



# Major Factors Impacting Development of New 5-year Capital Improvement Program

Special Board of Directors Meeting  
March 30, 2022



TRANSFORMING WASTEWATER TO RESOURCES

# District Strategic Plan (Aug 2021)

## Goal 1 Infrastructure Investment

Ensure the long-term effectiveness and reliability of critical District infrastructure through prioritized, cost-effective capital investment and maintenance

### Key Highlights

- Conduct and integrate **infrastructure** condition assessment, master planning, and CIP prioritization
- Develop **strategic, risk-based Asset Management Program**
- Ensure effective capital project delivery (**engagement, lifecycle costs, risk assessments, lessons learned, defined roles and responsibilities**)

Strategies – 4, Objectives – 12, KSI's – 6

### Goal 1 Infrastructure Investment (cont'd) DRAFT

Ensure the long-term effectiveness and reliability of critical infrastructure through prioritized, cost-effective capital investment and maintenance

#### STRATEGY

##### Key Objectives

- Ensure infrastructure condition assessment, master planning, and CIP prioritization
- Develop strategic, risk-based Asset Management Program

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### Goal 1 Infrastructure Investment DRAFT

Ensure the long-term effectiveness and reliability of critical infrastructure through prioritized, cost-effective capital investment and maintenance



**STRATEGY NO. 1** Identify existing infrastructure vulnerabilities and long-term planning considerations (e.g., service area growth, regulatory requirements, new technologies) that drive future investment in new and existing infrastructure

#### Key Objectives

- Conduct periodic infrastructure condition assessment activities and document findings in the wastewater conveyance ("linear assets," including pump stations, gravity sewers, and force mains) and treatment ("vertical assets," including WWTP, RWF) systems, using multi-faceted evaluation methods
- Prepare comprehensive master plans for major infrastructure focus areas that include infrastructure condition assessments, prioritized capital investment needs, service area growth considerations, and opportunities to improve operating effectiveness and efficiency through new processes or technology

**STRATEGY NO. 2** Meet operational needs, support reliability goals, and extend asset life through continued development and implementation of a formalized, risk-based Asset Management Program

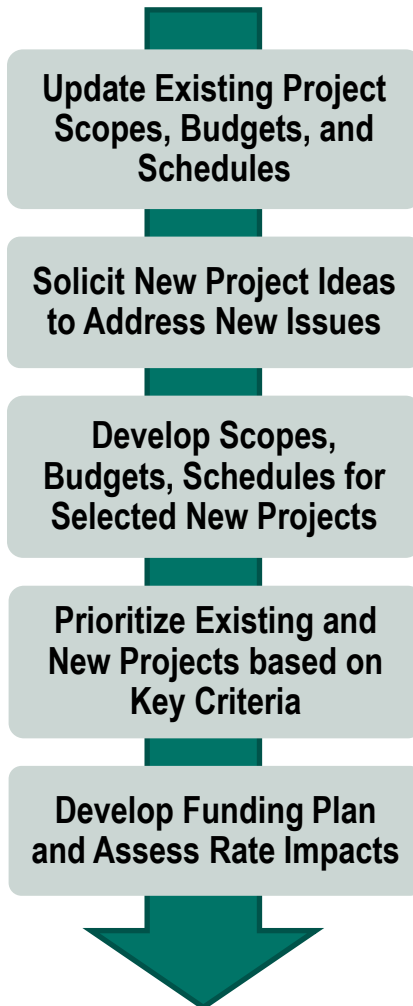
#### Key Objectives

- Expand utilization of computerized maintenance management systems (CMMS) and formalized workflow changes to support reliability-based asset maintenance activities and data-driven decision making
- Utilize an action-based, strategic approach with clear goals, objectives, roles, and responsibilities to support successful Asset Management Program implementation



