Caltrans Trash Load Reduction Workplan for the San Francisco Bay Region

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1 Purpose of the Workplan

California Department of Transportation (Caltrans), the state of California State Water Resources Control Board (SWRCB), and the San Francisco Bay Regional Water Quality Control Board (RWQCB) share a common interest in achieving water quality benefits at a minimum life cycle cost to ensure responsible expenditure of public funds. Caltrans achieves this by optimizing its use of resources to ensure maximum environmental benefit while also achieving mobility and safety benefits to the traveling public. The Water Quality Objective addressed in this work plan is the prohibition of the discharge of trash in San Francisco Bay region as required by Caltrans NPDES Permit (SWRCB Order No. 2013-0011-DWQ) Attachment V, Part 2. Attachment V, Part 2, Section 2 indicates the compliance shall be done through:

- Installation, operation, and maintenance of full trash capture systems, treatment controls, and/or enhanced maintenance controls for storm drains or catchments that service the significant trash generating areas.
- Coordination with neighboring municipal separate storm sewer system (MS4) permittees to construct, operate, and maintain full trash capture systems, treatment controls, and/or enhanced maintenance controls in high trash generating areas and/or priority land use areas (high density residential, industrial, commercial, and public transportation stations).

This workplan demonstrates Caltrans compliance with the prohibition of the discharge of trash through implementation of source control and structural control measures in very-high/high trash generating areas in the San Francisco Bay Region. Caltrans recognizes that the effectiveness of the control measures by demonstrating outcome as stated in the San Francisco Bay RWQCB Municipal Regional Stormwater NPDES Permit (RWQCB Order No. R2-2015-0049) Provision C.10.b. The specific objectives of this workplan are to:

- Identify very-high and high trash generation areas within Caltrans Right-Of-Way (ROW)
- Identify tasks to address trash reduction in high trash generating areas
- Identify trash reduction strategy within the Caltrans National Pollutant Discharge Elimination System (NPDES) Permit cycle (through 2018)
- Identify a trash reduction strategy for the long-term (post-2018)

This plan includes Caltrans trash reduction efforts within the San Francisco Bay Region through partnership with local MS4 agencies including the Bay Area Stormwater Management Agencies Association (BASMAA). Consideration will include Caltrans Statewide NPDES Permit Attachment V, Caltrans Compliance Unit (CU) requirements per Caltrans Statewide NPDES Permit Attachment IV, Caltrans Total Maximum Daily Load (TMDL) Reach Prioritization Inventory, stormwater treatment technologies, and full trash capture technologies. Attachment A contains a map and list of Caltrans roadway segments within the San Francisco Bay Region.

2 Work Plan Tasks

2.1 Task 1: Identify High Trash Generation Areas

Caltrans will demonstrate compliance with Discharge Prohibition 7, Table 4-1 of the San Francisco Bay Regional Water Quality Control Board (RWQCB or Regional Board) Basin Plan through implementation of control measures in all high trash generation areas in the San Francisco Bay Region identified as Caltrans' responsibility.

Figure 2-1 illustrates the different steps in developing Caltrans on-line visual assessment of Caltrans Right-Of-Way in San Francisco Bay Region. Caltrans responsibilities within San Francisco Bay includes approximately 1,030 centerline highway miles and 790 highway ramps. In the first step, Caltrans prioritizes the on-land visual assessment on areas first identified as potential trash generation hot-spots based on data from District Maintenance's litter collection (including street sweeping) and Adopt-A-Highway program. The list of highway sections identified as potential hot-spots are included as Attachment B of this work plan.

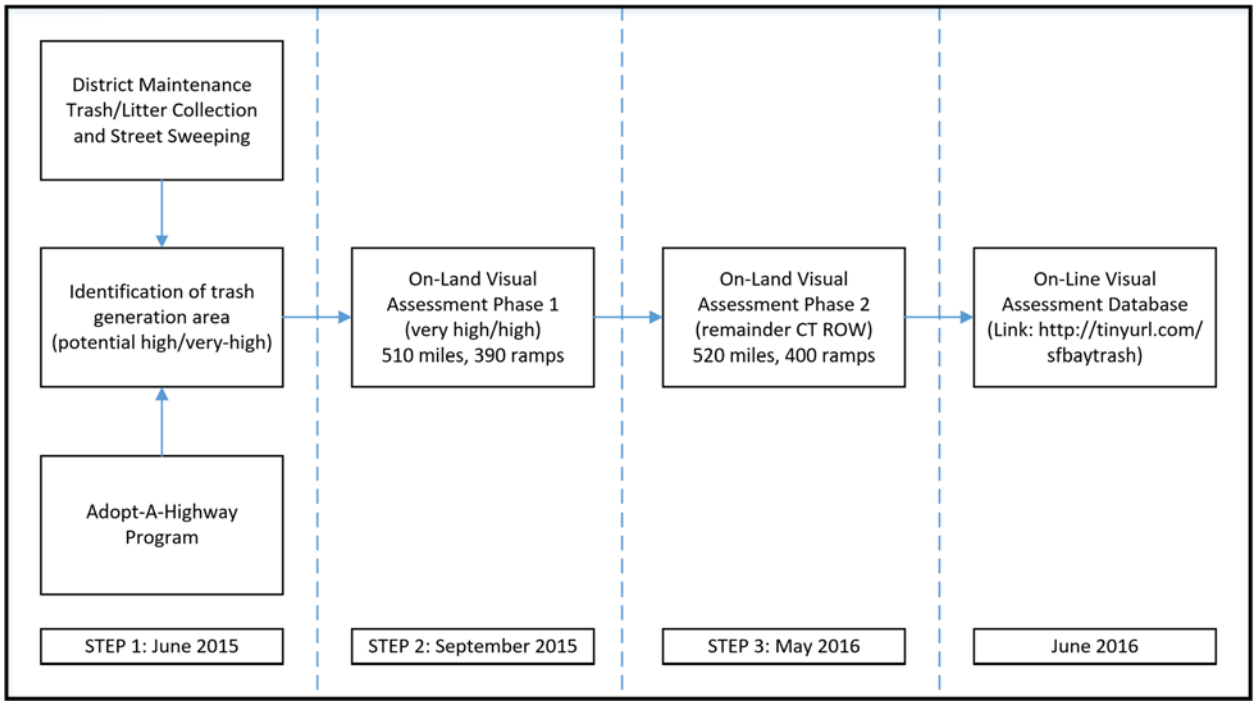

Figure 2-1 Caltrans On-Land Visual Assessment

The second step was to conduct on-land visual assessments within the watershed. Freeway stretches were visited to observe the level of trash present on the highway, shoulders, on- and off-ramps, medians, and other areas that could potentially contribute trash to the MS4. Multiple photographs within each 0.5-mile segment were taken to provide a representation of the trash generation. To be conservative the greatest level of trash accumulation was recorded for each 0.5-mile segment. All

segments were evaluated by the same staff to ensure consistency with assessment. Each assessed segment was categorized using criteria similar to the local MS4 categories as summarized below:

- **None/Low** – No trash was observed in the assessment area or assessment area was mostly free of trash, except for a few pieces that are easily disposed. Clean up could be accomplished with one person with little effort (less than 10 minutes).
- **Medium** – Trash was widely/evenly distributed and/or small accumulations were easily visible on the shoulders, on- and off-ramps, and medians. Clean up could be accomplished with up to two people in a short period of time (less than an hour).
- **High** – Trash was continuously seen throughout the assessment area, with large piles. Cleanup would require an organized effort.
- **Very High** – Trash was continuously seen throughout the assessment area, with large piles accumulated over a period of time, and there was a strong impression of unconcern for litter/debris in the area. Cleanup would require an organized effort.

Attachment B contains the mapped results of the on-land visual assessments for the initial 935 centerline miles, 36 park-and-rides and 684 on-ramps and off ramps. Results of the assessment may be viewed at tinyurl.com/sfbaytmdl.

2.2 Task 2: Evaluate Opportunities for Cooperative Agreements

Through Bay Area Stormwater Management Agencies Association (BASMAA) meetings, Caltrans met and discuss with local MS4's on partnership opportunities for Regional Stormwater Treatment systems that addresses pollutant removal as identified in the Caltrans TMDL Reach Prioritization inventory and includes full trash capture systems. In neighboring MS4 permittees, high trash generation areas are identified based on land-use that includes high density residential, industrial, commercial, and public transportation systems. In follow-up meetings, Caltrans presented its work plan with county specific stormwater management program including San Mateo Countywide Water Pollution Prevention Program, Contra Costa Clean Water Program, and Marin County Stormwater Pollution Prevention Program. Details are discussed in section 5 of this work plan.

Caltrans is actively seeking partnership opportunities with neighboring MS4's to address conventional highways within San Francisco Bay Region, specifically: San Pablo Avenue, Mission Boulevard, and El Camino Real to implement full trash capture systems for addressing trash impairments, as shown in Table 2-1. Attachment C contains maps of San Pablo Avenue, Mission Boulevard, El Camino Real, and other locations where Caltrans may collaborate with local agencies to implement trash control measures. Attachment C also contains a list of maintenance agreements along those routes.

Table 2-1: Conventional Highways within San Francisco Region

Highway	Name	Length (miles)	Area (acres)*
82	El Camino Real	40.5	314
123	San Pablo Ave	5.1	54
185	14th St/Mission Blvd	10.5	81
238	Mission Blvd	14.1	128
TOTAL		**70.2**	**577**

2.3 Task 3: Stormwater Pump Stations

Caltrans will comply with the monitoring requirements of the stormwater pump stations as required in Attachment V of the Caltrans NPDES Permit. Caltrans will inspect and collect dissolved oxygen data from 20% of stormwater pump stations once a year and complete 100% monitoring within five years. The inspection and monitoring results from the stormwater pump stations will be provided as part of the Caltrans Stormwater Management Program Annual Report. Caltrans submitted the "Report of Department Pump Station Inventory" in December 2008, identifying locations of all pump stations owned and operated by Caltrans within San Francisco Bay RWQCB boundaries. Caltrans has begun investigating pump stations along San Pablo Avenue, Mission Boulevard, and El Camino Real to identify opportunities to retrofit these pump stations for trash removal. Attachment D shows the locations of the Caltrans-operated stormwater pump stations.

3 On-land Visual Assessment of High Trash Generation Facilities Results

Caltrans conducted on-land visual assessments to determine high trash generation facilities. Table 3-1 summarizes the results of the on-land visual assessments for the initial areas assessed. Table 3-2 summarizes the freeway stretches identified as having high to very high trash levels and the date(s) they were visited along, with any recent sweeping that occurred within the assessed areas. These areas are further broken down to identify the high and very high trash freeway segments (Table 3-3) and ramps (Table 3-4).

Table 3-1: On-land Visual Assessment of High Trash Generation Facilities Results

	Very High	High	Medium	Low
Ramps	13 ramps (1.5%)	103 ramps (11.6%)	274 ramps (30.9%)	496 ramps (56.0%)
Highways	3.6 miles (0.1%)	44.5 miles (1.7%)	445 miles (17.1%)	2112 miles (81.1%)

Table 3-2: Freeways with High and Very High Trash Levels and Dates Visited

County	Freeway	Date(s) Visited	Sweeping/Litter Pick up Occurred within 7 days prior
Alameda	SR 13	7/21/15 and 7/22/15	No
	SR 24	7/13/15, 7/23/15, 7/24/15	7/21, 7/22, and 7/23 between Post Mile 1.85–6.24
	SR 77	7/29/15	No
	I-80	7/9/15, 7/13/15, 7/14/15, 7/15/15 and 7/22/15	7/18 and 7/20 litter pickup between Post Mile 1.99–8.04
	SR 84	2/25/16 and 3/1/16	No
	SR 185	2/29/16	No
	I-580	7/8/15 and 7/9/15	No
	I-680	6/29/15, 7/2/15 and 7/10/15	7/6 litter pickup by ADH at Post Mile 21.87
	I-880	7/23/15, 7/24/15	No
	I-980	6/29/15 and 7/14/15	No
Contra Costa	SR 4	7/2/15, 7/10/15 and 7/21/15	No
	SR 24	7/13/15, 7/23/15, 7/24/15	No
	I-80	7/9/15, 7/13/15, 7/14/15, 7/15/15 and 7/22/15	No
	SR 242	7/10/15, 7/21/15 and 7/30/15	No
	I-580	7/8/15 and 7/9/15	No
	I-680	6/29/15, 7/2/15 and 7/10/15	No
Marin	US 101	7/15/15 and 7/29/15	No
Santa Clara	SR 17	7/24/15	No
	SR 85	7/17/15 and 7/22/15	No
	SR 87	7/29/15	No
	US 101	7/7/15 and 7/13/15	No
	SR 237	7/17/15 and 7/22/15	No

Table 3-2: Freeways with High and Very High Trash Levels and Dates Visited

County	Freeway	Date(s) Visited	Sweeping/Litter Pick up Occurred within 7 days prior
	I-280	7/16/15, 7/27/15 and 7/28/15	No
	I-680	6/29/15, 7/2/15 and 7/16/15	No
	I-880	7/23/15 and 7/24/15	No
San Francisco	SR 1	4/7/16	No
	US 101	7/13/15, 7/15/15 and 7/29/15	No
	I-280	7/16/15, 7/27/15 and 7/28/15	No
San Mateo	US 101	7/7/15 and 7/13/15	No
	I-280	7/16/15, 7/27/15 and 7/28/15	No
	I-380	7/28/15	No
Solano	I-80	3/8/16	No
Sonoma	SR 12	7/20/15	No
	US 101	7/15/15 and 7/29/15	No

Table 3-3: Freeway Stretches with High and Very High Trash Level

County	Freeway	Segment(s)	# Miles
Alameda	SR 13	NB – North of Moraga Ave ramp	0.5
	SR 24	EB – Around Broadway ramp	0.5
	I-80	EB – West of I-80/I-880 interchange WB – South of University Ave ramp to Ashby Ave ramp	1.5
	SR 84	NB – North of Paseo Padre Parkway SB – Between Newark Blvd and Thornton Ave	1.0
	SR 185	NB – Around 93rd Avenue SB – Around Rufus Ct	1.0
	I-580	WB – Between San Pablo Ave ramp and I-580/I-980 interchange WB – Around Lakeshore Ave ramp EB – Around Fruitvale Ave ramp WB – Approximately 1 mi west of San Ramon Rd ramp	2.0
	SR 77	NB – Entire SR 77 SB – Entire SR 77	0.9
	I-880	SB – Between 98th Ave ramp and Davis St ramp	0.5
	I-880	SB – Around I-80/I-880 interchange SB – From Broadway ramp to south of 5th St ramp NB – Around 66th Ave ramp NB – From 98th Ave ramp to Davis St ramp SB – From 98th Ave ramp to north of Davis St ramp NB – Between A St ramp and Winton Ave ramp NB – Around I-880/SR 92 interchange NB – From Alvarado Niles Rd ramp to Fremont Blvd ramp NB – From Fremont Blvd ramp to Decoto Rd ramp NB – Between Stevenson Blvd ramp and Auto Mall Pkwy ramp NB – Between Mission Blvd ramp and Dixon Landing Rd ramp	7.5

Table 3-3: Freeway Stretches with High and Very High Trash Level

County	Freeway	Segment(s)	# Miles
Contra Costa	SR 4	EB – Between Bailey Rd and Railroad Ave EB – Around SR 4/I-680 interchange EB – East of Sycamore Ave ramp EB – Around Willow Ave ramp	2.5
	SR 24	EB – Between Gateway Blvd ramp and Camino Pablo ramp	0.5
	I-80	EB – North of Tennessee St ramp WB – North of San Pablo Ave ramp	1.0
Marin	US 101	SB – South of Petaluma Blvd ramp and NB – Around US 101/SR 37 interchange NB – Between Lucas Valley Rd ramp and Manuel Freitas Pkwy	1.0
Santa Clara	SR 17	NB – Between Hamilton Ave ramp and Camden Ave ramp NB – Around Camden Ave ramp	1.0
	SR 85	NB – Between Moffett Blvd ramp and Central Expy ramp NB – Between Fremont Ave ramp and SR 85/I-280 interchange NB – Around SR 85/SR 17 interchange NB – Around Union Ave ramp NB – Around Camden Ave ramp NB – From south of Blossom Hill Rd ramp to Cottle Rd ramp	4.0
	SR 87	SB – From north of Taylor St ramp to south of Julian St ramp NB – Around and south of Capitol Expy ramp	1.5
	US 101	SB – Around Shoreline Blvd ramp SB – Between Oakland Rd ramp and Julian St ramp NB – Around McKee Rd ramp NB – Around US 101/I-680 interchange to Story Rd ramp SB – South of Story Rd ramp SB – South of US 101/SR 85 interchange SB – Between US 101/SR 85 interchange and Bailey Ave ramp	3.5
	US 101	SB – Around US 101/I-680 interchange to Story Rd ramp	0.6
	SR 237	WB – Around Middlefield Rd ramp	0.5
	I-280	SB – Between Sunnyvale Saratoga Blvd ramp and Wolfe Rd ramp SB – Between San Tomas Expwy ramp and Winchester Blvd ramp NB – Around I-280/I-880 interchange NB – Between 4th St ramp and 10th St ramp	2.0
	I-880	NB – Between Dixon Landing ramp to Calaveras Blvd ramp NB – North of Calaveras Blvd ramp NB – Between Brokaw Rd ramp and Old Bayshore Hwy ramp SB – Between 1st St ramp and Coleman Ave ramp NB – From south of Bascom Ave ramp to I-880/I-280 interchange	3.5
	I-680	NB- Around Alum Rock Ave	0.5
San Francisco	SR 1	NB – South of W. Pacific Ave	0.5
	US 101	SB – South of US 101/I-80 interchange to Cesar Chavez ramp	1.0
	US 101	NB – Between US 101/I-80 interchange to Cesar Chavez ramp SB – South of Cesar Chavez ramp to US 101/I-280 interchange	1.0

Table 3-3: Freeway Stretches with High and Very High Trash Level

County	Freeway	Segment(s)	# Miles
	I-280	SB – South of Mariposa St ramp to 23rd St ramp	0.6
	I-280	SB – From north of Mariposa St ramp to south of 19th St ramp SB – Around US 101 interchange SB – East of Alemany Blvd ramp to west of San Jose Ave ramp NB – West of US 101 interchange to west of San Jose Ave ramp SB – West of Sagamore St ramp SB – Between Hickey Blvd ramp and Westborough Blvd ramp	4.5
San Mateo	I-280	SB – North of Westborough Blvd	0.5
Solano	I-80	EB – North of Turner Pkwy EB – North of Tennessee St WB – Around Round Top Rd WB – 0.8 miles north of Air Base Pkwy	2.0
Sonoma	US 101	SB – Around Kastania Rd	0.5

*Red indicates high trash level and purple indicates very high trash level.

