

Regional Pathogen Reduction Study

Scientific Studies Program

Fiscal Year 2023-2024

Central Santa Monica Bay, Lower San Gabriel River,
Rio Hondo, Upper Los Angeles River

Gateway Water Management Authority

Presented by: Bruce Hamamoto



Study Overview

The Study will collect samples from waterbodies within urbanized areas of participating WAs and analyze them for bacterial indicators, viruses, and human markers.

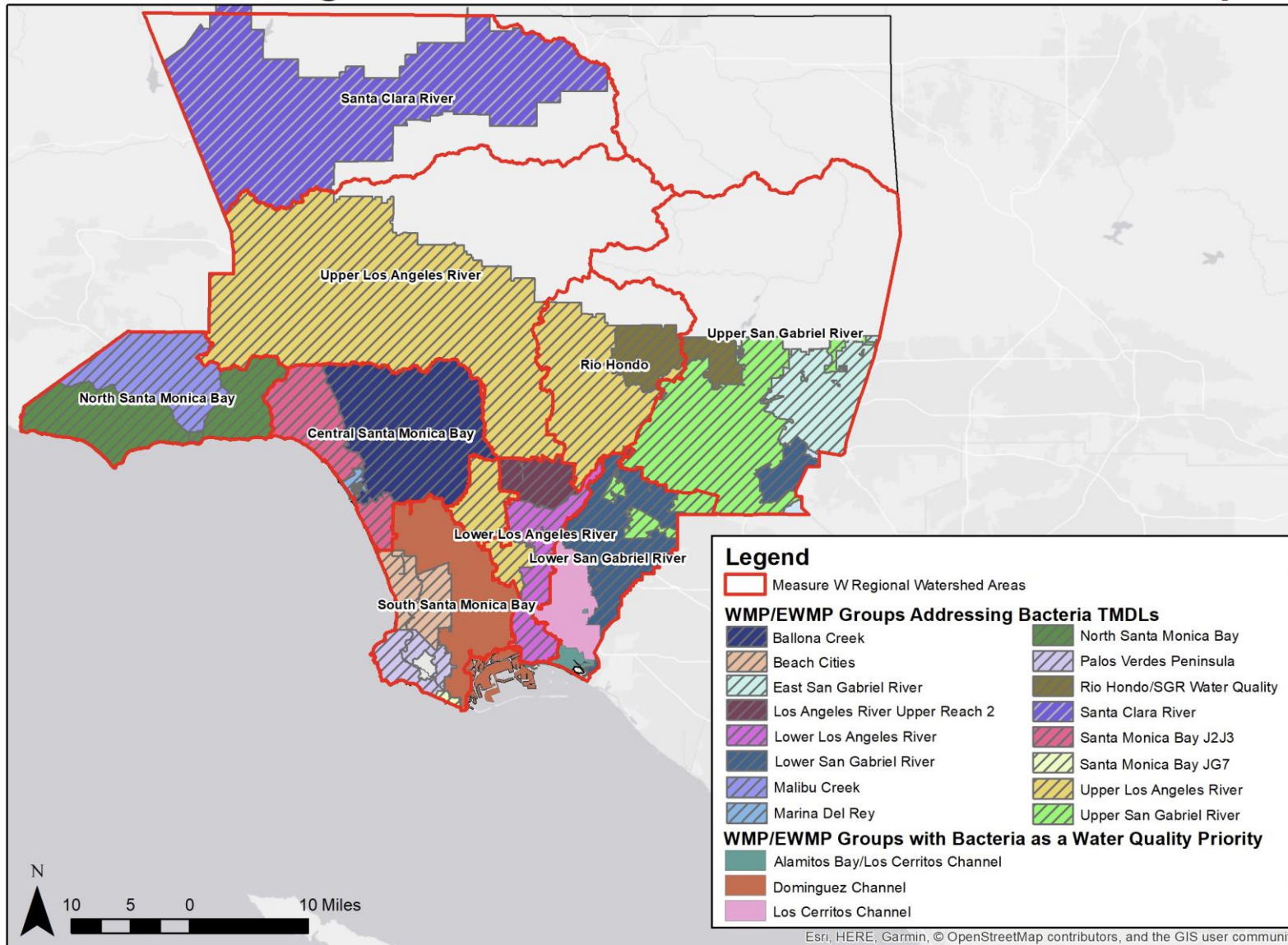
- Describe nexus to Stormwater and Urban Runoff capture and pollution reduction.
 - Study will facilitate improved targeting of pathogen sources and water to capture and/or treat
 - Study may reduce level of stormwater capture for bacteria compliance purposes through the identification of non-MS4 sources of risk thereby improving the protection of human health
 - Study will likely lead to partnering with various parties, such as wastewater agencies and homeless services agencies, to address human sources of pathogens.





