occurs now.

On Land Trash Cleanup

Actions Initiated Prior to and Continued After the MRP:

The Town is of rural character with low traffic volumes. A manual on-land roadside trash pickup service occurs twice per month on main arterials along the scenic corridor. This effort is an enhancement and in addition to Town maintenance crews, regular roadside clean ups and in addition to the bi-weekly scheduled street sweeping. This Town program contracts to a private firm to provide 2 laborers to come out on a routine bi-weekly basis to walk and pick up trash on the Towns arterial roads and its shoulders. Time spent is approximately 16 work-hours per visit or 384 work-hours per year. The laborers use 2 five gallon trash bags to collect trash along the roadside. The level of service is high since all inspection and pick up is via walking close to the roadsides. Trash levels and types vary. Approximately 24 on-land cleanups occur per year. The Town believes this program is very effective in collecting litter.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

The Town plans to continue its manual on-land roadside trash pickup service that occurs twice per month on its two arterial roads, Alpine Road and Portola Road. This effort is an enhancement and in addition to Town maintenance crews regular roadside clean ups. Because roadside trash is very minimal, and mostly found in the Ford Field and Rossotti Field parking lots, there are no plans to change the frequency of on-land trash pickup.

Future Actions Planned Between July 2014 and July 2022:

Because the Town believes that any potential trash hotspots are located in two confined areas, there are no future plans to increase the frequency of on-land trash pickup. The Town believes that with the efforts of Town maintenance staff and manual on-land roadside trash pickup, the current frequency is more than adequate to address trash in TMA #1.

Enhanced Storm Drain Inlet Maintenance

Actions Initiated Prior to and Continued After the MRP:

The Town is of rural character with an informal rural type storm drain system. As an added enhancement, the Town Maintenance crew inspects and cleans each storm drain twice per year. Town has approx. 425 rural type storm drains. This additional clean up adds approx. 80 work hours to the typical annual maintenance of the Towns storm drains. The Town is rural in nature and the majority of debris related to storm drains consists almost all of tree fallen leaves.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

The town plans to continue to inspect and clean each storm drain twice per year. Because the majority of debris related to storm drains consists almost all of tree fallen leaves, and current efforts to mitigate on-street trash, the Town believes that it will continue this current schedule.

Future Actions Planned Between July 2014 and July 2022:

Because the Town believes that any potential trash hotspots are located in two confined areas, there are no future plans to increase storm drain inlet maintenance. The Town believes that because any potential on-street trash is mitigated very efficiently, in 2014-2022 there will be no changes to future actions from July 2014-July 2022.

Anti-Littering and Illegal Dumping Enforcement Activities

Actions Initiated Prior to and Continued After the MRP:

The Town of Portola Valley has adopted a basic anti-littering and illegal dumping enforcement program that entails receiving and responding to complaints from citizens as resources allow and pick up with its own crews. The Town of Portola Valley has adopted anti-litter ordinance Ch. 8.10. The link to this ordinance for the Town is as follows:

http://library.municode.com/HTML/13781/level2/TIT8HESA_CH8.10LL.html#TOPTITLE.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

The Town of Portola Valley will continue to implement the following anti-littering and illegal dumping enforcement control measures prior to July 1, 2014: According to Town ordinance Ch. 8.10, this Ordinance provides enforcement for anti-littering and illegal dumping activities. The Town of Portola Valley is a small community. Any problems relating to anti-littering and illegal dumping become very evident to residents and Town personnel. Violations can be reported to five members of the Building, Planning, and Public Works Divisions. Penalties for violations range from \$100-\$1,000 and are considered a misdemeanor.

Future Actions Planned Between July 2014 and July 2022:

Because the Town believes that any potential areas for illegal dumping and littering are located in two confined areas, there are no future plans to increase enforcement. The Town believes that based on daily visits to these hotspots by the Town's maintenance staff, and Town residents who are very active in reporting trash and illegal dumping, the Town ordinance Ch. 8.10 adopted in July 2014, will be more than adequate enough to addresses anti-littering and illegal dumping.

3.2.3 Jurisdiction-wide Control Measures

Single-use Carryout Bag Policies

Actions Initiated Prior to and Continued After the MRP:

There were no single-use ordinances passed in the Town of Portola Valley prior to the MRP.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

On January 23, 2013, the Town adopted a Reusable Bag Ordinance by reference to San Mateo County's Reusable Bag ordinance adopted on October 23, 2012. As part of outreach efforts, the Town of Portola Valley met with each of the local businesses to discuss the Reusable Bag Ordinance. In addition, the Town hosted two screenings of the movie, "Bag It" with a reusable bag give away as

outreach to the community. The link to this ordinance for the Town as follows:
<http://portolavalley.net/Modules/ShowDocument.aspx?documentid=5377>.

Future Actions Planned Between July 2014 and July 2022:

The Town will continue to support the Reusable Bag Ordinance by reference to San Mateo County’s Reusable Bag ordinance.

Polystyrene Foam Food Service Ware Policies

Actions Initiated Prior to and Continued After the MRP:

There were no polystyrene foam food service ware ordinances passed in the Town of Portola Valley prior to the MRP.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

The Town of Portola Valley has adopted a Prohibition on the Use of Polystyrene Based Disposable Food Service Ware by Food Vendors ordinance 8.04.040 by reference to San Mateo County’s Prohibition on the Use of Polystyrene Based Disposable Food Service Ware by Food Vendors. This ordinance bans food vendors from providing prepared food in disposable food service containers made from expanded polystyrene foam. Food vendors are defined as any vendor, business, organization, entity, group or individual, including a licensed retail food establishment that provides prepared food at a retail level. The ordinance became effective October 25, 2012. Through follow-up site visits, Town staff members have verified that approximately 90% of regulated food vendors are in full compliance with the ordinance. The link to this ordinance for the Town is as follows:

http://library.municode.com/HTML/13781/level2/TIT8HESA_CH8.04COCOAD.html#TIT8HESA_C H8.04COCOAD_8.04.040CH4.107COCOADANHE.