Table 3-4: Freeway Ramps with High and Very High Trash Level

County	Freeway	Ramp(s)
Alameda	SR 13	SB – Moraga Ave SB – Redwood Rd NB – Carson St SB – SR 13/I-580 interchange
	SR 24	WB – Broadway WB – 27th St EB – Oakland Ave
	I-80	EB – Gilman St
	I-80	WB – Gilman St EB – University Ave
	I-580	EB – Buchanan St WB – San Pablo Ave EB – Park Blvd WB – Keller Ave EB – Estudillo Ave WB – Benedict Dr EB – Livermore Ave
	I-680	NB – Washington Blvd SB – Washington Blvd
	I-880	SB – Embarcadero NB – 29th Ave SB – Davis St SB – Marina Blvd
	I-880	SB – Embarcadero SB – 23rd Ave SB – Washington Ave NB – A St SB – A St SB – Auto Mall Pkwy
Contra Costa	SR 4	EB – Loveridge Rd WB – Loveridge Rd EB – Railroad Ave EB – Morello Ave WB – McEwen Ave WB – Willow Ave
	I-80	WB – Cutting Blvd EB – Potrero Ave EB – Carlson Blvd EB – Central Ave
	I-80	EB – Appian Way WB – Richmond Pkwy EB – San Pablo Dam Rd EB – San Pablo Ave WB – San Pablo Ave EB – Mac Donald Ave WB – Carlson Blvd EB – Buchanan St
	I-580	EB – Regatta Blvd EB – Bayview Ave EB – Central Ave WB – Central Ave
	I-680	NB – Willow Pass Rd
Santa Clara	SR 17	NB – Camden Ave
	US 101	NB – Yerba Buena Rd NB – Bailey Ave NB – McKee Road / Julian Street NB – Amphitheater Parkway SB – Story Road SB – 2I-80 / 680 North / Sacramento / SF / Downtown San Jose
	I-280	NB – McKee Rd NB – 11th Street / 10th St

Table 3-4: Freeway Ramps with High and Very High Trash Level

County	Freeway	Ramp(s)
		NB – Bird Ave NB – Saratoga Ave NB – Wolfe Rd SB – Berryessa Rd NB – Landess Ave SB – Meridian Rd SB – Vine St / Almaden Ave SB – 7th Street to SR-82 / Virginia St
	I-680	NB – McKee Rd NB – Landess Ave / Montague Expressway SB – Berryessa Rd SB – SR-130 / Alum Rock Rd SB – Capitol Expressway
	I-880	SB – Brokaw Rd SB – The Alameda
San Francisco	US 101	SB – Paul Ave
	I-280	NB – Alemany Blvd SB – Alemany Blvd / Mission St SB – Monterey Blvd SB – SR-82 / Mission Street / Daly City / SR-1 North
San Mateo	US 101	NB – Grand Ave
	I-280	NB – Daly City / Westlake Dist SB – Eastmoor Ave / Mission St SB – Hickey Blvd / South San Francisco SB – Westborough Blvd
Solano	I-80	EB – Red Top Road WB – Auto Mall Columbus Pkwy EB – Redwood Pkwy (East) EB – West Texas St / Fairfield WB – SR-12 East / Rio Vista / Suisun City / Albernathy Rd

*Red indicates high trash level and purple indicates very high trash level.

4 Trash Load Reduction Control Measures for San Francisco Region

Existing baseline institutional controls that are currently implemented in the San Francisco Bay Region include storm drain inlet cleaning, street sweeping, and trash pickup activities. Additionally, Caltrans has implemented treatment control BMPs within the region. The BMPs that are most effective at capturing trash are detention basins, infiltration basins, gross solids removal devices (GSRDs), and media filters. Other BMPs, such as biofiltration swales and strips, infiltration trenches, and wet basins, may function as full capture devices.

A comprehensive approach is needed to address the high trash generation areas. This includes proactive (public education and awareness campaigns), reactive (litter control and trash pickup), and corrective (enforcement) measures to reduce trash.

Attachment V, Part 2, Section 2 states the compliance shall be done through enhanced maintenance controls and implementation of both source control and structural BMPs. Table 4-1 lists additional control measures that Caltrans plans to implement.

Table 4-1: Trash Control Measures Planned for Implementation to Meet 40% Reduction

Control Measures
Source Control
Public education and outreach programs
Street sweeping
Litter removal
Improved trash bin/container management
Structural Control
Storm drain cleaning
Full-capture treatment devices (e.g., GSRDs)
Infiltration basins
Media filters
Detention basins

4.1 Source Control

4.1.1 Public Education and Outreach Programs

After implementing a pilot program in 2001-2002 (Caltrans, 2002) to understand the impact of public education as an effective BMP, Caltrans implemented (and continues to implement) a successful public education campaign to reduce the rates of littering within the State of California. Caltrans has since expanded the program using the core message “Don’t Trash California” and initiated a statewide, multimedia, bilingual (English/Spanish) campaign to educate the public on the importance of keeping pollutants out of the storm drain system. Recently, Caltrans began a new public education campaign aimed at reducing stormwater pollution, with a targeted emphasis on trash. The statewide “Protect Every Drop” campaign educates Californians about the sources and pathways of stormwater pollution to enlist their help in reducing stormwater pollution along the state highway system.

In San Francisco Bay Area, Caltrans partners with CBS EcoMedia and the East Bay Regional Park District (EBRPD) for a comprehensive environmental education and shoreline cleanup program starting in June 2016 and extending to Spring 2017. The first shoreline cleanup will be on June 25, 2016 at the Crab Cove and Encinal Beach.

In order to measure the effectiveness of the "Protect Every Drop" public campaign, Caltrans conducted a quantitative public survey. The survey respondents indicated that "nearly half of all motorists surveyed admit to sometimes littering along the state highways" and "nearly one in five California motorists intentionally dumping something on the side of the highway." Prior to this survey, Caltrans conducted similar surveys in 2008 to understand the impact of its public education program on reducing litter. These were primarily focused on Southern California to address several TMDL projects in the Los Angeles Region. In addition, Caltrans found that following the 2003 campaign, there was found to be a significant and lasting (5 years) decrease in three key littering behaviors; allowing paper/trash to blow into the street, throwing something in the gutter or down the drain and emptying a car ashtray into the street. Caltrans will use the results of these studies and surveys to estimate load reduction credits for its efforts in the San Francisco Bay Area. The estimates of the benefit of public education (trash reduced) will be based on the change in public behavior that reduces littering.

Having considered numerous approaches to reach all public venues, Caltrans has included the following:

- Participation in community programs
- Newspaper advertisements
- Television and radio public service announcements
- Signage
- Nontraditional media, including bus signs, theater slides, pump toppers, and bus wraps
- Movie theater/cinema slides
- Bus signage
- Mall and airport graphic signage
- Target marketing
- Trade publications
- Additional printed materials
- Audiovisual marketing

Public education may be solely provided by Caltrans through a campaign or may be part of a regional cost-shared program with local MS4 Permittees.

4.1.2 Roadway Sweeping

Caltrans conducts roadway sweeping and roadside cleanup operations to provide safe freeway conditions appropriate for the type and use of the road. . Caltrans currently do regular roadway sweeping on quarterly basis throughout the San Francisco Bay region. Collected litter is collected at Caltrans Field Maintenance stations before disposed of appropriately.

Caltrans will augment, to the extent feasible, its street sweeping efforts to increase the capture of trash by focusing on sections of roadways identified as very high and high trash generation areas for litter accumulation. To the extent possible, sweeping will be timed to occur just before a forecasted rain

event. Timing sweeping efforts may have a greater impact in keeping trash out of the storm drain system and will help with the removal of other pollutants, such as sediment, metals, and mercury.

4.1.3 Litter Removal

Ongoing baseline source control actions by Caltrans include litter removal performed by Caltrans Maintenance Crews, Adopt-A-Highway (AAH), and contracted litter removal by California Conservation Corps and by parolees.

Between July 215 and April 2016, Caltrans spent $11.8 million in litter collection efforts, including labor, equipment and materials, and efforts in street sweeping, storm drain cleaning, litter pick-up for the highway and removal of homeless encampments. This cost was for Caltrans staff maintenance only and did not include contract work or work performed by participants in programs (e.g., Adopt-A-Highway). The projected annual expenditures for FY 15/16 is $14.5 million.

Adopt-A-Highway provides an opportunity for individuals, organizations, and businesses to help maintain sections of roadside within California's State Highway System. Under the program, volunteers collect a substantial amount of roadside trash every year. Program participants bag trash and leave the filled bags at the edge of the shoulder for pickup by maintenance personnel. Bags are intentionally left for a few (up to five) days to allow the public to see how much is collected as a means of public awareness effort. Caltrans District 4 has 750 miles of highway within the Adopt-A-Highway program (2013-2014 reporting year). This accounts for about 83% of the roadway facilities in District 4. The amount and frequency of highway litter maintenance under the Adopt-A-Highway program varies from quarter to quarter as the program is subject to other entities' participation.

Caltrans continues to explore opportunities to expand the program and increase the facilities that are covered in the Adopt-A-Highway program. The frequency of trash pickup also could be expanded from once per month to twice per month.

Caltrans District 4 spends approximately $2 million annually cleaning homeless encampments and illegal dumpsites. Caltrans will continue to work with law enforcement to evict homeless residents and cleanup encampments. Caltrans will work with local MS4 to develop deterrents to reduce illegal dumpsites and homeless encampments through use of physical barriers such as fencing at popular locations. Caltrans will also continue to notify local MS4 Permittees of illegal dumpsites and homeless encampments outside of right-of-way but within view of highway.

To address roadside construction site litter, Caltrans Resident Engineer (RE) will continue to work with contractors on implementing Caltrans standard specification and project specific special provisions on maintaining construction zones free of construction-related litter and debris. Additionally, contract specification will be evaluated for options to have contractors remove public-generated litter in construction zones.

4.1.4 Improved Trash Bin/Container Management

Caltrans provides waste and recycling receptacles as needed at public areas, and maintenance crews service those receptacles on a regular basis. Caltrans will review every public area (e.g., safety roadside

rest areas, vista points, and park-and-ride lots) in the San Francisco region to ensure there are adequate waste and recycling facilities. For facilities maintained under contract, Caltrans will ensure the adequacy and maintenance of the infrastructure. A list of facilities is contained in Attachment E.

4.2 Structural Control

4.2.1 Storm Drain Cleaning

Caltrans maintains its storm drain inlets along its highways annually. Caltrans inspects culverts and drain inlets to determine whether cleaning is required. Drains are cleaned when sediment and other materials may impair drainage function or have sediment accumulation greater than 50%; these activities are typically conducted before the rainy season in order to maintain hydraulic capacity.

Caltrans' focus for the Storm Drain Inlet Inspection and Cleaning Program efforts will be on very high and high trash generation areas of litter generation and cleaning those storm drain inlets at the start of the rainy season and as necessary prior to predicted storm events.

4.2.2 Structural Best Management Practices (Stormwater Treatment Systems)

Caltrans is determined to implement structural BMPs to supplement source control and studies to comply with the San Francisco region's trash reduction goal and Caltrans Statewide NPDES permit pollutant reduction goals. The types of devices implemented at specific locations will be determined by feasibility, cost, and other impairments in the watershed. If other priorities, including 303(d) listed water bodies and TMDLs, exist in the watershed, Caltrans will prioritize infiltration devices where feasible. If infiltration is not feasible, Caltrans' next priority is to implement full capture devices that are most effective for other pollutants of concern. Caltrans will also evaluate the ability to safely retrofit its storm drain systems and existing treatment controls with trash capture devices to qualify for full or partial trash capture credits.

The structural treatment BMPs that may be qualified as full trash capture systems include detention basins, infiltration basins, GSRDs, and media filters. Having received approval for GSRDs as a full trash capture device within the Los Angeles Region, Caltrans is pursuing certification for several other devices, including infiltration devices, media filters, and detention basins.

Caltrans currently has approximately 450 constructed treatment control measures within the San Francisco Bay watershed, including sand filters, biofiltration swales, biofiltration strips, infiltration trenches, detention devices, and bioretention basins/swales, which may qualify as full or partial trash capture systems. Seventeen of the 450 treatment control BMPs receives stormwater run-off from highway and ramps that have very-high or high trash generations rates thus these highways and ramps have been re-categorized as having medium trash generation rates. Table 4-2 and Table 4-3 lists the locations of these 17 treatment control BMP's.

Table 4-2 BMP Locations Currently Treating High and Very High Trash Assessment Highways

County	Route	Direction	PM	On-land Visual Assessment	Treatment Assessment	BMP Type
ALA	880	SB	24.3	High	Medium	Biofiltration Strip / Swale
ALA	880	SB	30.8	High	Medium	Sand Filter
MRN	101	NB	18.5	High	Medium	Biofiltration Strip / Swale
SCL	101	SB	33.9	High	Medium	Biofiltration Swale
SCL	101	SB	48.4	High	Medium	Biofiltration Strip
SCL	880	NB	8.5	High	Medium	Biofiltration Swale
ALA	80	EB	1.5	High	Medium	Biofiltration Swale
ALA	880	SB	23.8	Very High	Medium	Biofiltration Strip

Table 4-3 BMP Locations Currently Treating High and Very High Trash Assessment Ramps

Route	Direction	Exit Number	Intersection	On-land Visual Assessment	Treatment Assessment	BMP Type
101	NB	400A	Amphitheater Parkway	High	Medium	Biofiltration Swale
4	EB	11	Morello Avenue / Glacier Drive	High	Medium	Biofiltration Strip
4	EB	24	Loveridge Road	High	Medium	Detention Basin
4	WB	24	Loveridge Road	High	Medium	Detention Basin
880	NB	35	98th Avenue / Oakland Airport	High	Medium	Biofiltration Strip / Swale
880	SB	34	SR-112 / Davis Street	Very High	Medium	Biofiltration Swale
880	SB	33B	Marina Blvd West	Very High	Medium	Biofiltration Swale
880	SB	5	Brokaw Road	High	Medium	Biofiltration Swale
101	NB	400A	Amphitheater Parkway	High	Medium	Biofiltration Swale

4.3 Increased Level of Implementation in High Trash Generation Areas

Roadway segments identified as high or very high trash generating areas will be addressed through a combination of the following approaches:

- Institutional controls, such as additional litter pickup, beyond current practices.
- Retrofit existing structures with full capture trash devices.[1]
- Ongoing inspection reports and maintenance activities reporting trash volumes removed.

