

South Santa Monica Bay Watershed Area Steering Committee (WASC) Meeting Minutes



Wednesday, October 20, 2021
1:00pm - 3:00pm
WebEx Meeting

Committee Members Present:

Ramy Gindi* (LACFD)
E.J. Caldwell (West Basin)
Esther Rojas* (Water Replenishment District)
Christopher Lapaz* (LAC Sanitation District)
Darryl Ford* (Los Angeles Rec & Park)
Craig Cadwallader (Surfrider Foundation)
Marissa Caringella* (SMB Restoration Commission)
Hany Fangary (Fangary Law Group)
Wendy Butts (LA Conservation Corps)
Susie Santilena (Los Angeles)
Thuan Nguyen* (LAC Public Works)
John Dettle (Torrance)
Geraldine Traveti (EWMP: Beach Cities)
Heecheol Kwon (Dominguez)
Ken Rukavina (EWMP: Peninsula)
Nancy Shrodes (Heal the Bay – Non-voting member)

*Committee Member Alternate

Committee Members Not Present:

N/A

See attached sign-in sheet for full list of attendees.

1. Welcome and Introductions

Craig Cadwallader, Chair of the South Santa Monica Bay WASC, welcomed Committee Members and called the meeting to order.

Kevin Kim (District) facilitated the roll call of Committee Members. All Committee Members made self-introductions and a quorum was established.

2. Approval of Meeting Minutes from September 15, 2021

The District provided a copy of the meeting minutes from the previous meeting. Motion to approve meeting minutes, by Member Trivedi, seconded by Member Fangary. The WASC voted to approve the meeting minutes (approved, see vote tracking sheet).

Eliza Jane Whitman, Committee Member Alternate for the City of Carson, will replace Member Julio Gonzalez as the Primary Committee Member. The District will follow up with Member Whitman to identify a new Alternate for the City of Carson.

3. Committee Member and District Updates

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District Staff provided an update, noting:

- The District is initiating the Fund Transfer Agreement process for projects that were approved for funding in Fiscal Year 2021-2022 Stormwater Investment Plans (SIPs). Addendums to projects that were approved for funding in Fiscal Year 2020-2021 SIPs were also sent out.
- On Oct 19, the Scoring Committee reviewed the seven Infrastructure Program projects submitted for SSMB WASC consideration. Three of the seven were unable to be scored or needed additional information. Scoring Committee is expected to send comments back to the project developers at the next scheduled meeting.
- On Oct. 7, the District provided an early implementation update to the Regional Oversight Committee. Updates and accomplishments were discussed and well received by the ROC.
- Regional Program project proponents are required to submit quarterly reports. The District is working on providing comments to project developers. A summary of quarterly reports will be provided to WASCs, although one is not foreseen for NSMB WASC. The next quarterly reports are due Nov. 15.
- Per the Board of Supervisors actions under AB 361, WASC meetings will continue to occur virtually.

Member Shrodes asked if a hybrid model would be possible when meetings occur in person. District Staff said equipment would be purchased to support a hybrid model.

4. Watershed Coordinator Updates

Watershed Coordinator Shrodes provided an update, noting:

- A watershed-wide educational workshop called “All about Stormwater” was held for students.
 - 150 people viewed a Facebook livestream; the SSMB breakout room had six participants.
- Coastal Cleanup Day occurred on September 18th and included six sites in SSMB.
- The Watershed Coordinator is working with Heal the Bay to understand how the Integrated Regional Water Management Disadvantaged Community Involvement Program Needs Assessment can inform the Safe, Clean Water Program.
- Watershed Coordinator met with organizers from Water LA to discuss ways to further collaborate.
- Watershed Coordinator met with a potential private sector cost-share partner.
- Yesterday, Watershed Coordinator hosted an event for the “Know the Flow” program regarding use of stormwater.

5. Public Comment Period

There were no public comments.

6. Discussion Items:

a) Ex Parte Communication Disclosure

Member Dettle reported that he attended the monthly Beach Cities meeting.

b) Technical Resources Project (TRP) Presentations

i) Darby Park Multi-Benefit Project (City of Inglewood)

Presentation by Lauren Amimoto. *This project will manage 3.7 acre-ft of stormwater in a subsurface infiltration basin and will provide recreational upgrades to the park.*

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Member Santilena asked about the benefit of going for the Technical Resources Program rather than the Infrastructure Program. Amimoto replied the TRP will help jumpstart the project.

Member Nguyen asked how deep underground the study conducted their infiltration rate. Amimoto replied they went 100 feet below ground but will need to confirm.

District Staff confirmed that under TRP, the District will take on the study and develop the feasibility study. Member Nguyen cautioned that if they already conducted studies and obtained the infiltration rate, that will work in their favor because the funds can be used towards other feasibility study requirements. Amimoto to confirm depth and approximate drilling location.

ii) **City of Lawndale Southern Revitalization Project (City of Lawndale)**

Presentation by Julian Lee and Jennifer Coryell. *This project is anticipated to manage 3.1 acre-ft of stormwater runoff from an upstream drainage area of 64 acres using drywells.*

Member Nguyen asked which infiltration rate the study used. Coryell replied that they used LA soil borings, with a spreadsheet/tracker to estimate the number of drywells needed. The application indicates the infiltration rate which was used.

Member Nguyen asked if there is a limited number of drywells for a particular location. Coryell explained that the dry wells need to be spaced 15 feet apart and can go in either direction down the street and turn into the alley if needed. Coryell added that there is no need to limit drywells to a certain location.

Member Nguyen expressed concern about garage access and availability of parking for nearby residents, noting that the project may disrupt homeowners from accessing their homes.

iii) **Regenerate LA (Kiss the Ground)**

Presentation by Callie Ham. *This project aims to build and sustain healthy soil through the transition from toxic chemical use to organic regenerative land management.*

Member Santilena asked what kind of communication has occurred with LA Sanitation & Environment (LASAN). Ham said LASAN has been involved throughout the process. The project aligns with the City of LA's Green New Deal. LASAN have been supportive and will publish the project's online component on their website when it is ready. Kiss the Ground is working to scale up education and training related to regenerative land management.

Member Dettle asked how compost would be incorporated into existing soils in the parks and if areas in the park contain toxic soils. Michael Martinez (Kiss the Ground) clarified that compost options include liquid foliage spray and mulch, and studies would identify areas with toxic soils.

Member Dettle mentioned that the City of LA completed a \$110 million project to install BMPs for water capture and does not understand the benefit of additional water capture.

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Finian Makepeace (Kiss the Ground) clarified when soil organic matter increases, the soil's ability to absorb water, support plant life, and support microbe feeding increases.

Member Dettle noted that Machado Lake has had challenges with nutrient Total Maximum Daily Loads (TMDLs). To put fertilizer and compost around Machado Lake may risk runoff increasing nutrient load. Makepeace responded that when compost is applied, it enhances the soil's ability to function (i.e., ability to absorb water). Martinez responded regenerative management on non-sloped areas typically leads to land with no runoff because it rapidly increases the function of the soil.

Member Nguyen asked, should Kiss the Ground move on to the Infrastructure Project (IP) application, what water quality and water supply benefit they have planned to meet the threshold score. Makepeace responded that moving to organic will be a significant help due to a reduction of chemicals in the water supply. As the soil retains more water, less runoff will occur and less contaminants will leech into the water supply. The water needs of the park would be reduced due to the added capacity of the soil to carry water.

