Trash Load Reduction - Provision C.10

Progress To-date, Planned Next Steps, and Anticipated Challenges

Chris Sommers (EOA, Inc.)

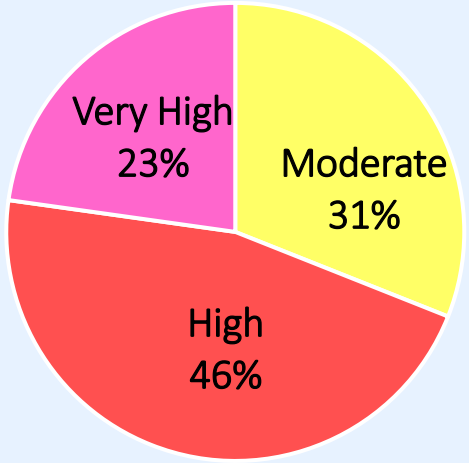
SF Bay Regional Water Board
December 11, 2019

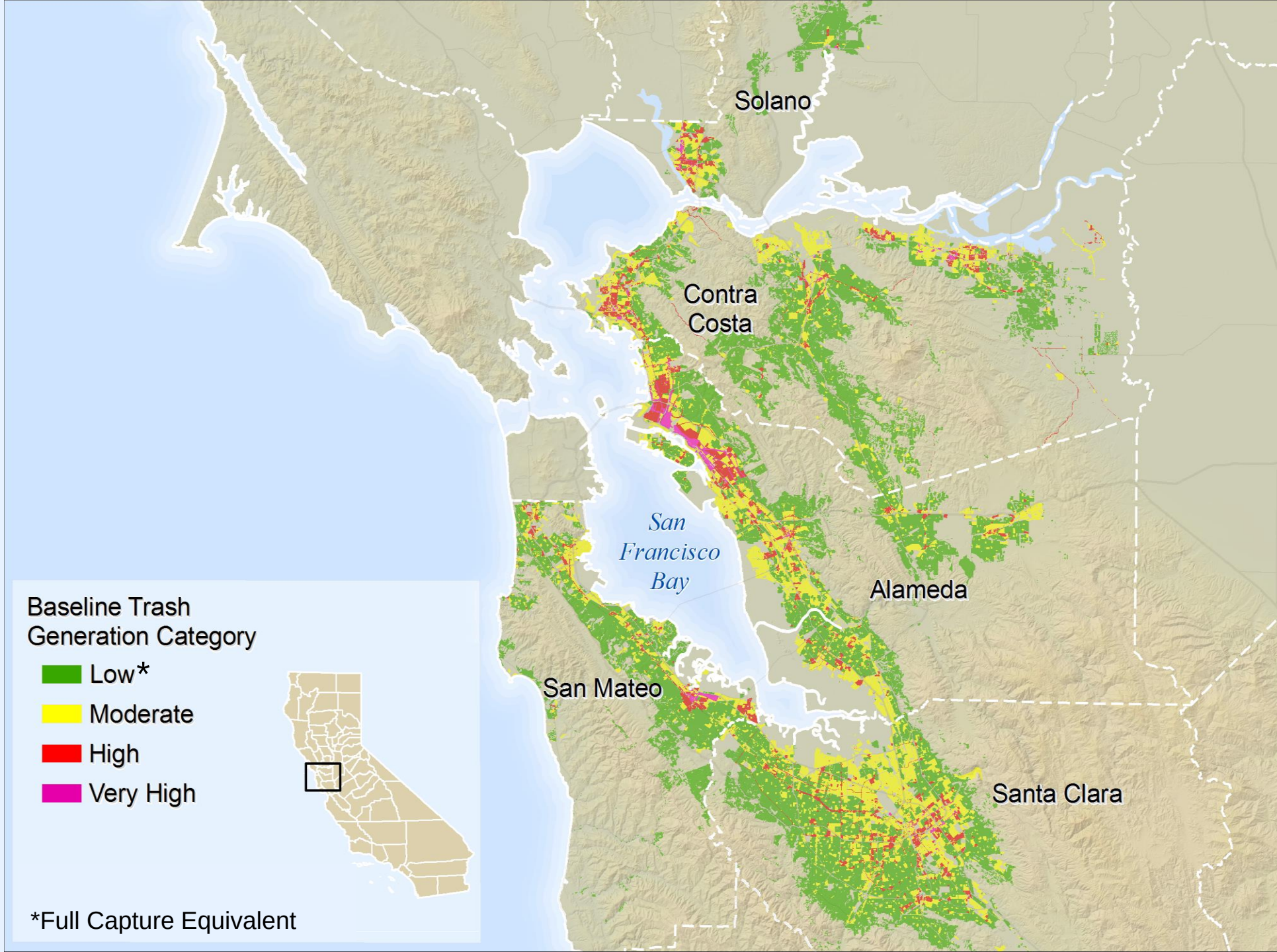
Stormwater Trash Management in SF Bay Area

Year(s)	Significant Outcome/Milestone
2000-2009	• Initial documentation of impacts to receiving waters • Early trash control measure implementation
2009	• **MRP 1.0 - Trash reduction requirements issued by SF Bay Water Board**
2010	• All SF Bay urban creeks/shorelines listed on 303(d) list
2010-2012	• Baseline generation study and maps • On-land Visual Trash Assessment (OVTA) protocol • Short-term trash load reductions plans
2014	• **40% reduction goal** • Long-term trash load reduction plans
2014-2016	• Tracking California's Trash Project Prop 84 Grant
2015	• MRP 2.0 - Trash reduction requirements reissued by SF Bay Water Board
2017	• **70% reduction goal**
2019	• **80% reduction goal**

Baseline Trash Generation

Proportion Trash in Stormwater from Each Category





Trash Control Measure Categories

- Source Controls
- On-land Actions
- Full Capture Systems
- Offsets
  - Enhanced Receiving Water Cleanups
  - Direct Discharge Programs

Trash Source Controls

- Most cost-effective and viable long-term solution
- Bay Area municipalities are leaders in enacting source controls - models for other areas and statewide
- 50 of 70 Permittees have passed local ordinances
- **>$10M spent to-date on the development, adoption and enforcement**

On-land Trash Control Actions

- Enhanced street sweeping
- New/enhanced on-land cleanups
- Enhanced business inspections
- Illegal dumping prevention/abatement
- Curb-inlet screen installation
- Multi-family residential litter controls
- Public education on litter prevention
- Others

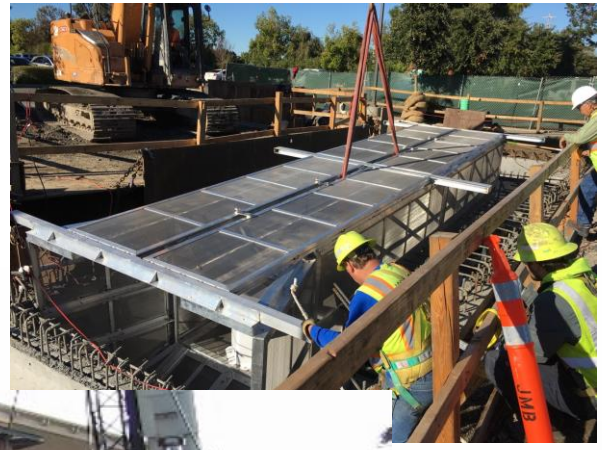
Estimated costs to-date = >$50M

On-land Trash Control Actions

- On-land Visual Trash Assessments (OVTAs)
  - Primary tool used to demonstrate reductions via on-land actions
  - >20,000 assessments conducted to-date
  - >3,800 miles of streets/sidewalks assessed
  - Protocol now the statewide standard
  - >$2.5M spent to-date on assessments

Trash Full Capture Systems - *Certified by State Water Board*

Large Systems
(In-line/End-of-pipe)



Small Systems
(Inlet-based)