On-ramp and off-ramp segments identified as high or very high trash generating areas will be addressed through a combination of the following approaches:

- Institutional controls, such as additional litter pickup, beyond current practices.
- Incorporation of litter pickup through maintenance agreements with local jurisdictions (e.g., city or county).
- Retrofit with full capture trash devices[1] (on- and off-ramps, outfalls, etc.). Devices for drain inlets and curb inlets may be feasible at some ramp locations (e.g., safety, flooding, and other physical constraints).
- Cooperative Agreements to implement regional trash capture devices.
- Ongoing inspection reports and maintenance activities reporting trash volumes removed.

Retrofit may not be feasible in all high density residential, commercial, and industrial areas due to safety concerns. In such areas, institutional controls will be considered as an alternative control.

Caltrans District 4 has 226 projects currently programed in various phases of Environmental Study and Design. Over 50 of these projects are location in high or very high trash generating areas with the potential to treat 125 on/off-ramps and over 40 miles of highway. These projects have been targeted for installation of trash capture devices as part of the proposed treatment BMP needs as the projects move through the environmental study and design phase. Table 4-4 presents the list of projects located in high and very high trash assessment areas.

[1] A full capture system or device is any single device or series of devices that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate Q resulting from a one-year, one-hour storm in the subdrainage area. See Caltrans NPDES Permit.

Table 4-4 Programed Projects within High and Very High Trash Assessment Areas

County	Highway	Project ID	Legal Description	Work Description	Within 100 ft buffer of Upcoming Project	
					Number of High/Very High Ramps	Miles of High/Very High Highway
SCL	82	413000203	In Santa Clara County On Route 82 From PM 8.6 In San Jose To PM 25.8 In Palo Alto	Integrate Bus Rapid Transit (BRT) Support Elements On State Route 82	1	0
SM	101	413000206	US 101 From Wipple Ave In Redwood City To SM/SF County Line	HOV Express Lanes On Us 101 From Wipple Ave To the SM/SF County Line	2	0
SCL	101	414000162	In Santa Clara County In City of San Jose At US 101/ Mabury Road	Construct Interchange	1	1
SM	101	414000256	On Route 101, PM 20.3/26.0 In San Mateo County From San Bruno Ave To San Mateo/San Francisco County Line.	Add Auxiliary Lanes In Both	1	0
ALA	680	414000304	In And Near Fremont, Pleasanton, And Dublin, From South of Scott Creek Road To North of Alcosta 04 Boulevard	Ramp Metering	1	0
CC	80	415000077	In Contra Costa County, Route 80 PM 10.1 / 13.5	R/W Work $ 33 K, Road $11000 K	2	0
SCL	82	415000315	In San Jose, From Mckendrie Street To Lawrence Expressway.	Pavement Rehabilitation.	1	0
SCL	87	416000010	On Scl-87 PM 0.0/5.1 Between Rte 85 And Rte 280 In the City of San Jose	Roadway Rehab	0	0.5
SCL	101	416000017	In Santa Clara County, On Route 101 At Various Locations.	Roadside Rehabilitation/ Water Conservation .	8	4

Table 4-4 Programed Projects within High and Very High Trash Assessment Areas

County	Highway	Project ID	Legal Description	Work Description	Within 100 ft buffer of Upcoming Project	
					Number of High/Very High Ramps	Miles of High/Very High Highway
SCL	280	416000024	On Scl-280 PM R0.0/6.0 Rte 101 And Saratoga Ave In the City of San Jose	Roadside Paving Including Extended Areas	7	4.5
SM	280	416000028	In Sm County On I-280 At PM R23.16 (King Dr. Uc#35 0202I/R) And PM R24.63 (Serramonte Blvd UC #35-0209r/L)	Seismic Restoration	2	0
CC	80	416000044	In Cc County On I-80 From County Line To Carquinez Bridge.	Install Freeway Mainline Safety Lighting On Median With Improvement.	13	1
ALA	185	416000094	In Ala County On Rte 185 From A St To Route 112	Pavement Preservation	0	0.5
CC	680	416000148	In And Near Walnut Creek, Pleasant Hill, And Concord, From Olympic Boulevard To Arthur Road. Install Safety Lighting.	Install Safety Lighting.	1	0.5
SCL	880	416000149	In San Jose, At Route 101 Separation; Also On Route 101 (PM 37.9/38.5).	Drought Conservation Improvements.	1	0.5
ALA	880	400000421	In Alameda Cty On Rte 880 Fr Rte 112/Davis St To Santa Clara Cty , Line ; On Rte 238 Fr Rte 880 To Rte 580; On Rte 92 Fr Rte 880 To San Mateo Br Toll Plaza; On Rte 84 Fr	Install Ramp Meters & Traffic Operations Systems (TOS) Elements	1	0.5
ALA	185	400000765	In Alameda County On Route 185 Near the City of Hayward From 162nd Street To Rufus Court	Highway Beautification (Local)	0	0.5
SF	280	400000827	In San Francisco County On Route 280, Bridge #34-46	Bridge Rehabilitation Repair For Drainage & Ponding	0	1.5

Table 4-4 Programed Projects within High and Very High Trash Assessment Areas

County	Highway	Project ID	Legal Description	Work Description	Within 100 ft buffer of Upcoming Project	
					Number of High/Very High Ramps	Miles of High/Very High Highway
SF	1	400001180	In San Francisco, From Route 280 To Ruckman Avenue Undercrossing. (G13 Contingency Project)	Rehabilitate Roadway.	0	0.5
SOL	80	400020584	Improve Road Feasibility Study	Improve the Frontage Roads. Improve I-80/Redwood Parkway & Rte 37/Fairgrounds Drive Interchanges	1	0
ALA	580	412000131	In San Leandro And Oakland, From Routes 580/238 Separation To Fruitvale Avenue Undercrossing. Rehabilitate Pavement.	Rehabilitate Pavement.	8	0.5
ALA	680	412000139	In Ala County, In And Near Fremont, From the Scl/Ala County Line To 0.5 Miles North of Route 84 East.	Rehabilitate Roadway	1	0
SM	101	412000151	In San Mateo County On Route 101 At Various Locations	Construct Roadside Pavement	2	0
SOL	80	412000332	In Sol County, On Route 80, Pm11.2/ 29.3, From Redtop Road In the City of Fairfield To Route 505 In the City of Vacaville	Convert Existing HOV Lane To Express Lane Pm11.2/20.1 & Const New Express Lane PM 20.1/29.3	3	0.5
ALA	880	412000335	In Oakland, From 23rd To 29th Street. Rehabilitate Roadway.	Rehabilitate Roadway.	2	0
ALA	80	412000357	In Berkeley, From Potter Street/Ashby Avenue On-Ramp To University Avenue Off-Ramp. Replace Metal Beam Guard Rail With Concrete Barrier.	Replace Metal Beam Guard Rail With Concrete Barrier.	0	1.0

Table 4-4 Programed Projects within High and Very High Trash Assessment Areas

County	Highway	Project ID	Legal Description	Work Description	Within 100 ft buffer of Upcoming Project	
					Number of High/Very High Ramps	Miles of High/Very High Highway
ALA	880	413000034	In the Cities of Oakland And San Leandro.	Integrated Corridor Management	6	4.0
CC	580	413000059	In Contra Cost County In Richmond Fr 0.5 Mile East To 0.5 Mile West. In Richmond, At Scofield Avenue Undercrossing No. 28-140l/R.	Bridge Replacement Seismic Retrofit.	5	0
CC	4	413000122	Near Concord, On Route 4 From Route 80 To Route 160; Also On Route 24 East of Caldecott Tunnel To Route 680. Place Vegetation Control, Maintenance Vehicle Pullout (MVP) And Pave Beyond Gore.	Place Vegetation Control, Maintenance Vehicle Pullout (MVP) And Pave Beyond Gore.	6	2.5
ALA	580	413000123	In Oakland, Between Fruitvale Avenue/Champion Street And Harold Street /Montana Street. Upgrade Sidewalk And Curb Ramps.	Upgrade Sidewalk And Curb Ramps.	2	0.5
SOL	80	413000147	In And Near Vallejo, Fairfield And Vacaville, From Route 29 To Alamo Drive; Also In Vallejo On Route 37 At Route 80 (PM R11.45). Install Roadside Safety Improvements.	Install Roadside Safety Improvements.	7	2
ALA	880	413000162	Near Union City, From 0.4 Mile North of Fremont Blvd Overcrossing To A Street Undercrossing; Also From 0.1 Mile South of Washington Ave Overcrossing To South of High Street Undercrossing.	Rehabilitate Pavement.	6	5

Table 4-4 Programed Projects within High and Very High Trash Assessment Areas

County	Highway	Project ID	Legal Description	Work Description	Within 100 ft buffer of Upcoming Project	
					Number of High/Very High Ramps	Miles of High/Very High Highway
SCL	237	413000202	In Santa Clara County, Route 237 From North of First Street In San Jose To Mathinda Avenue In the City of Sunnyvale	Convert High Occupancy Lanes To Express Lanes	0	0.5
SCL	85	413000234	In SCL County At Var Locations.	Pave From Shoulder To Soundwall.	0	1
SCL	101	413000236	Near San Jose, From Blossom Hill Road To Trimble Road At Various Locations. Pave Beyond Gore Areas.	Pave Areas Beyond the Gore And Collector Strips	5	2.5
ALA	580	414000054	In Oakland On Route 580 From Fruitvale Avenue Undercrossing To Hollis Street Undercrossing And On Route 24 At Westbound Off-Ramp To Market Street	Rehabilitate Pavement/Curb Ramps.	6	1.5
SF	101	414000333	In the City And County of San Francisco On Route 101 From 22nd St Poc To 18th Street Poc And On Route 280 At 0.1 Mile North of 20th St Poc	Upgrade Fences And Gates	0	1.5
SCL	880	414000398	At SR-17/I-280/I-880 Interchange And I-880/Stevens Creek Boulevard Interchange Area In San Jose, Santa Clara County	Construct Replacement Highway Planting Including A Three Year Plant Establishment Period	0	1.5
ALA	680	414000483	In And Near Fremont, From Auto Mall Parkway To Koopman Road. Rehabilitate Roadway.	Rehabilitate Roadway.	1	0
CC	4	415000047	In Contra Costa Co In Pittsburg And Antioch From 0.4 Mile West of Loveridge Rd OC To 0.1 Mile East of Contra Loma Blvd UC	Replacement Planting	2	0

Table 4-4 Programed Projects within High and Very High Trash Assessment Areas

County	Highway	Project ID	Legal Description	Work Description	Within 100 ft buffer of Upcoming Project	
					Number of High/Very High Ramps	Miles of High/Very High Highway
CC	4	415000048	In Contra Costa County In Antioch On SR 4 From 0.1 Miles W of G St OC To 0.6 Miles East of Rt 160 Viaduct And On Sr4 From 0.4 Miles South of Oakley Rd OC To Main St OC	Replacement Landscaping	3	0
ALA	80	415000163	In Alameda County, In Emeryville And Berkeley On Route 80 From 0.5 Mile East of Powell Street To 0.2 Mile East of University Avenue.	Replacement/Profile Grinding of	1	1
ALA	680	415000190	In Alameda County In Fremont From 0.2 Mile South of Mission Blvd/ Route 262 Separation To 0.3 Mile North of Mission Blvd/Route 238 Separation	Replacement Planting	1	0
SOL	80	415000327	In Solano County In Dixon At Various Locations From Atkinson Rd T0 Route 80	Replace Ac Pavement	0	0.5
CC	80	415000331	In Contra Costa County, In And Near Richmond, Pinole And Hurcules, From Alameda/Contra Costa County Line To Interstate 80/State Route 4 Separation	Pavement Preservation	11	1
ALA	680	416000221	From South of Auto Mall Parkway To North of SR-84 (Vallecitos Road) In Alameda County.	Rehabilitate Roadway And Construct HOV/Express Lane On Northbound I-680.	1	0
SF	101	412000141	Near San Francisco, At Alemany Circle Undercrossing No. 34-0033. (G13 Contingency Project)	Rehabilitate Bridge.	0	0.5

Table 4-4 Programed Projects within High and Very High Trash Assessment Areas

County	Highway	Project ID	Legal Description	Work Description	Within 100 ft buffer of Upcoming Project	
					Number of High/Very High Ramps	Miles of High/Very High Highway
ALA	880	413000058	In Fremont, At Crandall Creek Bridge No. 33-0273. Seismic Retrofit.	Seismic Retrofit	0	0.5
CC	580	415000016	In Richmond, At Stege Drain Bridge No. 28-0091. Bridge Rehabilitation.	Bridge Rehabilitation.	1	0
CC	80	400020638	In Contra Costa County On Routes80 And 580 From Intersection of Central Avenue and Rydin Road To San Joaquin and San Luis Streets	Install Traffic Signals And Changeable Message Signs(CMS)	1	0
ALA	580	413000064	In Oakland, At Oakland Avenue Undercrossing No. 33-0288. Rehabilitate Bridge Deck.	Rehabilitate Bridge Deck.	1	0

5 Cooperative Implementation Agreement Opportunities

Caltrans began looking for co-operative implementation agreement (CIA) opportunities by attending BASMAA Meeting in August 2014. In this meeting, Caltrans presented its mandate for trash reduction in San Francisco Region per Caltrans Statewide NPDES Permit – Attachment V Part 2. In follow-up meetings in April and August 2015, Caltrans presented its San Francisco Bay Trash Reduction Work Plan including the CIA grant funding mechanism and its selection criteria. The selection criteria include:

- The project's TMDL watershed ranking within Caltrans Final TMDL Reach Prioritization Inventory List
- Number of pollutant categories addressed
- Total area treated (in acres) and total run-off area from Caltrans ROW (in acres)
- Type of structural BMP
- Lead agency and number of stakeholders
- Project stage (i.e. conceptual design, environmental clearance)
- Project costs and schedule

The CIA grant funding is based on available funds at the end of each State's Fiscal Year (ending in June). In meeting with the San Francisco RWQCB and follow-up communication in February 2016, Caltrans will benefit by obtaining 2 different type of credits:

a. Credit for Compliance Unit (CU) for each $88,000 that Caltrans contributes to a partnership project. This is based on the Caltrans Statewide NPDES Permit – Attachment IV.

b. Credit for Trash Reduction for Caltrans Right-Of-Way (ROW) tributary to the stormwater treatment within the partnership project.

Through these meetings, Caltrans is actively seeking partnership opportunities with neighboring MS4's to address conventional highways (State Routes 82, 123, 185, and 238) within San Francisco Bay Region, specifically: San Pablo Avenue, Mission Boulevard, and El Camino Real to implement full trash capture systems for addressing trash impairments. Attachment C contains maps of San Pablo Avenue, Mission Boulevard, El Camino Real, and other locations where Caltrans may collaborate with local agencies to implement trash control measures. Attachment C also contains a list of maintenance agreements along those routes.

Caltrans also presented its trash reduction work plan with county specific stormwater management program including San Mateo Countywide Water Pollution Prevention Program, Contra Costa Clean Water Program, and Marin County Stormwater Pollution Prevention Program. Through these meetings, Caltrans and local MS4's identified three candidate partnership projects: City of Oakland (Ettie Street Pump Station), City of San Pablo (Rumrill Avenue), and County of San Mateo. Out of these three candidate projects, Caltans is moving forward with funding the feasibility study for the Ettie Street Pump Station with the intent of entering into a CIA grant agreement in FY 2017/18 and working with County of San Mateo to enter into the CIA grant in FY 2017/18. Since the City of San Pablo (Rumrill Avenue) will not treat any run-off from Caltrans ROW thus not resulting in any trash reduction from Caltrans ROW, Caltrans chose not to enter into an agreement with City of San Pablo.

In the meetings, Caltrans and the local MS4 also have the following discussions:

- Integrating the trash generation maps generated by MS4s into Caltrans' prioritization process for identifying cooperative implementation opportunities.
- Developing trash removal crediting mechanisms for non-structural, structural measures and for measures implemented through cooperative implementation.
- The Cities of San Pablo and El Camino have several upcoming green infrastructure projects that may present opportunities for coordination.
- Local municipalities will identify on-ramps and off-ramps that are problematic for trash/litter and provide a list to Caltrans to help them prioritize these areas for trash removal.
- The City of Oakland has submitted a proposal to the Bay Area Rapid Transit system to install screens along all inlets of the route, including International Boulevard (State Route 185). The City needs to discuss maintenance with Caltrans.
- Caltrans emailed the cities to request information on 1) GIS layers from trash plans, 2) sites where devices have been installed or upcoming installations to which Caltrans can contribute, and 3) maintenance agreements for routes Caltrans could not locate.

