



Presentation on the Orange Memorial Park Regional Capture Stormwater Project in South San Francisco

Resource Management and Climate Protection Committee Meeting – July 20, 2022



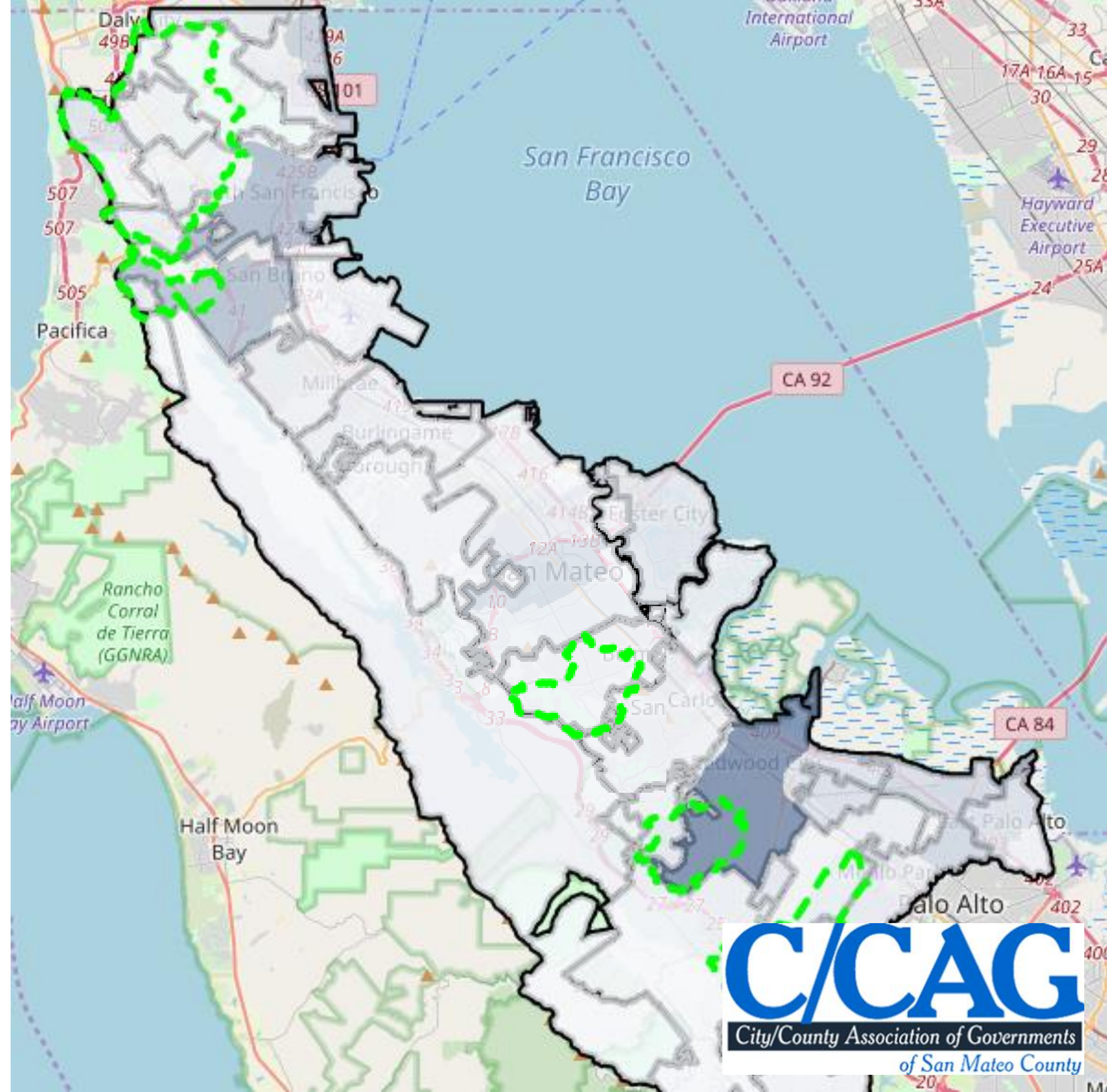
Regional-Scale Stormwater Management in San Mateo County

- Countywide Stormwater Resource Plan (2017)
- OneShoreline District (2020)
- Advancing Regional-Scale Stormwater Management in SMC Project (2022)



Regional Projects Underway

- South San Francisco (Orange Memorial Park)
- San Bruno (I-280/I-380)
- Belmont (Twin Pines)
- Redwood City (Red Morton)



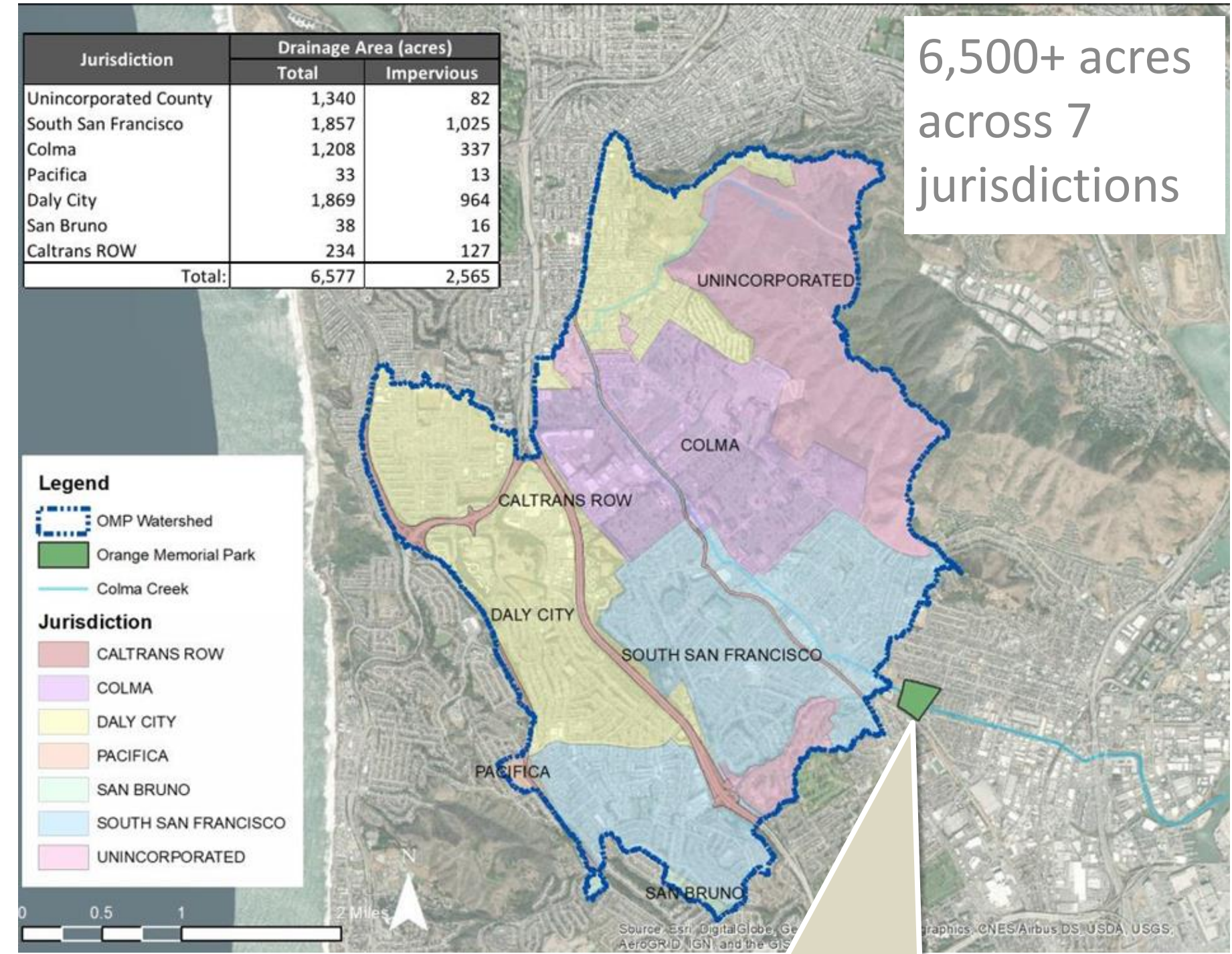
Orange Memorial Park Regional Capture Project



