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September 1, 2015

Mr. Thomas Mumley
Assistant Executive Officer
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

Attention: Mr. Dale Bowyer, Senior Water Resources Control Engineer

Subject: Trash Load Reduction Work plan for the San Francisco Bay
Caltrans Report CTSW-RT-15-316.15.1D

Dear Mr. Mumley:

The California Department of Transportation (Caltrans) is submitting *Caltrans Trash Load Reduction Work plan for the San Francisco Bay Region* as a follow-up to our submittal of the document outlining initial trash generation map (based on District 4 data) and on-land visual assessment methodology dated June 1, 2015.

Following is an update on the progress to date on the actions outlined in the June 1 submittal:

1. Completed the on-land visual assessment of trash generation levels for 580 centerline miles and 390 on/off-ramps within San Francisco Bay Area (priority was given to highway areas identified as very high or high trash generation area in the initial trash generation map)

   The complete on-land visual assessment including field pictures are available on-line at: http://arcg.is/1JU5Pau

2. Continued discussions with the Bay Area Stormwater Management Agencies Association (BASMAA) to present the funding mechanisms set up for cooperative implementation projects developed in partnerships with local Municipal Separate Storm Sewer System (MS4) permittees to capture trash within San Francisco Bay Area.

Out of the 580 centerline highway miles that was surveyed, Caltrans identified 0.3% to generate very high amounts of trash and 3.4% to generate high amounts of trash. Out of the 390 on/off-ramps, Caltrans identified 2.0% to generate very high amounts of trash and 18.0% to generate high amounts of trash.

The work plan contains proposals for tasks and strategies in areas identified as very high and high trash generations areas in the near term (2015/2016 Caltrans Fiscal Year) and in short term (Caltrans Statewide NPDES permit 2018 cycle).

Caltrans would like to follow-up on this submittal with a meeting with your staff to discuss any comments on the submitted work plan and inputs on the proposed trash reduction strategies outlined in the work plan.

If you have further questions or require additional information, please do not hesitate to contact me at (510) 715-6816.

Sincerely,

HARDEEP TAKHAR, P.E.
NPDES Coordinator
Division of Environmental Planning and Engineering
Caltrans District 4

C:

Keith Lichten, San Francisco Bay RWQCB, Division Chief, Watershed Management
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Scott McGowen, Caltrans HQ, Chief Environmental Engineer
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Enclosures:

Caltrans Report CTSW-RT-15-316.15.1D - Caltrans Trash Load Reduction Workplan for the San Francisco Bay Region (September 1, 2015)

Caltrans Trash Load Reduction Workplan for the San Francisco Bay Region

California Department of Transportation
Division of Environmental Analysis
1120 N Street
Sacramento, CA 95814
www.DOT.CA.Gov/HQ/Env/Stormwater

CTSW-RT-15-316.15.1D

September 1, 2015

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1 Purpose of the Workplan

The purpose of this workplan is to identify current and proposed efforts the California Department of Transportation (Caltrans) has made to comply with Caltrans Stormwater Permit Attachment V, Part 2, which states that Caltrans shall comply with the prohibition of the discharge of trash through implementation of control measures in high trash generating areas in the San Francisco Bay Region.

Attachment V, Part 2, Section 2 indicates the compliance shall be done through:

a. 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.

b. 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).

The objectives of this workplan are to:

- Identify high trash generation areas
- Identify tasks to address trash reduction in high trash generating areas (2015/2016 Fiscal Year)
- Identify trash reduction strategy within the Caltrans National Pollutant Discharge Elimination System (NPDES) Permit cycle (2018)
- Identify trash reduction strategy for the long-term (post-2018)

This plan will address Caltrans' trash reduction efforts within the San Francisco Bay Region in collaboration with local MS4 agencies and the Bay Area Stormwater Management Agencies Association (BASMAA). Consideration will include Caltrans Stormwater Permit Attachment V, annual Total Maximum Daily Load (TMDL) compliance unit commitments within Attachment IV of the Caltrans Stormwater Permit, reach prioritization, and best management practices (BMPs) effective for addressing trash and other pollutants. Attachment A shows 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 Basin Plan through implementation of control measures in all high trash generation areas in the San Francisco Bay Region identified as Caltrans' responsibility.

As a first step, trash generation hot spots were identified based on litter collection data, Adopt-a-Highway data, and street sweeping data available through the Caltrans database. These data sets helped identify those locations requiring the most litter collection efforts. This data was sorted and mapped to identify stretches of highway with the most litter. The Litter Collection Efforts Map is shown in Attachment B. The draft map served as a starting point for Caltrans to focus efforts. This map includes approximately 580 centerline miles within the San Francisco Region, which has approximately 1,030 centerline miles total.

