

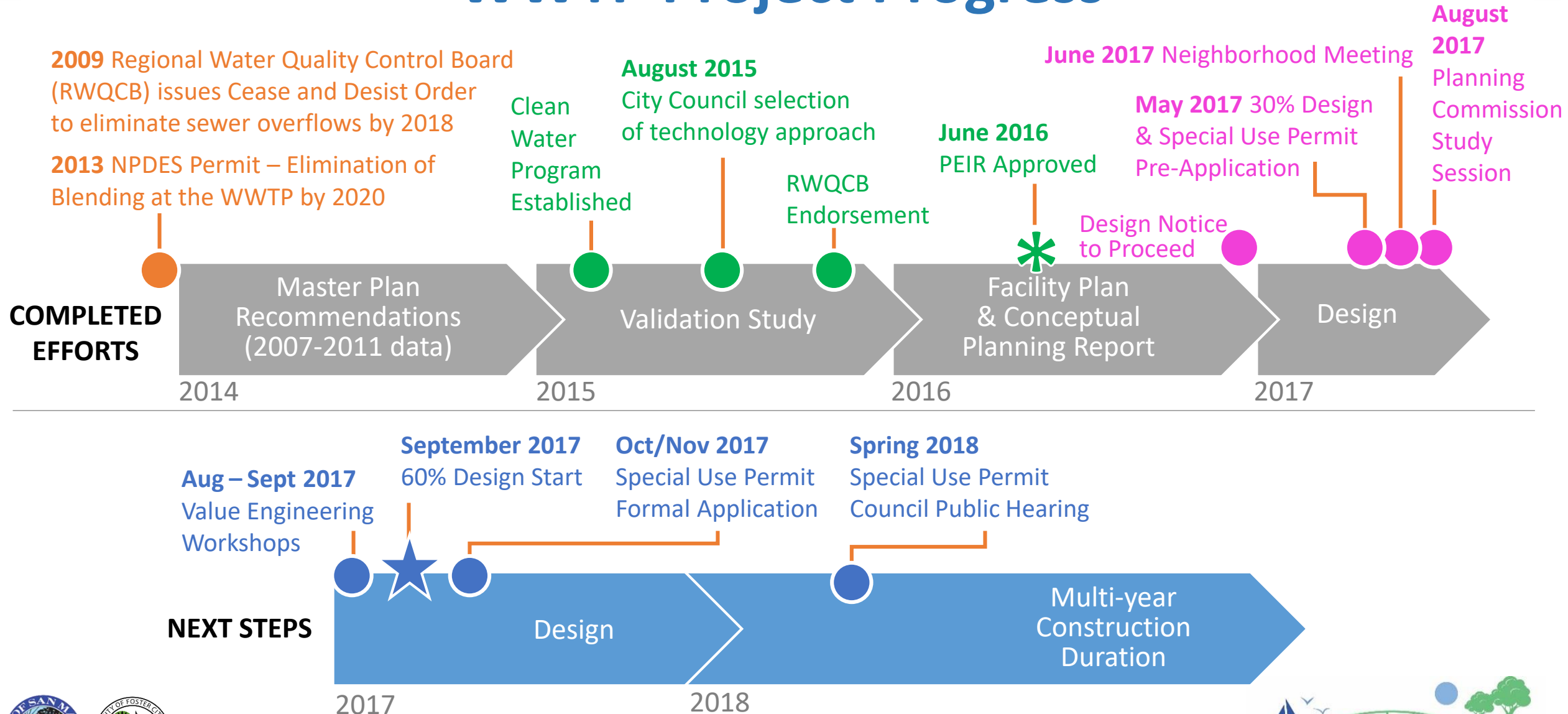


## Progress Update

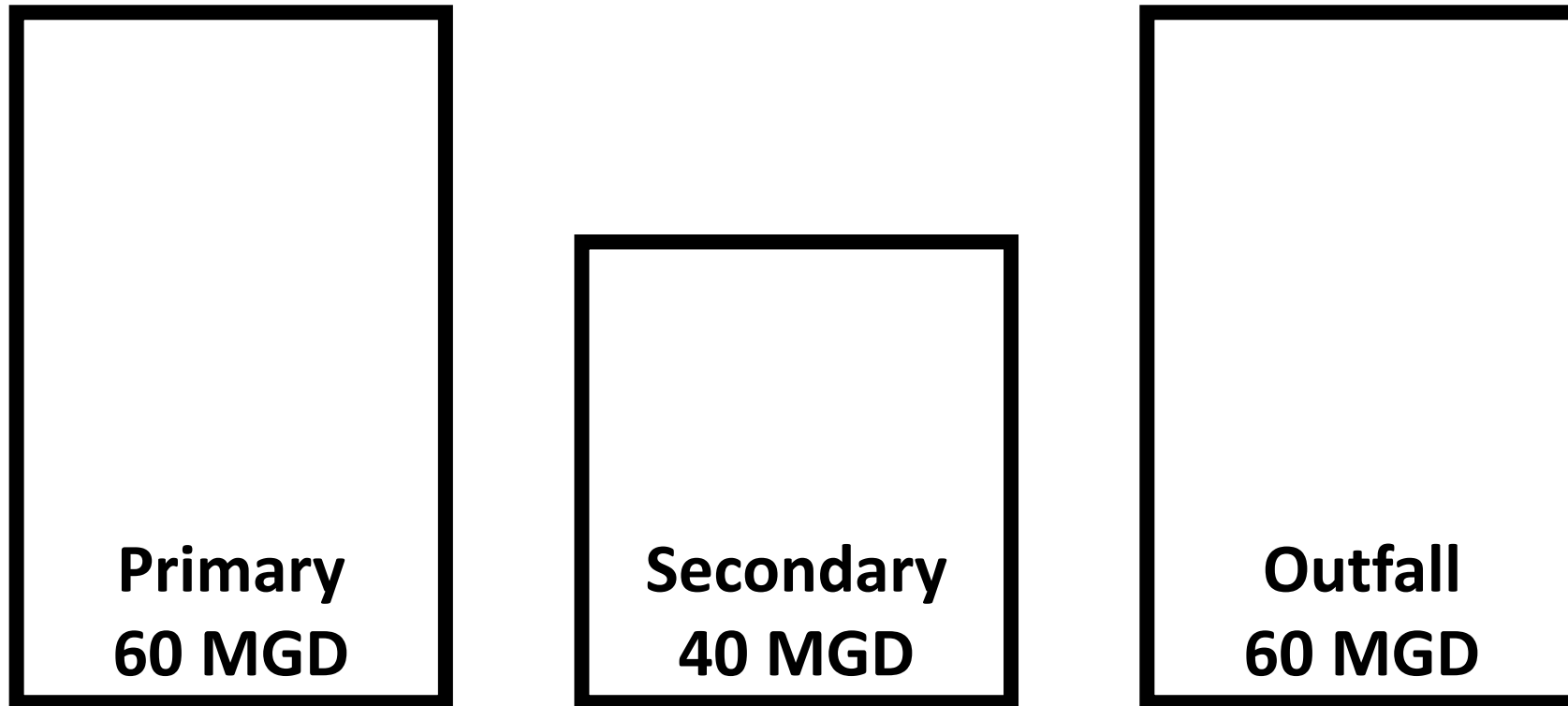
City Council Study Session  
September 18, 2017



