San Francisco Water Power Sewer

Services of the San Francisco Public Utilities Commission

SEWER SYSTEM IMPROVEMENT PROGRAM

Grey. Green. Clean.

09.28.15

Bay Area Water Infrastructure – Planning and Implementation

Michael Carlin, Deputy General Manager, SFPUC

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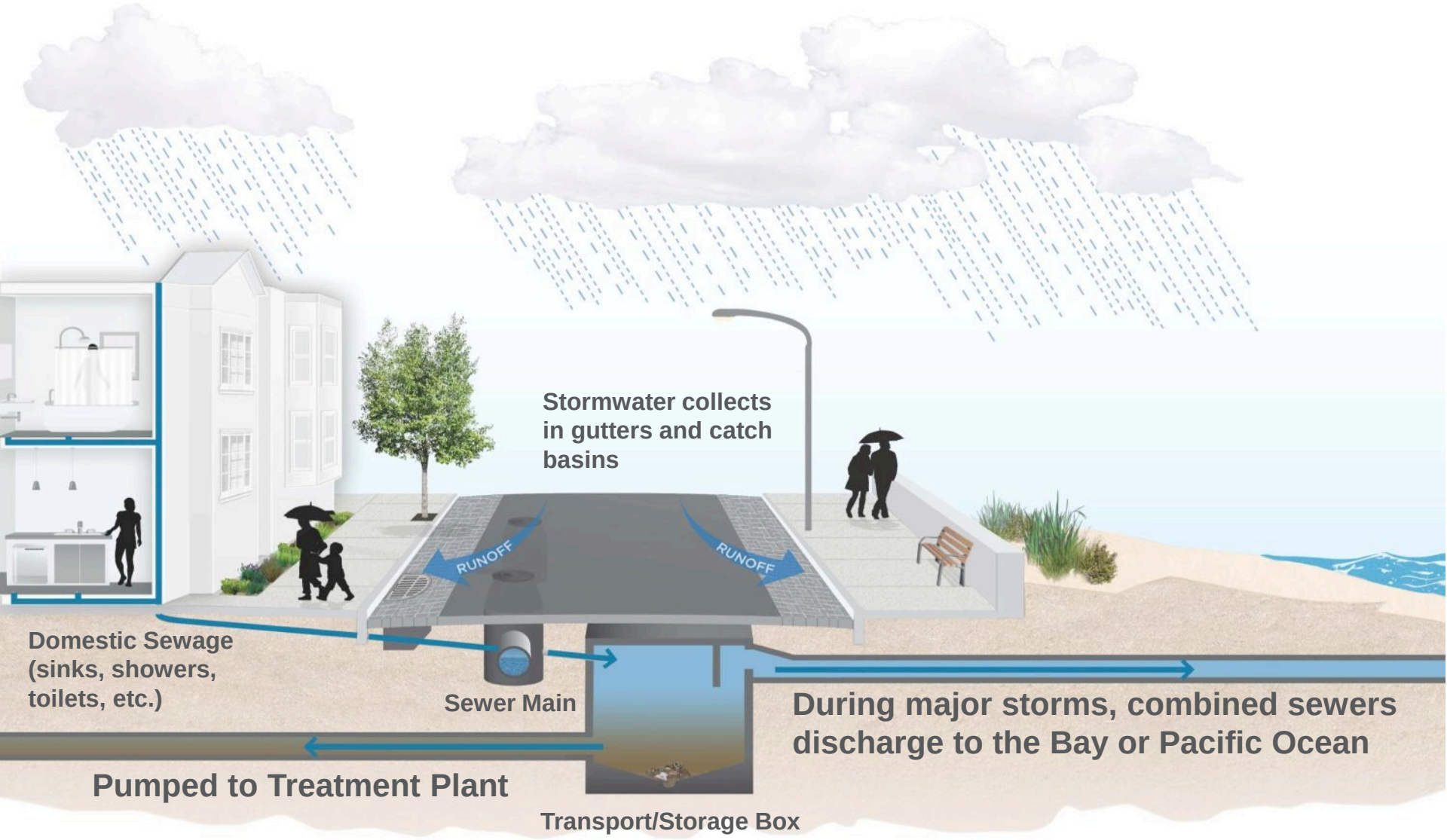
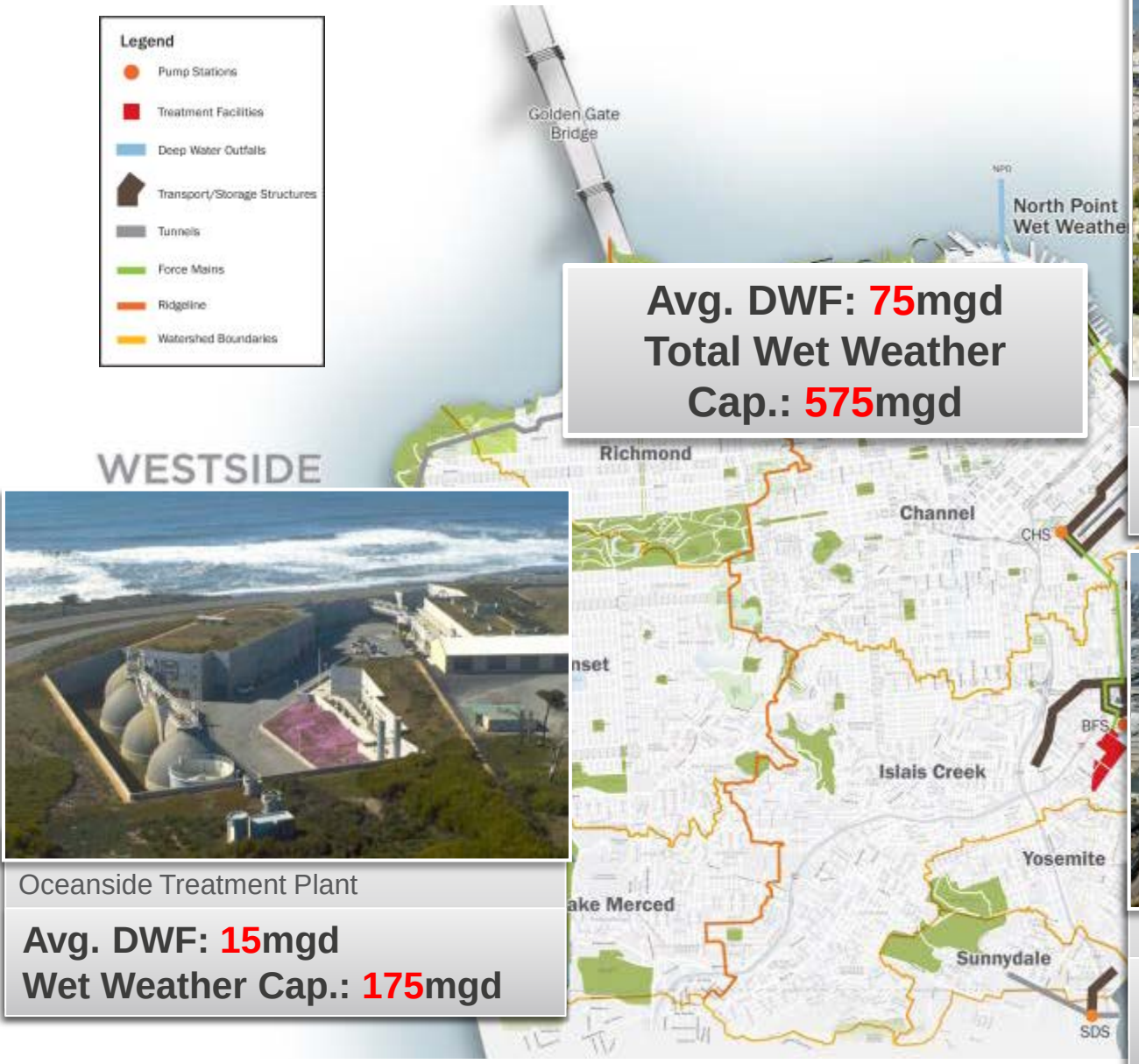
THE SFPUC COMBINED SEWER SYSTEM