The second step was to conduct on-land visual assessments every 0.5 miles within the watershed. Freeway stretches identified as high were visited to visually observe the level of trash present on the shoulders, on- and off-ramps, median, and other areas that could potentially contribute trash to the MS4. Several photographs within each 0.5 mile segment were taken to proved a representation of the trash generation. To be conservative the highest category level of trash accumulation was recorded for each 0.5 mile segment. 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 580 centerline miles and 390 on-ramps and off ramps. Results of the assessment may be viewed at http://arcg.is/1JU5Pau. The remaining 450 centerline miles, approximately 400 ramps, park and rids, vista points and safety roadside rest areas will be assessed as outlined in the schedule in Section 7.

2.2 Task 2: Evaluate Opportunities for Cooperative Agreements

Caltrans has been in discussions with Bay Area Stormwater Management Agencies Association (BASMAA) to discuss opportunities for construction of full trash capture systems, and enhance maintenance controls. High trash generation areas for neighboring MS4 Permittees are primarily in high density residential, industrial, commercial, and public transportation systems. Caltrans and BASMAA have identified three candidate projects within the Cities of Oakland, Contra Costa and Sunnyvale, and will continue to identify additional ooportunities for cooperative implementation

Currently, Caltrans is primarily focusing on cooperative agreements with local MS4s for San Pablo Avenue, Mission Boulevard, and El Camino Real to implement full capture systems for addressing trash impairments, as shown in Table 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 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 Permit. Caltrans will monitor 20% of stormwater pump stations once a year and complete 100% monitoring within 5 years. The inspection and monitoring results from the stormwater pump stations will be provided as part of the 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 Regional Water Quality Control Board 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

Table 2 summarizes the results of the on-land visual assessments for the initial areas assessed. Table 3 summarizes the freeway stretches that have been 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 4) and ramps (Table 5).

Table 2. On-land Visual Assessment of High Trash Generation Facilities Results

	Very High	High	Medium	Low
Ramps	2%	18%	34%	46%
Highways	0.3%	3.4%	30.0%	66.3%

Table 3. Freeways with High and Very High Trash Levels & Dates Visited

County	Freeway	Date(s) Visited	Sweeping/Litter Pick up Occurred within 7 days prior
Alameda	SR 13	7/21/15 & 7/22/15	No
	SR 24	7/13/15, 7/23/15, 7/24/15	7/21, 7/22, and 7/23 between PM 1.85-6.24
	SR 77	7/29/15	No
	I-80	7/9/15, 7/13/15, 7/14/15, 7/15/15 & 7/22/15	7/18 and 7/20 litter pick up between PM 1.99 -8.04
	I-580	7/8/15 & 7/9/15	No
	I-680	6/29/15, 7/2/15 & 7/10/15	7/6 litter pick up by ADH at PM 21.87
	I-880	7/23/15, 7/24/15	No
	I-980	6/29/15 & 7/14/15	No
Contra Costa	SR 4	7/2/15, 7/10/15 & 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 & 7/22/15	No
	SR 242	7/10/15, 7/21/15 & 7/30/15	No
	I-580	7/8/15 & 7/9/15	No
	I-680	6/29/15, 7/2/15 & 7/10/15	No
Marin	US 101	7/15/15 & 7/29/15	No
Santa Clara	SR 17	7/24/15	No
	SR 85	7/17/15 & 7/22/15	No
	SR 87	7/29/15	No
	US 101	7/7/15 & 7/13/15	No
	SR 237	7/17/15 & 7/22/15	No
	I-280	7/16/15, 7/27/15 & 7/28/15	No
	I-680	6/29/15, 7/2/15 & 7/16/15	No
	I-880	7/23/15 & 7/24/15	No
San Francisco	US 101	7/13/15, 7/15/15 & 7/29/15	No
	I-280	7/16/15, 7/27/15 & 7/28/15	No
San Mateo	US 101	7/7/15 & 7/13/15	No
	I-280	7/16/15, 7/27/15 & 7/28/15	No

County	Freeway	Date(s) Visited	Sweeping/Litter Pick up Occurred within 7 days prior
	I-380	7/28/15	No
Sonoma	SR 12	7/20/15	No
	US 101	7/15/15 & 7/29/15	No

Table 4. 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
	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	0.8
	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	7.4
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	3.1
	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	3.8

Table 4. Freeway Stretches with High and Very High Trash Level (continued)

County	Freeway	Segment(s)	# Miles
Santa Clara (continued)	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	0.5
	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	3.0
San Francisco	US 101	SB – South of US 101/I-80 interchange to Cesar Chavez ramp	1.1
	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	1.1
	I-280	SB – South of Mariposa St ramp to 23rd St ramp	0.5
	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	4.1

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

Table 5. Freeway Ramps with 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
	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
	I-280	NB – McKee Rd SB – Berryessa Rd NB – Landess Ave
	I-880	SB – Brokaw Rd SB – The Alameda

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

Table 7. Implementation Schedule (continued)

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, Part2, Section 2 indicates the compliance shall be done through enhanced maintenance controls and implementation of both source control and structural BMPs. Additional control measures that Caltrans plans to implement are in Table 6 below:

Table 6. 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. Caltrans is currently developing a new public education campaign aimed at reduction in stormwater pollution.