# WWTP Project Progress



# WWTP Capacity & Blending Issues



**Existing Wastewater Treatment & Capacities**



## Flow Direction

>>>>>>>>>>>>>>



**Flow Rates Greater than 40 MGD require Blending of Primary and Secondary effluent. We are required to fully treat all effluent through the Secondary Process.**

# Influent 40 to 60 MGD



# Primary 60 MGD



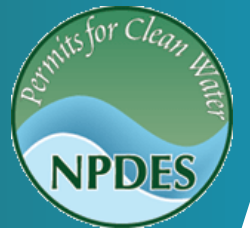
## Secondary 40 MGD



# Outfall 60 MGD



## Blended Effluent



**NOTE: Flow Rates Greater than 60 MGD may cause Sanitary Sewer Overflows (SSOs) in the Overall Wastewater System**



# WWTP Capacity & Wet Weather Flow Management

**In-System  
& On-Site  
Storage**

**NOTE: New Wet Weather Flow Management Strategy utilizes In-System Storage and Storage at the WWTP to manage flow rates greater than 60 MGD**

**New Treatment Facilities  
Primary & Secondary (Dual Use)  
60 MGD**

**Outfall  
60 MGD**

**New Wastewater Treatment & Capacities**



# WWTP Capacity & Wet Weather Flow Management

**In-System  
& On-Site  
Storage**

When necessary, Peak Wet Weather Flows greater than 60 MGD are directed into Storage to prevent SSOs.

**Influent  
60 MGD**



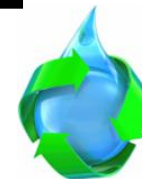
**New Treatment Facilities  
Primary & Secondary (Dual Use)  
60 MGD**



**Outfall  
60 MGD**



**Effluent**



**Water  
Reuse**





# WWTP Capacity & Wet Weather Flow Management


**In-System  
& On-Site  
Storage**

After a Peak Wet Weather Event, the stored wastewater is released for treatment before discharging into the Bay.

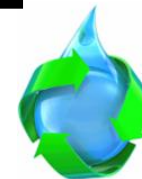
Stored Wastewater  
Released

Influent  
<60 MGD

  
New Treatment Facilities  
Primary & Secondary (Dual Use)  
60 MGD

  
Outfall  
60 MGD

  
Effluent



**Water  
Reuse**





# Replacing Aging Infrastructure

## PRELIMINARY TREATMENT

1. HEADWORKS

## PRIMARY TREATMENT



2. DUAL-USE CLARIFIERS

## SECONDARY TREATMENT (NORMAL)

3. BIOLOGICAL NUTRIENT REMOVAL (BNR)
4. MEMBRANE BIOREACTOR (MBR)

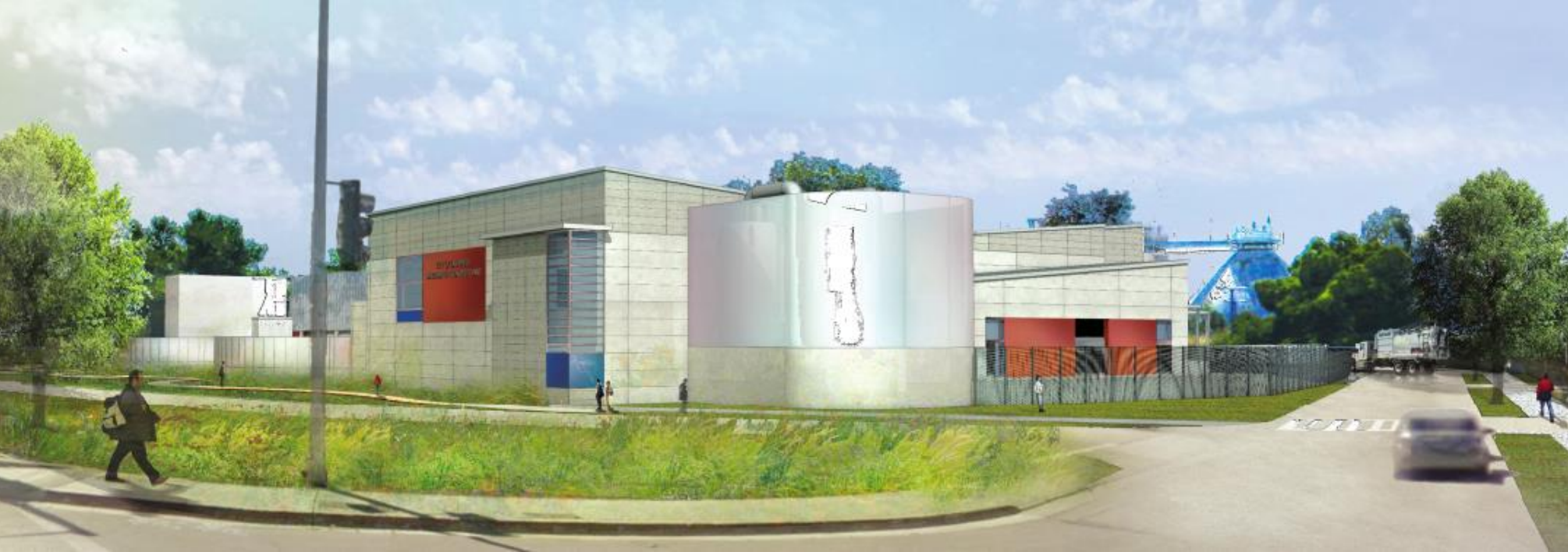
## SECONDARY TREATMENT (PEAK WET WEATHER)