# Overview

## CIP Development Process



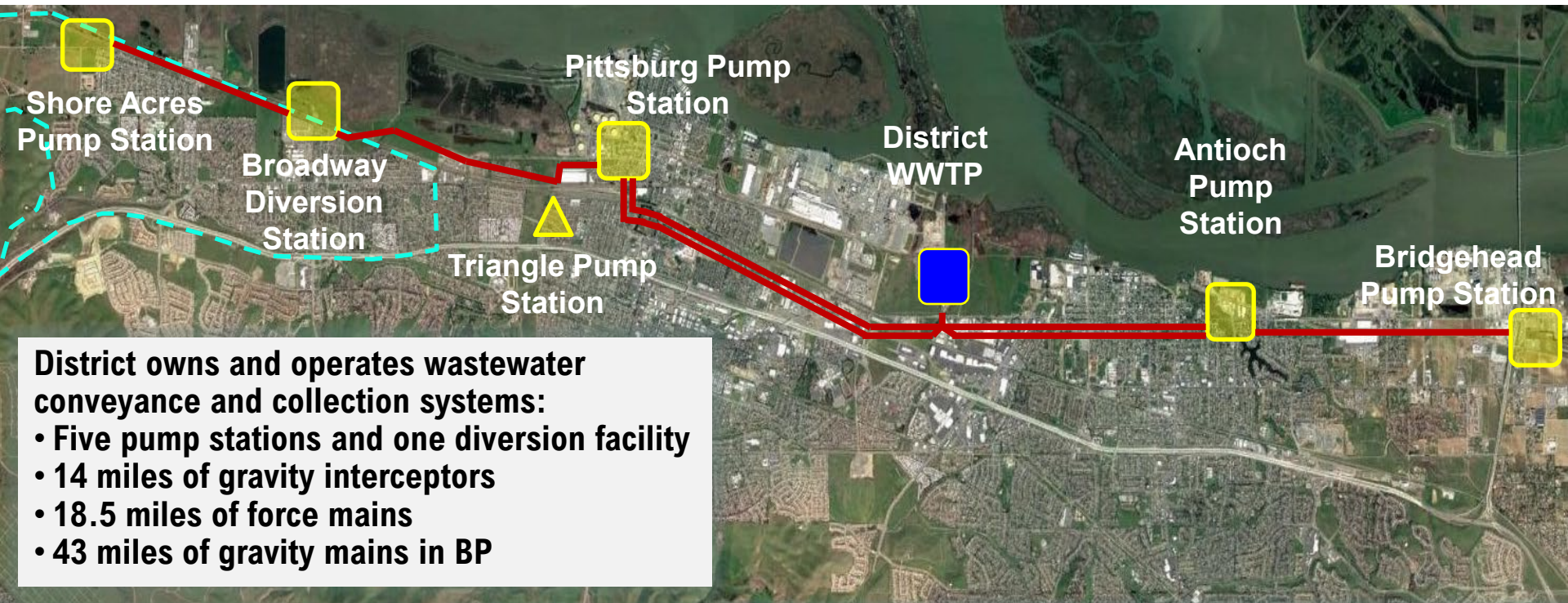
- Current 5-year CIP (FY21/22-FY25/26) = **\$127.0M**
- New 5-year CIP (FY22/23-FY26/27) ~ **\$134.0M**
- **Presentation Goal:** Highlight key factors impacting CIP development by major asset area
  - ❶ **Wastewater Collection System**
  - ❷ **Wastewater Conveyance System**
  - ❸ **Wastewater Treatment Plant**

### Key CIP Focus Areas

- Supporting Strategic Plan implementation
- Investing in existing wastewater infrastructure renewal
- Addressing new infrastructure needs
- Adapting to shifting project priorities and changes
- Integrating key asset management principles
- Driving organizational improvement
- Planning for the future



# Infrastructure Condition Assessment Collection/Conveyance Systems



**District owns and operates wastewater conveyance and collection systems:**

- Five pump stations and one diversion facility
- 14 miles of gravity interceptors
- 18.5 miles of force mains
- 43 miles of gravity mains in BP

