San Mateo Countywide Sustainable Streets Master Plan

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What Are Sustainable Streets?

Complete Streets + Green Streets

Sustainable Streets keep pedestrians and cyclists safe, increase resiliency against the effects of climate change, and reduce pollution.

In short: Infrastructure that helps and protects our community and environment.
Project Drivers

Key Drivers
• Water quality mandates
• Climate change and resiliency

Needs
• Prioritized project opportunities
• Understanding how climate change will impact stormwater
• Integrated, multi-benefit investments
• Tools to advance planning, design and implementation
2-year storm
50-year storm

Runoff Increase (in)
- 0 - 0.1
- 0.1 - 0.2
- 0.2 - 0.3
- 0.3 - 0.4
- 0.4 - 0.5
- 0.5 - 0.75
- 0.75 - 1
- 1 - 1.25
- 1.25 - 1.5
- 1.5 - 2.5

Bayside
## Impact on Overall Runoff Depth

<table>
<thead>
<tr>
<th>Region</th>
<th>Scenario</th>
<th>6-hour Runoff Depth (in.) by Return Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>2-yr</td>
</tr>
<tr>
<td>Ocean</td>
<td>Historical</td>
<td>1.13</td>
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<tr>
<td></td>
<td>Median (RCP 8.5)</td>
<td>1.31</td>
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<tr>
<td></td>
<td>Percent Change</td>
<td>15%</td>
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<tr>
<td>Bayside</td>
<td>Historical</td>
<td>0.97</td>
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<tr>
<td></td>
<td>Median (RCP 8.5)</td>
<td>1.10</td>
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<tr>
<td></td>
<td>Percent Change</td>
<td>14%</td>
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<tr>
<td>Countywide</td>
<td>Historical</td>
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<tr>
<td></td>
<td>Median (RCP 8.5)</td>
<td>1.23</td>
</tr>
<tr>
<td></td>
<td>Percent Change</td>
<td>15%</td>
</tr>
</tbody>
</table>
A GUIDE TO EATING FISH from SAN FRANCISCO BAY

Women (18-45 Years)

Children (1-17 Years)

2 TOTAL SERVINGS A WEEK

1 TOTAL SERVING A WEEK

0 DO NOT EAT

Eat the Good Fish
Eating fish that are low in chemicals may provide health benefits to children and adults.

Avoid the Bad Fish
Eating fish with higher levels of chemicals like mercury or PCBs may cause health problems in children and adults.

Choose the Right Fish
Chemicals may be more harmful to unborn babies and children.

WOMEN 18 - 45 YEARS AND CHILDREN 1 - 17 YEARS

Brown rockfish

Chinook (King) Salmon

Jacksmelt

Red rock crab

California halibut

White croaker

Sharks

White sturgeon

Surperches

Striped Bass

Serving Size
A serving of fish is about the size and thickness of your hand. Give children smaller servings.

For Adults

For Children

Eat only the skinless fillet

Eat only the meat

California Office of Environmental Health Hazard Assessment

web www.oehha.ca.gov/fish
email fish@oehha.ca.gov
phone (916) 324-7572
Project Typologies

1: Bulb Outs and Curb Extensions
2: Connectivity Improvements
3: Streetscape Projects
4: Frontage Improvements
Typology I: Green Bulb Outs and Curb Extensions
Typology I: Green Bulb Outs and Curb Extensions
Typology II: Connectivity Improvements
Typology II: Connectivity Improvements
Typology III: Streetscape Redesign Projects
Typology III: Streetscape Redesign Projects
Typology IV: Development Frontage Improvements
Typology IV: Development Frontage Improvements
Identify Planned and "New" Project Opportunities

- Define Sustainable Street Typologies
- Find active transportation projects from existing plans
- Find “new” opportunities near schools and transit
- Screen projects based on feasibility to integrate green infrastructure

Prioritize Opportunities

- Pair opportunities with stormwater analysis and community benefit criteria
- Create ranked top opportunity lists for each community

Identify Recommended Projects

- Incorporate stakeholder feedback on project opportunities
- Refine project boundaries
- Develop funding linkages
- Establish project phasing

Develop Project Concepts

- Identify high-priority project opportunities with near-term implementation timelines
- Develop project concepts across typologies
- Create strong visual renderings
- Focus on multiple benefits and planning level cost estimates
Existing Planned Project Opportunities

Three Project Typologies
- Sustainable Street Curb Extensions
- Sustainable Street Connectivity Improvements
- Sustainable Streetscape Projects

Two Project Tiers
- Tier 1 projects have more potential to cost-effectively incorporate green infrastructure due to the extent of construction impacts associated with those projects
“New” Project Opportunities

Goals:

• Support Safe Routes to School and Transit Program objectives

• Support cost-sharing and construction impact reduction objectives by locating opportunities where pavement is in poor condition

New Curb Extension Opportunities:

• Intersections within 0.5 mile walking distance from schools or major transit stops

• Arterial or collector streets

• Poor pavement condition
Runoff Capture Spatial Effectiveness +

Technical Suitability Results

Infiltration Feasibility +

Site Space Constraints +

Runoff Performance
Infiltration Feasibility
Site Space Constraints
Co-Benefit Criteria

Vulnerable Community Indices

Low Vehicle Ownership

Urban Heat Island Index
Project Concepts

- Woodrow Wilson Elementary SRTS, Daly City
- Bayshore Elementary SRTS, Daly City
- El Camino Real, Colma
- Grand Ave, South San Francisco
- Laurel Ave, Millbrae
- Rollins Road, Burlingame
- Humboldt St, San Mateo
- San Carlos Ave, San Carlos
- Main St, Half Moon Bay
- Edison Way, North Fair Oaks
- Santa Cruz Ave, Menlo Park
- Fordam St, East Palo Alto
**Concept Description**

El Camino Real (State Highway 82) through the Town of Colma is being redesigned with pedestrian and bicycle improvements. The design includes new landscaping, the addition of a protected bike lane in both directions, new signaling, and a lane reduction from C Street to Mission Street. This concept proposes to integrate green stormwater infrastructure in the planned transportation improvements.