Our Combined Sewer System



Our Combined Sewer System



Avg. DWF: 75mgd
Total Wet Weather Cap.: 575mgd

North Point Wet Weather Facility

Avg. DWF: 0mgd
Wet Weather Cap.: 150mgd

Oceanside Treatment Plant

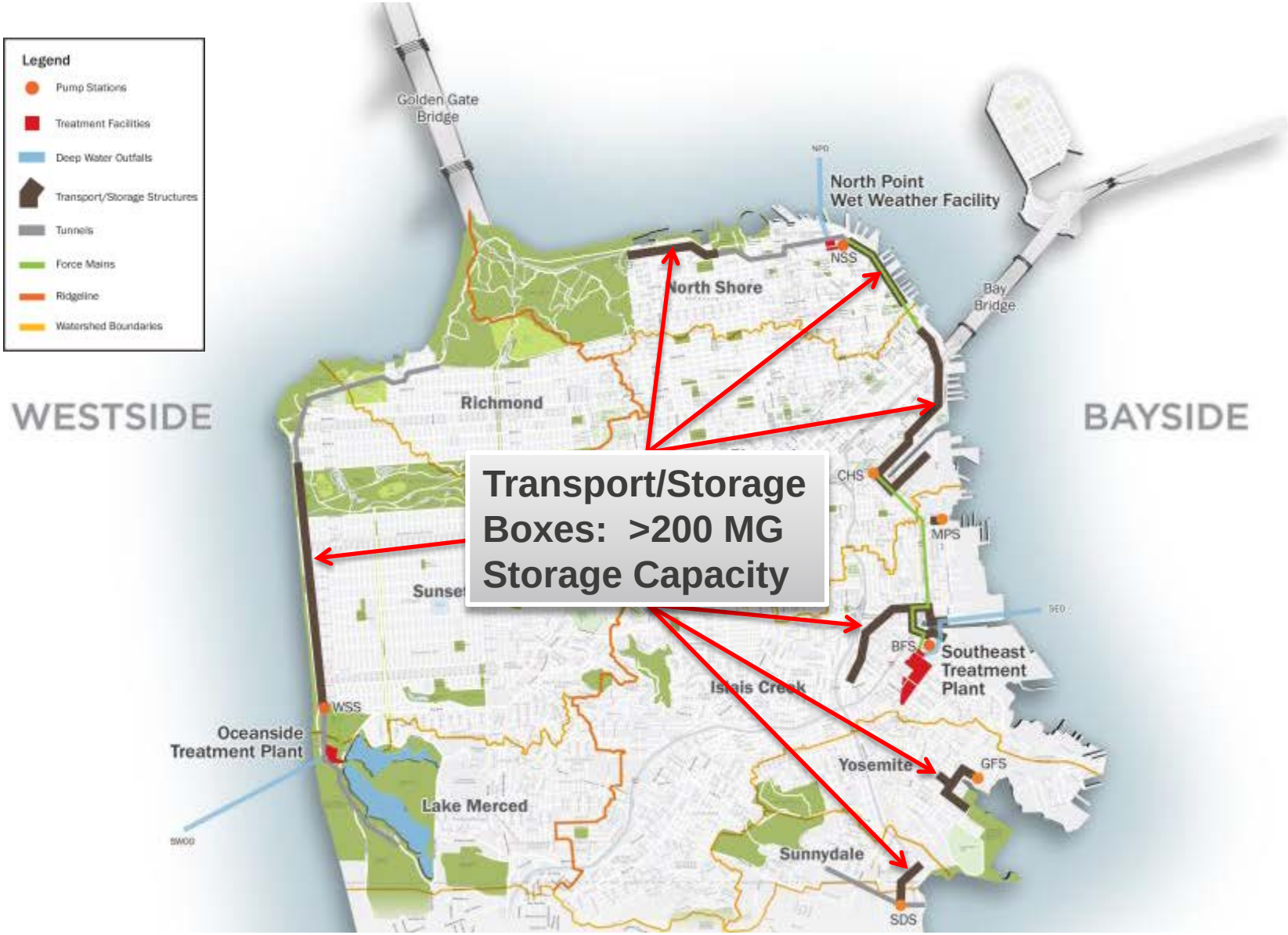
Avg. DWF: 15mgd
Wet Weather Cap.: 175mgd

