Countywide Stormwater Program Update

Reid Bogert

Stormwater Program Specialist

San Mateo Countywide Water Pollution Prevention Program

SAN MATEO COUNTYWIDE
Water Pollution Prevention Program
Clean Water. Healthy Community.

C/CAG Board of Directors
December 12, 2019

What is the Countywide Program?

- Support member agencies in meeting Municipal Regional Permit regulatory requirements
- Funded by:
  - Property Tax Fees: $1.5 million
  - Portion of $10 Vehicle Registration Fee: $750K
- Two full-time staff & consultants
- Primary areas of support:
  - Local program implementation
  - Do compliance directly for member agencies
  - Participate in regional efforts

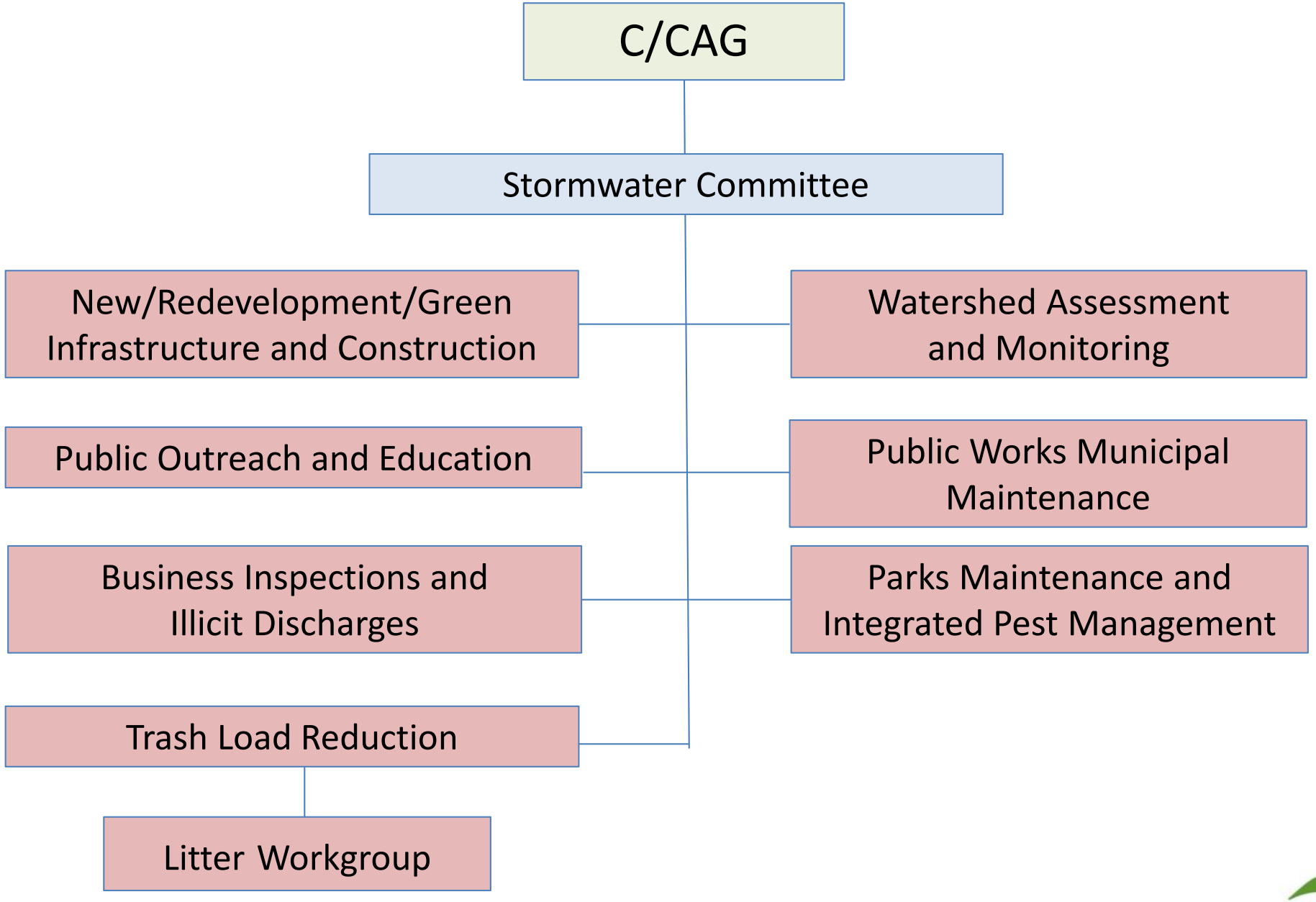
SAN MATEO COUNTYWIDE Water Pollution Prevention Program

Local Program Support

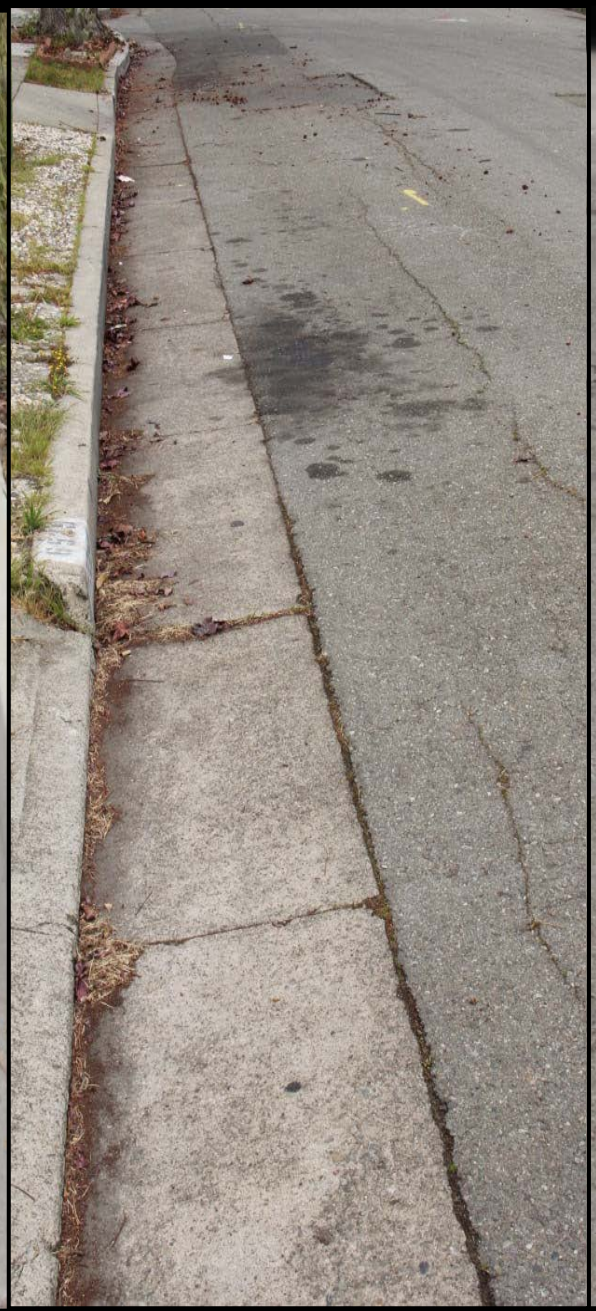
- Committees/workgroups
- Training
- Technical support
- Planning

