

An aerial photograph of Los Angeles, California, showing the coastline, the city grid, and some green spaces. The image is partially obscured by a dark teal overlay on the left side where the text is located.

Community Garden Stormwater Capture Investigation

Scientific Studies Program

Fiscal Year 2022-2023

Upper Los Angeles River

Los Angeles Community Garden Council

Diana Campos Jimenez, Juan Diaz-Carreras



About Us!

- A 501(c)3 non-profit organization founded in 1998
- Our mission is to strengthen communities by building and supporting community gardens where every person in Los Angeles County can grow fresh food in their neighborhood
- Manage 40+ community gardens
- Offer workshops, gardening advice, and community organizing
- Advocate for accessibility to affordable, healthy food



Project Overview

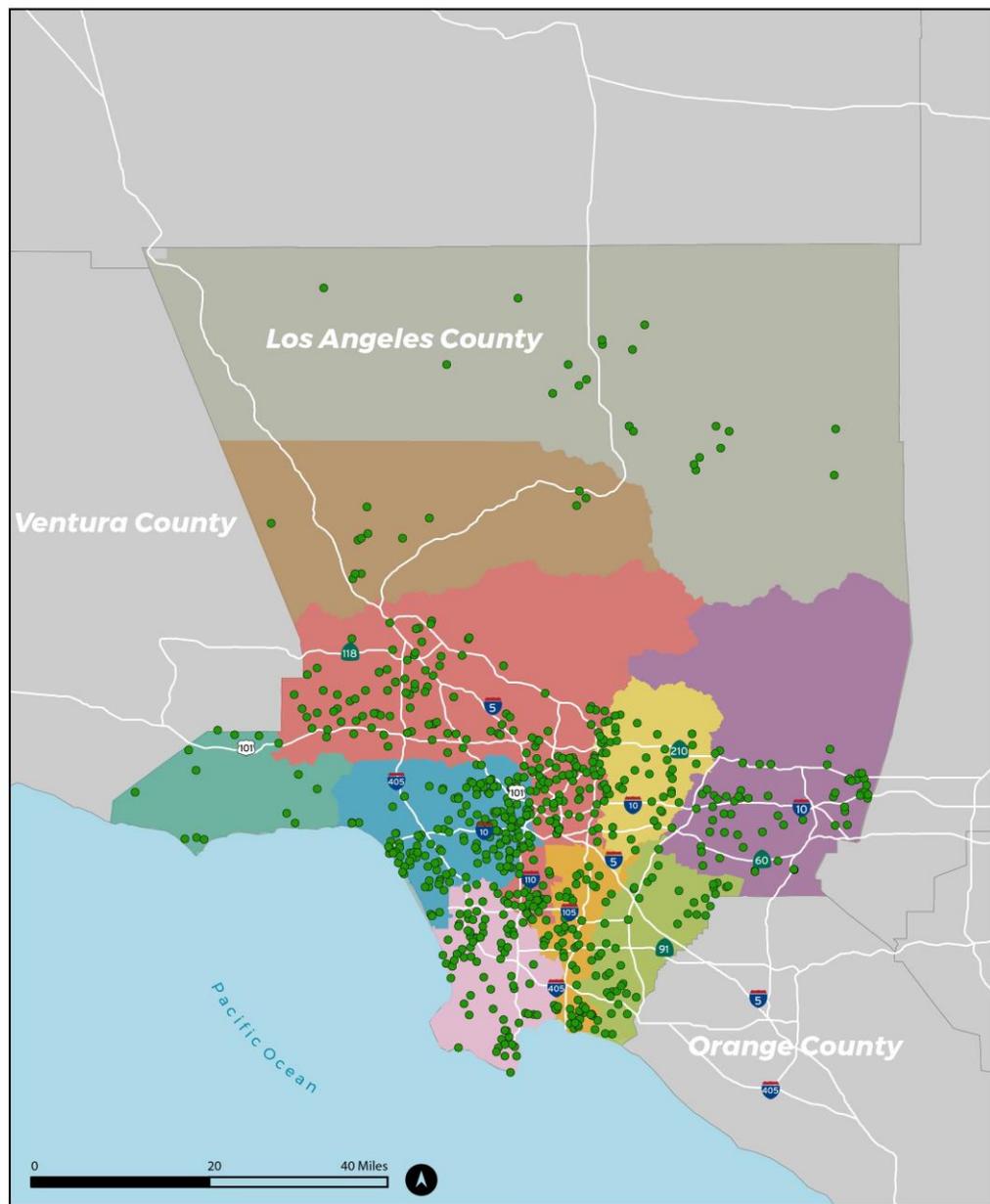
Community gardens can function as stormwater capture facilities. This study will investigate opportunities including conducting outreach.

- Primary Objective: Identify Community Garden locations that have potential for stormwater capture.
- Secondary Objectives: Engage through direct dialog with gardeners on potential garden sites to ensure any recommendations are supported by the community the garden serves. Identify 3 high potential sites and produce a concept report for each.
- Project Status: Planning
- Total Funding Requested: \$2,647,990 total/ \$378,285 per watershed.





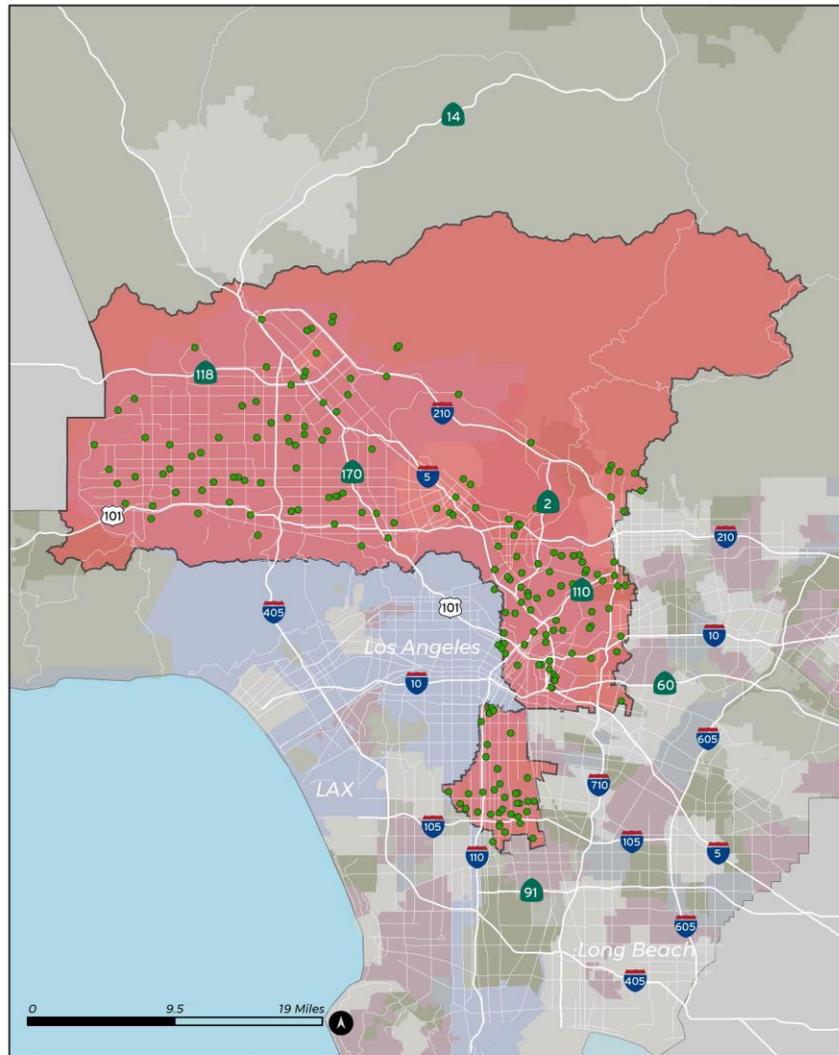
Project Location



- Almost 800 Community Gardens across LA County
- Many are managed by community groups
- Community gardens serve diverse communities in the County