5. DUAL-USE CONTACT TANK
6. FLOW EQUALIZATION BASIN
7. EXISTING DISINFECTION IMPROVEMENTS
8. ADMINISTRATION BUILDING
9. MAINTENANCE WAREHOUSE

-  New Facility
-  Existing Facility to be Replaced/Rehabbed

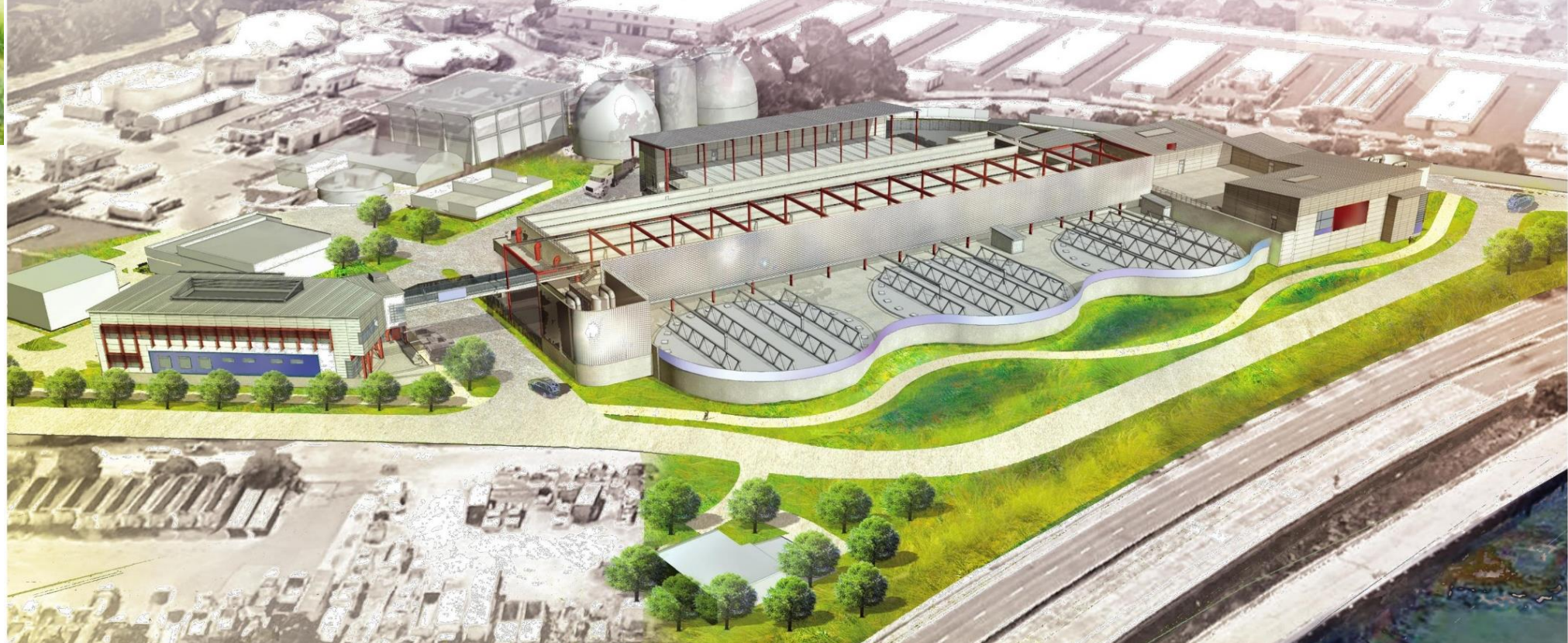


# Conceptual Renderings





# Conceptual Renderings





# Clean Water Program Drivers and Goals

## Replace Aging Infrastructure



Collection System

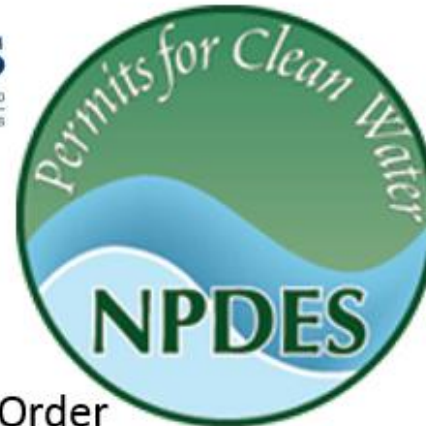


WWTP

## Provide Higher Levels of Treatment & Capacity Assurance



RWQCB Cease & Desist Order  
NPDES Permit



## Align with City's Sustainability Goals



Reusable  
**Clean Water**  
Partnerships



Institute for  
Sustainable  
Infrastructure

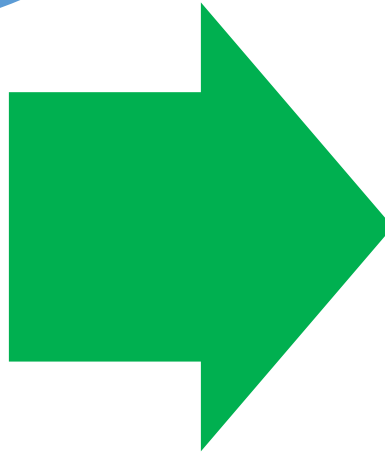


Infrastructure Sustainability Metrics



# Comprehensive Approach

Capacity & Flow  
Management  
Improvements



I/I Reduction &  
System Rehabilitation

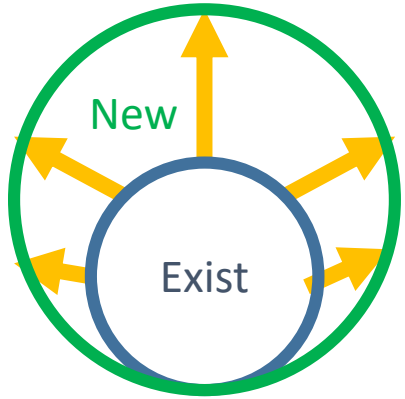
Clean Water Program  
Comprehensive  
Approach



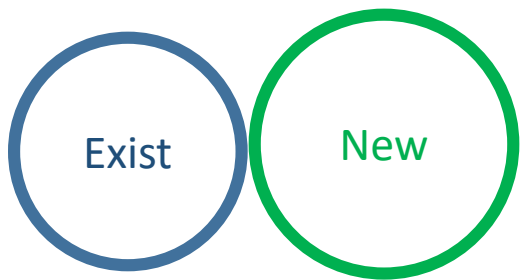


# Capacity & Flow Management Improvements

## Sewer Pipe & Pump Station Improvements



Increase  
Diameter



New Parallel  
"Relief"