- Annual Cost: ~$600-800K

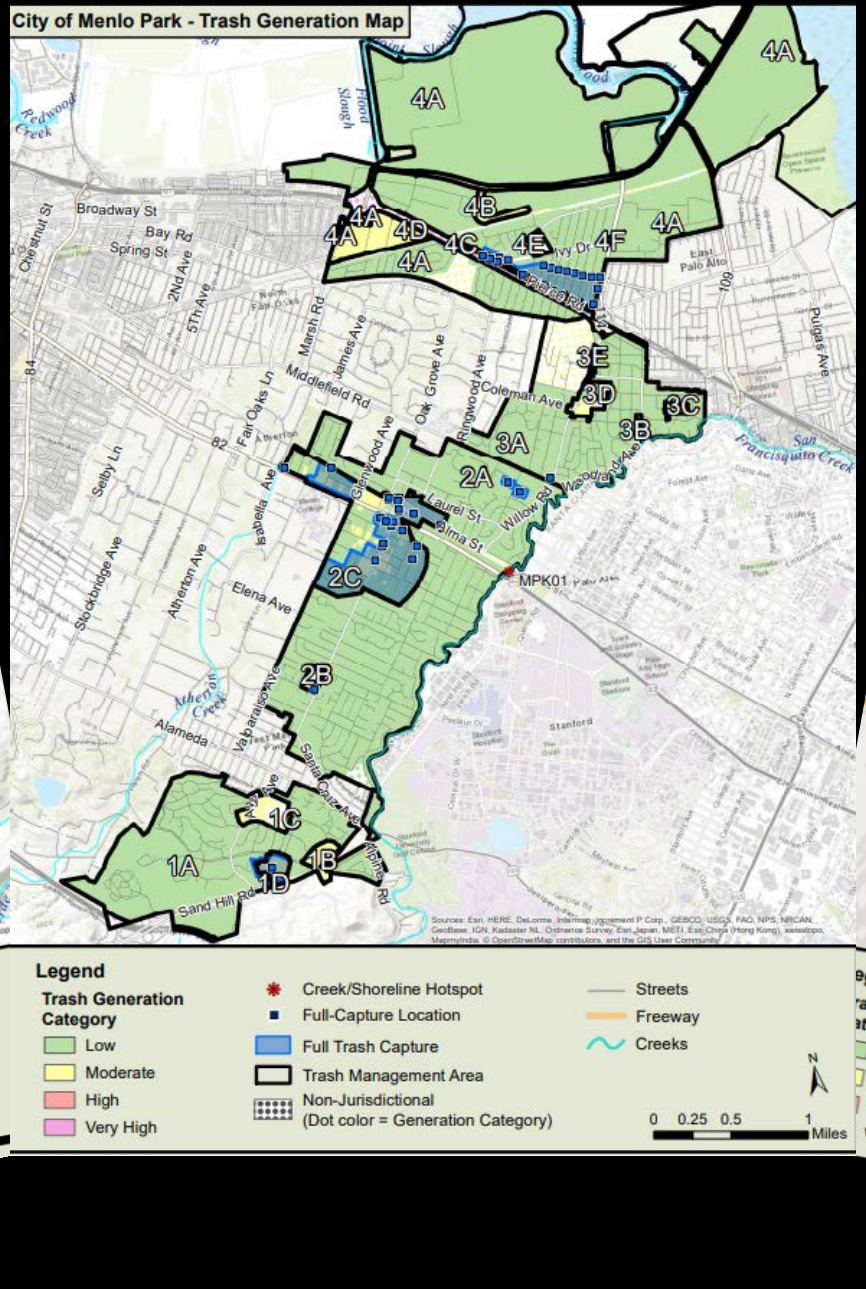
SAN MATEO COUNTYWIDE
Water Pollution
Prevention Program