Caltrans has conducted numerous surveys 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 San Francisco Bay Region. Caltrans can use the results of these studies 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 during its efforts, the Caltrans public outreach program to be implemented in the San Francisco Bay Area prior to July 1, 2017, includes:

- 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 Street Sweeping

Caltrans conducts roadway sweeping and roadside cleanup operations to provide safe freeway conditions appropriate for the type and use of the road. Sweeping is currently conducted on an as-needed basis throughout the watershed. Material collected is 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. Caltrans will also investigate the ability to redirect resources from the areas with low trash accumulation to those areas with higher trash accumulation.

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.

Table 7. Implementation Schedule (continued)

In 2013-2014, Caltrans spent $13.7 million in litter collection efforts, including labor, equipment and materials, and efforts in street sweeping, storm drain cleaning, and litter pick-up for the highway. The following year (2014-2015), Caltrans spent $15.2 million in litter collection efforts. 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).

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. As of the April 2013 reporting year, Caltrans District 4 has 750 miles of highway within the Adopt-A-Highway program. 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 spent $1.85 million between August 2014- July 2015 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 will continue to educated contractors on the contract specification related to maintaining construction zones free of construction-related litter and debris and work with Resident Engineer (RE) to enforce these contract specifications. 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 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

The structural BMPs that are most effective at capturing trash are detention basins, infiltration basins, GSRDs, and media filters. Having received approval for GSRDs as a full-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 constructed treatment control measures within the San Francisco Bay watershed, including sand filters, biofiltration swales, biofiltration strips, infiltration trench, detention devices, and bioretention basins/swales, which may qualify as full or partial trash capture systems.

Caltrans is determined to implement structural BMPs to supplement source control and studies to comply with the trash reduction goal. 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, if feasible, Caltrans will prioritize infiltration devices. 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.

For regional treatment opportunities with other MS4 Permittees, the decision to contribute will be based on cost and estimated trash load reduction credit for Caltrans.

4.3 Increased Level of Implementation to Address High 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.

Table 7. Implementation Schedule (continued)

- Retrofit 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 Agreement 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.

[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.

5 Cooperative Agreement Opportunities

Caltrans began meeting with BASMAA to present its mandate for Trash Reduction in Attachment V in its Statewide NPDES permit, and begin discussions on cooperative implementation opportunities in August 2014. Follow up meetings were held in April and August 2015 to continue discussions on opportunities for Cooperative Implementation, and the funding mechanisms set up by Caltrans.

Caltrans has set aside funds for cooperative implementation projects within TMDL watersheds, which would fund the capital improvements including design and construction of treatment control measures. Candidate projects qualifying for these funds will need to build full/partial trash capture devices and treatment controls that remove one or more of the pollutants for which TMDLs have been adopted within the San Francisco Bay Region.

Specific discussions focused on the opportunities along State Routes 82, 123, 185, and 238 (Attachment C), all of which are conventional highways that run through several cities for a combined 70 miles. Caltrans has researched available maintenance agreements with the cities for these routes, some of which date back to the 1950s. Caltrans suggested funding capital projects for inlet screens along these routes and asked if the cities could cover the maintenance.

Specific discussions resulting from the meetings include the following:

- 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 green infrastructure projects upcoming 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 a proposal on the Bay Area Rapid Transit 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) where devices have been installed or upcoming installations to which Caltrans can contribute, and 3) maintenance agreements for routes Caltrans could not locate.

Table 7. Implementation Schedule (continued)

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 Regional Water Quality Control Board. A list of pump stations assessed as part of the San Francisco Bay Regional Water Quality Control Board 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. 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 have to be individually evaluated for locations with adequate space to expand wet well to capture accumulated trash and provide proper head requirements for the pump station. Attachment D presents a table of those pump stations identified in high trash accumulation areas.

7 Schedule

As shown in Table 7, Caltrans will begin 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 pick-up. Caltrans will begin addressing the high trash assessment areas as early as 2017 through implementation of capital solutions. Caltrans will begin addressing the medium priority areas as early as 2017 through implementation of capital and non-capital solutions. Caltrans will aim 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 Amendment.

Table 7. Implementation Schedule

Action	Task	Schedule
1. Identify high trash generation areas	▪ Perform on-land visual assessment	Round one – July 31, 2015 Round two – October 31, 2015
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.	December 31, 2015 (pending approval)
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
~~3.~~4. Expand Department of Corrections involvement in litter removal efforts	▪ Work with Department of Corrections to determine feasibility of increased litter removal.	January 2016
~~3.~~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.	January 2016

Table 7. Implementation Schedule (continued)

Action	Task	Schedule
~~3.~~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.	Begin implementation Year 1 By July 1, 2017. Address high trash generating areas by July 1, 2019.
~~4.~~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.	Begin implementation Year 1 By July 1, 2016. Address high trash generating areas by July 1, 2017.