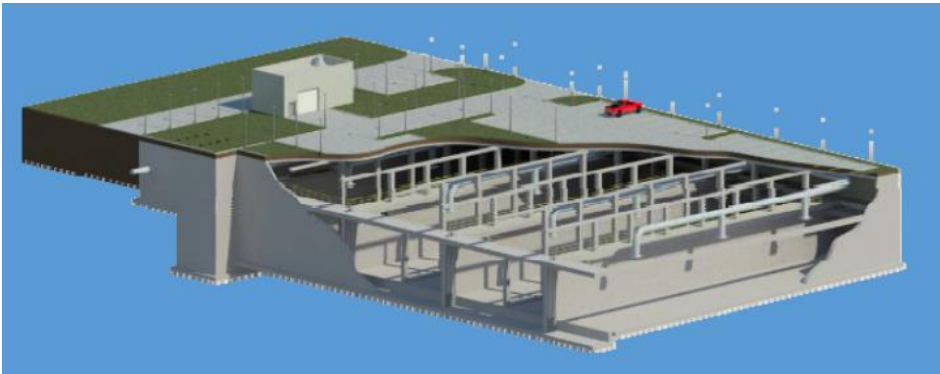
### Optimize Pump Stations



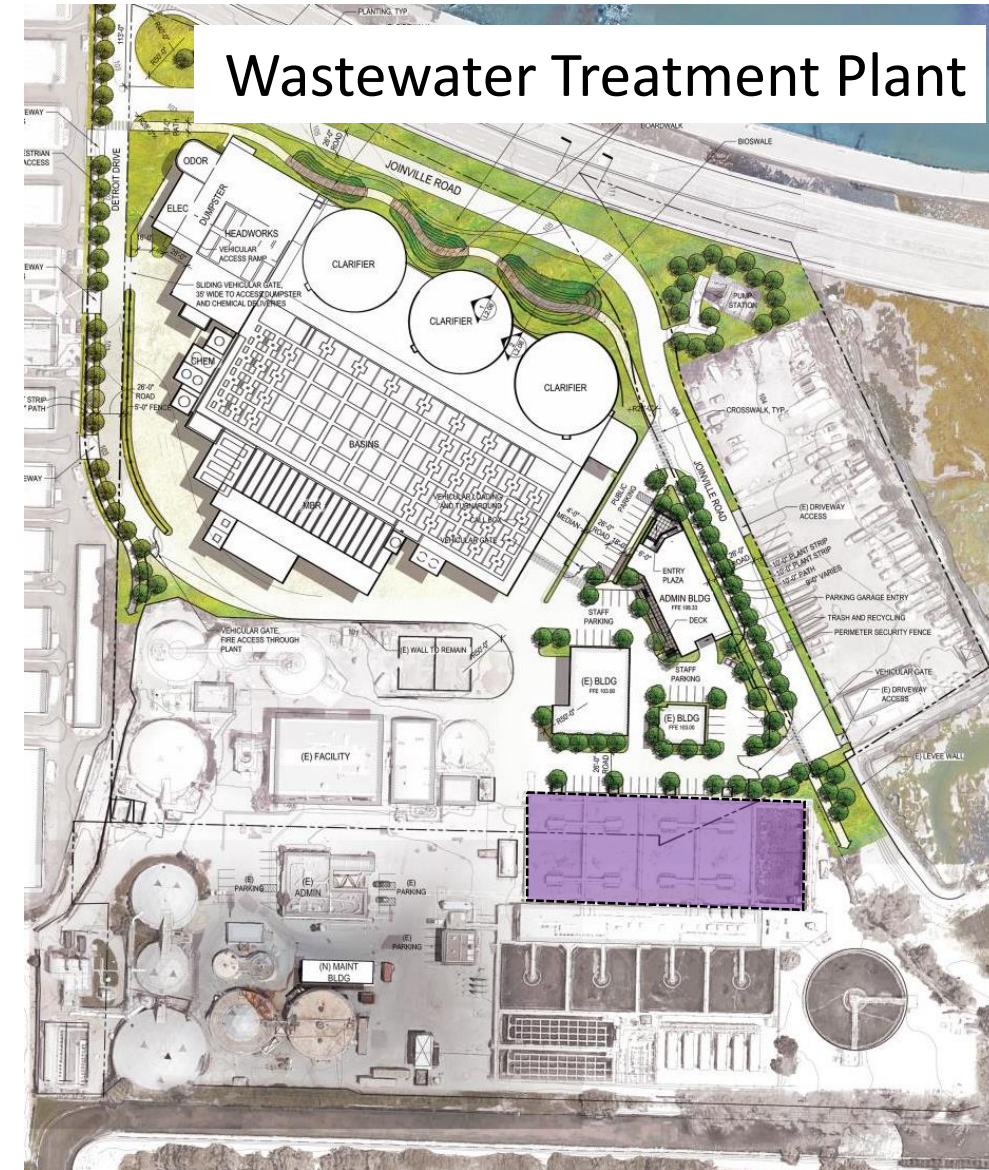


# Capacity & Flow Management Improvements

## New Underground In-System Storage & WWTP Upgrades



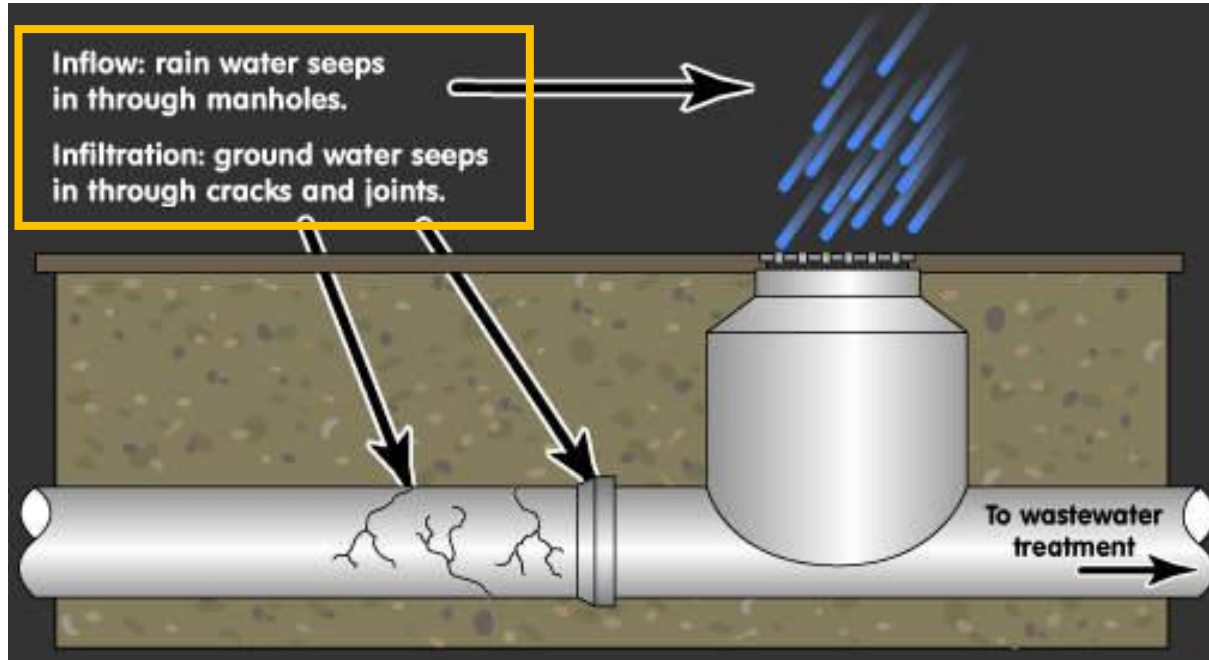
### Underground In-System Storage Facility



