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MEMORANDUM

TO: HONORABLE MAYOR &
CITY COUNCIL

FROM: David Ferguson
Interim Director, OPW

SUBJECT: Stormwater Trash Load Reduction
Compliance Update

DATE: April 20, 2021

City Administrator 
Approval

Date: Apr 30, 2021

INFORMATION

EXECUTIVE SUMMARY

This Informational Memorandum provides a compliance update on the City of Oakland's (City) progress to meet requirements in the Municipal Regional Stormwater National Pollutant Discharge Elimination System Permit (MRP)¹ to reduce annual trash loads to waterways. The current MRP mandates 100% reduction of the baseline trash loads, calculated in 2009, by July 1, 2022, however, the Administrative Draft of the third reissuance of the MRP (MRP 3.0) has recently been released by the San Francisco Bay Regional Water Quality Control Board (Water Board). The new proposed trash management provision of MRP 3.0 extends the 100% compliance deadline to July 1, 2025 but removes several categories of compliance credit, through which the City currently meets 35% of the 96.3% compliance it has achieved to date. Reaching 96.3% compliance has taken significant financial investment in trash capture, management, and litter prevention actions. Achieving the proposed new 2025, 100% compliance mandate will be even more challenging and costly due to the removal of credits for existing programs and the technical difficulty and expense associated with the installation of full trash capture devices throughout the city. Staff will continue to evaluate other compliance and funding options.

BACKGROUND / LEGISLATIVE HISTORY

On February 25, 2020, Oakland Public Works (OPW) provided the Public Works Committee (PWC) with an informational report regarding the status of compliance with the trash load reduction requirement in the MRP. This report was subsequent to previous informational reports presented on February 19, 2019, and April 25 and October 24, 2017. The current report responds to the PWC's request to provide an annual update on the City's comprehensive trash reduction strategy including programs and activities, compliance status, and next steps to meet future requirements.

¹ Issued and enforced by the San Francisco Bay Regional Water Quality Control Board.

ANALYSIS AND POLICY ALTERNATIVES

Under Provision C.10 “Trash Load Reduction” of the MRP, the City is mandated to reduce trash and litter in its storm drain system and waterways that flow to the San Francisco Bay (Bay). Compliance trash load benchmarks for this mandate are based on several formulas related to a baseline trash generation rate developed in 2009 that includes actual volumes removed, as well as other actions that provide credits and offsets. Trash generation is a term used to describe the level of trash deposited onto land areas that could potentially be transported to the storm drain system and waterways and the rate was calculated using a formula that includes land use classifications, median household income, and observed trash levels. The MRP formulas require the identification of four types of trash generation areas: Very-High, High, Moderate, and Low (see *Attachment A* - Baseline Trash Generation and Full Trash Capture Systems Map).

The current iteration of the MRP (MRP 2.0) requires the permittees to achieve 100% compliance with capturing the volumes of trash predicted by the trash generation rate through the performance of approved management actions that provide credit toward meeting that compliance requirement, by July 1, 2022. The new iteration of the MRP (MRP 3.0) has just been released in administrative draft form by the San Francisco Bay Regional Water Quality Control Board (Water Board), in which the compliance deadlines have been changed as proposed: by July 1, 2023, achieve a mandatory 90% compliance benchmark and by July 1, 2025 achieve 100% compliance. The new proposed trash provision of MRP 3.0 also includes removal of compliance credits as follows: source control credits 10%; creek and shoreline cleanup credits 10%; and direct discharge control program 15% (total=35% removed by Fiscal Year (FY) 2025-2026 (FY 25/26)). The following **Table 1** shows a summary of how Trash Load Reduction Action categories and credits have been proposed to change under MRP 3.0.

Table 1: MRP 3.0 Trash Reduction Credit Changes

Trash Load Reduction Action	FY 20/21	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
1) Full Trash Capture Systems	11.9%	11.9%	11.9%	11.9%	11.9%	11.9%
2) Creek & Shoreline Cleanups	10.0%	10.0%	10.0%	10.0%	0%	0%
3) Source Control Actions	10.0%	10.0%	0%	0%	0%	0%
4) Direct Trash Discharge Program	15.0%	15.0%	15.0%	15.0%	15.0%	0%
5) Other Control Measures	49.4%	49.4%	49.4%	49.4%	49.4%	49.4%
Total*	96.3%	96.3%	86.3%	86.3	76.3	61.3%
Compliance Requirement	--	-	90%	90%	100%	100%
Trash Credits Needed	-	-	3.7%	3.7%	23.7%	38.7%

** For the purposes of showing the additional trash reduction credits needed under MRP 3.0, the total percentages achieved do not show increases in compliance through Full Trash Capture Systems and Other Control Measures; however, these actions will need to comprise a greater percentage of the compliance strategy to bridge the 100% compliance requirement gap.*

Barring any reductions in the City's trash reduction programs, the City should expect to achieve the 2023 90% compliance requirement through the installation of additional full trash capture systems and continued implementation of other trash control measures. The City is currently receiving trash reduction credit through:

- The extent of full trash capture systems installed in the City's storm drain system that capture trash;
- The volume of trash removed during volunteer cleanup events at creeks and shorelines;
- The implementation of source control bans on plastic bags and polystyrene foam food service ware;
- The volume of trash removed through illegal dumping and homeless encampment abatement as part of a direct trash discharge control program; and
- The reduction in trash on the City's streets and sidewalks from various management actions as measured by on-land visual assessments.

More information concerning the City's trash load reduction program, including purpose, permit requirements, and compliance status, is available in the City of Oakland Annual Report to the Water Board: https://cao-94612.s3.amazonaws.com/documents/Oakland_2019-20_MRP_AR_Final.pdf.