Project Overview

GOALS

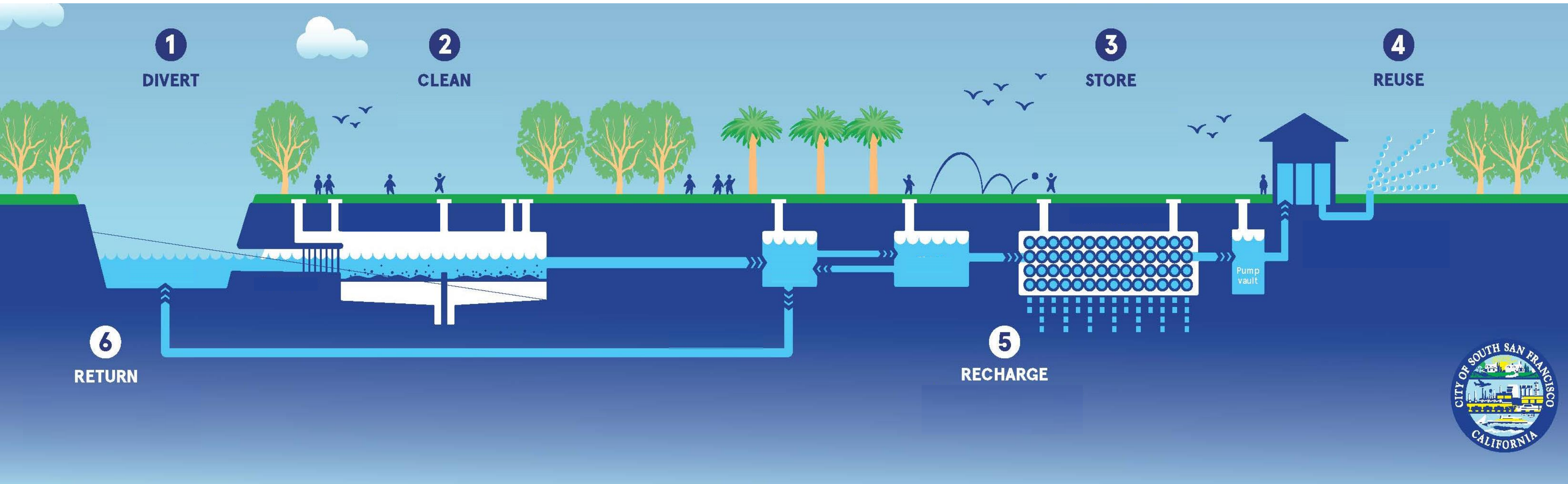
- **DIVERT** flows from Colma Creek for treatment, beneficial reuse, and local flood reduction
- **CLEAN** contaminants from creek per MRP requirements using green infrastructure (settling, infiltration, reuse)
 - ✓ Mercury
 - ✓ PCB's
 - ✓ Trash
- **REUSE** treated water for irrigation, water trucks,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



Project Configuration

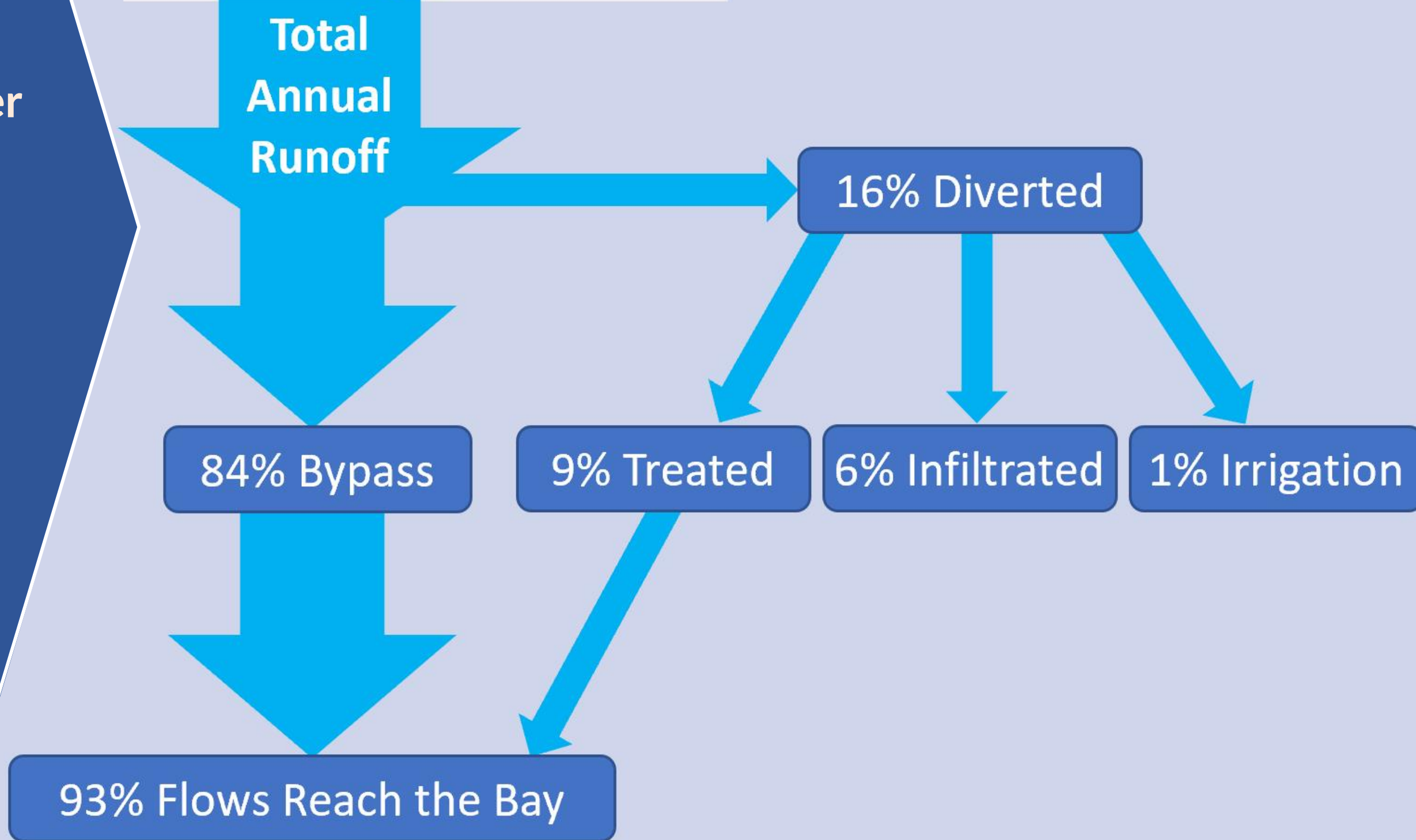


Project Configuration



ESTIMATED BENEFITS

- Water quality treatment provided to tributary watershed area
- 640 acre-feet of water diverted and cleaned annually
- **15 MG of potable water offset per year**
- **240 acre-feet of groundwater recharge annually**
- 10 grams of PCBs removed annually
- 30 grams of mercury removed annually