Trash Full Capture Systems

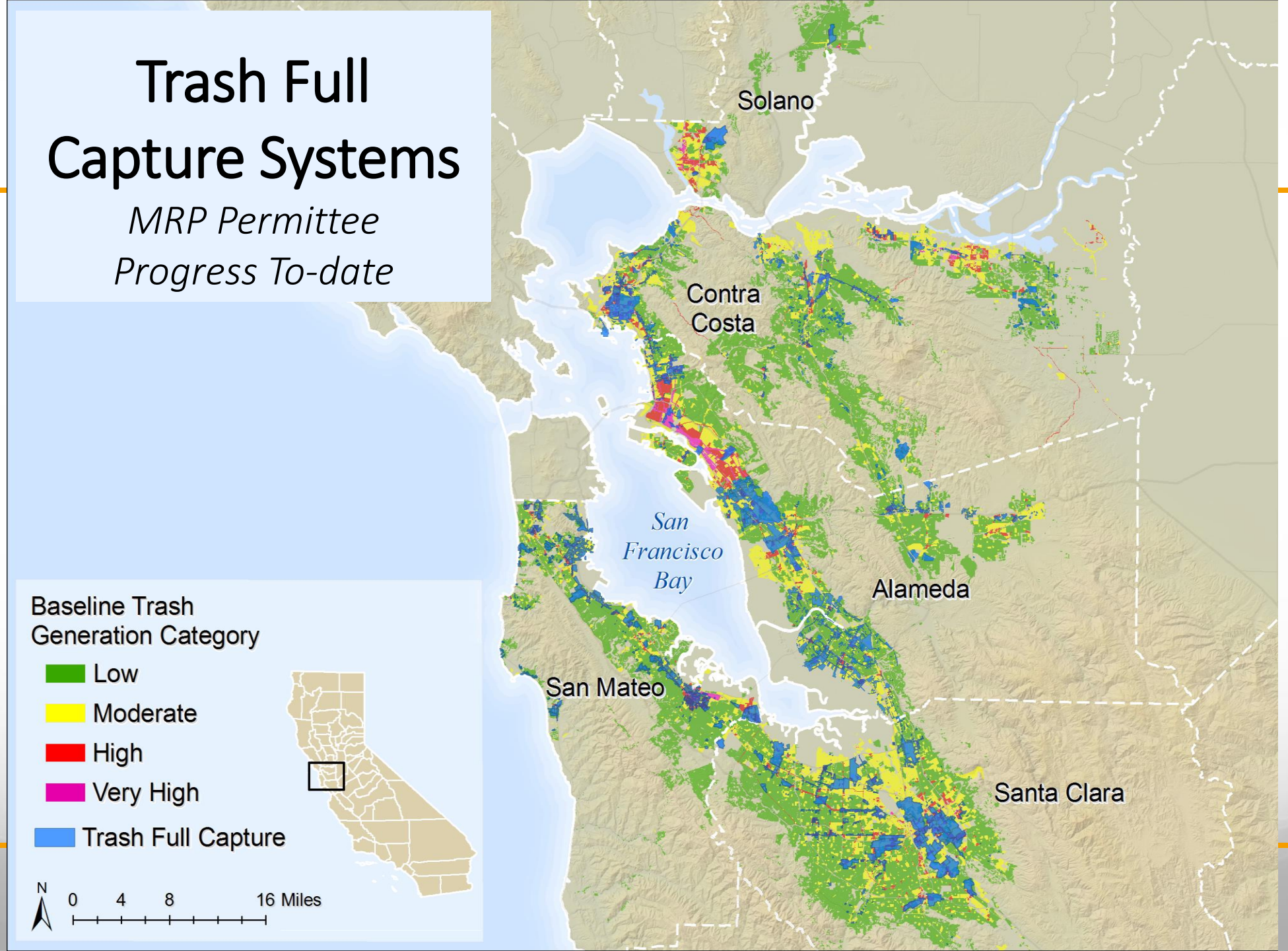
MRP Permittee Progress To-date (FY 2018-19)

Type of System	# of Systems	Trash Generating Areas Treated
Large (Inline/End-of-pipe)	560	38,881
Small (Inlet-based)	12,084	

Estimated capital costs to-date = >$100M

Trash Full Capture Systems

MRP Permittee Progress To-date



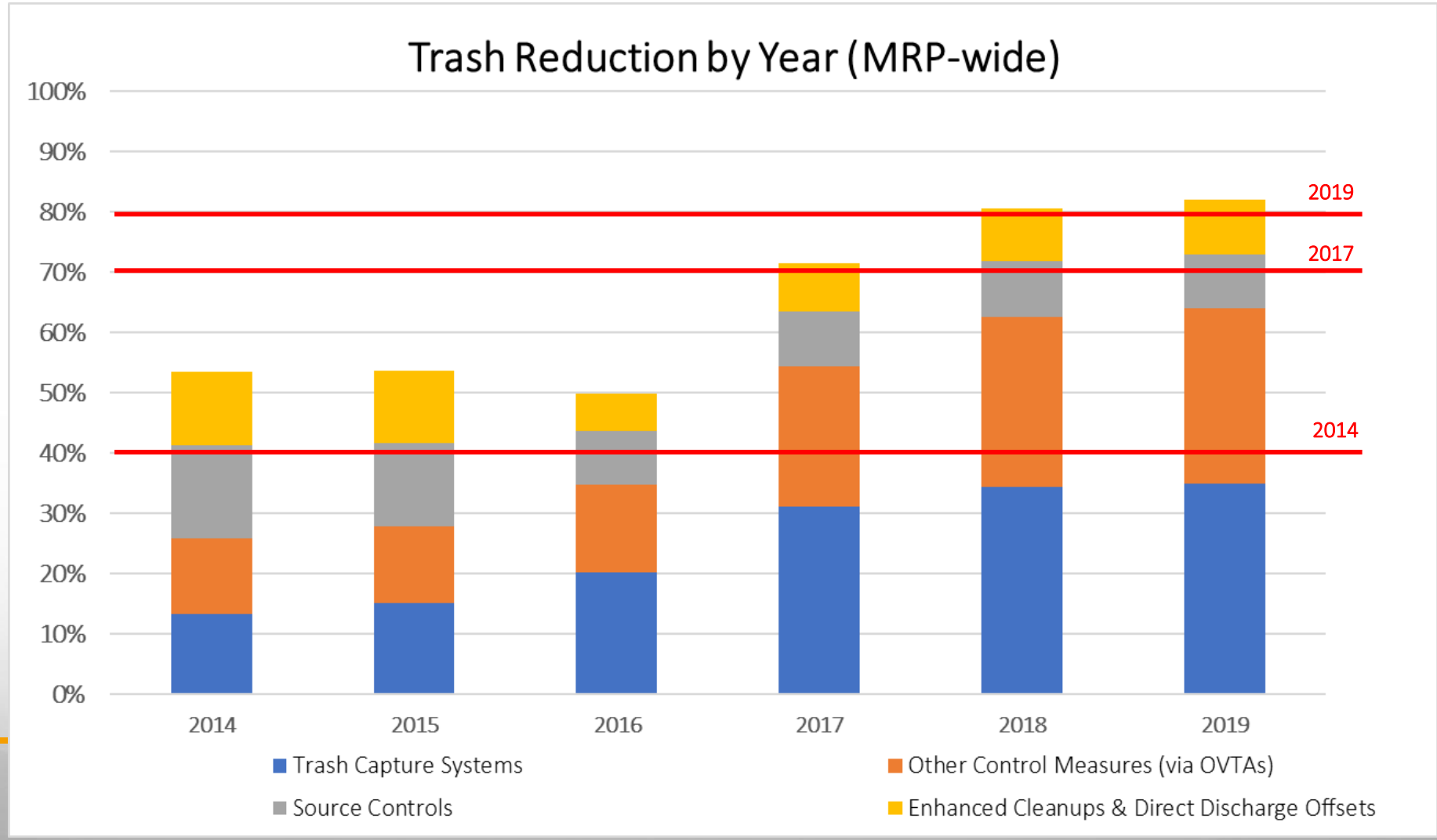
Trash Reduction Offsets

Enhanced Receiving Water Cleanups & Direct Discharge Programs

- Homelessness prevention & management
- Abatement of trash in/near receiving waters
- Address important pathways other than stormwater
- Initial RW monitoring results indicate direct discharges are largest pathway (by volume) of trash in local creeks

Estimated costs to-date = >$100M

MRP Trash Reduction Outcomes To-date



Importance of Source Control Credits & Offsets

Scenario	% of Permittees in Compliance 80% Reduction Goal
With Current (MRP 2.0) Reduction Credits/Offsets	***93%***
Remove Direct Discharge Offset (4 of 70 Permittees)	90%
Remove Creek/Shoreline Cleanup Offset (22 of 70 Permittees)	89%
Remove Source Control Credit (54 of 70 Permittees)	61%
Remove Source Control Credit and Offsets (57 of 70 Permittees)	49%

Summary

- Water Board challenged Permittees in 2009 with rigorous/new trash reduction requirements, and Permittees have largely answered the call
  - Greatest stormwater quality expenditure to-date in Bay Area
  - Estimated >$250M spent to-date addressing requirements
- Multiple/overlapping trash control measures continue to be needed/allowed
- Non-stormwater sources continue to need attention
- Additional time may be needed to achieve full capture/equivalency
  - New controls to address remaining reductions may have diminishing returns

