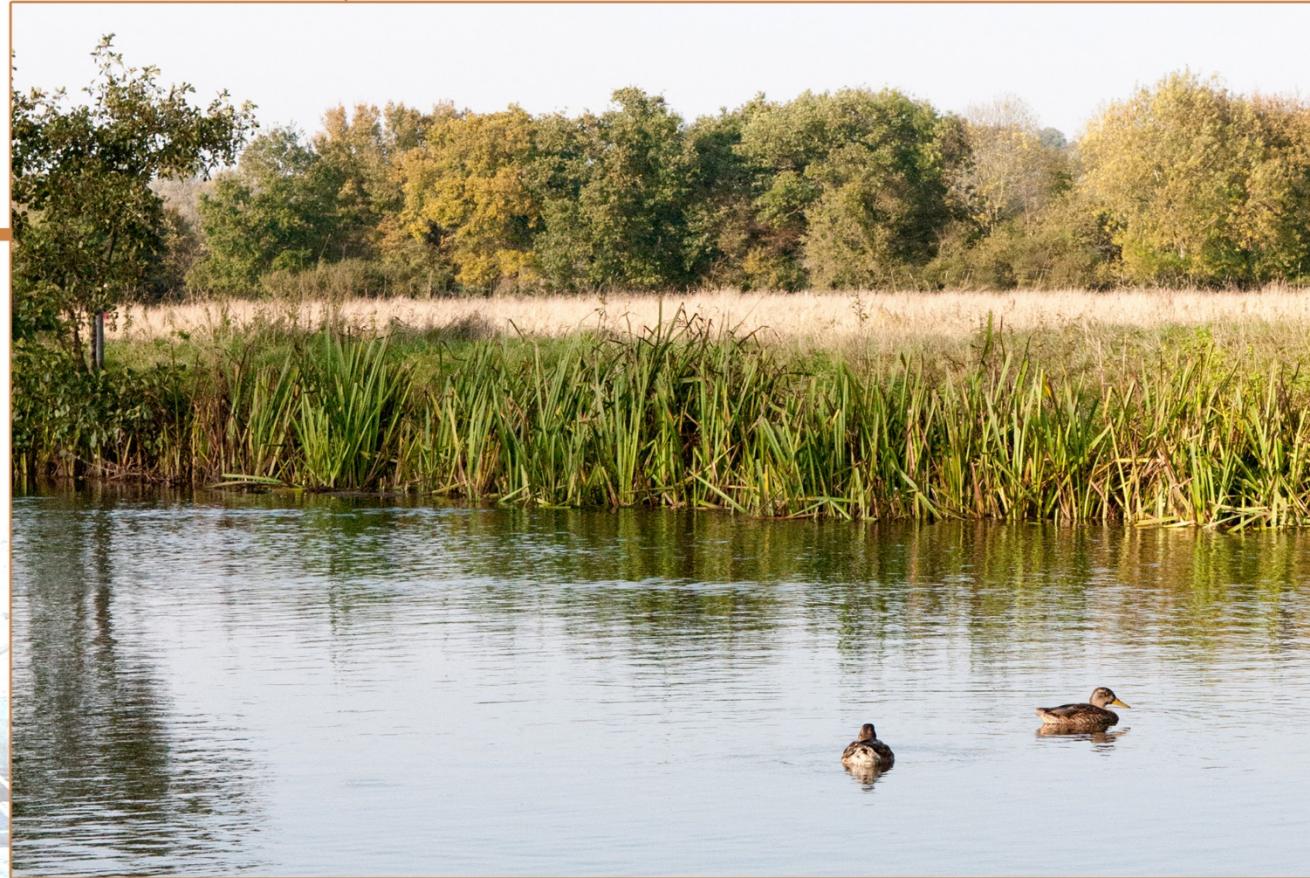


City of Hercules

# Sycamore Avenue Trunk Sewer Replacement Project



JANUARY 2019



# What is the Sycamore Avenue Trunk Sewer Replacement Project?



- 5,500 linear feet of 20 to 24-inch asbestos cement pipe
- Constructed in 1972
- Currently at capacity
- Known structural defects