Groundbreaking ceremony



Pretreatment structure



Ultrafiltration system



Underground storage excavation



Underground storage module assembly

Concrete at Grit Chamber



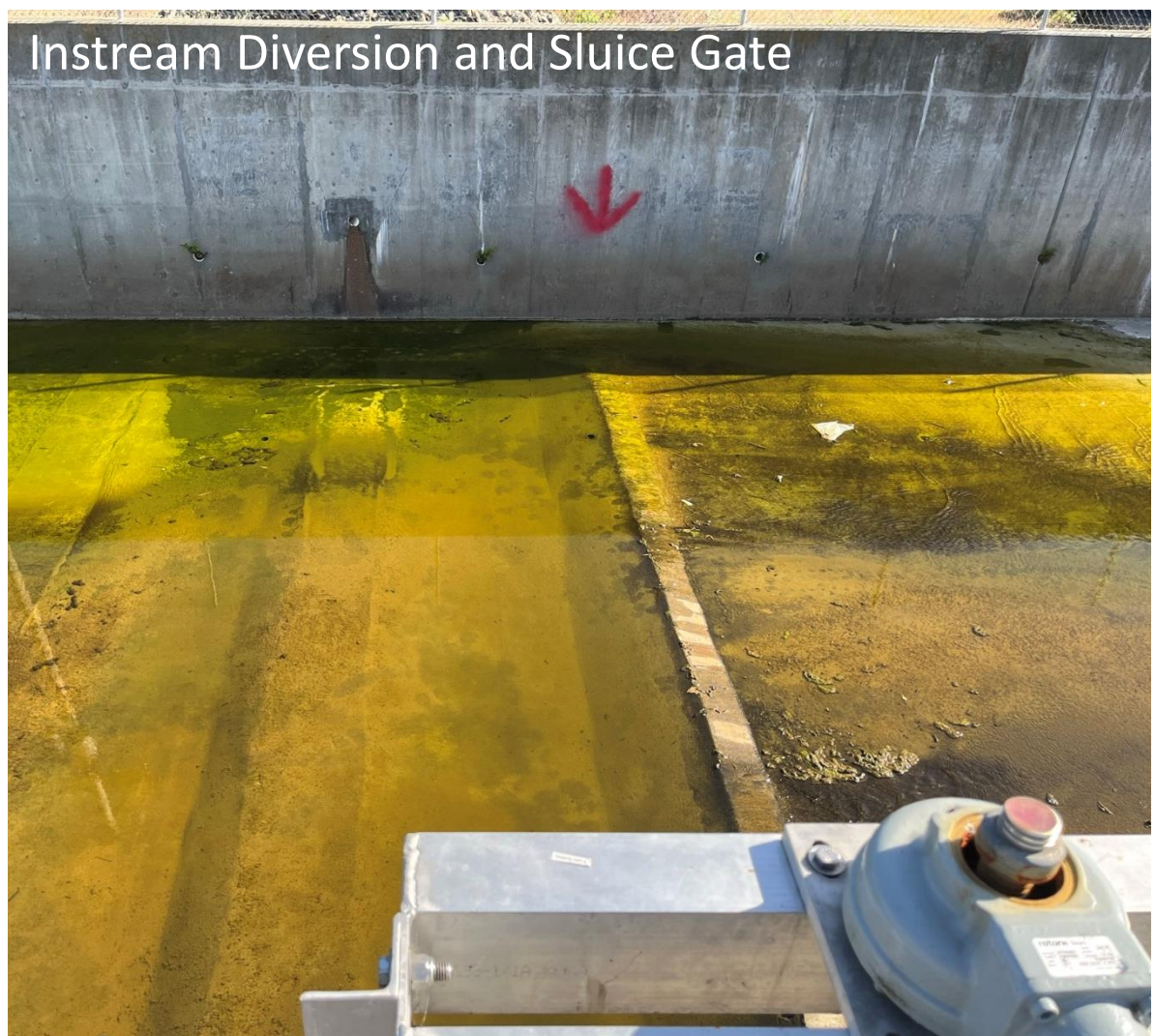
Instream Water Diversion
at Grit Chamber



Concrete Forms at Flow Splitter



Sawcut at Sluice Gate



Regulatory Environment

Municipal Regional Permit (MRP) 3.0

GSI Retrofit Requirements

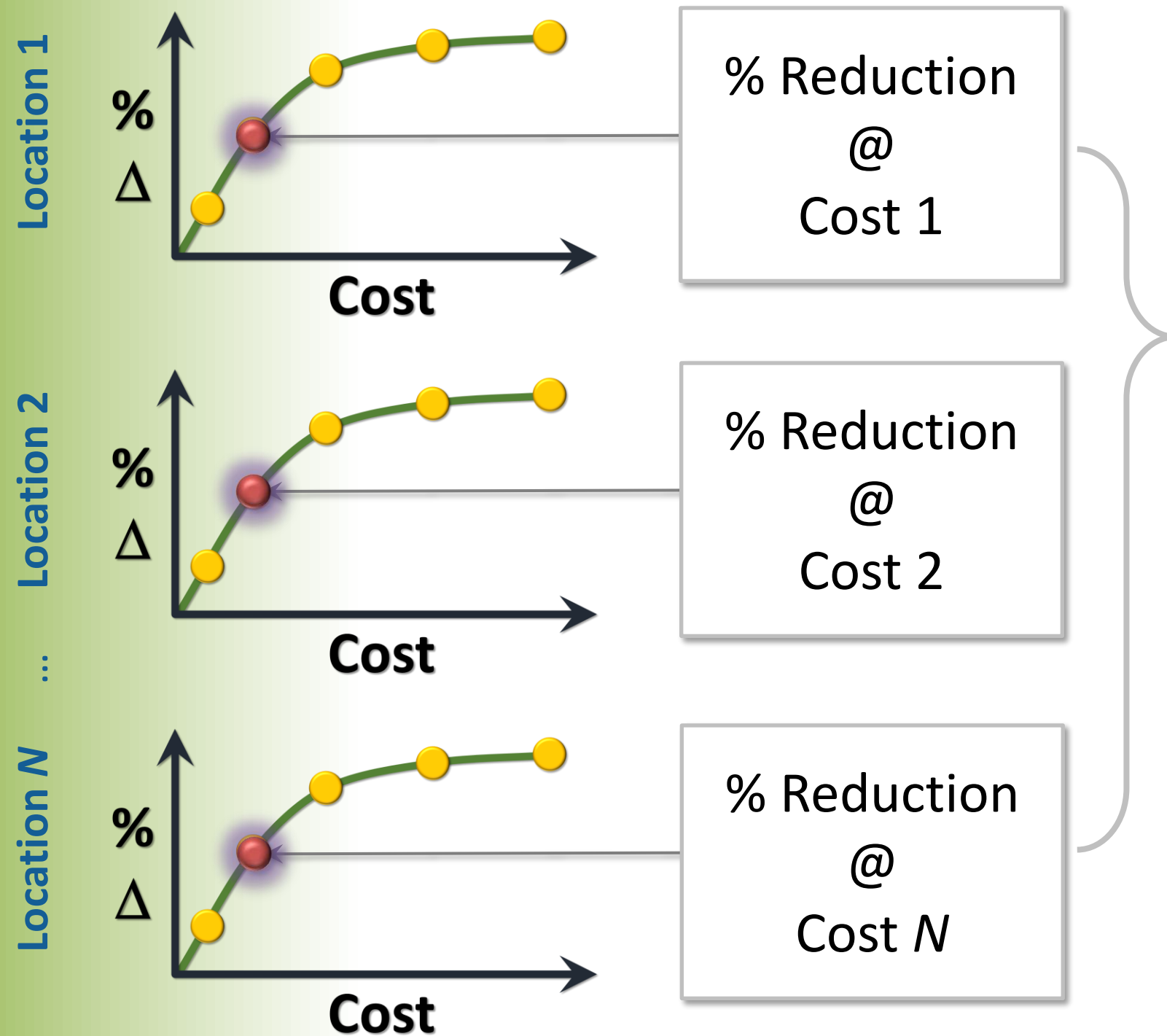
- Each Permittee “shall implement, or cause to be implemented” green stormwater infrastructure (GSI) based on population.
- Table H-1 in the MRP shows the “greened acres” requirement by city and countywide.