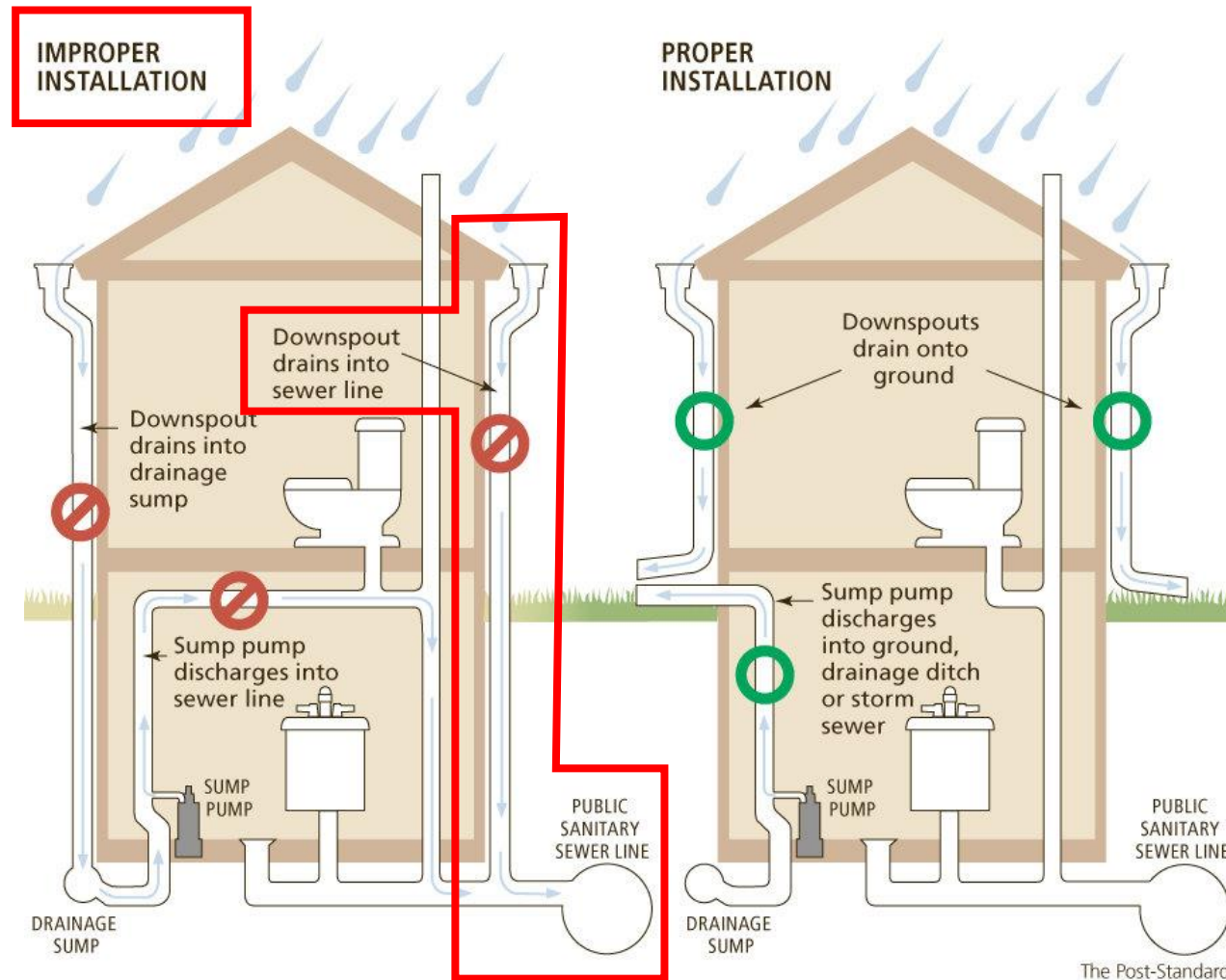


# Sources of Inflow/Infiltration (I/I) and Contributors to SSOs

## FAILURES & OPENINGS IN SYSTEM



## UNAUTHORIZED CONNECTIONS

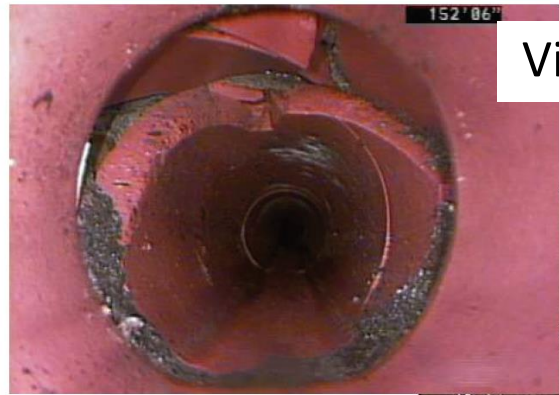




# I/I Reduction and System Rehabilitation

## Cleaning, Video Investigation, Root Foam, Rehab & FOG Reduction

Video Inspections



Cracked & Offset Pipe



Rain & Groundwater Infiltration



Root Intrusion in Pipe



Pipe Spot Repairs



Pipe Lining



Fat, Oils, Grease Reduction

**Stop!!**

Pouring cooking oil or grease into your sink is prohibited!

**DON'T**

- Don't pour cooking oil, grease or greasy food down the drain.
- Don't use hot water and soap to wash grease down the drain! It will cool and harden in the sewer line.

**DO**

- Pour cooled grease into disposable containers or directly into the garbage if it has hardened.
- Use a paper towel to wipe away any residual grease or oil on dishes, pots or pans before washing them.

**City of San Mateo**  
Public Works Department  
Environmental Services Division

**Grease**

Was Removed From Sewer Lines In Your Area!

**Prevent Sewer Overflows**

Keep Fats, Cooking Oil & Grease out of your drains. Over time, grease buildup can clog the entire sewer line.