# Need for the Project

## INCREASE TRUNK SEWER CAPACITY

- Confirm current dry weather and peak wet weather flows
- Determine size needed to accommodate anticipated development



## MITIGATE RISK



## ADDRESS STRUCTURAL DEFECTS

### DEFECT PHOTOS



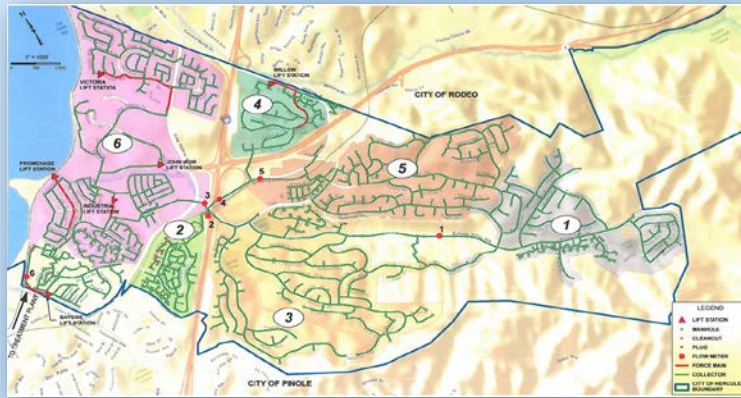
MH 2 to Vault 1 at 0 feet - Corrosion and grease, typical throughout project area.



Vault 8 to Vault 7 at 270 feet - Grease/blockage in flow and corrosion/spalling from 9 to 3 o'clock.

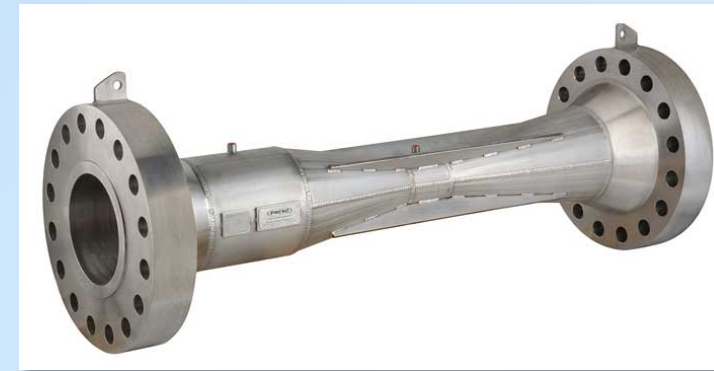
# The first step to a successful project is identifying the current flows.