Table H-1 from the Tentative Order

Permittee	2019 US Census Bureau Population Estimate	MRP 3 GSI Retrofit Assignment (acres)	% of Total	County Total (acres)
Atherton	7,137	0.43	1.0%	43.30
Belmont	26,941	1.62	3.7%	
Brisbane	4,671	0.28	0.6%	
Burlingame	30,889	1.85	4.3%	
Colma	1,489	0.20	0.5%	
Daly City	106,280	5.00	11.5%	
East Palo Alto	29,314	1.76	4.1%	
Foster City	33,901	2.03	4.7%	
Half Moon Bay	12,932	0.78	1.8%	
Hillsborough	11,387	0.68	1.6%	
Menlo Park	34,698	2.08	4.8%	
Millbrae	22,394	1.34	3.1%	
Pacifica	38,546	2.31	5.3%	
Portola Valley	4,568	0.27	0.6%	
Redwood City	85,925	5.00	11.5%	
San Bruno	42,807	2.57	5.9%	
San Carlos	30,185	1.81	4.2%	
San Mateo	104,430	5.00	11.5%	
San Mateo County	64,832	3.89	9.0%	
South San Francisco	67,789	4.07	9.4%	
Woodside	5,458	0.33	0.8%	

Individual

*Each Permittee is responsible for **individually** achieving the target load reduction*

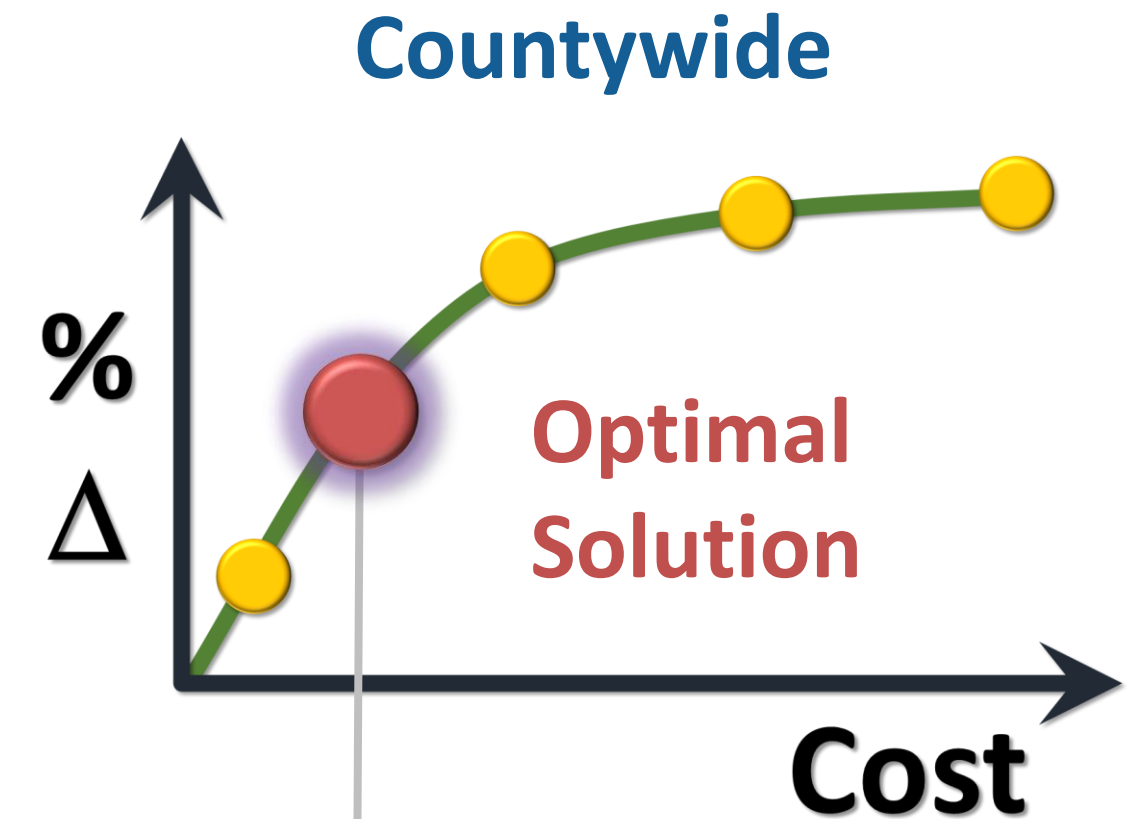


Total Cost
(Proportional)

$$\sum_{k=0}^n Cost_k \gg$$

Collaborative

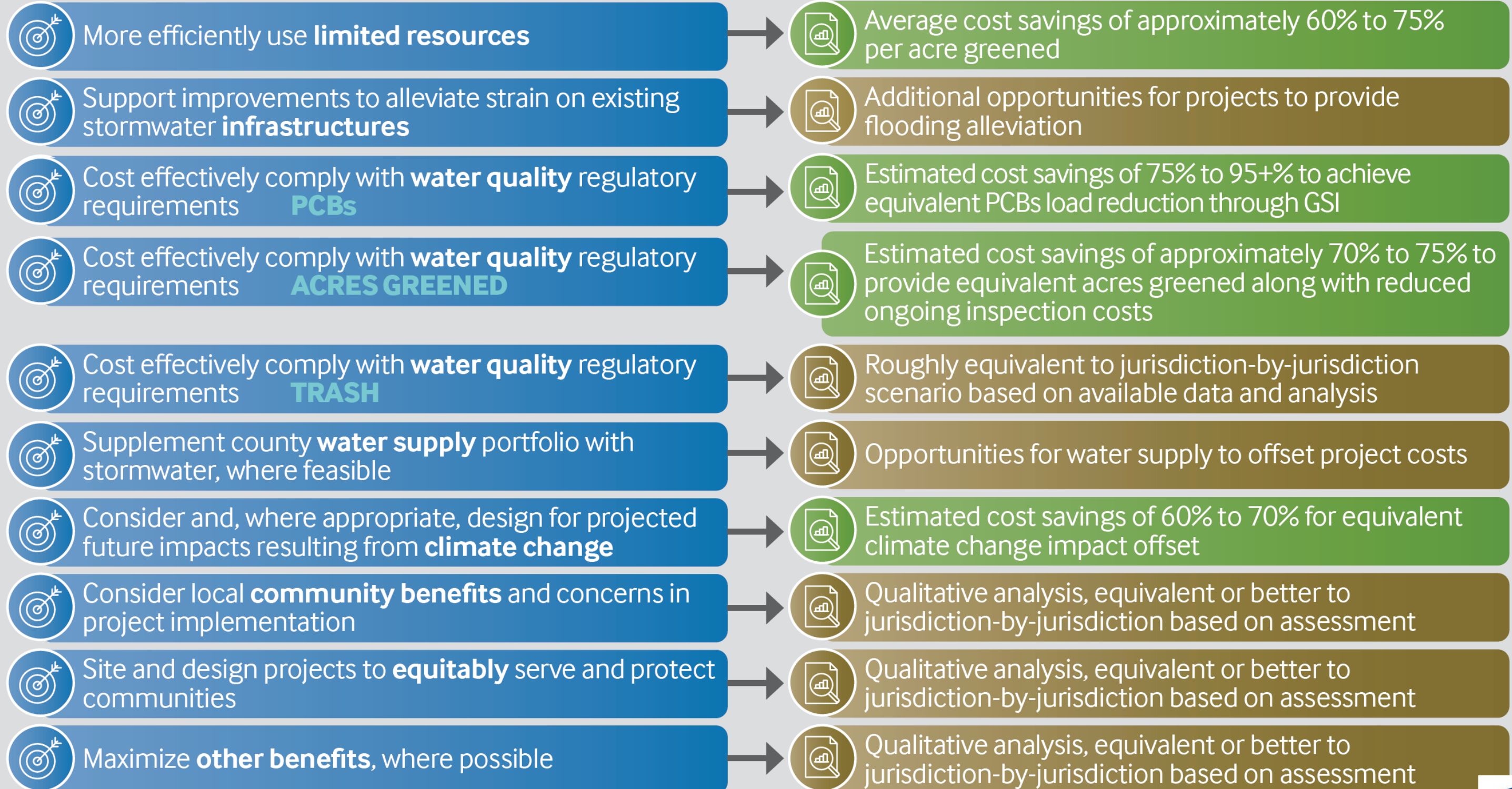
*Optimization approach reduces total implementation cost by targeting specific source areas **across jurisdictional boundaries***