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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 PM	To PM	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

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

County	Route	From PM	To PM	Mileage
San Francisco	80	3.85	8.84	4.99
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

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

County	Route	From PM	To PM	Mileage
Santa Cruz	35	4.76	5.12	0.36
Santa Cruz	35	5.24	6.12	0.88
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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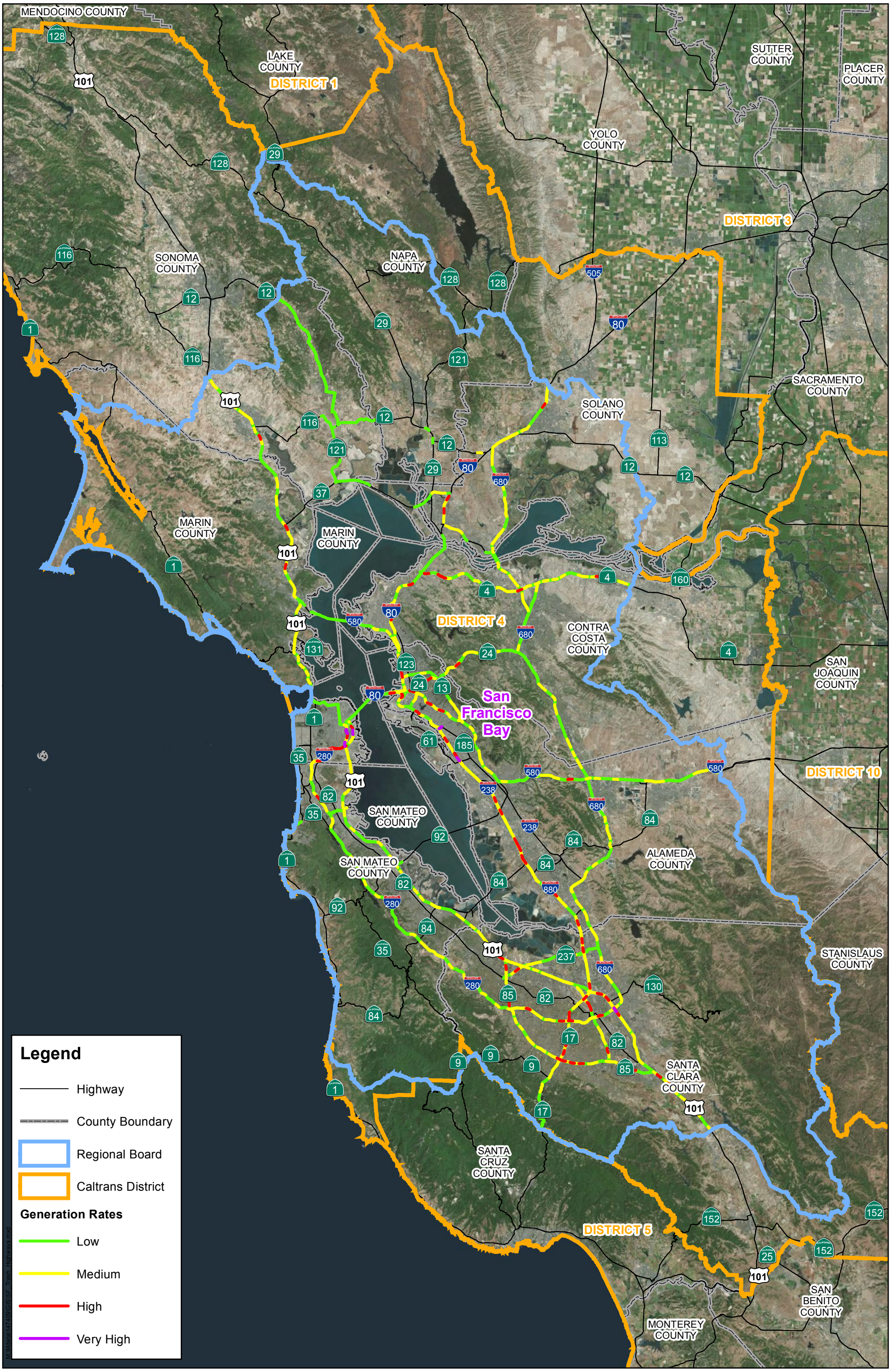
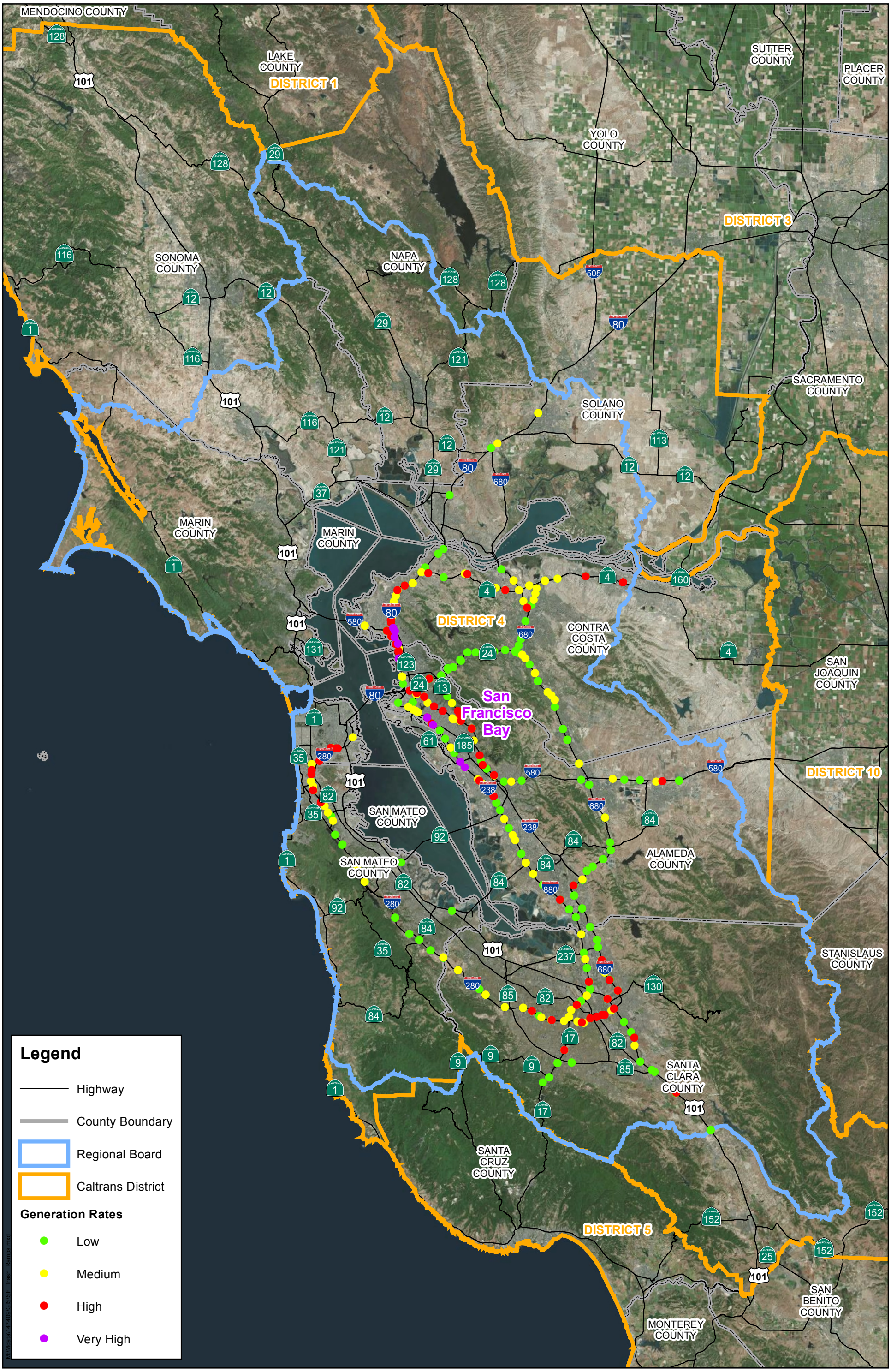