City of San José
Trash Load Reduction Programs

Napp Fukuda, Assistant Director
Environmental Services Department

San Francisco Bay Regional Water Quality Control Board Meeting
December 11, 2019

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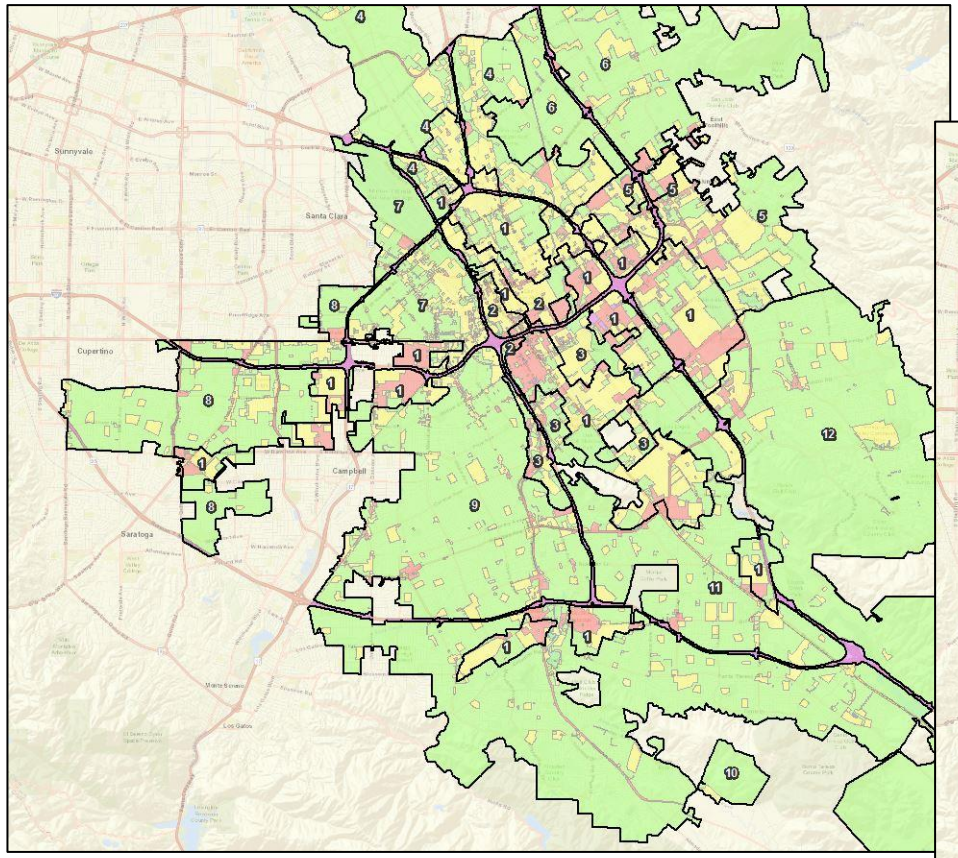
CAPITAL OF SILICON VALLEY

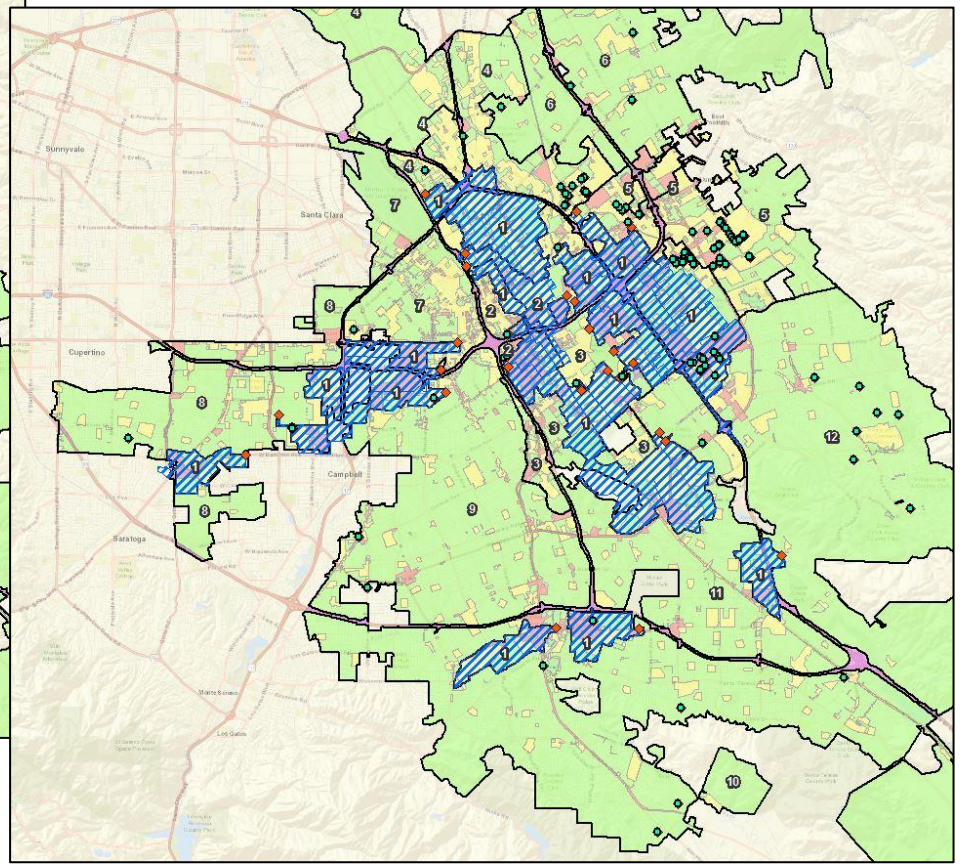
Environmental Services

Delivering world class utility services and programs to improve our health, environment, and economy.

Full Trash Capture Maps



Pre-Full Trash Capture



Post-Full Trash Capture

Full Trash Capture

- **32** Large Trash Capture devices
- **118** Connector Pipe Screens
- **12,924 acres** treated
- Over **$26 Million**

LTC – Contech CDS

LTC – Bio Clean DSBB

CPS - Stormtek

Direct Discharge Trash Control Program

Additional Creek and Shoreline Cleanups

KEEP COYOTE CREEK BEAUTIFUL

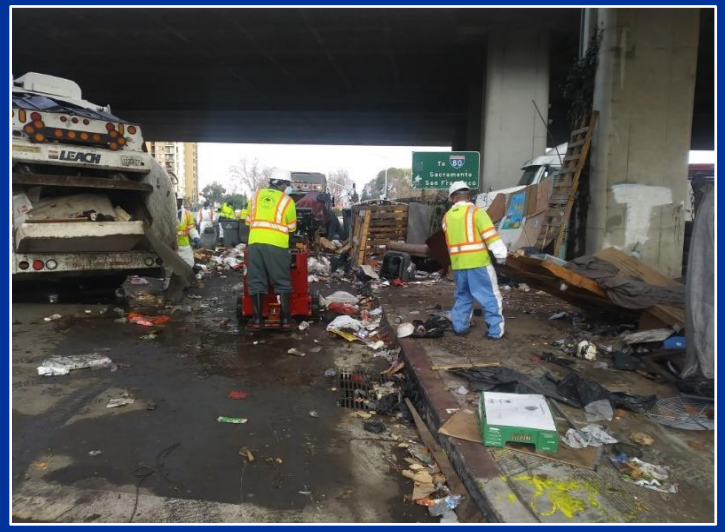
SOUTH BAY CLEAN CREEKS COALITION
Reclaim Restore Revitalize

DOWNTOWN STREETS TEAM

CITY OF OAKLAND
DIRECT DISCHARGE AND URBAN CITY CHALLENGES

Kristin Hathaway
Oakland Public Works
Watershed & Stormwater Division
December 2019

Direct Discharge Program



- DDP up to 15% credit under MRP
- $8.4 million on illegal dumping and homeless encampment abatement
- County and City funds towards resheltering and services