Total Cost Targeted

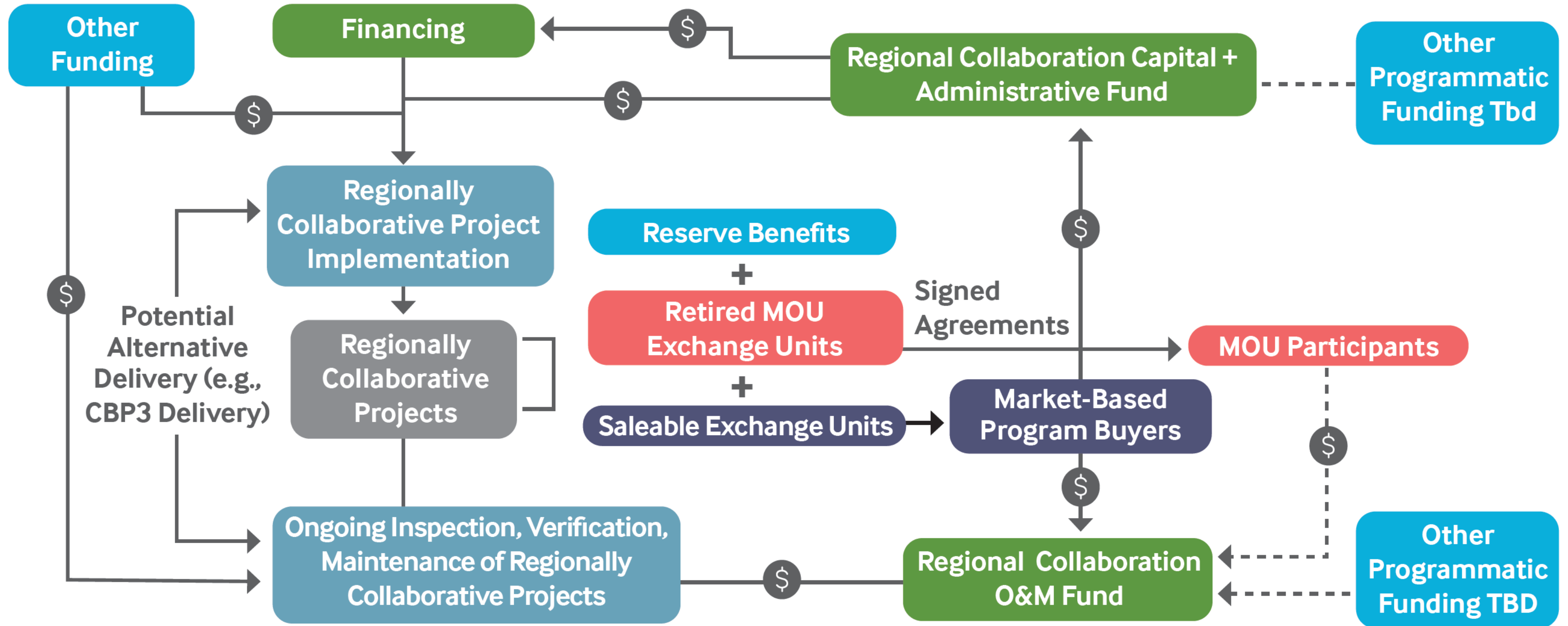
PROJECT OBJECTIVE

BUSINESS CASE FINDINGS FOR REGIONAL COLLABORATIVE SCENARIO



REGIONAL COLLABORATIVE

Geosyntec developed a Countywide Regional Collaborative framework with input from the project Technical Advisory Committee, which highlights the project's findings:

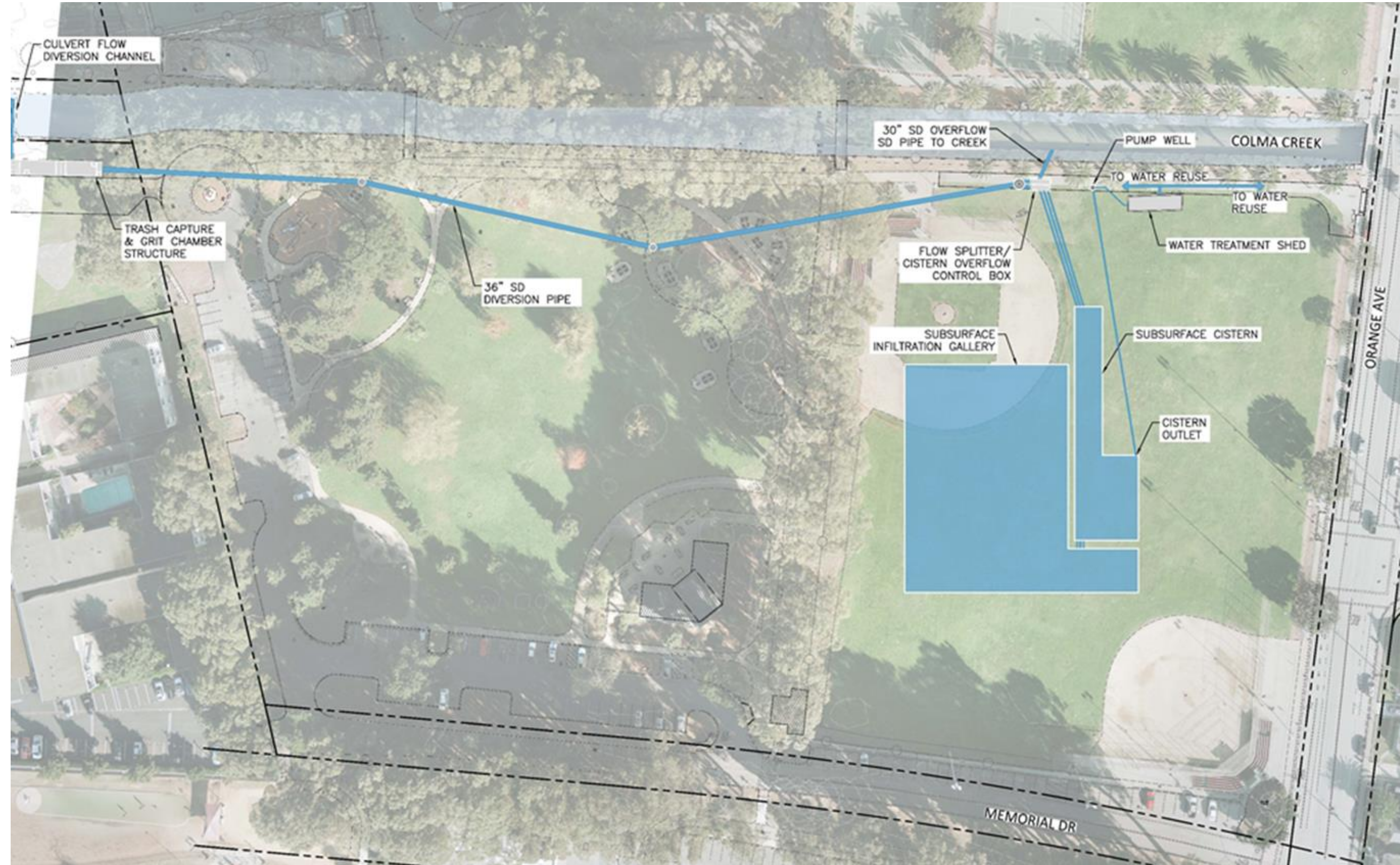


Post-Construction O&M and Monitoring

Operations & Maintenance

Project Elements

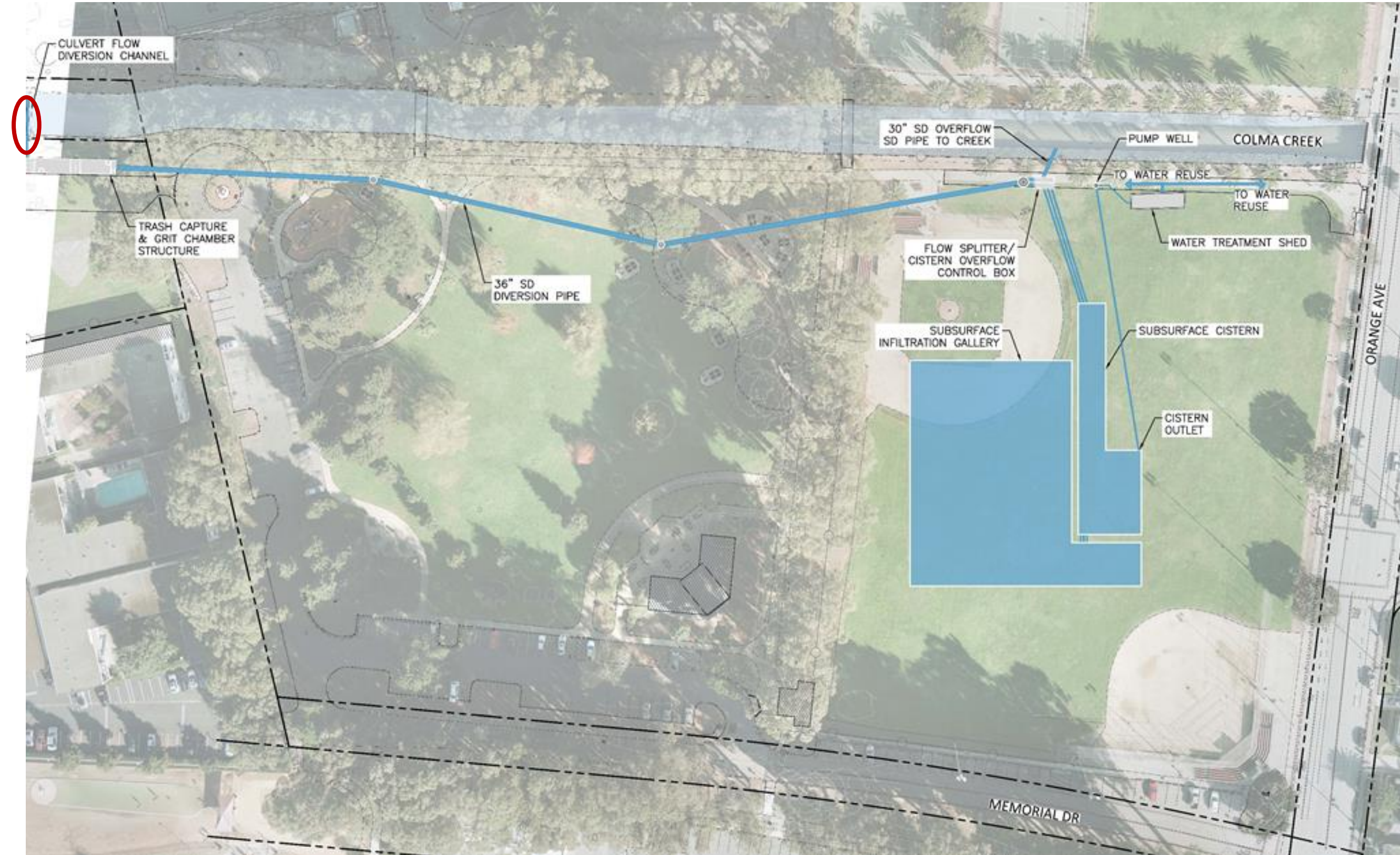
- Instream Diversion
- Grit/Trash Chamber
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed



Operations & Maintenance

Project Elements

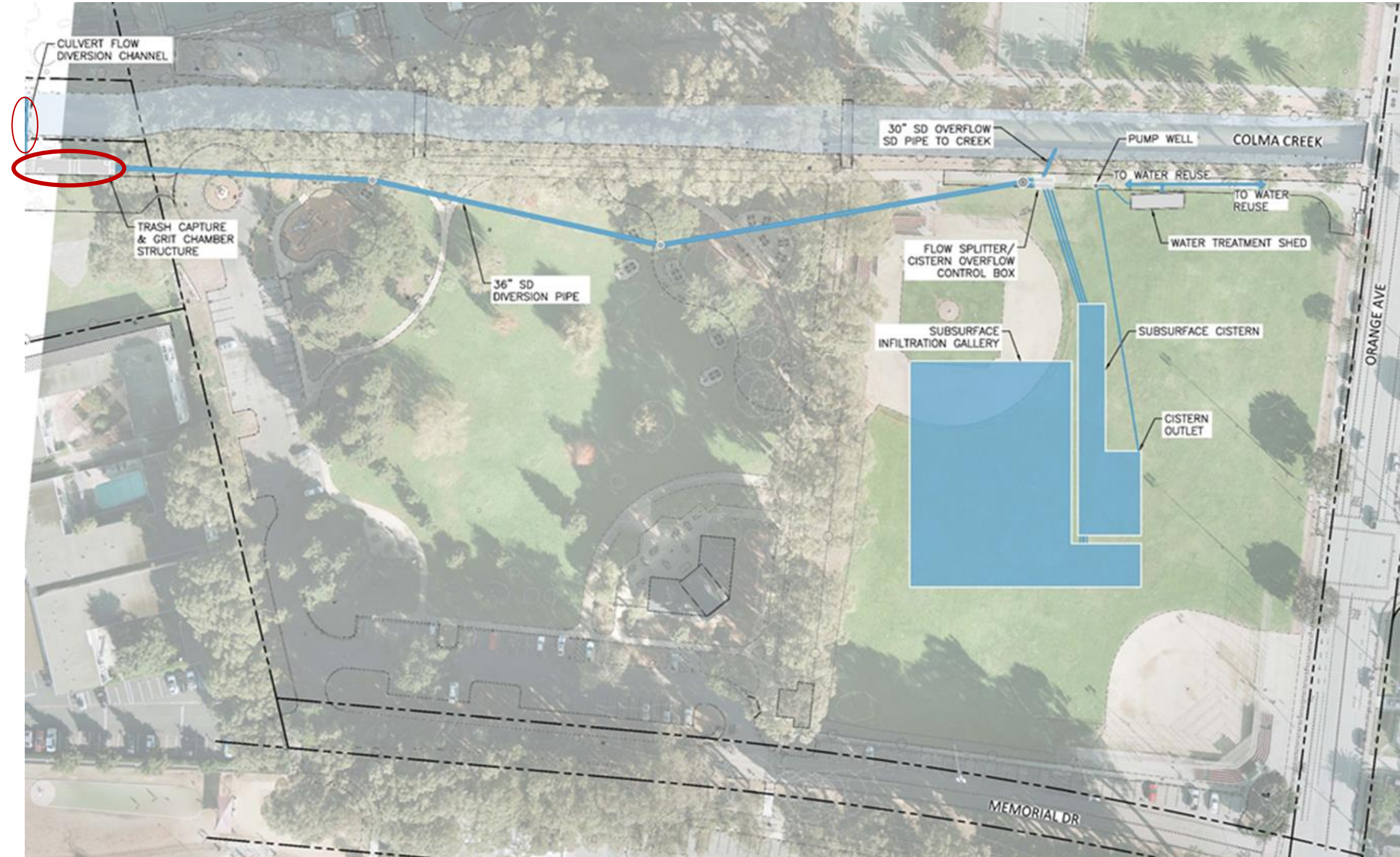
- Instream Diversion
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Operations & Maintenance