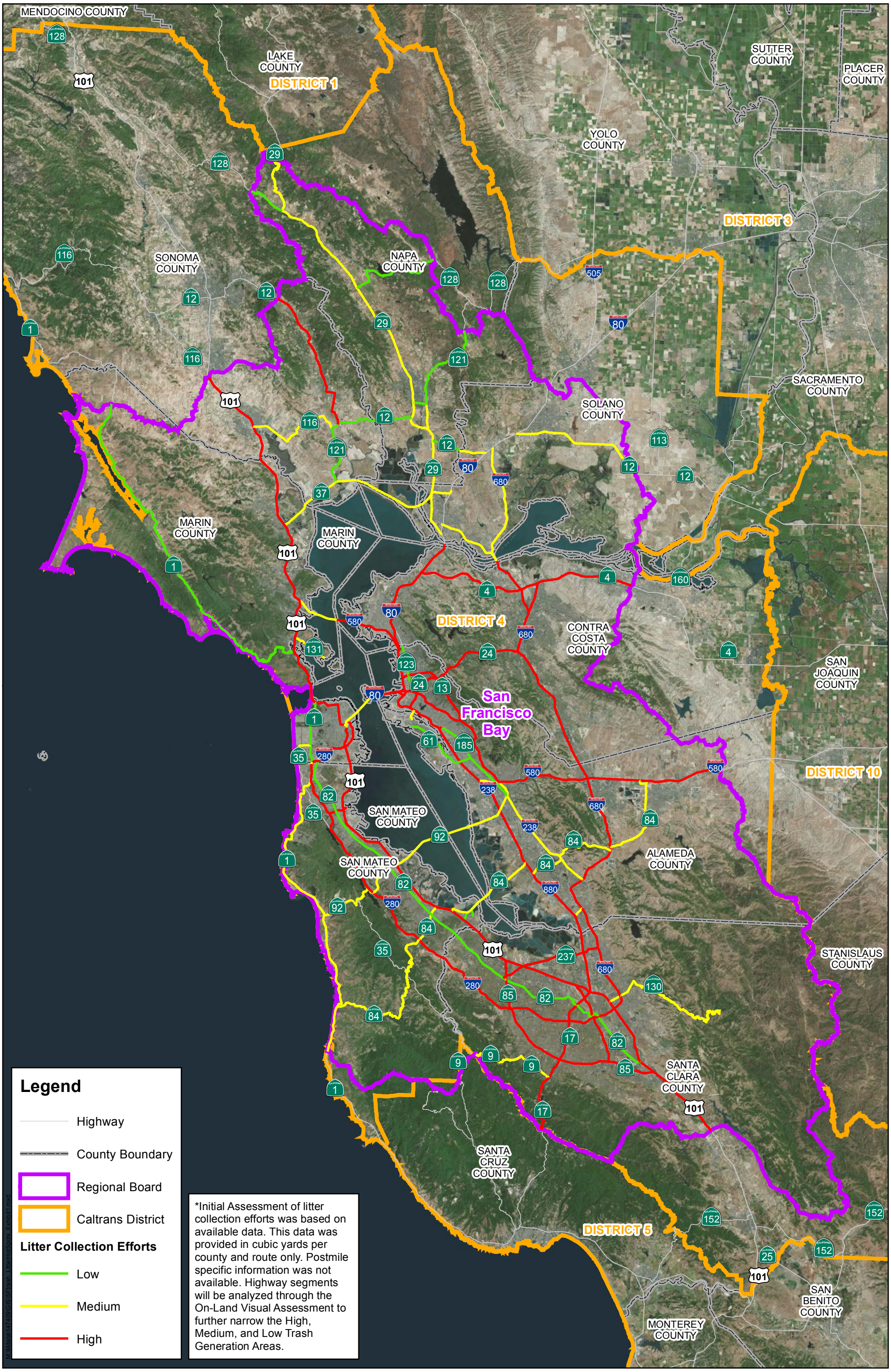
San Francisco Bay Region

Highway Trash Assessment Map



San Francisco Bay Region

Highway Ramp Trash Assessment Map



San Francisco Bay Region

Litter Collection Efforts 2010 to 2015*

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Attachment C. Opportunities for Cooperative Implementation

