Darby Park Multi-Benefit Project

Technical Resources Program

Fiscal Year 2022-2023

SCW Watershed Area: South Santa Monica Bay

Project Lead: City of Inglewood

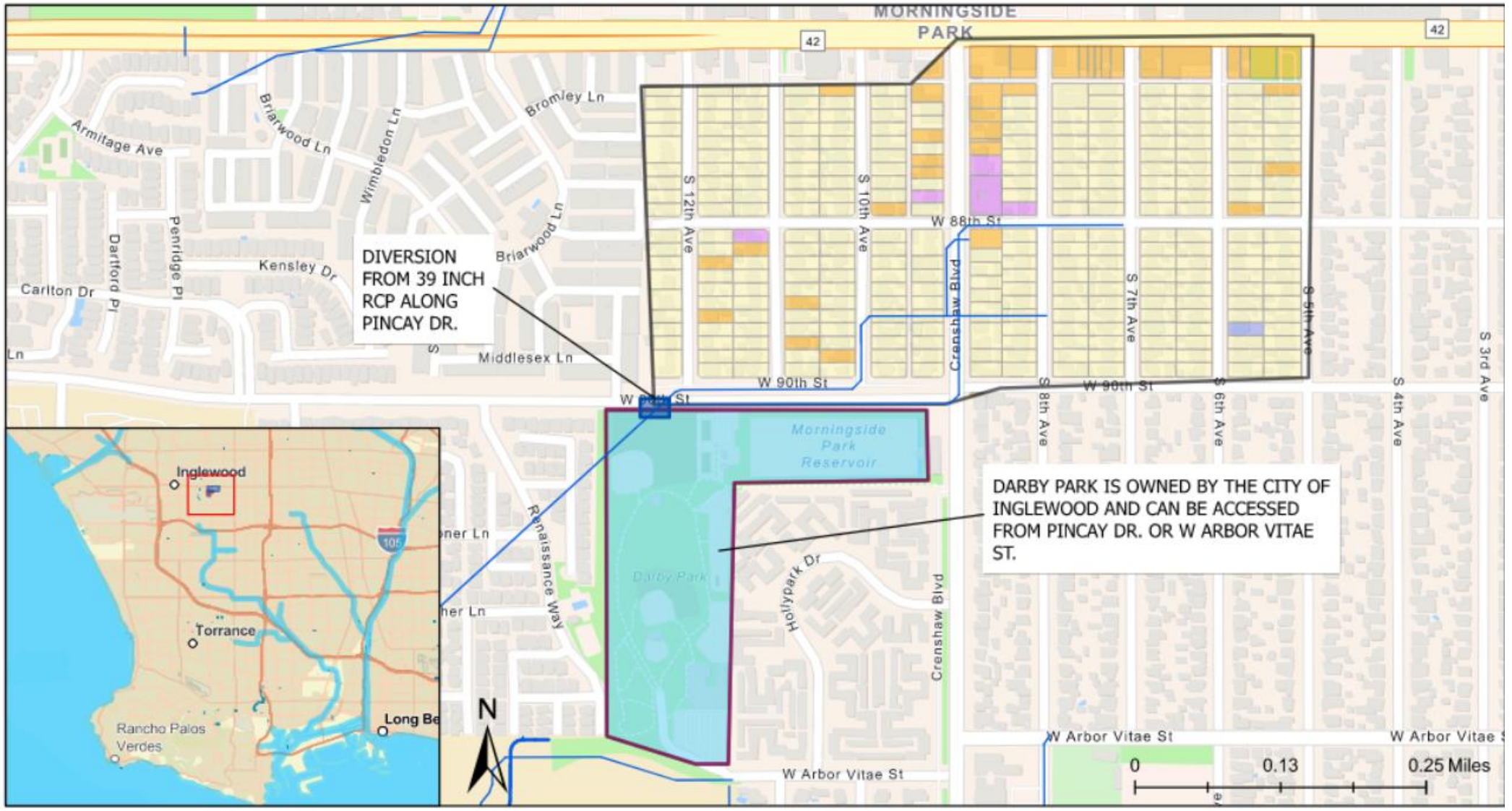
Presenter: Lauren Amimoto, CPSWQ, QSD

Project Overview

Description: The Project will manage a stormwater volume of 3.7 acre-feet from an upstream drainage area of 72 acres using an infiltration basin. Darby Park covers approximately 19 acres that will provide adequate space for stormwater detention and infiltration.

- Primary Objective: Improve water quality by storage and infiltration
- Secondary Objectives: Community and recreational benefits to a DAC
- Project Status: Planning
- Total Funding Requested: $300,000

Project Location



Project Background

- Why was the Project Location selected? How was the Project developed? Which regional water management plan includes the proposed project?
  - The project was identified as part of the Dominguez Channel EWMP because of its optimal location in proximity to the storm drain for diversion.
- Description of benefits to municipality/municipalities
  - New infrastructure and greenscape at the park including new recreation features (exercise, socialization, relaxation), baseball field, new plantings with native drought tolerant plant and new shade trees.
- Description of how the Feasibility Study or Project Concept will provide Disadvantaged Community (DAC) Benefits
  - The project is located in a DAC and will directly benefit the local community.

Project Details

Design Considerations:

Runoff from the 85th percentile, 24-hour storm is 1.05 inches and yields a runoff volume of 3.7 AF for the 72-acre drainage area.

Soil infiltration rates are approximately 0.54 inches per hour, horizontal soil conductivity of approx. 0.14 inches per hour (fine sands and silt) below ground surface, justifying the use of deep infiltration.

Minimum depth to groundwater of approximately 95 feet since 2000.

Approximately 19 park acres are available for development, and the infiltration basin is proposed to have a footprint of 0.27 acres (11,600 square feet) assuming a 14-foot basin height.

Project Details

Severely Disadvantaged (Tracts, 2018)

Disadvantaged (Places, 2018)

Disadvantaged Community Benefits:

The Darby Park drainage area is located within a disadvantaged community (DAC), and potential improvements to this area combined with the stormwater infrastructure could provide much needed community benefits.

Outreach:

To promote local engagement and participation, the City of Inglewood will seek strong input from the community to develop the park in a way that best serves their needs.

The City will conduct public meetings to actively involve community members, including residents, schools, and businesses.

Project Details

Community Benefits:

Recreation: The upgraded park will provide enhanced opportunities for community gatherings and outdoor activities. Any part of the existing ball field that is disturbed by the stormwater project will be restored to new condition with upgrades.

Health: Access to a well-maintained park will be beneficial to residents' physical and mental well-being. Increased shade trees will provide more opportunities to seek refuge from the heat.

Greenery: New vegetation and turf will increase property values and improve mental well-being.

Ball fields will be rebuilt and improved.

Cost & Schedule

Capital Cost Breakdown	
Construction Cost	$ 3,700,000
Planning and Design Cost*	$ 800,000
Total	**$ 4,500,000**

*Includes early concept design, pre-project monitoring, feasibility study development, site investigations, formal project design, intermediate and project completion audits, CEQA and other environmental impact studies and permitting. Includes the $300,000 requested in this application for feasibility study development. Includes geotechnical explorations.

Annual Cost Breakdown	
Annual Maintenance Cost:	$ 50,000
Annual Operation Cost:	$ 25,000
Annual Monitoring Cost:	$ 25,000
Project Life Span:	50 years
Operation and Maintenance Description and Needed Technical Expertise:	See Section 2.5


Questions?

City of Lawndale Southern Revitalization Project

Funding Program: Technical Resources Program

Fiscal Year 2022-2023

Watershed Area: South Santa Monica Bay

Project Lead: City of Lawndale

Presenters:

Julian Lee (City of Lawndale, Director of Public Works)

Jennifer Coryell (CDM Smith)

Andrea Zimmer (CDM Smith)