Project Elements

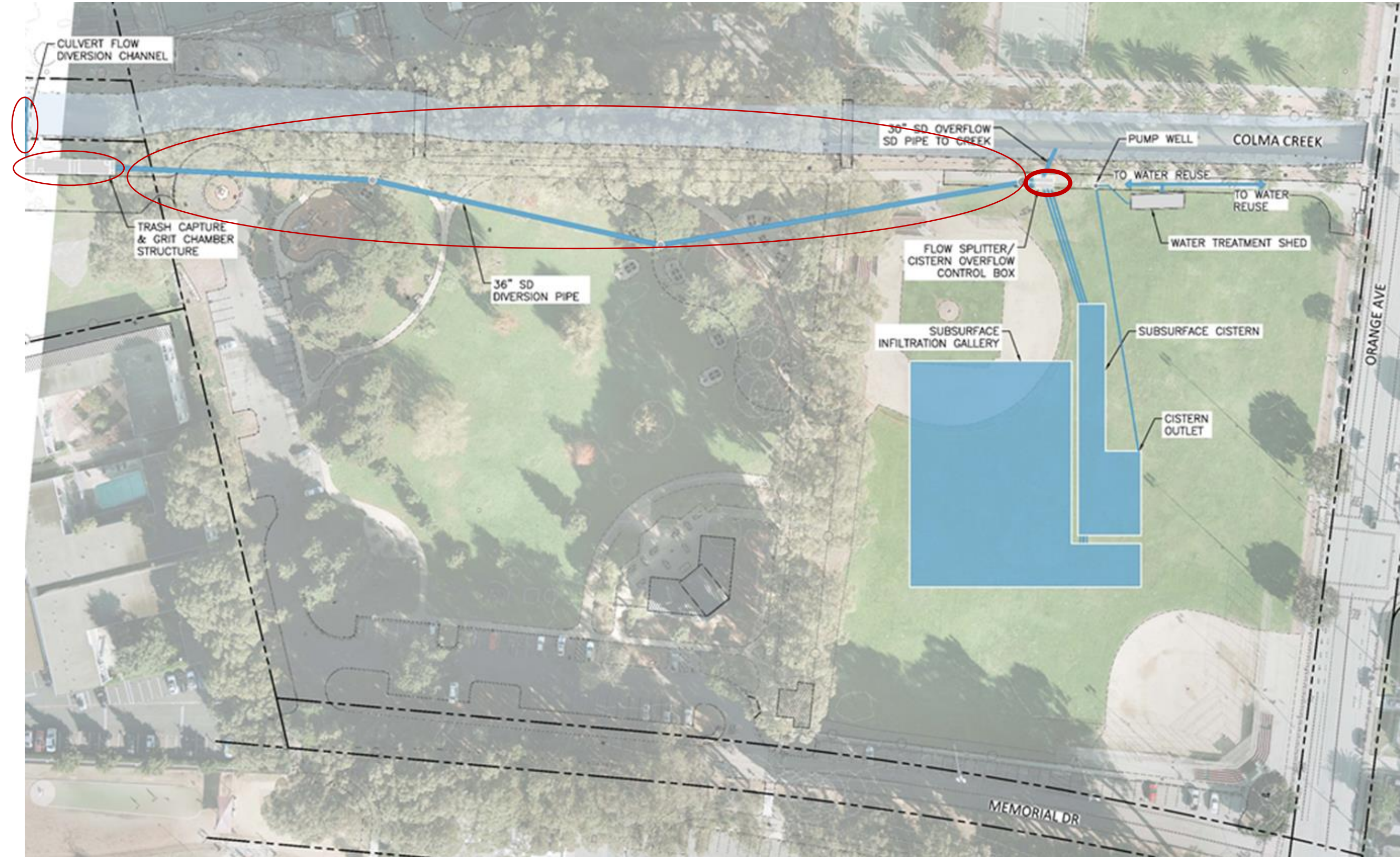
- Instream Diversion
- **Grit/Trash Chamber**
- Diversion Pipe
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed



Operations & Maintenance

Project Elements

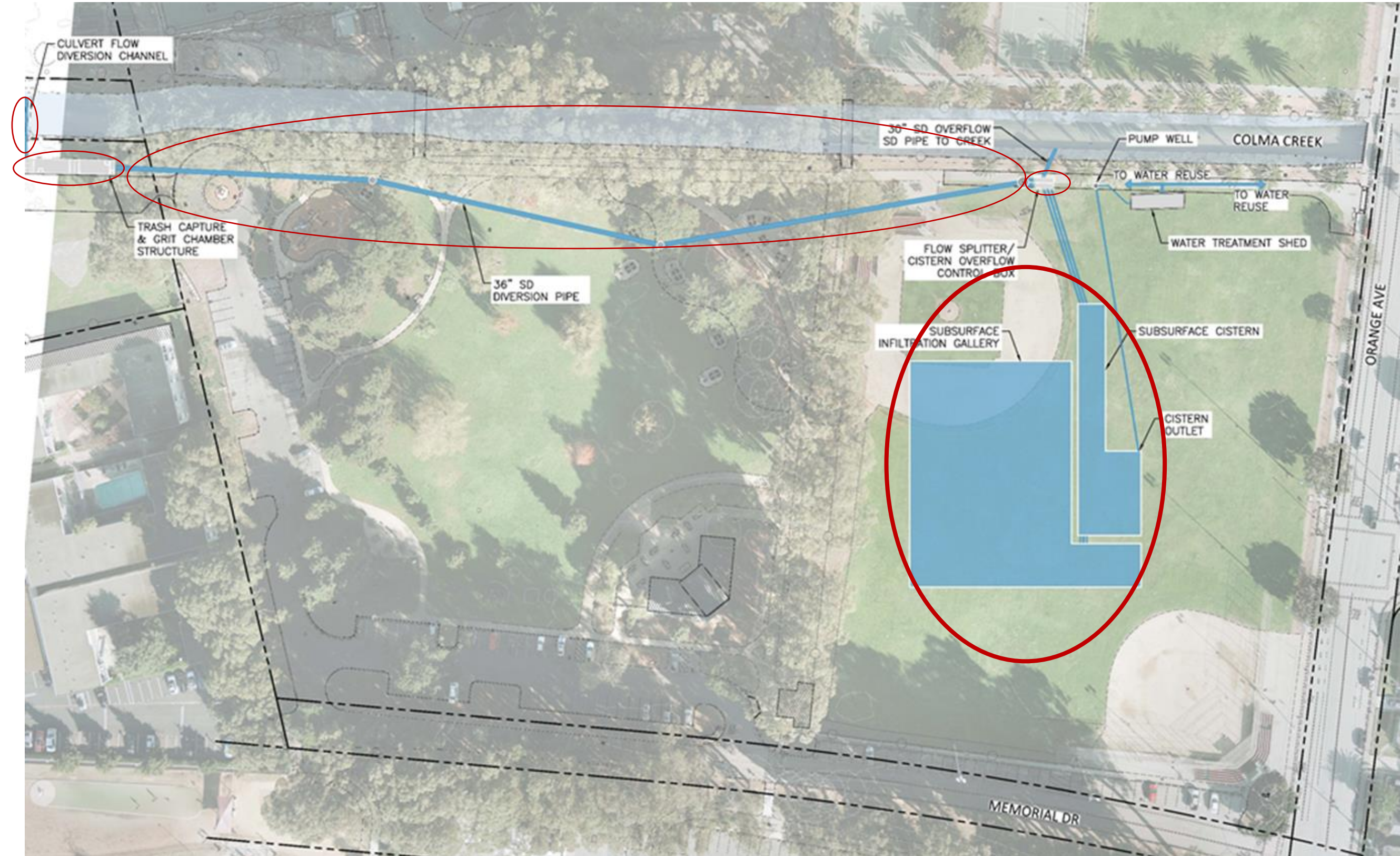
- Instream Diversion
- Grit/Trash Chamber
- Flow Splitter
- Cistern & Infiltration Gallery
- Water Quality Treatment Shed