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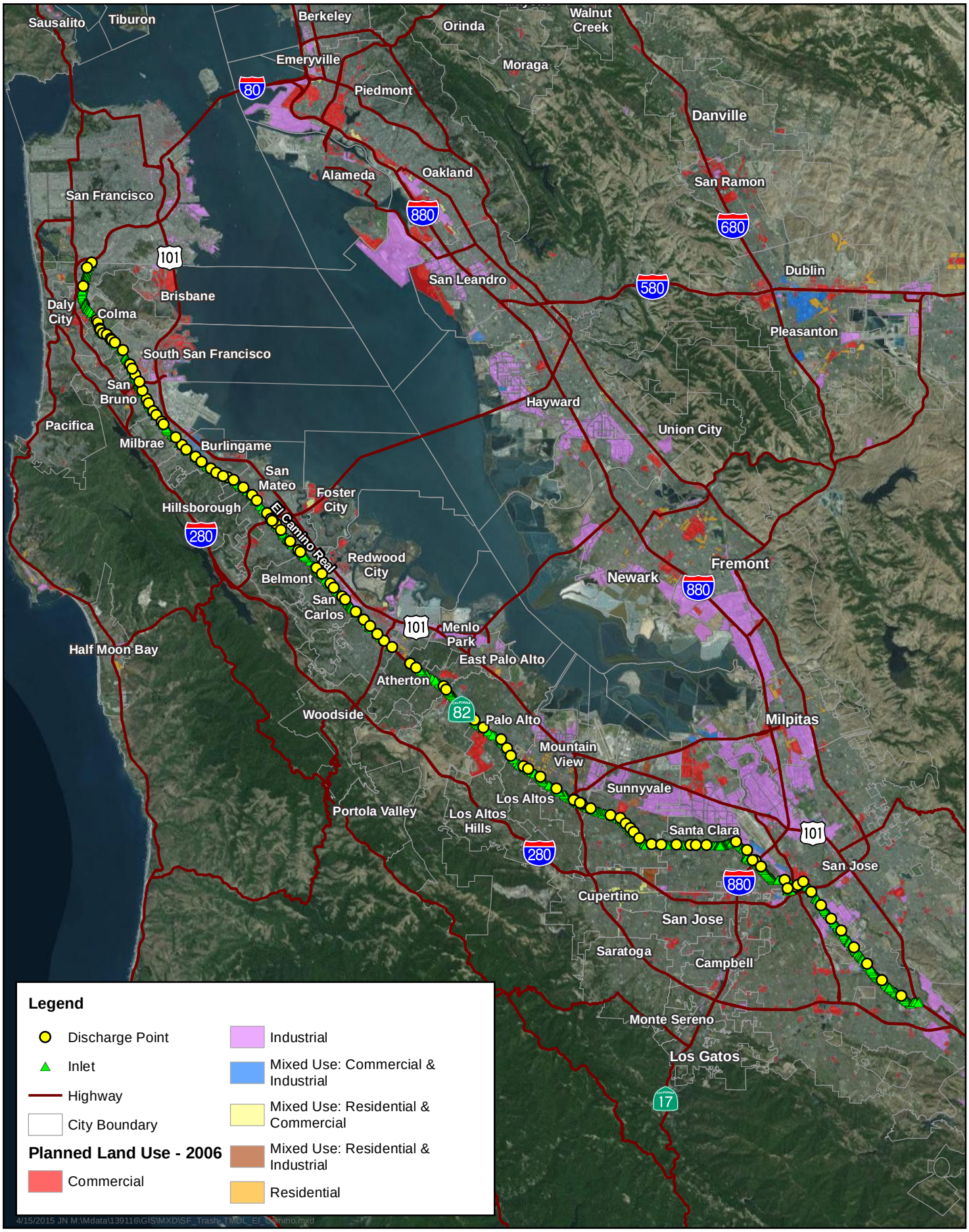
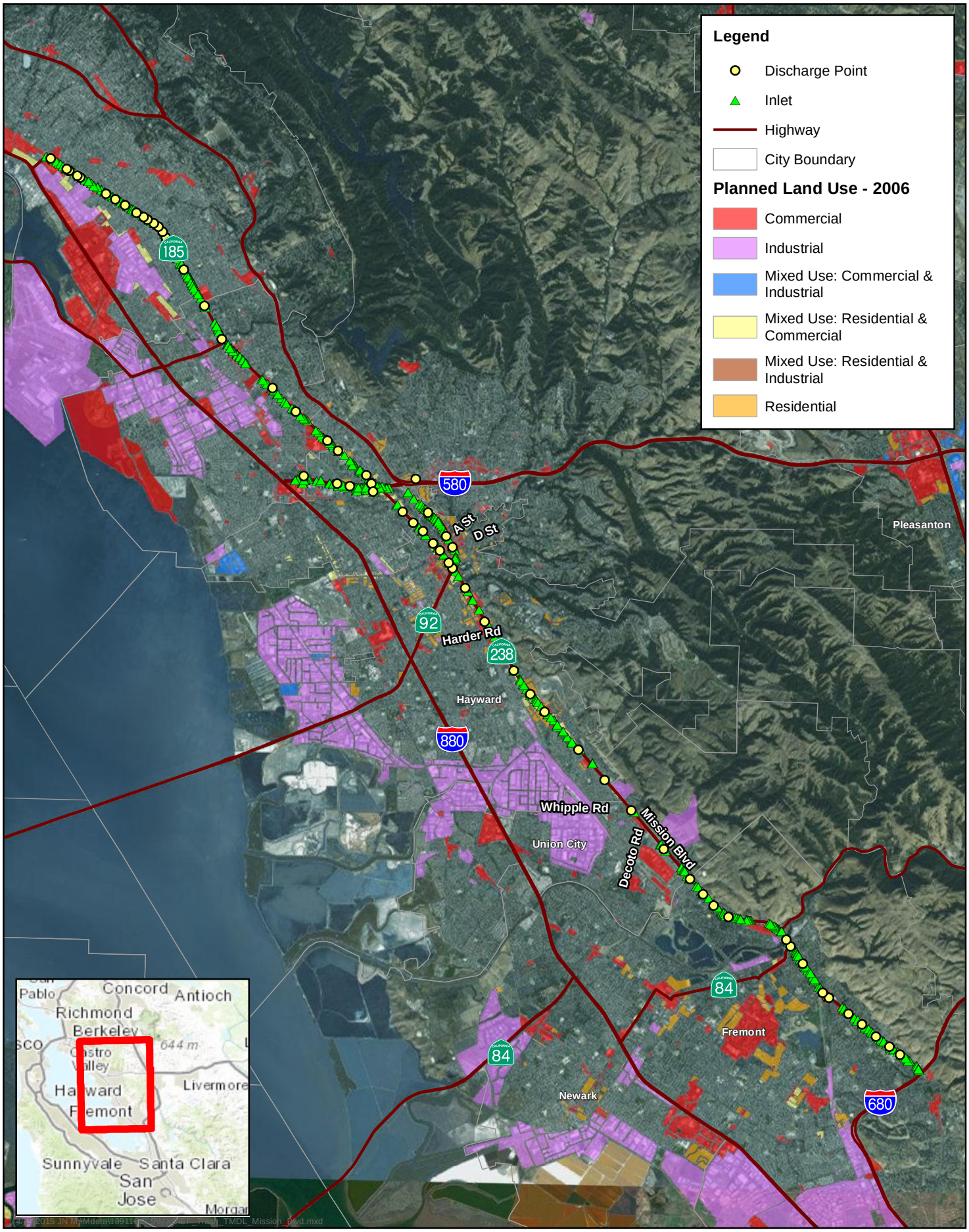