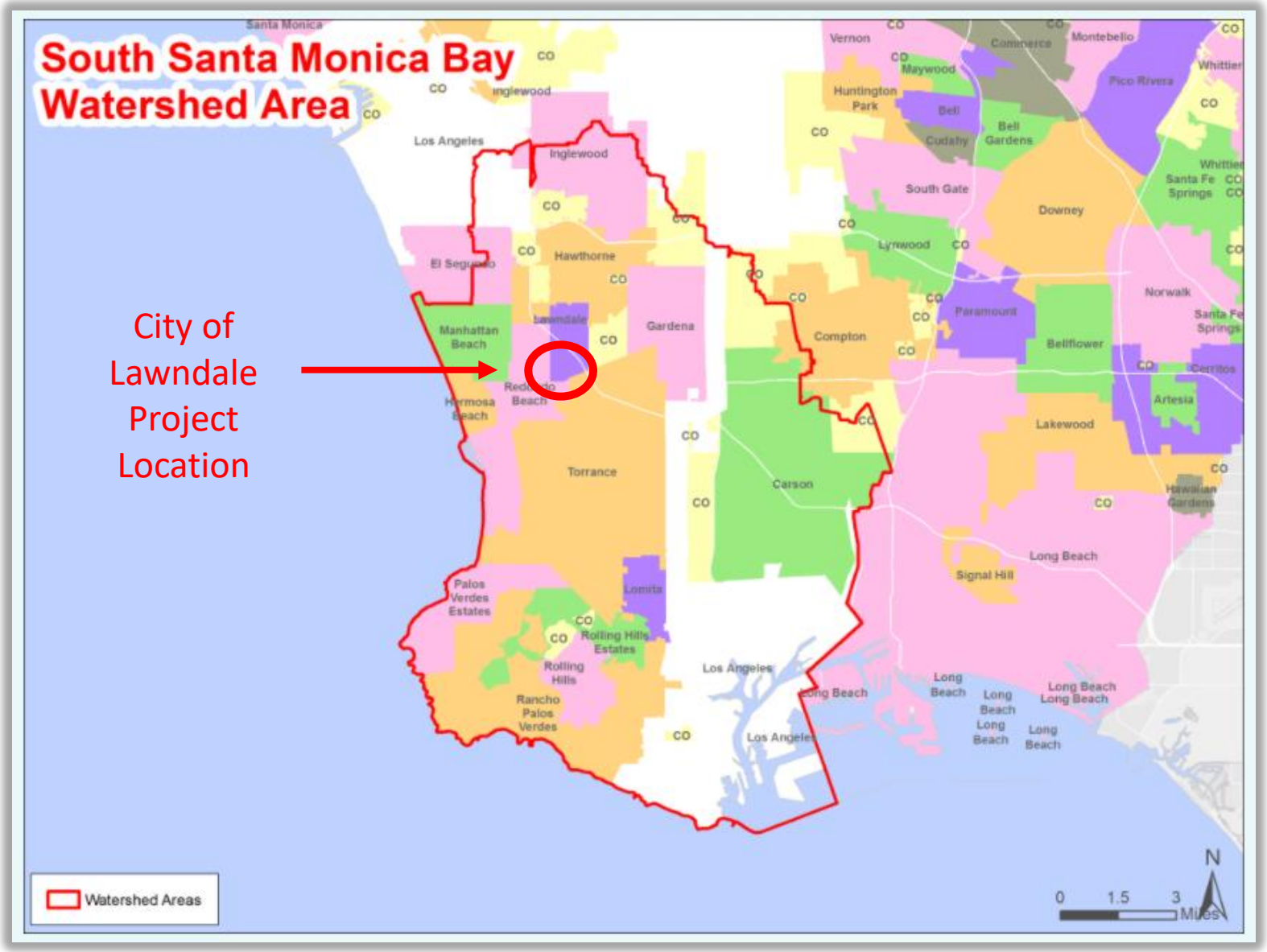
Ed Suher (CASC)

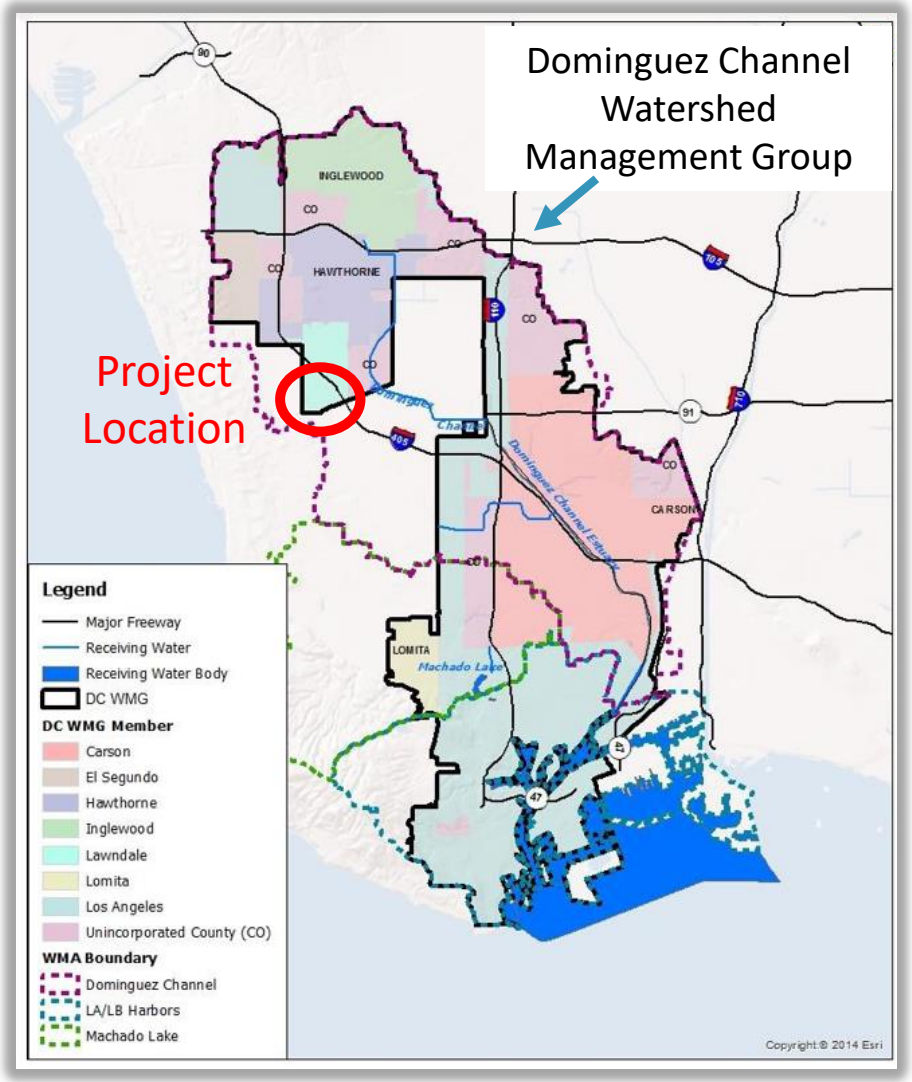
Project Overview

The Project is anticipated to manage 3.1 acre-ft of stormwater runoff from an upstream drainage area of 64 acres using drywells.

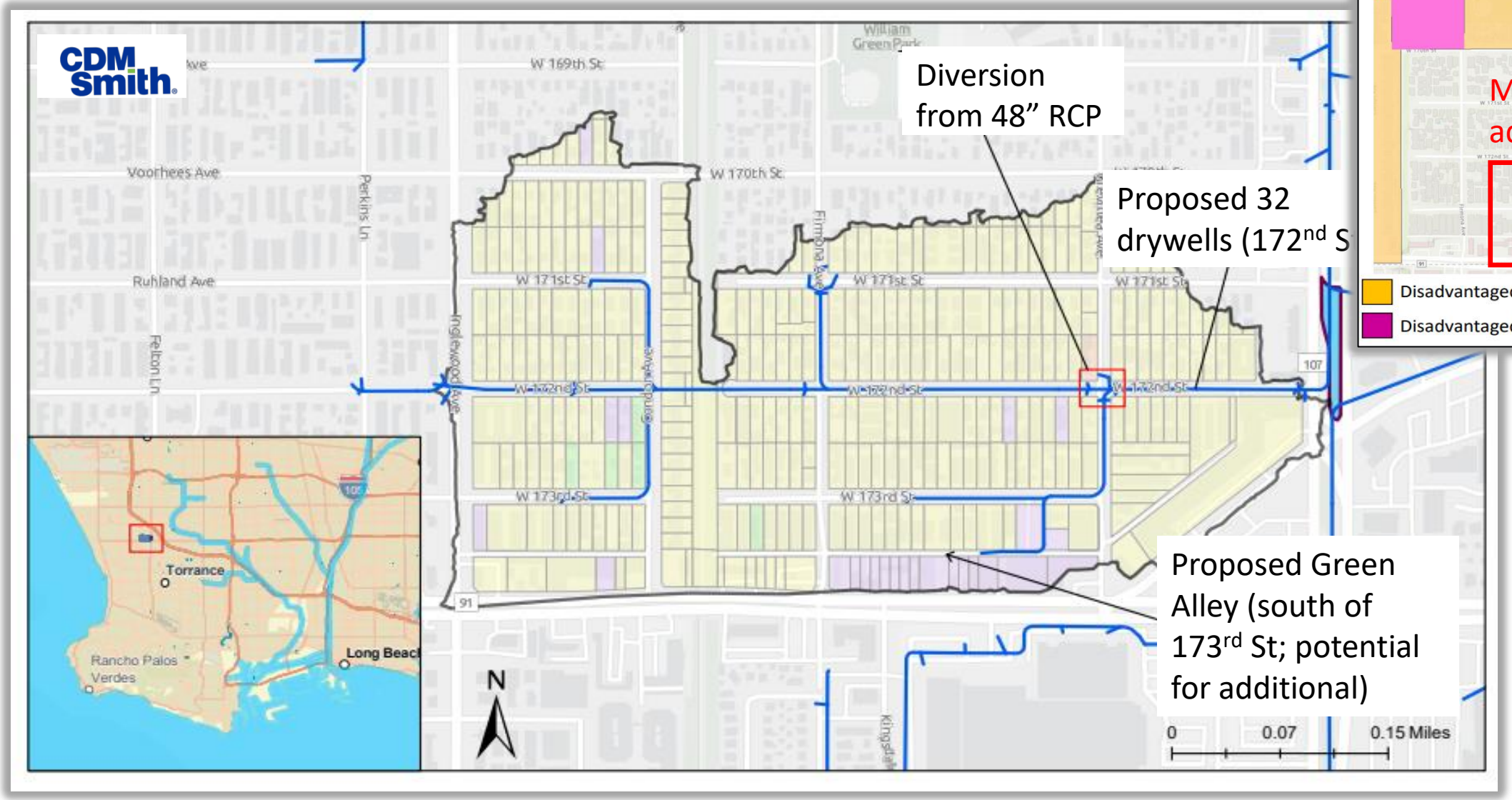
- Primary Objective: Improve water quality
- Secondary Objectives: Provide Community Benefits
- Project Status: Planning
- Total Funding Requested: $300,000