Member Nguyen asked if, in terms of community engagement, a permanent program will be implemented and where funding will come from. Ham explained this will be determined with community forums and ad hoc community events. As information and data are collected, they hope to scale up to advocacy. Kiss the Ground is already working on several initiatives at Griffith Park, have received funds from their lab and are in partnership with Tree People and LA Compost.

Member Santilena asked if they had considered whether economically disadvantaged communities would be eligible for jobs. Ham explained that they are currently focusing on LA Rec & Parks staff, but as training program gets developed, they intend to make jobs accessible to community members.

c) **Scientific Studies Program (SS) Presentations** ([SCW Portal](#))

i) **Microplastics in LA County Stormwater (University of California, Riverside)**

Presentation by Dr. Andrew Gray. This study aims to monitor and model microplastics in stormflow to optimize monitoring techniques and inform management of LA County watersheds.

Member Cadwallader noted that gathering scientifically vetted information on such impacts is critically important to the region, adding that Surfrider recently conducted a first flush demonstration for Santa Monica High School. Member Cadwallader believes the project will help inform the public and elected officials.

Member Santilena asked about the impact to the study if it doesn't receive funding from all of the Watershed Area Steering Committees. Dr. Gray explained that the project is scalable and can move forward with funding from anywhere between one and four WASCs.

District Staff asked for a date by which the project would need funding to be secured, since the WASC will not vote to approve until May 2022 and the Board of Supervisors also need to vote to approve the project. Dr. Gray responded that the research group can push the

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timeline back, if needed, based on the approval timeline.

7. Public Comment Period

There were no public comments.

8. Voting Items

There were no voting items.

9. Items for Next Agenda

There will be presentations for three more scientific studies.

10. Adjournment

Chair Cadwallader thanked WASC members and the public for their attendance and participation and adjourned the meeting at 2:45PM.

Next Meeting:

Wednesday, November 17, 2021

1:00PM – 3:00PM

See SCW website for meeting details

SOUTH SANTA MONICA BAY WASC MEETING - October 20, 2021											
Member Type	Organization	Quorum Present				Voting Items					
		Member	Voting?	Alternate	Voting?	Approve Meeting Minutes For September 15th, 2021	Voting Item 1	Voting Item 2	Voting Item 3	Voting Item 4	Voting Item 5
Agency	LACFC	Cung Nguyen		Ramy Gindi	x	A					
Agency	West Basin MWD	E.J. Caldwell	x	Alex Heide		Y					
Agency	Water Replenishment District	Robert Beste		Esther Rojas	x	A					
Agency	LAC Sanitation District	Kristen Ruffell		Christopher Lapaz	x	A					
Agency	LA Recreation & Parks	Cathie Santo Domingo		Darryl Ford	x	Y					
Community Stakeholder	VACANT										
Community Stakeholder	Surfrider Foundation South Bay Chapter	Craig Cadwallader	x	Mary Simun		Y					
Community Stakeholder	Santa Monica Bay Restoration Commission	Marissa Caringella	x			Y					
Community Stakeholder	Fangary Law Group	Hany Fangary	x	Justin Massey		Y					
Community Stakeholder	Los Angeles Conservation Corps	Wendy Butts	x	Bo Savage		Y					
Municipal Members	Carson	Julio Gonzalez		Eliza Jane Whitman	x	A					
Municipal Members	Los Angeles	Susie Santilena	x	ilene Ramirez		Y					
Municipal Members	LAC Public Works	TJ Moon		Thuan Nguyen	x	A					
Municipal Members	Torrance	John Dettle	x	Wilson Mendoza		Y					
Municipal Members	EWMP: Beach Cities	Geraldine Trivedi	x	Doug Krauss		Y					
Municipal Members	EWMP: Dominguez	Heecheol Kwon	x	Selena Acuna		A					
Municipal Members	EWMP: Peninsula	Ken Rukavina	x	David Wahba		Y					
Watershed Coordinator	Heal the Bay	Nancy Shrodes	x			N/A	N/A	N/A	N/A	N/A	N/A
Total Non-Vacant Seats		16				Yay (Y)	10	0	0	0	0
Total Voting Members Present		16				Nay (N)	0	0	0	0	0
Agency		5				Abstain (A)	6	0	0	0	0
Community Stakeholder		4				Total	16	0	0	0	0
Municipal Members		7				Approved	Not Approved	Not Approved	Not Approved	Not Approved	Not Approved

Other Attendees

- Tori Klug
- Jesus Velazquez
- Jacky Cervantes
- Mark Hall
- Ed Suher, CASC
- Julian Lee
- Trevor Davis
- Veronica Seyde
- Tammy Takigawa
- Andrew Gray
- Brenda Ponton
- Lauren Amimoto
- Susan Robinson
- emily ramos
- Jacqueline Mak
- Michelle Staffield
- ilene ramirez
- Dee Corhiran
- thuan chi
- Jaimie Lewis
- Sarai Bhaga
- Callie Ham
- Wilson Mendoza
- Michael Scaduto
- Michael Martinez
- nicole steele
- Nate Schreiner- Tetra Tech
- shahram kharaghani
- Katie Harrel
- finian Makepeace
- Sheila Brice
- Lorena Matos
- Alex Lunine



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

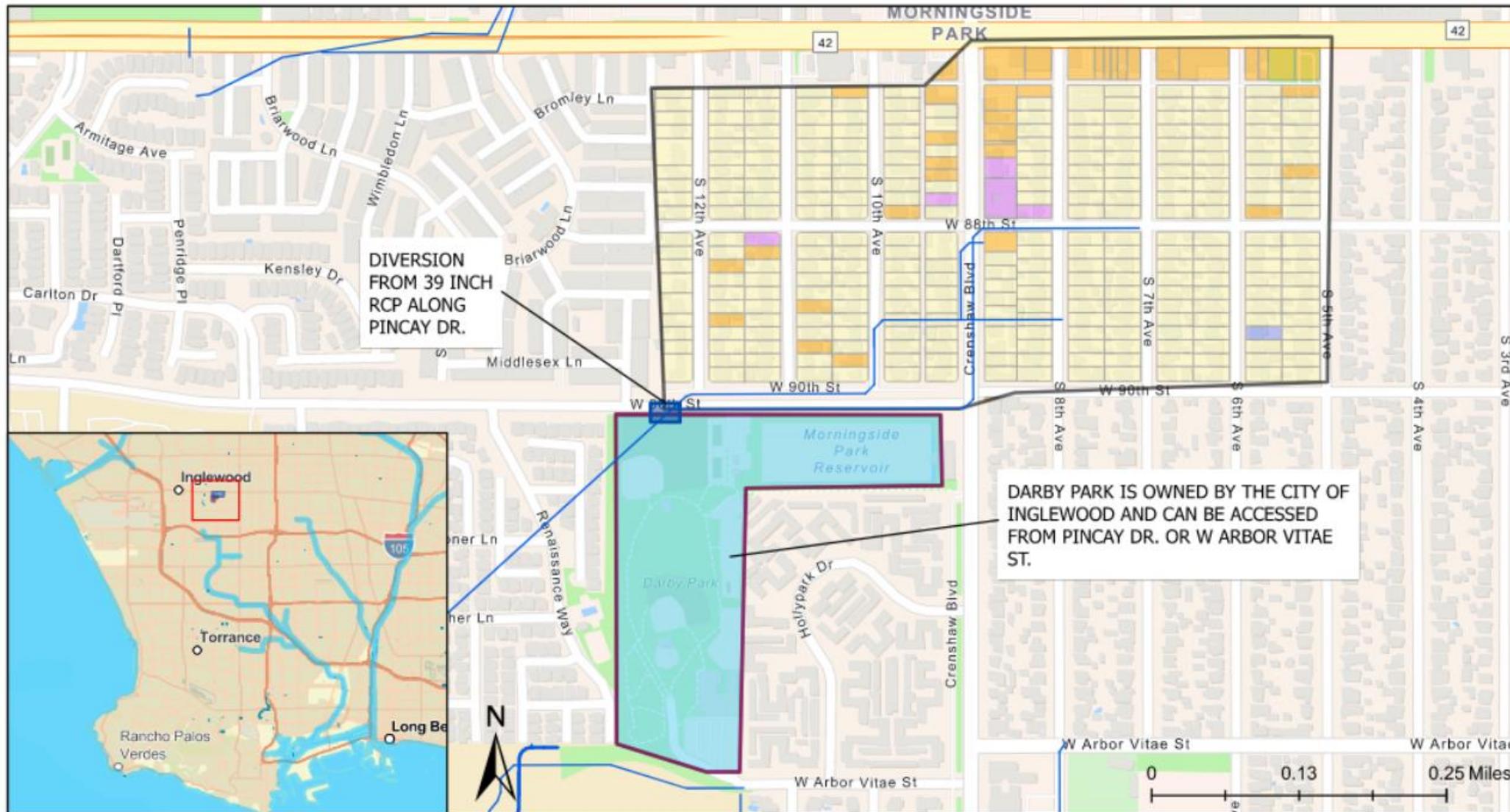
Description: The Project will manage a stormwater volume of 3.7 acre-feet from an upstream drainage area of 72 acres using an infiltration basin. Darby Park covers approximately 19 acres that will provide adequate space for stormwater detention and infiltration.