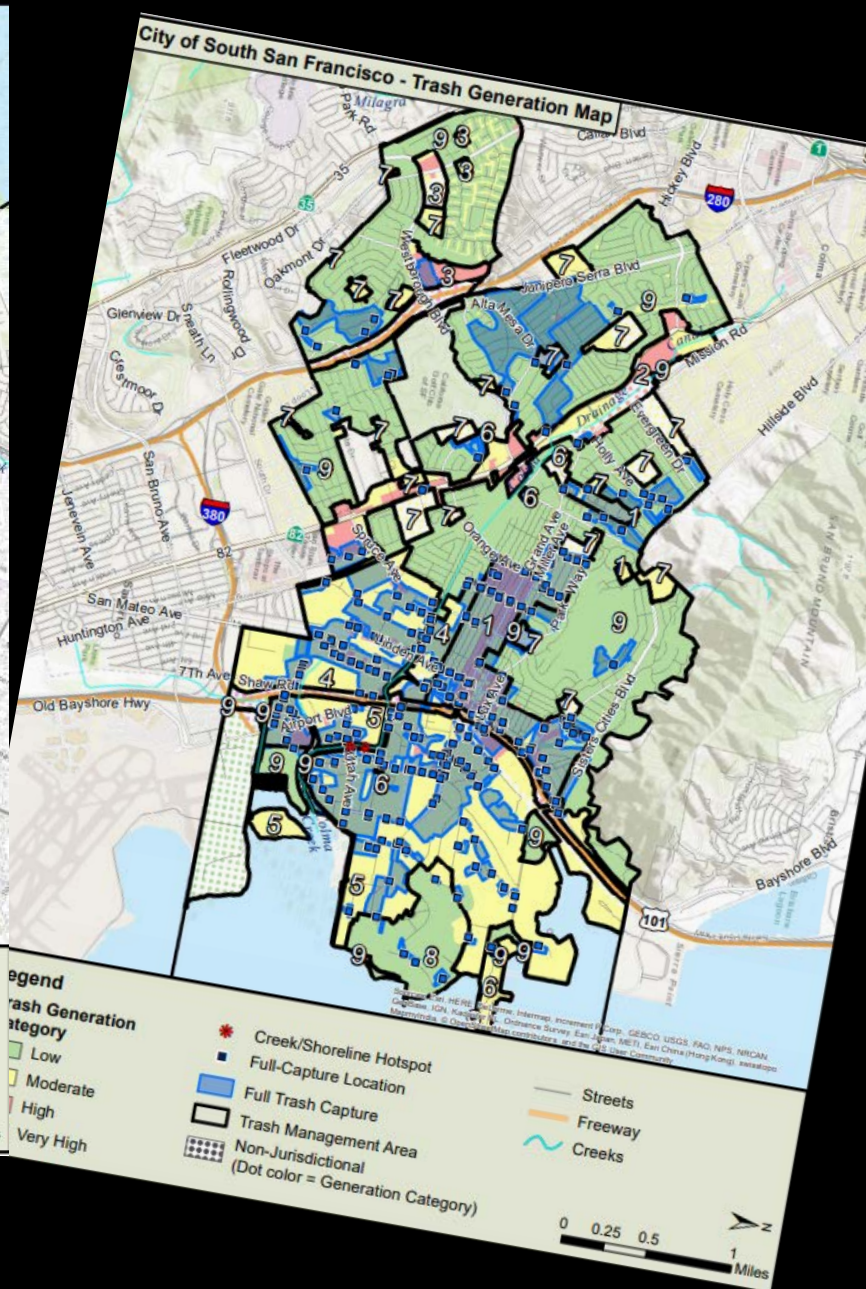


SAN MATEO COUNTYWIDE
Water Pollution Prevention Program


Moon Bay - Trash Generation Map
Legend
Trash Generation Category
Low
Moderate
High
Very High
Creek/Shoreline Hotspot
Full-Capture Location
Full Trash Capture
Trash Management Area
Non-Jurisdictional
(Dot color = Generation Category)
Streets
Freeway
Creeks
0 0.3 0.6


City of Menlo Park - Trash Generation Map
Legend
Trash Generation Category
Low
Moderate
High
Very High
Creek/Shoreline Hotspot
Full-Capture Location
Full Trash Capture
Trash Management Area
Non-Jurisdictional
(Dot color = Generation Category)
Streets
Freeway
Creeks
0 0.25 0.5 1 Miles


City of South San Francisco - Trash Generation Map
Legend
Trash Generation Category
Low
Moderate
High
Very High
Creek/Shoreline Hotspot
Full-Capture Location
Full Trash Capture
Trash Management Area
Non-Jurisdictional
(Dot color = Generation Category)
Streets
Freeway
Creeks
0 0.25 0.5 1 Miles

What Is Green Infrastructure?

Parcel-Scale

Green Streets

Regional Projects

Green Infrastructure Design Guide

First Edition | 2019

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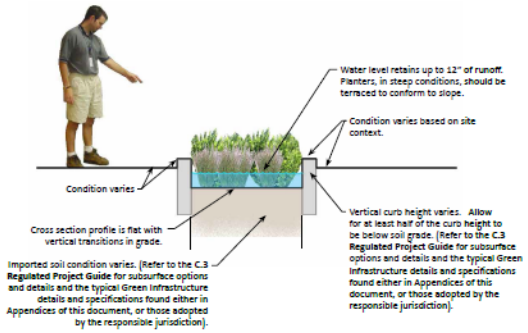
Anatomy



The Anatomy of a Stormwater Planter

1. Cross section is typically flat with some form of vertical containment system
2. Planters can be either infiltrative, or use bioretention/flow-through with an underdrain system
3. 6-8" of stormwater runoff retention is ideal (Maximum of 12" of retention where space is limited)
4. Imported soil mixture (see C.3 Regulated Project Guide for soil specifications)
5. Native soil condition (an underdrain system may be needed with some native soil conditions)

Sites

Opportunities for Buildings and Sites

Stormwater planters are a good candidate for building site applications to manage stormwater because they can often fit between pedestrian walkways, up against building alcoves, and between utilities, trees, and building furnishings. As long as there is a viable way to protect building foundations from direct contact of water and provide safe overflow and underdrain conditions, flow-through stormwater planters can be placed directly against building facades and can be of varying shapes and sizes. They can also be placed offset the building foundation and used for bioretention or direct infiltration of stormwater providing soil conditions are favorable for infiltration.

▲ *This stormwater planter at a high-density residential complex accepts building runoff and integrates a seating boardwalk over the landscape.*

Lots

Opportunities for Parking Lots

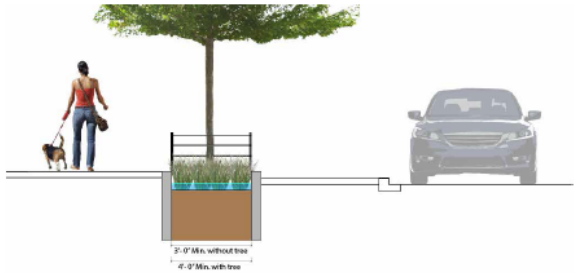
Stormwater planters can also be an effective design tool for parking lot applications. Parking lot stormwater planters can be designed to take the place of a few parking spots in the form of landscaped islands, or they can fit in the long, narrow space between the front-ends of parking stalls within the medians or perimeter zones of parking lots. Because parking lots generally lack shade from tree canopy, it is best to create large enough planters to manage stormwater and support larger shade trees.

▲ *This parking lot features a narrow infiltrative stormwater planter with a series of metal check dams that help slow and retain runoff.*

Streets

Opportunities for Streets

Stormwater planters are very useful in new and retrofitted complete streets, because they provide benefits for all users of streets. They make excellent street retrofits where spatial conditions are constrained, such as locations where on-street parking demand is high, and/or if there is competition for space with street trees or utilities. Because of their versatility in size and shape, stormwater planters can be designed to capture significant runoff when built in a series along a street, inserted between driveways, pedestrian walkways and other street elements. Stormwater planters can be incorporated in many street types and contexts with the exception of more rural, suburban, and industrial locations or where sidewalks do not have enough space to accommodate them or they if they have the appearance of too much hardscape for the surrounding context. Stormwater planters typically occur behind the curb, in the sidewalk, but in shared streets, stormwater planters can be placed between the vehicle drive area and the primary pedestrian zone, as well as between vehicle travel lanes for traffic calming purposes. They can also be sited in medians and other islands in the roadway, if drainage patterns support these locations. In these scenarios, curbs or other techniques should be used to prevent vehicles or cyclists from entering the stormwater planter.



▲ *A stormwater planter located along a street should maintain at least a 3' width of vegetation, 4' minimum if the planter is also supporting a small street tree. Depending on the tree species, even wider stormwater planters may be required.*

