Orange Memorial Park Storm Water Capture Project

SMCWPPP Annual Development Workshop

Moving Ahead with GI and LID Implementation

August 18, 2021

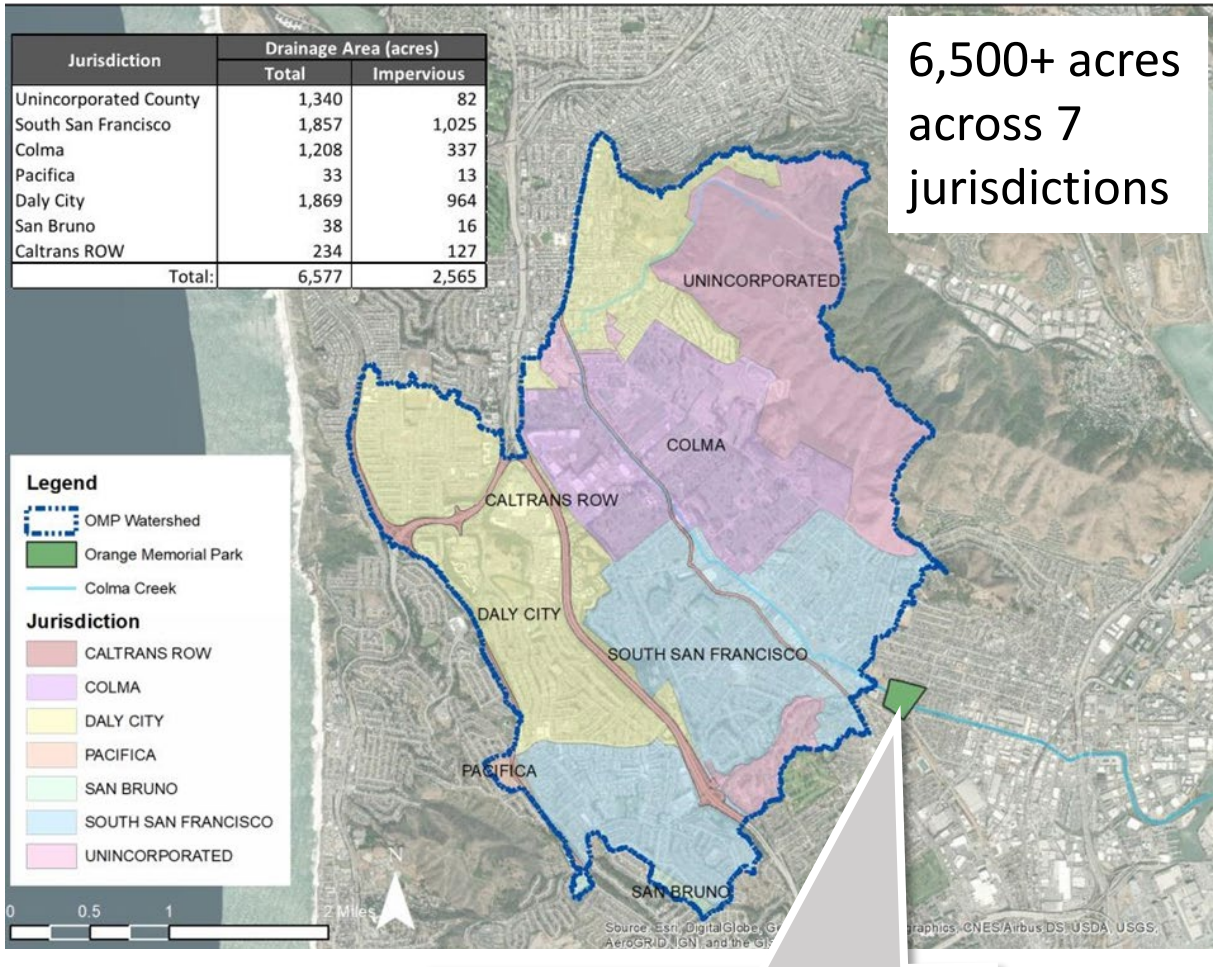
Lotus Water engineering

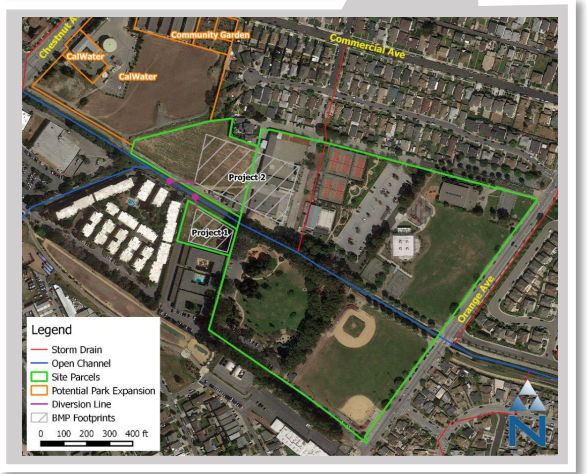
Project Overview

GOALS

- **DIVERT** flows from Colma Creek for treatment, beneficial reuse, and local flood reduction
- **CLEAN** contaminants from creek per MRP requirements using green infrastructure (settling, infiltration, reuse)
  - ✓ Mercury
  - ✓ PCB's
  - ✓ Trash
- **REUSE** treated water for irrigation, water trucks, and groundwater recharge