## PRE-DROUGHT CONDITIONS



2008 Master Plan, Dry Weather Flow Monitoring

## POST-DROUGHT CONDITIONS

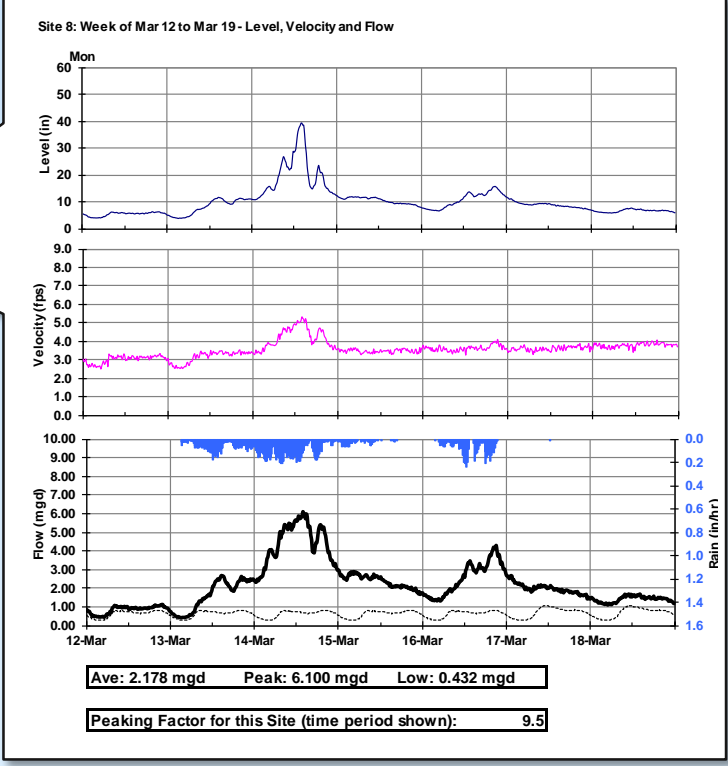
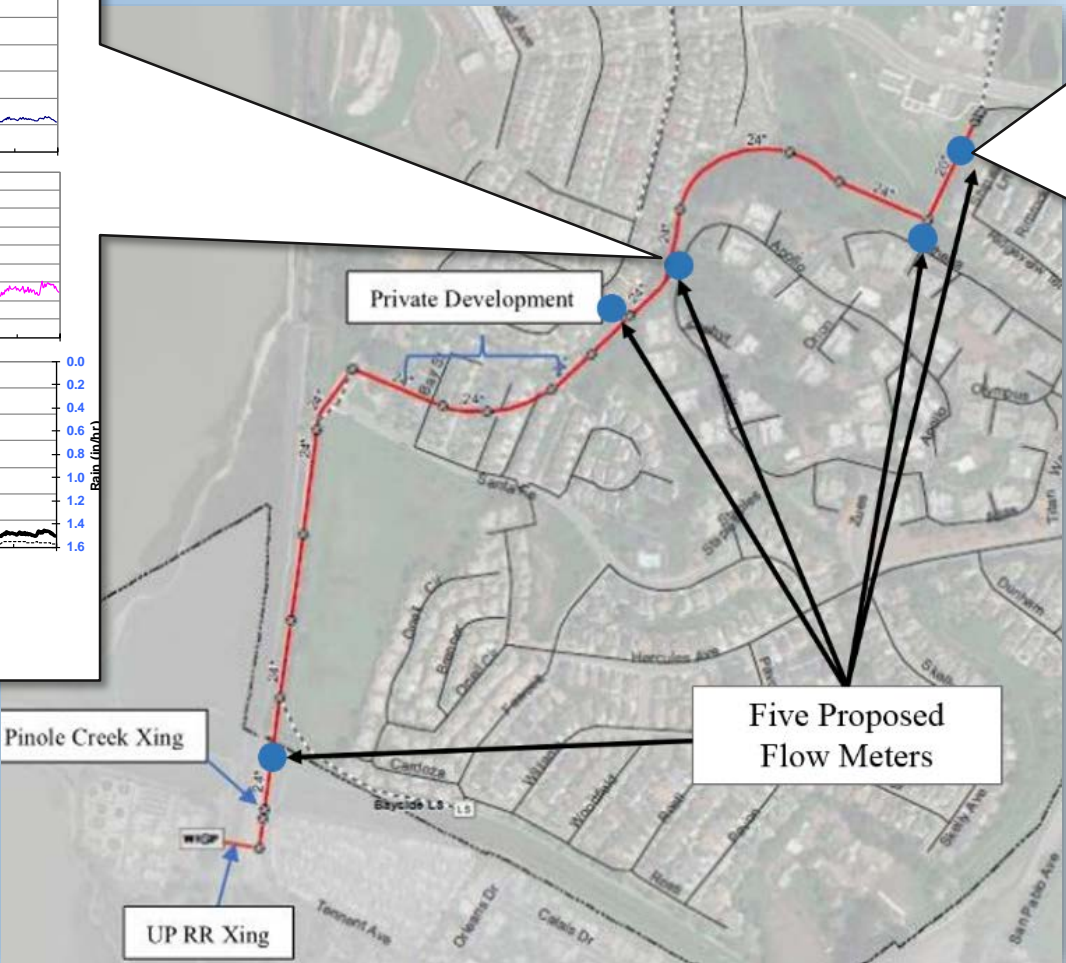
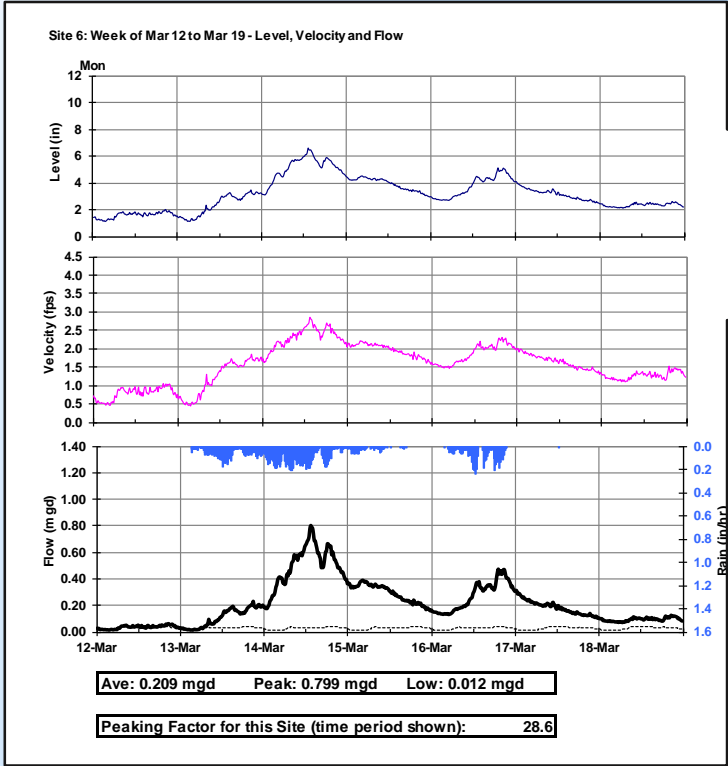