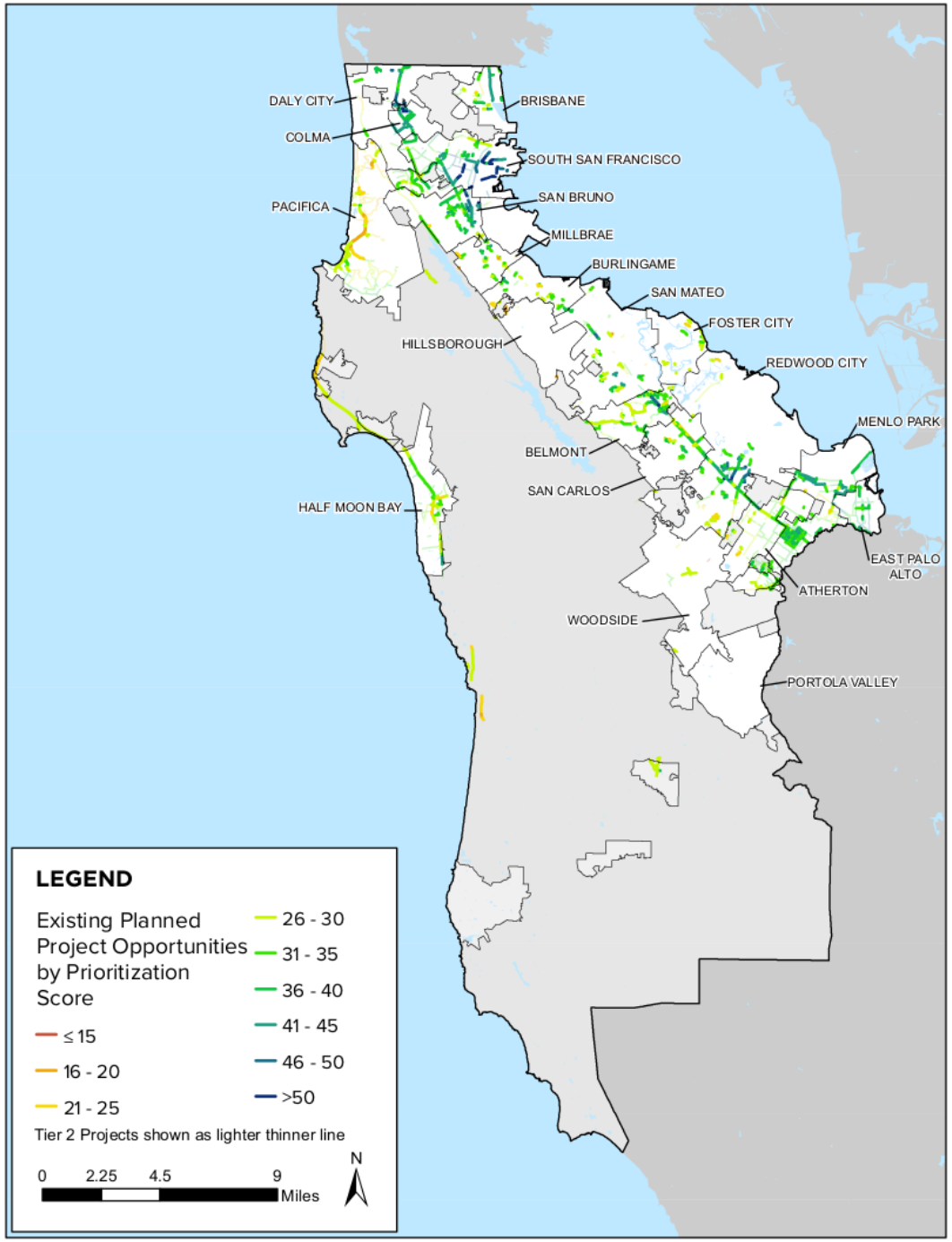
Green Infrastructure Measures – Stormwater Planters

C/CAG
City/County Association of Governments
of San Mateo County

Caltrans

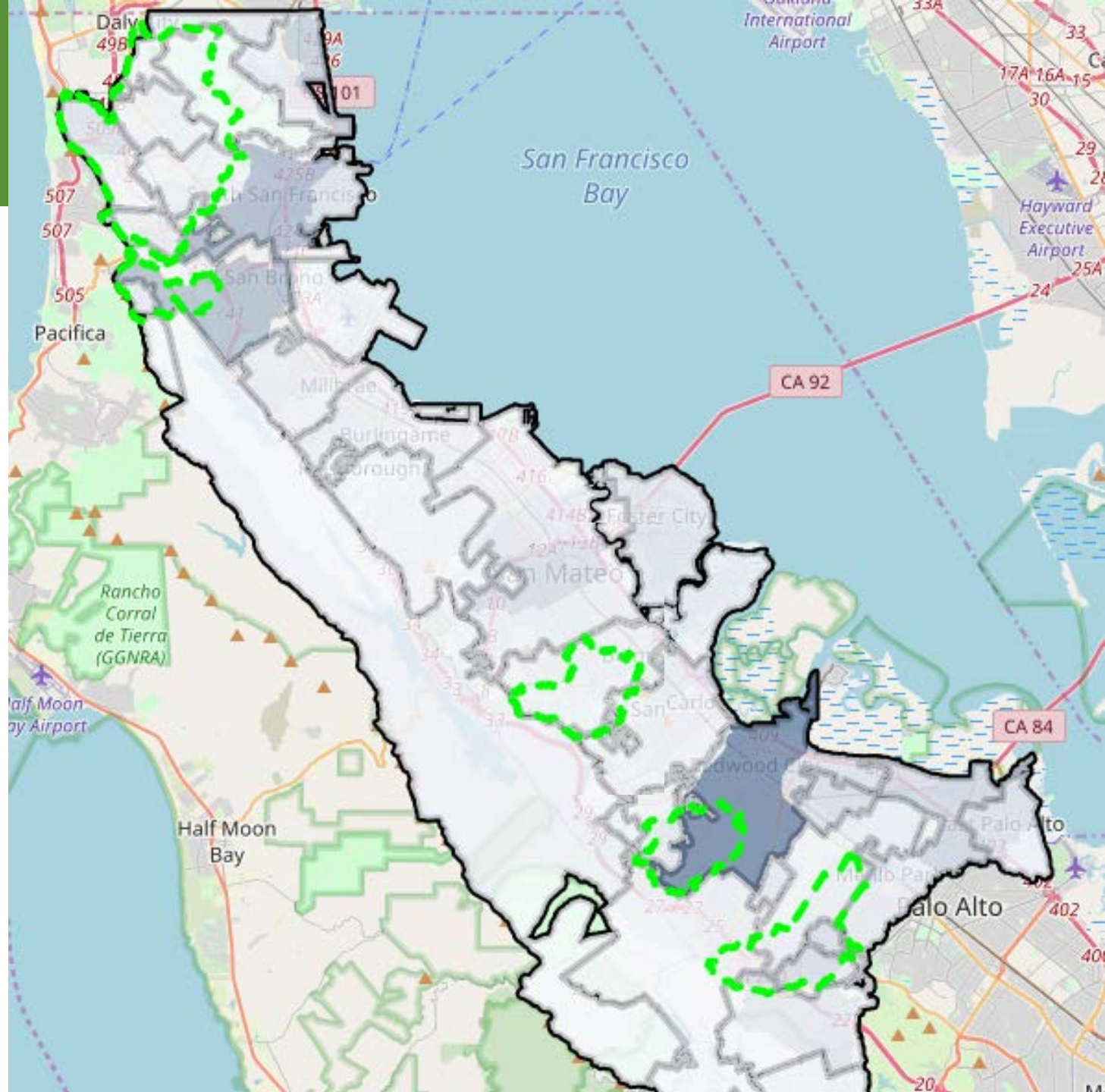
San Mateo Countywide Sustainable Streets Master Plan