Compliance Status

As reported in its FY 18/19MRP Annual Report, the City has, to date, achieved a 96.3% reduction from baseline levels. The City met and exceeded this target through numerous efforts including the installation of underground full trash capture systems in the City's storm drain system, above-ground efforts to remove litter in the streets before it enters inlets and waterways including volunteer programs and events such as the Excess Litter Fee Program, the Business Improvement Districts, street sweeping programs, and clean-up of illegal dumping sites and homeless encampments as described below.

Trash Reduction Programs

Trash reduction credits are taken in five established Trash Load Reduction Action categories:

1. Full Trash Capture Systems
2. Creek & Shoreline Cleanups
3. Source Control Actions
4. Direct Trash Discharge Control Program
5. Other Control Measures

The following **Table 2** shows a summary of Trash Load Reduction Action categories and corresponding reduction credits for FY16/17, FY 17/18, FY 18/19, and FY 19/20.

Table 2: Trash Reduction Credit Summary

Trash Load Reduction Action	FY 16/17	FY 17/18	FY 18/19	FY 19/20
1) Full Trash Capture Systems*	12.4%	12.4%	12.4%	11.9%
2) Creek & Shoreline Cleanups	10.0%	10.0%	10.0%	10.0%
3) Source Control Actions**	10.0%	10.0%	10.0%	10.0%
4) Direct Trash Discharge Program	0%	0%	15%	15.0%
5) Other Control Measures***	42.3%	46.2%	48.4%	49.4%
TOTAL	74.7%	78.6%	95.8%	96.3%
<p>* <i>The percent trash reduction from full trash capture systems changed from 12.4% (FY 18/19) to 11.9% (FY 19/20) due to the reassessment of areas addressed by connector pipe screens associated with the East Bay Bus Rapid Transit Project.</i></p> <p>** <i>This category includes plastic bag and polystyrene product bans.</i></p> <p>*** <i>This category includes Business Improvement Districts, Excess Litter Fee Businesses, street sweeping, illegal dumping and homeless encampment clean-up, Adopt-a-Spot and other on-land clean-up efforts.</i></p>				

1. Full Trash Capture Systems

Full trash capture (FTC) systems are devices installed in storm drain infrastructure that collect trash prior to entering nearby waterways. The two main types of full trash capture devices are hydrodynamic separators, which are large underground units with a basket that capture trash as stormwater flows through the storm drain system, and connector pipe screens, which are screens installed in a storm drain inlet that trap trash and prevent it from transporting through the storm drain system.

FTC devices are a very effective method for preventing trash from entering waterways and they ensure full trash reduction credit for the area treated; however, they can be expensive and because they are underground solutions, they do not provide cleaner streets and neighborhoods, and therefore, they do not necessarily enhance quality of life for residents.

Since FY 2015/16, over 110 new full trash capture storm drain inlet screens and 1 hydrodynamic separator have been installed and, in combination with existing FTC devices installed prior to FY 2015/16, treat over 1,200 acres of high and very-high trash generating areas resulting in a total of 11.9 percent reduction credit. The screens are primarily installed in conjunction with capital improvement and transportation projects (see **Attachment A** - Baseline Trash Generation and Full Trash Capture Systems Map).

2. Creek and Shoreline Cleanups & Shoreline Cleanups

The City receives the maximum available trash load reduction credit of 10 percent in this category through implementation of numerous trash removal/cleanup events, such as the annual Earth Day and Creek to Bay Day events, at Lake Merritt, local creeks, and on the Bay shorelines. Per the MRP, FY 2018/19 triggered a change to the formula for calculating trash load reduction in this category from a 3:1 offset to a 10:1 offset, thereby significantly increasing the volume of trash needed to qualify for a 10% reduction. Over 493,000 gallons of trash were removed from

local waterways during FY 2019/20 which exceeded the volume needed for the City to receive the 10% trash load reduction.

3. Source Control Actions

For the past four years, the City has received an additional 2 percent for a total of 10 percent source reduction credit for the Alameda countywide plastic bag ban and the City of Oakland polystyrene food service ware ban. The additional 2 percent is for the expansion of the countywide single use plastic bag ban to include all retail facilities. The plastic bag ban is implemented through the Alameda County Waste Management Authority.

4. Direct Trash Discharge Control Program

In FY 2019/20, the City received the maximum available trash load reduction credit of 15 percent for the implementation of a Direct Trash Discharge Control Program. This program, approved by the Water Board in April 2019, allows the City to receive trash reduction credit for its activities and programs that reduce the impacts of trash from homeless encampments and illegal dumping into local creeks and the storm drain system within 500-feet of a waterway. Through these programs, the City removed more than 18 million gallons of trash from streets, parks, and public rights-of-way last fiscal year, over 2.3 million gallons of which was within 500 feet of a waterway and hence eligible for credit. To receive the full 15 percent trash reduction credit available in this category, the City must remove a minimum of 735,000 gallons within 500 feet of a waterway. The Direct Trash Discharge Control Program allows the City to leverage the enormous efforts already devoted to illegal dumping and homeless encampment litter abatement to receive valuable trash reduction credit.

5. Other Control Measures

In FY 2019/20 the City received an additional 1 percent in trash reduction credit in this category for a total of 49.4 percent. This category measures the effectiveness of many of the City's above-ground trash reduction efforts that include:

- **Street Sweeping:** Continuing the City's street sweeping program is the most widespread trash control measure that targets much of its efforts in Very-High trash producing areas including downtown, business districts, and major arterials with 3 or more sweeping events per week. The City has posted signs on all routes, has a rigorous enforcement program, and spends more than \$6.5 million dollars on implementation annually.
- **Adopt-a-Spot Program:** The City implements an award-winning Adopt-a-Spot program to support individuals, neighborhood groups, civic organizations, and businesses in ongoing cleaning and greening of parks, creeks, shorelines, streets, trails, and other public spaces. In FY 2019/20, citywide, volunteers contributed over 102,000 on-land clean-up volunteer hours at adopted spots and parks.