Project Location



Legend
Community Gardens ●
Upper Los Angeles River (224)

Upper Los Angeles River Watershed

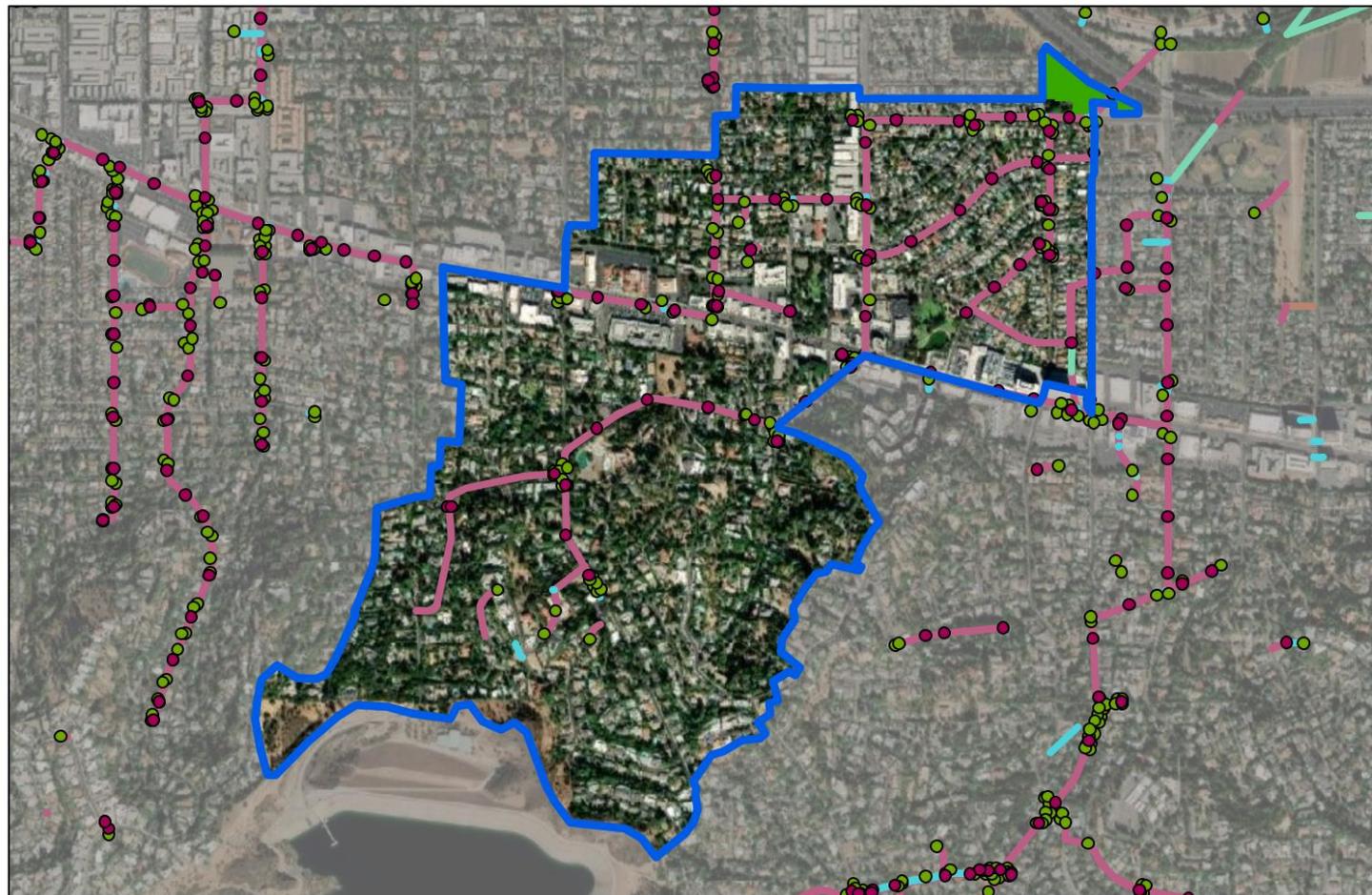
- 224 community gardens in the watershed



- Sepulveda Community Garden
 - Approximately 4.9 acres
 - Gardens downstream of urban areas can be redesigned to collect offsite “run-on” from these areas to provide pollutant reduction benefits to municipalities.



Project Location



Legend

	Sepulveda Community Garden (4.89 acres)		Maintenance Hole		Gravity Main
	Watershed Area (571 acres)		Catch Basin		Lateral Line
			Culvert		Open Channel

- Example Community Garden with Upstream Tributary Area
- Drainage area is 571 acres to the community garden



Project Background

- The primary objective of the Community Garden Stormwater Capture Scientific Study is to identify and evaluate potential sites for stormwater capture at community gardens within the Watershed.
- The Community Garden Stormwater Capture Scientific Study will propose and implement a methodology to compile, evaluate and prioritize potential opportunities to install best management practices (BMPs) at existing community garden sites to capture, infiltrate and/or treat urban stormwater runoff.
- The study will also include preliminary concept plans for three priority sites.



Cost & Schedule

Schedule Milestone Table

Milestone Name	Completion Date
Database of Existing Community Gardens	01/03/2022
Develop Screening Criteria	03/01/2022
Preliminary Investigation	05/02/2022
Site Reconnaissance and Outreach	08/01/2022
Concept Reports and Fact Sheet	10/14/2022
SCW Program Technical Resources Funding Application	11/30/2022



Funding Request

Funding Requested Per Year Per Watershed

Funding Request Year	Watershed Area	Amount for Year
Year 1	Central Santa Monica Bay	\$ 189,142.00
Year 1	Lower Los Angeles River	\$ 189,142.00
Year 1	Lower San Gabriel River	\$ 189,142.00
Year 1	Rio Hondo	\$ 189,142.00
Year 1	South Santa Monica Bay	\$ 189,142.00
Year 1	Upper Los Angeles River	\$ 189,144.00
Year 1	Upper San Gabriel River	\$ 189,142.00
Total Year 1		\$ 1,323,996.00
Year 2	Central Santa Monica Bay	\$ 189,142.00
Year 2	Lower Los Angeles River	\$ 189,142.00
Year 2	Lower San Gabriel River	\$ 189,142.00
Year 2	Rio Hondo	\$ 189,142.00
Year 2	South Santa Monica Bay	\$ 189,142.00
Year 2	Upper Los Angeles River	\$ 189,142.00
Year 2	Upper San Gabriel River	\$ 189,142.00
Total Year 2		\$ 1,323,994.00
Total Funding		\$ 2,647,990.00