Study Location

Measure W Regional Watershed Areas and WMP/EWMP Groups



\$5 B



Study Team

- Gateway Water Management Authority will manage the project and select the Study Team, which is expected to consist of a team of local and national experts and academia.
- The study team will be selected based on qualifications to address the Work Plan developed by stakeholders, including study sponsors, interested stakeholders, an independent Technical Advisory Committee, and regulators.
- Members of the Study Team are expected to include engineers, scientists, and statisticians with experience in similar studies, such as the San Diego Surfer Health Study.



Study Details

Problem Statement:

- Waterborne pathogens represent the most significant potential threat to the health of people recreating in and around the ocean and inland waters of Los Angeles County.
- Current standards are based on FIB (fecal indicator bacteria), which are used as proxies for pathogens.
 - FIB are ubiquitous; a vast network of structural control measures would need to be implemented to provide adequate control – projected cost over \$5 billion.
 - USEPA and academics agree that human sources of pathogens pose the greatest risk.
 - Unless high-risk sources are targeted, water capture projects may receive large FIB loads, but miss the highest risk human sources.

(Continued)



Study Details (Continued)

Methodology:

- Study work plan will be developed through a stakeholder-led process with the input of technical experts, including academics.
 - Stakeholder engagement is at the forefront of the study to ensure that diverse viewpoints are incorporated.
- Study will collect samples from beaches and waterbodies. Samples will be analyzed for traditional bacterial indicators, viruses, and human markers during wet and dry weather.
 - Identify areas with highest risk to support a focus on those areas
 - Identify the sources causing the highest risk to focus on those sources
- Study will assess control measure effectiveness and efficiency
 - Identify the best BMPs to address the sources
 - Support planning, applying municipal funds, requests for SCWP funding, and actions by other parties

(Continued)



Study Details (Continued)

Regional collaboration efforts:

- Initiated small group discussions and built a scope for a Safe, Clean Water Regional Program project
- Presented Approach to E/WMP Groups
- Discussed with proponents of watershed-specific studies
- Discussed with Regional Board staff

Revised study three times to address concerns

- Clearly focused on human pathogens
- Clarified that study is a component of overall strategy to protect human health
- Clarified that implementation continues during the study
- Reduced first year cost of study



Cost & Schedule

Phase	Description	Cost	Completion Date
Task 1	Stakeholder Process	\$490,000	7/22 – 6/27
Task 2	Health Risk Assessment	\$5,880,000	7/22 – 9/26
Task 3	Risk Management	\$1,734,600	4/23– 3/27
Task 4	Application of Study Findings	\$490,000	1/26 – 6/27
TOTAL		\$8,594,600	



Funding Request

WASC	Year 1	Year 2	Year 3	Year 4	Year 4
CSMB	\$47,109.15	\$329,764.06	\$282,654.91	\$307,364.38	\$107,432.50
LLAR	\$33,843.21	\$236,902.50	\$203,059.29	\$220,810.57	\$77,179.51
LSGR	\$44,169.54	\$309,186.78	\$265,017.24	\$288,184.85	\$100,728.71
NSMB	\$4,748.60	\$33,240.22	\$28,491.61	\$30,982.33	\$10,829.20
RH	\$30,413.67	\$212,895.68	\$182,482.01	\$198,434.45	\$69,358.42
SCR	\$15,866.36	\$111,064.53	\$95,198.17	\$103,520.32	\$36,183.27
SSMB	\$48,654.33	\$340,580.32	\$291,925.99	\$317,445.93	\$110,956.29
ULAR	\$102,094.95	\$714,664.67	\$612,569.72	\$666,120.09	\$232,827.71
USGR	\$49,973.39	\$349,813.71	\$299,840.33	\$326,052.14	\$113,964.40
TOTAL	\$376,873.21	\$2,638,112.47	\$2,261,239.26	\$2,458,915.06	\$859,460.00

Highlighted Watershed Areas have already approved this study for funding.



Summary of Benefits

- By developing a better understanding of pathogens present in the region's watersheds, the relative risk to human health they pose, and the effectiveness of various control measures, new or adapted BMPs can be established that improve water quality and reduce human health risks at our beaches and inland waterbodies.
- Short-term: results could be used to protect people from health risks that aren't currently known.
- Long-term: results will enable the targeted placement of BMPs in locations where they can maximize the prevention or treatment of key sources of human pathogens.



Questions?