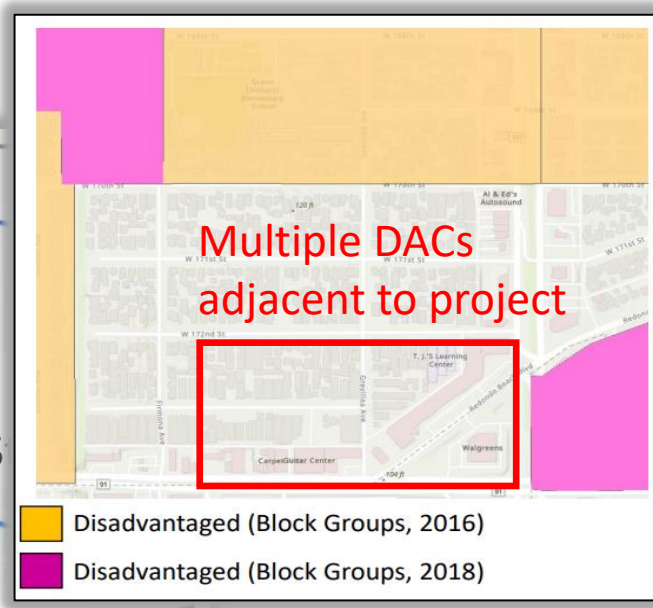
Project Location





Project Location





Source: Dept. of Water Resources

Project Background

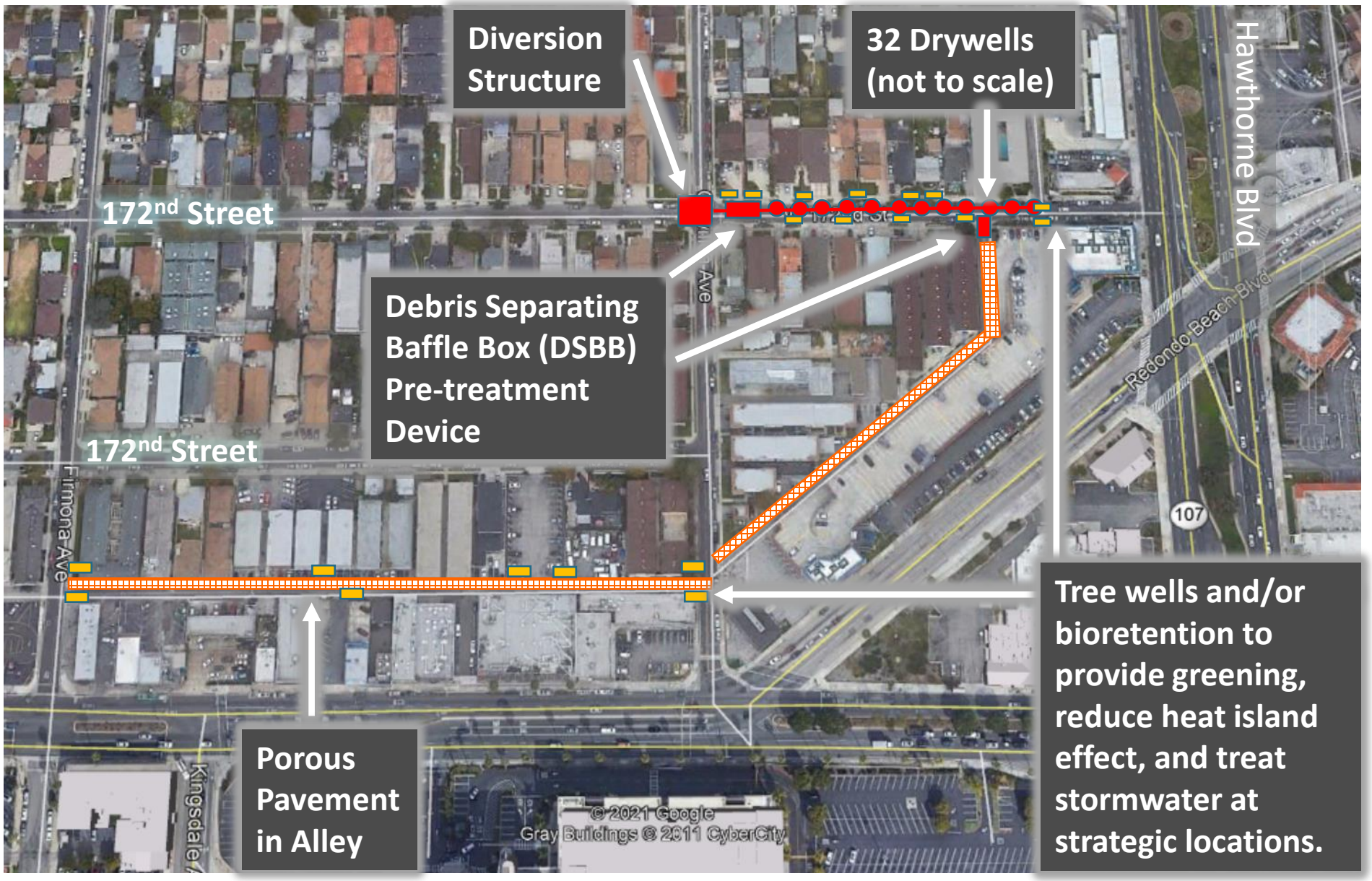
Project components were initially investigated by Lawndale during the Hawthorne Boulevard Median Enhancement and Green Alley Rehabilitation Studies

Further evaluated during Dominguez Channel WMG EWMP 2021 Update resulted in combining key aspects of the two projects (included in the EWMP)

Project is aligned with the goals of the EWMP and Lawndale's water quality and quality of life goals for the community

Surrounding disadvantaged communities utilize the roadways and businesses adjacent to the green alley project. In addition to providing water quality benefits, residents will benefit from surface treatment, trees, and vegetation that beautify the neighborhood

Project Details



Project Details

Current conditions:

Alleys are in a significant state of disrepair	In need of aesthetic and structural improvements

Improvements will reduce heat island effect

Improvements provide benefits to adjacent DACs

Project Details

- Community Outreach and Engagement
  - Seek **input** from the community through stakeholder workshops
  - **Refine** project to best meet the community's needs
- Outreach sources:
  - Lawndalian newsletter
  - Farmer's market/special events
  - Lawndale social media accounts
  - City website
  - Lawndale Chamber of Commerce
  - Community groups

Cost & Schedule

Phase	Description	Cost	Completion Date
Construction	Construction and Contingency (15%)	$3,300,000	Anticipated to be completed withing 36 months of funding
Planning and Design	Early concept design, pre-project monitoring, feasibility study development, site investigations, formal project design, intermediate and project completion audits, CEQA and other environmental impact studies and permitting	$1,200,000	Planning to be completed within 1 year of award; design to be completed 12-24 months following funding
Annual Maintenance	Costs for repair/replacement	$50,000	50 years
Annual Operation	Fees associated with operations of all features	$25,000	50 years
Annual Monitoring	Testing to confirm infiltration rates and water quality monitoring	$25,000	50 years
TOTAL	**Lifecycle Cost (present value with 3.375% annual discount rate for 50 yrs)**	**$5,730,608**	

Funding Request

Year	SCW Funding Requested	Phase	Efforts during Phase and Year
1	$300,000	Planning	Development of a Feasibility Study including geotechnical investigations/percolation testing to confirm suitability of soils)
2	$900,000 (**future request**/preliminary estimate to be confirmed during feasibility study)	Design (75% of total cost, 25% cost share)	Includes site investigations, formal project design, intermediate and project completion audits, CEQA and other environmental impact studies and permitting
3	$2,475,000 (**future request**/preliminary estimate to be refined during feasibility study/design)	Construction (75% of total cost, 25% cost share)	Construction of complete project
4	$75,000/year (**future request**/preliminary estimate to be refined during feasibility study/design)	Post-construction (75% of total cost, 25% cost share)	Ongoing annual operation, maintenance, and monitoring
TOTAL	**$3,750,000 (current+future)**	**Total for all phases**	**Current request: $300,000 for TRP Funding**


Questions?