- **Adopt-a-Drain Program:** The Adopt-a-Drain program enhances the City staff efforts to clean of storm drains throughout the city. More than 1,400 of the City's estimated 13,600 storm drains have been adopted since the program began.
- **Excess Litter Fee (ELF) Program:** The City's ELF Program is implemented near fast food businesses, convenience markets, gasoline station markets, and liquor stores. ELF fees collected provide funds for a contracted crew to clean up the trash around businesses that sell/provide large amounts of disposable materials to customers. The contracted crew services more than 850 ELF businesses sites throughout the city and focuses on known locations of high street litter and illegal dumping.
- **Business Improvement Districts (BIDs):** There are 10 BIDs and 1 Business Improvement Association in neighborhood commercial areas throughout the city that encompass a total area over 900 acres. These organizations hire full-time staff to remove litter and dedicate funding to maintain trash containers, manage the number and capacity of trash containers needed, install and maintain cigarette butt receptacles, and install public anti-litter signage.
- **Enhanced Facility Inspection Program:** The City conducts an enhanced facility inspection program of more than 800 facilities that includes the identification of overflowing trash cans, trash conditions in the right-of-way, and compliance with the City's Polystyrene Foam Food Service Ware Ordinance.

To justify and calculate trash reduction credit in this category the City is required to conduct visual assessments of street segments using a Water Board-approved protocol developed by permittees in 2015. The protocol provides qualitative estimates of the amount of trash on the streets that may be transported into the storm drain system as observed through field assessments along a designated percentage of randomly selected stretches of street in each Trash Management Area. A category of trash condition, from low to very high, is assigned to the area based on trash count and visual condition as recorded through photographs. The assigned trash condition determines if the area qualifies for trash reduction credit using the standardized formula in the protocol. The past four years of visual assessments have demonstrated that in some areas of the City, trash reduction activities such as enhanced trash removal by the BIDs, Adopt-a-Spot volunteer efforts, and the three times or more a week of street sweeping in commercial areas and downtown have reduced the amount of trash found from Very-High trash to Moderate levels.

Future Actions

While the City is on track to achieve the current compliance mandate of 100% reduction of baseline levels by July 1, 2022, the compliance mandate is changing. As described above, MRP 3.0, anticipated to be adopted in 2022 currently proposes a reduction or elimination of credits for direct trash discharge control programs, source control actions, and creek and shoreline cleanups. The City is currently receiving a total of 35% reduction credit for implementing all of these programs. With the loss of these credits, achieving the new proposed compliance mandate of

100% reduction from baseline levels by 2025 will be difficult and costly and require a substantial amount of new effort and initiatives. If the proposed regulations are adopted, the City plans to achieve the 2025 mandate in two ways:

- Installation of additional full trash capture systems
- Implementation and expansion of other control measures

Installation of Full Trash Capture Systems

The City will leverage existing bond funding, transportation funding, existing capital projects, grants, and private development projects to install full trash capture (FTC) systems. In addition, a delay in the City's hiring process has resulted in cost savings in Measure Q stormwater funds, some of which will support installation of additional FTC. The City Council has provided direction to staff on several occasions to look for opportunities for FTC implementation.

- On June 12, 2017, City Council approved Resolution No. 86773 C.M.S. for the identification of Capital Improvement Projects funded by the General Obligation Bond (Measure KK) including the adoption of a Trash Capture Transportation Map that showed transportation project locations in high trash generation areas to ensure that those projects incorporate FTC as appropriate. The City has since completed a prioritization study to identify locations for FTC that will be the most cost-effective and will maximize trash reduction credits.
- On June 12, 2018, City Council approved Resolution No. 87238 C.M.S. authorizing the City to enter a Cooperative Implementation Agreement (CIA) with Caltrans for an FTC project in the Ettie Street watershed. Caltrans was not able to proceed with the agreement at that time but has recently returned and has offered to provide up to \$2.9 million for the project, pending execution of the CIA. City and Caltrans staff are working to complete that agreement by June of this year.
- On June 24, 2019, the City Council approved Resolution No. 87759 C.M.S. authorizing the balanced, two-year \$3.29 billion "Oakland Together" budget covering FYs 2019-20 and 2020-21. The two-year budget includes: 1) \$250,000 of Transportation Impact Fee funds (2420) for the installation of FTC; and 2) \$225,000 of City Department of Transportation funds for the design of FTC.
- On November 14, 2019, City Council approved Resolution No. 87919 C.M.S. authorizing the submission of an Ordinance on the March 3, 2020 Statewide Primary Election ballot for a 20-year parcel tax to raise revenues necessary to maintain, protect and improve parks and recreational facilities and services, to provide homeless support services, and to improve water quality. Oakland voters passed Measure Q which provides \$21 million annually with approximately \$1 million for stormwater system improvement and trash reduction efforts including the installation of FTC.

To support Council's direction on FTC, staff has developed an internal Standard Operating Procedure (SOP) (*Attachment B*) requiring the inclusion of FTC in capital improvement and transportation projects in High and Very-High trash generating areas. The SOP also includes FTC standard specifications and standard details to facilitate installation of FTC with City contractors.