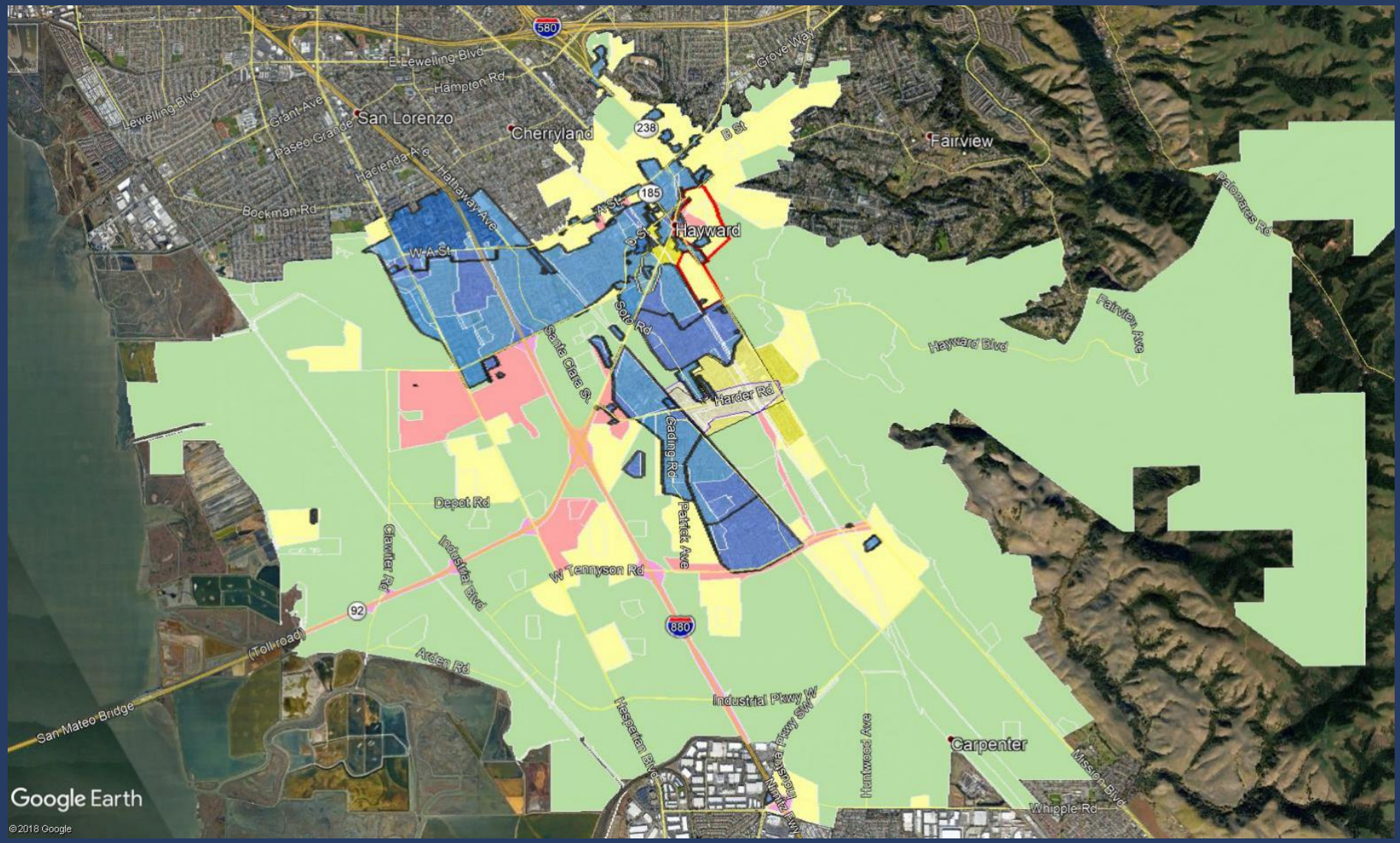
Funding and Planned Actions

- Environmental Enforcement Officer Program
- Coordination with Caltrans on trash capture units
- Leveraging transportation and CIP funding
- 2020 parks, homeless, and stormwater ballot measure

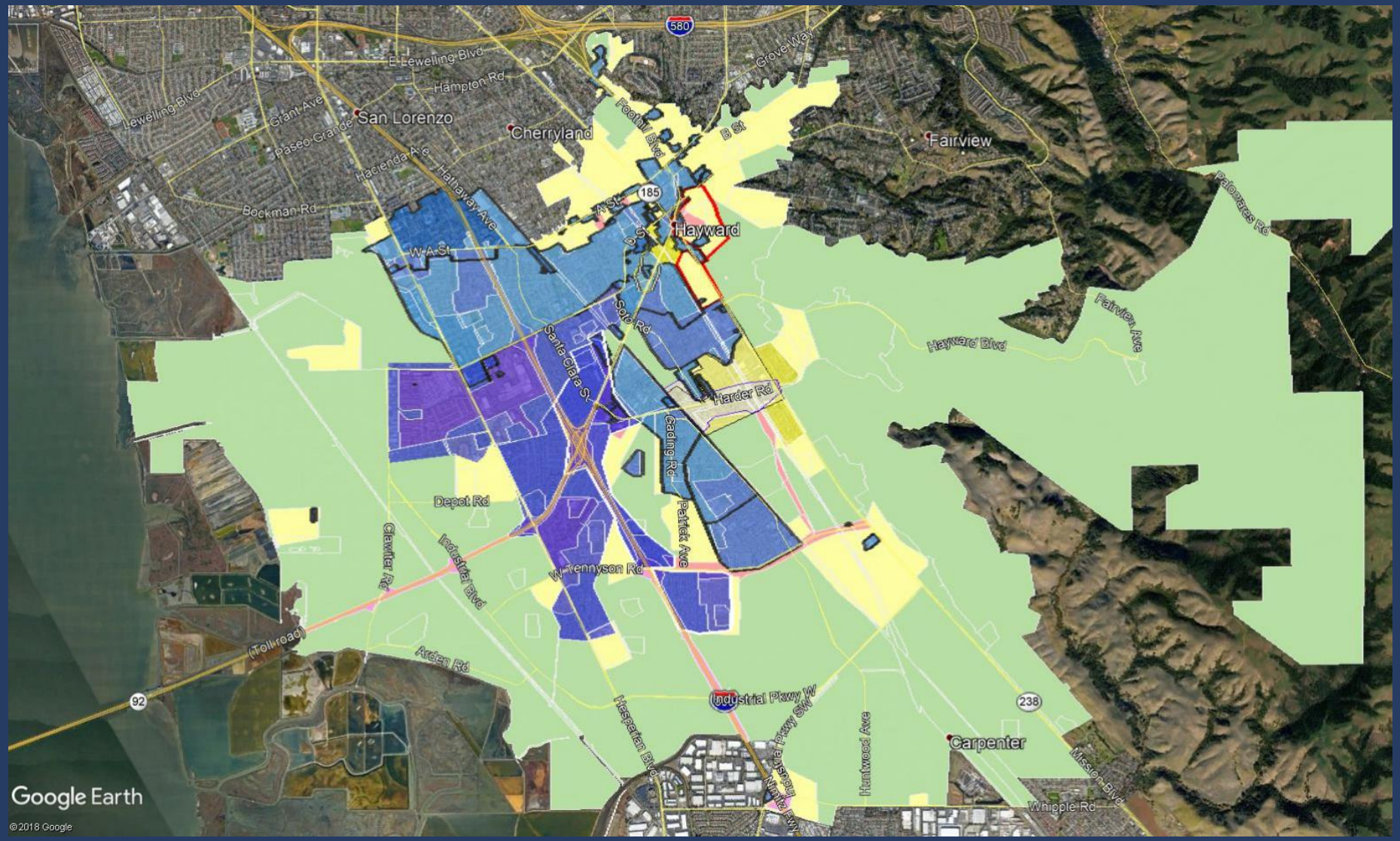
Cities Need Flexibility

- Direct Discharge Program; Source Control; Creek and Shoreline Cleanup
- Challenging for urban cities to meet 2022 100% target