REGENERATE LA

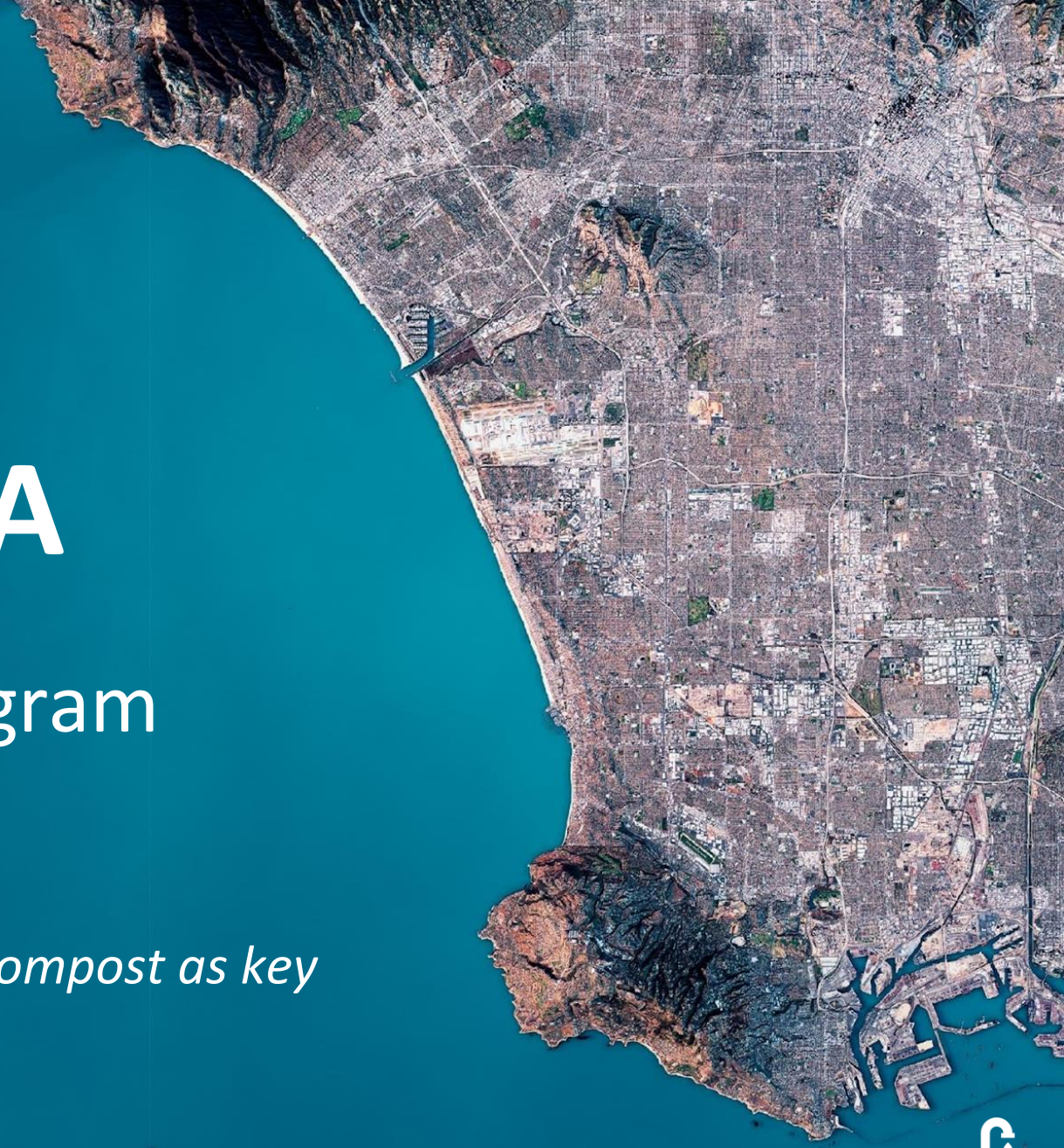
Technical Resources Program

Fiscal Year 2022-2023

South Santa Monica Bay

Project Lead: Kiss the Ground *(w/ LA Compost as key implementing partner*)

Presenter: Callie Ham



Project Overview

Regenerate LA will build and sustain healthy soil through the transition from toxic chemical use to organic regenerative land management (ORLM)

Primary Objective: *Establish Ken Malloy Harbor Regional as a regeneratively managed park to improve soil health and rebuild the "soil sponge" as a means to increase water infiltration/reduce runoff & increase water holding capacity, sequester carbon, increase biodiversity, and improve water quality; and serve as a "hub/demonstration site" for training and education on ORLM that supports surrounding parks.*

Project Overview

Regenerate LA will build and sustain healthy soil through the transition from toxic chemical use to organic regenerative land management (ORLM)

Secondary Objectives: *Educate park maintenance staff through state-of-the-art online and in person training sessions in ORLM, engage and educate communities on ORLM, leverage the existing network of parks to create sharing/distribution systems for organic amendments to improve soil health and watershed function.*

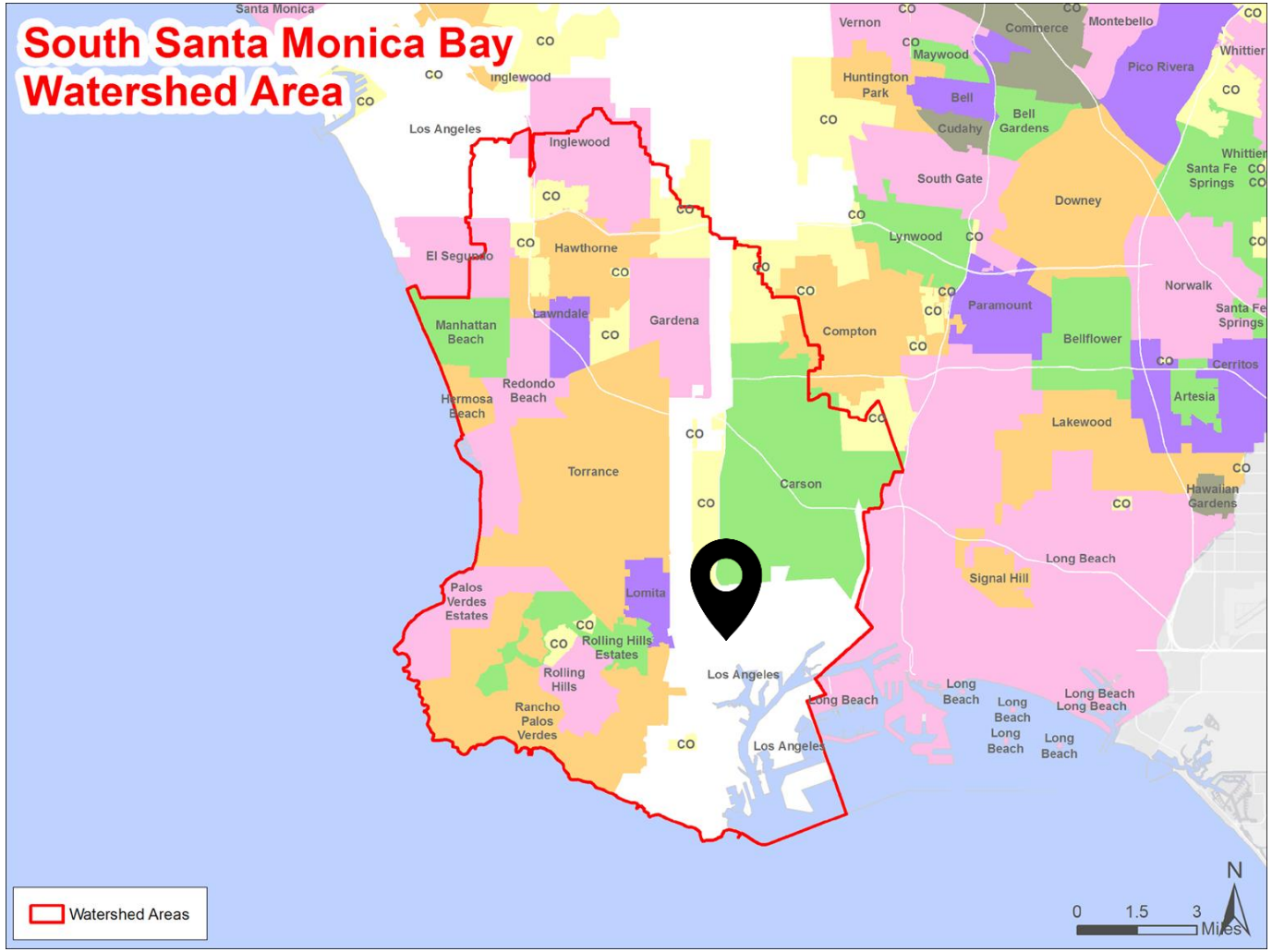
Project Overview

Regenerate LA will build and sustain healthy soil through the transition from toxic chemical use to organic regenerative land management (ORLM)

Project Status: Feasibility Study

Total Funding Requested: $300,000 (or as deemed appropriate by Technical Assistance Team)