- 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

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?

An aerial photograph of a coastal city, likely Lawndale, California, showing a dense urban grid, a large bay, and surrounding hills. The image is partially obscured by a dark teal overlay on the left side where the text is placed.

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

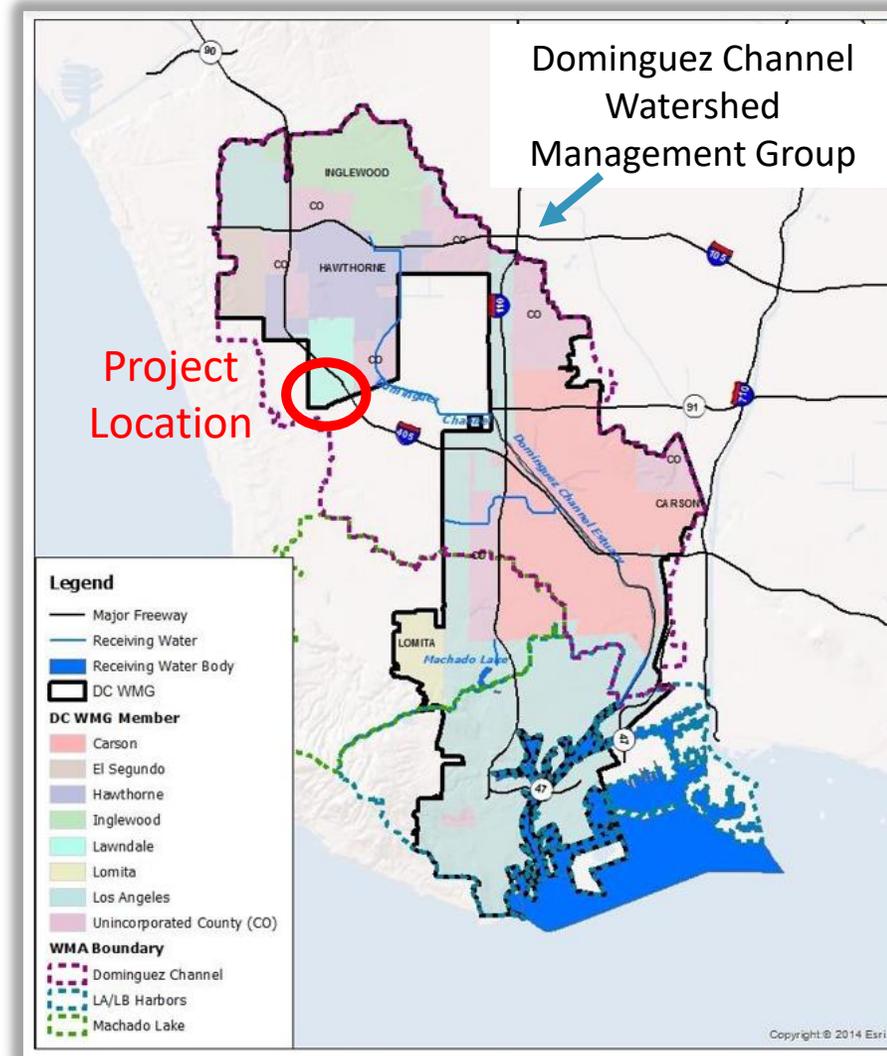
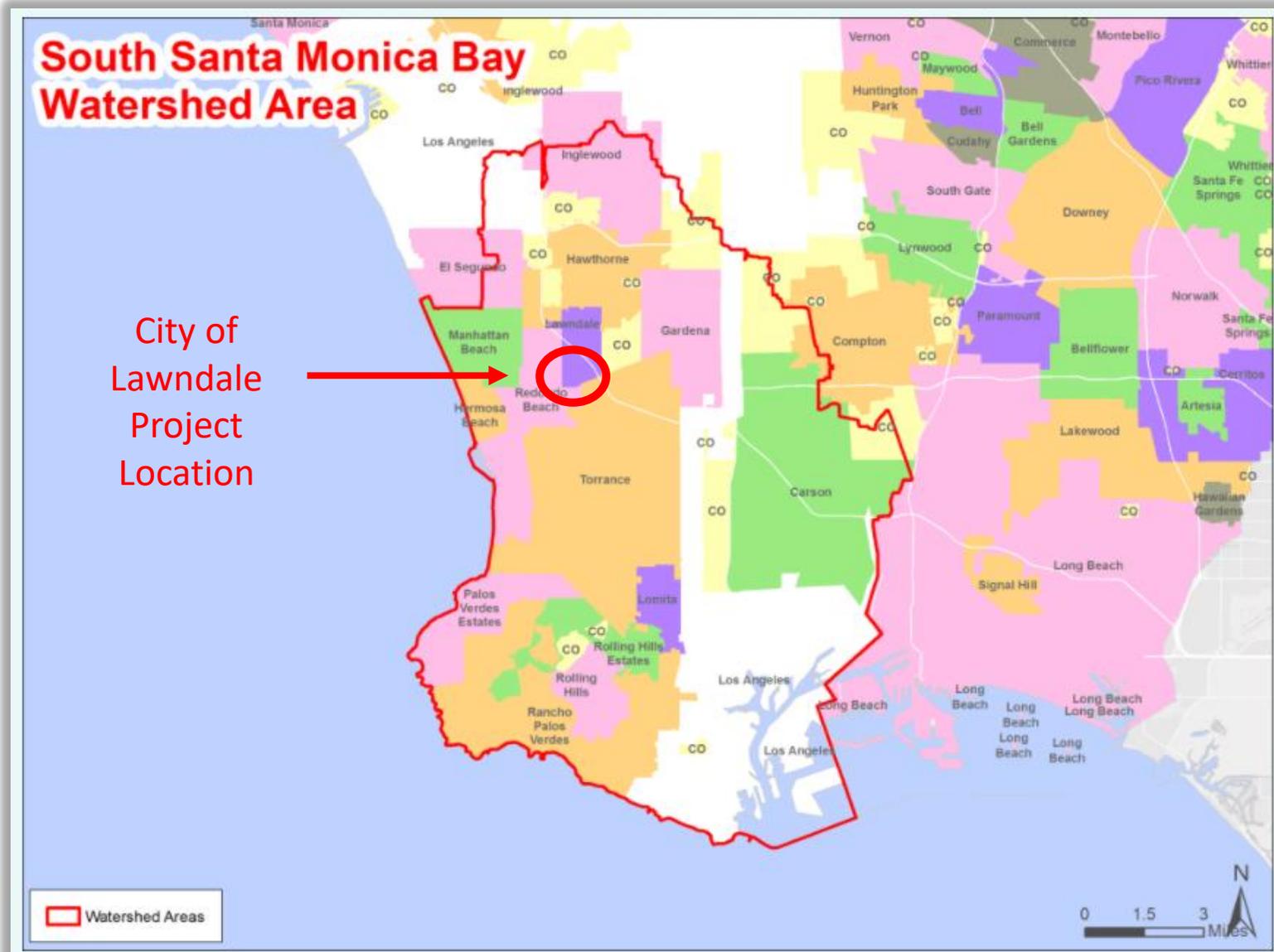
The Project is anticipated to manage 3.1 acre-ft of stormwater runoff from an upstream drainage area of 64 acres using drywells.