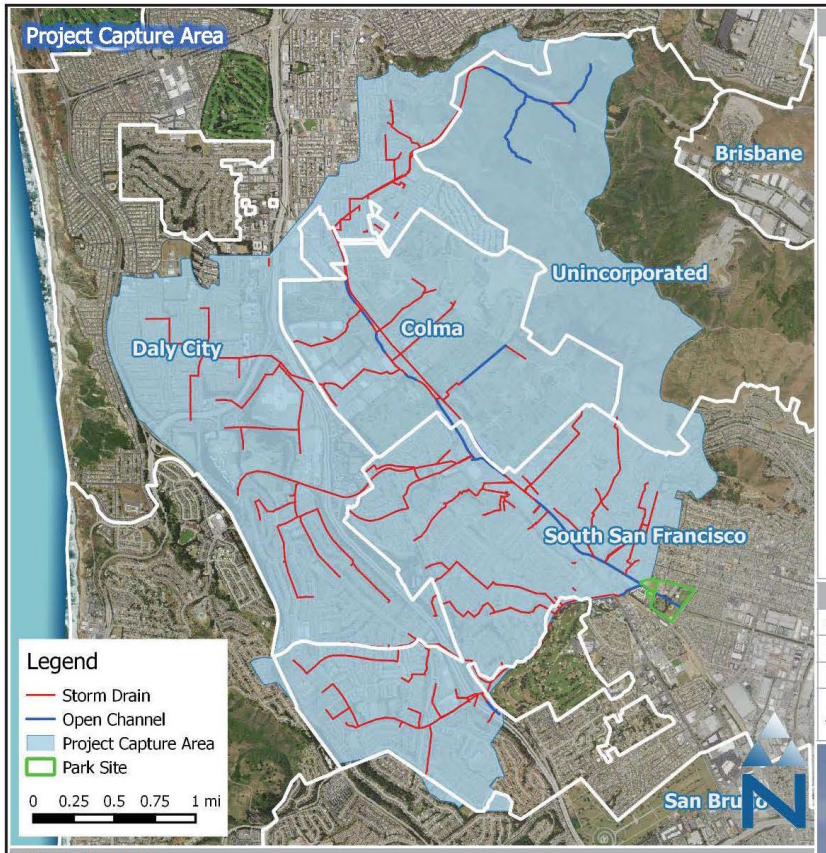
Jurisdiction	Drainage Area (acres)	
	Total	Impervious
Unincorporated County	1,340	82
South San Francisco	1,857	1,025
Colma	1,208	337
Pacifica	33	13
Daly City	1,869	964
San Bruno	38	16
Caltrans ROW	234	127
Total:	6,577	2,565





PROJECT BACKGROUND

- Original project concept is from San Mateo County Stormwater Resource Plan (SWRP)
- SWRP concept attracted $9.5M funding from Caltrans
- In September 2019, an additional $6M was procured from Caltrans for $15.5M total
- Construction began last month March 2021



Site Description:

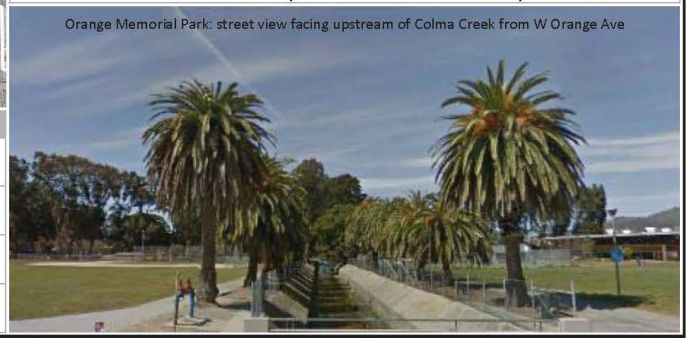
This project concept consists of two offline subsurface infiltration chambers at Orange Memorial Park. The park is a prime location to site a regional stormwater capture project and captures stormwater from large portion of the upper Colma Creek watershed and multiple city and county jurisdictions. The potential capture area of the project is roughly 6,300 acres that drains portions of the cities of South San Francisco, Colma, and Daly City and Unincorporated San Mateo County. A stormwater capture project at this location would aid these jurisdictions in meeting stormwater permit compliance and alleviate flooding in the lower reaches of Colma Creek. The project would also contribute to reductions of high-priority pollutants discharged to San Francisco Bay (including TMDLs that require reductions of mercury and PCB loads), augment water supply by recharging the Westside groundwater basin, and provide community enhancement through integration with the recreational facilities of the park. With the incorporation of a hydrodynamic separator for pretreatment of diverted water from the creek, the project also provides the reduction of trash transported through the creek to the San Francisco Bay. The Orange Memorial Park Master Plan (2007) was referenced in this design to ensure that the concept is consistent with the goals of future development for the park.

Although not specifically included within this project concept, the project also provides the opportunity for future integration of Low Impact Development (LID) within parking lots of the park to provide further community enhancement and opportunities for public education of LID and other project components.

Drainage Characteristics

Capture Area (acres)	6,300
Impervious Area (%)	38
Dominant Land Use	Residential
Jurisdictions	South San Francisco, Colma, Daly City, Unincorporated San Mateo County

Orange Memorial Park: street view facing upstream of Colma Creek from W Orange Ave



Site Information

Land Owner	City of South San Francisco
Street Address	Orange Ave, South San Francisco, CA 94080
Latitude/Longitude	37° 39' 13.1" N / 122° 25' 35.4" W
Watershed	Colma Creek

Concept for a Multi-jurisdictional Regional Stormwater Capture Project
Site: Orange Memorial Park (City of South San Francisco)