**District Staff Condition Assessment [2013-2017]**

- 36 miles of gravity mains in BP
- 627 feet of gravity interceptors

**Facility Condition Assessment (FCA) Phase 1 [2018]**

- 2 miles of gravity mains in BP
- 3 miles of gravity interceptors
- 219 manholes (1,121 total)
- 17 miles of force mains (desktop)

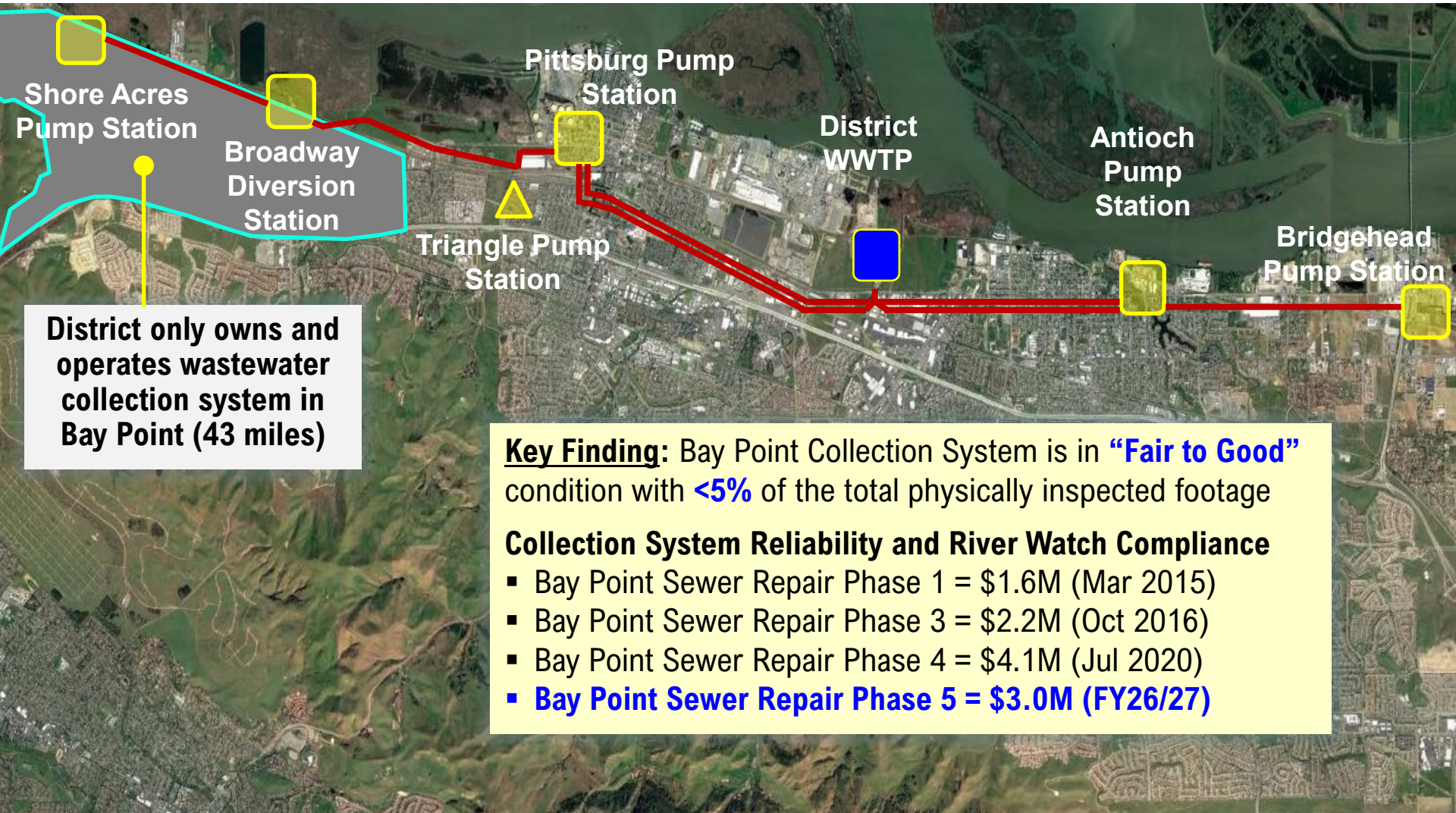
**FCA Phase 2 [2021]**

- 5 miles of gravity mains in BP
- 6 miles of gravity interceptors



# Infrastructure Investment

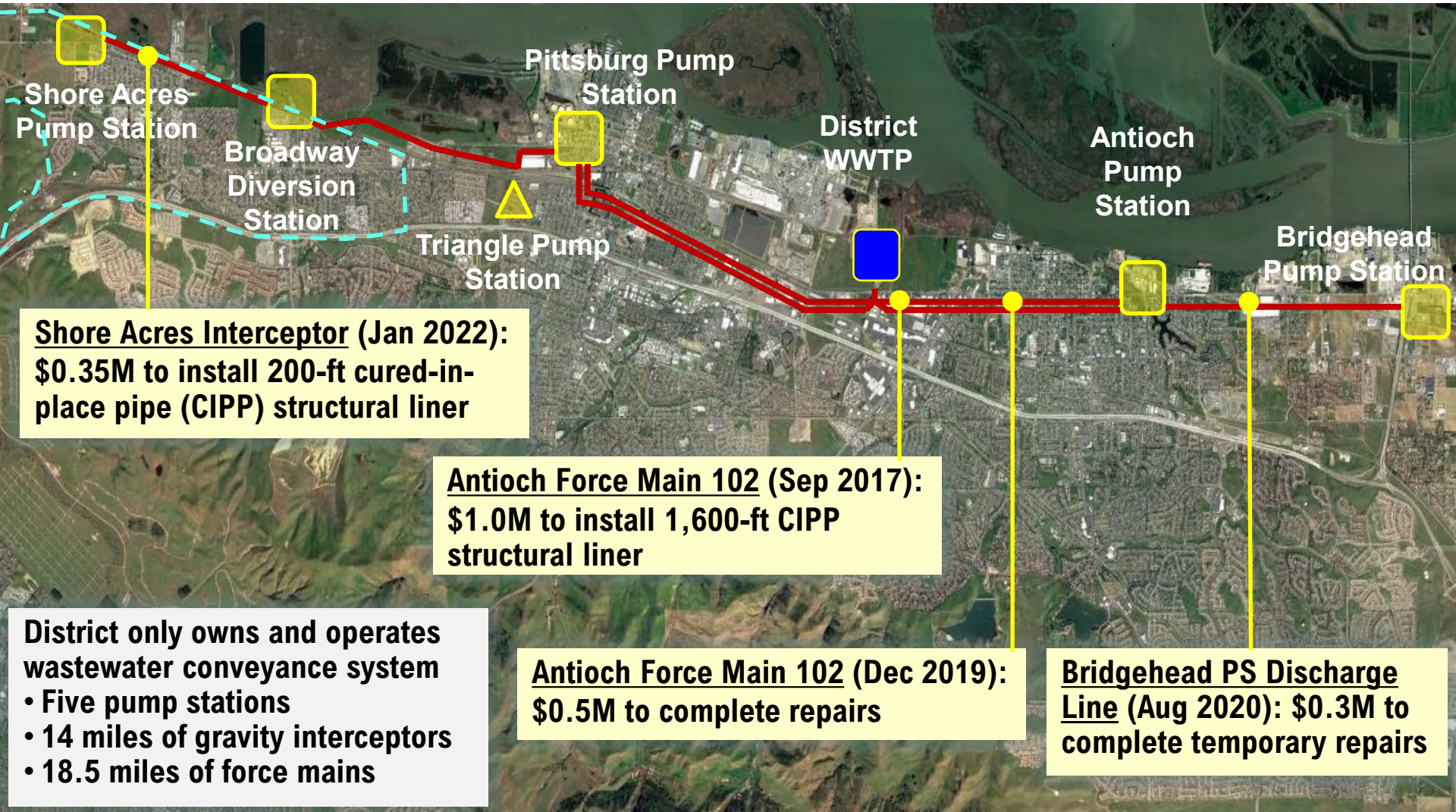