Project Benefits

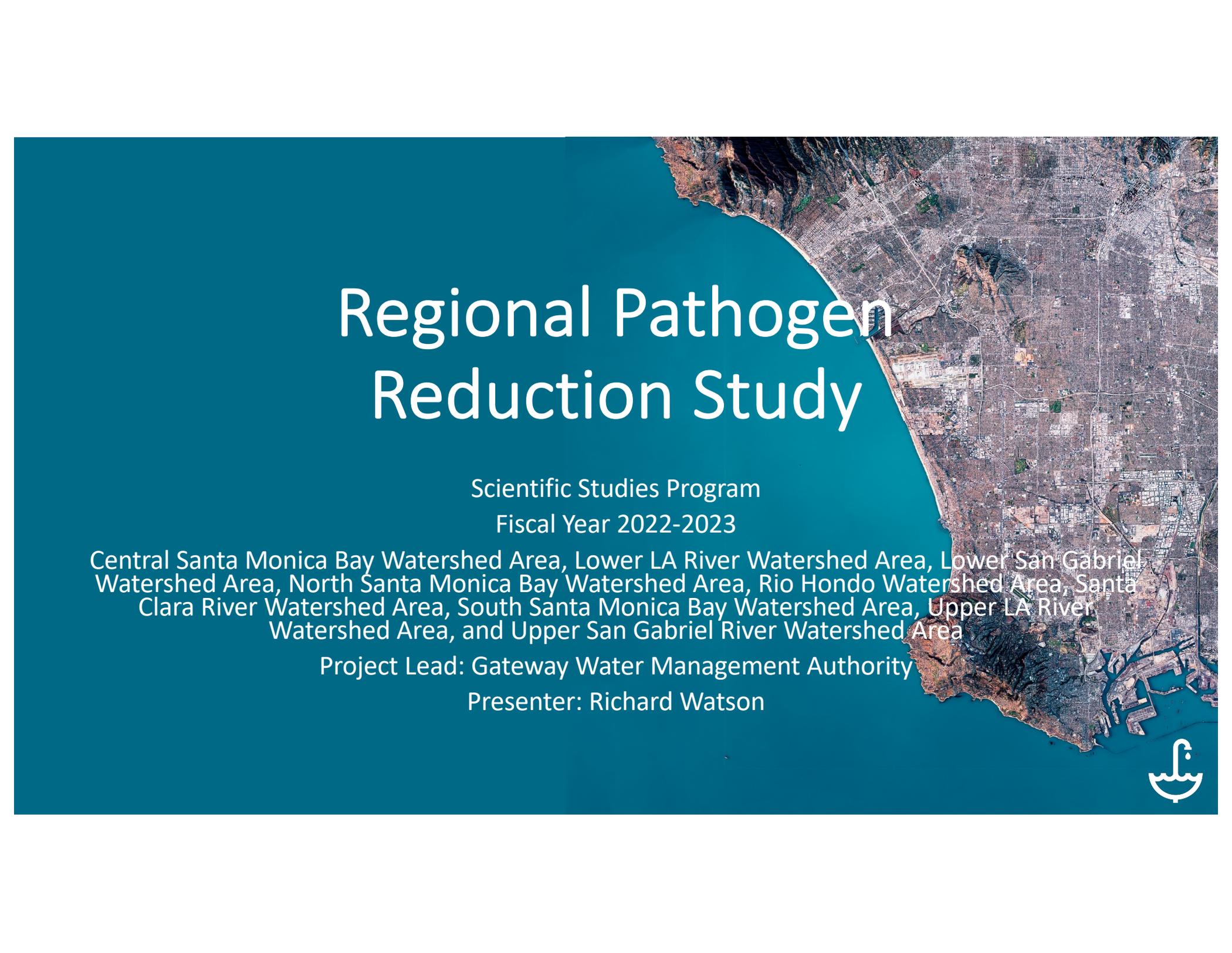
Community gardens can function as stormwater capture facilities.

- The Study will identify, evaluate and prioritize locations for stormwater capture at Community Gardens within the Watershed which will benefit WASC member agencies.
- Engage with gardeners to ensure any recommendations are supported by the community the garden serves.
- Identify 3 high potential sites and produce a concept report for each.
- Prioritize additional sites for future potential project concepts.





Questions?



Regional Pathogen Reduction Study

Scientific Studies Program
Fiscal Year 2022-2023

Central Santa Monica Bay Watershed Area, Lower LA River Watershed Area, Lower San Gabriel Watershed Area, North Santa Monica Bay Watershed Area, Rio Hondo Watershed Area, Santa Clara River Watershed Area, South Santa Monica Bay Watershed Area, Upper LA River Watershed Area, and Upper San Gabriel River Watershed Area

Project Lead: Gateway Water Management Authority
Presenter: Richard Watson



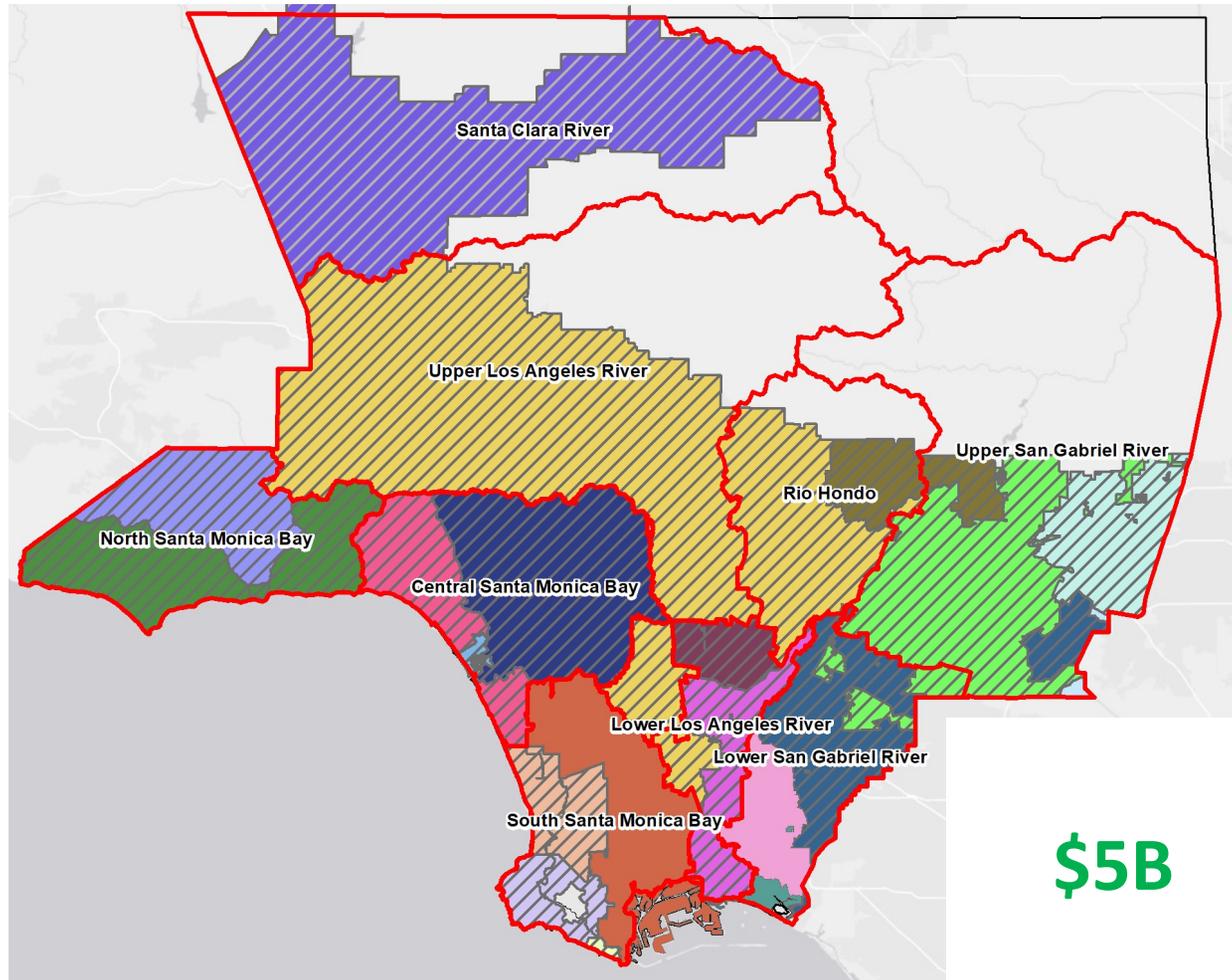
Study Overview

- This Study aims to use the latest available science to measure water-borne pathogens across watersheds. It will help identify key sources of human health risk, and develop cost-effective protective strategies
- 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 the 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





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 academia 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)



Scientific 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)



Scientific Study Details (Continued)

- *Regional collaboration efforts:*
 - Small Group Initiated 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 twice 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
 - Recognized that we do not need to wait until the end of the study to take action
 - Reduced first year cost of study



Recent Revisions to Regional Pathogen Summary

- Added North Santa Monica Bay back into study
- Added an illustrative overview in Attachments (for Section 2.3)
- Added a Details Attachment (for Section 2.4)
- Attachments include a fact sheet, a table of potential constituents, and a map of potential monitoring sites
- Clarified that focus is on urbanized areas
- Clarified that monitoring sites would be chosen from MS4 monitoring sites.