Operations & Maintenance

Project Elements

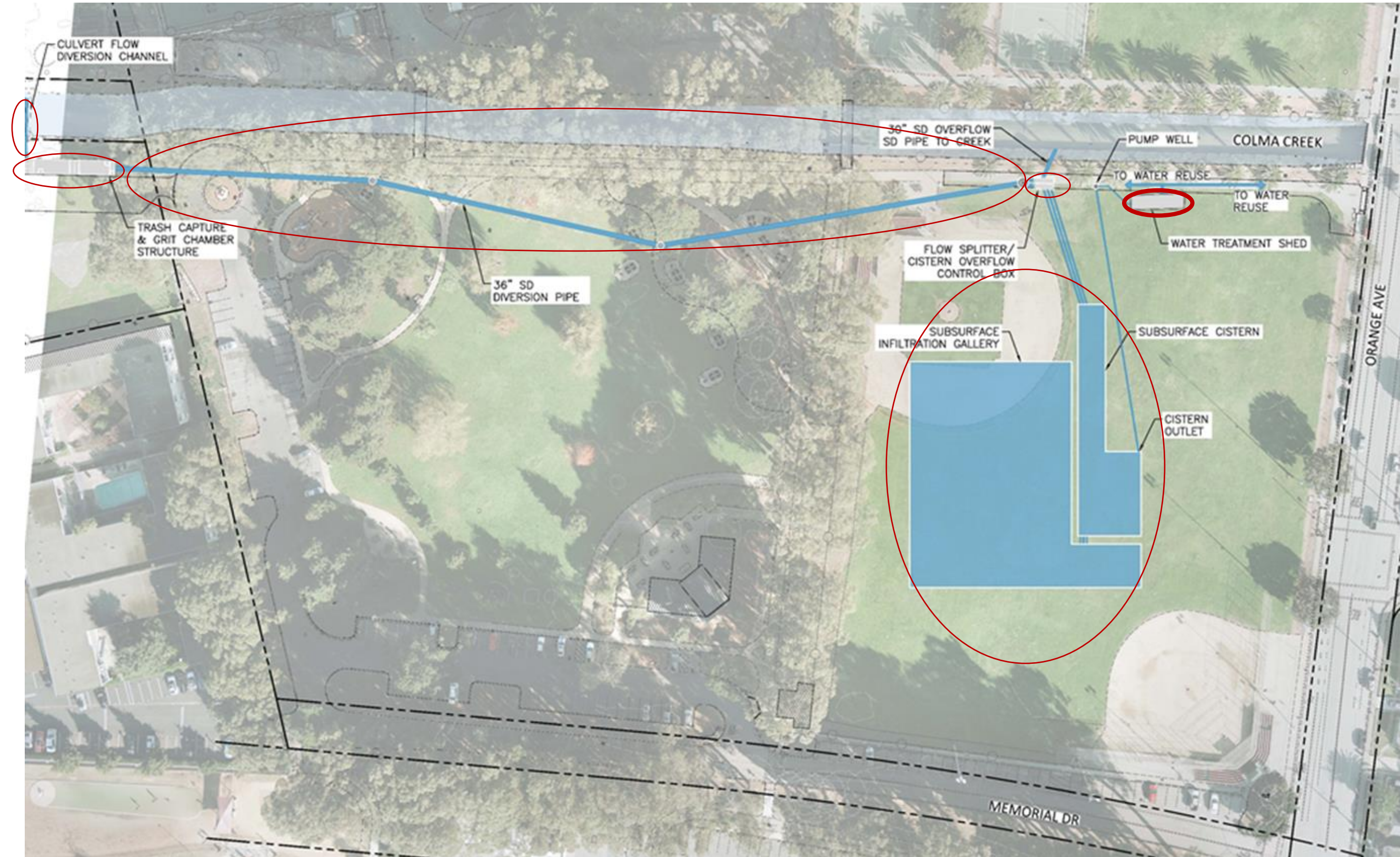
- Instream Diversion
- Grit/Trash Chamber
- Flow Splitter
- **Cistern & Infiltration Gallery**
- Water Quality Treatment Shed



Operations & Maintenance

Project Elements

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



Operations & Maintenance Estimates

Element	Frequency	Intensity
Instream Diversion	Monthly	Low
Grit/Trash Chamber	2 per year	High
Flow Splitter	After large storms	Low
Cistern	1 per year	High
Infiltration Gallery	1 per decade	High
Water Reuse System	Daily	Low

Permit Requirements for 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
 - **Water Reuse System Commissioning**

O&M and Monitoring Cost Estimates

Annual post-construction costs are expected to be in the range of \$300,000 to \$500,000

Collaborative Compliance

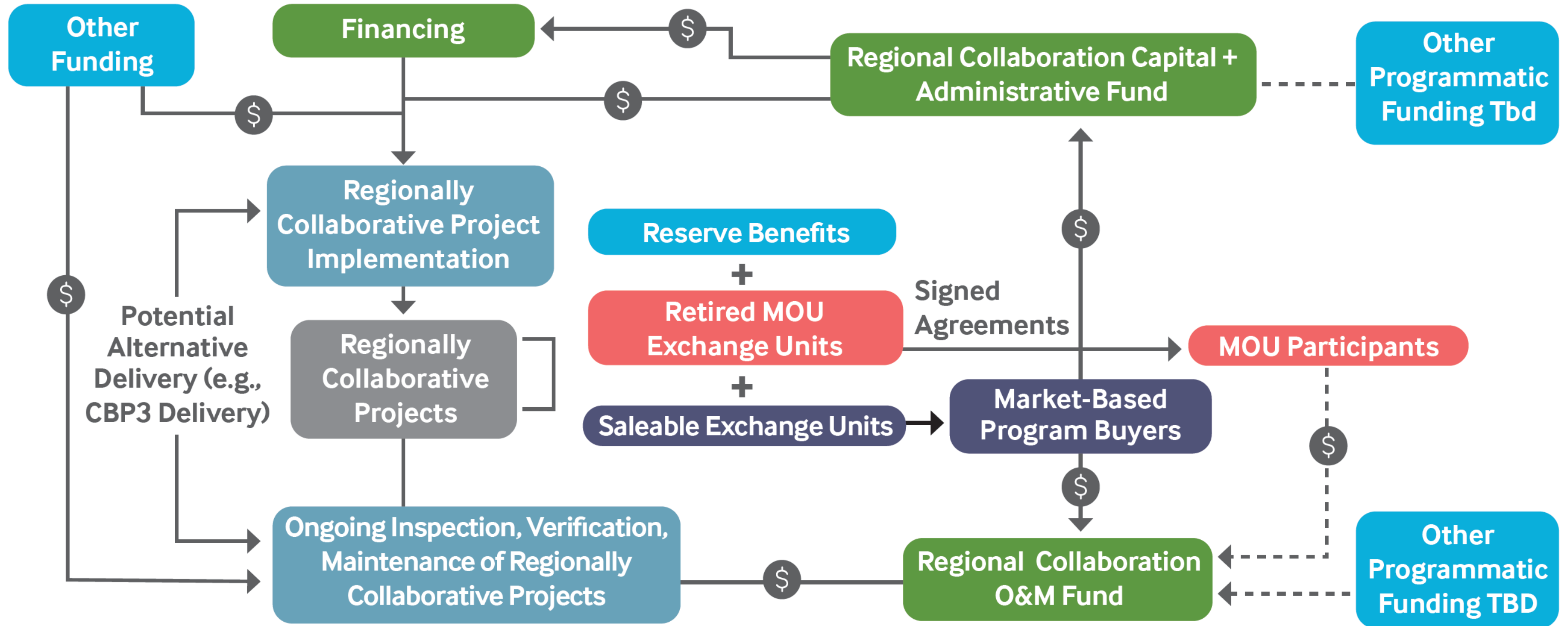
Collaborative Compliance

The Orange Memorial Park Regional Stormwater Capture Project is the **most cost-effective** way for San Mateo County Permittees to meet their “greened acre” obligations in the MRP 3.0.

Permittee	Share of Annual Orange Memorial Park Post-Construction Costs	MRP 3 Provision C.3.j Retrofit Credit (acres)
Atherton	\$3,000-\$5,000/yr	0.43
Belmont	\$11,000-\$19,000/yr	1.62
Brisbane	\$2,000-\$3,000/yr	0.28
Burlingame	\$13,000-\$21,000/yr	1.85
Colma	\$1,000-\$2,000/yr	0.20
Daly City	\$35,000-\$58,000/yr	5.00
East Palo Alto	\$12,000-\$20,000/yr	1.76
Foster City	\$14,000-\$23,000/yr	2.03
Half Moon Bay	\$5,000-\$9,000/yr	0.78
Hillsborough	\$5,000-\$8,000/yr	0.68
Menlo Park	\$14,000-\$24,000/yr	2.08
Millbrae	\$9,000-\$15,000/yr	1.34
Pacifica	\$16,000-\$27,000/yr	2.31
Portola Valley	\$2,000-\$3,000/yr	0.27
Redwood City	\$35,000-\$58,000/yr	5.00
San Bruno	\$18,000-\$30,000/yr	2.57
San Carlos	\$13,000-\$21,000/yr	1.81
San Mateo	\$35,000-\$58,000/yr	5.00
San Mateo County	\$27,000-\$45,000/yr	3.89
South San Francisco	\$28,000-\$47,000/yr	4.07
Woodside	\$2,000-\$4,000/yr	0.33

REGIONAL COLLABORATIVE

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Any Questions?

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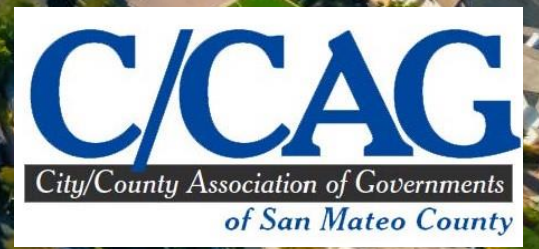


Image Source: <http://astanehelaw.com/2020/09/02/san-mateo-county-passes-emergency-ordinance-establishing-paid-sick-leave-for-the-coronavirus-covid-19-pandemic/>