Kinneloa Yard Stormwater Capture Project

Funding Program - Infrastructure Program

Fiscal Year 2023-2024

Rio Hondo Watershed

Project Lead: City of Pasadena

Presenter: Merrill Taylor (Craftwater Engineering)

Previously Awarded TRP? - No



Project Overview

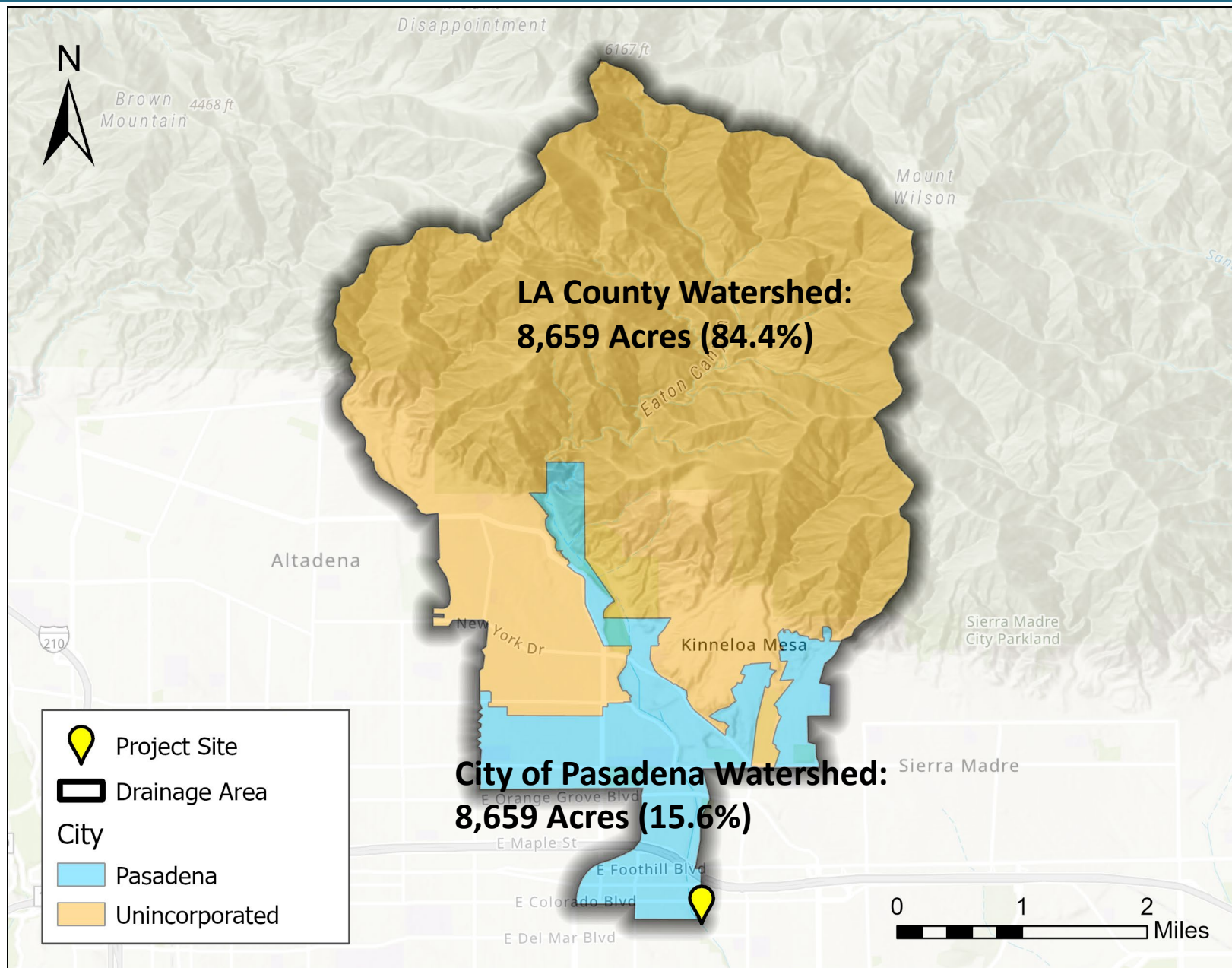
Site restoration and regional and onsite stormwater capture and infiltration diversion facility located beneath open space at Kinnelea Yard

- **Primary Objective:** Improve WQ within Eaton Wash & transform the contaminated zone into an accessible park
- **Secondary Objectives:** Create onsite LID & public education
- **Project Status:** SCW funding request for Design
- **Total Funding Requested:** \$2,292,762