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



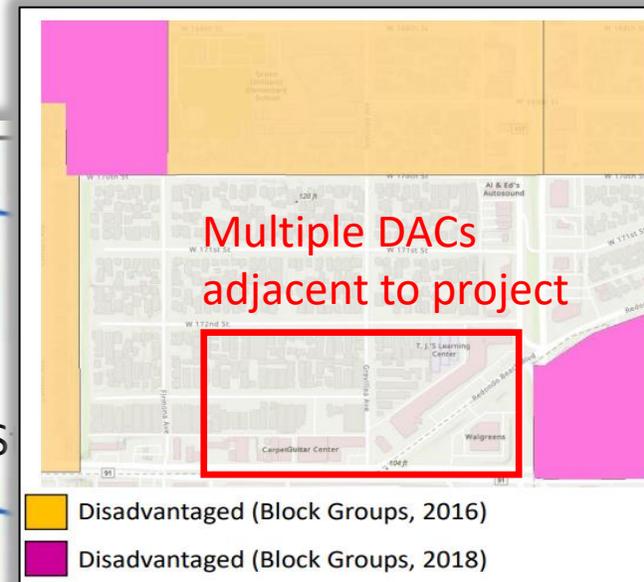
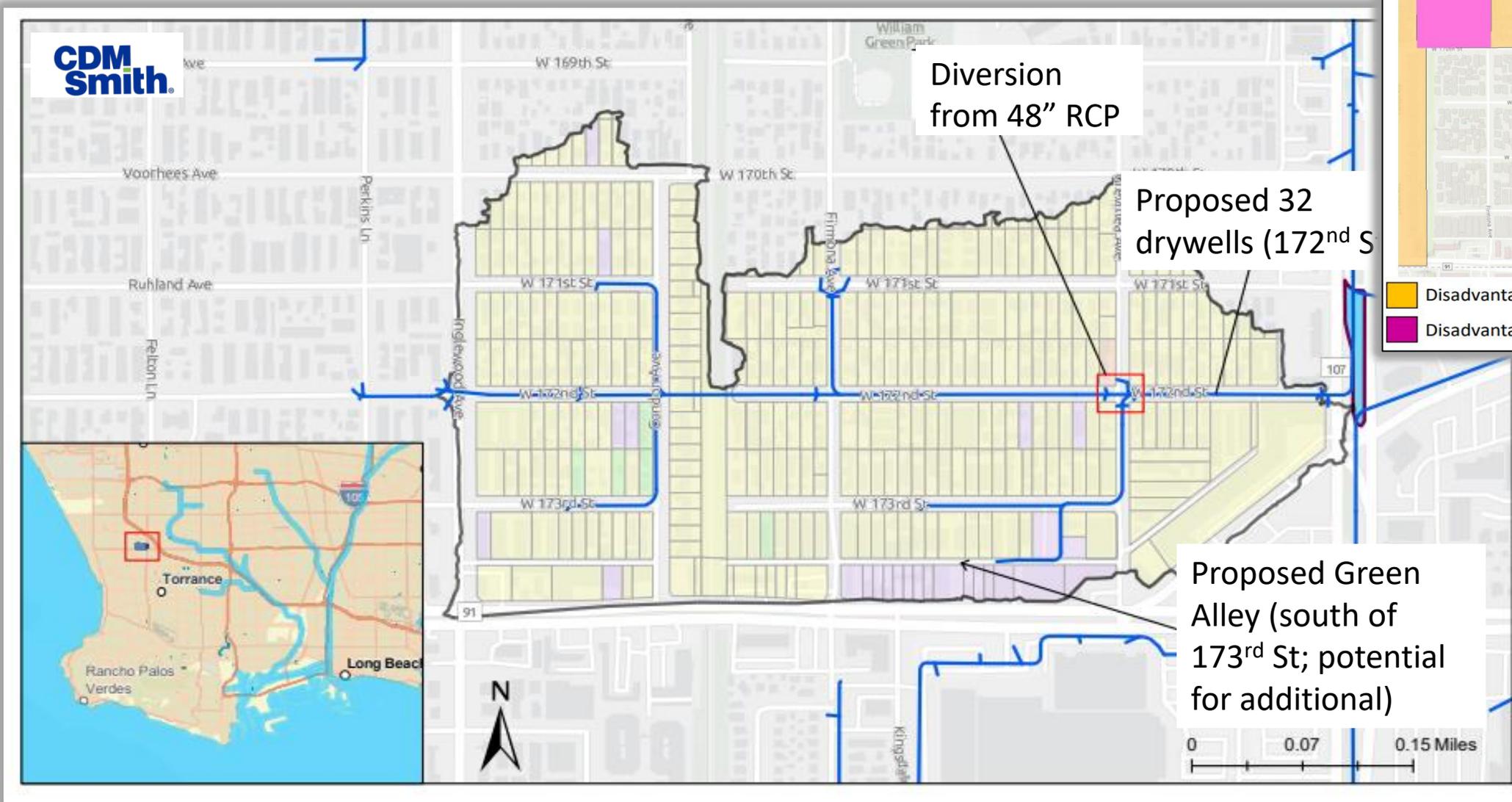


Project Location





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



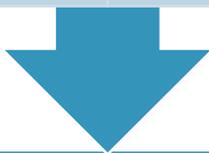


Project Details

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?