SAN FRANCISCO TRASH TMDL

South Bay

El Camino Real



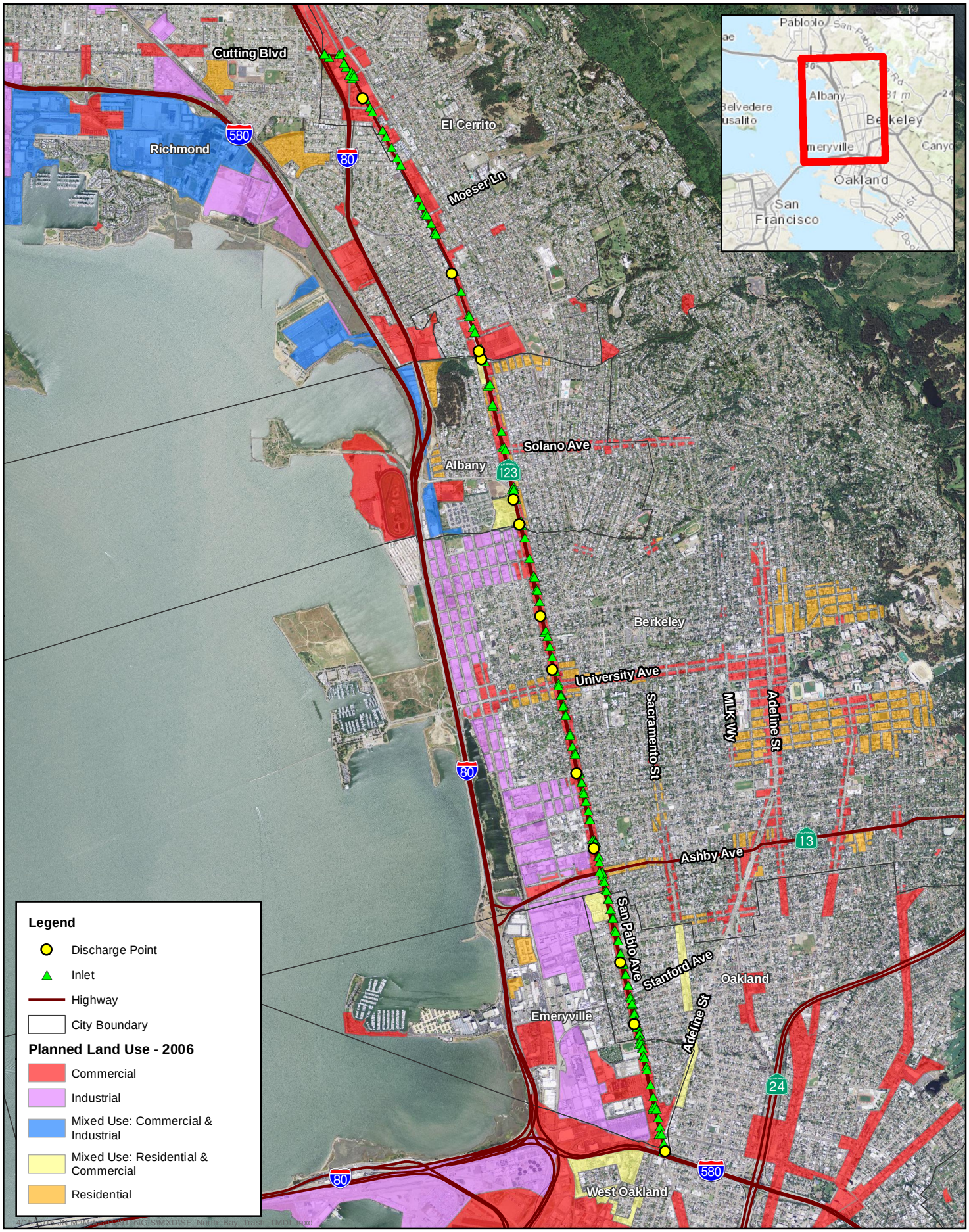
SAN FRANCISCO TRASH TMDL

East Bay

Mission Blvd, Route 238, 185

0 1 2 Miles

Source: Esri Imagery



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	no data
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	no data
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	no data
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	no data

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

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
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	no data
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	no data
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
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**

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

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
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
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

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

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
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	no data
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	no data
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	no data
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	no data

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

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
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
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**

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

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
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
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

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

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
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
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

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

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 (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
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.

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	PM	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	PM	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 (continued)

District	County	Route	PM	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