San Mateo Countywide Water Pollution Prevention Program

PARADIGM ENVIRONMENTAL

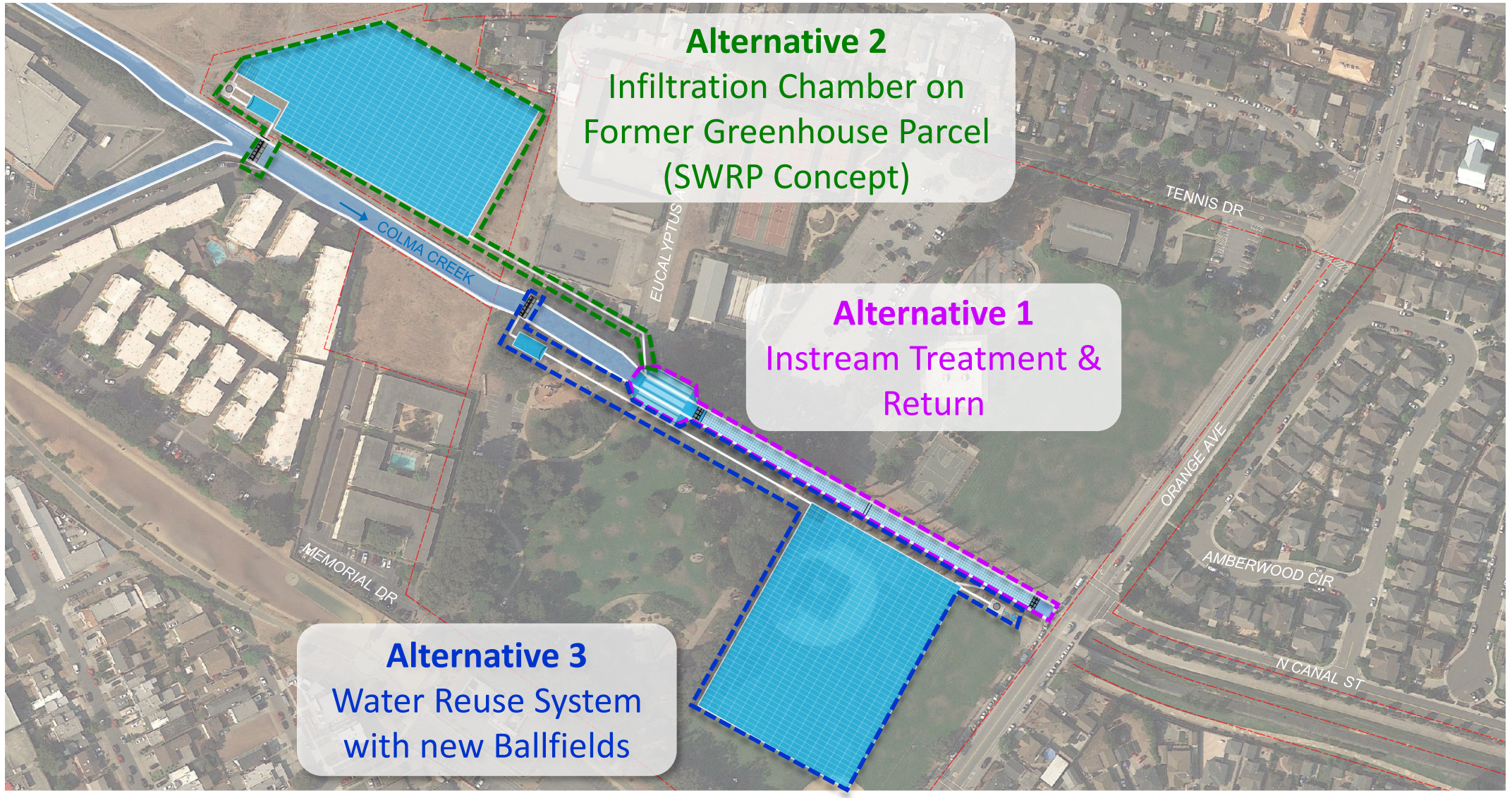
Colma Creek Flood Control Channel

Upstream View at 1st Pedestrian Bridge

Downstream View at 1st Pedestrian Bridge

Alternatives Analysis

Development & Selection of Preferred Alternative

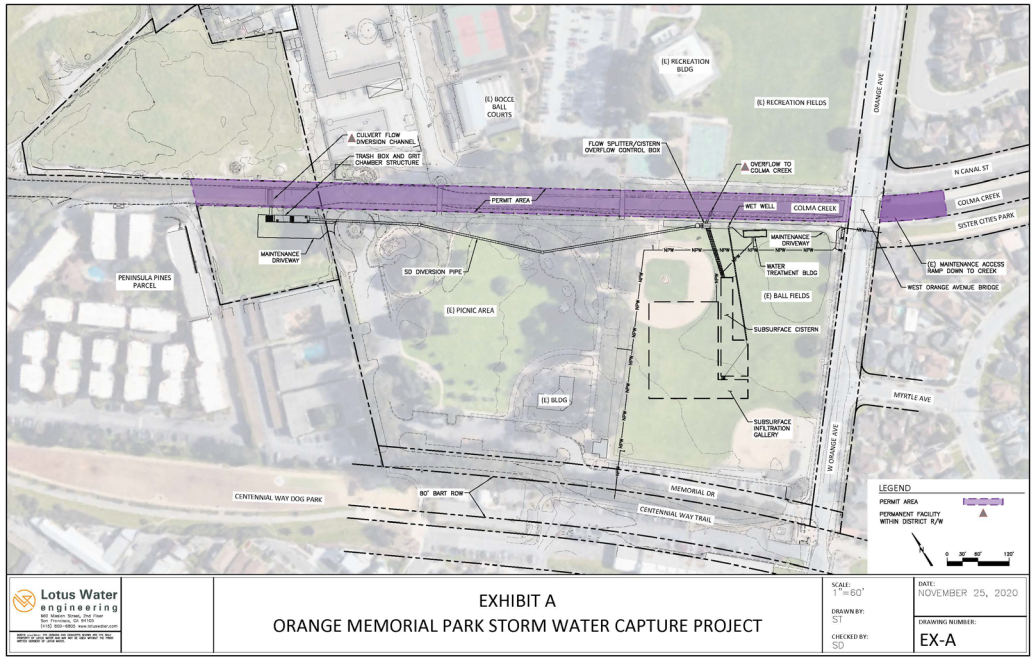


TOP PRIORITIES

1. Water Quality Improvements
2. Flood Reduction Potential
3. Operations & Maintenance Burden
4. Park Improvement Potential
5. Impacts to Park/Neighborhood
6. Re-purpose Clean Water