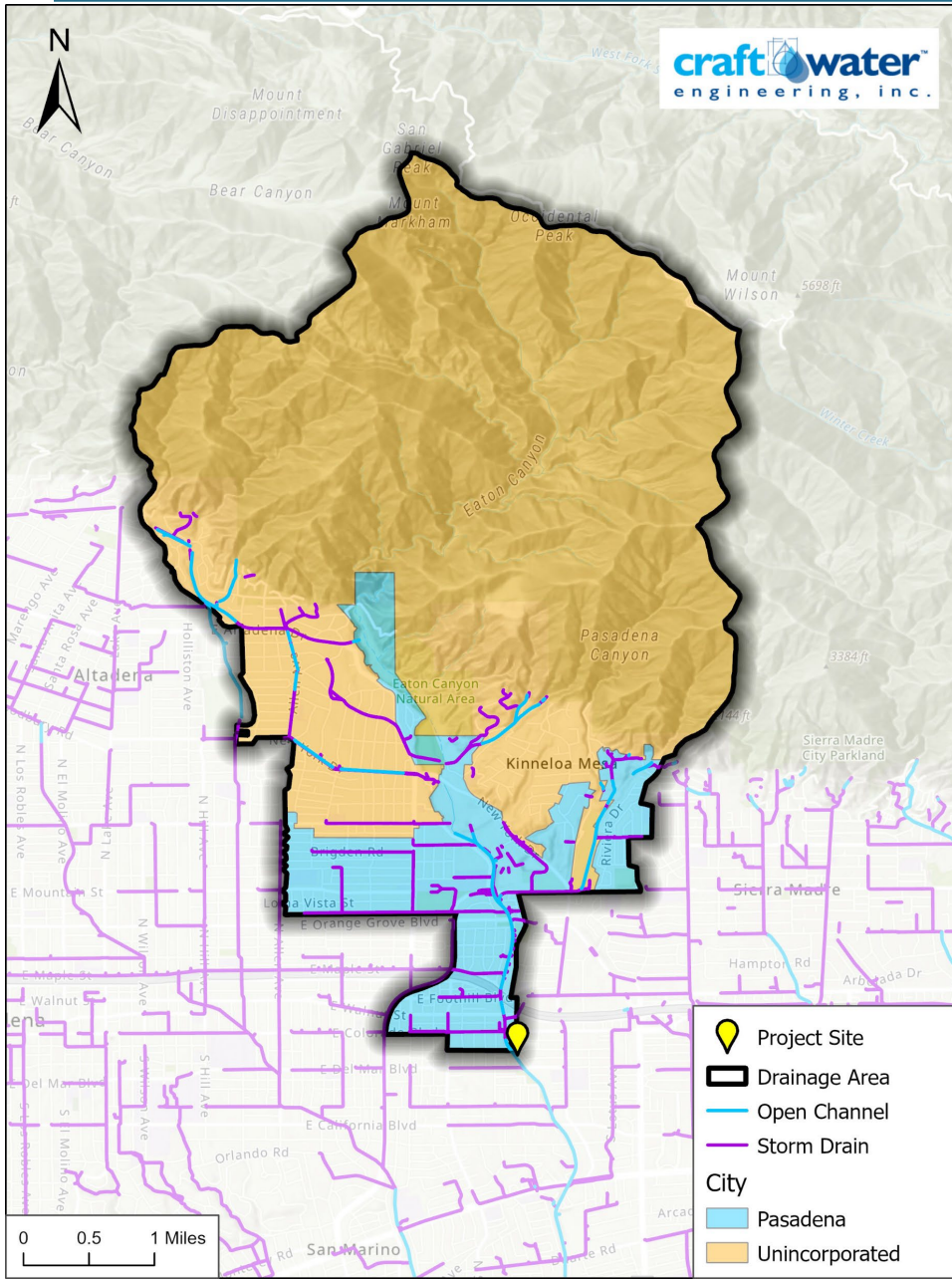


Project Location – Watershed Map





Project Location – Total Capture Area



- Capture area jurisdiction:
 - City of Pasadena
 - LA County
- Watershed Capture Area:
 - 10,254 acres

Land-use	Area (acres)	% of Impervious
Single Family Residential	232.9	46.4%
Commercial	55.2	11%
Institutional	17.6	3.5%
Industrial	84.3	16.8%
Secondary Roads & Alleys	111.9	22.3%
TOTAL	502	100%



Project Background

- Why was the Project Location selected?
 - Pasadena Storm Water Master Plan, close to Eaton Wash
- How was the Project developed?
 - Site remediation desire, nature-based solution
- Which regional water management plan includes the proposed project?
 - IRWMP
- Description of benefits to municipality/municipalities
 - Site remediation, new park facility, treat 85th percentile storm
- Description of benefits to Disadvantaged Communities
 - Not applicable