Cost & Schedule

Phase	Description	Cost	Schedule
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 5
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



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?



Maximizing Impact of Minimum Control Measures

Scientific Studies Program

Fiscal Year 2022-2023

Upper San Gabriel River; Rio Hondo; Upper Los Angeles River

San Gabriel Valley Council of Governments

Chad Helmle; Brad Wardynski; Brianna Datti (Craftwater)



Study Overview

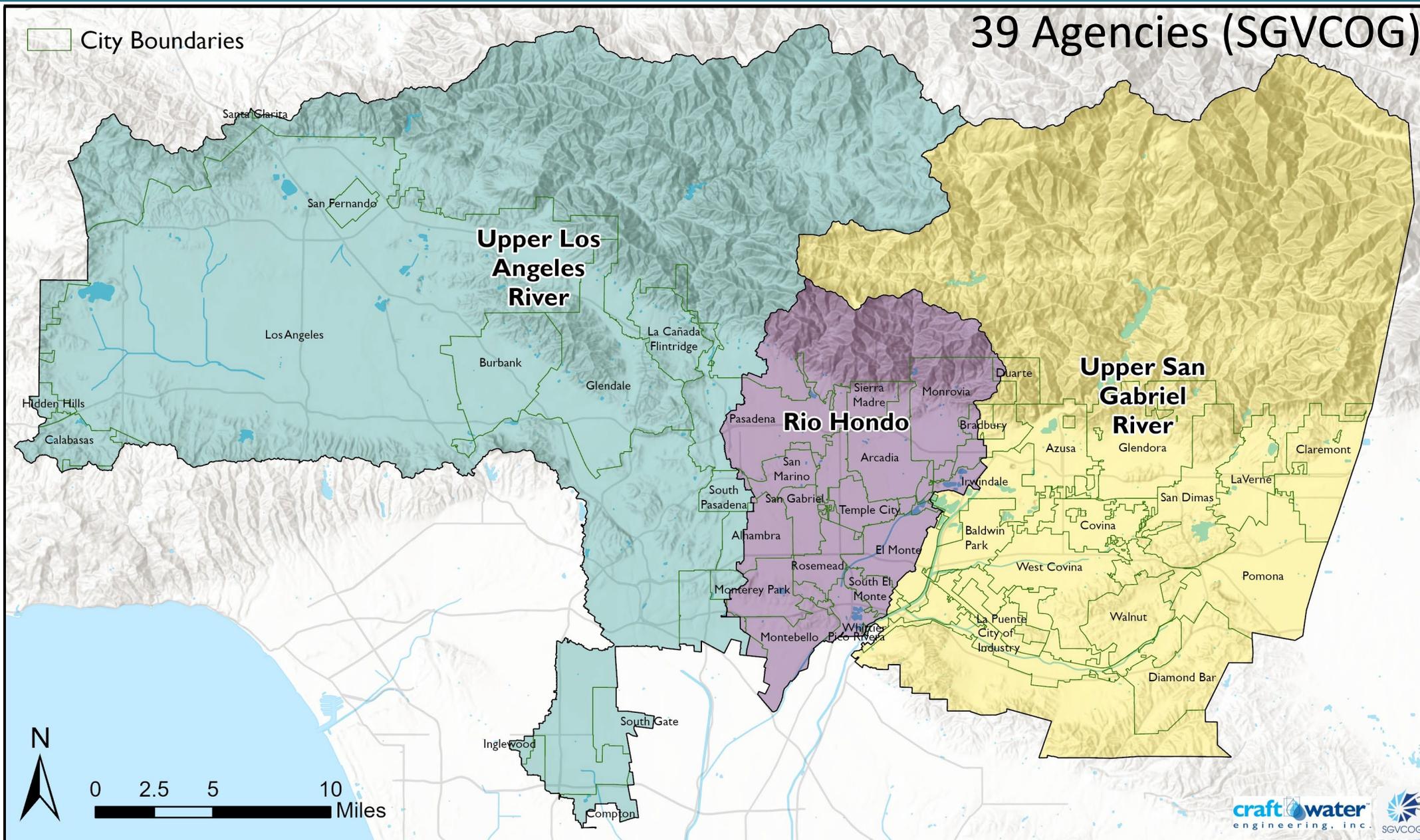
Develop tools to quantitatively *estimate effectiveness* and *support optimization* of Minimum Control Measures (MCMs)

- MCMs are the first line of defense against polluted stormwater discharging to our waterways
- Efficiency in MCMs translates to more funding for nature-based solutions and community investment benefits
- Watershed-specific guidebook for targeted enhancements to MCMs





Study Location





Study Details – What are MCMs?



Outreach events and materials



Construction site inspections and enforcement



Miles swept and debris removed



Infrastructure inspections



IC/ID investigations and abatement



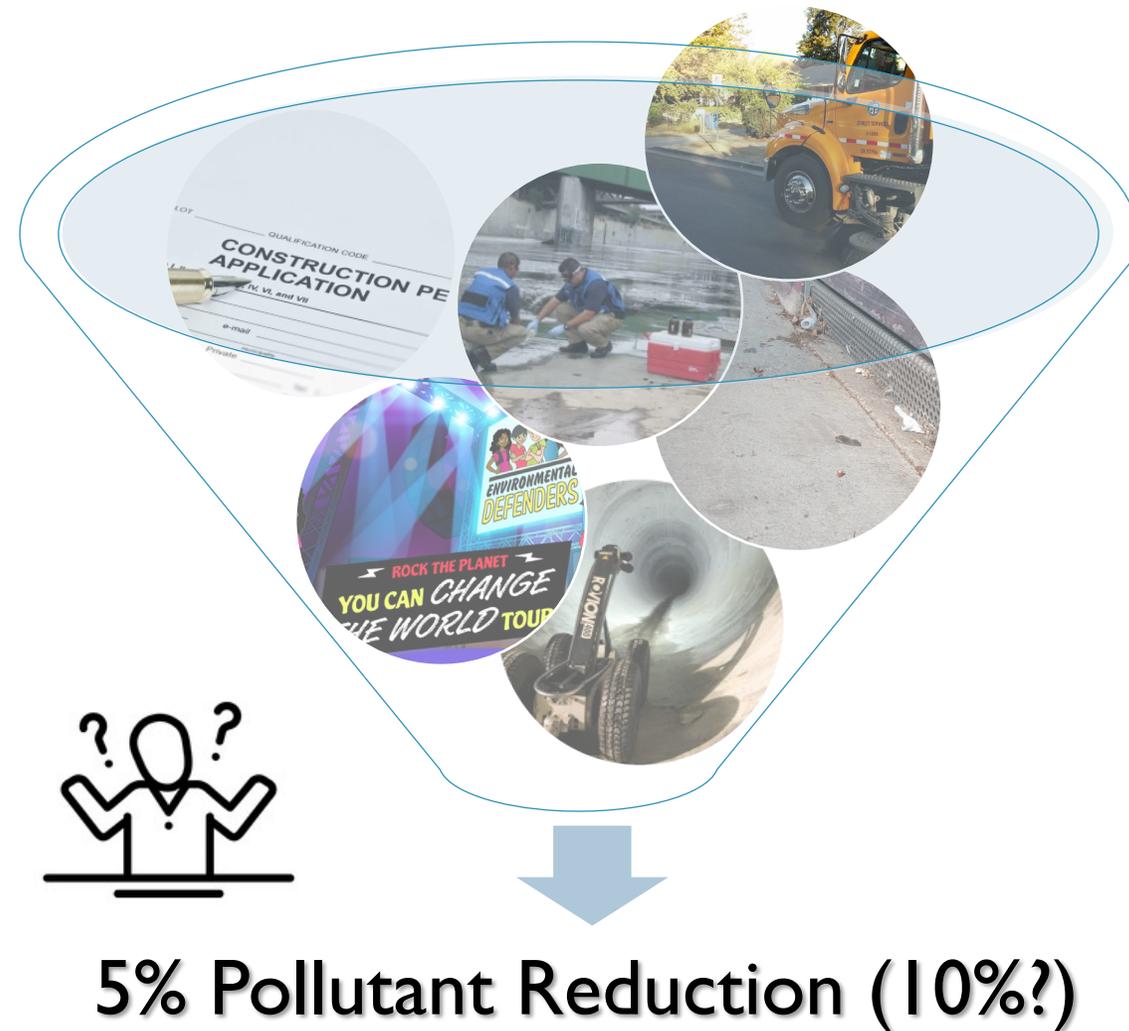
Trash capture devices installed



Study Details – How are MCMs Assessed?