PARADIGM
ENVIRONMENTAL


DALY CITY
BRISBANE
COLMA
SOUTH SAN FRANCISCO
SAN BRUNO
PACIFICA
MILLBRAE
BURLINGAME
SAN MATEO
FOSTER CITY
HILLSBOROUGH
REDWOOD CITY
MENLO PARK
BELMONT
SAN CARLOS
HALF MOON BAY
EAST PALO ALTO
ATHERTON
WOODSIDE
PORTOLA VALLEY
LEGEND
Existing Planned Project Opportunities by Prioritization Score
≤ 15
16 - 20
21 - 25
26 - 30
31 - 35
36 - 40
41 - 45
46 - 50
>50
Tier 2 Projects shown as lighter thinner line
0
2.25
4.5
9
Miles
N

Regional Projects

- South San Francisco
- San Bruno
- Belmont
- Redwood City
- Atherton

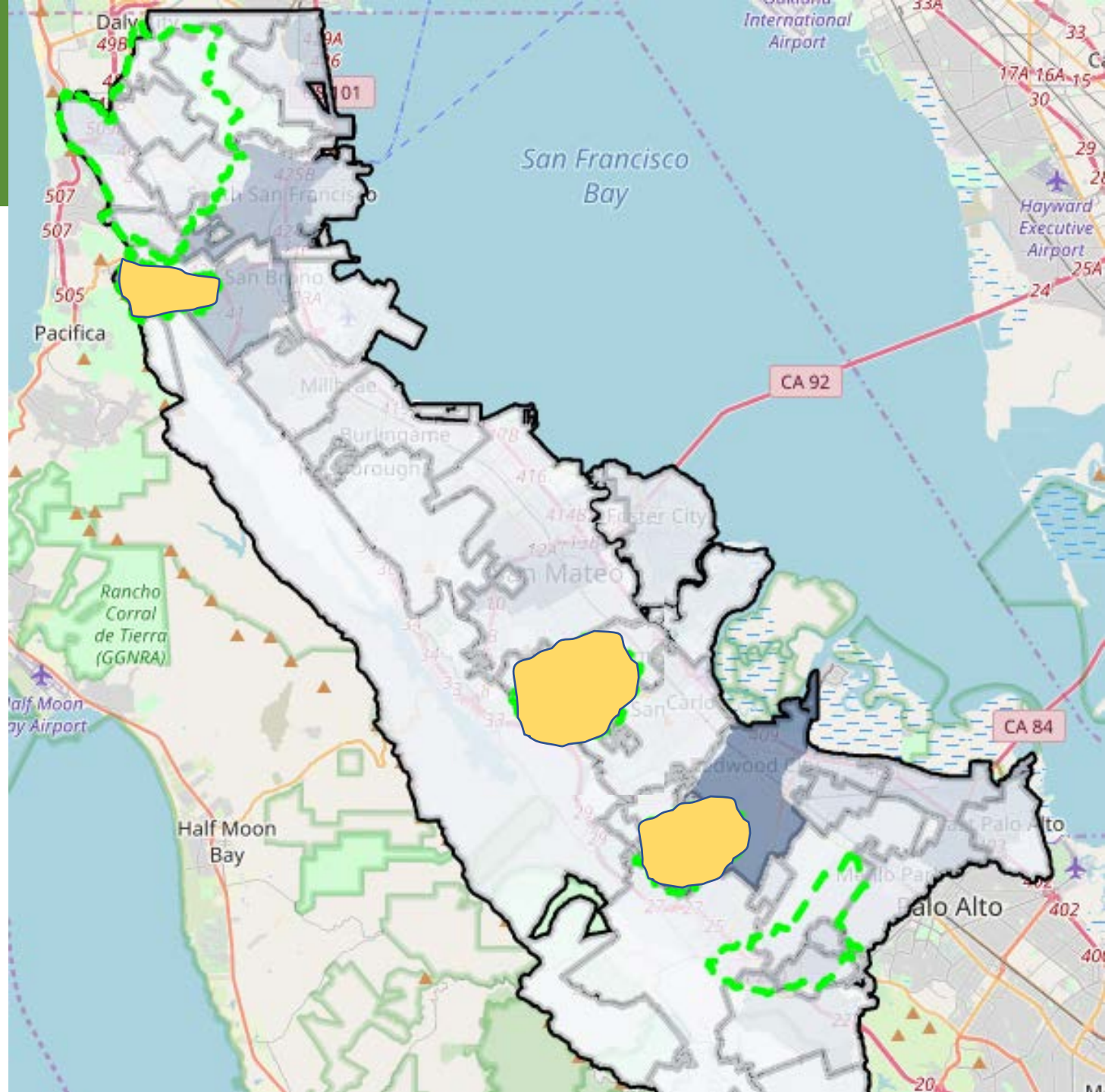


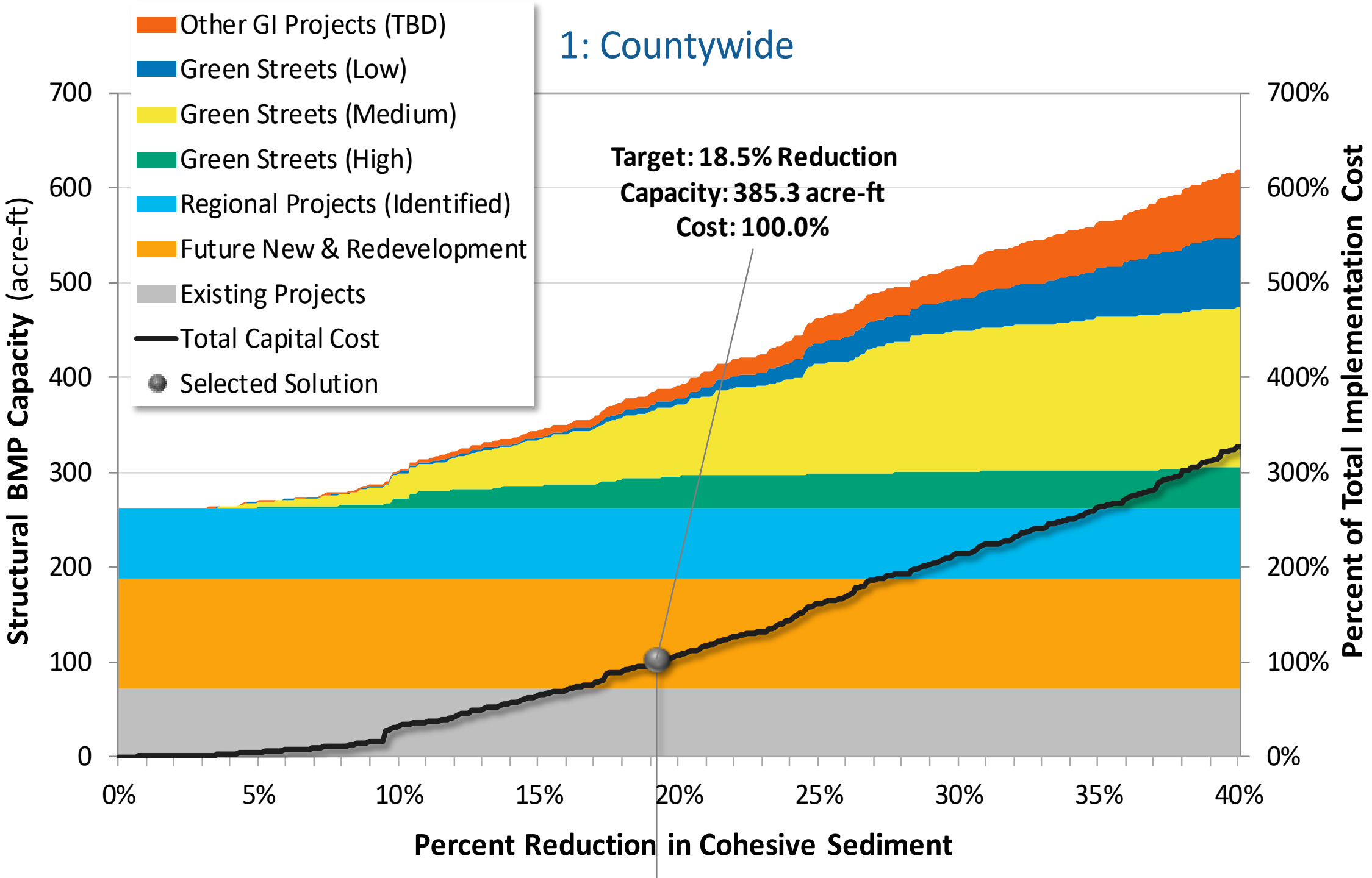
Regional Projects

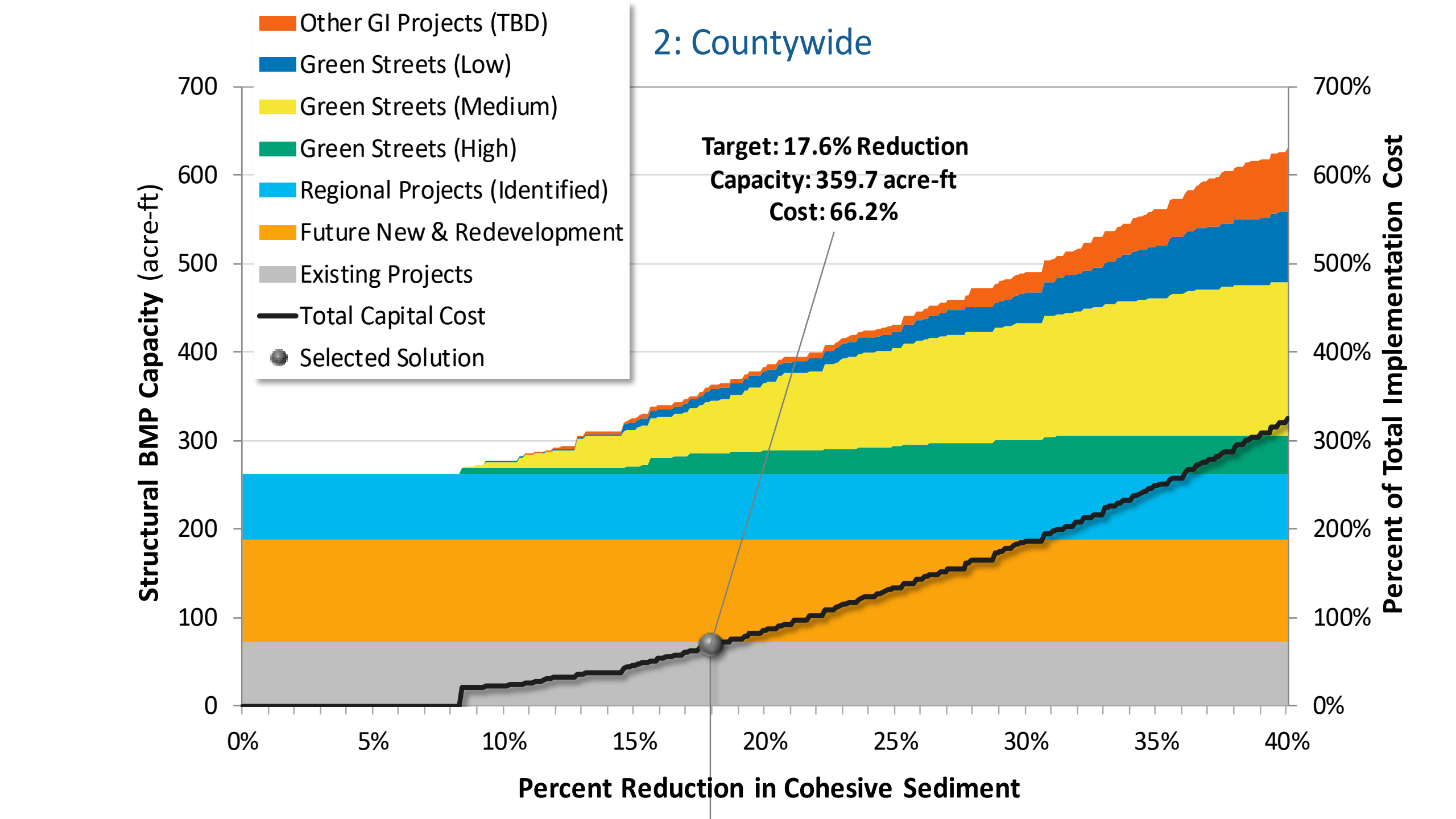
- C/CAG: $2.94 M

  Recommendation:

  - $100k – find opportunities
  - $100k – develop case for countywide collaboration
  - Initial design/CEQA
    - $913k: San Bruno
    - $913k: Belmont
    - $913k: Redwood City




1: Countywide
Other GI Projects (TBD)
Green Streets (Low)
Green Streets (Medium)
Green Streets (High)
Regional Projects (Identified)
Future New & Redevelopment
Existing Projects
Total Capital Cost
Selected Solution
Target: 18.5% Reduction
Capacity: 385.3 acre-ft
Cost: 100.0%
Structural BMP Capacity (acre-ft)
Percent of Total Implementation Cost
Percent Reduction in Cohesive Sediment
0
100
200
300
400
500
600
700
0%
100%
200%
300%
400%
500%
600%
700%
0%
5%
10%
15%
20%
25%
30%
35%
40%


2: Countywide
Other GI Projects (TBD)
Green Streets (Low)
Green Streets (Medium)
Green Streets (High)
Regional Projects (Identified)
Future New & Redevelopment
Existing Projects
Total Capital Cost
Selected Solution
Target: 17.6% Reduction
Capacity: 359.7 acre-ft
Cost: 66.2%
Structural BMP Capacity (acre-ft)
Percent of Total Implementation Cost
Percent Reduction in Cohesive Sediment
0
100
200
300
400
500
600
700
0%
100%
200%
300%
400%
500%
600%
700%
0%
5%
10%
15%
20%
25%
30%
35%
40%