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

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)

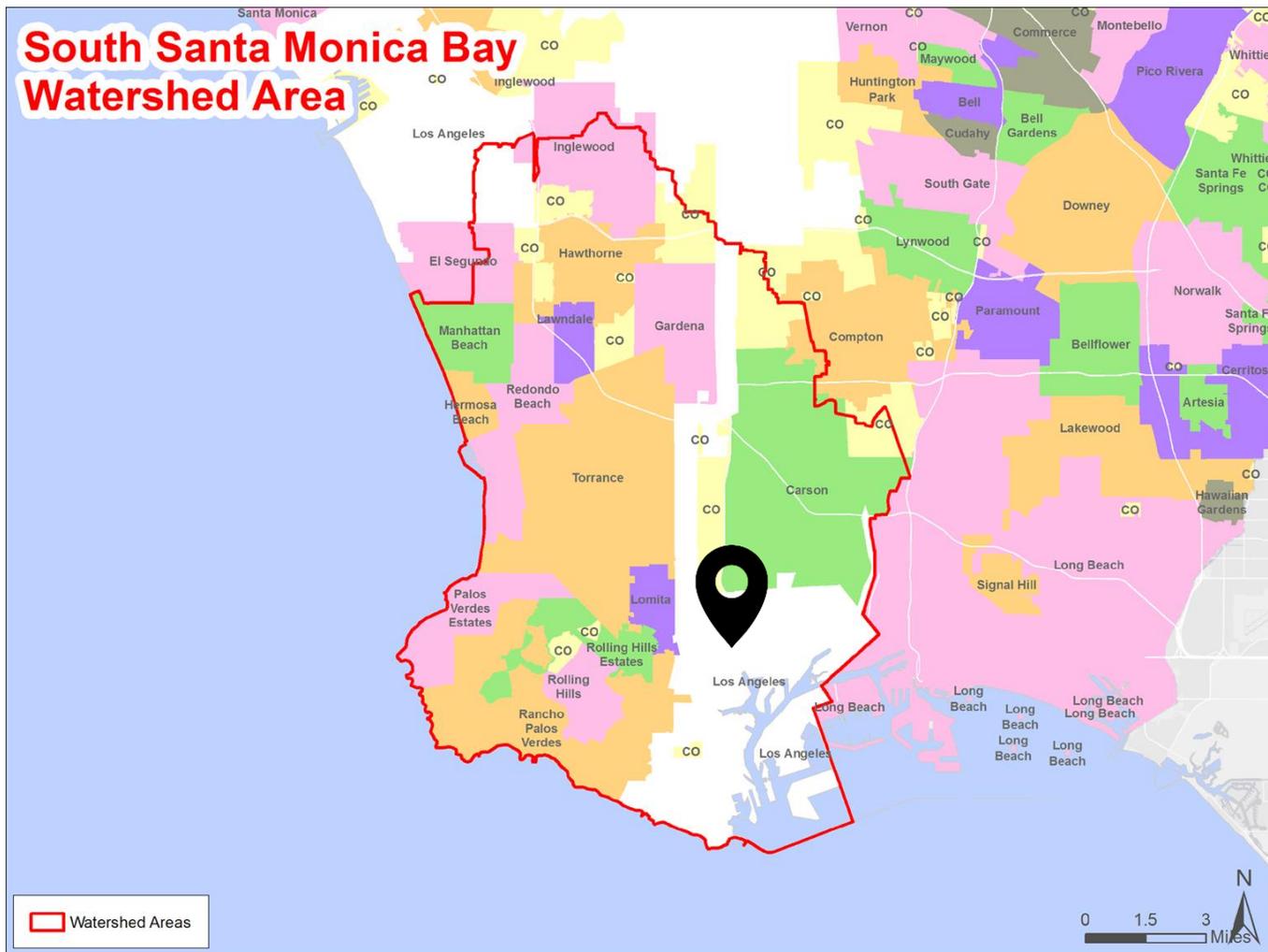
Project Status: Feasibility Study

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

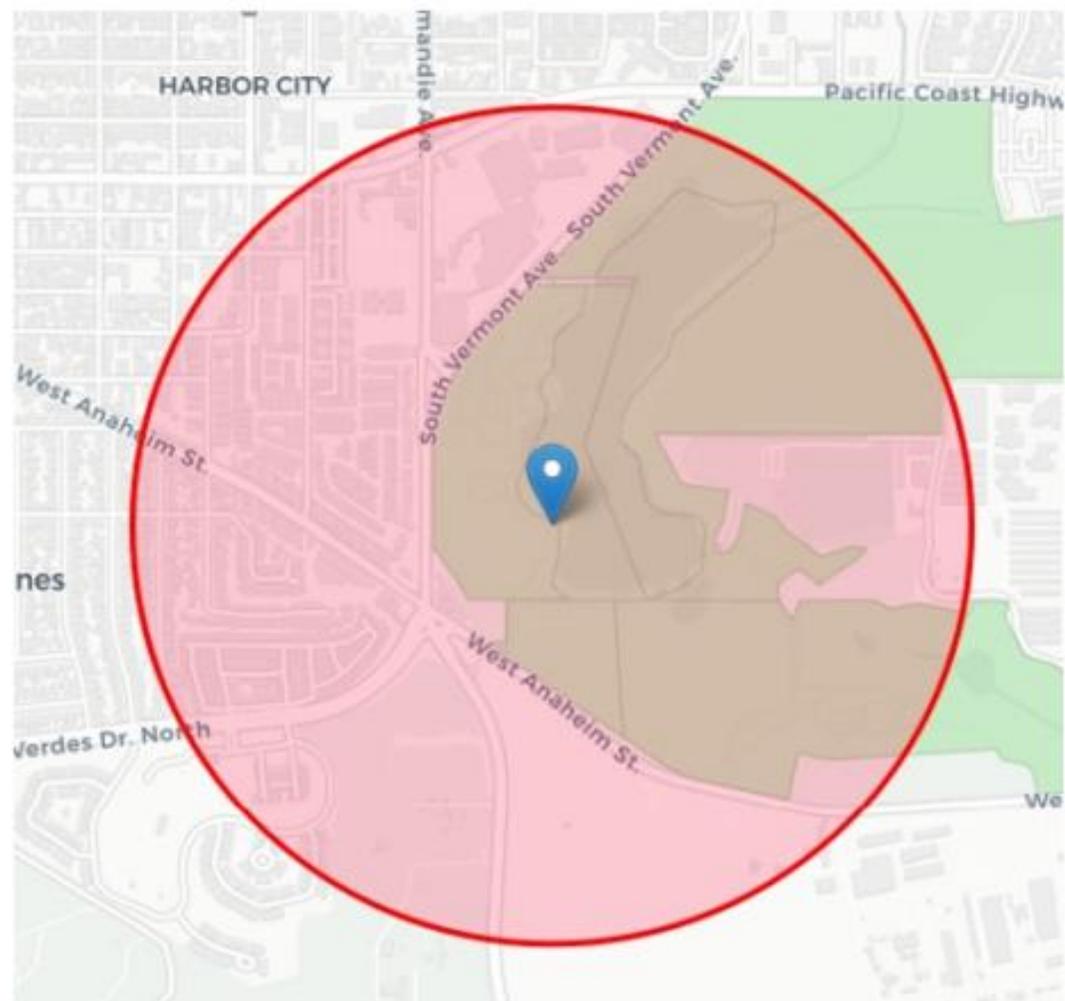


Project Location

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

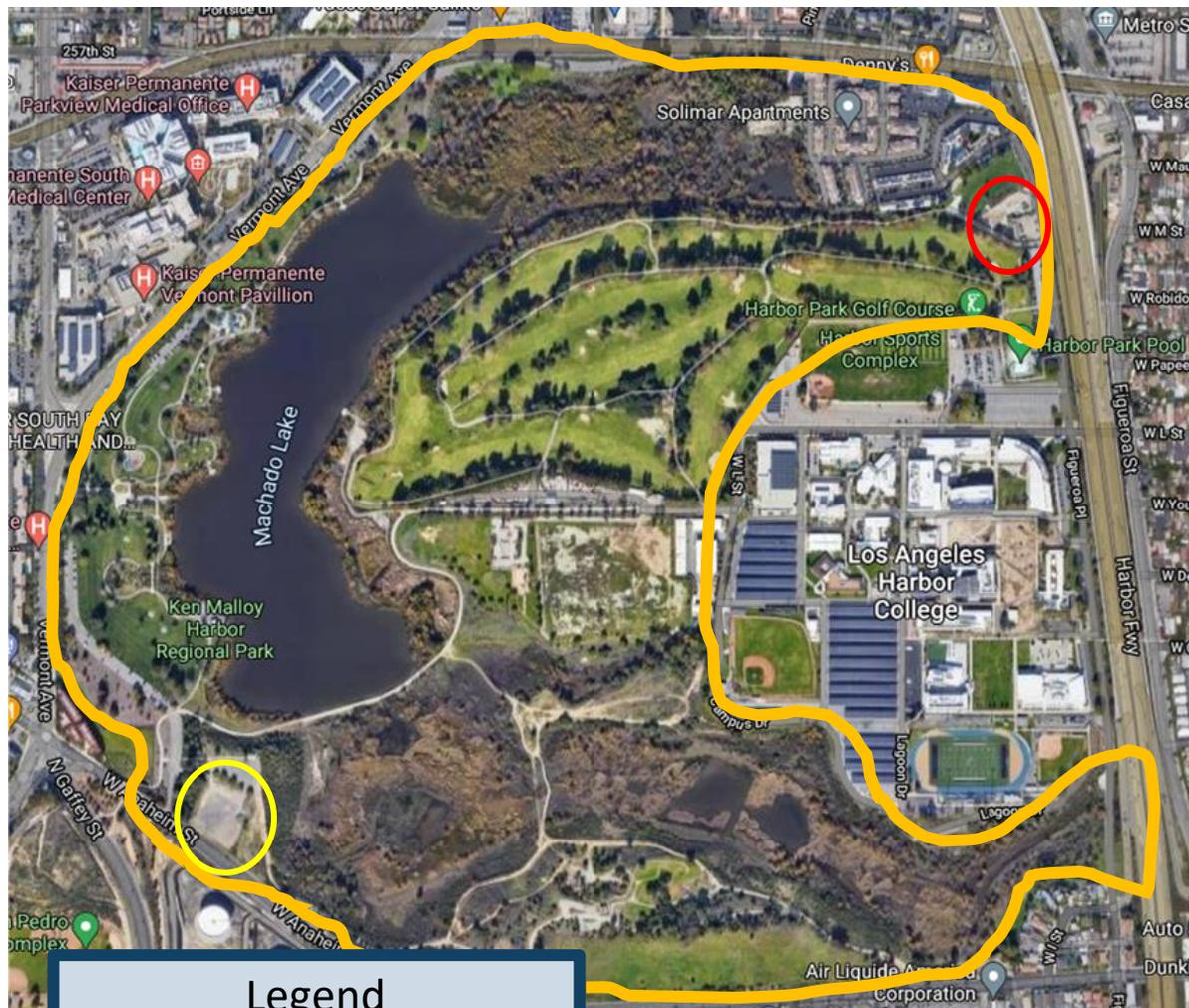
Benefits to municipality, especially DAC:

- 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



Legend

- Yellow circle: Compost production