Current Full Trash Capture



Future Full Trash Capture



HAYWARD

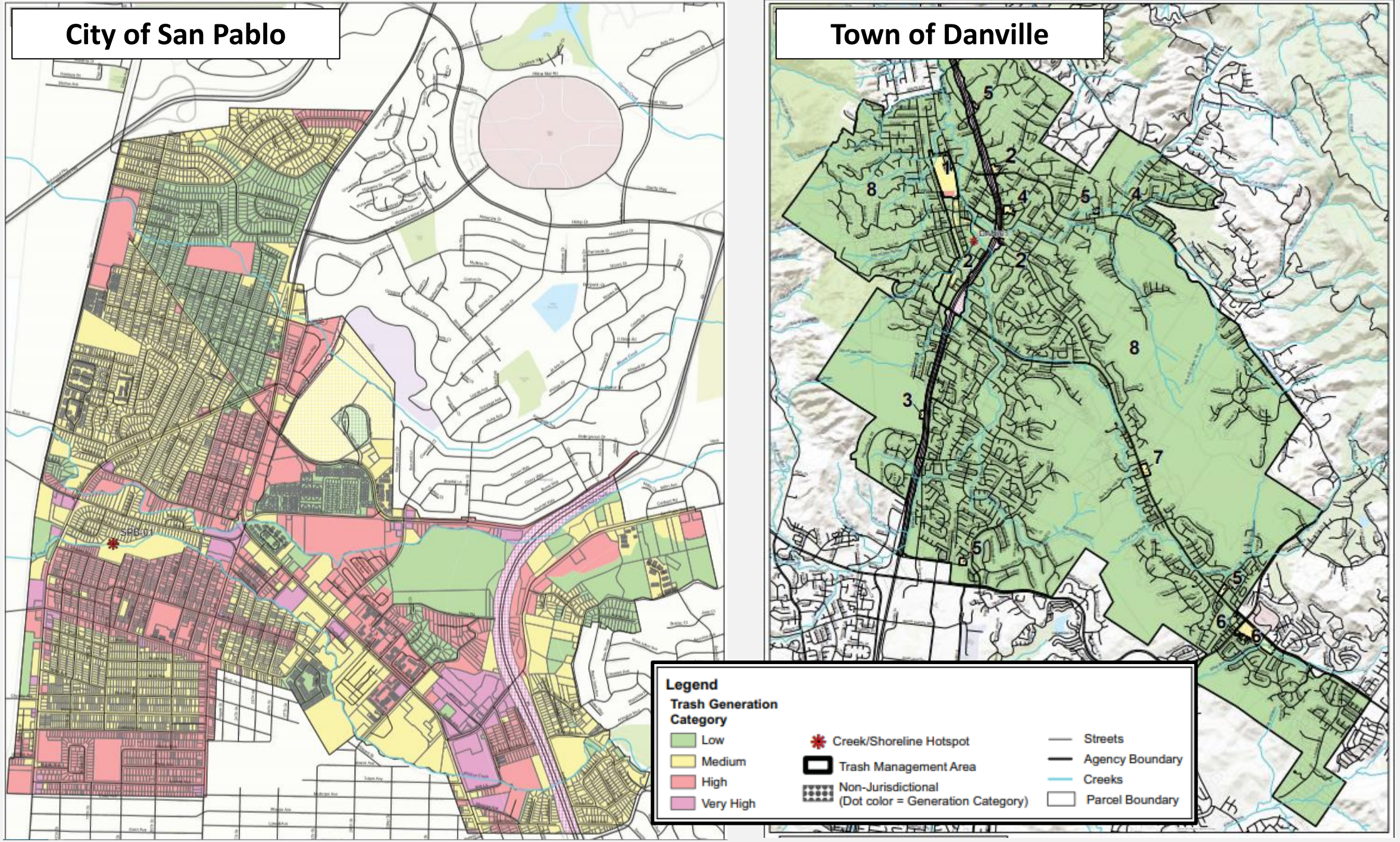
ENGINEERING CHALLENGES OF FULL CAPTURE

Perspective From a Disadvantaged Community

San Pablo, CA

NO TWO COMMUNITIES ARE THE SAME

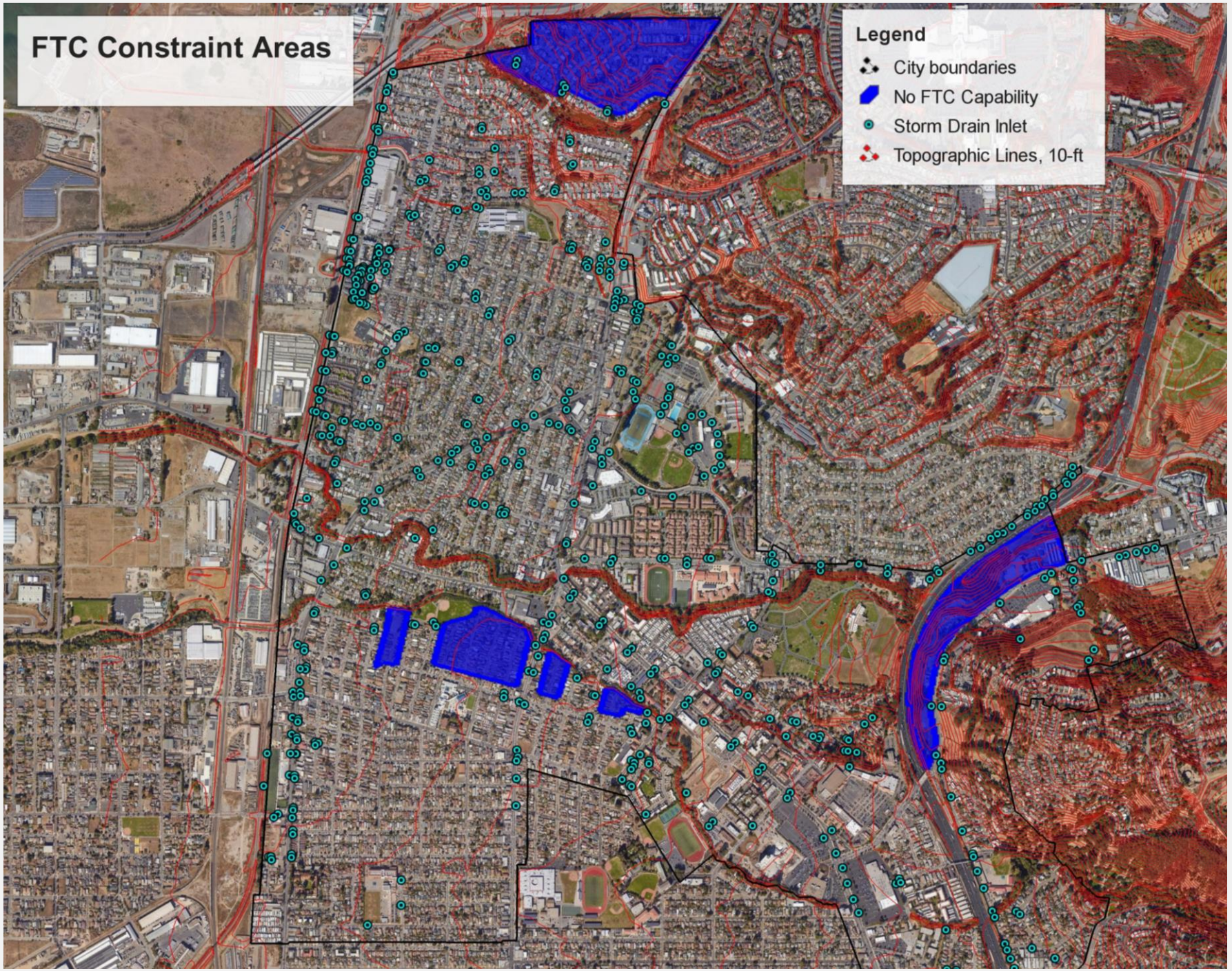
	San Pablo	Danville
Number of Residents	31,000	44,000
Jurisdiction Land Area	2.5 mi^2	18 mi^2
Median Household Income	$47,500	$153,000
Percentage of renter occupied housing	62%	15%
2018/19 illegal dumping calls	527	27
Required acres to treat for 100% trash compliance	1,157 acres	44 acres


City of San Pablo
Town of Danville
SPB-01
Legend
Trash Generation Category
Low
Medium
High
Very High
Creek/Shoreline Hotspot
Trash Management Area
Non-Jurisdictional
(Dot color = Generation Category)
Streets
Agency Boundary
Creeks
Parcel Boundary