Project Benefits



- **Water Quality** improvement in the Eaton Wash Channel by treating stormwater and urban runoff
- **Nature-Based** creation of wetlands and naturalized stream surrounded by native vegetations
- **Flood Management** storing 6 acre-feet of stormwater during storm events
- **Park Recreational Enhancements** replacing undeveloped yard with a wetland park
- **Access to Waterways** walk and sit near Eaton Wash and naturalize stream
- **Reduced Heat Island** native vegetation and 20 new shade trees throughout the park

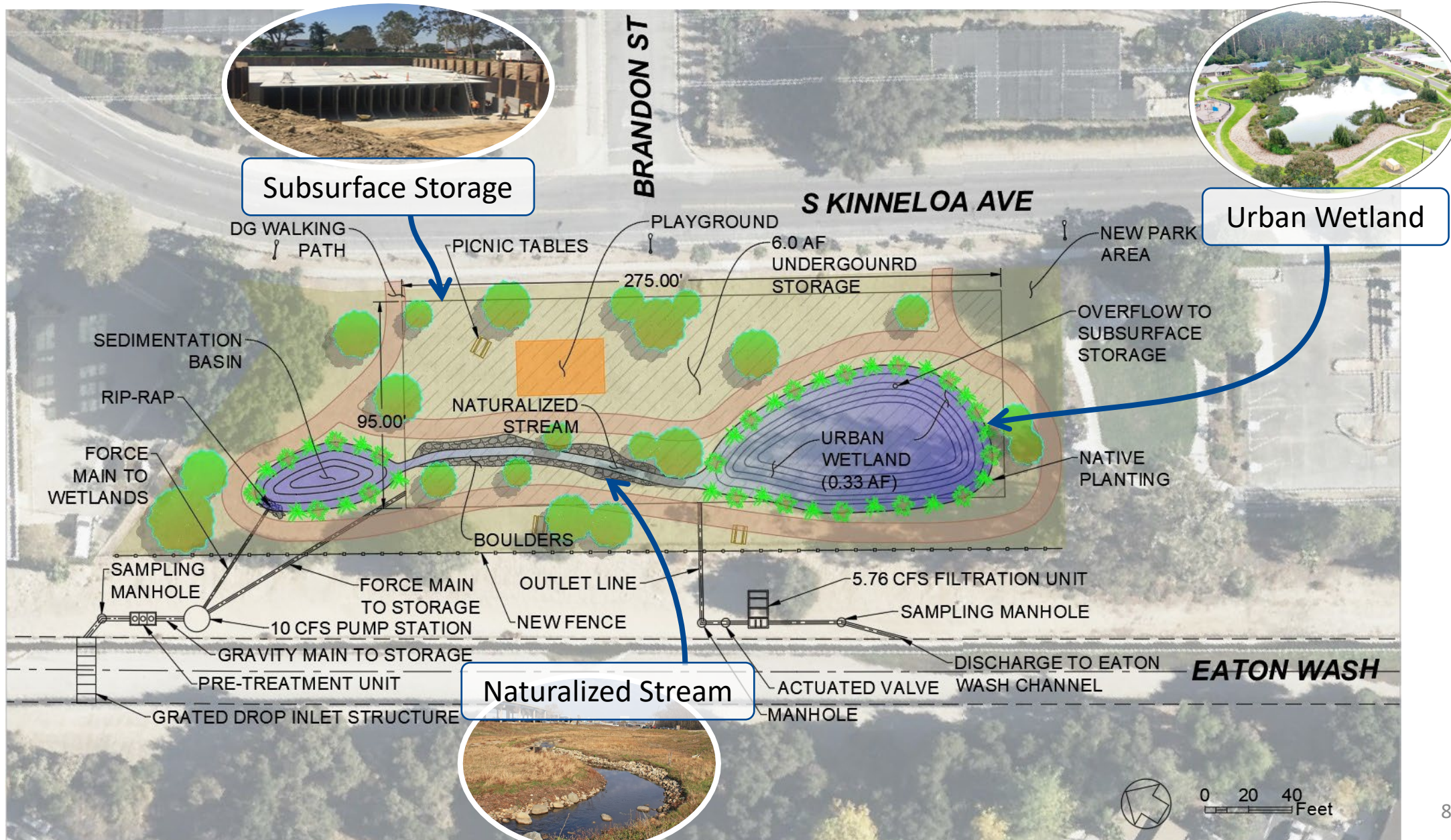


Partners

- Who are the implementation partners already identified?
 - City of Pasadena, Ability First Pasadena
- What communities or groups have expressed support for the project?
 - Boys and Girls Club of Pasadena
- Have you received a letter of concurrence from the municipality (if needed)
 - Yes. Led by the City of Pasadena
- Have you received a letter of concurrence from the Flood Control District (if needed)
 - Yes
- Have you yet engaged the appropriate vector control district about the project concept?
 - Yes