- **Then:** Limited studies on effectiveness during E/WMP development
 - Programs lumped together during analysis
 - Accepted coarse, conservative assumptions
- **Now:** State Water Board and new permit requiring robust justification

Agencies investing \$1M+/yr on average
(LA City and County: \$50M+/yr)





Study Details – Why MCMs Matter

Power of Programs

- MCM programs are orders of magnitude **cheaper**
- Recent data are showing that **something is working...**
- Compliance strategies are **shifting**

How Do We Better Utilize Programs?

- More data and scientific understanding to support
- Quantify effectiveness and tools to optimize



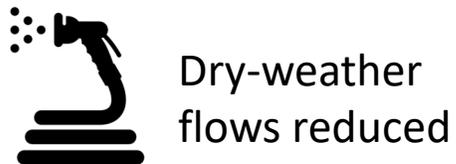
Study Details



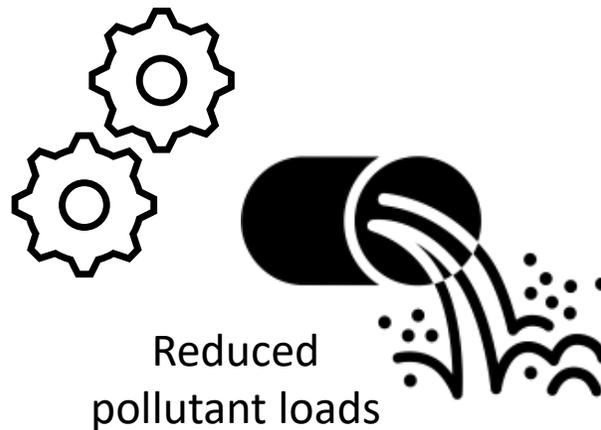
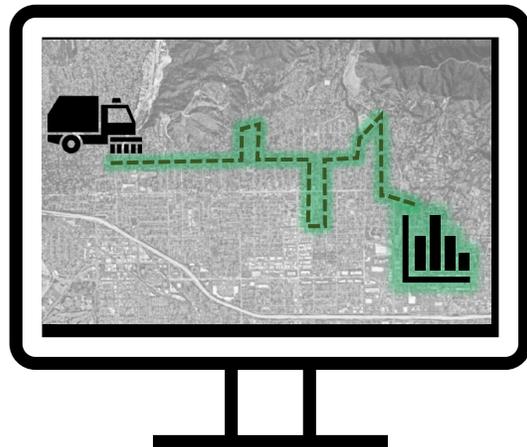
Sweeping routes



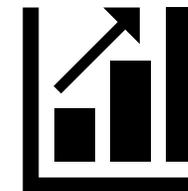
Catch basins cleaned



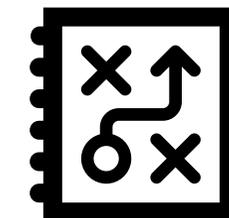
Dry-weather flows reduced



Reduced pollutant loads



Optimize



Guidebook

What data do we have on MCMs?



How can we represent MCMs and learn from the data?



How much are MCMs achieving?



How can we do more with MCMs?



Schedule

Phase	Description	Completion Date
Stakeholder Engagement	Form Stakeholder Group	12/31/2022
Identify Programs and Standardized Data	Select Program Strategies to Evaluate	1/31/2023
	Develop Standardized Data Templates	3/31/2023
Evaluate Methodologies to Model the Effectiveness of Selected Programs	Draft Program Performance Evaluation Methodologies	4/30/2023
	Final Program Performance Evaluation Methodologies	6/30/2023
Quantify Effectiveness of Selected Programs	Draft Program Performance Evaluation	9/30/2023
	Final Program Performance Evaluation Methodologies	11/30/2023
Technical Platform to Visualize Programs Effectiveness	Draft Program Tracking and Assessment Technical Platform	2/29/2024
	Final Program Tracking and Assessment Technical Platform	6/30/2024
Develop Recommended Program Implementation Strategies	Recommend MCM Implementation Strategies for Optimization	6/30/2024



Funding Request

WASC	Year 1	Year 2
RH	\$ 83,275	\$ 157,190
ULAR	\$ 278,068	\$ 524,878
USGR	\$ 136,137	\$ 256,972
TOTAL	\$ 497,480	\$ 939,040

Study advancement is not contingent upon funding from every WASC



Regional Collaboration

MCMs are critical implementation strategies across the region, which are typically undervalued and not well understood

Collaboration and support:

- Regional Board
- Stormwater Monitoring Coalition
- New York City
- Accelerate Resilience L.A.





Summary of Benefits

- **Robust, scientific approach** to:
 - Visualize and communicate MCM implementation
 - Quantify effectiveness
 - Identify adjustments/additions to increase water quality, water supply, and community benefits
- Continue support and investments in critical programs, **uniquely integrated in our communities**
- **Cheaper and faster** strategies progressing water quality goals
- Reduce burden on structural projects, allowing SCW funds to focus on multi-benefit projects that maximize **nature-based solutions** and **community investment benefits**



Questions?

An aerial photograph of the Los Angeles coastline and city grid, showing the ocean on the left and the city extending inland to the right. The image is partially obscured by a dark teal overlay on the left side where the text is located.

Additional Funding Request to Support the LRS Adaptation

Scientific Studies Program

Fiscal Year 2022-2023

Rio Hondo; Upper Los Angeles River

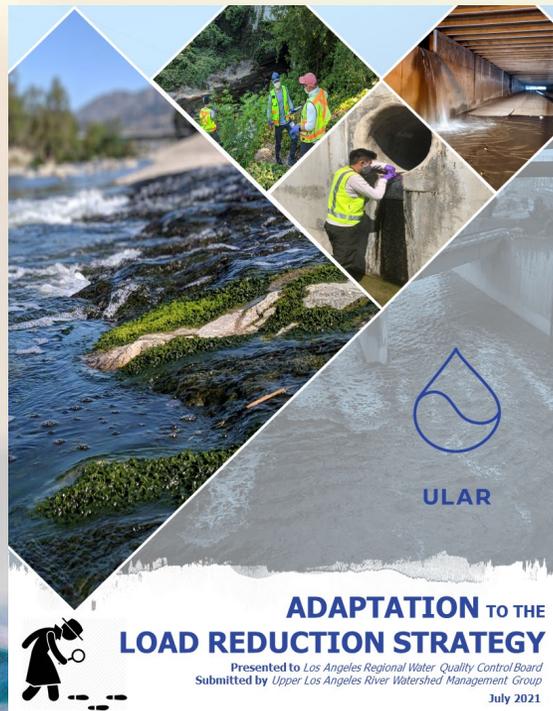
San Gabriel Valley Council of Governments on behalf of the Upper Los Angeles River Watershed Management Group (ULAR WMG)

Dawn Petschauer (LA Sanitation); Brianna Datti (Craftwater)



Study Overview

Support strategic risk-based monitoring and human waste source investigations to guide long-term pathogen reduction



- Advance successful **implementation** of the LRS Adaptation
- More cost-effective strategies to address bacteria
- Progress on beneficial use protection