Project Location



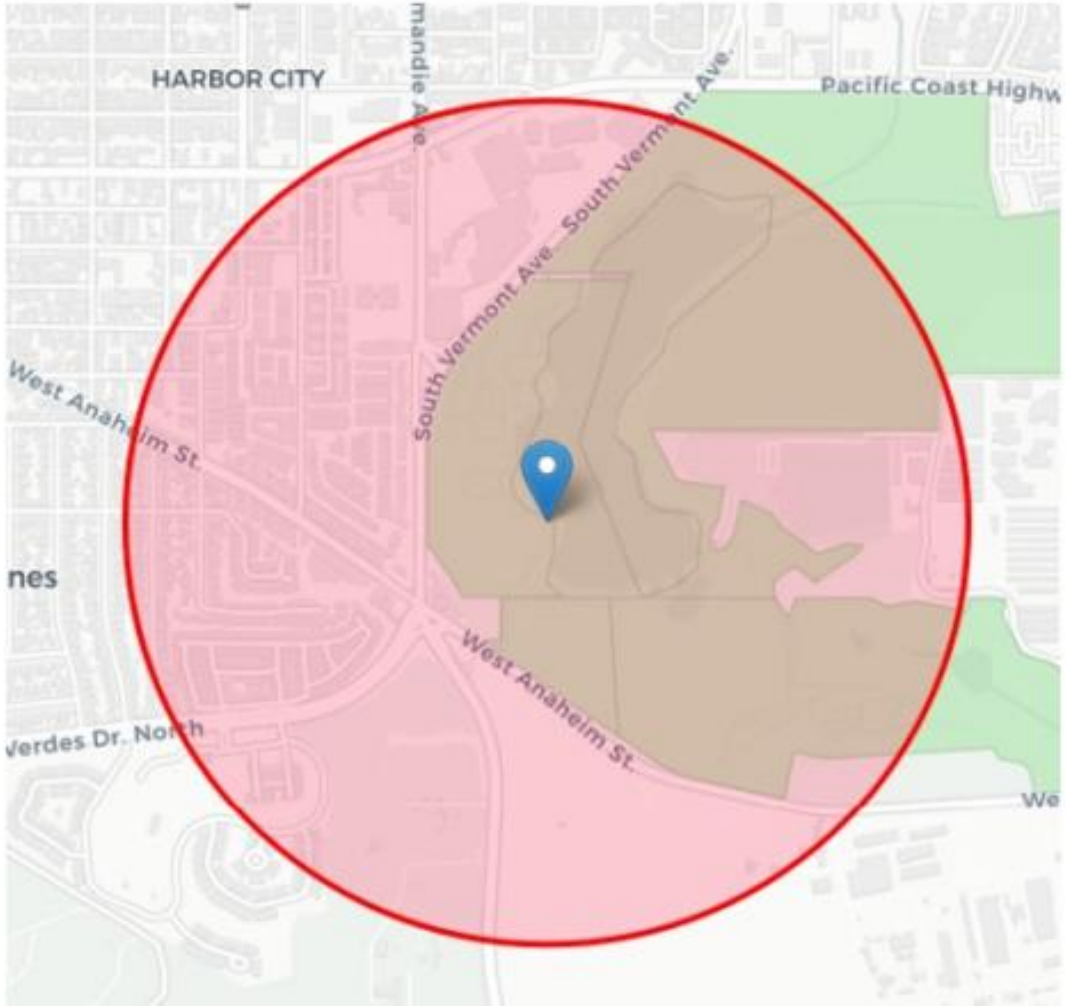
- Ken Malloy Harbor Regional Park
- South Santa Monica Bay Watershed Area
- Local residents very engaged w/ overflow of people on park volunteer days

Project Location

PROJECT AREA STATISTICS

County	Los Angeles
City	Los Angeles
Total Population	3,222
Youth Population	596
Senior Population	435
Households Without Access to a Car	101
Number of People in Poverty	510
Median Household Income	$55,519
Per Capita Income	$33,593
Park Acres	194.46
Park Acres per 1,000 Residents	60.35

PROJECT AREA MAP



Project Background

2019

LA Green New Deal Sustainability pLAn

Includes 2 healthy soils pilot projects

2020

LASAN's Healthy Soils Advisory Panel

Key stakeholders outlined soil health priorities in healthy soils strategy

2020 - 2021

Healthy Soils Motion 'Regenerate LA'

Introduced by Councilmember Paul Koretz

Calls for the promotion of opportunities to **improve soil health, water retention/capture, and biodiversity** and that promote **green jobs** through **regenerative land mgmt** practices

Endorsed and supported by LASAN and LARAP General Manager - Mike Shull

2021

Regenerate LA project

Partnership between KTG, LA Compost, LARAP, LASAN

- Compost production
- Demonstration sites
- Training & education
- Pollinator Habitats
- Data collection
- Public awareness and community engagement

Project Background

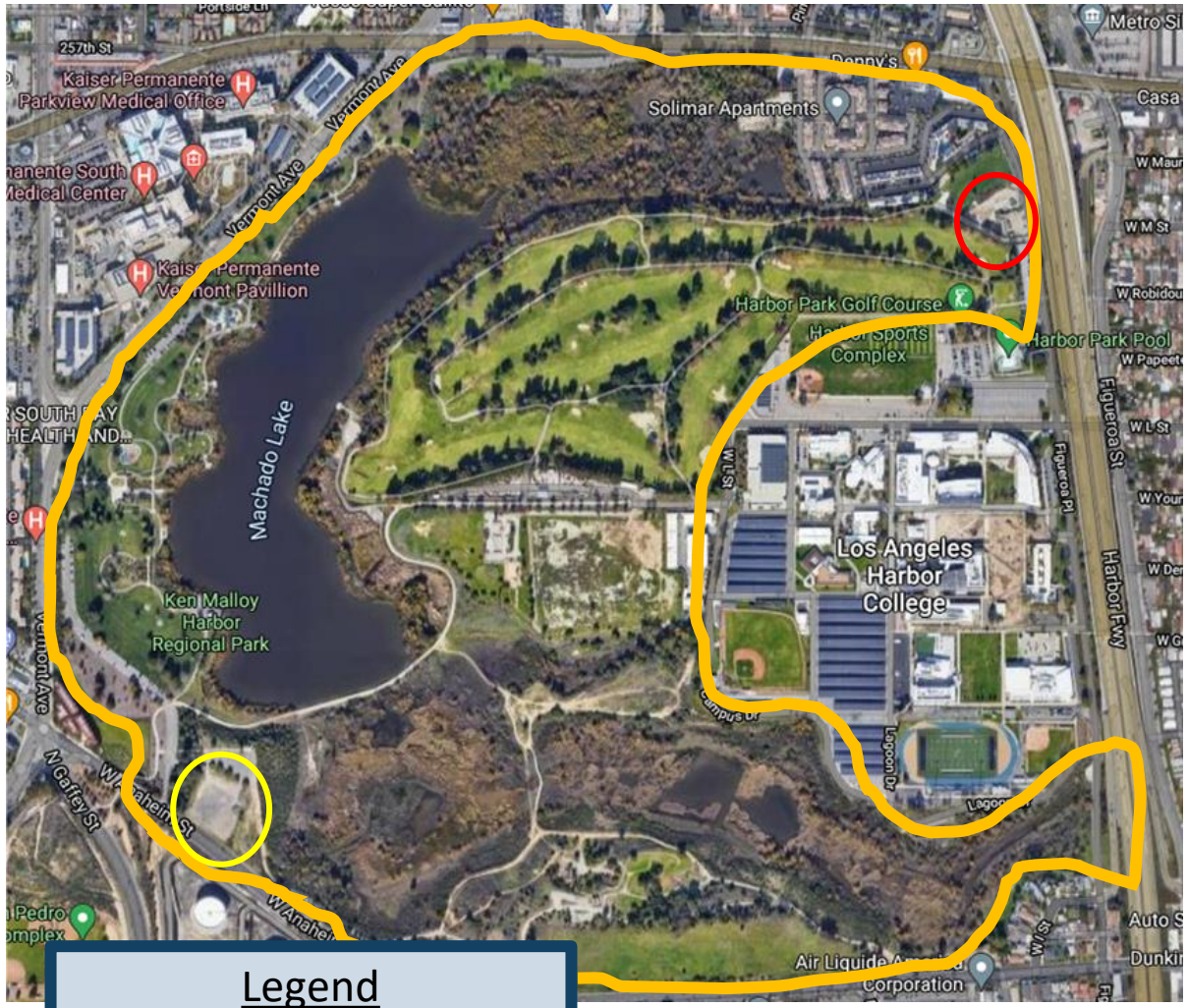
Ken Malloy Harbor Regional selected in partnership with LARAP as 2nd platinum site under RegenerateLA

- ➔ Site locations with high potential for compost infrastructure development
- ➔ Large maintenance area
- ➔ Important watershed implications
- ➔ High community engagement
- ➔ Location would balance first location in Griffith Park

Benefits to municipality, especially DAC:

- ➔ Access to chemical-free parks! Clean soils, clean water
- ➔ Improvement of local biodiversity and soil sponge: 05% increase in SOM could result in 3 million gallons of water!
- ➔ Community engagement prior, during, and after project
- ➔ Food scrap drop off, compost pick up

Project Details



Ken Malloy Harbor Regional Park

- 2 sites: compost production and compost curing
  - ➢ Allows to maximize production
- Varied features
  - Park recreation
  - Riparian zones
  - Dog Parks
  - Golf course
  - Campgrounds
- Opportunity for LA to become leader in alternative land management/ maintenance options

Cost & Schedule

Phase	Description	Cost	Completion Date
Feasibility Study	Feasibility Study, preliminary design, initial community engagement	$300,000	June 2022 (TBC)
Planning and design	Final design, permitting, community engagement	$15,000	Dec. 2022
Construction	Site preparation, compost infrastructure, investment in maintenance tools	$135,000	March 2023
Implementation	Operational, maintenance, and monitoring (annual costs)	TBD	Dec. 2027 (TBC)
TOTAL		**TBD**	

- Annual costs will include compost production maintenance, soil testing and monitoring, community engagement / workshops, part time technical expert, part time project coordinator, communications, graphic design and web

Funding Request

Year	SCW Funding Requested	Phase	Efforts during Phase and Year
1	$300,000	1	Feasibility study
TOTAL			

Requested funds for feasibility study would

- Generate information required for project concept submission to guide and provide baseline data for, transitioning parkland to ORLM, including improvements to soil organic matter, water infiltration and retention, carbon sequestration, and biodiversity
- Provide a roadmap for Ken Malloy to become second platinum site under Regenerate LA


Questions?