- Red circle: Compost curing

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

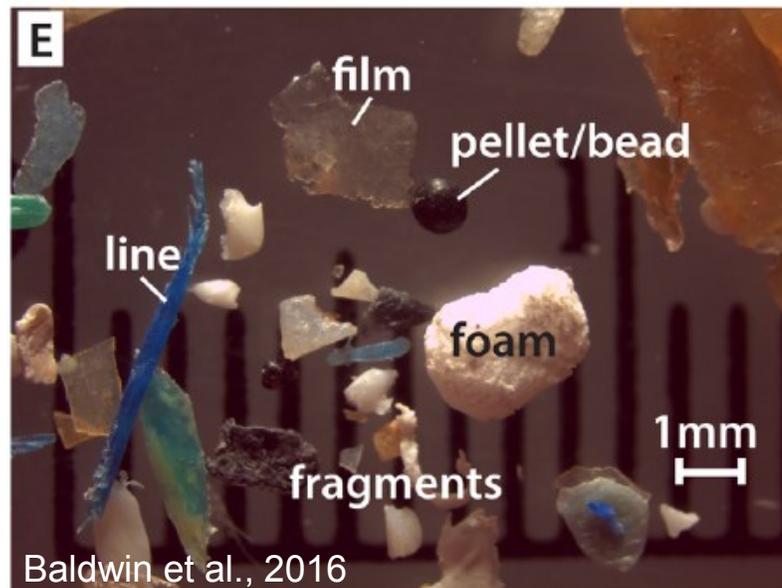
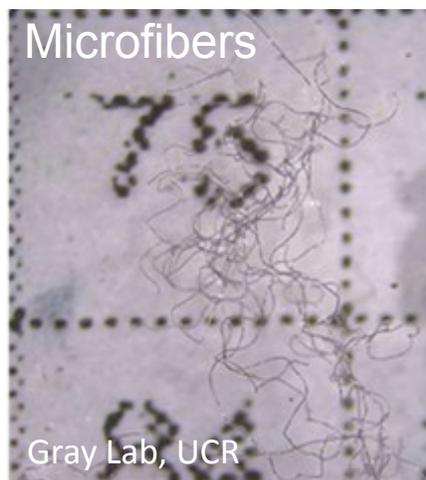
We propose to monitor and model microplastics in the stormflow of 4 stream channels in partnership with Los Angeles County Public Works.

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



A diverse suite of contaminants

Size: 1 micron to 5 mm in size

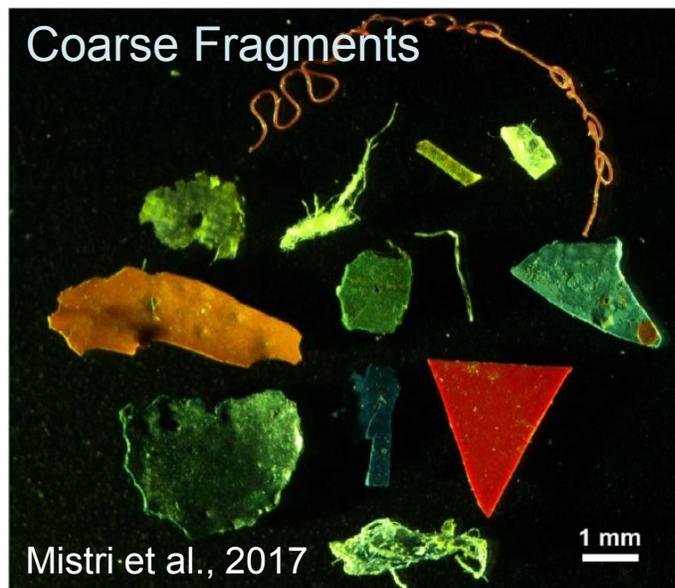
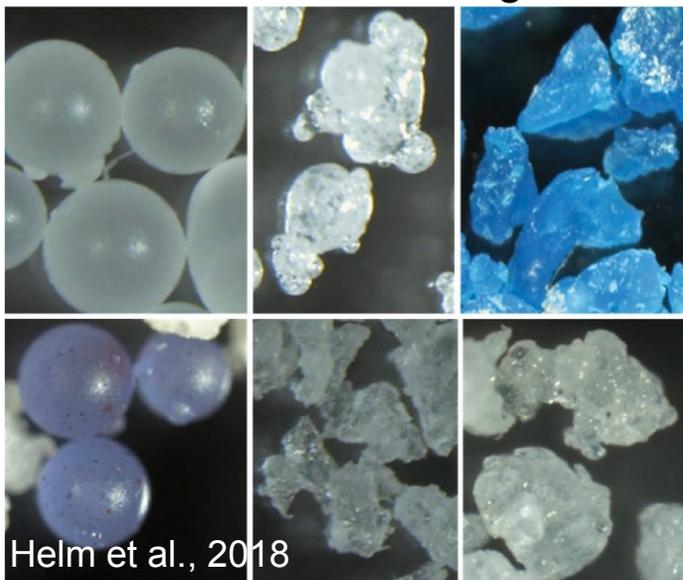
Morphology: from spherical to fibrous