Flow Meter at Pinole-Hercules WWTP

- Pre-drought dry weather flows are likely higher than current dry weather flows.
- Understanding current flows will allow us to “right-size” the infrastructure.



# A comprehensive flow monitoring program will provide confidence in pipeline sizing





# A reach by reach alternatives evaluation will result in an optimal solution for the City



High water reaches bottom of existing pipe

**SOLUTION:** Siphon under creek



Restricted easement shared with force main and next to wetlands

**SOLUTION:** Bypass pump and replace or structural liner and small parallel pipe



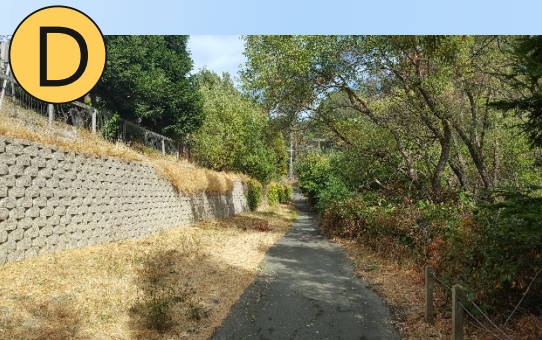


# A reach by reach alternatives evaluation will result in an optimal solution for the City



Existing alignment under/adjacent to private residences

**SOLUTION:** Alternative alignment



Narrow work area due to retaining wall and adjacent green space

**SOLUTION:** Bypass pump and replace the pipe in place, structural lining of existing pipe and installation of a second smaller pipe.