5.1 City of Oakland – Ettie Street Pump Station (ESPS)

Caltrans is entering into a partnership agreement with the City of Oakland and Alameda County Clean Water Program (ACCWP) into a feasibility study to develop a conceptual plan for a regional stormwater treatment system for the Ettie Street Pump Station (ESPS) watershed in city of Oakland in Alameda County. The feasibility is required due to the significant size of the tributary drainage area (1,183 acres) and the significant capital investment required (current estimate $9 million). The drainage area includes residential, commercial and industrial areas. Approximately 33 acres of Caltrans area consists of elevated structures (I-580, I-880, I-980) is part of the tributary drainage area. The ESPS watershed has been documented to have elevated levels of Polychlorinated Biphenlys (PCBs), Mercury (Hg), and trash/litter. Figure 5-1 shows the ESPS watershed and the location of the pump station. The area in red shows the high pollutant (i.e. PCB, Trash) areas.

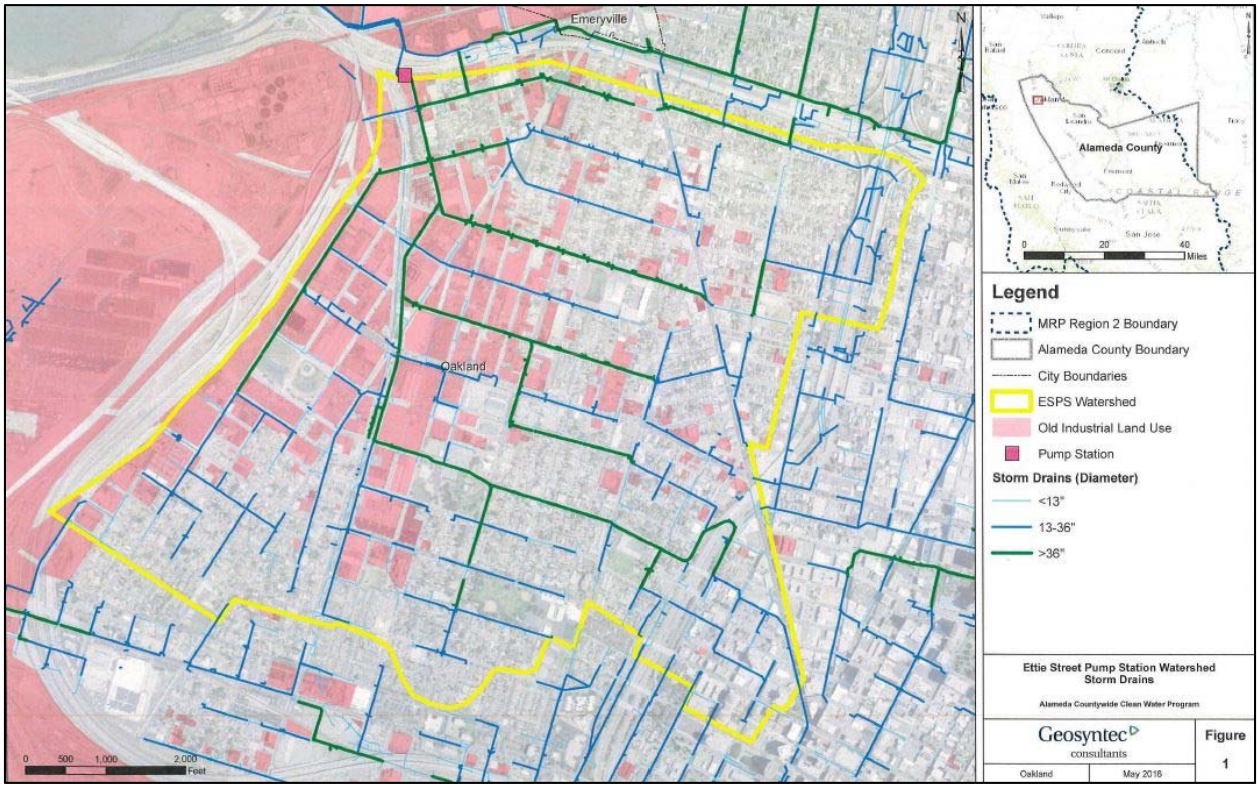

Figure 5-1 Ettie Street Pump Station

5.2 County of San Mateo

Caltrans is in discussion with the County of San Mateo (City of San Francisco) for a regional stormwater treatment system. When completed, this project will capture pollutants including PCB and trash from 11.29 highway miles (total Caltrans ROW area of 409 acres) including SR-1, SR-35, SR-82, and I-280. Caltrans is currently planning to enter into a CIA agreement in the FY 2016/17.

6 Stormwater Pump Station Inventory

Caltrans performed an inventory of the pump stations it owns and operates within the jurisdictional boundaries of the San Francisco Bay RWQCB. A list of pump stations assessed as part of the San Francisco Bay RWQCB order is provided in *Report of Department Pump Station Inventory within the Jurisdictional Boundaries of the San Francisco Bay (Region 2) Regional Water Quality Control Board, CTSW-RT-08-234.03.1, December 2008.* Caltrans' drain inlets that collect stormwater at the roadway level are equipped with 2-inch grating to control the entrance of trash and debris. Additionally, during the inventory, it was determined that 19 of the 62 pump stations assessed were equipped with a pump screen (2 inch or 4 inch coarse trash screen). Furthermore, Caltrans performs routine trash control measures in and around the pump station, consisting of street sweeping, general litter pick-up, drainage cleaning, and trash screen inspections with subsequent cleaning operations when warranted.

There may be opportunities to expand the wet wells in certain pump stations within high trash generating areas to capture trash with a finer screen. Each pump station will need to be individually evaluated for locations with adequate space to expand the wet well to capture accumulated trash and provide proper head requirements for the pump station. Attachment D presents a table of the pump stations identified in high trash accumulation areas.

7 Trash Capture Pilot Project

Caltrans District 4 is pursuing a pilot project to evaluate different full-trash capture devices at multiple discharge points. These discharge points receives run-off from sections of Interstate 880 (I-880) near the Oakland Coliseum (I-880 Post-Mile 26.55) in City of Oakland in Alameda County. The proposal is to install an end treatment system at the outfall of Caltrans Drainage Systems. Figure 7-1 to 3 shows the proposed discharge points for the pilot projects. The target installation date for the pilot project is in FY 2016/17. Figure 7- shows the layout with tributary shed area draining to each discharge points.

The evaluation of these full-trash capture devices will follow a systematic approach that Caltrans created to identify, evaluate, approve, and integrate BMPs into Caltrans operations. This approach is to ensure that sound scientific and technological criteria are used to develop new BMPs for implementation on transportation projects and activities. Evaluation criteria includes cost effectiveness, efficiency, and appropriateness for transportation infrastructure.

Figure 7-1 Potential Pilot Location at 66th Street near I-880

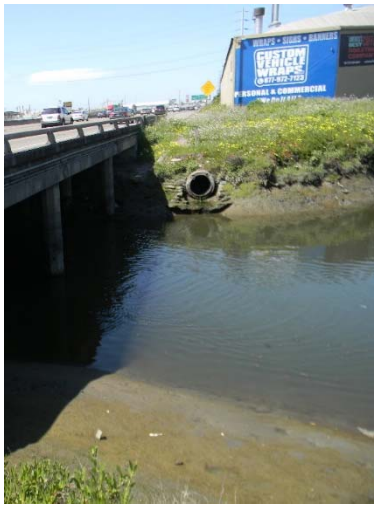

Figure 7-2 Potential Pilot Location at I-880 and East Creek Slough

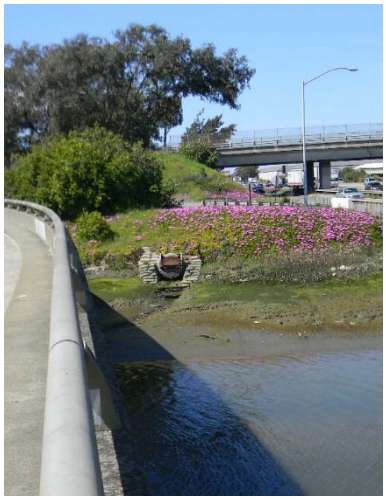

Figure 7-3 Potential Pilot Location at I-880 and Damon Slough

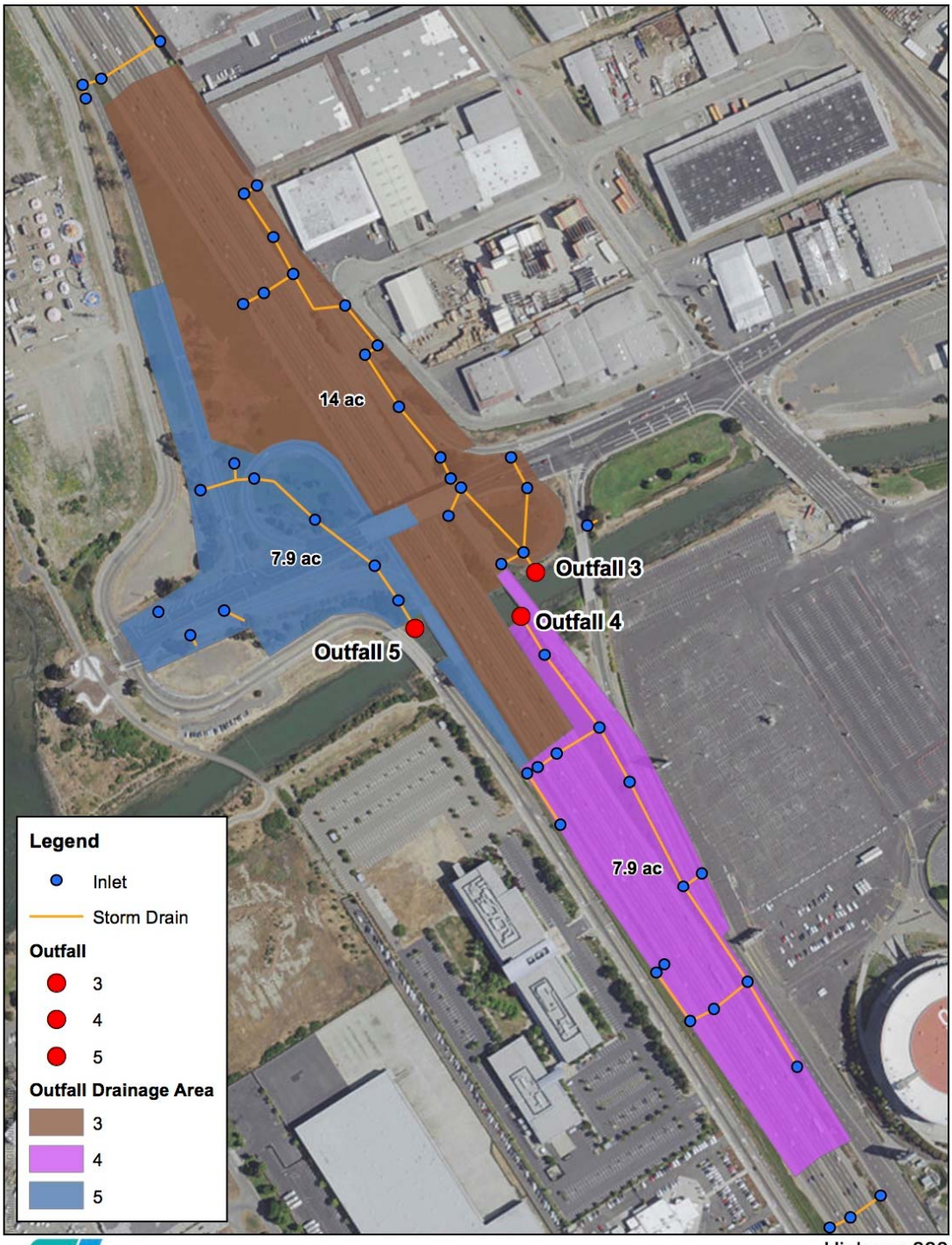

Figure 7-4 Outfall Locations near I-880 and 66th Avenue

8 Schedule

As shown in Table 8-1, Caltrans began implementation to reduce trash loads from the high trash generation areas in 2015 through non-structural BMPs, such as the public education campaign, increasing maintenance activities, and litter pickup. Caltrans has begun the cooperative implementation agreement process with the City of Oakland to address trash generating areas through retrofit of a pump station. Caltrans will begin addressing the high trash assessment areas as early as 2017 through implementation of capital solutions. Caltrans aims to address the ultimate goal of achieving 100% compliance within 10 years (by July 1, 2025) for trash reduction in all assessment areas, as required by the proposed Statewide Trash Amendments.

Table 8-1: Implementation Schedule

Action	Task	Schedule
1. Identify high trash generation areas	▪ Perform on-land visual assessment	Round one – Completed Summer 2015 Round two – Completed Spring 2016
2. Implement focused litter removal in high trash generation areas	▪ Increase frequency of litter removal in very high and high trash generation areas by reducing trash pickup frequency in low trash generation areas and increasing in high trash generation areas. ▪ Maximize number of adoptable AAH program shoulder miles adopted. ▪ Increase frequency of clean-ups in AAH program in high trash generation areas.	Ongoing implementation
3. Roadside construction site litter abatements	▪ Ensure contract specification related to maintaining construction zones free of construction-related litter and debris. ▪ Evaluate options for contractors to remove public-generated litter in construction zones.	Ongoing implementation
4. Expand Department of Corrections involvement in litter removal efforts	▪ Work with Department of Corrections to determine feasibility of increased litter removal.	FY 2016/2017
5. Clean up homeless encampments and illegal dumpsites	▪ Clean up illegal dumpsites and homeless encampments. ▪ Develop deterrents to reduce illegal dumpsites and homeless encampments (e.g., fencing). ▪ Notify local MS4 Permittees of illegal dumpsites and homeless encampments outside of right-of-way but within view of highway.	Ongoing Implementation

Table 8-1: Implementation Schedule

Action	Task	Schedule
6. Reduce trash loads from high trash generation areas through the use of structural BMPs	▪ Retrofit storm drain system in high trash generation routes. ▪ Retrofit existing BMPs in high trash generation routes with trash capture devices. ▪ Retrofit pump stations in high trash generation routes with trash capture devices. ▪ Retrofit high trash generating ramps with trash screens at locations that do not pose safety issues.	Pilot trash devices – FY 2016/2017 Begin implementation through SHOPP 335 Program - July 1, 2017.
7. Reduce trash loads from trash generation areas through the use of cooperative implementation	▪ Work with local MS4 Permittees to retrofit regional storm drain systems in trash generation routes. ▪ Work with local MS4 Permittees to increase sweeping and litter collection near intersections of trash generating ramps.	Implementation Started Address high trash generating areas by July 1, 2017.

Presented in Table 8-2 is the planning level strategy for the highway ramps that have been assessed as high or very high trash generation. Table 8-3 presents the planning level strategy of the mainline highway segments in high or very high trash generation areas. The propose strategies are a combination of piloting new full capture technologies, retrofitting existing BMPs to provide full capture, use of cooperative implementation agreements with local MS4, retrofit of outfalls through the SHOPP 335 program and installation of full capture trash devices as part of existing capital improvement projects within the tributary area.