For more information  
Call  
(650)522-7300



Pipe Replacement





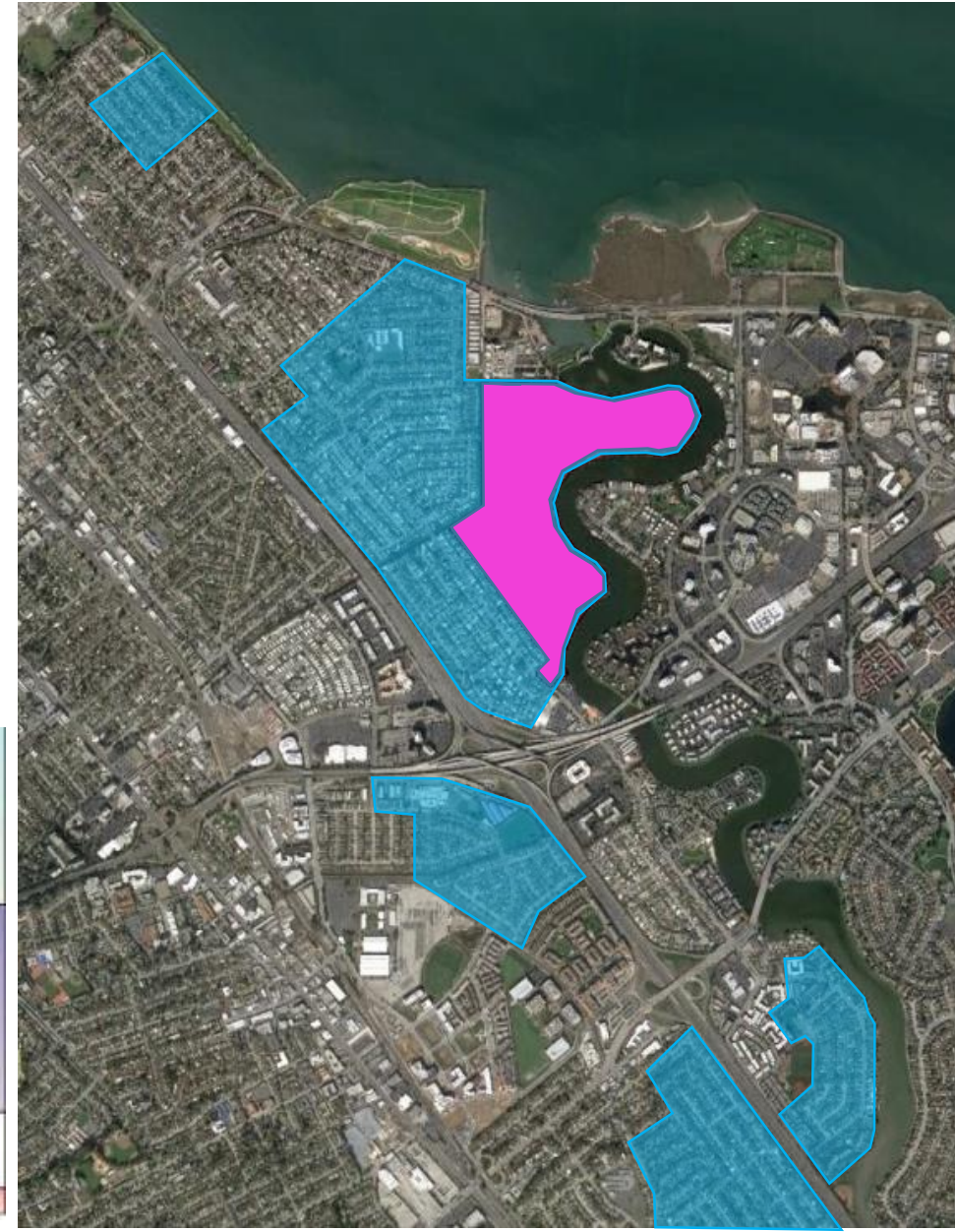
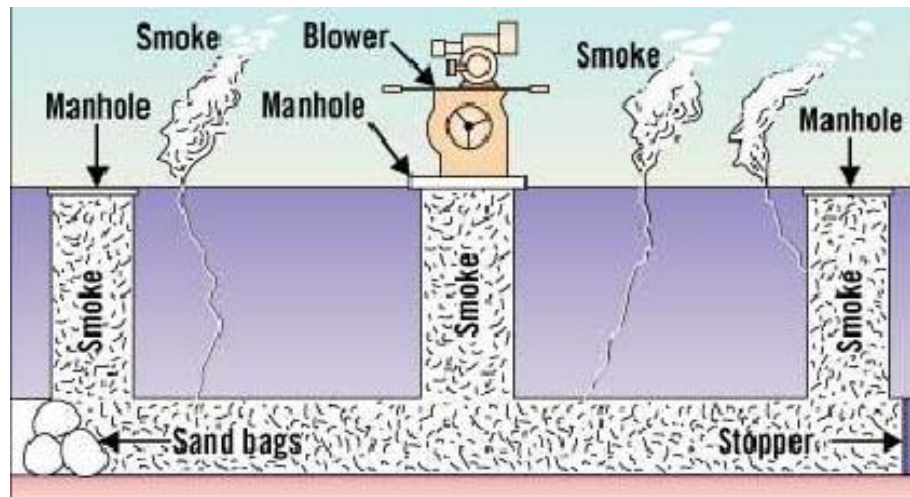
# I/I Reduction and System Rehabilitation

## Study and Pilot Projects

- I/I Study
  - *Investigations & Data Analysis*
- I/I Reduction Pilot Projects
  - *Investigations and Smoke Testing*
  - *Rehabilitation Approach Determination*