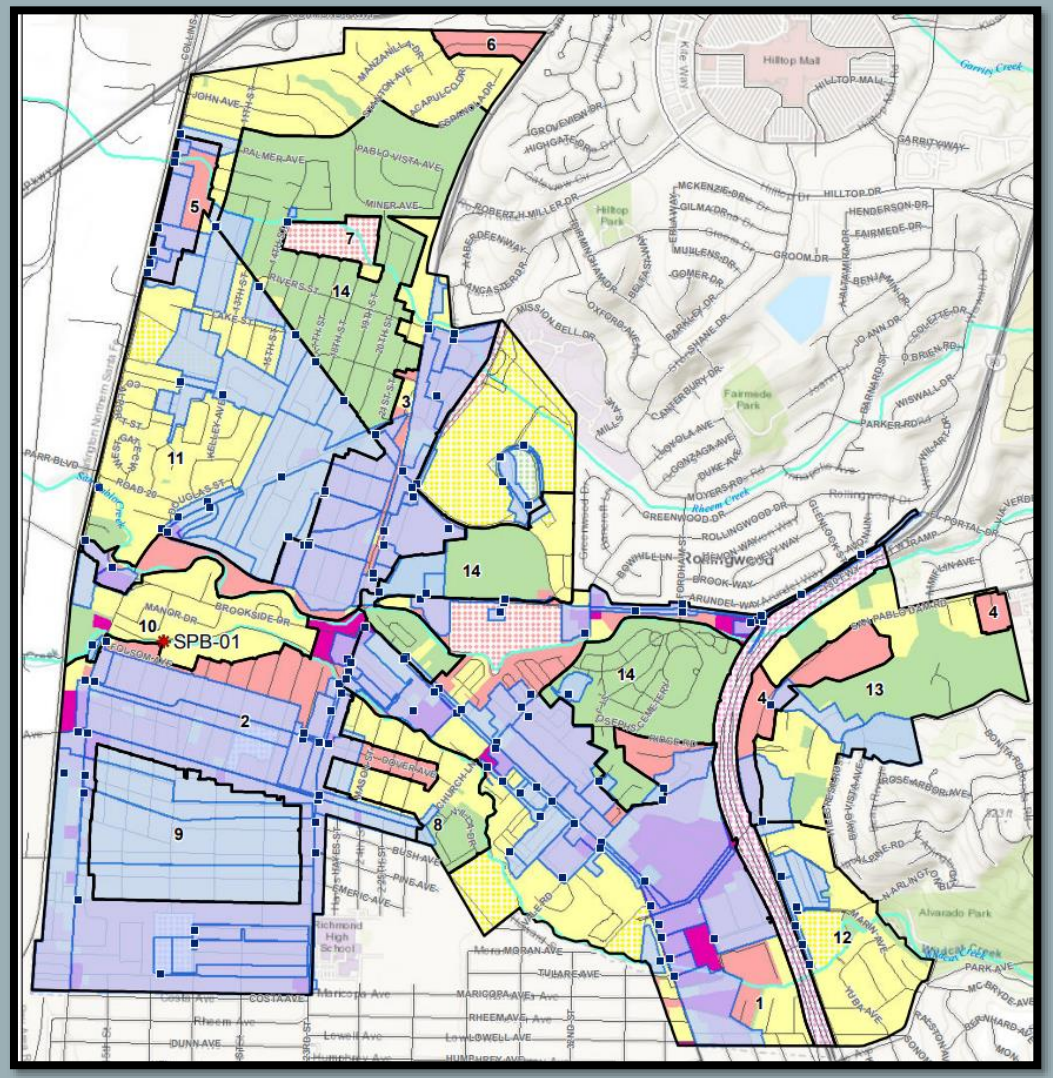
TECHNICAL CONSTRAINTS TO FTC

- San Pablo's 2018 *Storm Drain Master Plan* analysis on inlets that meet manufacturers' specifications to install Connector Pipe Screen (CPS) Full Trash Capture (FTC).
  - In 2018, the City installed CPS units in the remaining 33 inlets that met specifications.
  - The City has installed CPS units in all feasible 118 inlets (22%)
- San Pablo is currently exploring hydrodynamic separators (commonly called CDS units).
  - These are expensive, designed to treat large areas and still not appropriate for large areas of San Pablo.

Broken CPS unit



- San Pablo estimates the City has approximately 100 acres that cannot install any type of FTC.
- Some inlets/pipes are:
  - too small;
  - too deep;
  - too steep;
  - have underground space constraints; or
  - don't exist.



HOW SAN PABLO MET THE 80% GOAL

- In 2019, San Pablo achieved a **81%** trash reduction target:
  - **68%** though FTC Devices
  - **10%** from source bans
    - Single-use plastic bag ban
    - Expanded plastic foam (Styrofoam) ban
  - **3%** from creek cleanups

  In previous years, San Pablo achieved 10% from creek cleanups.

  In 2019, due to changes in MRP calculations and a successful encampment cleanup/social services program, San Pablo's credits were reduced significantly.

WHAT'S NEXT FOR SAN PABLO

2019 Wildcat Creek Cleanup Event

- Working on Direct Discharge Plan
  - Submit in February 2020
- Working on City-wide litter, illegal dumping and encampment program
  - Will include funding for programs, outreach, infrastructure, and enforcement
  - **Requesting $745,000** from Council in 2020 to implement this program, with ongoing costs of $450,000
  - **San Pablo's <u>total</u> current stormwater program is $425,000**
- Staff need consistent MRP regulations to justify approval of expenditures on future programs

CLEAR PATH TO COMPLIANCE

- Disadvantaged communities have additional barriers:
  - more acres to treat
  - majority renter communities with high turnover rates
  - language, financial and trust barriers
- Some communities have technical/engineering constraints and need more time to study, design, and install infrastructure
- San Pablo wants a clear path to compliance:
  - The NPDES permit was designed to implement Maximum Extent Practicable (MEP) standard
  - San Pablo staff believe the City is achieving an MEP standard but due to engineering and demographic constraints, the City needs more flexibility (time and credits) to meet the 100% reduction trash requirement

Trash Reduction – Municipal Regional Stormwater Permit
December 11, 2019

Unincorporated Contra Costa County
Direct Discharge Plan
Rural Road Challenges

Michele Mancuso
Sr. Watershed Manage. Plan. Specialist

SF Municipal Regional Stormwater Permit 2.0

- One trash reduction option: Direct Discharge Program
- A municipality can receive up to a 15% reduction
  - Calculated by determining the amount of trash generated in a municipality overall and comparing that to the amount of trash collected by the Direct Discharge Program
  - 10x amount of material is collected for each 1 credit received (was previously 3:1)

Contra Costa's Direct Discharge Program:

1. Homeless Encampments near creeks
2. Illegal dumping adjacent to creeks

- Coordinated Outreach and Engagement (CORE) team focuses on patrolling creeks
  - CORE team regularly checks creek areas where there may be homeless (flood control or County properties or right-of-ways)
  - Assists people in removing barriers to housing or other assistance

Contra Costa's Direct Discharge Program (cont.)

- CORE team coordinates trash cleanups with homeless and remove the trash from creek area
- The County follows a process post and clean the sites
- When an area is cleaned, CORE verifies that another encampment has not begun
- ~75,000 gallons of trash are removed annually through the direct discharge program

Contra Costa's Direct Discharge Program (cont):

The Direct Discharge Program Costs approximately $300k annually, almost 10% of stormwater budget

Homelessness in Contra Costa (CC) County has increased 43% from 2017 to 2019

Importance of Direct Discharge Program for CC County

- If the Direct Discharge option is eliminated right now, the County would have a 70% trash reduction

Other Trash Reduction Efforts

- Installing full trash capture devices
- Spending approximately $300k per year (~10% budget), however,
- Low hanging fruit (high trash areas) are complete

Other Trash Reduction Efforts (cont.)

Trash Capture Projects	
Previous Trash Reduction	Current/Future Trash Reduction
5-6%	1-2%

- Therefore 2 to 3 projects will be required to have the same effect as the initial projects
- The Direct Discharge Program offset is needed to have an incentive to continue the Direct Discharge program which reduces trash directly entering our creeks
- It is like ‘extra credit’ to help fill a gap in reductions while resolving other trash capture problems

2. Trash Capture Challenges on Rural Roads

- CC County has ~18 communities, many in rural areas
- Half of the County roads, 330 of 650 miles have ditches that drain the roadways as opposed to a traditional MS4
- CC County has chosen an inclusive approach to tackling trash reduction throughout the County but it is a huge task with many challenges
- Installing Trash capture is not always possible in areas with roadside ditches
- Due to diverse and complex County, solving this trash reduction challenges requires more time and incentives to assist with this process

In Summary: Keep the offsets and incentives

1. Homelessness is a societal problem that affects the quality of our creeks and has grown by 43% in the last 2 years
2. Money for Direct Discharge programs will not be prioritized by Municipal Officials without trash reduction incentives
3. Incentives are important as we work towards the more difficult reductions leading to a “100%” goal
4. Rural roads with undeveloped storm drains make it challenging to install trash devices and will require more time and resources to figure out solutions

The Importance of Trash Source Controls

Ongoing Efforts by Bay Area Municipalities and Future Opportunities

SF Bay Regional Water Quality Control Board Meeting

Peter Schultze-Allen
EOA, Inc.
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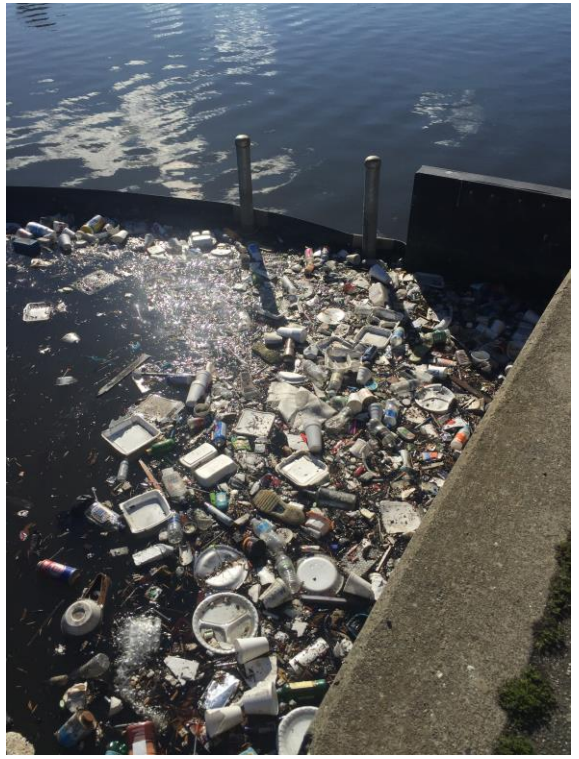
December 11, 2019

Why are Source Controls Important?