## ① Wastewater Collection System





# Recent Infrastructure Failure Events

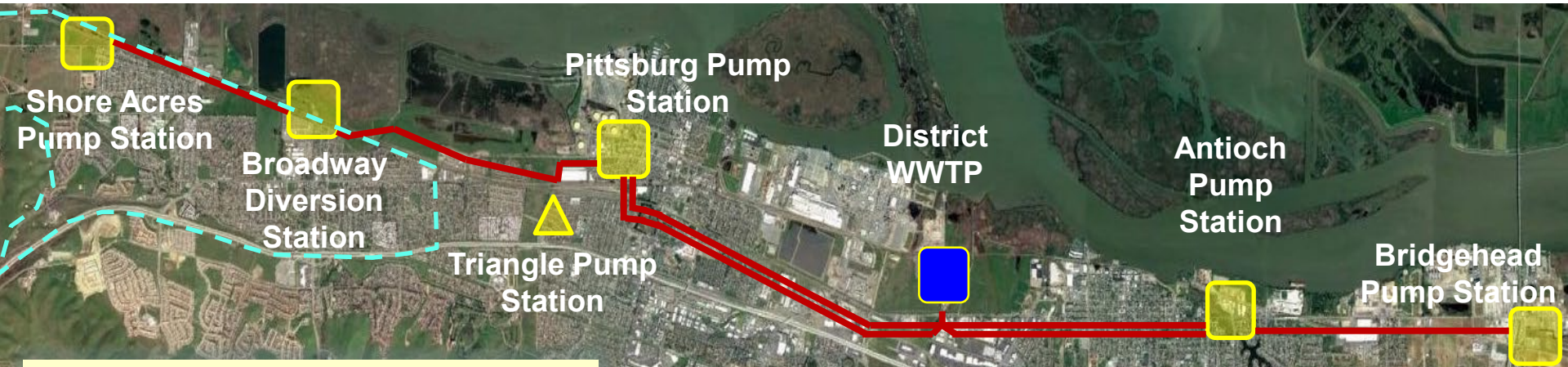
## ② Wastewater Conveyance System





# Infrastructure Investment

## ② Wastewater Conveyance System



**Manhole, Gravity Interceptor, Easement Roadway Improvements (FY22/23): \$1.2M** to address infrastructure needs, **assess sewer condition**, and improve access to critical assets in Shore Acres system

**Pump Station Facilities Repair (in progress, 90% complete): \$14.7M** to address infrastructure needs at five pump stations

**Bridgehead Replacement Project (in progress): \$3.5M** to address infrastructure needs in Bridgehead conveyance system

District only owns and operates wastewater conveyance system

- Five pump stations
- 14 miles of gravity interceptors
- 18.5 miles of force mains

**Antioch Pump Station/Conveyance System Improvements (FY23/24-FY26/27): \$18.5M** to address infrastructure needs and improve operational configuration and flexibility