Southeast Treatment Plant

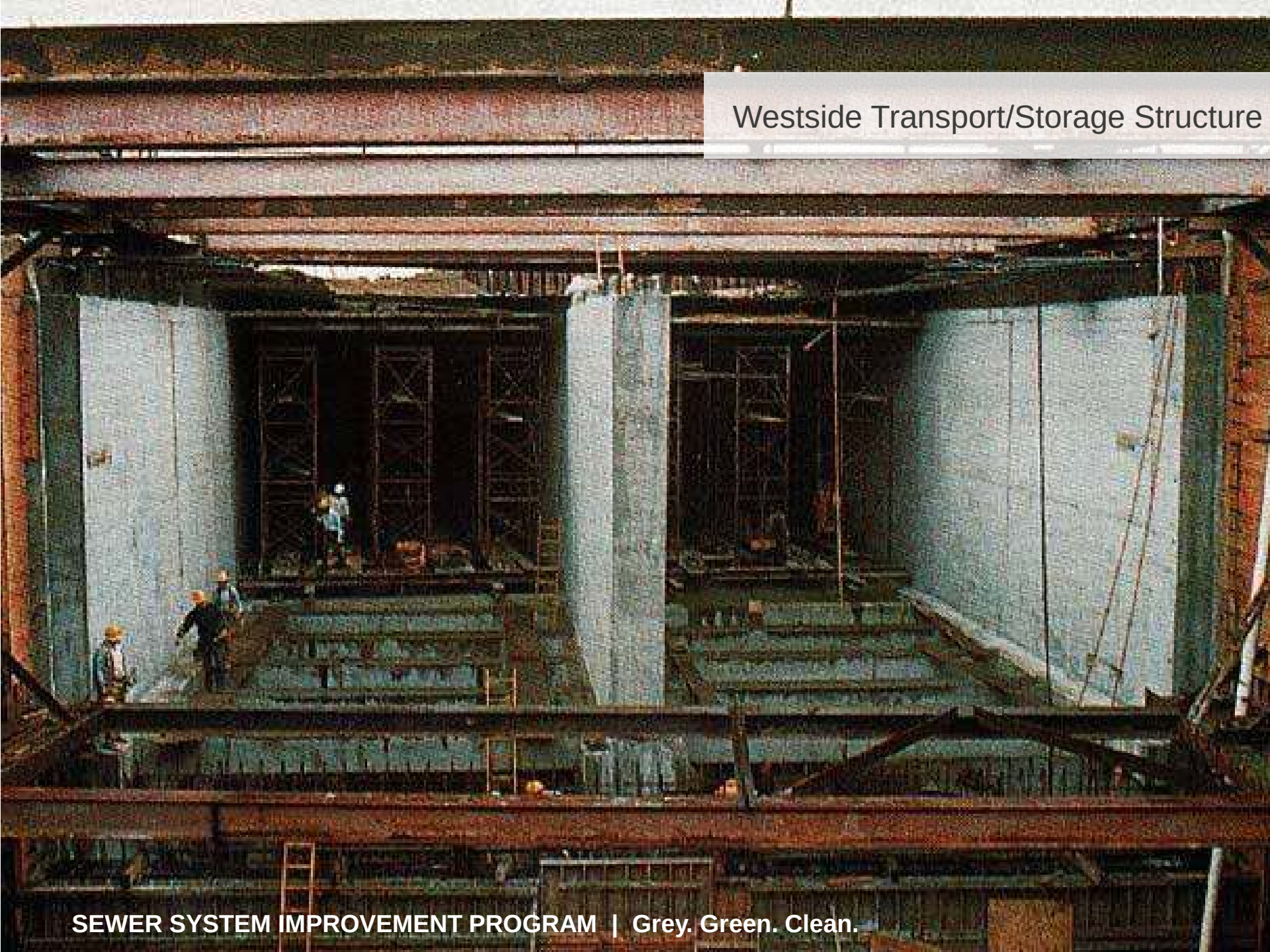
Avg. DWF: 60mgd
Wet Weather Cap.: 250mgd

100-year-old system: 1,000+ miles of pipes, 3 treatment facilities and 27 pump stations

Our Combined Sewer System



Westside Transport/Storage Structure



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OUR CHALLENGES

Aging Infrastructure

33% of our sewers are over 100 years old – dating back to the Gold Rush

Seismic Vulnerability

Southeast Plant treats 80% of the City's flow and is vulnerable to failure

Channel Force Main failed in the '89 earthquake

Aging Infrastructure

Climate Change

Combined Sewer Discharges

Localized Flooding

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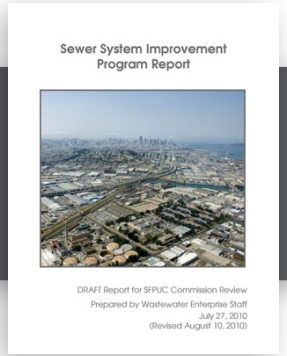
FRAMEWORK FOR CAPITAL PLANNING

Framework for Capital Planning: The Public Mandate

- **1999 – Proposition H:** Places Rate Cap on SFPUC
- **2002 – Proposition E:** Gives SFPUC Authority to Set Rates

The Public Mandate

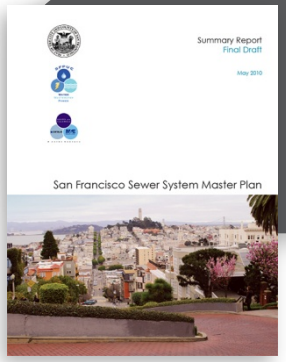
Sewer System Improvement Program
7 Public Workshops