The City currently has plans to implement the following FTC projects:

- Approximately 30 connector pipe screens (CPS) units as part of the Active Transportation Program 20th Street Project, Highway Safety Improvement Program Cycle 7 Telegraph Avenue Improvement Project, and Fruitvale Alive Gap Closure Project;
- Approximately 40 CPS units as part of the Sewer Rehabilitation Program;
- Approximately 1,200 CPS units on Very-High, High, and Moderate trash generating areas receiving paving rehabilitation as part of the 3-Year Paving Program; and
- 1 hydrodynamic separator in the Ettie Street watershed in collaboration with Caltrans.

Implementation and Expansion of other Control Measures

The City will continue to implement the numerous trash control actions already underway to remove litter in streets and parks before it enters inlets and waterways including volunteer programs and events, the Excess Litter Fee Program, BIDs, street sweeping programs, and clean-up of illegal dumping sites and homeless encampments. Moving forward, actions the City will explore and/or undertake include, but are not limited to:

- Implement the education and outreach campaign—Oaktown PROUD: Prevent and Report Oakland's Unlawful Dumping.
- Further discuss strategies to effectively implement: 1) eradication; 2) education; and 3) enforcement around illegal dumping through the City's Illegal Dumping Task Force.
- Continue to grow and support the extensive volunteer cleanup and Adopt-a-Spot programs and improve the data collection on the volume of trash removed.
- Examine the fee structure, fee amount, and definition of ELF-eligible businesses.
- Work with stakeholders to encourage the formation of BIDs in other areas (e.g., Piedmont Avenue, Chinatown, Embarcadero Cove Area, Coliseum Area, Oakland Airport Area).
- Explore the feasibility of expanding food service ware limitations.
- Consider recommendations and findings from a citywide street sweeping evaluation on how the City can improve trash levels on streets, reduce redundancies in trash control measures, and improve the cost-efficiency of the City's Street Sweeping Program.

- Continue to study the performance of curb-inlet screen partial trash capture systems and the potential for receiving trash reduction credit for these systems.

FISCAL IMPACT

No fiscal impacts are associated with this informational report.

PUBLIC OUTREACH/INTEREST

While this item did not require any additional public outreach other than the required posting on the City's website, many of the activities and programs on which this memo is reporting include a public outreach component to educate citizens on litter and illegal dumping with the goal of encouraging and fostering personal responsibility for proper disposal of unwanted items through enhancement of civic pride; re-emphasizing the laws and consequences for illegally dumping; connecting residents and businesses with resources and support to assist them with finding the proper disposal options available to them. This includes but is not limited to, the education and outreach campaign Oaktown PROUD, the Adopt-a-Spot program which fosters community engagement to clean, green, and beautify public spaces, and the Bulky Block parties.

COORDINATION

The Office of the City Attorney, Budget Bureau, and the City Administrator's Office were consulted for the preparation of this report.

SUSTAINABLE OPPORTUNITIES

Economic: Although this informational report has no direct economic impacts, the continued efforts to reduce trash and litter will assist in improving the physical appearance of the City of Oakland, which helps to attract and retain businesses and promotes civic pride.

Environmental: Although this informational report has no direct environmental impacts, the continued efforts to reduce trash and litter entering the storm drain systems improves the health of Oakland's creeks and waterways, improves water quality, protects native flora and fauna, and prevents pollutants from entering San Francisco Bay.

Race & Equity: Implementation of the trash reduction programs described in this report result in cleaner, healthier, and safer communities throughout the city. Frontline and disadvantaged communities are disproportionately affected by litter and debris. The programs implemented to meet this regulation occur primarily in those communities and can help alleviate some of the impacts of environmental injustice and racial disparities.