- Reaching the No Adverse Impacts Goal – need multiple and overlapping strategies
- Source controls are critical trash reduction strategies for stormwater
- Bay Area municipalities are nationwide leaders on source controls
- Source control credits (in the MRP) provide significant incentives for municipal resource allocations



Ongoing Bay Area Source Control Efforts

Single-Use Carryout Bags

- Eliminate distribution of single-use plastic carryout bags and encourage customers to bring their own carryout bags
- 50 of 70 MRP permittees have adopted local bag ordinances
- ~70% reduction in plastic bags found in Bay Area storm drains

Expanded Polystyrene (EPS) Foodware

- Eliminate distribution of EPS foodware by Bay Area food-related businesses
- 50 of 70 MRP permittees have adopted local EPS bans
- ~65% reduction in EPS found in Bay Area storm drains

Future Opportunities for Source Controls

- **Comprehensive Single-Use Foodware Ordinances**
  - Single-Use foodware is roughly 20% of trash in stormdrains
  - Recycling is becoming more challenging due to changes in global markets
  - Incentivize customers to bring their own foodware
  - Eliminate business use of problematic single-use foodware
- **Bay Area Permittees leading the way**
  - Early implementers
  - Model ordinances

Need for Continuing Source Control Credits

- Provide significant incentives for municipal resource allocations
- More comprehensively address the overall litter/trash issue
- Reduce future municipal expenditures that would be needed to intercept trash in the environment
- Credits can be supported via data collection and interpretation

Creekside Encampments – Benefits of Direct Discharge Programs and Offsets

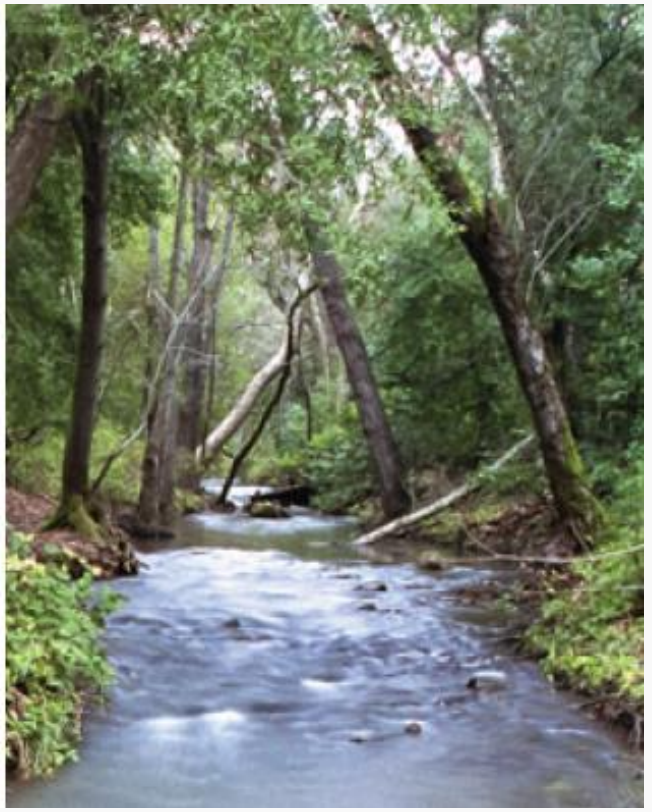
Kirsten Struve, Santa Clara Valley Water District

Valley Water

The Santa Clara Valley Water District provides:

Clean, reliable
water

Flood
protection



Healthy creeks
& **ecosystems**

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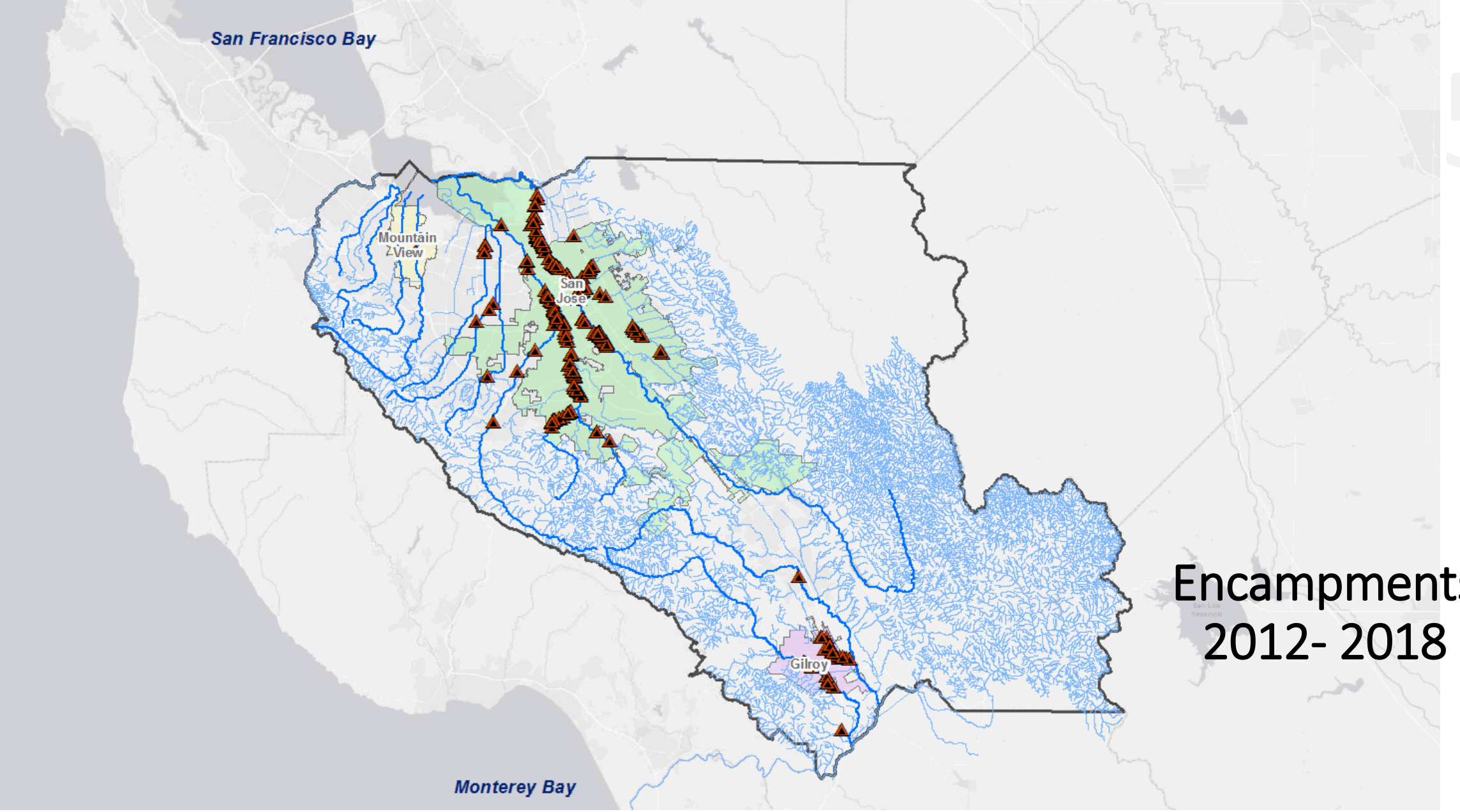
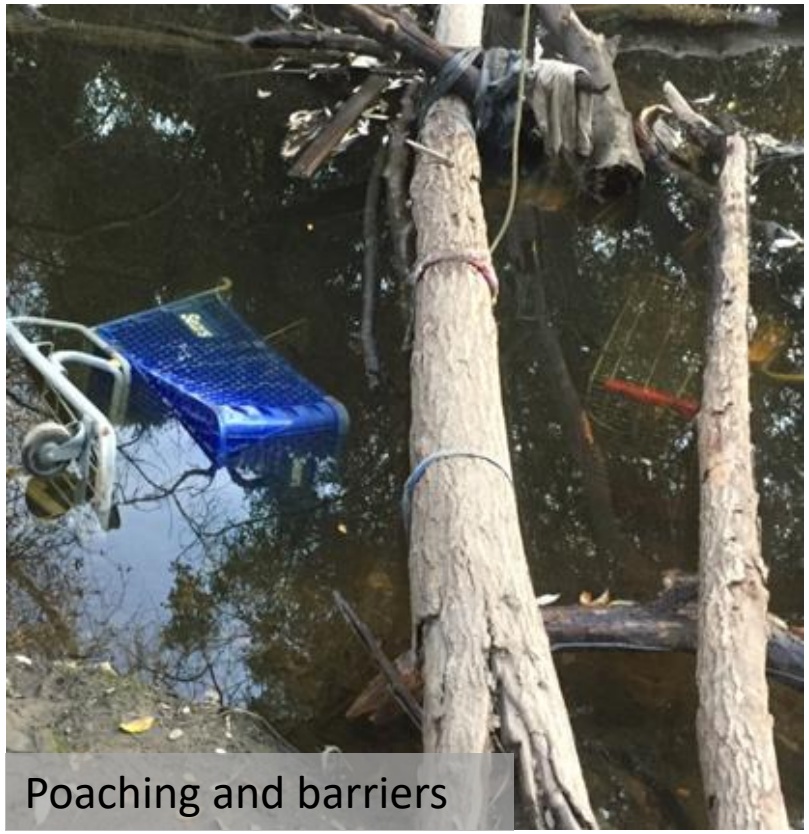
Clean Water • Healthy Environment • Flood Protection