Smoke Testing  
Failure Identification



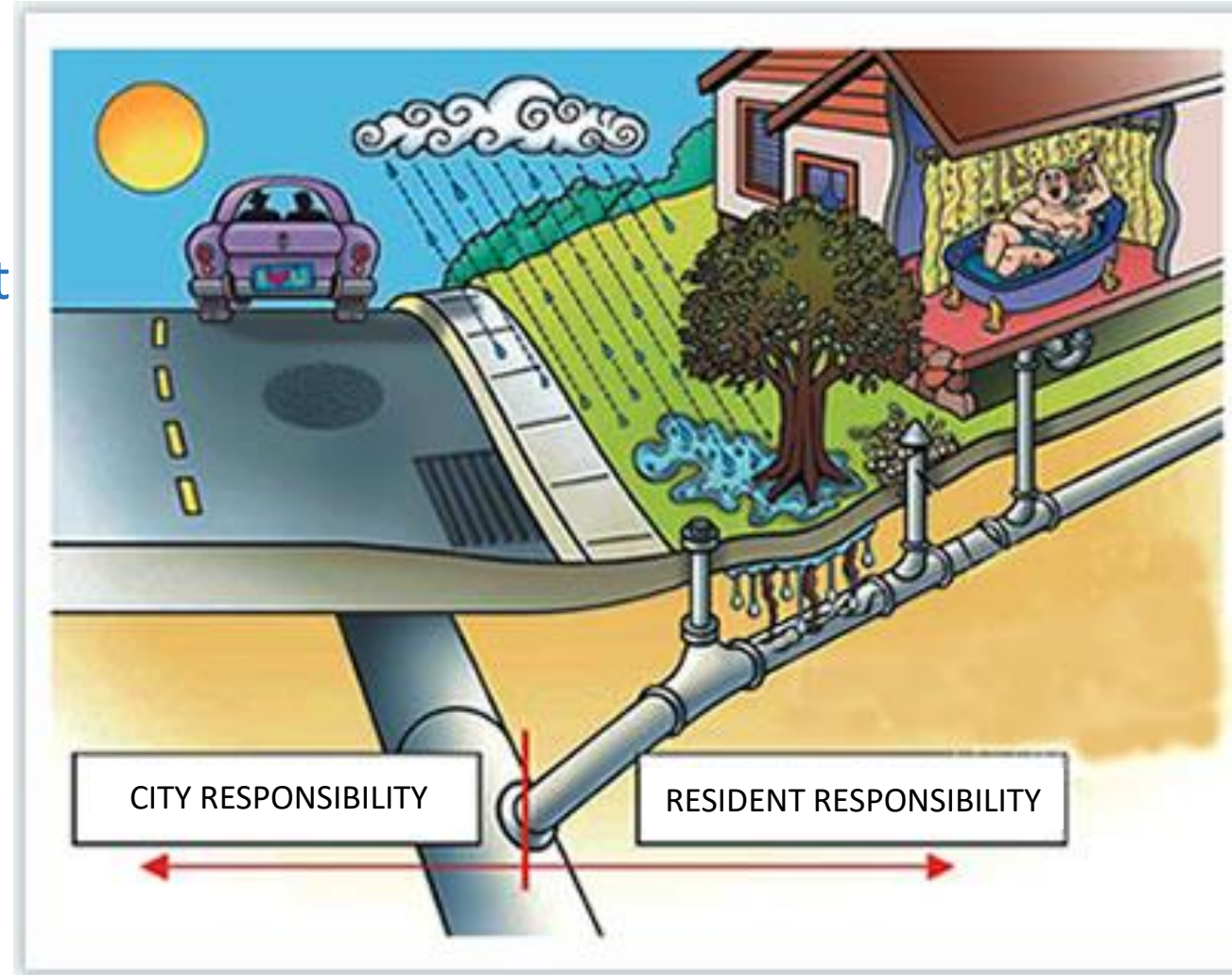


# I/I Reduction and System Rehabilitation

## Private Sewer Lateral Replacement Program

- City grants to property owners for 50% of the cost of a full sewer lateral replacement with a maximum grant of \$5,000
- Annual Budget: \$500,000
- FY 16/17: 157 Applicants; 130 Replaced
- FY 17/18: 86 Applicants; 84 Approved\*

\*as of 9/13/17, with budget still remaining



# Adding to the Tool Box

## Enhanced I/I Reduction Tools

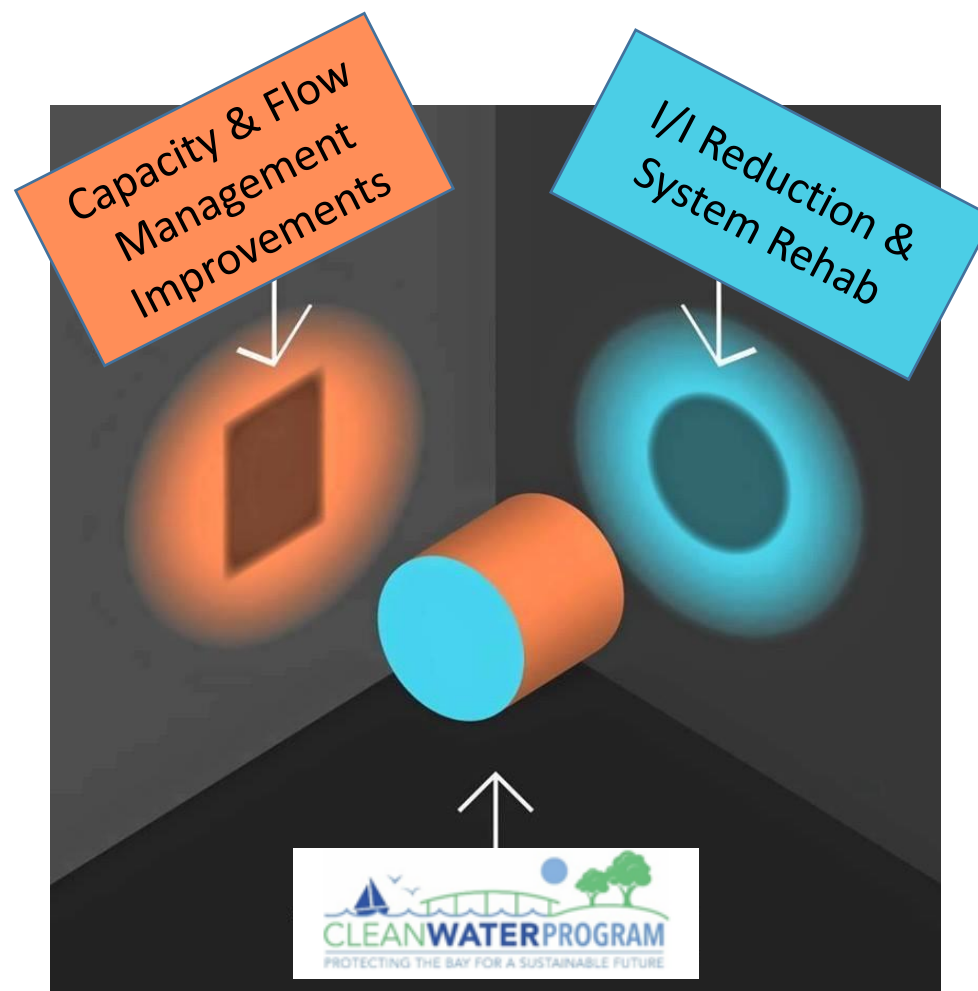
- 🔧 Optimize Private Sewer Lateral Replacement Program
- 🔧 Pursue Point of Sale Lateral Ordinance
- 🔧 Identify/address unauthorized connections to the sewer system



**I/I reduction increases protection against SSOs**



# Comprehensive Approach Addresses Multiple Perspectives



**One Perspective Does Not Substitute the Other**





# Questions & Feedback



Checkout  
the Updated  
Website

[www.CleanWaterProgramSanMateo.org](http://www.CleanWaterProgramSanMateo.org)