Respectfully submitted,

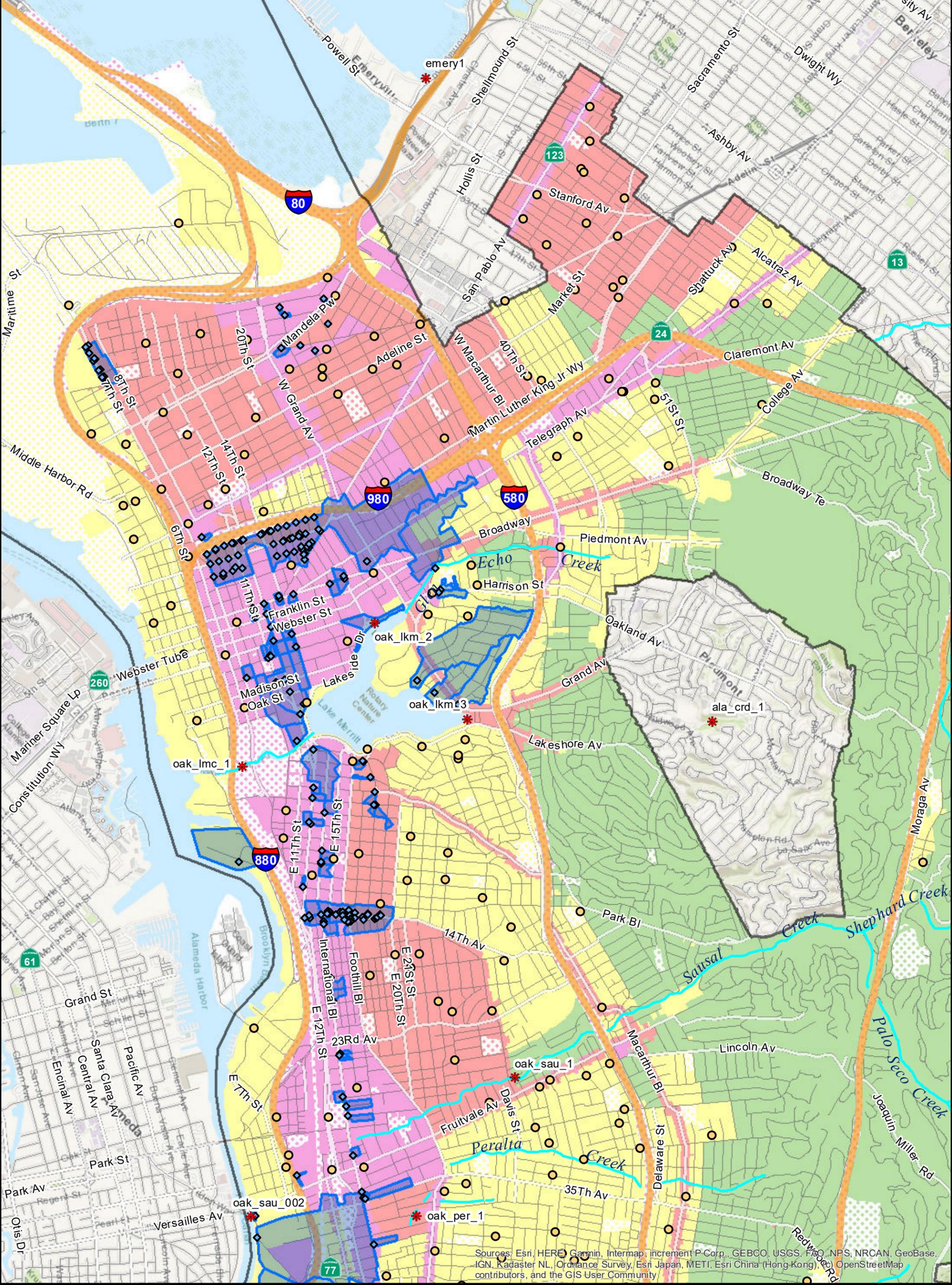


David Ferguson
Interim Director, Oakland Public Works

For questions, please contact Kristin Hathaway, Watershed and Stormwater Management Division and DD Program Manager at (510) 238-7571.

Attachments

- A: Baseline Trash Generation and Full Trash Capture Systems Map
- B: Standard Operating Procedure for Full Trash Capture



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), Swisstopo, Mapbox Contributors, and the GIS User Community

Trash Generation Category

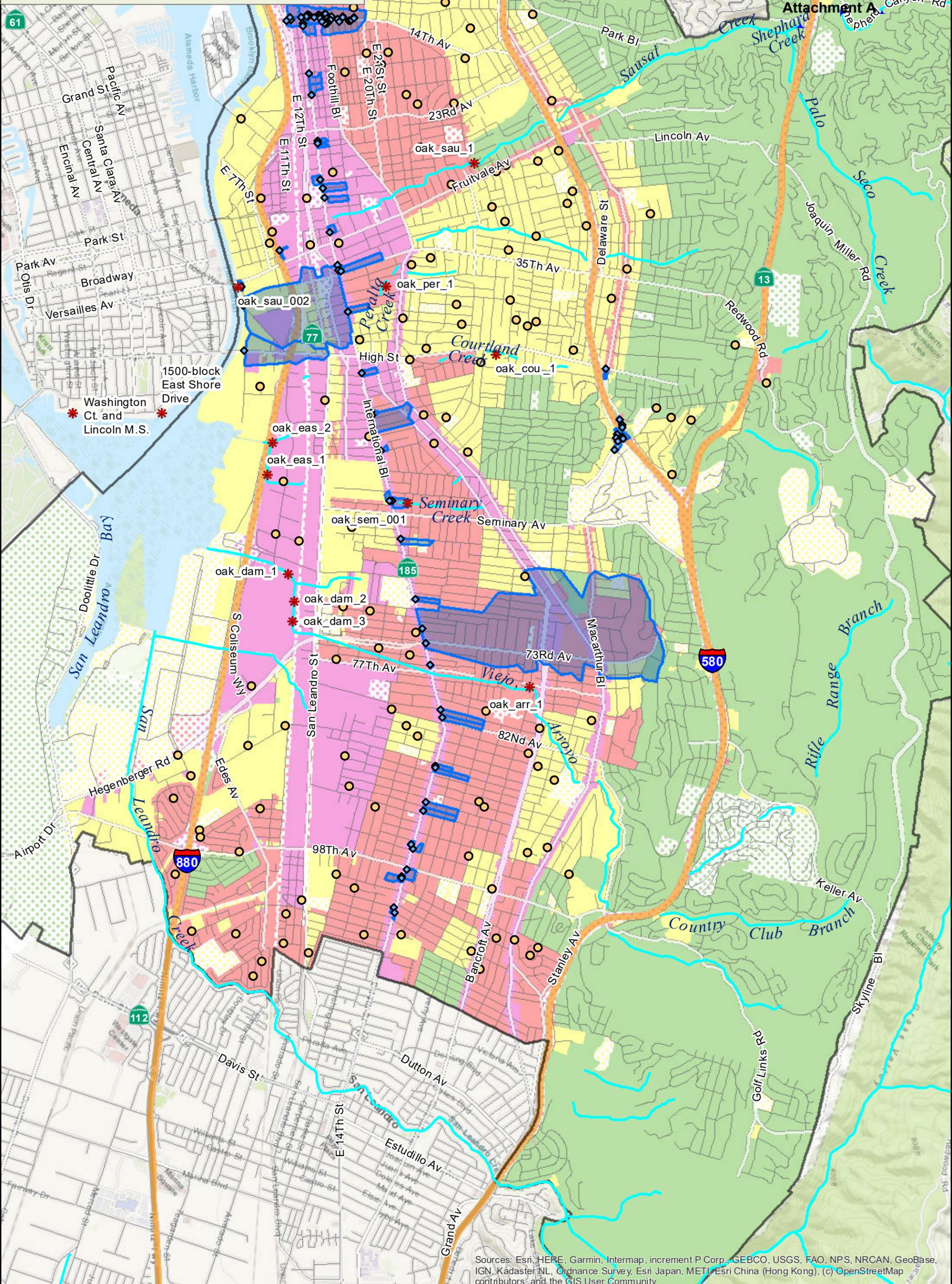
- Low
- Moderate
- High
- Very High

- On-Land Visual Assessment Site
- Creek/Shoreline Hotspot
- Full-Capture Location
- Full Trash Capture
- Non-Jurisdictional (Dot color = Generation Category)