Table 8-2 Planning Level Strategy for High / Very High Trash - Ramps

County	Route	Post Mile	Waterbody <100' within Ramp (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
ALA	80	5.820	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	80	6.615	No	Yes	No	No	No	CIA	CIA
ALA	80	7.388	No	Yes	No	No	No	CIA	CIA
CC	80	0.222	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	1.002	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	1.661	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	2.645	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	2.974	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	4.349	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	7.573	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SOL	80	4.429	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SOL	80	11.385	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SOL	80	16.738	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SOL	80	15.833	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-2 Planning Level Strategy for High / Very High Trash - Ramps

County	Route	Post Mile	Waterbody <100' within Ramp (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
SOL	80	5.738	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	6.599	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	2.952	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	2.049	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	0.996	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	80	6.615	No	Yes	No	No	No	CIA	CIA
SCL	101	23.401	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	101	30.967	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	101	34.552	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	101	36.142	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
SM	101	22.134	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SF	101	2.927	No	Yes	No	No	No	CIA	CIA
SF	101	1.115	No	Yes	No	No	No	CIA	CIA
SCL	101	34.852	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	101	34.554	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-2 Planning Level Strategy for High / Very High Trash - Ramps

County	Route	Post Mile	Waterbody <100' within Ramp (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
SM	1	45.437	No	Yes	No	No	No	CIA	CIA
SM	1	47.271	No	Yes	No	No	No	CIA	CIA
SM	1	46.836	No	Yes	No	No	No	CIA	CIA
SM	1	44.817	No	Yes	No	No	No	CIA	CIA
CC	4	10.330	No	Yes	Yes. Biofiltration Strip	Yes	No	Retrofit existing BMP to full capture trash	SHOPP 335
CC	4	20.104	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	4	23.055	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
CC	4	24.334	No	Yes	Yes. Detention Basin	Yes	Yes	Retrofit existing BMP to full capture trash	SHOPP 335
CC	4	24.327	No	Yes	Yes. Detention Basin	Yes	Yes	Retrofit existing BMP to full capture trash	SHOPP 335
CC	4	5.170	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	13	5.010	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	13	8.333	No	Yes	No	No	No	CIA	CIA
ALA	13	5.379	No	Yes	No	No	No	CIA	CIA
SCL	17	10.510	Yes	No	No	No	No	Potential Pilot of Netting device	SHOPP 335
ALA	24	4.142	No	Yes	No	No	No	CIA	CIA
ALA	24	45.192	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-2 Planning Level Strategy for High / Very High Trash - Ramps

County	Route	Post Mile	Waterbody <100' within Ramp (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
SOL	37	8.079	Yes	No	No	No	No	Potential Pilot of Netting device	SHOPP 335
SOL	37	10.966	No	Yes	No	No	No	CIA	CIA
SOL	37	11.013	No	Yes	No	No	No	CIA	CIA
SCL	87	5.573	No	Yes	No	No	No	CIA	CIA
ALA	92	5.759	No	Yes	No	No	No	CIA	CIA
SCL	280	1.272	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	280	2.888	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
SCL	280	5.950	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
SCL	280	8.378	No	Yes	No	No	No	CIA	CIA
SM	280	26.499	No	Yes	No	No	No	CIA	CIA
SF	280	3.502	No	Yes	No	No	No	CIA	CIA
SF	280	3.296	No	Yes	No	No	No	CIA	CIA
SF	280	2.717	No	Yes	No	No	No	CIA	CIA
SF	280	0.770	No	Yes	No	No	No	CIA	CIA
SM	280	26.046	No	Yes	No	No	No	CIA	CIA
SM	280	24.216	No	Yes	No	No	No	CIA	CIA
SM	280	22.629	No	Yes	No	No	No	CIA	CIA
SCL	280	3.984	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
SCL	280	2.197	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	280	1.551	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-2 Planning Level Strategy for High / Very High Trash - Ramps

County	Route	Post Mile	Waterbody <100' within Ramp (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
CC	580	1.995	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
CC	580	1.208	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	580	0.233	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	47.353	No	Yes	No	No	No	CIA	CIA
ALA	580	44.280	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	41.429	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	39.223	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	34.505	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	31.677	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	12.514	No	Yes	No	No	No	CIA	CIA
ALA	580	33.467	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	37.802	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	39.241	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	42.670	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-2 Planning Level Strategy for High / Very High Trash - Ramps

County	Route	Post Mile	Waterbody <100' within Ramp (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
ALA	580	45.995	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	580	0.237	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	580	3.592	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
SCL	680	2.347	No	Yes	No	No	Yes	Evaluate pump station	SHOPP 335
SCL	680	6.171	No	Yes	No	No	No	CIA	CIA
CC	680	19.216	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	680	5.323	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	680	3.836	No	Yes	No	No	No	CIA	CIA
SCL	680	1.723	No	Yes	No	No	Yes	Evaluate pump station	SHOPP 335
SCL	680	1.405	No	Yes	No	No	No	CIA	CIA
SOL	780	4.728	Yes	No	No	No	No	Potential Pilot of Netting device	SHOPP 335
ALA	880	18.342	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	880	24.769	No	Yes	Yes. Biofiltration Strips and Swales	Yes	No	Retrofit existing BMP to full capture trash	SHOPP 335
ALA	880	28.940	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-2 Planning Level Strategy for High / Very High Trash - Ramps

County	Route	Post Mile	Waterbody <100' within Ramp (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
ALA	880	0.596	No	Yes	Yes. Biofiltration Swale	Yes	Yes	Retrofit existing BMP to full capture trash	SHOPP 335
ALA	880	22.838	No	Yes	Yes. Biofiltration Swale	Yes	Yes	Retrofit existing BMP to full capture trash	SHOPP 335
ALA	880	20.685	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
ALA	880	18.332	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	880	4.707	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	880	5.172	No	Yes	Yes. Biofiltration Swale	Yes	No	Retrofit existing BMP to full capture trash	SHOPP 335
SCL	880	2.081	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
CC	4	0.772	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SOL	37	11.730	No	Yes	No	No	No	CIA	CIA
ALA	880	29.808	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	880	28.691	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	880	29.789	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-2 Planning Level Strategy for High / Very High Trash - Ramps

County	Route	Post Mile	Waterbody <100' within Ramp (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
SCL	101	49.608	No	Yes	Yes. Biofiltration Swale	Yes	No	Retrofit existing BMP to full capture trash	SHOPP 335
CC	80	10.700	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	80	10.700	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	41.404	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SOL	80	1.802	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SON	121	6.700	No	Yes	No	No	No	CIA	CIA
SM	101	13.500	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SM	101	12.155	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SM	280	6.699	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SM	280	3.297	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SOL	80	2.601	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-3 Planning Level Strategy for High / Very High Trash - Highway Segments

County	Route	Begin Post Mile	End Post Mile	Waterbody <100' within Highway (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project <100' Buffer (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
ALA	185	1.005	1.499	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	580	41.346	41.858	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
ALA	77	27.749	0.452	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
ALA	80	5.017	5.528	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	80	4.508	5.017	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	84	4.033	4.530	No	Yes	No	No	Yes	Evaluate pump station	SHOPP 335
ALA	880	24.268	24.768	No	Yes	Yes. Biofiltration Strips	Yes	No	Retrofit existing BMP to full capture trash	SHOPP 335
ALA	880	23.763	24.268	Yes	No	Yes. Biofiltration Strip	Yes	Yes	Potential Pilot of Netting device	SHOPP 335
ALA	880	30.790	31.273	Yes	No	Yes. Sand Filter - AVSF	Yes	No	Potential Pilot of Netting device	SHOPP 335
ALA	880	0.000	0.427	No	Yes	No	No	No	CIA	CIA
ALA	13	8.281	8.781	No	Yes	No	No	No	CIA	CIA
ALA	185	7.527	8.059	No	Yes	No	No	No	CIA	CIA
ALA	24	3.853	4.353	No	Yes	No	No	No	CIA	CIA

Table 8-3 Planning Level Strategy for High / Very High Trash - Highway Segments

County	Route	Begin Post Mile	End Post Mile	Waterbody <100' within Highway (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project <100' Buffer (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
ALA	580	22.393	22.891	Yes	No	No	No	No	Potential Pilot of Netting device	SHOPP 335
ALA	580	43.040	43.575	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	77	27.704	0.452	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
ALA	84	4.028	4.523	No	Yes	No	No	Yes	Evaluate pump station	SHOPP 335
ALA	880	0.974	1.454	No	Yes	No	No	No	CIA	CIA
ALA	880	5.257	5.750	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	880	12.756	13.266	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
ALA	880	12.225	12.756	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	880	11.697	12.225	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
ALA	880	10.769	11.221	No	Yes	No	No	No	CIA	CIA
ALA	880	10.262	10.769	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
ALA	880	17.763	18.260	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
ALA	880	26.262	26.766	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335

Table 8-3 Planning Level Strategy for High / Very High Trash - Highway Segments

County	Route	Begin Post Mile	End Post Mile	Waterbody <100' within Highway (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project <100' Buffer (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
ALA	880	24.268	24.764	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
ALA	880	23.767	24.268	Yes	No	No	Yes	Yes	Potential Pilot of Netting device	SHOPP 335
CC	80	3.000	3.508	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	24	1.516	2.015	No	Yes	No	No	No	CIA	CIA
CC	4	2.311	2.807	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	4	1.824	2.311	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	4	0.316	0.820	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
CC	4	21.275	21.780	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
CC	80	8.008	8.517	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
MRN	101	14.014	14.513	No	Yes	No	No	No	CIA	CIA
MRN	101	18.502	19.007	No	Yes	Yes. Biofiltration Strips and Swales	No	No	Retrofit existing BMP to full capture trash	SHOPP 335
SF	101	2.991	3.493	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-3 Planning Level Strategy for High / Very High Trash - Highway Segments

County	Route	Begin Post Mile	End Post Mile	Waterbody <100' within Highway (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project <100' Buffer (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
SF	101	1.996	2.482	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SF	101	3.493	4.072	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SF	280	2.992	3.496	No	Yes	No	No	No	CIA	CIA
SF	280	2.497	2.992	No	Yes	No	No	No	CIA	CIA
SF	280	0.501	1.033	No	Yes	No	No	No	CIA	CIA
SF	280	5.977	6.499	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SF	280	6.499	7.007	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SF	101	3.489	4.091	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SF	1	6.029	6.521	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SF	280	3.511	4.014	No	Yes	No	No	No	CIA	CIA
SF	280	3.019	3.511	No	Yes	No	No	No	CIA	CIA
SF	280	2.513	3.019	No	Yes	No	No	No	CIA	CIA
SM	280	22.969	23.475	No	Yes	No	No	No	CIA	CIA
SCL	101	24.285	24.790	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	101	25.811	26.319	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-3 Planning Level Strategy for High / Very High Trash - Highway Segments

County	Route	Begin Post Mile	End Post Mile	Waterbody <100' within Highway (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project <100' Buffer (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
SCL	101	33.946	34.448	No	Yes	Yes. Biofiltration Swale	Yes	No	Retrofit existing BMP to full capture trash	SHOPP 335
SCL	101	36.948	37.449	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
SCL	101	48.441	48.937	No	Yes	Yes. Biofiltration Strip	Yes	No	Retrofit existing BMP to full capture trash	SHOPP 335
SCL	237	1.481	1.990	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	280	4.608	5.110	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
SCL	280	8.609	9.110	No	Yes	No	No	No	CIA	CIA
SCL	101	35.948	36.438	Yes	No	No	Yes	Yes	Potential Pilot of Netting device	SHOPP 335
SCL	17	10.993	11.514	Yes	No	No	No	No	Potential Pilot of Netting device	SHOPP 335
SCL	17	10.025	10.514	No	Yes	No	No	No	CIA	CIA
SCL	85	10.009	10.336	No	Yes	No	No	Yes	Evaluate pump station	SHOPP 335
SCL	85	9.002	9.504	No	Yes	No	No	No	CIA	CIA
SCL	85	7.999	8.500	Yes	No	No	No	No	Potential Pilot of Netting device	SHOPP 335
SCL	85	2.504	3.012	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-3 Planning Level Strategy for High / Very High Trash - Highway Segments

County	Route	Begin Post Mile	End Post Mile	Waterbody <100' within Highway (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project <100' Buffer (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
SCL	85	2.005	2.504	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	85	18.860	19.346	No	Yes	No	No	No	CIA	CIA
SCL	85	22.831	23.344	Yes	No	No	No	No	Potential Pilot of Netting device	SHOPP 335
SCL	880	0.000	0.498	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	880	0.498	0.996	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	880	4.505	5.011	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	880	8.508	9.017	No	Yes	Yes. Biofiltration Swale	No	No	Retrofit existing BMP to full capture trash	SHOPP 335
SCL	880	9.522	10.026	No	Yes	No	No	No	CIA	CIA
SOL	37	11.668	6.192	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SOL	80	19.974	20.478	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
SOL	80	5.015	5.513	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
SOL	80	3.518	4.020	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SON	101	2.019	2.509	No	Yes	No	No	No	CIA	CIA

Table 8-3 Planning Level Strategy for High / Very High Trash - Highway Segments

County	Route	Begin Post Mile	End Post Mile	Waterbody <100' within Highway (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project <100' Buffer (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
SF	280	3.990	4.506	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	101	34.450	34.938	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	87	6.489	6.988	Yes	No	No	No	Yes	Potential Pilot of Netting device	SHOPP 335
SCL	87	6.004	6.487	No	Yes	No	No	Yes	Evaluate pump station	SHOPP 335
SOL	80	11.487	11.980	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
ALA	580	45.536	46.036	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
ALA	80	1.497	1.991	No	Yes	Yes. Biofiltration Swale	No	No	Retrofit existing BMP to full capture trash	SHOPP 335
ALA	880	16.261	16.756	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
CC	4	11.688	12.759	Yes	No	No	Yes	No	Potential Pilot of Netting device	SHOPP 335
SCL	101	34.449	34.938	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	280	4.998	5.500	No	Yes	No	Yes	Yes	Include full capture trash in upcoming project	Capital
SCL	280	1.498	1.998	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital

Table 8-3 Planning Level Strategy for High / Very High Trash - Highway Segments

County	Route	Begin Post Mile	End Post Mile	Waterbody <100' within Highway (Yes/No)	Drains to MS4 (Yes/No)*	Existing BMP (Yes/No/Type)	Upcoming Planned Project <100' Buffer (Yes/No)	Drains to Pump Station (Yes/No)	Technology	Program**
SCL	680	1.479	1.970	No	Yes	No	No	Yes	Evaluate pump station	SHOPP 335
SCL	85	10.336	10.838	Yes	No	No	No	Yes	Potential Pilot of Netting device	SHOPP 335
SCL	87	0.999	1.496	No	Yes	No	Yes	No	Include full capture trash in upcoming project	Capital
SCL	880	2.989	3.503	Yes	No	No	No	Yes	Potential Pilot of Netting device	SHOPP 335

Attachment A. List of Caltrans Roadway Segments with San Francisco Region

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San Francisco Bay Region

Source: ESRI World Aerial; Caltrans; SWRCB; RWQCB

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Table A-1. List of Caltrans Roadway Segments within San Francisco Bay Region

County	Route	From Post Mile	To Post Mile	Mileage
Alameda	13	4.31	13.86	9.55
Alameda	24	1.87	6.24	4.37
Alameda	61	15.01	21.95	6.94
Alameda	77	0	0.45	0.45
Alameda	80	0	8.03	8.03
Alameda	84	0	6.01	6.01
Alameda	84	6.94	27.75	20.81
Alameda	92	0	8.21	8.21
Alameda	112	0	1.78	1.78
Alameda	123	0	5.18	5.18
Alameda	185	0	10.47	10.47
Alameda	238	0	16.56	16.56
Alameda	260	0.64	1.92	1.28
Alameda	262	0	1.05	1.05
Alameda	580	9.89	46.6	36.71
Alameda	580	47.17	48.02	0.85
Alameda	680	0	21.86	21.86
Alameda	880	0	35.24	35.24
Alameda	980	0	2	2
Contra Costa	4	0	25.29	25.29
Contra Costa	24	0	9.68	9.68
Contra Costa	80	0	14.13	14.13
Contra Costa	123	0	2.08	2.08
Contra Costa	242	0	3.38	3.38
Contra Costa	580	0	7.78	7.78
Contra Costa	680	0	25.46	25.46
Marin	1	0	46.51	46.51
Marin	37	11.2	14.6	3.4
Marin	101	0	27.63	27.63
Marin	131	0	4.39	4.39
Marin	580	0	4.71	4.71
Napa	12	0	3.3	3.3
Napa	29	0	45.52	45.52
Napa	121	0	4.5	4.5
Napa	121	4.5	20.75	16.25
Napa	128	0	4.55	4.55
Napa	128	4.55	17.49	12.94
Napa	221	0	2.68	2.68
San Francisco	1	0	7.05	7.05
San Francisco	35	0	3.162	3.162
San Francisco	80	3.85	8.84	4.99