Study Overview

Original Load Reduction Strategy



Unsuccessful Source Control

Project Feasibility Challenges

Uncertain Beneficial Use Attainment

New Information/Data

Advanced Scientific Understanding and Tools Available

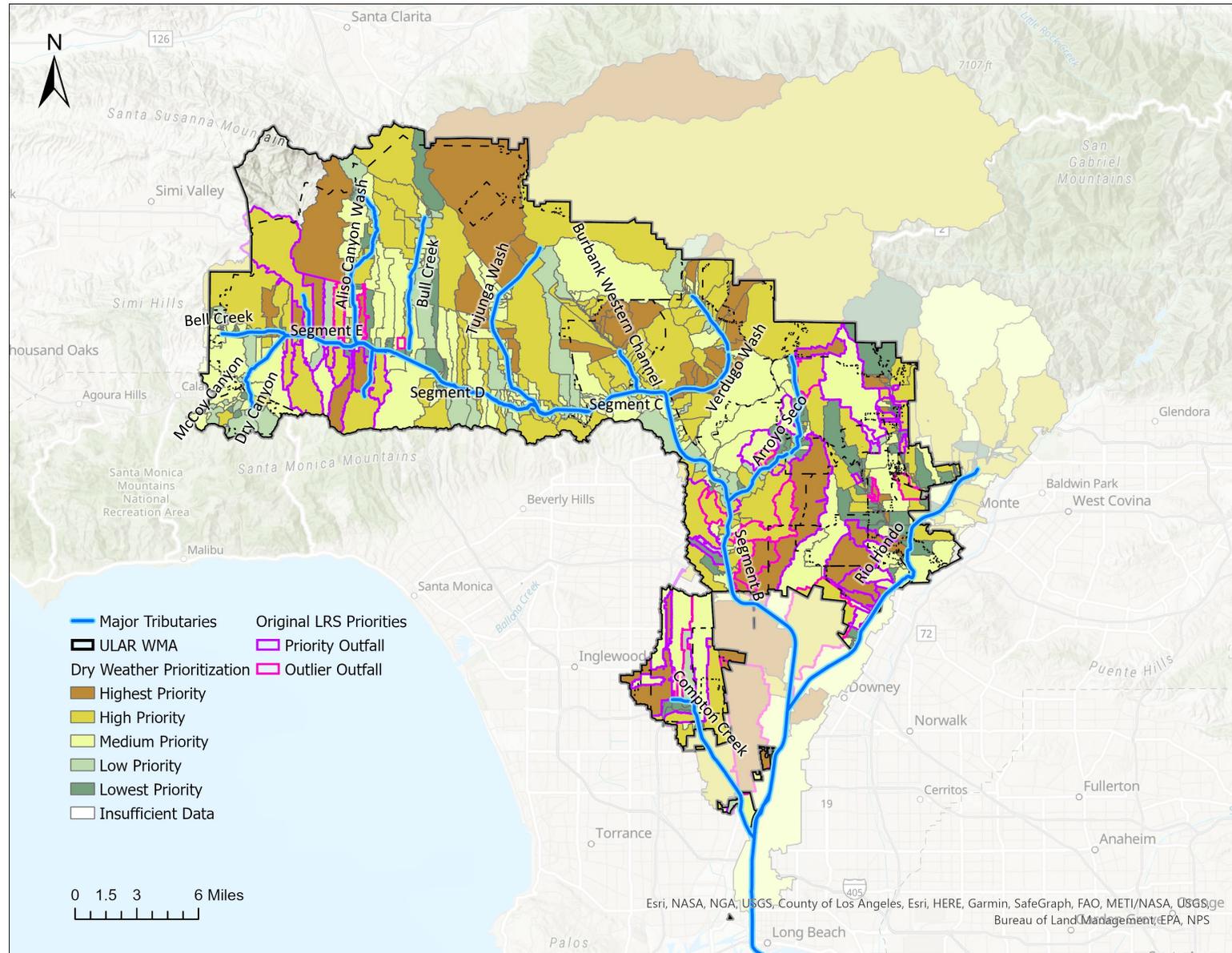
LRS Adaptation: Prioritize Source ID and Abatement Efforts

Assured Beneficial Use Attainment





Study Location



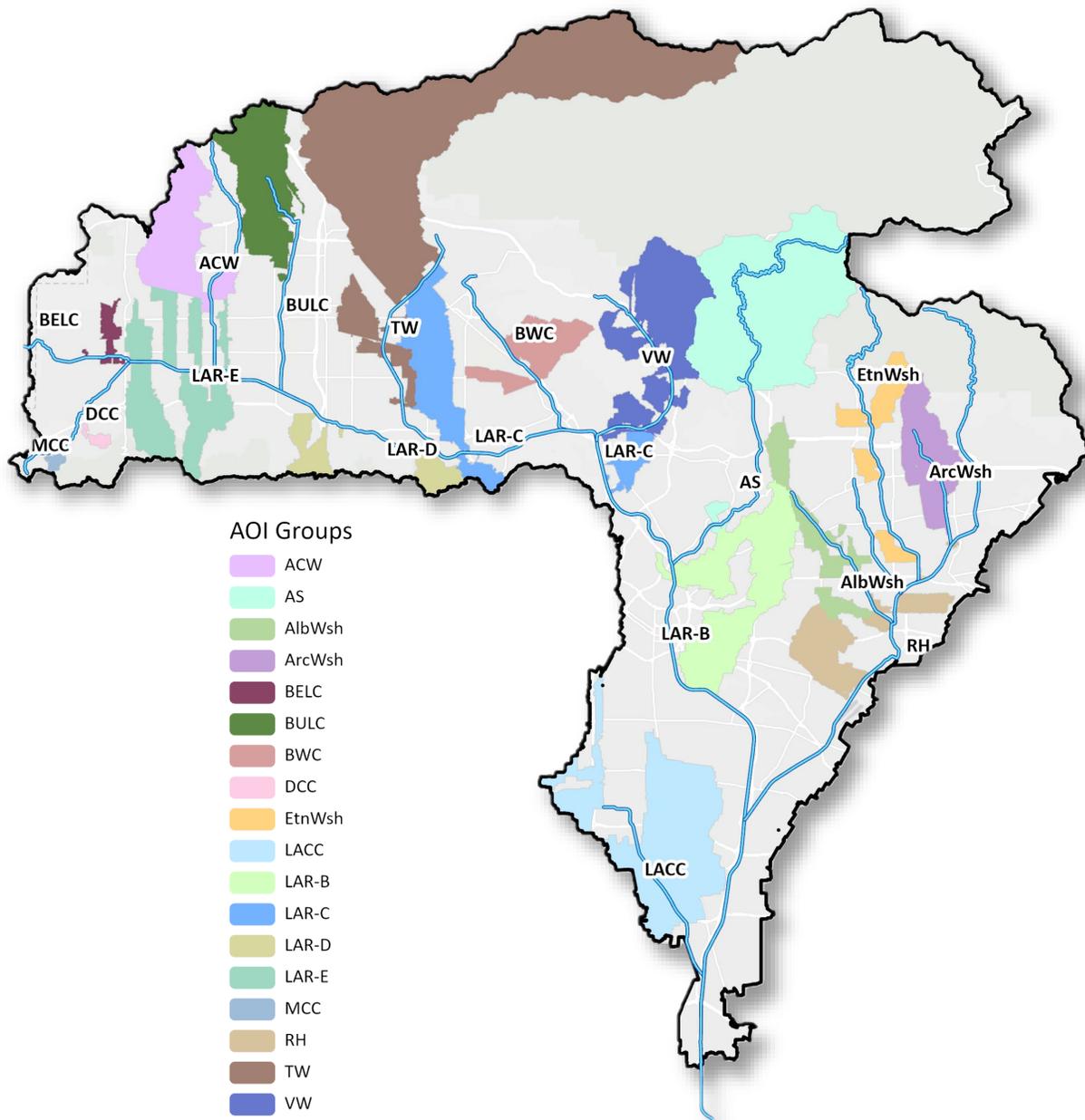
Dry and Wet Weather Catchment Prioritization