Current MRP: C.10.e. Optional Trash Load Reduction Offset Opportunities

ii. Direct Trash Discharge Controls – A Permittee may offset an additional part of its provision C.10.a trash load percent reduction requirement by implementing a comprehensive plan approved by the Executive Officer for control of direct discharges of trash to receiving waters from non-storm drain system sources.



Encampments 2012- 2018



Poaching and barriers

Tree & limb removal

Wildfire

valleywater.org

Creek health: wildlife and habitat impact

Valley Water

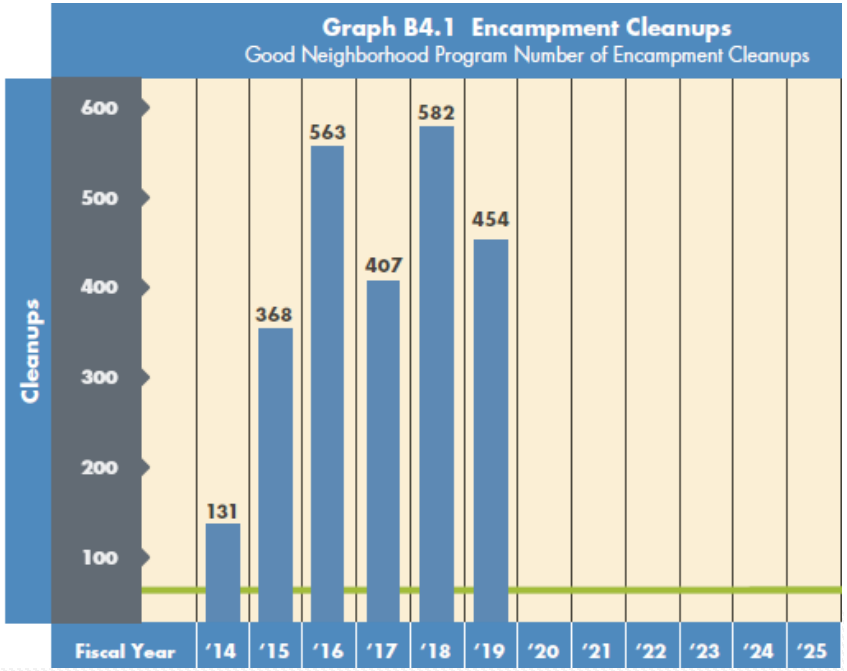
Creek health: water quality impacts

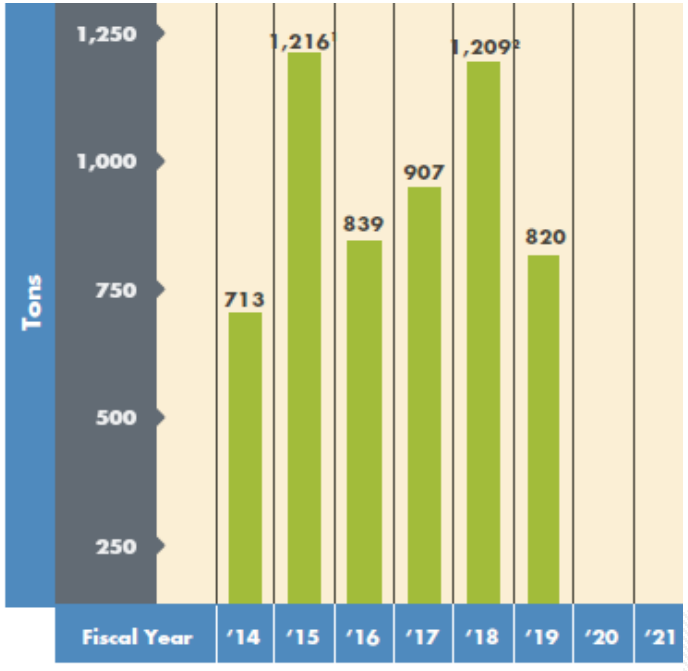
Addressing homelessness

- Homeless Encampment Ad Hoc Committee
- Regional leadership and collaboration

Valley Water

Partnerships: Encampment Clean Up





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Partnerships: Enforcement

- Fund Department of Fish and Wildlife Warden
- San Jose Police Department Partnership

Partnerships: volunteers & grants

Adopt-A-Creek

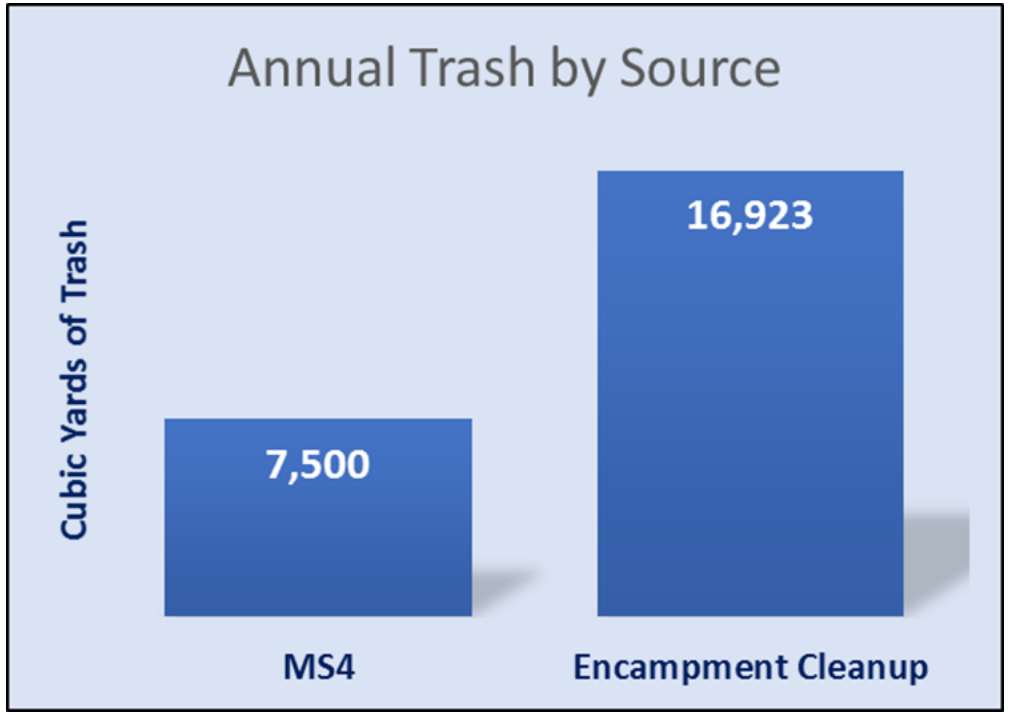
DOWNTOWN STREETS TEAM

SOUTH BAY CLEAN CREEKS COALITION
Reclaim • Restore • Revitalize • SBCCC

KEEP COYOTE CREEK BEAUTIFUL

Importance of Regulatory Credits for Direct Discharge Programs

- Major pathway of trash to the creek
- Multiple benefits
- Include regulatory offset credit to provide incentives to cities in future stormwater permits



2009 baseline annual trash from MS4's in Santa Clara Basin: 7,500 CY
District's encampment cleanup trash FY18: 16,923 CY

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