Direct Compliance

- Water Quality Monitoring
- Regional Monitoring Program
- Public Outreach/Education
- Annual Reporting

- Annual Costs: ~$1 million

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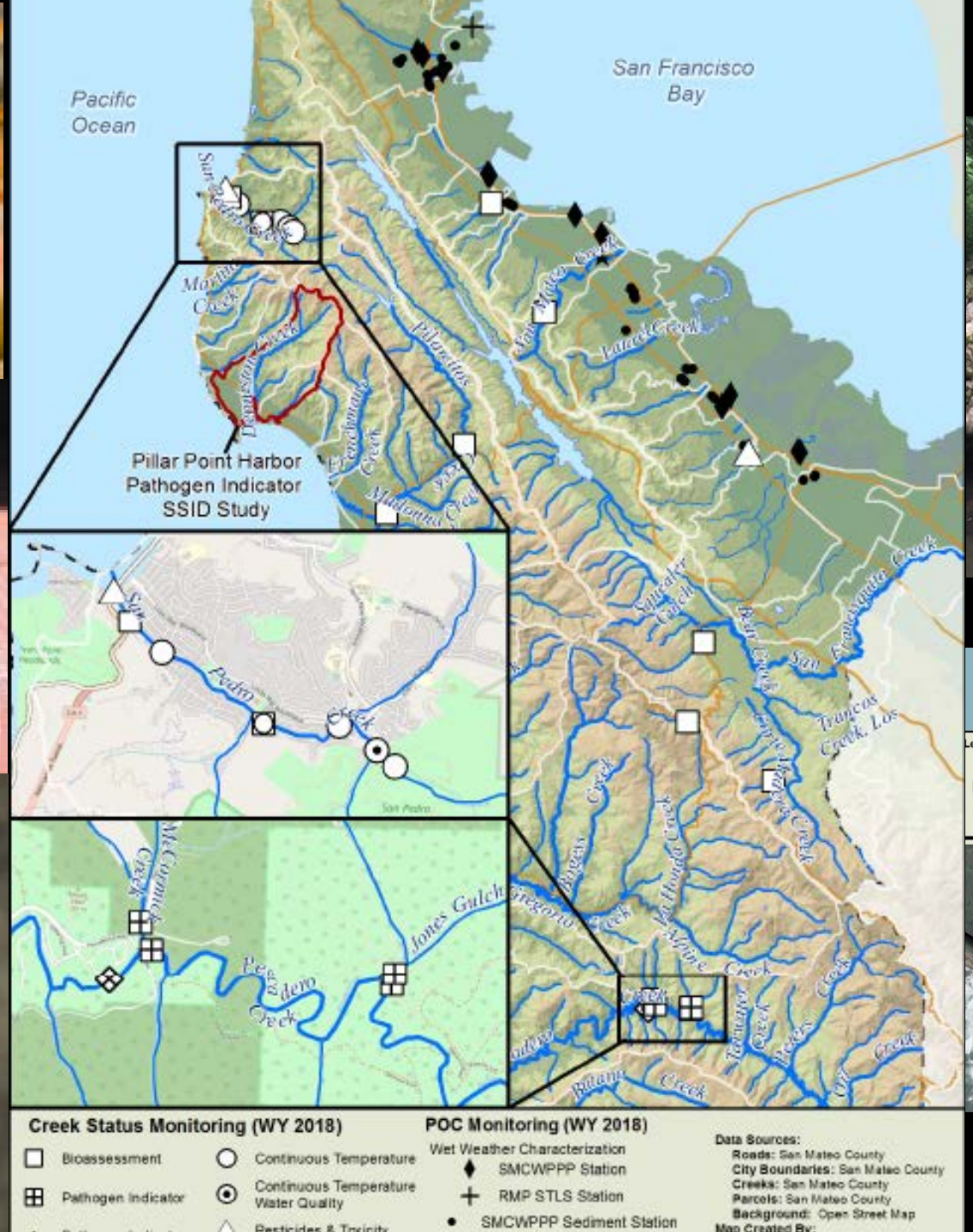

C.8.e Pillar Point Harbor Bacteria SSID Work Plan

- 14 stations
- 2 wet weather sample events
- 2 dry weather sample events
- E. Coli
- Human marker
- Dog marker

Water Pollution Prevention Program

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FY 2018/19 Annual Report

September 30, 2019

Regional Collaboration

- Bay Area Stormwater Management Agencies Association (BASMAA)
- Grant-funded and collaborative projects
  - Direct Compliance
  - Technical Support

- Annual Cost: ~$100-200K

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BAY AREA
STORMWATER MANAGEMENT
AGENCIES ASSOCIATION

Factsheet for Municipal Staff

New Program to Manage PCBs during Building Demolition

Purpose of the Program: PCBs have been detected at elevated levels in certain sport fish in San Francisco Bay. To make the fish safer to eat and protect human health, PCBs sources to the Bay need to be identified and controlled. Urban stormwater runoff is considered a significant pathway for PCBs to enter the Bay. The Regional Water Quality Control Board has therefore required that Bay Area municipalities address potential sources to urban runoff, including certain building materials (e.g., caulks/sealants, insulation) that may contain PCBs and enter storm drains during building demolition.

Permit Requirements: The Municipal Regional Permit (MRP) requires Bay Area local agencies to develop a program to keep PCBs from building materials out of storm drains during building demolition. MRP requirements include:

- Developing methods to identify applicable structures and priority materials before demolition.
- Developing protocols to ensure that PCBs are not discharged to the storm drain during demolition of these structures.
- Establishing the necessary authority for the protocol via municipal ordinance or other mechanism.

Affected Structures: The requirements apply to whole building demolition of commercial, multi-family residential, public, institutional, and industrial structures constructed or remodeled between 1950 and 1980 in the MRP area: Counties of Alameda, Contra Costa, San Mateo, and Santa Clara and the Cities of Fairfield-Suisun and Vallejo. Single-family homes and wood-frame structures are exempt.

Regional Coordination: The Bay Area Stormwater Management Agencies Association (BASMAA) is assisting Bay Area local agencies to address these stormwater permit requirements and develop local programs to manage PCBs during building demolition. BASMAA has developed guidance and tools, including a pre-demolition protocol for evaluating PCBs in priority building materials, model language for municipal adoption of the new program, and model demolition permit materials. However, municipalities will need to adopt and implement the new program themselves, using the BASMAA guidance and tools in a way that best suits their local needs and procedures.

Key Dates and Activities:

OCT 2018
- BASMAA workshop on adoption and implementation of the PCBs management program for countywide stormwater program and MRP Permittee staff.