Future Actions Planned Between July 2014 and July 2022:

The Town will continue to support the Prohibition on the Use of Polystyrene Based Disposable Food Service Ware by Food Vendors by reference to San Mateo County’s Prohibition on the Use of Polystyrene Based Disposable Food Service Ware by Food Vendors.

Public Education and Outreach Programs

Actions Initiated Prior to and Continued After the MRP:

The Town of Portola Valley implemented the following public education and outreach control measures prior to the effective date of the MRP and has continued to implement these measures since MRP adoption.

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 Town of Portola Valley 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 stormdrains (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 stormdrain 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. 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. SMCWPPP will also continue maintaining an online calendar of cleanups on a monthly basis. In addition to using the SMCWPPP website, flowstobay.org, to promote cleanups, PIP is actively involved in social media platforms such as Facebook, Twitter, You Tube, and Instagram to deliver anti-littering and cleanup messages.

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.

BASMAA Regional Media Relations Project (Regional)

Through participation and funding of the **BASMAA Regional Media Relations Project**, the Town of Portola Valley 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 12-13,

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

Each year, the Town of Portola valley and the Town of Woodside collaborates together to organize an Earth Day Fair. During this event, the Town provided an informational table for residents to answer questions about proper disposal of materials like CFLs and expired medication. This event also educated young children about the importance of saying “no” to litter.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

In addition to the control measures continued port-MRP adoption, the Town of Portola Valley is currently implementing or planning to implement the following public education and outreach control measures that were initiated after the MRP was adopted.

BASMAA Youth Outreach Campaign (Regional)

Through participation and funding of the regional **BASMAA Youth Outreach Campaign**, the Town of Portola Valley 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 13-14. 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 12-13, 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 11-12 and the post campaign survey will begin in FY 13-14. 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 12-13 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.

Future Actions Planned Between July 2014 and July 2022:

Through participation and funding of the SMCWPPP's Public Information and Participation Program, the Town will continue implement SMWCPPP and BASMAA public education and outreach programs during this time period.

3.2.4 Creek and Shoreline Hot Spot Cleanups

Currently the Town of Portola Valley has identified the Ford Field parking lot as an area where town maintenance staff performs on-going trash hot spot clean up in accordance with MRP.

On the Trash Management Area map, as shown in Figure 6, the Ford Field parking lot is referred to as Trash Management Area #1, PVY01.

Trash Management Area #1-Ford Field Parking Lot

Actions Initiated Prior to and Continued After the MRP:

Town maintenance staff performed routine on-going trash hot spot clean up at the Ford Field parking lot.

Actions Initiated After the MRP Effective Date and Implemented Prior to July 1, 2014:

Town maintenance staff performed additional routine on-going trash hot spot clean up at the Ford Field parking lot in accordance with MRP. Town maintenance has also increased their frequency of trash pickup and garbage removal from the Ford Field parking lot.

Future Actions Planned Between July 2014 and July 2022:

The Town will continue its current frequency to monitor and pick up on-land trash at the Ford Field parking lot. The Town believes that with the increased efforts by the Town's maintenance staff, the Ford Field parking lot will be eventually be considered a non-hot spot.

3.3 Control Measure Implementation Schedule

The Town of Portola Valley's trash control measure implementation schedule is included in Table 97. This table include actions initiated prior to and continued after the MRP effective date; actions initiated after the MRP effective date and implemented prior to July 1, 2014; and actions planned for future implementation between July 2014 and July 2022.

Table 7. Town of Portola Valley 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-Ford Field and Rossotti Field														
Control Measure #1-Street Sweeping	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Control Measure #2-On-land cleanups	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Control Measure #3-Enhanced Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Control Measure #4-Anti-littering and Illegal Dumping Enforcement Activities	x	x	x	x	x	x	x	x	x	x	x	x	x	x
TMA #2-All Other Areas in Portola Valley														
Control Measure #1-Street Sweeping	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Control Measure #2-On-land cleanups	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Control Measure #3-Enhanced Storm Drain Maintenance	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Control Measure #4-Anti-littering and Illegal Dumping Enforcement Activities	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Jurisdiction-wide Control Measures														
Control Measure #1-Single-Use Carryout Policies					x	x	x	x	x	x	x	x	x	x
Control Measure #2-Polystyrene Foam Food Service Ware Policies					x	x	x	x	x	x	x	x	x	x
Creek and Shoreline Hot Spot Cleanups- Ford Field Parking Lot														
Control Measure #1- On-site trash pickup	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 Town of Portola Valley. The Town 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 Town 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 Town 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 Town of Portola Valley.

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 Town of Portola Valley 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 Town 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 Town of Portola Valley 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 Town.

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 Town of Portola Valley 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 Town 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 Town of Portola Valley 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 Town of Portola Valley 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 Town of Portola Valley 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. Town of Portola Valley 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 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 (Town of Portola Valley)										
Assessment Method #1-Pilot			x	x	x					
Long-Term Trash Assessment Strategy (SMCWPPP)						X	X	X	X	X

^aJuly 1, 2014 - 40% trash reduction target

^bJuly 1, 2017 - 70% trash reduction target

^cJuly 1, 2022 - 100% trash reduction target

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