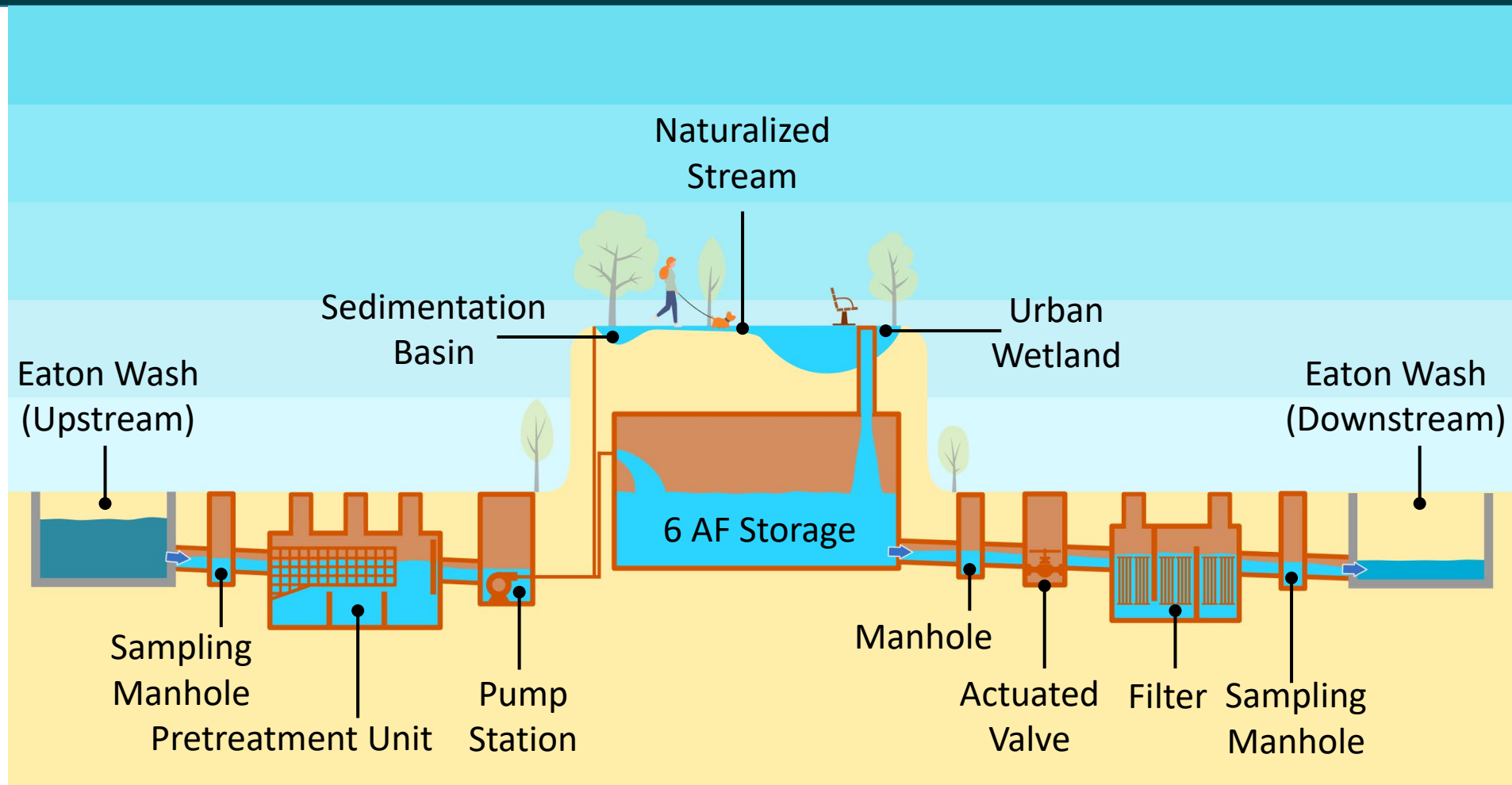


Project Details- Site Plan





Project Details – Schematic Diagram



Diversion Rate	Storage Capacity	24-Hour Capacity	Primary Pollutant Reduction (Zinc)	Secondary Pollutant Reduction (Copper)
10 cfs	6.0 ac-ft (2 MG)	17.42 ac-ft	92.7% (135.7 lbs)	89.1% (33.6 lbs)