Microplastics in LA County Stormwater

Scientific Studies Program
Fiscal Year 2022-2023

Watershed Areas:
Central Santa Monica Bay
Lower Los Angeles River
Lower San Gabriel River
South Santa Monica Bay

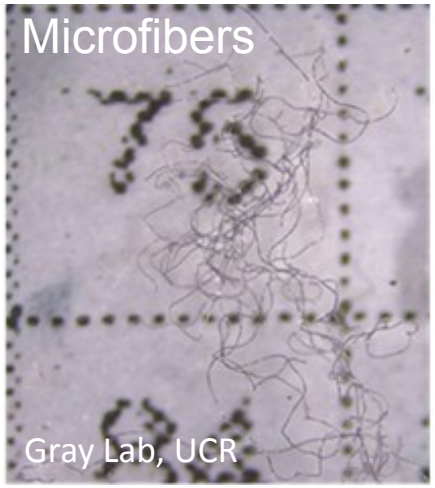
Project Lead & Presenter: Dr. Andrew Gray, UC Riverside

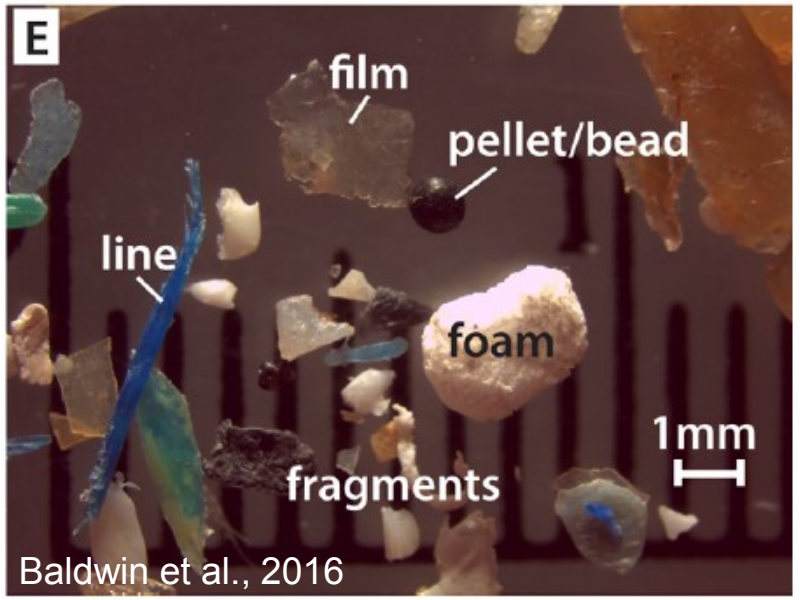
Study Overview

We propose to monitor and model microplastics in the stormflow of 4 stream channels in partnership with Los Angeles County Public Works.

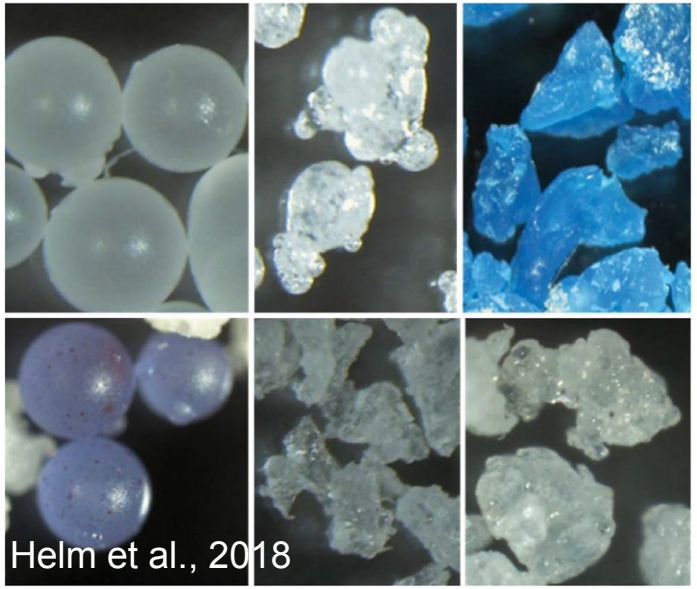
Nexus: Contributions to microplastics monitoring, analysis, and modeling will be used to evaluate the processes controlling microplastics ambient concentrations and loading in stormwater and urban runoff, and advance, effective techniques for microplastics monitoring in rivers and streams.