Table A-1. List of Caltrans Roadway Segments within San Francisco Bay Region

County	Route	From Post Mile	To Post Mile	Mileage
San Francisco	82	0	0.19	0.19
San Francisco	101	0	11.18	11.18
San Francisco	280	0	7.54	7.54
San Mateo	1	13.13	48.56	35.43
San Mateo	9	23.87	24.23	0.36
San Mateo	9	24.48	24.72	0.24
San Mateo	35	0	31.52	31.52
San Mateo	82	0	25.12	25.12
San Mateo	84	0	25.65	25.65
San Mateo	84	25.82	30.13	4.31
San Mateo	92	0	18.79	18.79
San Mateo	101	0	26.11	26.11
San Mateo	109	1.1	1.86	0.76
San Mateo	114	5.03	5.91	0.88
San Mateo	280	0	27.42	27.42
San Mateo	380	4.79	6.35	1.56
Santa Clara	9	0.06	11.43	11.37
Santa Clara	17	0	13.95	13.95
Santa Clara	35	7.66	7.7	0.04
Santa Clara	35	8.04	9.34	1.3
Santa Clara	35	10.09	10.15	0.06
Santa Clara	35	10.93	11.84	0.91
Santa Clara	35	12.74	12.91	0.17
Santa Clara	35	13.76	14	0.24
Santa Clara	35	14.23	17.09	2.86
Santa Clara	82	0	26.35	26.35
Santa Clara	85	0	23.83	23.83
Santa Clara	87	0	9.15	9.15
Santa Clara	101	17.8	52.55	34.75
Santa Clara	130	0	22.5	22.5
Santa Clara	237	0	11.04	11.04
Santa Clara	280	0	20.61	20.61
Santa Clara	680	0	9.93	9.93
Santa Clara	880	0	10.49	10.49
Santa Cruz	9	23.74	23.87	0.13
Santa Cruz	9	24.23	24.48	0.25
Santa Cruz	9	24.72	26	1.28
Santa Cruz	9	26.2	26.55	0.35
Santa Cruz	35	0	0.34	0.34
Santa Cruz	35	4.76	5.12	0.36
Santa Cruz	35	5.24	6.12	0.88

Table A-1. List of Caltrans Roadway Segments within San Francisco Bay Region

County	Route	From Post Mile	To Post Mile	Mileage
Santa Cruz	35	6.15	6.26	0.11
Santa Cruz	35	6.4	6.61	0.21
Santa Cruz	35	6.8	6.85	0.05
Santa Cruz	236	13.6	13.69	0.09
Santa Cruz	236	16.44	16.7	0.26
Santa Cruz	236	17.2	17.27	0.07
Solano	12	0	2.76	2.76
Solano	12	1.82	16.61	14.79
Solano	29	0	5.95	5.95
Solano	37	0	11.81	11.81
Solano	80	0	22.51	22.51
Solano	680	0	13.12	13.12
Solano	780	0.7	7.44	6.74
Sonoma	12	24.49	41.34	16.85
Sonoma	37	0	6.24	6.24
Sonoma	101	0	11	11
Sonoma	116	36.05	46.76	10.71
Sonoma	121	0	11.61	11.61
			Total:	**1031.81**

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Attachment B. Litter Collection Map and Results of On-land Visual Assessment

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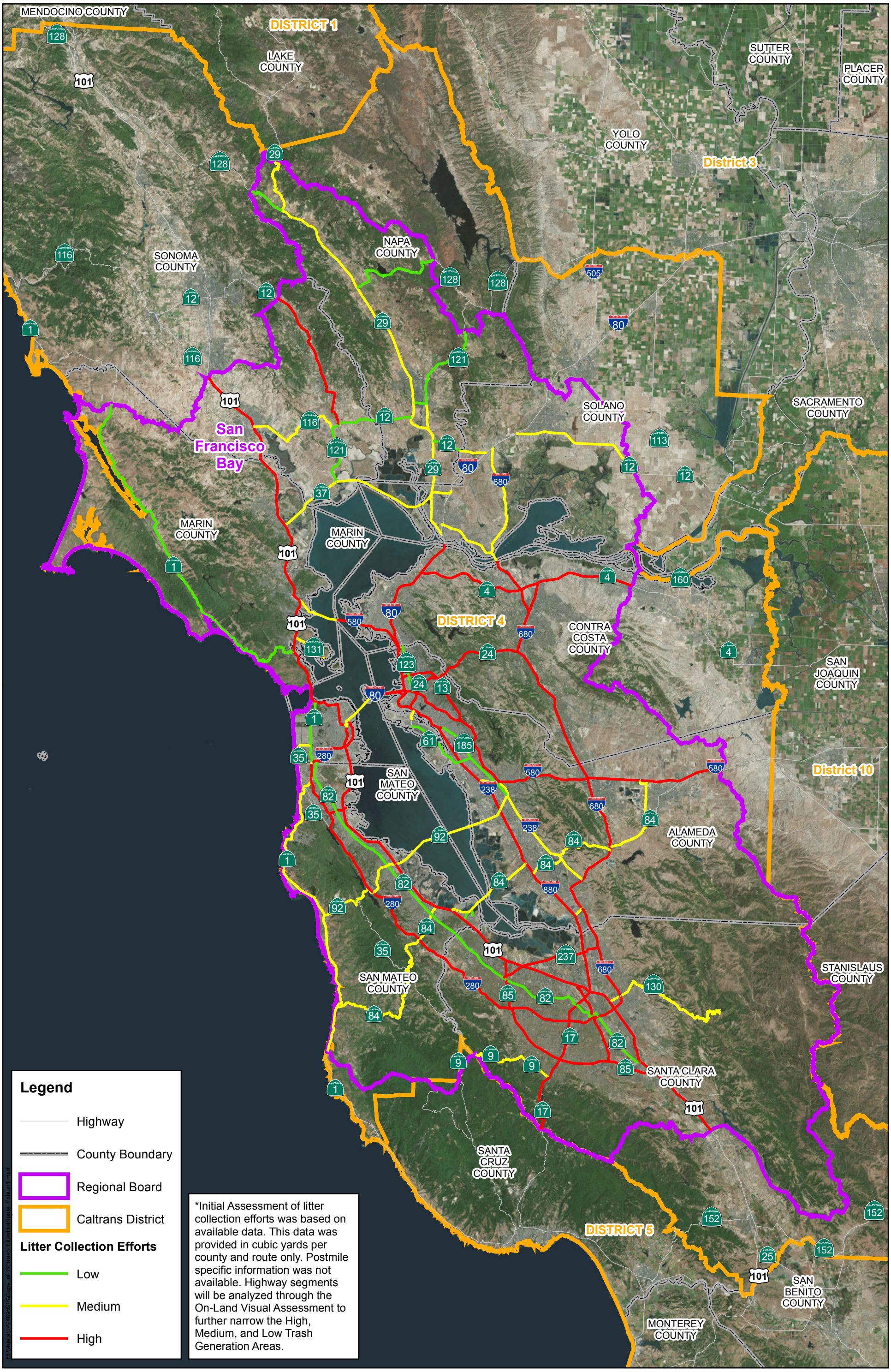
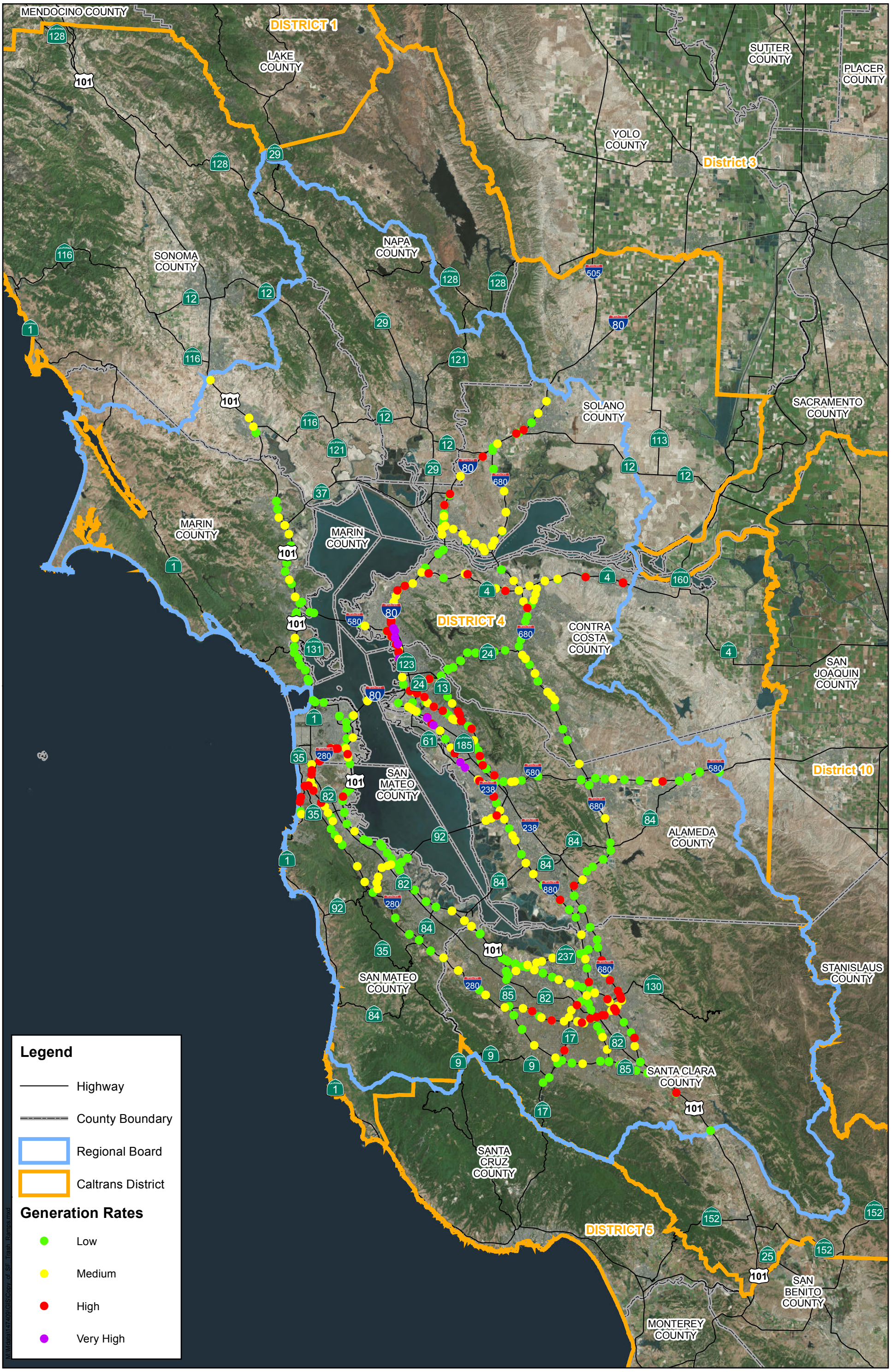
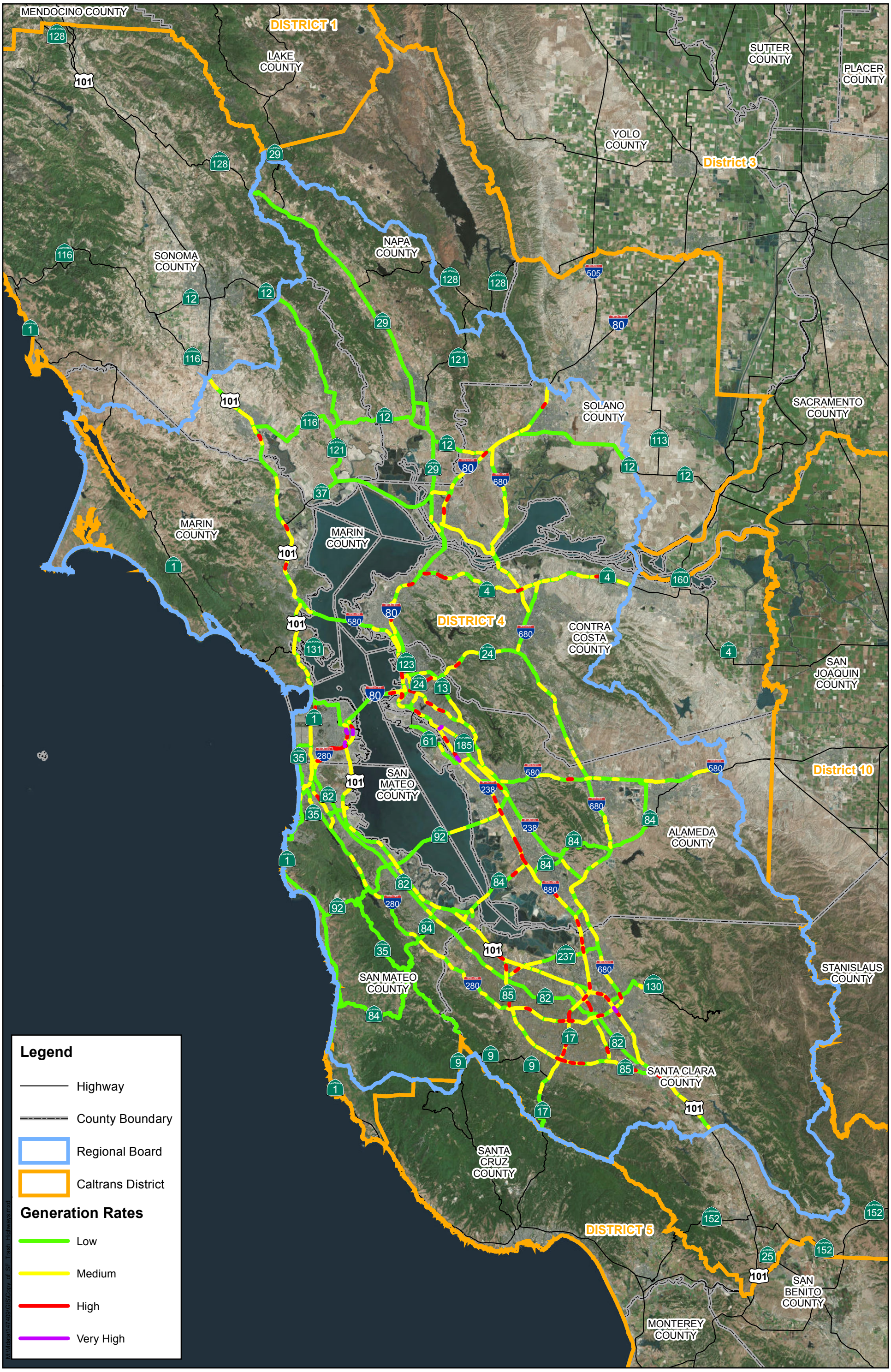


San Francisco Bay Region

Litter Collection Efforts 2010 to 2015*


MENDOCINO COUNTY
DISTRICT 1
LAKE COUNTY
SUTTER COUNTY
PLACER COUNTY
YOLO COUNTY
District 3
SONOMA COUNTY
NAPA COUNTY
SOLANO COUNTY
SACRAMENTO COUNTY
MARIN COUNTY
MARIN COUNTY
DISTRICT 4
CONTRA COSTA COUNTY
SAN JOAQUIN COUNTY
District 10
SAN MATEO COUNTY
ALAMEDA COUNTY
SAN MATEO COUNTY
STANISLAUS COUNTY
SANTA CLARA COUNTY
SANTA CRUZ COUNTY
DISTRICT 5
SAN BENITO COUNTY
MONTEREY COUNTY
Legend
Highway
County Boundary
Regional Board
Caltrans District
Generation Rates
Low
Medium
High
Very High
M:\Mdata\147409\GIS\Copy of SF Trash Ramps.mxd
0 5 10 20
Miles
Source: Caltrans; ESRI; RBF Consulting; RWQCB; SWRCB
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community
San Francisco Bay Region
Highway Ramp Trash Assessment Map



San Francisco Bay Region

Highway Trash Assessment Map

San Francisco Bay Region

Highway Park and Rides/Vista/Rest Areas Trash Assessment Map

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Attachment C. Opportunities for Cooperative Implementation