- Street
- Freeway
- Agency Boundary
- Creek



City of Oakland - Trash Generation Map



Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), (c) OpenStreetMap contributors, and the GIS User Community

Trash Generation Category

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- Creek





Oakland Public Works
Bureau of Design and Construction
Watershed and Stormwater Management

Standard Operating Procedure

SUBJECT:	Full Trash Capture Requirements for Public Works and Department of Transportation Projects
INTENT:	Ensure compliance with Municipal Regional Stormwater NPDES Permit trash reduction requirements and provide adequate record keeping of full trash capture devices
RESPONSIBLE PERSON(S):	Watershed and Stormwater Management Division
CRITICAL TIMING:	Design phase of projects
INVOLVED INDIVIDUALS:	Division Managers, Supervisors, Project Managers, and Resident Engineers in OPW—Bureau of Infrastructure and Operations; Infrastructure Maintenance; Bureau of Design and Construction; Watershed and Stormwater Management; and Department of Transportation
OBJECTIVES:	Provide directives on which City projects require installation of full trash capture devices
REVIEW:	Reissuance of Municipal Regional Stormwater NPDES Permit (2021)

Overview

The City of Oakland is regulated by the San Francisco Bay Regional Water Quality Control Board's (Regional Water Board) Municipal Regional Stormwater NPDES Permit (Permit No. CAS612008, Order No. R2-2015-0049) (MRP). The MRP requires the City to reduce a designated volume of trash from reaching waterbodies by 2022. The City is achieving this requirement by implementing measures that prevent trash from reaching, or removing trash from, the municipal separate storm sewer (storm drain) system (MS4). These trash prevention and control actions include installation of full trash capture devices (FTC).¹ The OPW and DOT Directors have authorized this Standard Operating Procedure (SOP) for use by staff responsible for the design and construction of projects (see Table 1 for project types subject to this SOP) to ensure that FTC are incorporated into projects to help the City meet its trash reduction requirement.

Regulatory Authority for Trash Capture Devices

Section C.10 of the MRP specifies the City shall reduce trash discharge to stormwater according to the following schedule: 80% by July 1, 2019; and 100% by July 1, 2022.

¹ The MRP defines full trash capture device as, "any device or series of devices that traps all particles retained by a 5mm mesh screen and has a design treatment capacity of not less than the peak flow rate resulting from a one-year, one-hour, storm in the tributary area (p. 147)."

Standard Operating Procedure

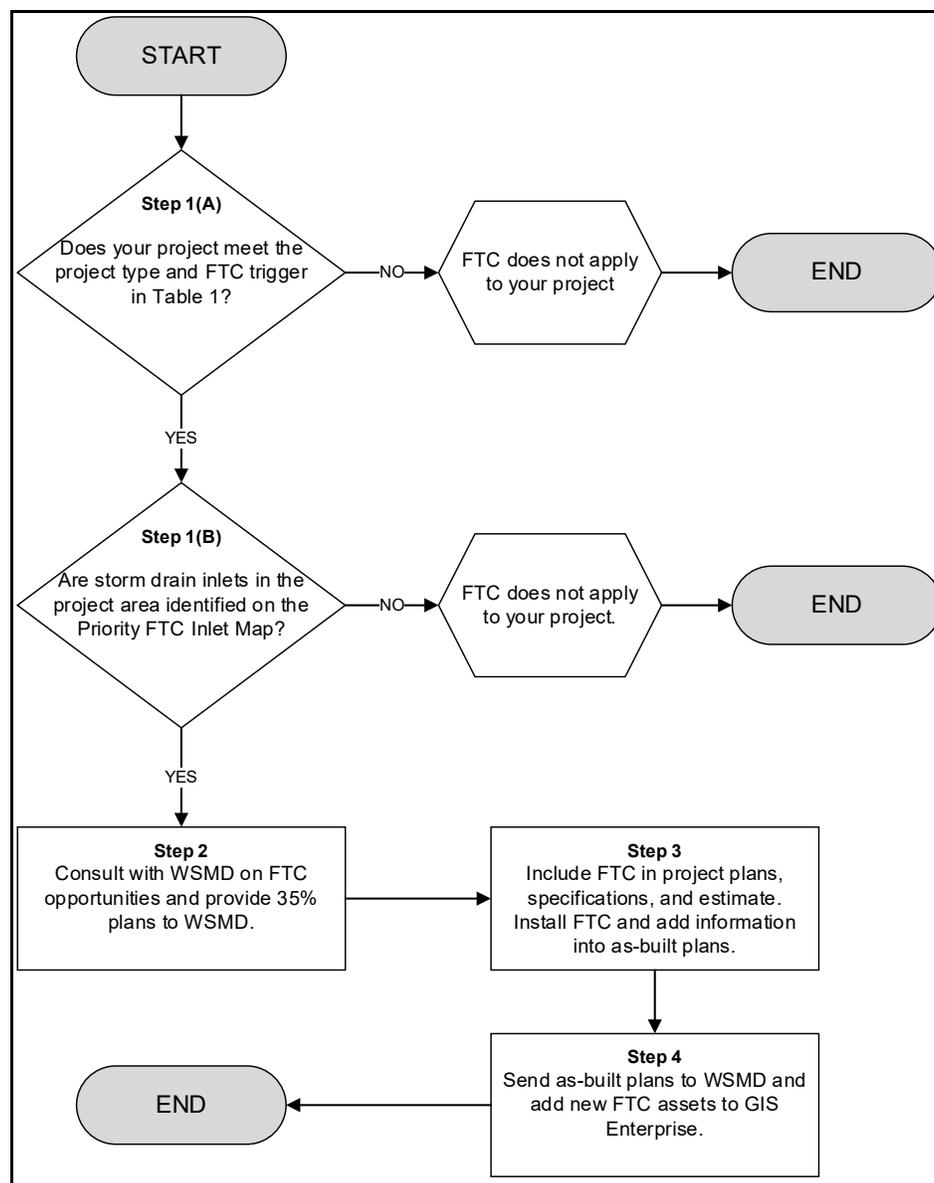
Trash Capture Device Requirements
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Installation of FTC provides trash reduction credit towards the percent reduction requirements outlined above. The trash load reductions are measured from a 2009 baseline generation rate and are compared annually to trash observations and reduction measures. Current trash reductions are determined by the extent of FTC, on-land visual assessments, reductions via source controls (such as the single-use plastic bag ban), and creek and shoreline cleanups.