Composition: thousands of plastics
chemical additives & sorbed
substances

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

Microbeads

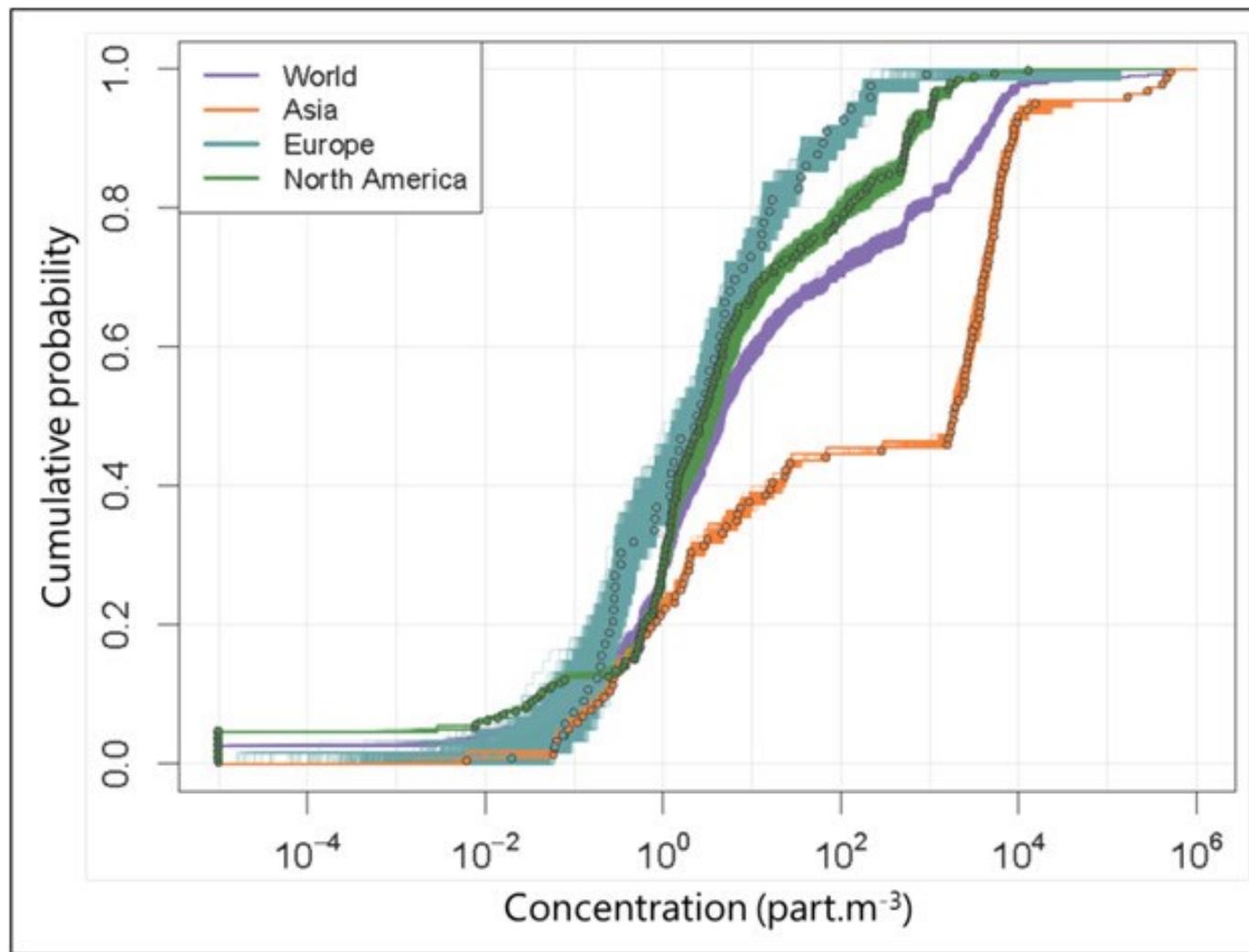
Fragments





Background – Microplastics in Rivers

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



Adam et al. 2019

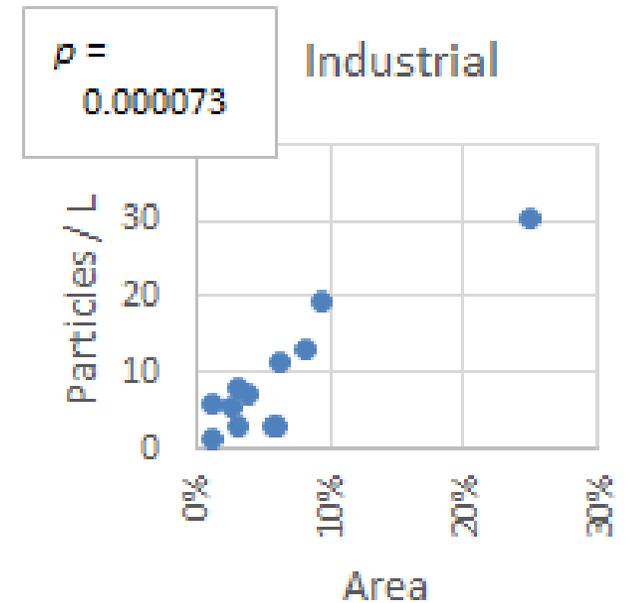
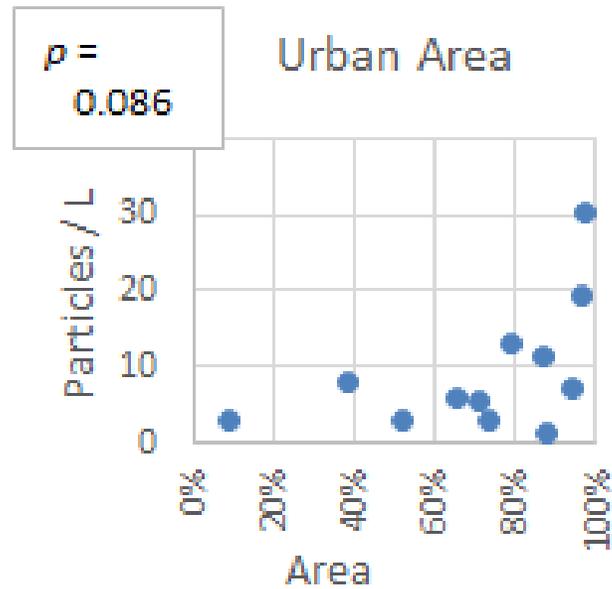