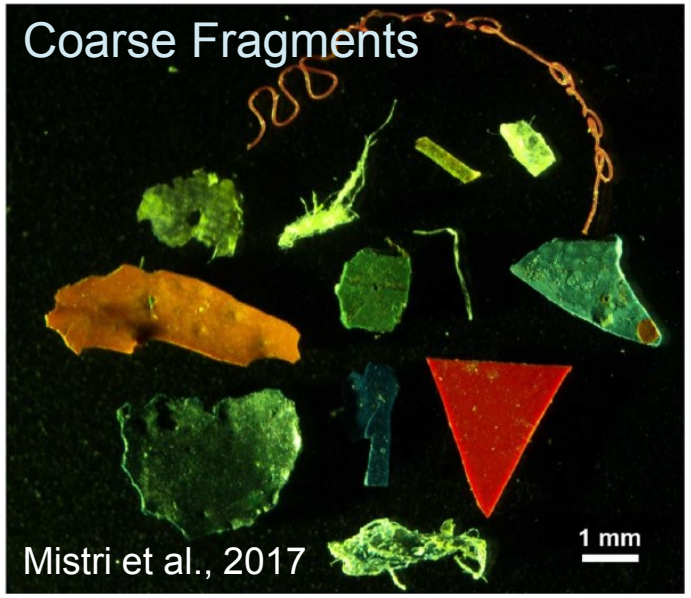
Background – Microplastics





Microbeads Fragments





A diverse suite of contaminants

Size: 1 micron to 5 mm in size

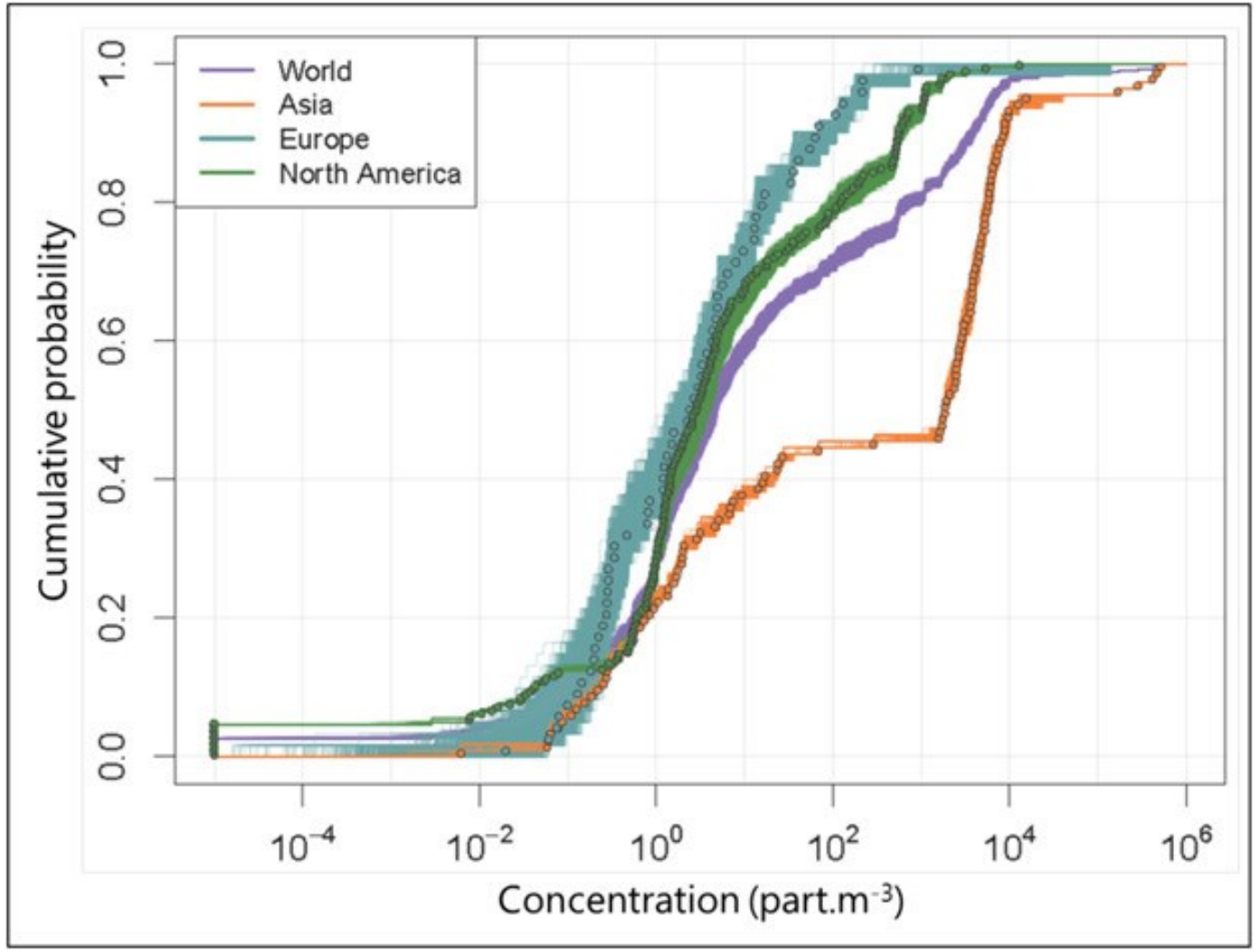
Morphology: from spherical to fiberous

Composition: thousands of plastics chemical additives & sorbed substances

Impacts: potential physical and chemical risks to aquatic biota and human health

Background – Microplastics in Rivers

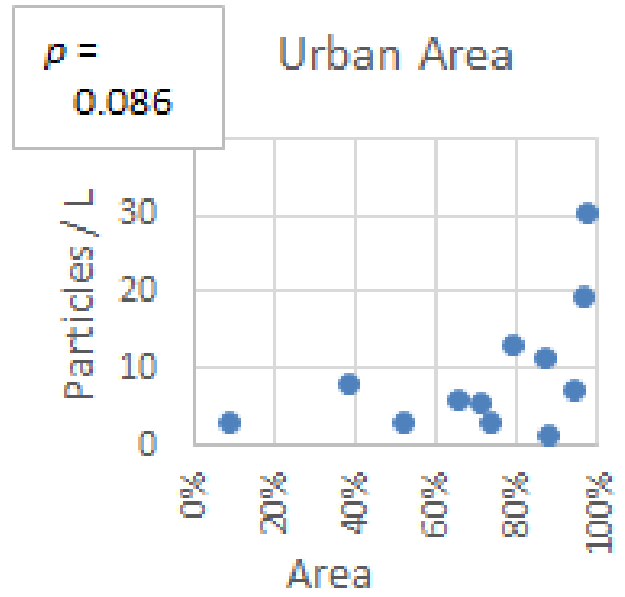
Freshwater Concentration: 10^{-4} to 10^{6} microplastics per cubic meter

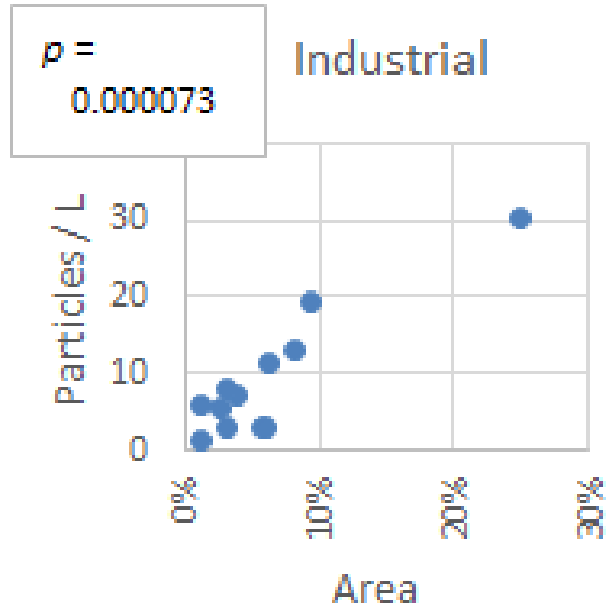


Adam et al. 2019

Background – Lessons from San Francisco Bay

Highly urbanized and industrialized watersheds





Higher microplastics loading in stormwater

Sutton et al. (2019)

Study Details

Problem Statement

- Microplastics are pollutants of increasing concern.
- Urban rivers are likely to be heavily contaminated with microplastics.
- Little is known about the drivers of microplastics concentration and flux in stormflow.
- Optimal stormflow monitoring techniques have not been established.
- Little monitoring in Southern California (so far).

Study Objectives

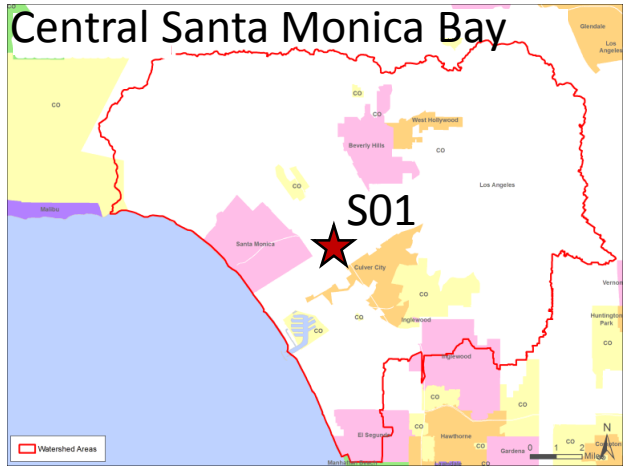
1. Monitor microplastics pollution at LA County mass emission stations.
2. Model microplastics fluxes from LA County rivers and streams.
3. Refine microplastics monitoring techniques for broader application.

Study Details

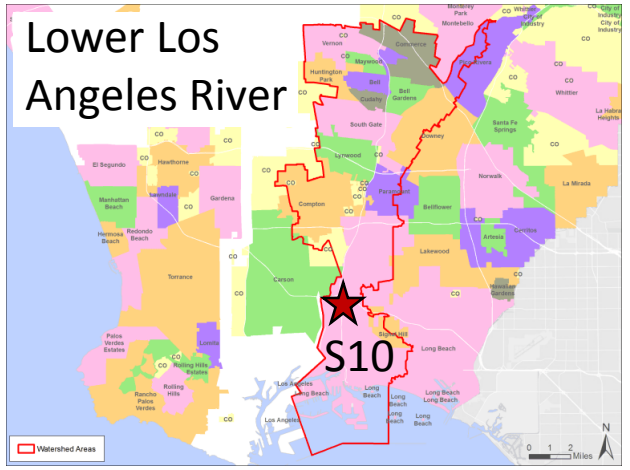
Previous and Ongoing Microplastics Studies

	Microplastics Methods	San Pedro Bay	Newport Bay	Santa Ana River	LAC Stormflow Pilot
Partners	*> 35 participating laboratories*				
Study Type	Inter-laboratory comparison study to harmonize methodologies	Integrated river/coastal ocean monitoring/modeling	Fluvial flux and sedimentation monitoring	Preliminary investigations/ Method Development	Initial river monitoring with LACPW autosamplers
Target	Microplastics	Microplastics	Macro/Microplastics	Macro/Microplastics	Microplastics
Study Systems	Laboratory analysis of blind samples from water, sediment and tissue matrices spiked with a range of microplastics particles.	• Los Angeles River • San Gabriel River • Coyote Creek • Santa Ana River below Prado • San Pedro Bay	• San Diego Creek • Santa Ana Delhi Channel • Marsh and subtidal sediment	• Santa Ana River above Prado • Arlington Channel	• Los Angeles River • Ballona Creek • Dominguez Channel • Malibu Creek