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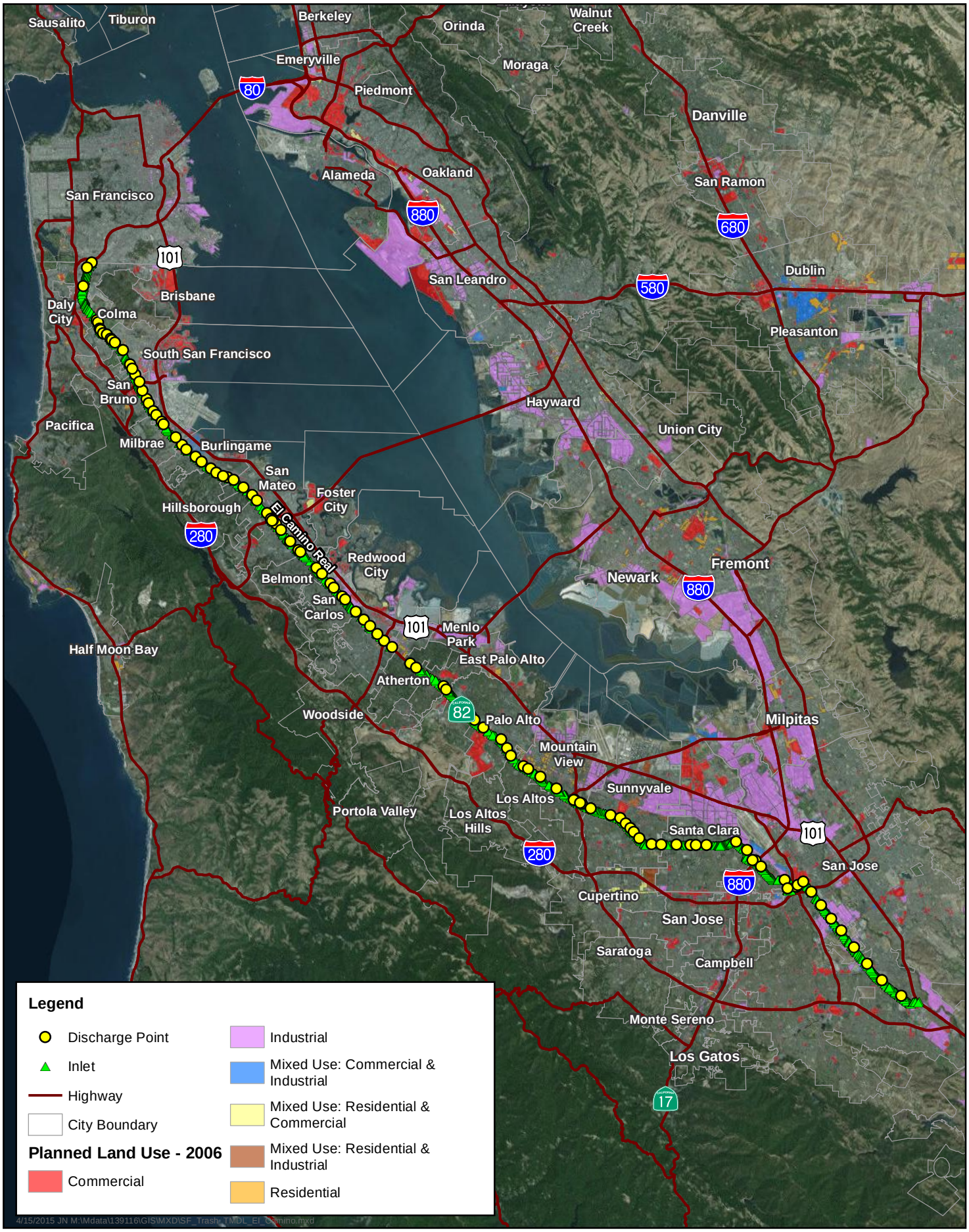
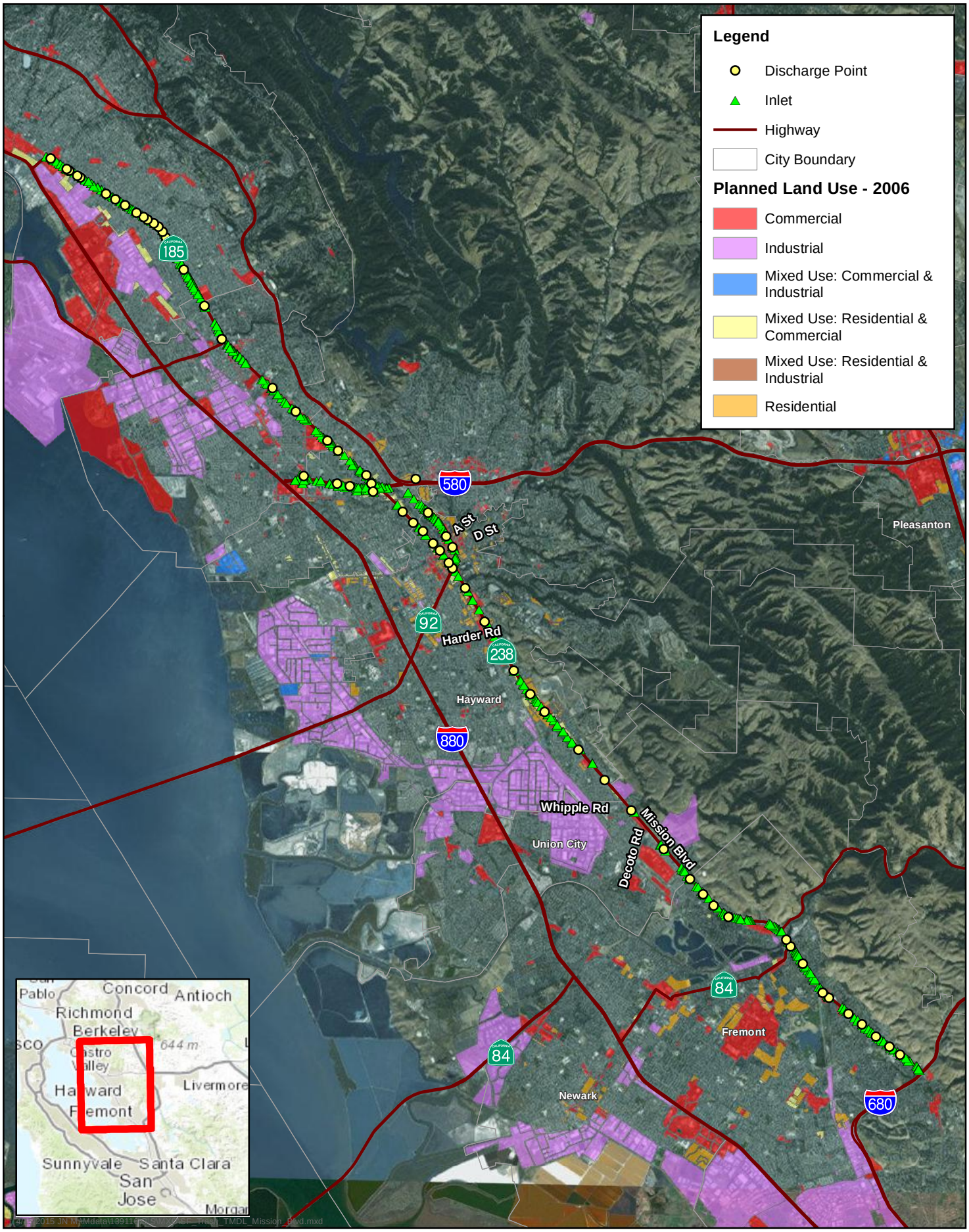


SAN FRANCISCO TRASH TMDL

South Bay

El Camino Real



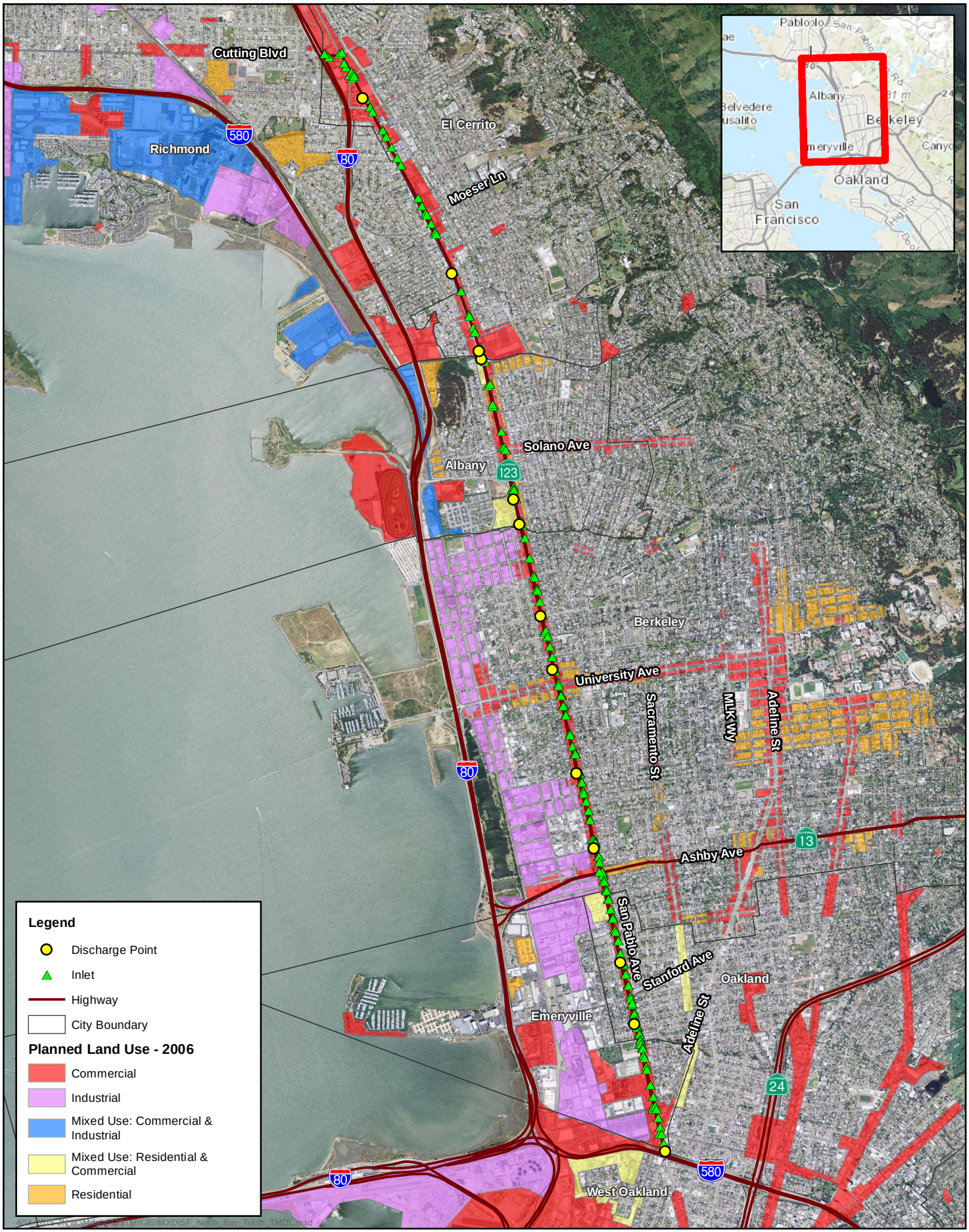
Source: Esri Imagery

0 1 2 Miles

SAN FRANCISCO TRASH TMDL

East Bay

Mission Blvd, Route 238, 185



0 0.25 0.5 1 Miles

Source: NAIP 2012 Imagery

SAN FRANCISCO TRASH TMDL

North Bay

Route 123 (San Pablo Ave) and Route 880 area in Berekeley

Attachment D. Caltrans-operated Stormwater Pump Stations within San Francisco Region

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Table D-1. Caltrans-operated Stormwater Pump Stations within San Francisco Region

Pump Station	Address	Location	Catchment Area (acres)	Dominant Land Use	Receiving Water Body or MS4	Wet Weather Storage Capacity[1] (cubic feet)	Trash Control Measures	Trash Generation Assessment
REGION: ALAMEDA								
Folger Avenue UP	Highway 13 at Folger Avenue, Oakland	04-ALA-0013.13.68	2	Caltrans right-of-way	City of Oakland	6,180	2-inch grating on drain inlet at roadway level	Medium
Sather UP	Highway 77 at Interstate 880, Oakland	04-ALA-0077-0.15	5	Caltrans right-of-way	City of Oakland	3,000	2-inch grating on drain inlet at roadway level; pump screen	**Very High**
SFOBB PS 4B	Interstate 80/Interstate 880/Interstate 580 Separation, Oakland	04-ALA-0080-2.77	26	Caltrans right-of-way	San Francisco Bay	55,090	2-inch grating on drain inlet at roadway level	Medium
Niles Junction UP	Highway 84 West of Highway 238, Fremont	04-ALA-0084-10.65	7	Caltrans right-of-way	Alameda Creek	600	2-inch grating on drain inlet at roadway level; pump screen	Low
Silver Spring	Highway 84 at Silver Spring Road UP, Sunol	04-ALA-0084-16.94	Not Surveyed	Caltrans right-of-way	Alameda Creek	740	2-inch grating on drain inlet at roadway level; pump screen	Low
Lake Blvd OC	Highway 84 at Lake Boulevard, Newark	04-ALA-0084-R5.42	6	Caltrans right-of-way	Flood Control Channel	6,966	2-inch grating on drain inlet at roadway level	Medium

Table D-1. Caltrans-operated Stormwater Pump Stations within San Francisco Region

Pump Station	Address	Location	Catchment Area (acres)	Dominant Land Use	Receiving Water Body or MS4	Wet Weather Storage Capacity[1] (cubic feet)	Trash Control Measures	Trash Generation Assessment
Orchard Avenue UP	Highway 92 at Railroad Underpass, Hayward	04-ALA-0092-7.27	5	Caltrans right-of-way	San Mateo Creek	812	2-inch grating on drain inlet at roadway level; pump screen	Low
Jackson Street	Highway 92 at Railroad Underpass, Hayward	04-ALA-0092-8.01	4	Caltrans right-of-way	City of Hayward	476	2-inch grating on drain inlet at roadway level; pump screen	Low
San Pablo Avenue	Highway 123 at West MacArthur Blvd, Oakland	04-ALA-0123-0.13	3	Caltrans right-of-way	City of Oakland	64	2-inch grating on drain inlet at roadway level	**High**
South Niles UP	Highway 238 at Railroad Underpass, Fremont	04-ALA-0238-3.41	4	Caltrans right-of-way	Alameda Creek	7,022	2-inch grating on drain inlet at roadway level	Low
45th Street UC	Highway 24 at 45th Street, Oakland	04-ALA-024-R2.47	2	Caltrans right-of-way	City of Oakland	1,300	2-inch grating on drain inlet at roadway level; pump screen	Medium
Fairmont Drive OC	Interstate 580 at Fairmont Drive, San Leandro	04-ALA-0580-R32.68	9	Caltrans right-of-way	City of San Leandro	10,390	2-inch grating on drain inlet at roadway level; pump screen	Medium
38th Avenue OC	Interstate 580 at 38th Avenue, Oakland	04-ALA-0580-R40.48	12	Caltrans right-of-way	City of Oakland	10,580	2-inch grating on drain inlet at roadway level	Medium

Table D-1. Caltrans-operated Stormwater Pump Stations within San Francisco Region

Pump Station	Address	Location	Catchment Area (acres)	Dominant Land Use	Receiving Water Body or MS4	Wet Weather Storage Capacity[1] (cubic feet)	Trash Control Measures	Trash Generation Assessment
92/880 Separation	Interstate 880 at Highway 92, Hayward	04-ALA-0880-16.66	20	Caltrans right-of-way	City of Hayward	19,780	2-inch grating on drain inlet at roadway level; pump screen	High
Hacienda Avenue	Interstate 880 at Hacienda Avenue, San Lorenzo	04-ALA-0880-19.25	11	Caltrans right-of-way	City of San Lorenzo	44,626	2-inch grating on drain inlet at roadway level	Medium
Washington Avenue	Interstate 880 at Washington Avenue, San Leandro	04-ALA-0880-20.80	10	Caltrans right-of-way	City of San Leandro	2,445	2-inch grating on drain inlet at roadway level	Medium
Williams Street	Interstate 880 at Williams Street, San Leandro	04-ALA-0880-23.15	12	Caltrans right-of-way	City of San Leandro	7,500	2-inch grating on drain inlet at roadway level	Medium
7th Street Seal Slab	Interstate 880 at 7th Street, Oakland	04-ALA-0880-33.5	9	Caltrans right-of-way	City of Oakland	11,250	2-inch grating on drain inlet at roadway level	Low
East Newark UP	Interstate 880 at Saint Isabel Avenue,Newark	04-ALA-0880-8.62	48	Caltrans right-of-way	City of Newark	58,190	2-inch grating ondrain inlet at roadway level	Medium
16th Street	Interstate 980 at 16th Street, Oakland	04-ALA-0980-0.79	24	Caltrans right-of-way	City of Oakland	12,000	2-inch grating on drain inlet at roadway level; pump screen	Low

Table D-1. Caltrans-operated Stormwater Pump Stations within San Francisco Region