# Infrastructure Investment

## ③ Wastewater Treatment Plant



### Completed

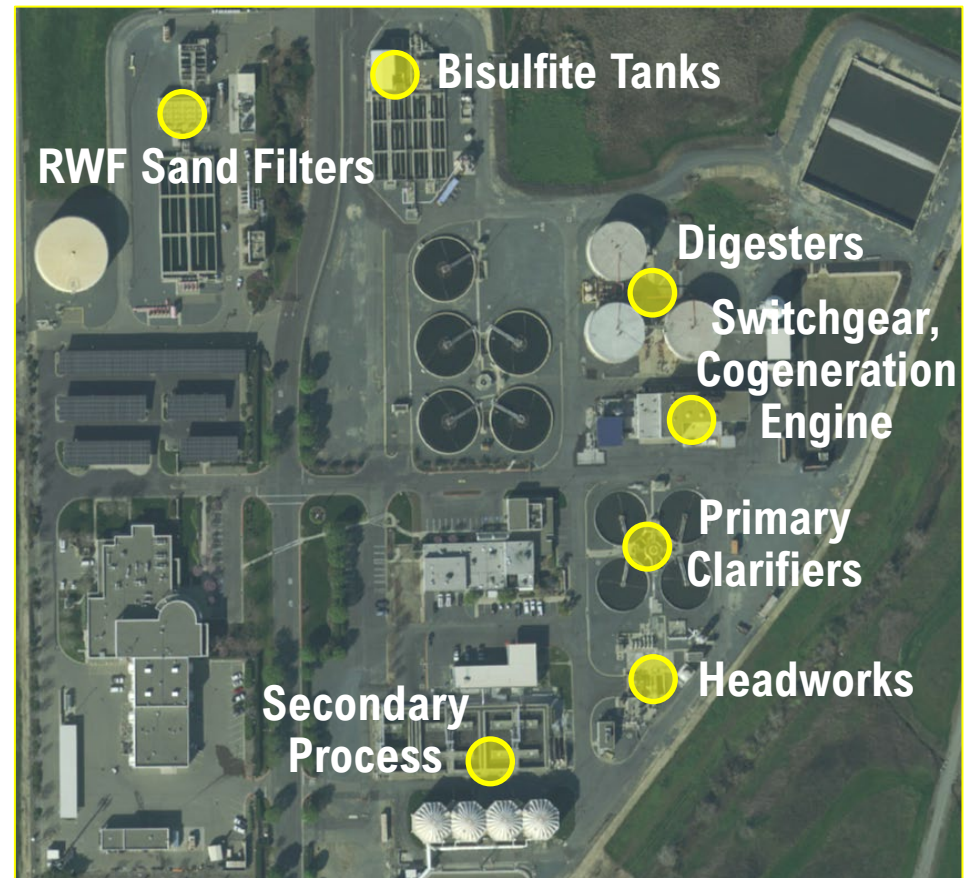
- Headworks Improvements (**\$14.9M**) to improve influent screening and grit removal
- Primary Clarifier Improvements (**\$4.4M**) to replace critical scum/sludge collection pumps
- Sodium Bisulfite Tank Replacement (**\$0.9M**) to ensure dechlorination process reliability

### In Progress

- Electrical Switchgear Replacement (**\$11.2M**) to ensure power distribution reliability
- RWF Sand Filter Intermittent Backwash System (**\$0.9M**) to replace existing system and increase efficiency