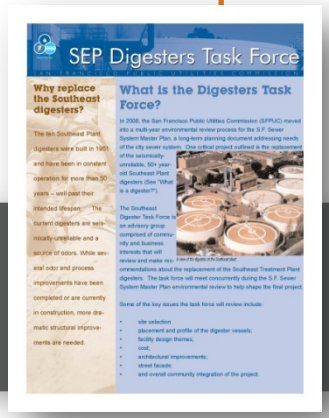
Sewer System Improvement Program Report

2005-2010 | **2009-2010** | **June 2010** | **July 2010**

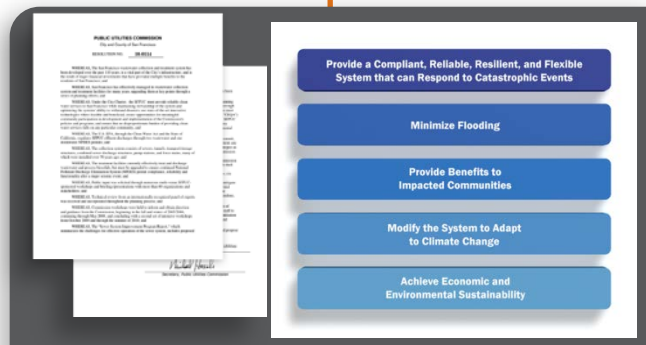
Stakeholder Input



Sewer System Master Planning Effort



Digester Task Force
18 months



SSIP Levels of Service Goals Endorsed & Resolution Adopted

Cle

The Public Mandate

Program Management Contract Award

AECOM PARSONS

SSIP Validation Process & Workshops
3 Public Workshops

Commission Authorizes Development of Phase I Projects
Representing *$2.7B*

July 2011 | **Jan 2012** | **Feb 2012** | **Aug 2012** | **May 2013**

Stakeholder Input

Central Bayside System Improvement Project Planning & Design Contract Award

MWH URS

Southeast Biosolids Digester Project Planning & Design Contract Award

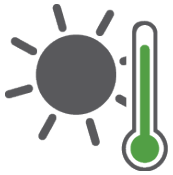
Brown AND Caldwell

Levels of Service Goals

Provide a Compliant, Reliable, Resilient, & Flexible System that **Respond to Catastrophic Events**

Integrate Green & Grey Infrastructure to **Manage Stormwater** and **Minimize Flooding**

Provide **Benefits** to Impacted **Communities**



Modify the System to **Adapt to Climate Change**

Achieve **Economic & Environmental Sustainability**

Maintain **Ratepayer Affordability**

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SEWER SYSTEM IMPROVEMENT PROGRAM

Sewer System Improvement Program (SSIP)

Grey.

SYSTEM AND SEISMIC RELIABILITY & REDUNDANCY

Green.

INNOVATIVE STORMWATER MANAGEMENT SOLUTIONS

Clean.

PROTECTING PUBLIC HEALTH & THE ENVIRONMENT

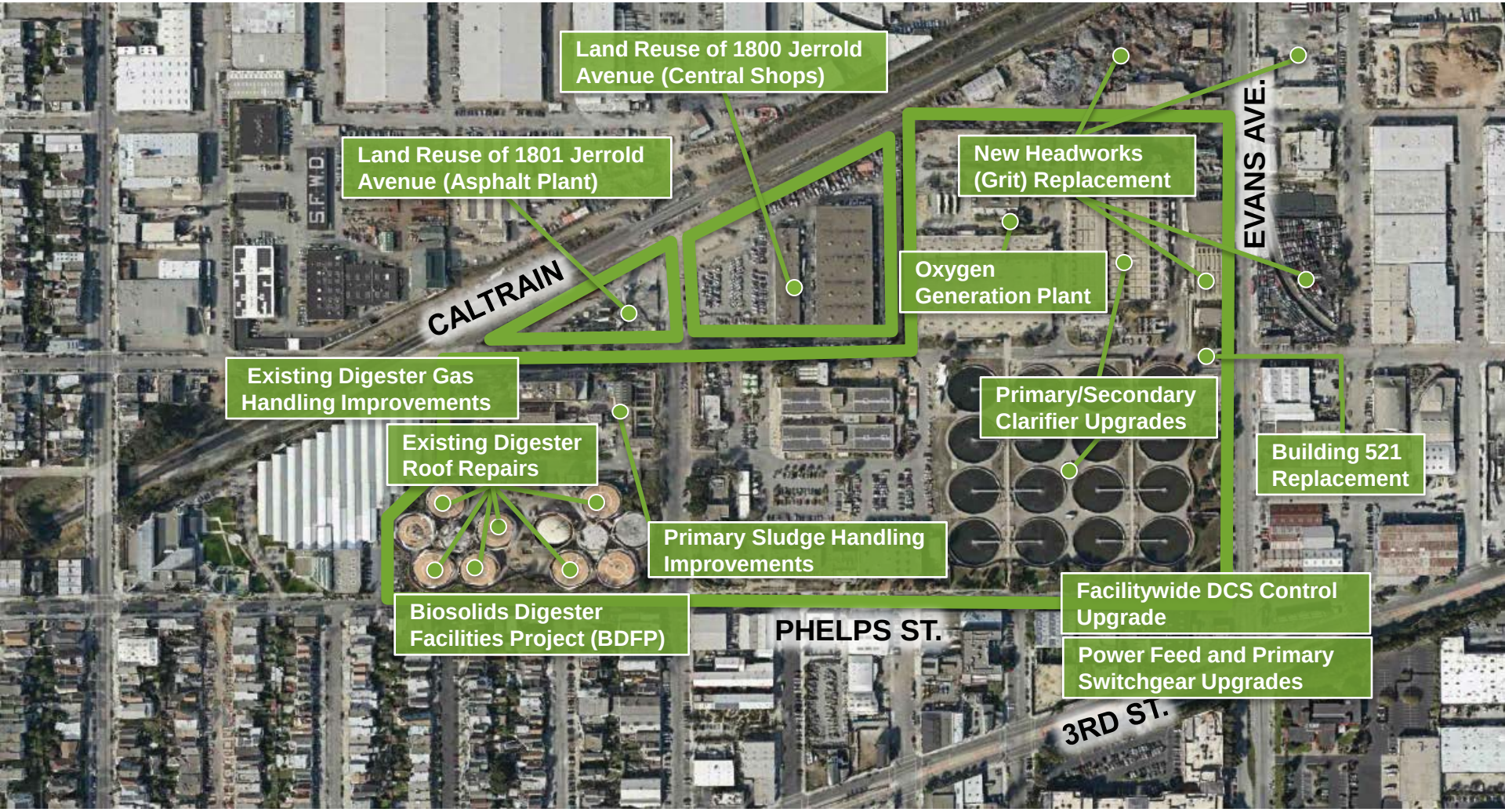
Total Program Cost

	PHASE I	PHASE II	PHASE III	TOTAL
Treatment Plants • Biosolids Digester Facilities Project • Southeast Plant Improvements • Oceanside Plant Improvements • Northpoint Facility Improvements	$2,047	$1,215	$407	$3,669
Collection System • Reliability and Operational • Green Infrastructure Projects • Central Bayside Syst. Improvements	$412	$1,928	$476	$2,816
City & Consultant Program Management	$125	$152	$43	$320
Land Acquisition	$128			$128
TOTAL	$2,712	$3,295	$926	$6,933