Pump Station	Address	Location	Catchment Area (acres)	Dominant Land Use	Receiving Water Body or MS4	Wet Weather Storage Capacity[1] (cubic feet)	Trash Control Measures	Trash Generation Assessment
REGION: CONTRA COSTA								
Railroad Avenue	Highway 4 at Railroad Avenue, Pittsburg	04-CC-0004-23.25	32	Caltrans right-of-way	City of Pittsburg	56,044	2-inch grating on drain inlet at roadway level	Low
Loveridge UP	Highway 4 at Loveridge Road, Pittsburg	04-CC-0004-24.31	20	Caltrans right-of-way	City of Pittsburg	32,250	2-inch grating on drain inlet at roadway level	Medium
Erlandson OC/Meeker	Interstate 580 at Regatta Boulevard, Richmond	04-CC-0580-R2.10	15	Caltrans right-of-way	City of Richmond	17,000	2-inch grating on drain inlet at roadway level	Low
S 23rd Street OC	Interstate 580 at South 23rd Street, Richmond	04-CC-0580-R2.91	28	Caltrans right-of-way	City of Richmond	33,000	2-inch grating on drain inlet at roadway level	Low
Harbour Way	Interstate 580 at Harbour Way, Richmond	04-CC-0580-R3.68	33	Caltrans right-of-way	City of Richmond	28,700	2-inch grating on drain inlet at roadway level	Low
REGION: NAPA								
Trancas Street OC	Highway 29 at Trancas Street, Napa	04-NAP-0029-13.06	27	Caltrans right-of-way	Napa River	38,140	2-inch grating on drain inlet at roadway level	Low
REGION: SAN MATEO								
Hillsdale Boulevard	Highway 82 at Hillsdale Boulevard, Redwood City	04-SM-0082-9.37	8	Caltrans right-of-way	Laurel Creek	3,780	2-inch grating on drain inlet at roadway level	Low

Table D-1. Caltrans-operated Stormwater Pump Stations within San Francisco Region

Pump Station	Address	Location	Catchment Area (acres)	Dominant Land Use	Receiving Water Body or MS4	Wet Weather Storage Capacity[1] (cubic feet)	Trash Control Measures	Trash Generation Assessment
Ravenswood Slough	Highway 84 at Ravenswood Slough, Menlo Park	04-SM-0084-R27.98	Caltrans ~ 1 acre City of Menlo Park ~1800 acres	Caltrans right-of-way and City of Menlo Park mixed use	Ravenswood Slough	Unknown	2-inch grating on drain inlet at roadway level; pump screen	Low
280/92 SEP	Interstate 280 at Highway 92, Belmont	04-SM-0092-R7.41	5	Caltrans right-of-way	Laurel Creek	4,200	2-inch grating on drain inlet at roadway level	Low
Henderson UP	US 101 at the Henderson UP, Menlo Park	04-SM-0101-3.05	9	Caltrans right-of-way	1. Menlo Park System 2. Canal by salt ponds	6,400	2-inch grating on drain inlet at roadway level	Low
Canada Road	Interstate 280 at Canada Road, Belmont	04-SM-0280-10.25	43	Caltrans right-of-way	San Mateo Creek	Unknown	2-inch grating on drain inlet at roadway level; pump screen	Medium
Rancho Pulgas	Interstate 280 at the Rancho Pulgas UC, Belmont	04-SM-0280-9.42	12	Caltrans right-of-way	Canada Road Reservoir	19,870	2-inch grating on drain inlet at roadway level	Low
South Larkspur Drive	Interstate 280 just south of the Larkspur Drive UC, Millbrae	04-SM-0280-R18.38	2	Caltrans right-of-way	San Mateo Creek	1,600	2-inch grating on drain inlet at roadway level; pump screen	Low
Larkspur Drive	Interstate 280 at Larkspur Drive, Millbrae	04-SM-0280-R18.64	1	Caltrans right-of-way	San Mateo Creek	1,300	2-inch grating on drain inlet at roadway level; pump screen	Low

Table D-1. Caltrans-operated Stormwater Pump Stations within San Francisco Region

Pump Station	Address	Location	Catchment Area (acres)	Dominant Land Use	Receiving Water Body or MS4	Wet Weather Storage Capacity[1] (cubic feet)	Trash Control Measures	Trash Generation Assessment
REGION: SANTA CLARA								
University Avenue	US 101 at University Avenue, Palo Alto	04-SCL-0082-25.89	2	Caltrans right-of-way	City of Palo Alto	Unknown	2-inch grating on drain inlet at roadway level	**High**
San Jose UP	Highway 82 at West San Fernando Street,San Jose	04-SCL-0082-8.40	2	Caltrans right-of-way	City of San Jose	1,000	2-inch grating ondrain inlet at roadway level	SR-82 relinquished
Highway 85/17	Highway 85 at Highway 17, Los Gatos	04-SCL-0085-10.4	56	Caltrans right-of-way	Los Gatos Creek	53,400	2-inch grating on drain inlet at roadway level	**High**
Pollard Road	Highway 85 at Pollard Road, Saratoga	04-SCL-0085-11.94	5	Caltrans right-of-way	Open Channel	7,400	2-inch grating on drain inlet at roadway level	Low
Prospect Road	Highway 85 at Prospect Road, Saratoga	04-SCL-0085-15.1	15	Caltrans right-of-way	City of Saratoga	14,632	2-inch grating on drain inlet at roadway level	Low
Saratoga-Sunnyvale Road	Highway 85 at De Anza Boulevard, Cupertino	04-SCL-0085-15.7	19	Caltrans right-of-way	City of Saratoga	22,337	2-inch grating on drain inlet at roadway level	Low
Winchester (85)	Highway 85 at Winchester Boulevard, Los Gatos	04-SCL-0085-R11.05	19	Caltrans right-of-way	Los Gatos Creek	25,280	2-inch grating on drain inlet at roadway level	Medium

Table D-1. Caltrans-operated Stormwater Pump Stations within San Francisco Region

Pump Station	Address	Location	Catchment Area (acres)	Dominant Land Use	Receiving Water Body or MS4	Wet Weather Storage Capacity[1] (cubic feet)	Trash Control Measures	Trash Generation Assessment
Saratoga Avenue (85)	Highway 85 at Saratoga Avenue, Santa Clara	04-SCL-0085-R13.70	16	Caltrans right-of-way	Saratoga Creek	17,500	2-inch grating on drain inlet at roadway level	Low
Taylor Street Overcrossing	Highway 87 at West Taylor Street, San Jose	04-SCL-0087-6.89	18	Caltrans right-of-way	Guadalupe River	19,776	2-inch grating on drain inlet at roadway level	**High**
Auzerais Avenue	Highway 87 at Auzerais Avenue, San Jose	04-SCL-0087-5.21	42	Caltrans right-of-way	Guadalupe River	31,300	2-inch grating on drain inlet at roadway level; pump screen	Medium
Airport Parkway	Highway 87 Near Airport Parkway, San Jose	04-SCL-0087-8.86	31	Caltrans right-of-way	Guadalupe River	95,210	2-inch grating on drain inlet at roadway level	Medium
Santa Clara Street	US 101 at Highway 130, San Jose	04-SCL-0101-35.76	8	Caltrans right-of-way	City of San Jose	10,000	2-inch grating on drain inlet at roadway level	Medium
Silver Creek	US 101 at Silver Creek Bridge, San Jose	04-SCL-0101-36.34	137	Caltrans right-of-way	Miguelita Creek	3,500	2-inch grating on drain inlet at roadway level; pump screen	**High**
East San Jose	US 101 at East San Jose UP, San Jose	04-SCL-0101-36.57	5	Caltrans right-of-way	Miguelita Creek	1,850	2-inch grating on drain inlet at roadway level	Medium

Table D-1. Caltrans-operated Stormwater Pump Stations within San Francisco Region

Pump Station	Address	Location	Catchment Area (acres)	Dominant Land Use	Receiving Water Body or MS4	Wet Weather Storage Capacity[1] (cubic feet)	Trash Control Measures	Trash Generation Assessment
Tenth Street OC	US 101 at 10th Street, San Jose	04-SCL-0101-38.05	26	Caltrans right-of-way	City of San Jose	62,500	2-inch grating on drain inlet at roadway level	Medium
Agnew U.P.	US 101 at Lafayette Street OC, Santa Clara	04-SCL-0101-41.06	7	Caltrans right-of-way	City of Santa Clara or San Jose MS4	5,185	2-inch grating on drain inlet at roadway level	Medium
Cochrane Road OC	US 101 at Cochrane Road, Morgan Hill	04-SCL-0101-R17.89	40	Caltrans right-of-way	Coyote Creek	29,540	2-inch grating on drain inlet at roadway level	Medium
Burnett Avenue OC	US 101 at Burnett Avenue, Morgan Hill	04-SCL-0101-R18.68	20	Caltrans right-of-way	Coyote Creek	14,950	2-inch grating on drain inlet at roadway level	Low
North First Street OC	Highway 237 at North First Street, San Jose	04-SCL-0237-6.87	56	Caltrans right-of-way	Alviso Slough	88,992	2-inch grating ondrain inlet at roadway level	Medium
Dana Street OC	Highway 237 at Dana Street, Mountain View	04-SCL-0237-RO.60	13	Caltrans right-of-way	City of Mountain View	7,865	2-inch grating on drain inlet at roadway level	Low
Winchester (280)	Interstate 280 at Winchester Boulevard, San Jose	04-SCL-0280-4.59	11	Caltrans right-of-way	City of San Jose	6,370	2-inch grating on drain inlet at roadway level	**High**
Saratoga Avenue (280)	Interstate 280 at Saratoga Avenue, Santa Clara	04-SCL-0280-5.98	19	Caltrans right-of-way	City of San Jose	None	2-inch grating on drain inlet at roadway level	Medium

Table D-1. Caltrans-operated Stormwater Pump Stations within San Francisco Region

Pump Station	Address	Location	Catchment Area (acres)	Dominant Land Use	Receiving Water Body or MS4	Wet Weather Storage Capacity[1] (cubic feet)	Trash Control Measures	Trash Generation Assessment
Bird Avenue OC	Interstate 280 at Bird Avenue, San Jose	04-SCL-0280-R2.90	22	Caltrans right-of-way	Los Gatos Creek	21,300	2-inch grating on drain inlet at roadway level	Medium
Southwest Expressway OC	Interstate 280 at Southwest Expressway, San Jose	04-SCL-0280-R3.83	35	Caltrans right-of-way	City of San Jose	43,800	2-inch grating on drain inlet at roadway level; pump screen	Medium
Alum Rock Avenue	Interstate 680 at Alum Rock Avenue, San Jose	04-SCL-0680-M1.74	Unknown	Caltrans right-of-way	City of San Jose	Unknown	2-inch grating on drain inlet at roadway level	Medium
82/880 SEP	Interstate 880 at Highway 82 Overcrossing, San Jose	04-SCL-0880-2.11	20	Caltrans right-of-way	Guadalupe River	290	2-inch grating on drain inlet at roadway level; pump screen	Medium
Coleman Avenue	Interstate 880 at Coleman Avenue, San Jose	04-SCL-0880-2.70	7	Caltrans right-of-way	Guadalupe River	14,270	2-inch grating on drain inlet at roadway level; pump screen	Medium
Menker Avenue	Interstate 280 south of Leigh Ave OC, San Jose	04-SCL-280-4.41	49	Caltrans right-of-way	City of San Jose	44,270	2-inch grating on drain inlet at roadway level; pump screen	Medium

1. Wet weather storage capacity is equal to the sum of the storage box capacity and collection pipe capacity.

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Attachment E. Caltrans Facilities within the San Francisco Bay Region

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Safety Roadside Rest Areas

Table E-1 shows Caltrans safety roadside rest areas within the San Francisco Bay Region.

Table E-1. Caltrans Safety Roadside Rest Areas in the San Francisco Bay Region

District	County	Route	Post Mile	Location	Notes
4	Solano	80	6.6	7 miles east of Vallejo	
4	Marin	101	0.1	North end of Golden Gate Bridge	Drive up cigarette ash tray dump station
4	San Mateo	280	13.1	Near San Francisco Reservoir	

Park-and-Ride Facilities

Table E-2 shows Caltrans park-and-ride facilities within the San Francisco Bay Region.

Table E-2. Caltrans Park-and-Ride Facilities in the San Francisco Bay Region

District	County	Route	Post Mile	Name	Parking Spaces	Description
4	ALA	84	4.1	ARDENWOOD*	351	Ardenwood Blvd, Fremont, Operated by AC Transit
4	ALA	238	0.70	MISSION SAN JOSE PARK	23	Jct 238/Mission Blvd, Fremont
4	ALA	580	13.20	PORTOLA	97	Portola Ave, Livermore
4	ALA	580	29.20	CENTER	138	Center St, Castro Valley
4	ALA	580	30.70	JOHN	8	John Dr, Castro Valley
4	ALA	580	41.40	FRUITVALE	178	Fruitvale Ave, Oakland
4	ALA	680	6.40	JCT 238/680	127	Jct 238/680, Fremont
4	ALA	880	32.2	7th and Linden	180	Under I-880 at 7th/Linden
4	CC	4	11.10	PACHECO	51	Pacheco Blvd, Martinez
4	CC	24	1.20	GATEWAY LOT 1	30	Gateway Blvd, Orinda West
4	CC	80	6.00	HILLTOP	135	Hilltop Blvd, Richmond
4	CC	80	6.60	RICHMOND PARKWAY*	182	Richmond Parkway, Richmond, Operated by AC Transit
4	CC	80	10.70	WILLOW LOT	85	Willow Ave, Hercules Northeast and Southwest Quads
4	CC	242	0.90	CONCORD	45	Concord Ave, Concord+E38
4	CC	680	3.00	BOLLINGER*	108	Bollinger Canyon Rd, San Ramon, Operated by City of San Ramon
4	CC	680	12.60	RUDGEAR	64	Rudgear Rd, Walnut Creek
4	MRN	37	13.80	BLACK POINT	29	Atherton Ave, Unincorporated
4	MRN	101	1.50	SPENCER LOT 2	45	Spencer Ave, Sausalito East and West
4	MRN	101	4.10	MANZANITA	303	Jct Route 1, Marin City
4	MRN	101	5.40	SEMINARY LOT	62	Seminary Dr, Mill Valley West and East

Table E-2. Caltrans Park-and-Ride Facilities in the San Francisco Bay Region

District	County	Route	Post Mile	Name	Parking Spaces	Description
4	MRN	101	10.80	HETHERTON	188	Hetherton St, San Rafael, 4 lots
4	MRN	101	12.20	LINCOLN	42	Lincoln Ave, San Rafael
4	MRN	101	14.70	SMITH RANCH	186	Smith Ranch Rd, San Rafael
4	MRN	101	16.60	ALAMEDA DEL PRADO	106	Alameda Del Prado, Novato
4	MRN	101	20.20	ROWLAND	240	Rowland Blvd, Novato NE and SE quads
4	MRN	101	22.00	ATHERTON	58	Atherton Ave, Novato
4	NAP	29	10.30	IMOLA	76	Imola Ave, Napa
4	SCL	280	18.40	PAGE MILL	40	Page Mill Rd, Los Altos Hills
4	SM	1	41.00	LINDA MAR*	70	Linda Mar Blvd, Pacifica, Operated by SAMTRANS
4	SM	1	41.20	CRESPI*	87	Crespi Dr, Pacifica, Operated by City of Pacifica
4	SM	92	7.90	RALSTON	25	Ralston Ave, Belmont
4	SM	101	11.90	RTE 92	174	Rtes 92/101 Interchange, San Mateo
4	SM	101	13.50	THIRD	13	Third Ave, San Mateo
4	SM	280	3.30	WOODSIDE	28	Woodside Rd, Woodside
4	SM	280	6.70	EDGEWOOD	44	Edgewood Rd, Unincorporated
4	SM	280	14.20	HAYNE	24	Hayne Rd, Hillsborough
4	SOL	12	4.7	MAIN St*	265	Main Street at Route 12, Operated by City of Suisun
4	SOL	80	1.80	MAGAZINE	19	Magazine St, Vallejo
4	SOL	80	2.20	LEMON	419	Lemon St, Vallejo, NW lot operated by City of Vallejo
4	SOL	80	2.60	BENICIA	14	Benicia Rd, Vallejo
4	SOL	80	12.80	GREEN VALLEY	59	Green Valley Rd, Cordelia
4	SOL	780	2.00	EAST SECOND	15	East Second St, Benicia
4	SON	101	2.90	SOUTH PETALUMA	40	South Petaluma Blvd, Santa Rosa
4	SON	101	3.6	LAKEVILLE	135	Route 101 at Route 116
4	SON	121	6.70	SCHELLVILLE	47	Jct Rte 116, Schellville