Interagency Coordination

- Internal coordination with Public Works and Parks Department (landowner)
- San Mateo County Sea Level Rise and Resiliency District (canal owner)
- Cal Water and San Francisco Public Utilities Commission (water providers)



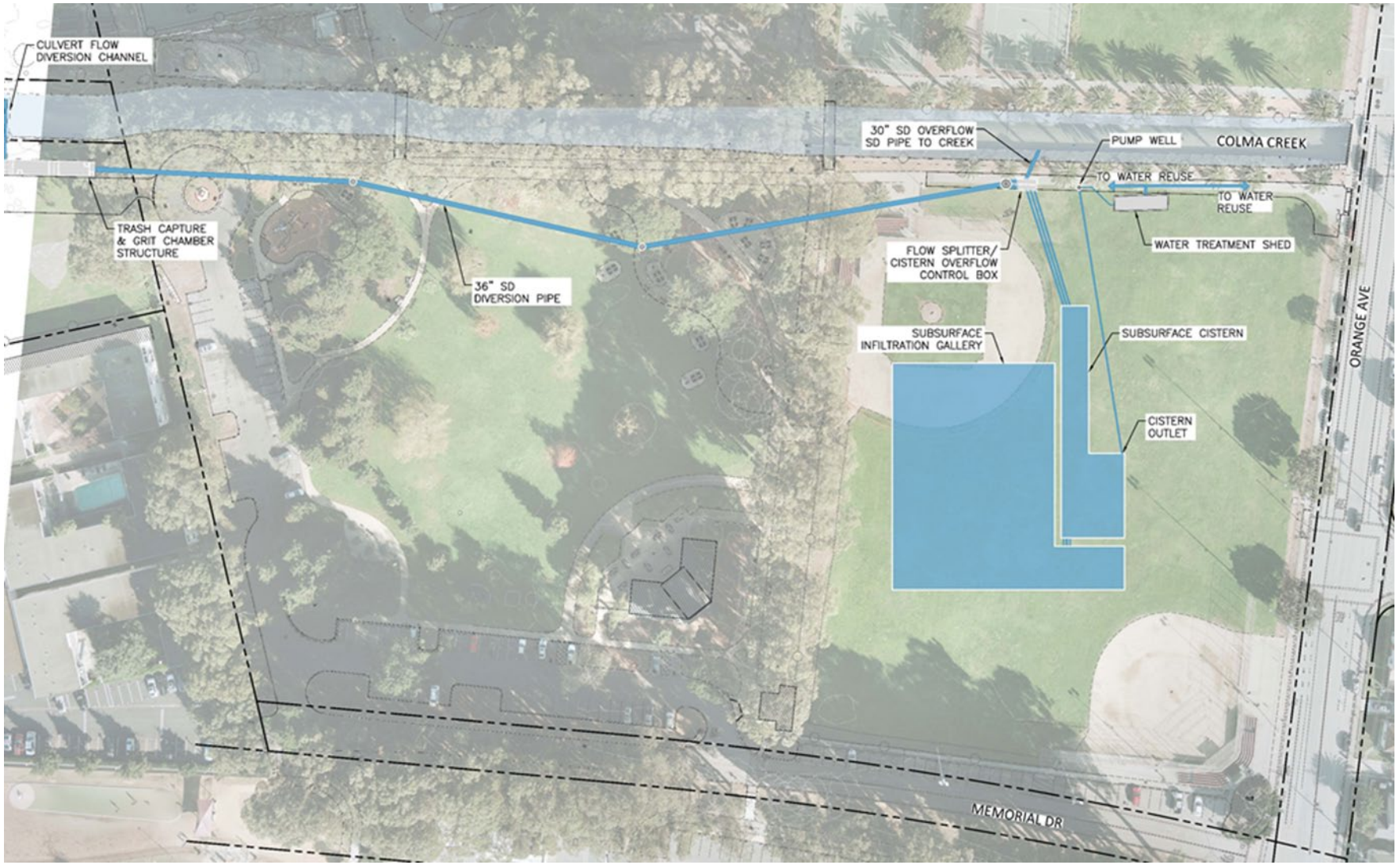
Preferred Alternative

Project Configuration

Project Layout

Project Elements

- Instream Diversion
- Grit/Trash Chamber
- Diversion Pipe
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed



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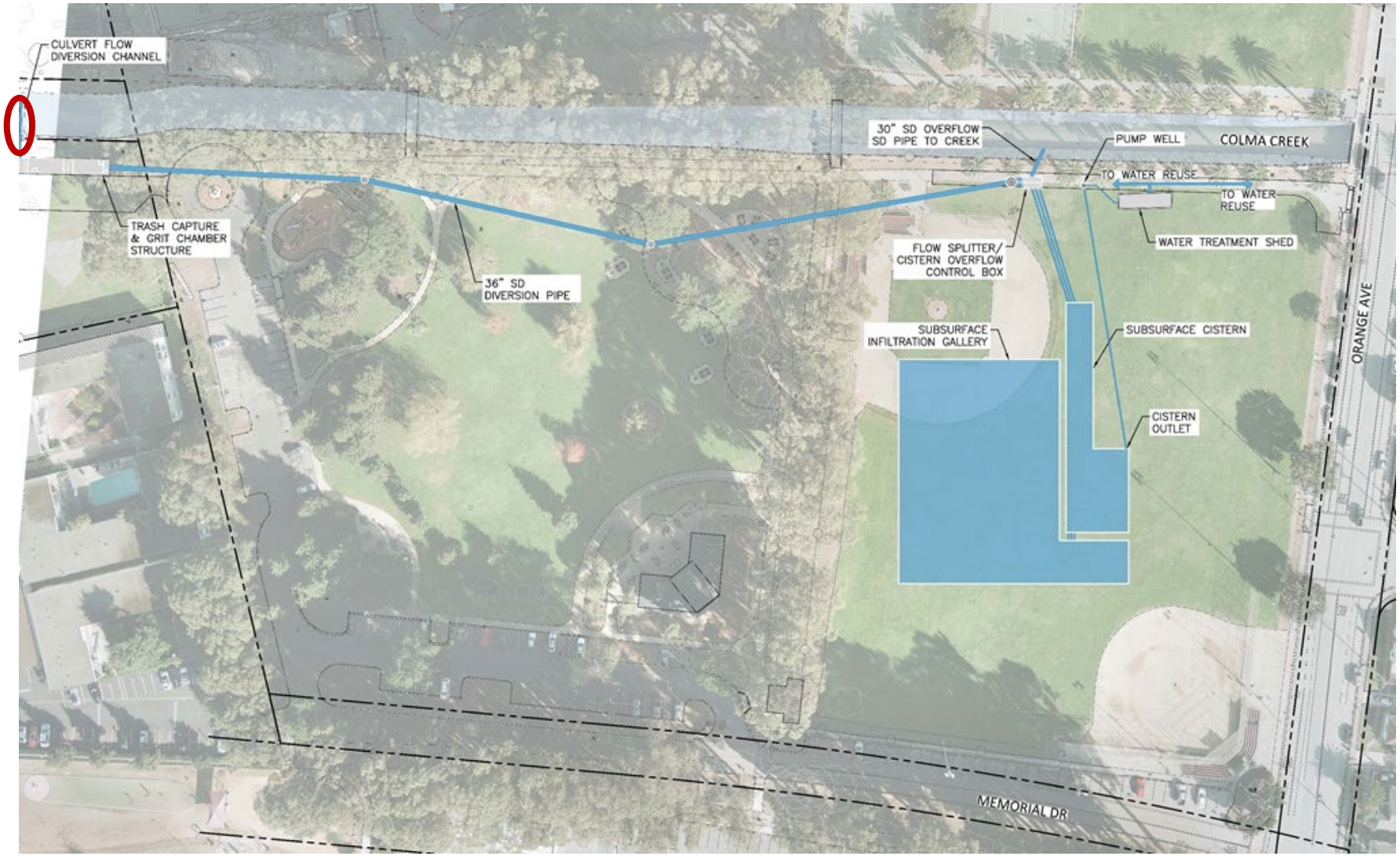

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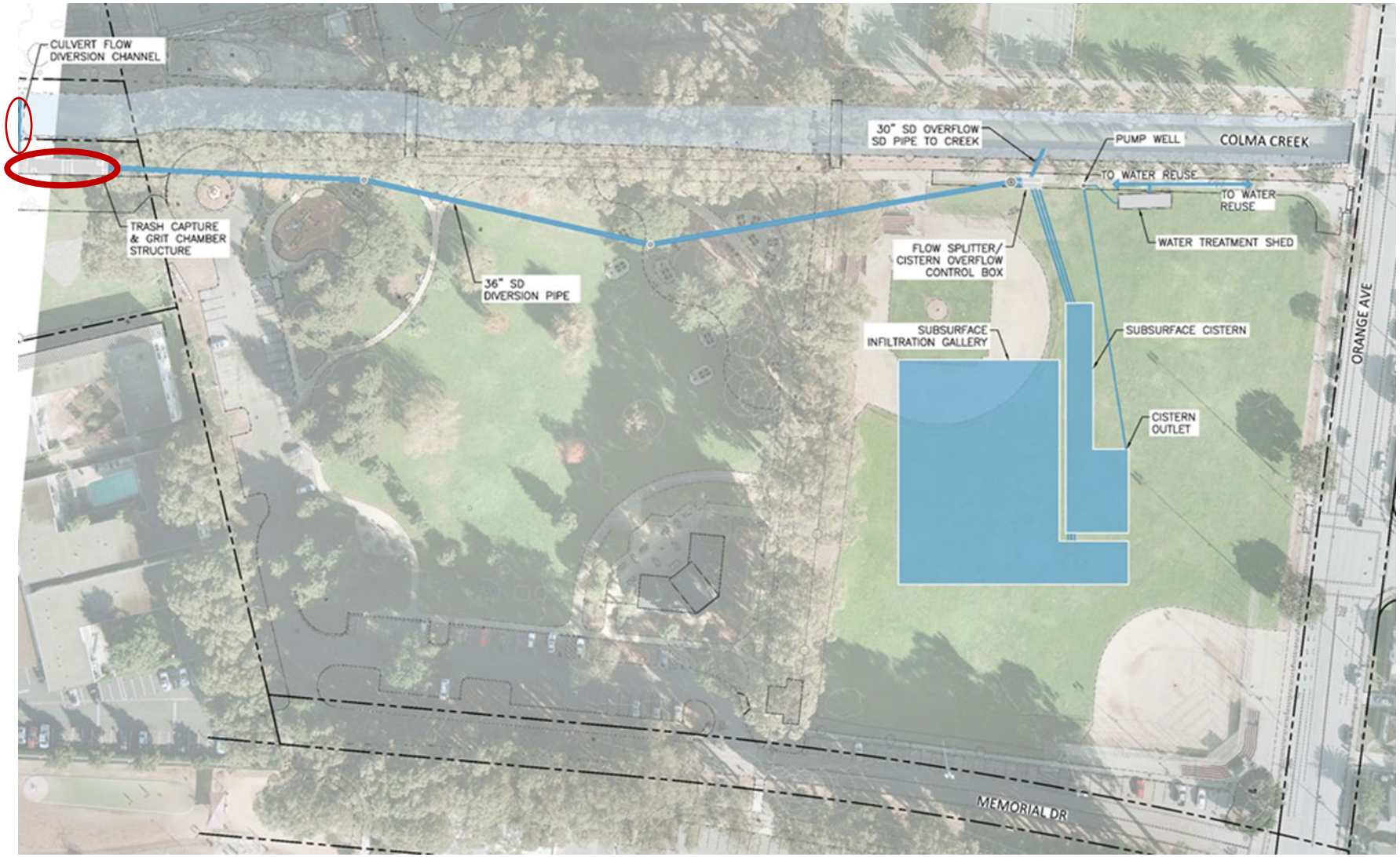