Based On:

- Water Quality Condition Assessments (Receiving Waters and Outfalls)
- Potential Human Sources
- Hydraulic Connectivity



Study Location



Areas of Investigation (AOIs)

- 43 AOIs
- 166 highest/high priority outfall catchments
- Phased by segments/tributaries



Study Details – Strategic Risk-Based Monitoring

- Paired Fecal Indicator Bacteria (FIB) and Human Marker (HF183) Monitoring
- Supports:
 - Refinement to catchment prioritization considering risk
 - Targeting of source investigations
 - Regulatory discussions





Study Details – Strategic Risk-Based Monitoring

Preliminary Sampling Demonstrates New Information from Human Marker

AS-17

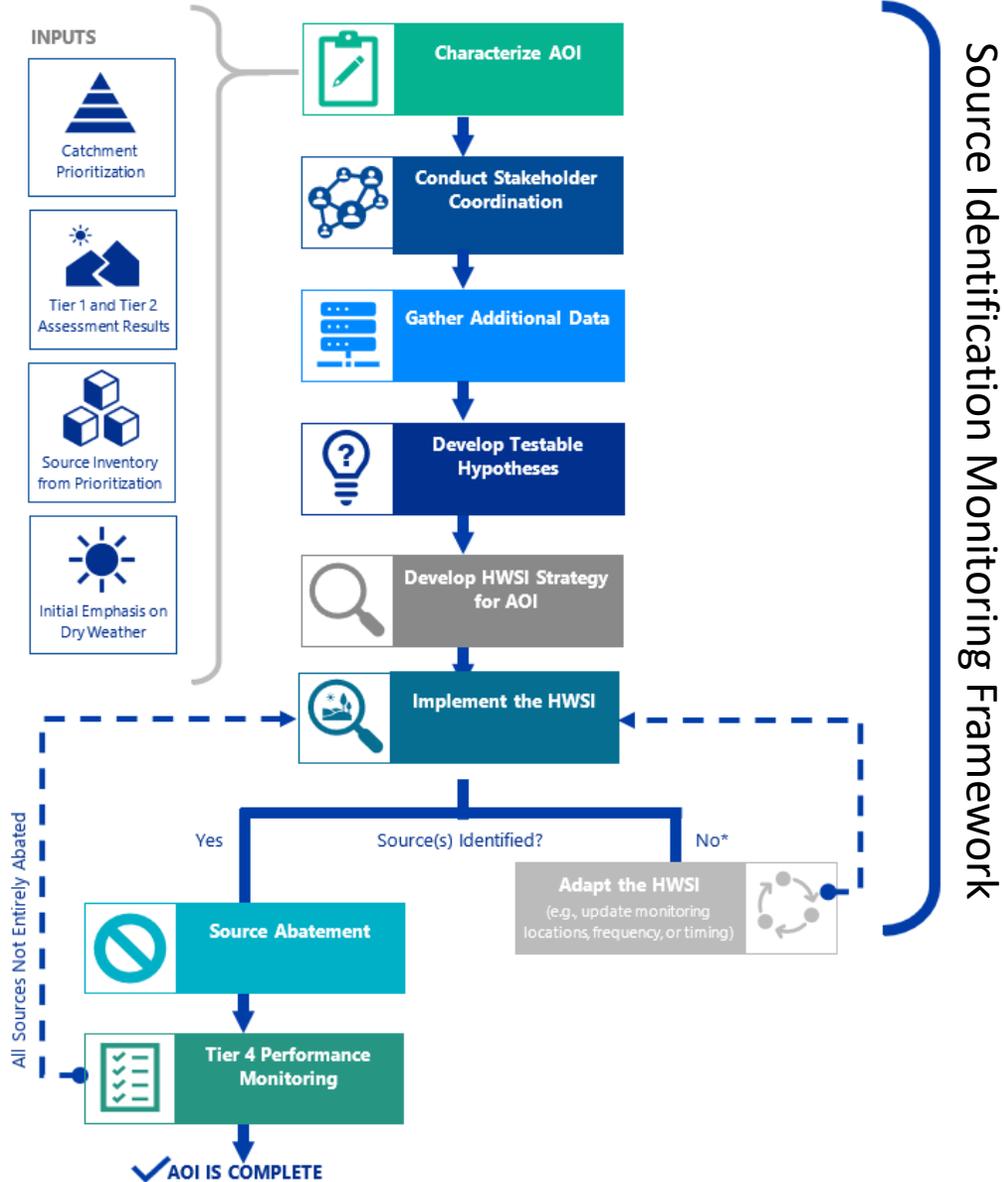
LAR-B-R2-04

RH-078



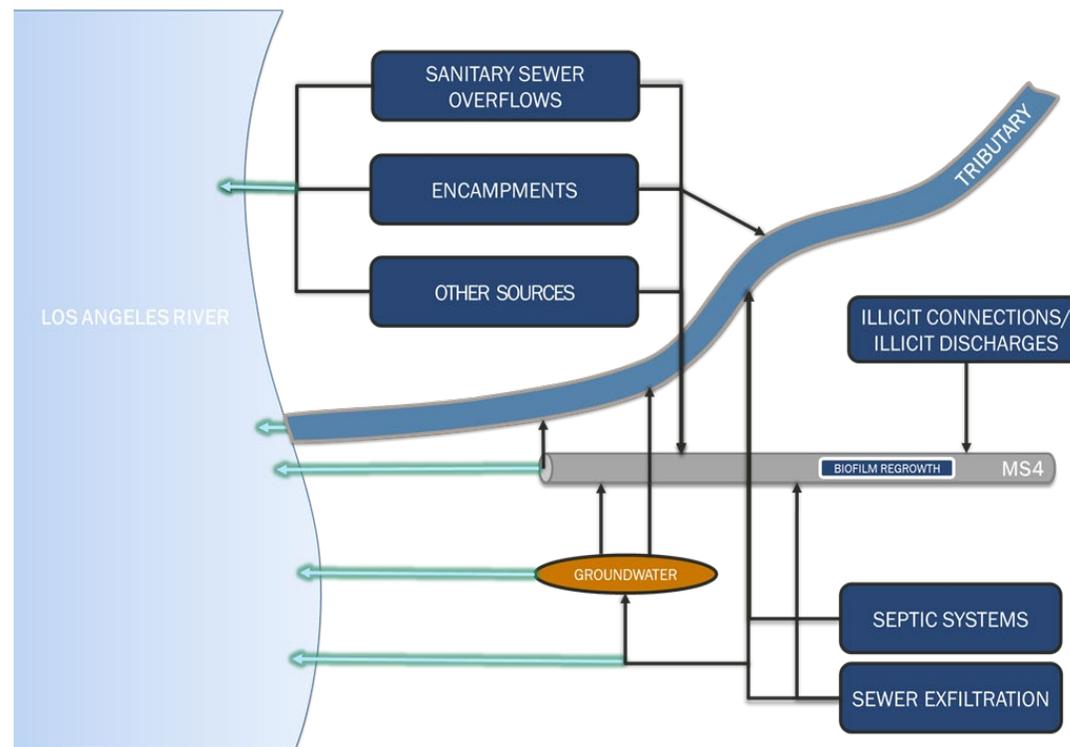


Study Details – Human Waste Source Investigations



*Reasons to adapt an HWSI can be driven by other factors (e.g., additional stakeholder input, additional data, new scientific techniques, etc.)