### Upcoming

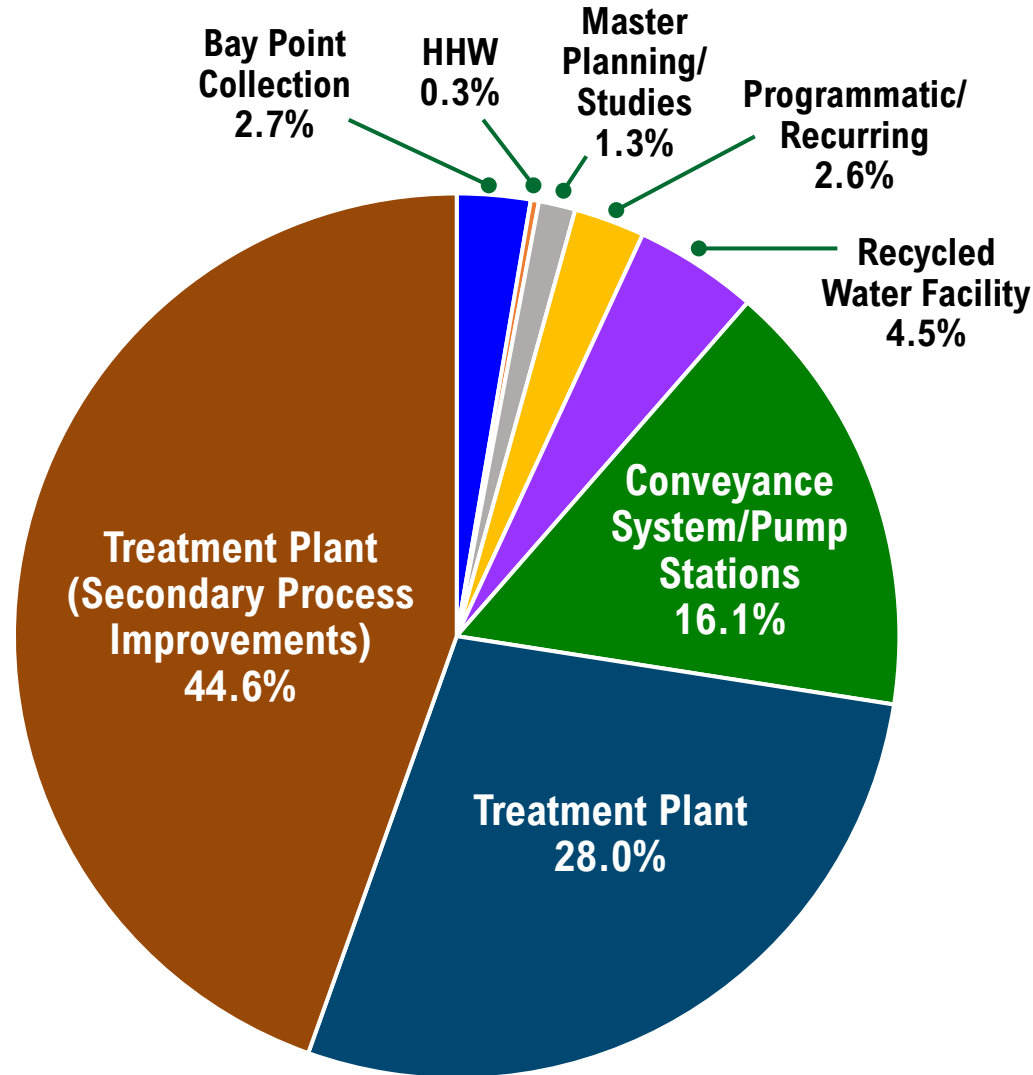
- Digester Gas Handling and Cogeneration Engine Improvements (**\$7.0M**) to address infrastructure needs
- Second Process Improvements (**\$60M**) to address infrastructure needs, nutrient management, and growth





# Preliminary New 5-year CIP Overview

## Planned Expenditures by Major Area



# FY21/22 Strategic Initiatives (Sep 2021)



## Goal 1 Infrastructure Investment

Ensure the long-term effectiveness and reliability of critical District infrastructure through prioritized, cost-effective capital investment and maintenance

1. Develop a formalized **Asset Management Program Implementation Roadmap**, including vision, goals, priorities, key actions, and resource needs

System Condition	Very Poor Full Replacement	5							
	Poor Condition Rehab or Replacement	4							
	Fair Condition Major CM	3							
	Fair Condition Minor CM	2							
	Good Condition No Action	1							
			1	2	3	4	5	Consequence of Failure	

2. Engage an inter-divisional team to identify and implement measures to improve **capital project delivery** via enhanced coordination, collaboration, communication, risk management, and integration of key “lessons learned”





# Driving Organizational Improvement Enhancing Capital Project Delivery



- District formed a **cross-divisional team** (Engineering, Operations, Maintenance, Executive Team) in FY21/22 to identify, prioritize, and implement improvements to **address critical challenges**
- Conducted critical review of 19 key elements (e.g., O&M staff engagement, contractor coordination/communication, resource availability, internal project communications, plant shutdowns)
- Developed eleven **Recommended Organizational Improvements**
- Formed Capital Project Delivery **Steering Committee** to guide and support **sustained organizational focus** and implementation of improvements over time
  - **Reprioritized implementation of FY21/22 capital projects** based on project scope, cost, and schedule changes, and resources



# Next Steps

- Review Draft CIP with Finance Committee April/May
- Present proposed CIP to Board and Establish Public Hearing Date May
- Conduct Public Hearing and Consider CIP Adoption June