SOP Implementation Procedure

This SOP is implemented in 4 steps which are shown in Figure 1 and described below.

Figure 1: Full Trash Capture Implementation Flowchart²



² "WSMD" in Figure 1 = Watershed and Stormwater Management Division staff.

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Step 1: Trash Capture Device Installation Requirements—Does it Apply to My Project?

Installation of FTC at storm drain inlets in the project area are required for any project that meets the project type and FTC trigger as described in Table 1. Project Managers should review Table 1 in the project planning phase to determine if their project is subject to this SOP. If the project requires FTC, the Project Manager will request the current map of priority storm drain inlets to be treated with FTC (Priority FTC Inlet Map³) from the Watershed and Stormwater Management Division. Priority storm drain inlets include areas with a very-high, high, or moderate trash generation rate and are located outside of areas covered by an existing FTC device (see Attachment A). FTC is only required for projects that both: A) meet the project type and trigger from Table 1; and B) have storm drain inlets in the project area that are included in the Priority FTC Inlet Map.

Table 1: Full Trash Capture Requirements by Project Type and Trigger

PROJECT TYPE	FTC TRIGGER AND REQUIREMENT
Streetscapes	Install FTC in all inlets within 40 feet from curb returns ⁴ in the project area. ⁵ Green stormwater infrastructure can be installed in lieu of, or in combination with, FTC. ⁶
New Traffic Signals	Install FTC in all inlets within 40 feet from curb returns in the project area.
Buildings and Parks Projects	Install FTC in all inlets within, or along, frontage of project parcel.
New Bulbout Construction	Painting and striping projects are exempt. Install FTC in all inlets within 40 feet from curb returns on the same corner of bulbout in the project area. Green stormwater infrastructure can be installed in lieu of, or in combination with, FTC.
Storm Drains	New or replacement storm drains only. Install FTC in all inlets within 40 feet from curb returns in the project area.

³ As projects with FTC are completed, Watershed and Stormwater staff will update the Priority FTC Inlet Map.

⁴ A curb return is a curved section of a curb located at a corner of an intersection, connecting a curb on one street to another curb on the intersecting street. A curb return starts at the point where the curb begins to turn toward the direction of the intersecting street and ends at the point where it meets the curb on the intersecting street.

⁵ Please note that inlets to be treated with FTC may be outside of the project boundary.

⁶ Green stormwater infrastructure may not be able to treat the equivalent watershed area draining to the storm drain system that inlet specific FTC could, and if that is the case, inlet specific devices shall be installed.

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PROJECT TYPE	FTC TRIGGER AND REQUIREMENT
Pavement Rehabilitation	Preventative maintenance projects exempt. For projects covering at least one city block or 300 linear feet, install FTC in all inlets within 40 feet from curb returns adjacent to project area.
Sewer Main Replacement in Right of Way	Install FTC in all inlets within 40 feet from curb returns in the project area. Project area defined as the beginning and end of pipeline work projected out to the curb lines including inlets within adjacent curb returns.

Step 2: Consult with Watershed and Stormwater Management Staff/Considerations for Trash Capture Devices

Project Managers will take the following measures in compliance with this SOP:

- A. **Consultation:** In the project planning phase (before beginning design), review the FTC opportunities and feasibility with Watershed and Stormwater Management Division staff. Provide 35% plans to Watershed and Stormwater Management Division staff. Watershed and Stormwater Management Division staff are also available to consult on Steps 1 and 3 and items 2(B) and (C) below.

- B. **FTC Type:** Consider what type of FTC⁷ is appropriate based on site-conditions and sizing requirements. The minimum FTC required are connector pipe screen (CPS) units. CPS units shall be installed in conjunction with auto-retractable screens (ARS) where technically feasible.⁸ The FTC device type and manufacturer must be on the list of approved devices meeting requirements for full trash capture as certified by the State Water Resources Control Board (see Attachment B).⁹ ARS are considered partial trash capture and have not been certified by the State Water Resources Control Board. If green stormwater infrastructure is installed as FTC, it must be designed, installed, and maintained to perform in accordance with five requirements specified by the State Water Resources Control Board (see Attachment C).¹⁰ Attachment D provides a summary of trash capture device types.