NOV 2018 - JUN 2019
- Each municipality continues establishing the authority to implement the PCBs management program and developing the program.
- Countywide stormwater programs provide support to municipal staff.

JULY 1, 2019
- Deadline for municipalities to begin implementation of the PCBs management program.

How to get started: download the model documents from basmaa.org/announcements and develop a plan to adopt and implement the program and train your staff. See next page for more information.

October 2, 2018

Evaluation of PCBs in Caulk and Sealants in Public Roadway and Storm Drain Infrastructure

Project Report

Prepared for:

Bay Area Stormwater Management Agencies Association

Prepared by:

EOA, Inc.

SFEI

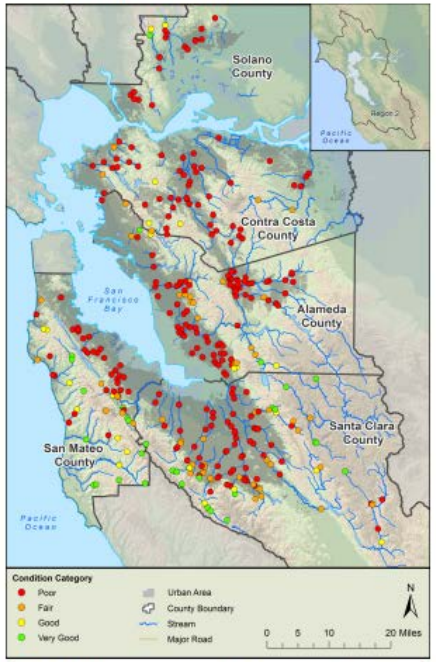
Kinnetic Laboratories Incorporated

FINAL

August 16, 2018

Biological Health of San Francisco Bay Area Creeks

Based on Benthic Macroinvertebrates (2012-2016)



Biological condition categories are based on California Stream Condition Index (CSCI) scores, which use benthic macroinvertebrate data. Marin, Sonoma and Napa counties have different monitoring requirements and are threfore not part of the RMC.

IMPROVING CREEK HEALTH THROUGH STORMWATER MANAGEMENT

Transforming Grey Infrastructure to Green

Historically, "grey" stormwater infrastructure (curb and gutters) was constructed to move rainwater from streets to creeks as quickly as possible without considering of the impacts of stormwater. "Green" (stormwater) Infrastructure (GI) has been shown to reduce pollutants in stormwater and minimize the impacts to the physical habitat of creeks caused by increased stormwater runoff from impervious surfaces.

GI uses vegetation, soils, and natural processes to manage stormwater runoff. Examples of GI include landscape-based "biotreatment" systems (see image above) that use engineered soils and plants, pervious paving systems, rainwater harvesting and other methods that capture and use stormwater as a resource. The implementation of GI in the Bay Area is expanding signficantly through the implementation of new plans developed cities and counties. GI is anticipated to improve health of Bay Area creeks and improve the water quality in SF Bay over time.

NEXT STEPS FOR BAY AREA CREEK MONITORING

Based on the results of the first five years of monitoring, the following next steps are planned by RMC participants:

- **Continue to monitor local creeks** in a regionally-coordinated manner
- **Adapt the RMC monitoring program to:**
  - **Evaluate trends in biological condition** to help assess and track improvements in creek health over time
  - **Monitor creek health and other parameters** to evaluate the effectiveness of stormwater management efforts (e.g., green infrastructure) in Bay Area watersheds, and
  - **Respond to evolving monitoring requirements** included in future iterations of the regional stormwater permit.

Bay Area Regional Monitoring Coalition Participants

Santa Clara Valley Urban Runoff Pollution Prevention Program

cleanwater program — Protecting Alameda County Creeks, Wetlands & the Bay

Contra Costa Clean Water Program

San Mateo Countywide Water Pollution Prevention Program — Clean Water. Healthy Community.

Fairfield-Suisun

Vallejo

*Detailed results of the first five years of RMC monitoring can be found in the **RMC's Five-Year Bioassessment Report: Water Years 2012-2016,** which was funded by the Bay Area Stormwater Management Agencies Association (BASMAA). See www.basmaa.org to download the report.*

Prepared August 2018

SRTS/Green Infrastructure Pilot

Looking Forward

Daly City – Westlake Elementary

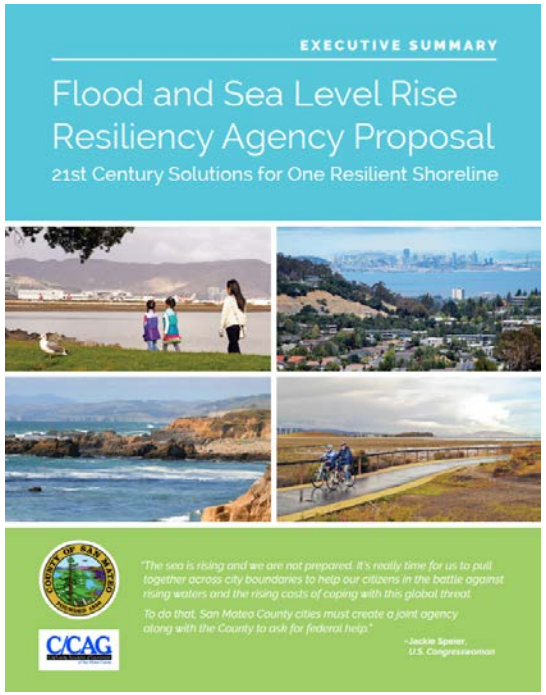
Half Moon Bay – New Library

Millbrae – Taylor Middle School

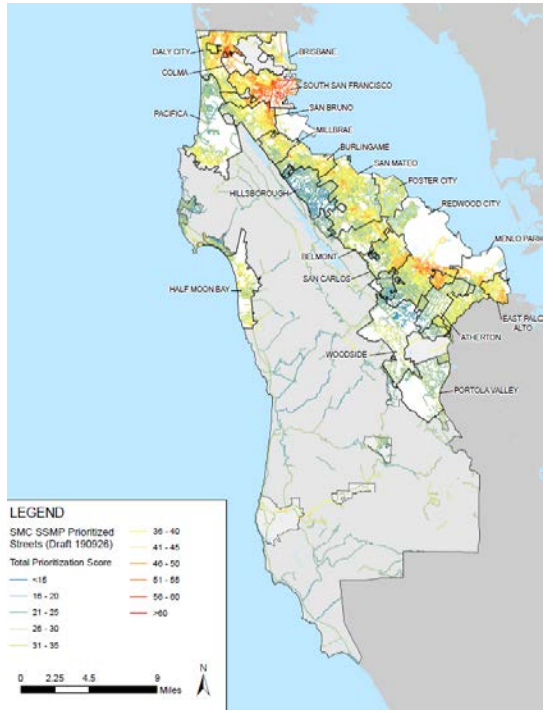
Looking Forward

SRTS/Green Infrastructure Pilot

Regional Stormwater Coordination



Sustainable Streets Master Plan



Looking Forward



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Questions?

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