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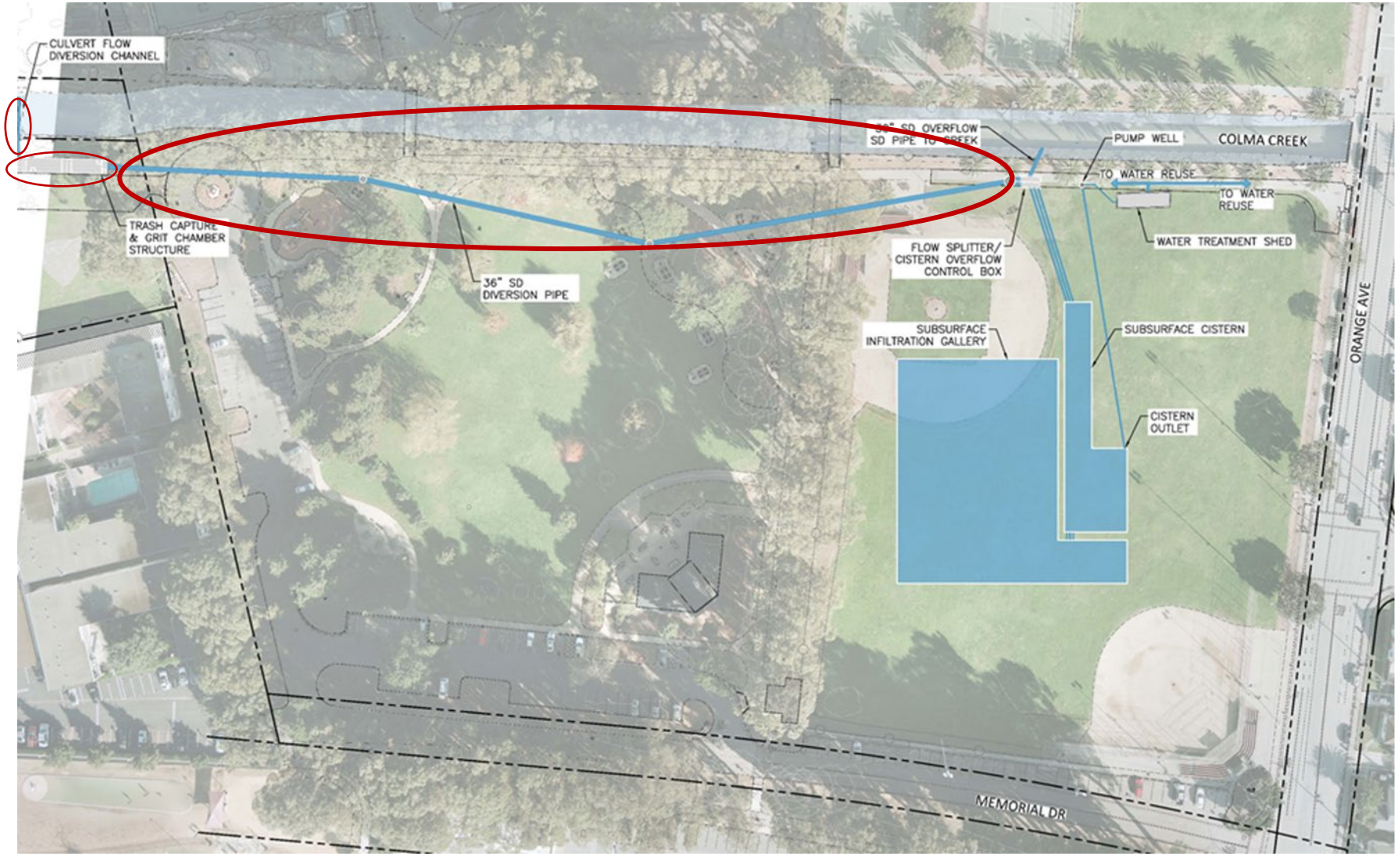