Background – Lessons from San Francisco Bay

Highly urbanized and industrialized watersheds



Higher microplastics loading in stormwater



Sutton et al. (2019)



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

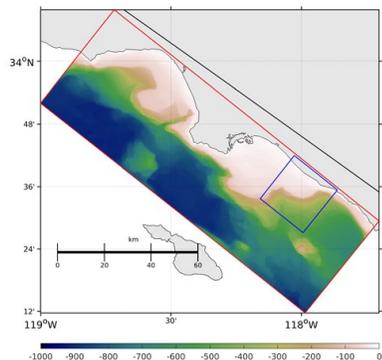
Microplastics Methods

Partners

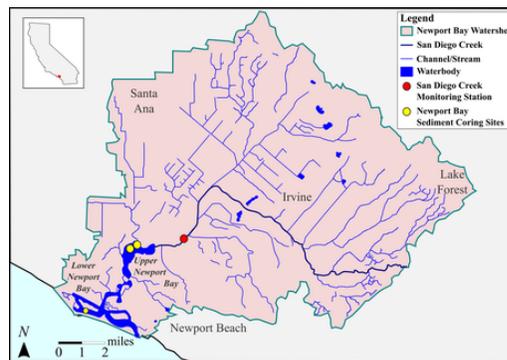


> 35 participating laboratories

San Pedro Bay



Newport Bay



Santa Ana River



LAC Stormflow Pilot



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



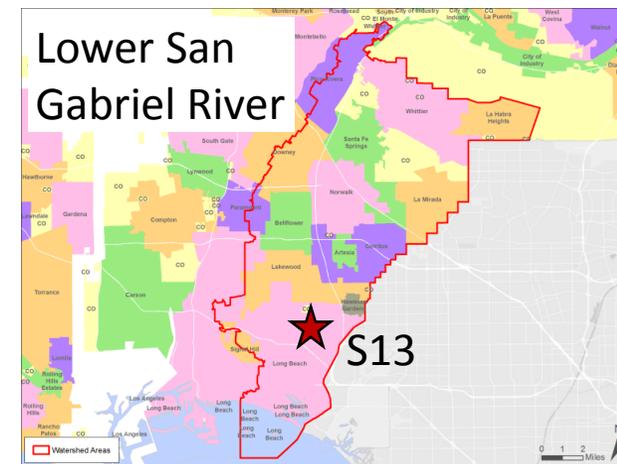
S01: Ballona Creek



S10: Los Angeles River



S28: Dominguez Channel



S13: Coyote Creek

★ LA County Mass Emission Stations

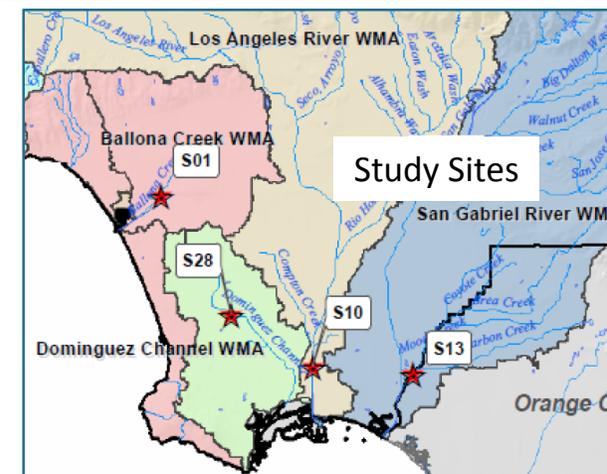


Study Details

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)

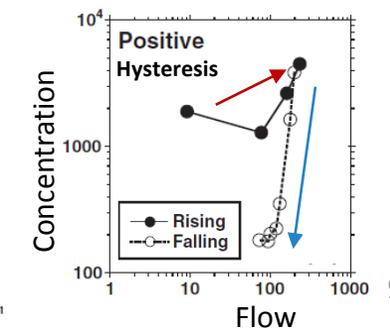
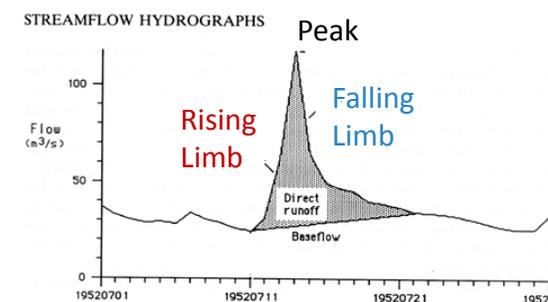


Wet season monitoring during each of years 1, 2, and 3

- 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 m³) 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



MES	Microplastics Samples (n) from Stormwater															
	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



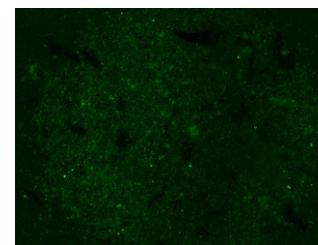
Identification & Characterization

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

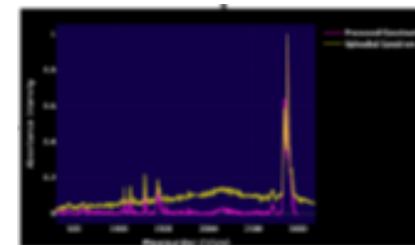
Morphological Characterization



Fluorescence Micro.



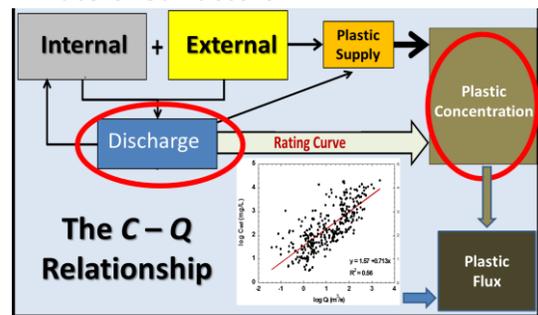
Polymer Characterization



Flux Modeling

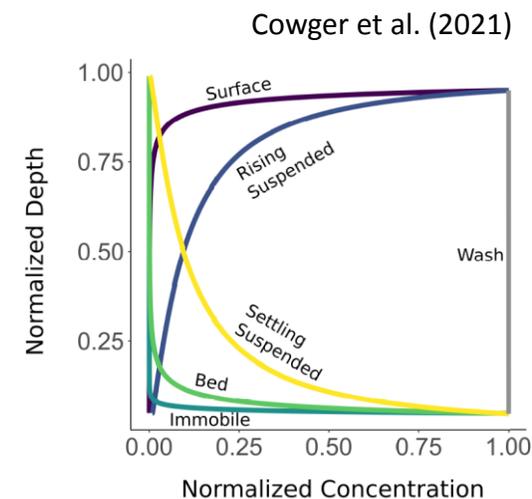
- Microplastics concentration results
- LAC MES discharge data
- Concentration-discharge rating curves
- Watershed composition evaluation
- Integration with regional microplastics modeling

Watershed Factors



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 (<i>completed by initiation of project</i>)	■											
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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