The proposed vegetated median separating the bike lanes from vehicular traffic is 5 to 6 feet wide. At T-intersections and at intersection approaches the proposed median widens to 10 to 13 feet. Portions of the vegetated median on the northeast side of El Camino Real can be installed as bioretention facilities that collect and manage stormwater runoff from the roadway, bike lane, and sidewalks. The remaining portions of the median can be landscaped with trees and graded to direct flow towards the bioretention areas. The proposed median on the southwest side of El Camino Real is located above a water main making bioretention facilities infeasible.

The bioretention facilities are shown for the block extending north of Collins Road representing a typical block within the corridor. The same design can be applied to the full extent of improvement from C Street through Mission Street. The proposed bioretention facilities shown on the typical block represent 3,300 square feet of facilities. This project will manage stormwater from 1.9 acres of roadway and provide capture of 3.5 acre-feet of runoff per year. The project is expected to retain approximately 68.6% of runoff.
KEY SITE IMPROVEMENTS

A. Proposed bioretention planter
B. Proposed planter buffer
C. Proposed protected bike lane
D. Existing planter median

Typical Concept Site Plan Detail: El Camino Real, Colma

Typical Cross Section Detail: El Camino Real
Drainage Area Assessment Tool

- Hi-resolution drainage areas for the whole county
- Web-based map viewer and tool for evaluating project opportunities
**Stormwater Curb Extension Tool**

- Supports future rapid assessments for opportunities to integrate green infrastructure at intersections
- Excel format
- Check-box results for feasibility at each corner
Sustainable Streets Typical Details

- Comprehensive Sustainable Streets Typical Details library to support design and implementation

- Included in Appendix J
Sustainable Streets Policies

- Model Sustainable Streets Resolution and Policy
- Model Sustainable Streets language for municipal plans
- Examples of General and Municipal Plan language
  - Redwood City, Menlo Park, San Mateo, Emeryville
- Model Standard CoAs for Development Projects
- Example Standard CoAs for GI in Development Frontage
  - Menlo Park, Emeryville, South San Francisco, San Mateo, Redwood City
GI Mapping and Tracking Tool

- Mapping and tracking **ALL** green infrastructure project types
- Supports GI Plan implementation
- Includes water quality and climate change metrics
- Supports public education
## Table of Contents

**NOTE:** This document contains interactive elements to help make navigation between subject areas easier. Simply click on the chapter you wish to view on the overhead navigation bar or click through the provided table of contents or indices. Return to this complete table of contents by clicking the arrow symbol on the left edge of the overhead navigation bar. If printing this document, the overhead navigation bar will disappear in the paper version.

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3.6 Sustainable Streets Design Examples

Commercial Throughway with Stormwater Planters and Protected Cycle Track

In some conditions along throughways, there is extra paved shoulder space that can be converted into stormwater planters or curb extensions. Depending on how much space there is, it is also possible to introduce a new bike lane or separated cycle track, also known as a protected bike lane, next to the stormwater facilities. Using such an approach helps reinforce the concept of providing more comfortable and family-friendly alternative transportation facilities in concert with managing stormwater runoff treatment. The illustration below showcases this green streets and complete concept.

Key Design Elements
- Stormwater planters are placed periodically to capture runoff from the roadway.
- Pervious pavers to reduce stormwater planters.
- Conventional landscape strip with street trees.
- Sidewalk.
- Buffered and protected bike lanes/cycle track.
- Conventional center landscape median.

A. CHRISTIAN: A typical multi-lane throughway with minimal pedestrian shoulder in St. Louis County.
B. UMPIRE: A proposed multi-lane highway with stormwater planters and increased sidewalk width. Landscape buffer from plan and street.
C. ALBERTO: A typical street retrofit with a series of stormwater planters and perpendicular pavement, a separated cycle track, and additional street trees.
3.6 Sustainable Streets Design Examples

Mixed Use Connector with Stormwater Planter along Parking Lane

Stormwater planters can be added between the outside edge of the sidewalk and the curb, while retaining on-street parking. Pedestrian circulation between parked vehicles and frontage users can be accommodated by creating walkways in between the planters and a pedestrian stop out area adjacent to the on-street parking. The retrofit opportunity illustrated below links a series of infiltration planters. As the upstream stormwater planter fills up with runoff, it overflows out onto the street and enters the next downstream planter. In urban areas, using stormwater planters is advantageous because they allow for stormwater treatment in constrained spaces. Stormwater planters provide a buffer to pedestrians from fast moving vehicles. In addition, the inclusion of stormwater corner bulbouts and striped bicycle lanes should be considered to provide improved complete street benefits and additional stormwater management and treatment.

Key Design Elements

- Stormwater planters allow for on-street parking with a stop out area for people to access their vehicles and the sidewalk.
- Graded curb cuts allow runoff to enter/stormwater facility.
- On-street parking lane.
- Building foyers.
- Sidewalk.
- Bike lane.
- Accessible ADA ramps at street intersection.
- Cycle extensions narrow the pedestrian crossing distance, but allow two-way vehicular traffic.

Growth edge: Stormwater planters used along on-street travel. Grades that have a depressional area allow the water to get in and out of their vehicles and access the sidewalk and parking area.
Where To Find Everything

- Master Plan, Appendices, Tracking Tool: flowstobay.org/ssmp
- Green Infrastructure Design Guide: flowstobay.org/gidg