Project Details- Existing Conditions

Kinneloa Yard



Existing Conditions

- Infiltration Rate: 0 in/hr
- Approximate Depth to Groundwater: > 50 ft BGS
- Current Use: None
- Owner: City of Pasadena

*Feasibility, Stormwater Capture review done

*Alternative footprint sizes and diversion rates examined

Eaton Wash





Cost & Schedule

Phase	Description	Cost	Completion Date
Planning	Feasibility Study	\$100,000	07/2022
Design	Final Design (30/60/90/100)	\$1,367,292	12/2023
Design	Public Outreach during Design	\$50,000	12/2023
Design	Environmental Planning (CEQA) and Permitting	\$683,646	12/2023
Design	Agency Management (Design)	\$191,823	12/2023
Construction	Construction Survey	\$20,000	12/2024
Construction	Agency Management (Construction)	\$150,000	12/2026
Construction	Construction Cost	\$13,672,923	12/2026
Construction	Construction Bid/Award, Admin., Design Support	\$1,367,292	12/2026

Annualized Costs

Maintenance Cost:	\$250,000
Operation Cost:	\$50,000
Monitoring Cost:	\$25,000
Project Life Span:	50

Life-Cycle Costs

Life-Cycle Cost for Project:	\$25,400,994
Annualized Cost for Project:	\$1,058,644



Funding Request

Year	SCW Funding Requested	Phase	Efforts during Phase and Year
1	\$2,292,762	Design	Environmental Planning (CEQA) and Permitting, Community Outreach, Agency Project Management, and Professional Design Services (30/60/90/100)
TOTAL	\$2,292,762		

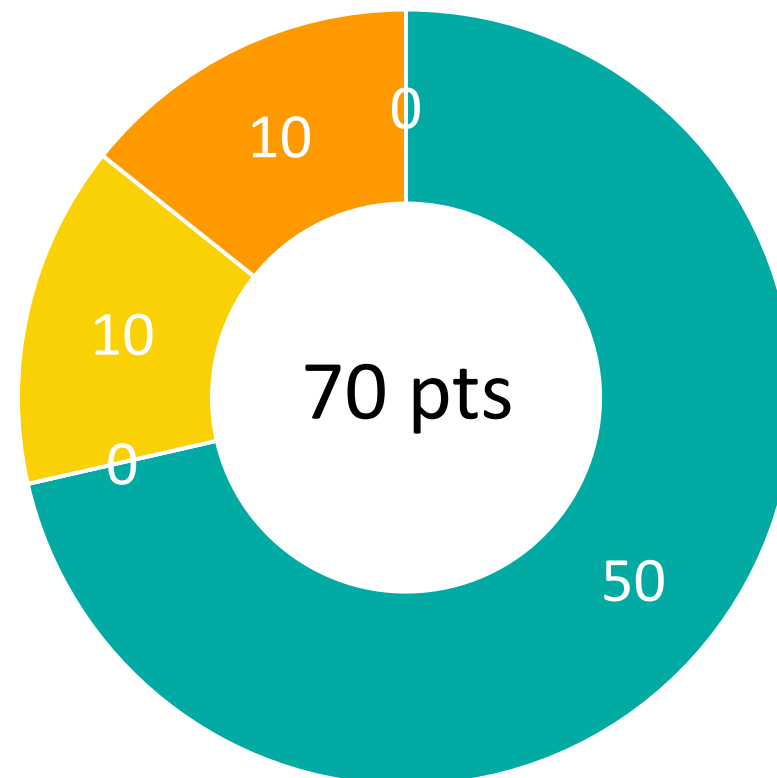
- Cost Share = \$0
- Future funding requests
 - \$15,210,214 for Construction – Year 2 and beyond



Score as confirmed by the Scoring Committee

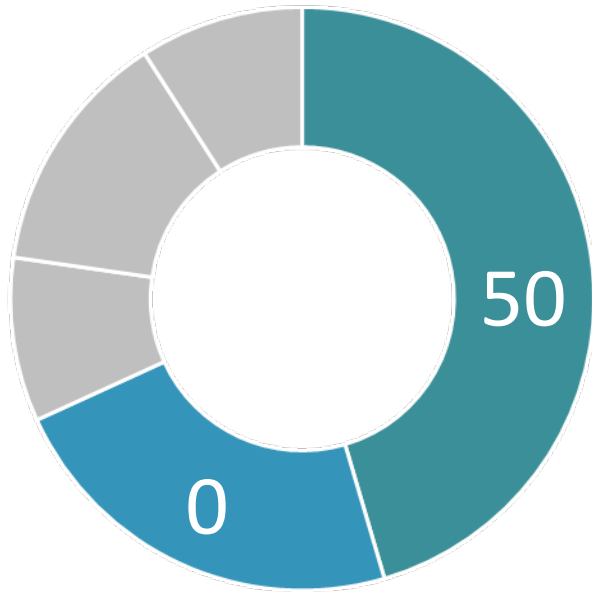
The Scoring Committee confirmed this score on 9 Nov 2022.