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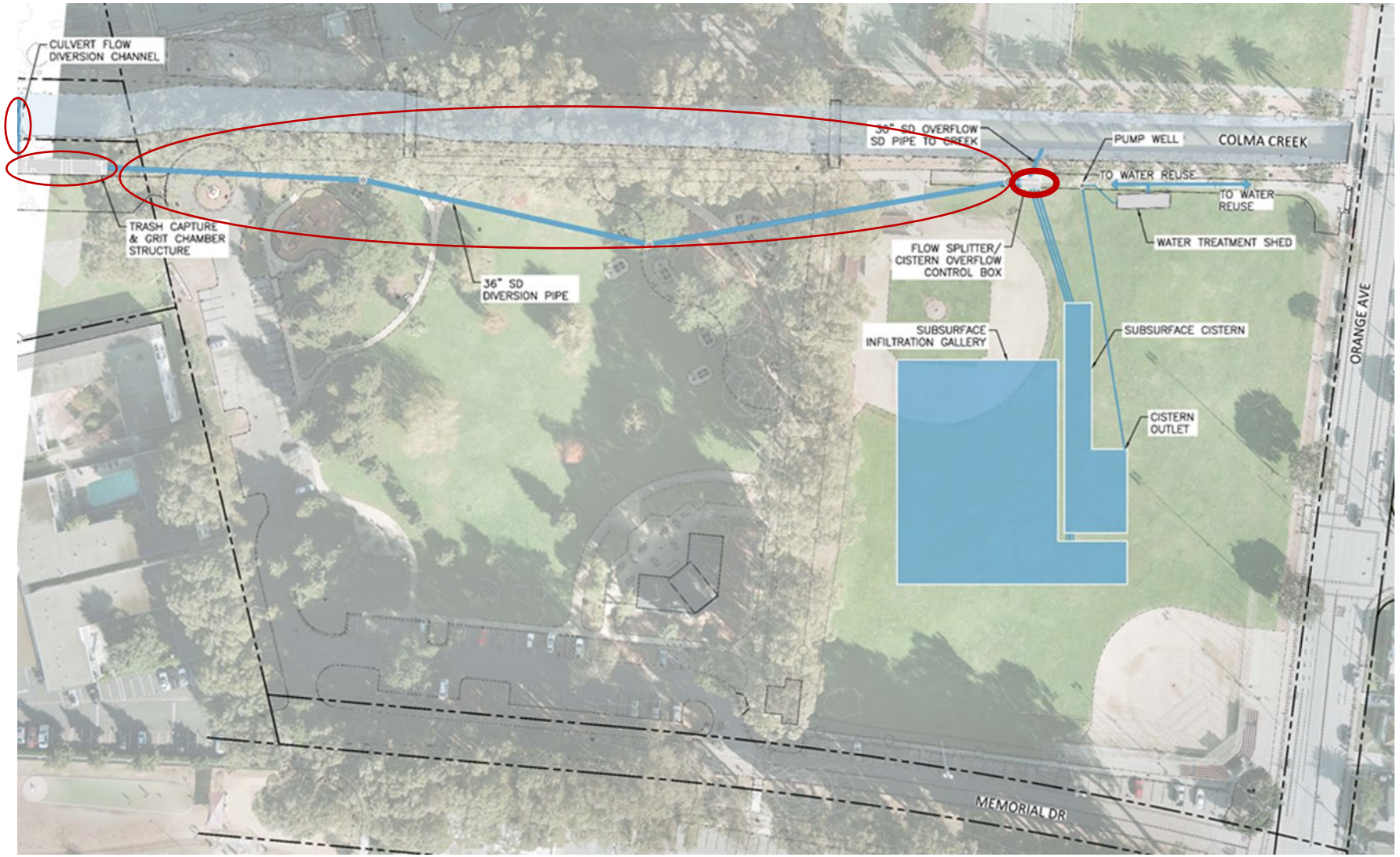

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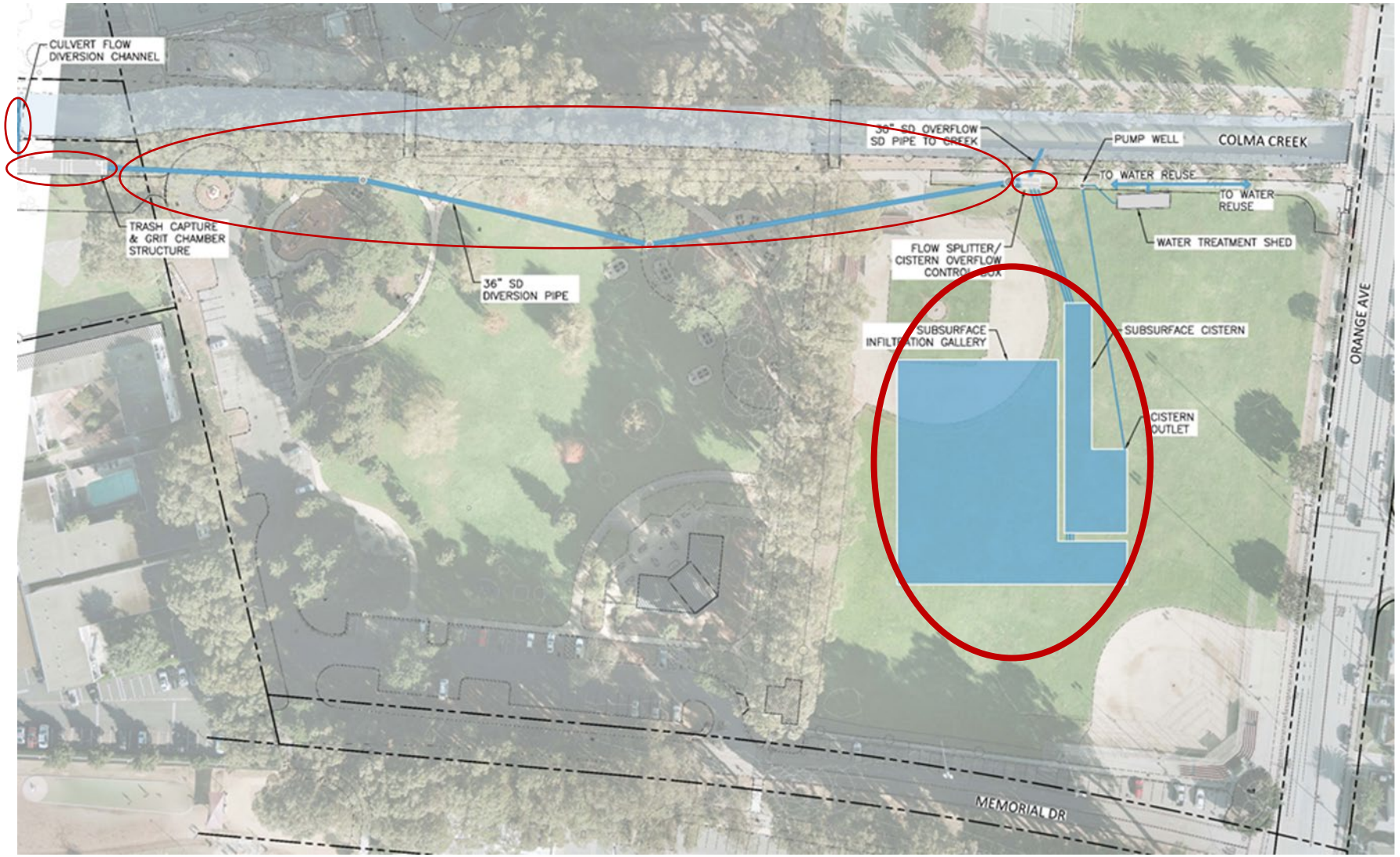