# A reach by reach alternatives evaluation will result in an optimal solution for the City



Deep, curved sewer adjacent to embankment and residences between Apollo Ave and Promenade St

**SOLUTION:** Trenchless or Open Cut



Restricted construction easement between embankment and Duck Pond Park with curved pipe

**SOLUTION:** Open cut, possibly trenchless





# This project will require careful coordination with permitting agencies as well as the public

**Tennent Ave  
is only way in  
and out**

**Union  
Pacific RR**

**San Pablo Bay**

**County Flood  
Control District  
Access Road**

**Pinole Creek**





# Making key design decisions early will inform environmental, permitting, and easement needs to avoid project delays

## Permitting Agencies

- SFBCDC
- CFW – Streambed Alt
- CCC Public Works
- Army Corps of Engineers
- Hercules
- Pinole
- CCC Flood Control
- Union Pacific RR
- CalOSHA – Tunnel Classification





# Carollo's Project Team and Experience



				Project Relevance							
				Utility Coordination	Traffic Control	Public Involvement	Bypass Systems	Environ- mental	Permitting	Residential Neighborhood	Trenchless Construction
CALIFORNIA WASTEWATER PIPELINE EXPERIENCE											
Project	Length (Feet)	Diameter (Inches)	Replace/ Rehab Method								
Santa Cruz County Sanitation District - Noble Gulch Sewer Improvements	13,100	8,10,15	OC, SL, MT, HDD	◆		◆		◆	◆	◆	◆
Santa Cruz County Sanitation District - Upper Rodeo Gulch Sewer	6,000	8-15	CIPP, OC, MT	◆		◆	◆	◆		◆	◆
Santa Cruz County Sanitation District - Felt & 17th Ave Sewer Improvements	11,000	8,24,30	CIPP, OC, PT	◆	◆	◆	◆	◆		◆	◆
City of Hillsborough - Crystal Springs Sewer Improvements, Ph I and II	90,000	15-28	PB, OC	◆	◆	◆		◆	◆	◆	
City of Modesto - Emerald Trunk Diversion	9,500	30,36	OC, PT, MT	◆		◆	◆	◆	◆	◆	
City of Modesto - River Trunk Realignment	32,715	18-60	OC, CIPP, MT	◆	◆	◆	◆	◆	◆	◆	◆
Rodeo Sanitary District - Rodeo Creek Bridge Force Main	200	15,20	OC, Bridge	◆	◆		◆	◆	◆	◆	
Rodeo Sanitary District - Marina Sanitary Sewer Improvements	1,600	6,8	PT, MT	◆	◆	◆		◆	◆	◆	◆
City of Simi Valley - Sanitary Sewer Trunk Rehabilitation	10,785	10-39	CIPP	◆	◆	◆	◆	◆	◆	◆	◆
City of San Mateo - Los Prados Sanitary Sewer Relief	14,000	16	HDD	◆	◆	◆	◆	◆	◆	◆	◆
City of San Mateo - 24th and 25th Ave Sanitary Sewer Relief	9,000	12,36	PT, BJ	◆	◆	◆	◆	◆	◆	◆	◆
Dublin San Ramon Services District - Dublin Trunk Rehabilitation	8,160	33-42	CIPP	◆	◆		◆	◆	◆	◆	◆
City of Santa Clara - Monroe/Chromite/Machado/Nobili Ph II Sewer	9,300	12-24	HDD	◆	◆	◆	◆	◆	◆	◆	◆

**Rehab/Replacement Methods:** OC = open-cut; SL = sliplining; MT = microtunneling; BJ = bore and jack; CIPP = cured-in-place pipe; HDD = horizontal directional drilling; PT = pilot tube; PB = pipe bursting; L = lining.

SUBCONSULTANTS

- <sup>1</sup>LCC, Inc.
- <sup>2</sup>V&A Consulting Engineers
- <sup>3</sup>Arrow Construction
- <sup>4</sup>SMB Environmental
- <sup>5</sup>Cal Engineering & Geology
- <sup>6</sup>DCM Consulting
- <sup>7</sup>Associated Right of Way Services



Thank You