- Water Quality
- Water Supply
- Community Investment Benefits
- Nature Based Solutions
- Leveraged Funds and Community Support





Water Quality & Water Supply Benefits

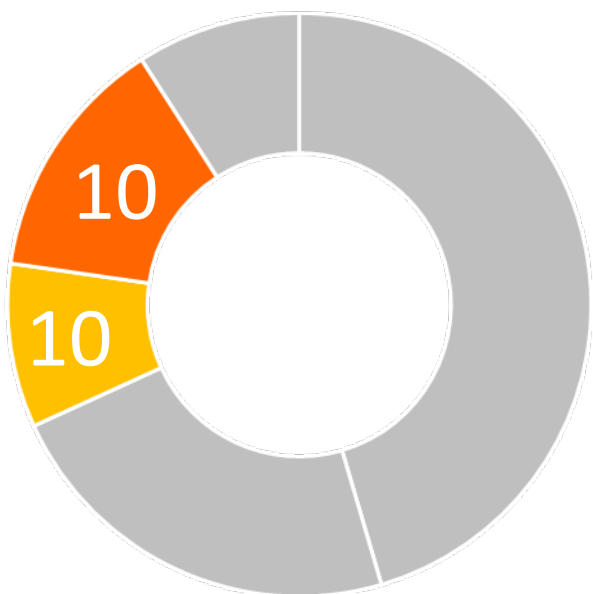


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- **Primary Mechanisms**
 - Runoff/pollutant capture
 - Filtration
 - Stormwater use and release after treatment
- **Wet weather project**
- Tributary Area: **10,254 acres**
- 24 Hours Capacity: **17.42 ac-ft**
- Pollutant Load Reduction
 - Primary Pollutant (Zinc) – **92.7% (135.7 lbs-annual avg)**
 - Secondary Pollutant (Copper) – **89.1% (33.6 lbs-annual avg)**
- Average Annual Capture for Water supply: **0 ac-ft**
- Water Supply Use :
 - **N/A**
- Water Supply Cost Effectiveness: **N/A**



Community Investment Benefits and Nature Based Solutions



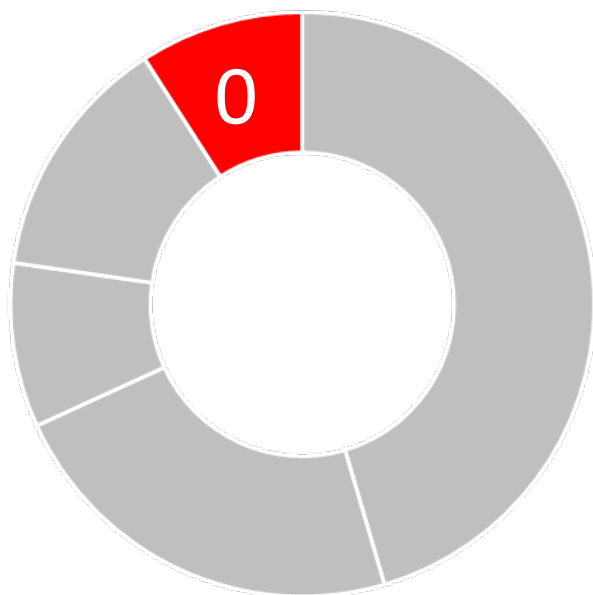
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- **Community Investment Benefits**
 - Improve flood management
 - Creation of parks and wetlands
 - Improve public access to waterways
 - Enhanced recreational opportunities
 - Reduced heat island effect and increased shade
 - Increase the number of trees and vegetation
- **Nature Based Solutions**
 - Project creates an urban wetland and a naturalized stream to mimic natural processes
 - Post construction plans include additional native trees, shrubs, decomposed granite, native compacted soil, and grasses



Leveraging Funds and Community Support

- Leveraging Funds
 - N/A
- Community Support
 - City of Pasadena to continue to lead an active community outreach effort
 - Strong, local, community-Based Support
 - Boys & Girls Club of Pasadena



The Scoring Committee confirmed this score on 9 Nov 2022

Questions?

Merrill Taylor, PE