**All dollars in Millions*

Southeast Treatment Plant Upgrades

$1,750M



North Point Wet Weather Facility Upgrades

$113M

Oceanside Treatment Plant Upgrades

$183M

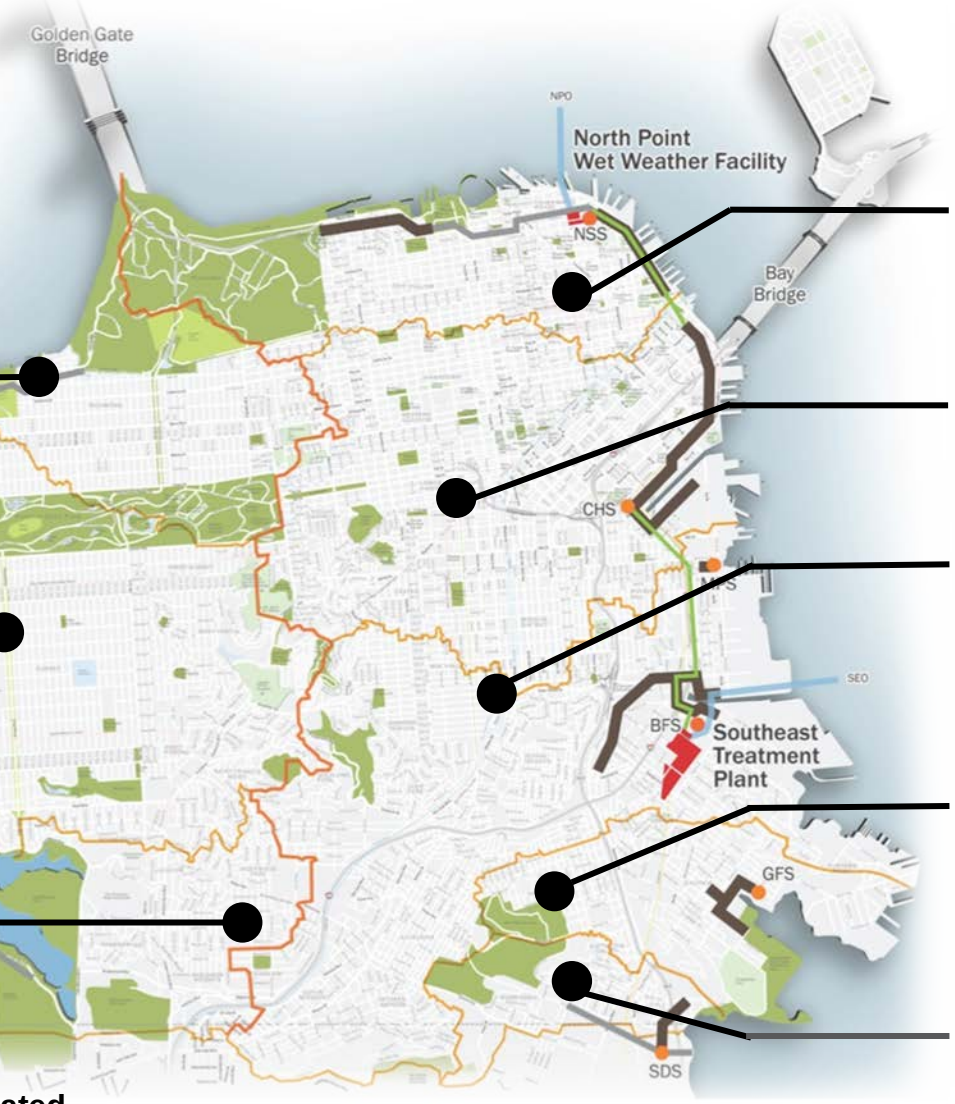
Collection System Upgrades $410M

Citywide Collection System Projects

- Advanced Rainfall Prediction
- Operational Decision System
- Large Sewers, Tunnels, and Odor Control
- Pump Stations and Force Main Improvements
- CSD Structure and Transport/Storage Boxes
- Interdepartmental Projects
- Urban Watershed Stormwater Management (Citywide)

Green Infrastructure
Early Implementation Projects (EIPs)