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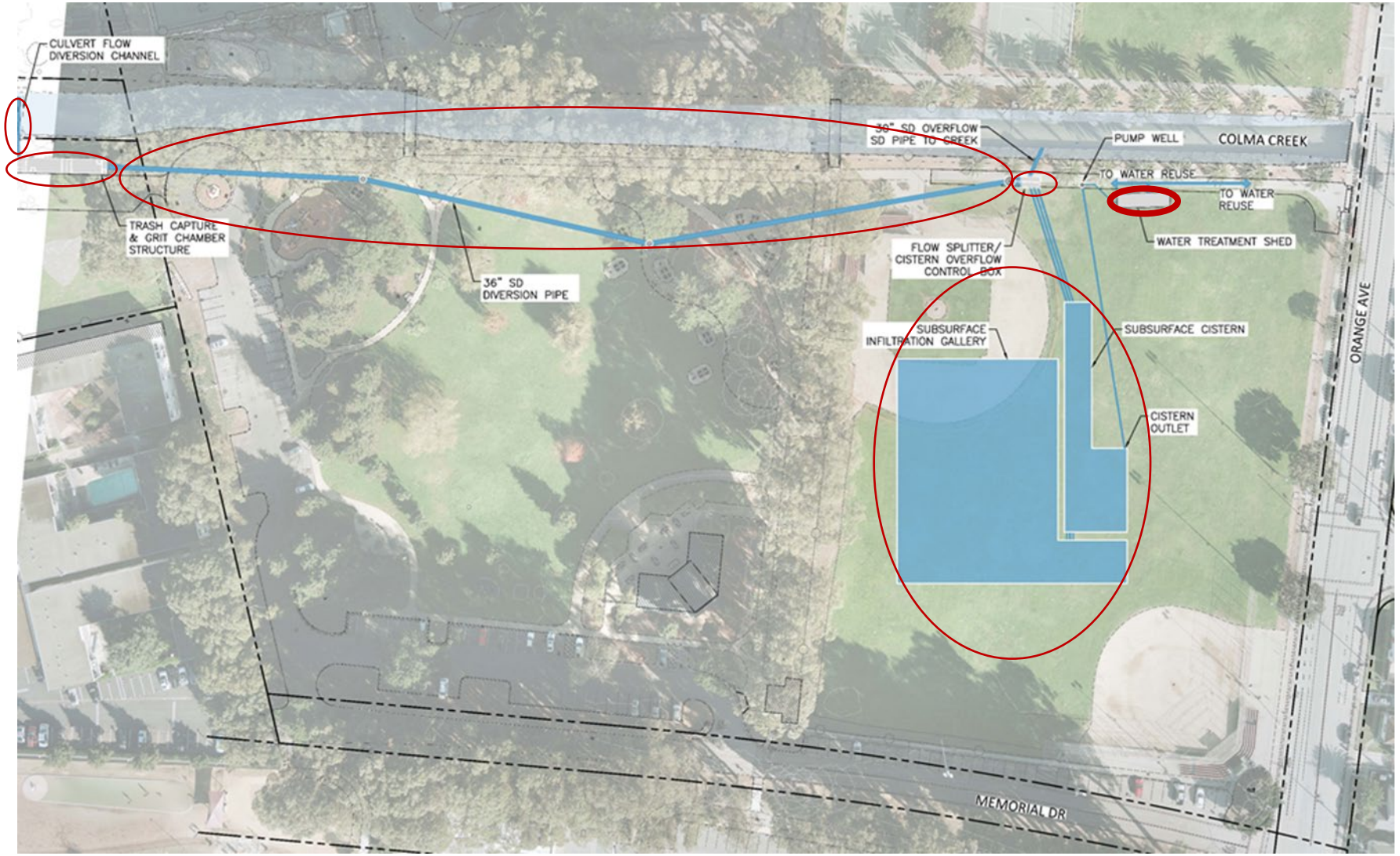

Project Benefits

ESTIMATED BENEFITS

- Water quality treatment provided to 2,468 acres of equivalent area
- 640 acre-feet of water diverted and cleaned annually
- 15 MG of potable water offset per year; $140,000 annually in water savings
- 240 acre-feet of groundwater recharge annually
- 10 grams of PCBs removed annually
- 30 grams of mercury removed annually

Total Annual Runoff

16% Diverted

84% Bypass

9% Treated

6% Infiltrated

1% Irrigation

93% Flows Reach the Bay

Monitoring and O&M

Permitting Requirements for O&M + Monitoring

- Established primarily by the 401 Permit and Waste Discharge Requirements administered by the Bay Area Regional Water Board
    - Water Quality Compliance Monitoring (many constituents)
    - Performance Monitoring (PCB and Hg removal)
    - Flow Monitoring (water balance with fate of treated waters)
- The water reuse system is regulated by the City itself
    - IAPMO 324 certification

Operations & Maintenance

Element	Intensity	Frequency
Instream Diversion	Low	After large storms
Grit/Trash Chamber	High	1-2 per year
Flow Splitter	Low	After large storms
Cistern	High	1 per year
Infiltration Gallery	High	1 per decade
Water Quality Treatment Building	Medium	Daily

Construction Update

Thank you!