- C. **FTC Location:** Consider which storm drain inlets will be treated with FTC based on the Priority FTC Inlet Map. The Priority FTC Inlet Map is an approximation of inlets that should be treated and each potential FTC location and device type should be discussed with a qualified engineer and the vendor of the selected/proposed FTC. For those inlets that are “daisy-chained” together, it may be possible to install one FTC in the furthest downstream inlet and treat the

⁷ See Attachment D for more information on FTC types.

⁸ See Table 2 below for storm drain inlet compatibility with ARS.

⁹ The latest Certified Trash Full Capture Systems List of Trash Control Devices is available online at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/trash_implementation.html.

¹⁰ The latest requirements for Certified Multi-Benefit Trash Capture Systems is available online at: https://www.waterboards.ca.gov/water_issues/programs/stormwater/trash_implementation.html.

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entire land area draining to that inlet and the areas draining to connected upstream inlets. Do not install single CPS unit in the most downstream inlet if the entire upstream area that drains to the single CPS unit is greater than two acres. Storm drain pipe, inlet size, and/or inlet type (see Table 2 below) constraints may eliminate the ability to install an FTC. For example, the dimensions of the storm drain inlet may be too small to adequately house an FTC. Additionally, in areas with older infrastructure, many inlets are too shallow, have an uneven bottom, or the outflow is through the bottom of the catch basin, which makes installation of a CPS likely infeasible.

Table 2: City of Oakland Standard Details for Public Works Construction (2015 Edition)
Inlet Type Compatibility with Auto-Retractable Screens

STANDARD DETAIL INLET TYPE (DRAWING NUMBER)	ARS COMPATIBILITY
Type A (D-3)	Maybe
Type B (D-4)	Y
Type C (D-5)	Y
Type D (D-6)	N
Type D-3 (D-7)	N
Type E-3 (D-8)	Y
Type E-4 (D-8)	Y
Type F (D-9)	Y
Type 3-2 (D-10)	N
Notes: <ol style="list-style-type: none"> 1. CPS are typically compatible with all inlet types. 2. CPS and ARS standard technical specifications and standard details are provided in Attachment E, F, and G. 3. CPS manufacturer can help determine if a catch basin will work or not; there may be some physical limitations that don't allow a CPS installation at a specific location. 4. ARS compatibility will depend on height and length of curb face inlet. ARS manufacturer can help determine if actual conditions can accommodate an ARS. 	

Step 3: Incorporate Trash Capture Devices in Project Design and Install

Include FTC in project plans, specifications, and estimate. CPS and ARS standard technical specifications and standard details are provided in Attachment E, F, and G. Install FTC and incorporate information into the project as-built plans.

Step 4: Post-Project Requirements

Consistent with the *SOP: Asset Management Policy and Objectives, and Procedures for Creating, Editing, and Retiring an Asset in the City's Asset Inventory (GIS)*¹¹ the GIS staff of the Division implementing the project is required to update the City's GIS Enterprise with installed FTC once the as-built plans are approved. Updating the City's asset inventory will ensure adequate maintenance¹² and tracking of the City's FTC. At a minimum, the GIS staff of the Division implementing the project shall update GIS Enterprise with the location, type, manufacturer, and installation date of the FTC and send the as-built plans to the Watershed and Stormwater Management Division.



Kristin Hathaway, Manager, Watershed and Stormwater Management Division

Date Issued: February 25, 2021

Date Revised: Not Applicable

Contact: Ben Livsey, Watershed and Stormwater Management Division

Phone: 238-6815

Attachments¹³

Attachment A: Trash Generation Rate and Areas Covered by Trash Capture Devices

Attachment B: State Water Resources Control Board Certified Full Capture System List of Trash Treatment Control Devices

Attachment C: State Water Resources Control Board Requirements for Certified Multi-Benefit Trash Treatment Systems

Attachment D: Summary of Trash Capture Device Types

¹¹ Available online at:

<http://oaknetnews.oaklandnet.com/oak/groups/pwa/documents/standard/oak072151.pdf>

¹² The maintenance of each full capture device shall be adequate to prevent plugging, including plugging of the 5 mm screen leading to trash overflow and bypass, flooding, or a full condition of the device's trash reservoir causing bypassing of trash. **All full trash capture devices shall be inspected and maintained at least once per year [by City Storm Drainage Division staff]. All such devices in high or very high trash generation areas shall be inspected at least two times per year, with the inspections spaced at least three months or more apart.** If this frequency of inspection is found excessive after two inspections, the inspection frequency can be reduced to once per year. If any such device is found to have a plugged or blinded screen or is greater than 50 percent full of trash during a maintenance event, the maintenance frequency shall be increased so that the device is neither plugged nor more than half full of trash at the next maintenance event (MRP Provision C.10.b.i.a).

¹³ Attachments available upon request.

Standard Operating Procedure

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*Attachment E: Standard Technical Specifications for Connector Pipe Screens and Auto-
Retractable Screens*

Attachment F: Connector Pipe Screen Standard Detail

Attachment G: Auto Retractable Screen Standard Detail

List of Acronyms and Abbreviations

ARS	auto-retractable screen
CPS	connector pipe screen
FTC	full trash capture device
MRP	Municipal Regional Stormwater NPDES Permit (NPDES Permit No. CAS612008, Order No. R2-2015-0049)
Priority FTC Inlet Map	Map of priority inlets to be treated with full trash capture devices
Regional Water Board	San Francisco Bay Regional Water Quality Control Board
WSMD	Watershed and Stormwater Management Division staff