BUDGET:
$57M



Baker Beach Green Street
Richmond Watershed
May 2016

Sunset Blvd Greenway
Sunset Watershed
August 2015

Holloway Green Street
Lake Merced Watershed
October 2015

Chinatown Green Alley
North Shore Watershed
May 2016

Wiggle Neighborhood Green Corridor
Channel Watershed
January 2016

Mission & Valencia Streets Green Gateway
Islais Creek Watershed
November 2015

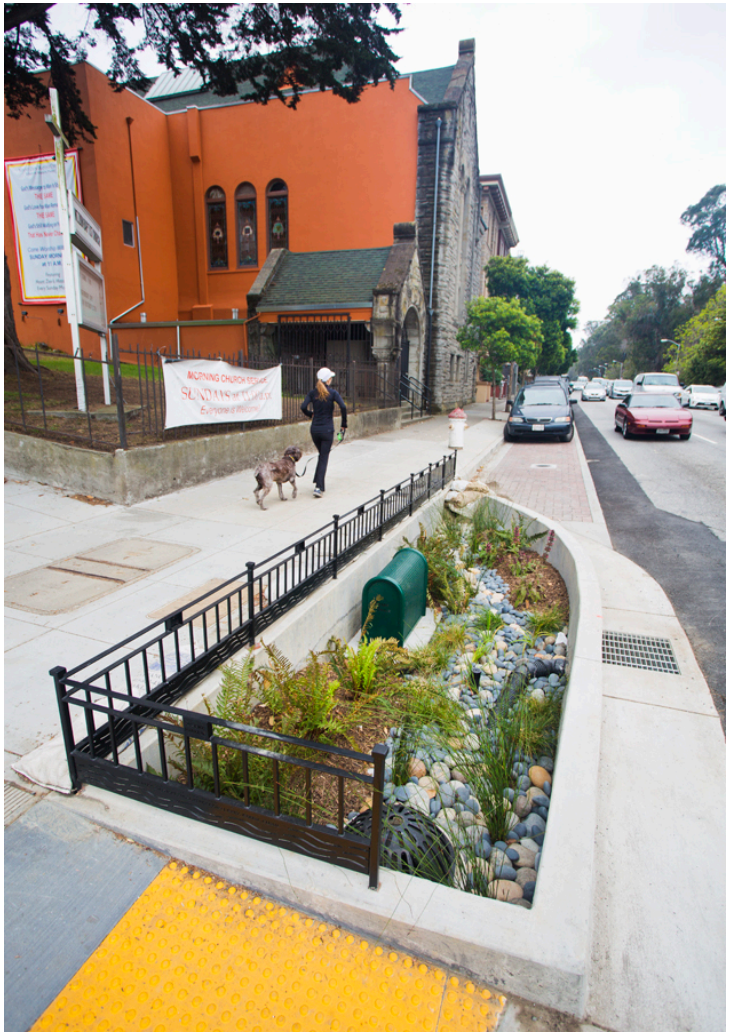
Upper Yosemite Creek Daylighting
Yosemite Watershed
July 2016

Visitacion Valley Green Nodes
Sunnydale Watershed
December 2015

***Construction Start Dates Indicated**

EIP: Wiggle Neighborhood Green Corridor Phase 1- Fell & Oak Streets

Constructed!



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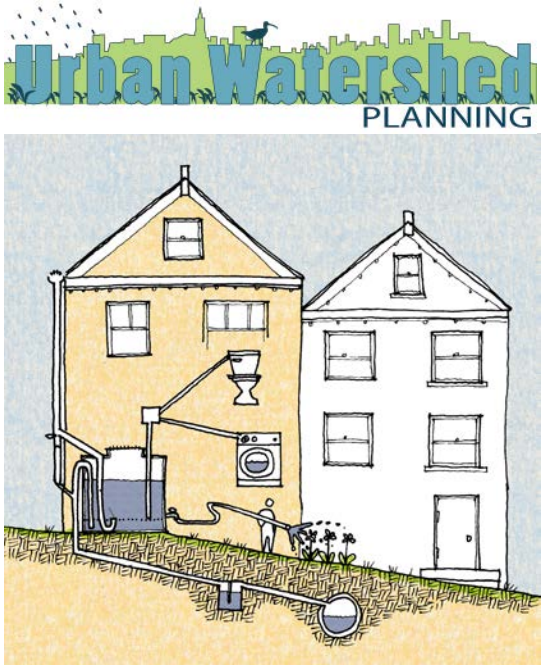
PROGRAM IMPLEMENTATION

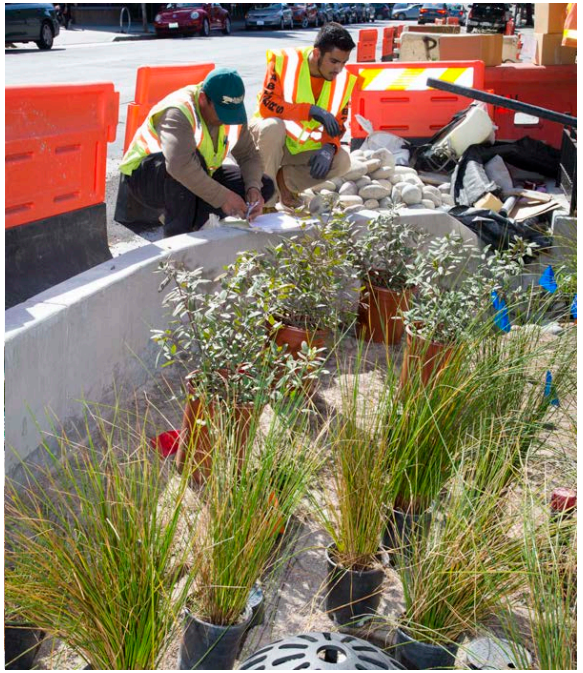
Urban Watershed Assessment Recommendations