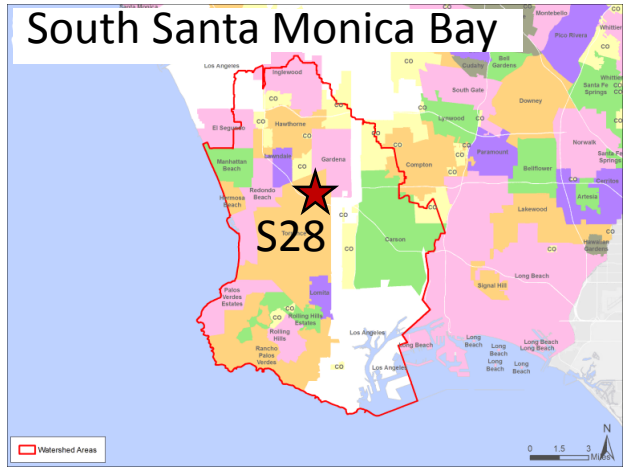
Study Locations



S01: Ballona Creek

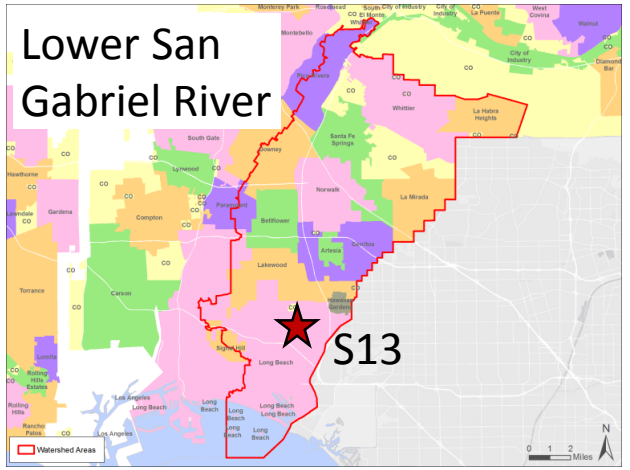


S10: Los Angeles River



S28: Dominguez Channel

★ LA County Mass Emission Stations



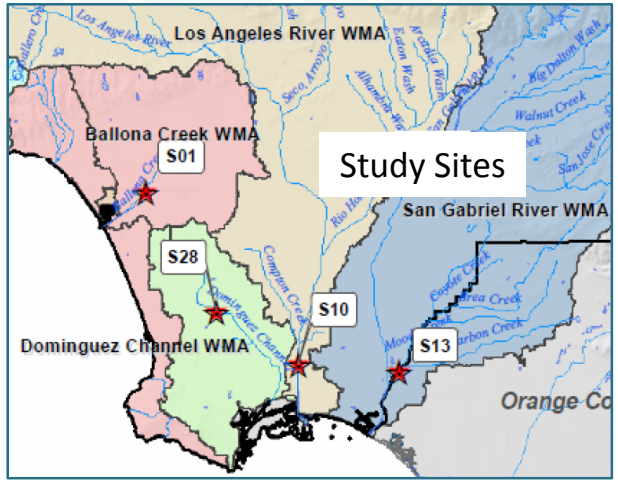
S13: Coyote Creek

Study Details

Study Methods

4 LAC Mass Emission Stations (MES)

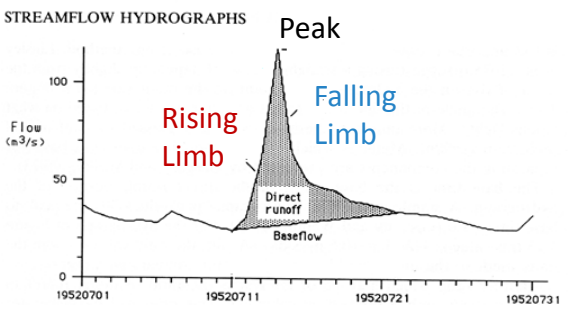
- **Ballona Creek** (S01; Watershed Area: Central Santa Monica Bay Region)
- **Los Angeles River** (S10; Watershed Area: Lower Los Angeles River Region)
- **Coyote Creek** (S13; Watershed Area: Lower San Gabriel River)
- **Dominguez Channel** (S28; Watershed Area: South Santa Monica Bay)

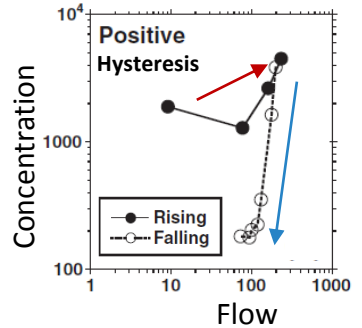


Wet season monitoring during each of years 1, 2, and 3

- 3 stormflow sampling events per year per MES
- Each sampling event = 2 samples:
  - **LAC**: bulk water (10-40 L); fixed intake point; autosampler
  - **UCR**: net (1-20 m^3) and bulk water (3-10L); flow integrated, crane deployed sampling devices
- **First flush** events prioritized when possible
- Additional storm event **hysteresis** monitoring once per MES

	Microplastics Samples (n) from Stormwater															
MES	S01			S10			S13			S28			Total			
Institution/Year	y1	y2	y3	y1	y2	y3	y1	y2	y3	y1	y2	y3	y1	y2	y3	Total
LACPW	3	3	3	3	3	3	3	3	3	3	3	3	12	12	12	36
UCR	3	6	3	3	6	3	3	3	6	3	3	6	12	22	22	48





Study Details

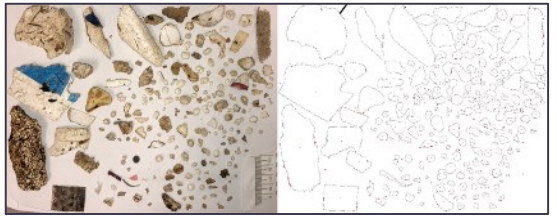
Laboratory Extraction

- Organic digestion
- Density separation
- Size fractionation

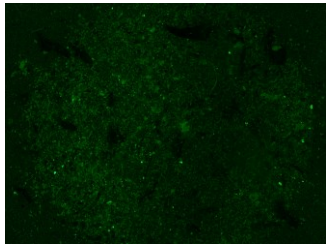
Identification & Characterization

- Brightfield & Fluorescent microscopy with automated image analysis
- µ-FTIR spectroscopy; SEM EDS (tire wear)
- Blanks, QA/QC

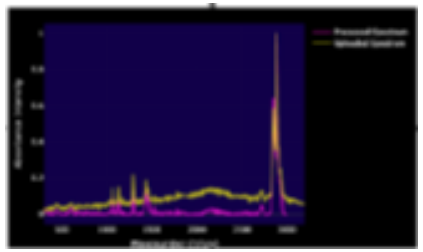
Morphological Characterization



Fluorescence Micro.



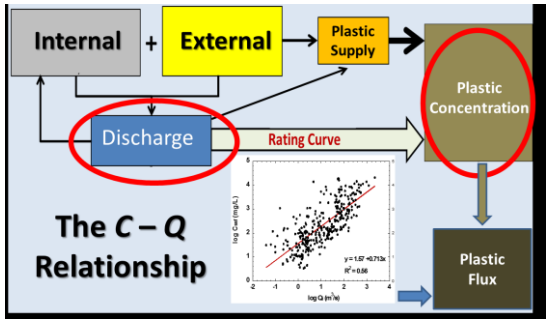
Polymer Characterization



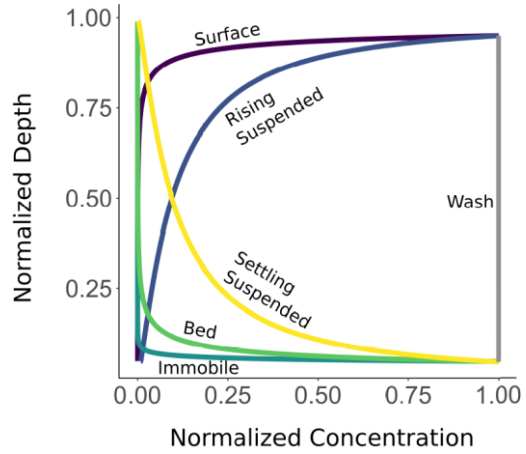
Flux Modeling

- Microplastics concentration results
- LAC MES discharge data
- Concentration-discharge rating curves
- Watershed composition evaluation
- Integration with regional microplastics modeling

Watershed Factors



Cowger et al. (2021)



Monitoring Optimization

- Comparison of LAC autosampler and UCR flow integrated results in terms of concentration, particle size distribution, and polymer compositions
- Evaluation of representative sampling
- Sample effort and cost assessment

Cost & Schedule

Study Component	Year 1				Year 2				Year 3			
	2022				2023				2024			
	W	Sp	Su	F	W	Sp	Su	F	W	Sp	Su	F
Study design *(completed by initiation of project)*												
Microplastics monitoring of LAC stormflow												
Microplastics flux modeling												
Monitoring optimization analysis												
Stakeholder and technical advisory committee meetings												
Final reporting												

Funding Request

WASC	Year 1	Year 2	Year 3	Total
CSMB	$85,158.75	$86,442.50	$76,150.25	$247,751.50
LLAR	$85,158.75	$86,442.50	$76,150.25	$247,751.50
LSGR	$85,158.75	$86,442.50	$76,150.25	$247,751.50
SSMB	$85,158.75	$86,442.50	$76,150.25	$247,751.50
TOTAL	**$340,635.00**	**$345,770.00**	**$304,601.00**	**$991,006.00**

Cost per WASC: **$247,751**

Total Cost: $991,006

Additional Matching Funds: $69,279 (UCR)

Direct Cost Description: Personnel (79%), materials/supplies (16%), and travel (5%).

Summary of Benefits

This study will provide LAC and partner watersheds with answers to the following key questions on microplastics pollution:

1. **How many and what kinds of microplastics are in LAC stormwaters?** Characterizing microplastics in stormwater will allow managers to build a baseline understanding of how much and what kind of microplastics get into California surface waters from stormwater.

2. **What are the optimal methods for monitoring microplastics in stormflow?** Developing robust, reproducible, and cost-effective methods for sampling microplastics in stormflow is essential for supporting the benefits above, and will inform local to statewide microplastics monitoring in the future.

3. **Can we predict the levels of microplastics for the future?** Understanding the role of stormwater in watershed to regional microplastics budgets will further our understanding of microplastics pollution in the region, allowing us to predict microplastics fluxes in unstudied watersheds and with changes to watershed composition over time.

Communication & Outreach. *The findings of this study will also be used to educate the community on the topic of microplastics pollution through open stakeholder meetings, presentations, and community outreach. Through increased community engagement, the results of this study will increase public awareness of the current state of knowledge on microplastics. Results will be published in SCWP reports and peer-reviewed literature.*


Questions?

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