- AOI-specific monitoring
- Targeting high-risk sources and eliminating

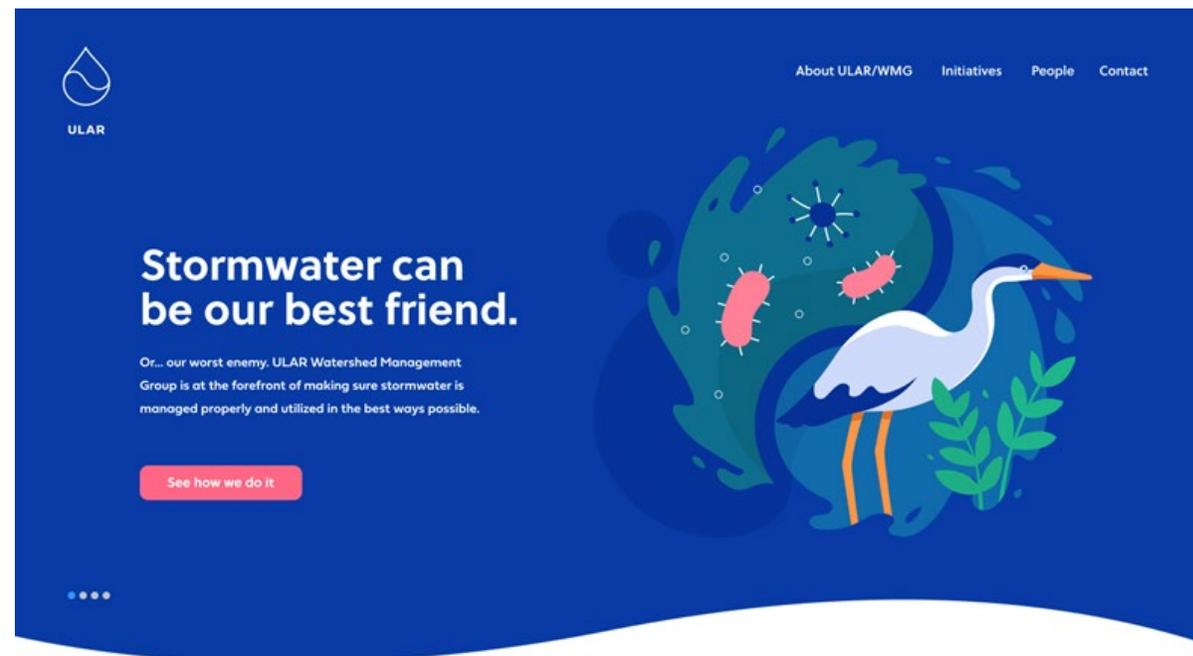




Study Details – Webpage Content

- LRS-dedicated webpage
- Clear, consistent communication
- Includes:
 - Public-facing fact sheets
 - Interactive mapping
 - Data visualization
 - Animations and videos
 - Progress tracking
 - Key performance indicators

www.ularwmg.com



What's an ULARWMG?

Water in Los Angeles is well... complicated. Not many people realize what it takes to manage and control this crucial life resource in the region. It takes planning, testing, innovating, reclaiming, and recycling to push the water system toward the sustainable future we all hope for. And that's where ULAR WMG comes in. This nerdy bunch of scientists, activists, and policy experts create initiatives and projects that work toward capturing and managing stormwater in the Upper LA River as well as the surrounding watersheds. It's a huge interconnected effort, and takes the power of the



Schedule

Phase	Description	Completion Date
Strategic Risk-Based Monitoring	Initiate strategic wet weather monitoring (under separate SOW)	10/1/2021
	Monthly dry weather sampling	6/30/2024
	Minimum of three storm events sampled per year	6/30/2024
Human Waste Source Investigations	Initiate AOI-specific monitoring (under current study)	10/1/2021
	AOI-specific monitoring in additional selected AOIs	6/30/2024
Webpage Development & Content	Launch Basic LRS Adaptation Webpage (under separate SOW)	10/31/2021
	Updates and Refinements to the LRS Adaptation Webpage	6/30/2024



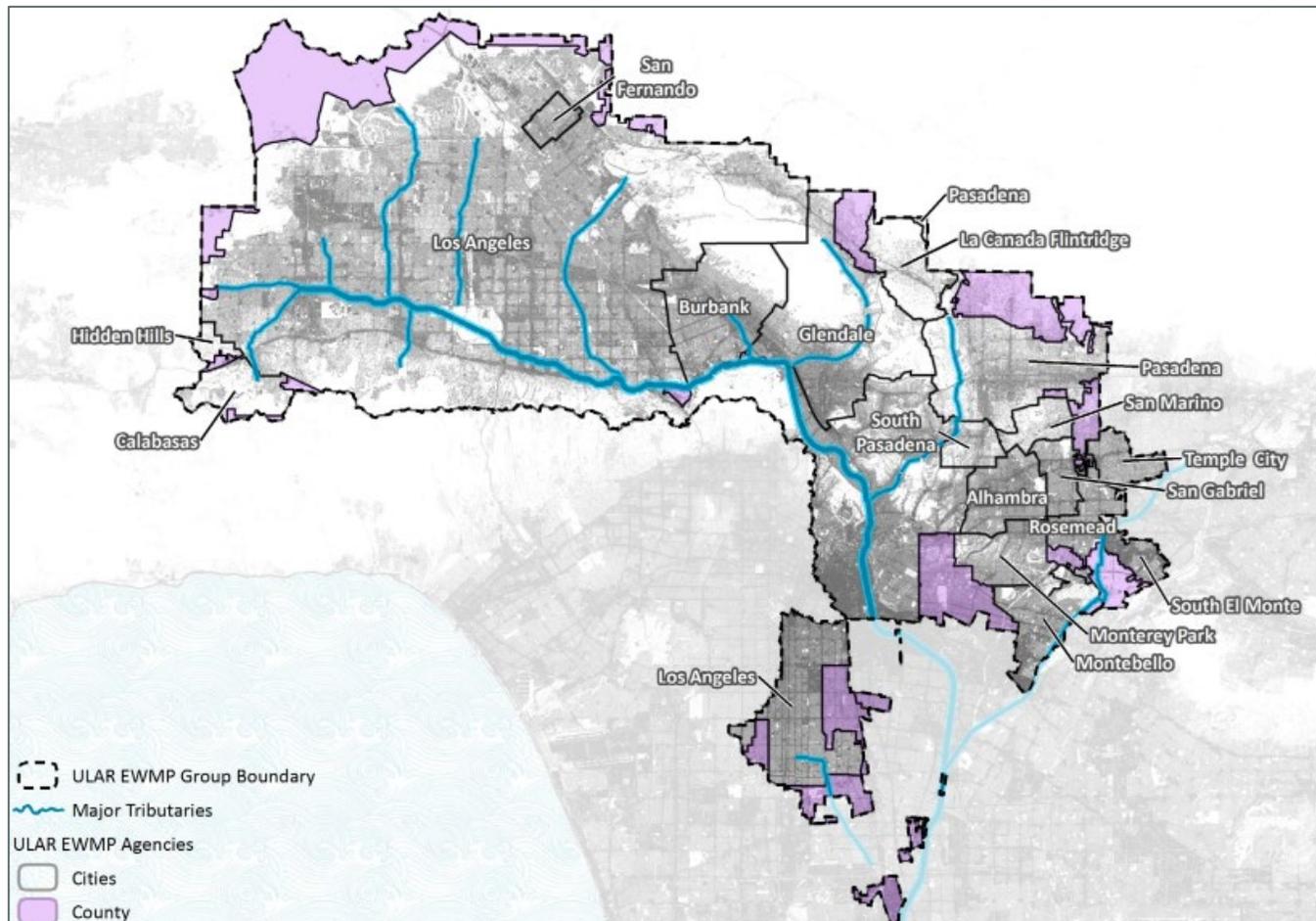
Funding Request

WASC	Year 1	Year 2
RH	\$ 35,722	\$ 79,307
ULAR	\$ 119,590	\$ 265,505
TOTAL	\$ 155,312	\$ 344,812



Regional Collaboration

- 19 ULAR Agencies, LRS Technical Advisory Committee
- To date, four meetings with Regional Board staff
- Internal and external stakeholder engagement
- Leverage framework and outcomes region-wide
- Latest advancements in science and tools





Summary of Benefits

- Targeted approach to decrease health risks due to bacteria
- Expedited pathway for improving water quality conditions
- Clear, consistent communication, opportunity to leverage



Questions?