Policies + Programs + Projects

Education, Grants, and Incentives

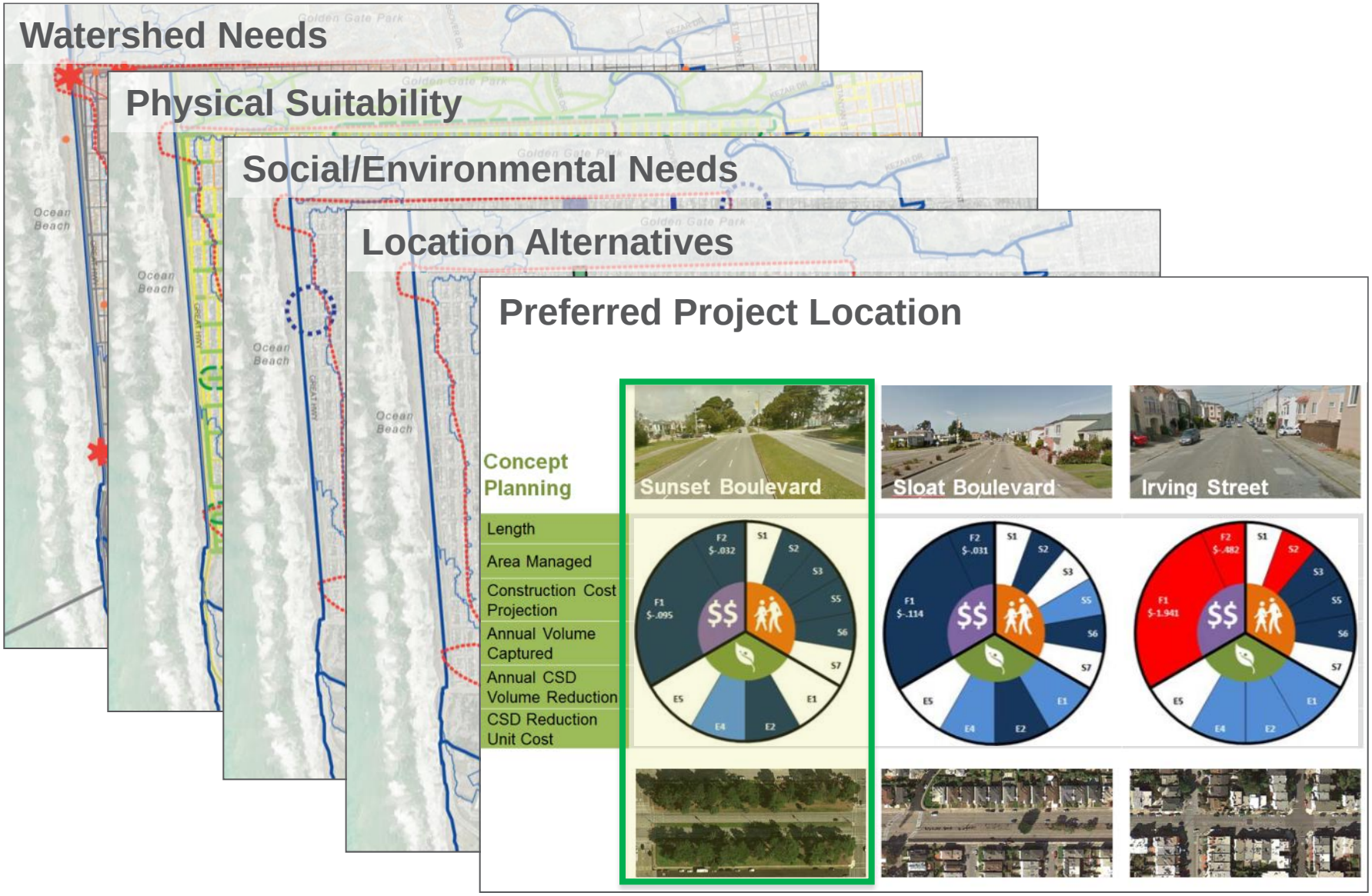


Stormwater Design Guidelines

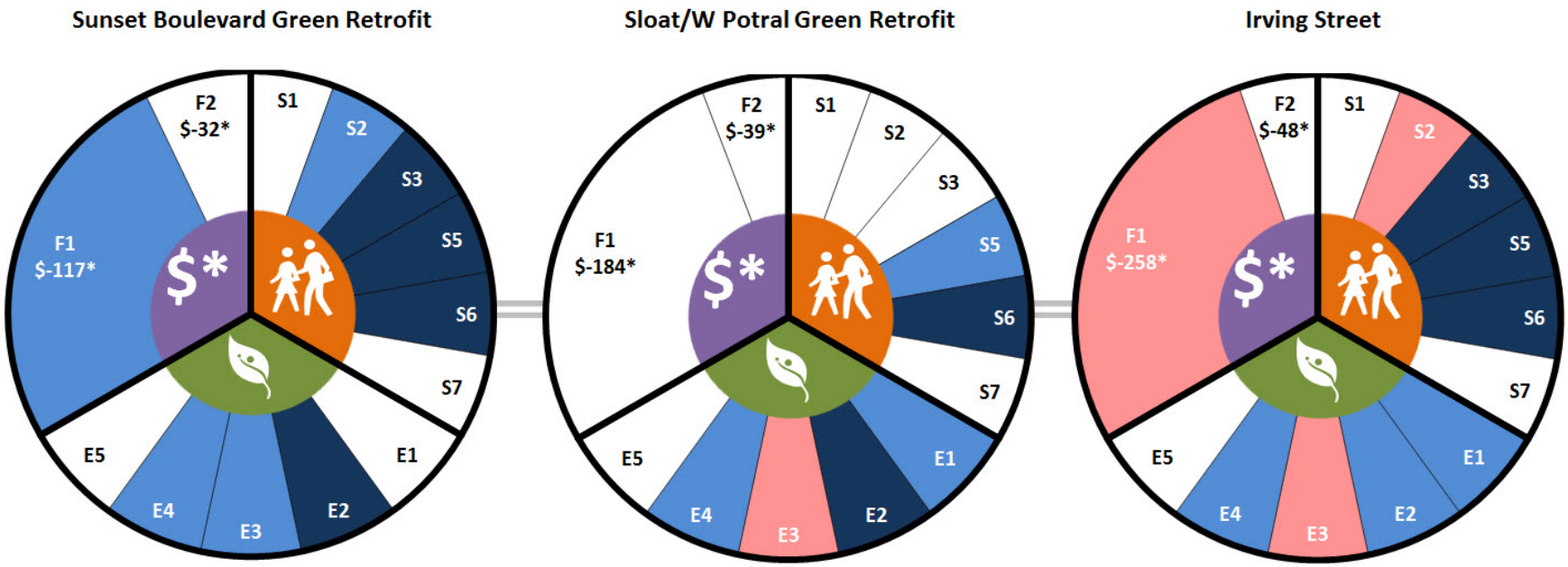


Green and Grey Infrastructure

Locating the Projects



Triple Bottom Line Analysis Sample Output



++	Significantly Positive
+	Positive
O	Neutral
-	Negative
--	Significantly Negative
N/A	Not Applicable

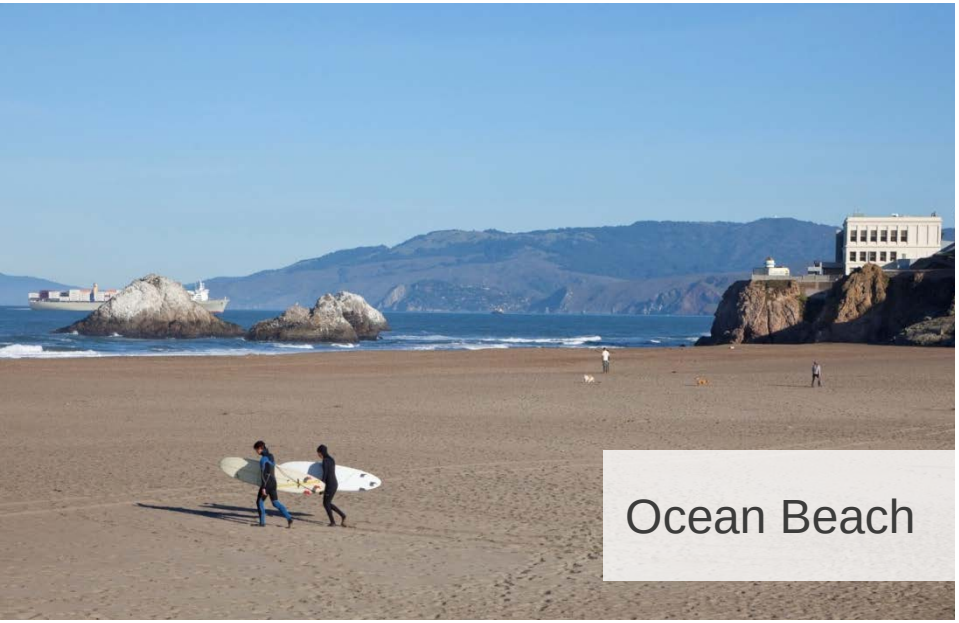
Social	
S1	System Resilience
S2	Ratepayer Affordability
S3	Bicycle & Pedestrian Environment
S4	Odors
S5	Recreation & Open Space Amenities
S6	Employment
S7	Cultural Resources
S8	Noise
S9	Construction Impacts

Environmental	
E1	Climate
E2	Habitat
E3	Water Use
E4	Water Quality
E5	Air Quality
E6	Natural Resource Inputs

$$ Financial	
F1	Annualized Capital Costs
F2	Annualized Other Costs

Note: Financial criterion ratings are based on cost effectiveness (annualized cost per annual CSD volume reduction) and select projects only.

Permit Evaluation & Future Regulations


Ocean Beach

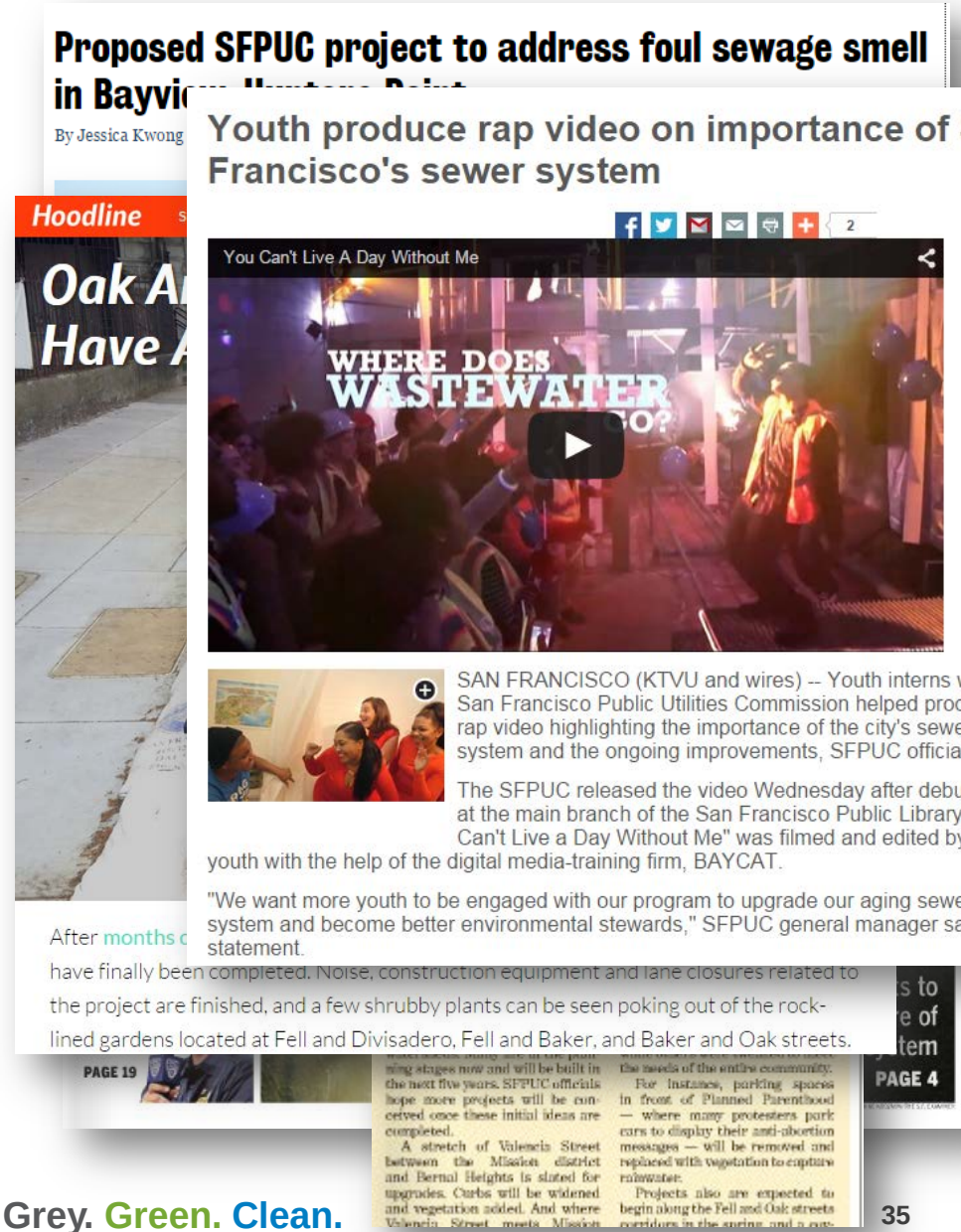
Mission Creek

Vicente CSD Structure

Division CSD Structure

Stakeholder Engagement

- Neighborhood Presentations
- Facility Tours
- Website & Social Media
- Urban Watershed Game
- Open Houses & Workshops
- Online & iPad Surveys
- Media



Conclusions

- Right projects at the right time
- The right skills at the right time
- Integrated governance structure
- Support from stakeholders
- Timely decision-making through good governance
- Balanced approach with TBL
- Risk management to foresee inevitable hurdles
- Controls systems that provide transparency, confidence and endorsement

San Francisco
Water Power Sewer

THANK YOU.

sfwater.org/ssip

ssip@sfwater.org

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