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

DIVERSION FROM 39 INCH RCP ALONG PINCAY DR.

DARBY PARK IS OWNED BY THE CITY OF INGLEWOOD AND CAN BE ACCESSSED FROM PINCAY DR. OR W ARBOR VITAE ST.
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.
**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.

Recreation and community benefits include: improvements to ball fields, new vegetation and trees, benches, and other park features.
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.
### Capital Cost Breakdown

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction Cost</td>
<td>$3,700,000</td>
</tr>
<tr>
<td>Planning and Design Cost*</td>
<td>$800,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$4,500,000</strong></td>
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</table>

*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

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Maintenance Cost:</td>
<td>$50,000</td>
</tr>
<tr>
<td>Annual Operation Cost:</td>
<td>$25,000</td>
</tr>
<tr>
<td>Annual Monitoring Cost:</td>
<td>$25,000</td>
</tr>
<tr>
<td>Project Life Span:</td>
<td>50 years</td>
</tr>
<tr>
<td>Operation and Maintenance Description and Needed Technical Expertise:</td>
<td>See Section 2.5</td>
</tr>
</tbody>
</table>
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

South Santa Monica Bay Watershed Area

City of Lawndale Project Location

Dominguez Channel Watershed Management Group

Project Location
Proposed Green Alley (south of 173rd St; potential for additional)

Proposed 32 drywells (172nd St)

Diversion from 48” RCP

Multiple DACs adjacent to project

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

- **Diversion Structure**
- **Debris Separating Baffle Box (DSBB) Pre-treatment Device**
- **32 Drywells (not to scale)**
- **Porous Pavement in Alley**
- **Tree wells and/or bioretention to provide greening, reduce heat island effect, and treat stormwater at strategic locations.**
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
<table>
<thead>
<tr>
<th>Phase</th>
<th>Description</th>
<th>Cost</th>
<th>Completion Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Construction and Contingency (15%)</td>
<td>$3,300,000</td>
<td>Anticipated to be completed within 36 months of funding</td>
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<tr>
<td>Planning and Design</td>
<td>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</td>
<td>$1,200,000</td>
<td>Planning to be completed within 1 year of award; design to be completed 12-24 months following funding</td>
</tr>
<tr>
<td>Annual Maintenance</td>
<td>Costs for repair/replacement</td>
<td>$50,000</td>
<td>50 years</td>
</tr>
<tr>
<td>Annual Operation</td>
<td>Fees associated with operations of all features</td>
<td>$25,000</td>
<td>50 years</td>
</tr>
<tr>
<td>Annual Monitoring</td>
<td>Testing to confirm infiltration rates and water quality monitoring</td>
<td>$25,000</td>
<td>50 years</td>
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<tr>
<td><strong>TOTAL</strong></td>
<td>Lifecycle Cost (present value with 3.375% annual discount rate for 50 yrs)</td>
<td><strong>$5,730,608</strong></td>
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</table>
## Funding Request

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

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>County</td>
<td>Los Angeles</td>
</tr>
<tr>
<td>City</td>
<td>Los Angeles</td>
</tr>
<tr>
<td>Total Population</td>
<td>3,222</td>
</tr>
<tr>
<td>Youth Population</td>
<td>596</td>
</tr>
<tr>
<td>Senior Population</td>
<td>435</td>
</tr>
<tr>
<td>Households Without Access to a Car</td>
<td>101</td>
</tr>
<tr>
<td>Number of People in Poverty</td>
<td>510</td>
</tr>
<tr>
<td>Median Household Income</td>
<td>$55,519</td>
</tr>
<tr>
<td>Per Capita Income</td>
<td>$33,593</td>
</tr>
<tr>
<td>Park Acres</td>
<td>194.46</td>
</tr>
<tr>
<td>Park Acres per 1,000 Residents</td>
<td>60.35</td>
</tr>
</tbody>
</table>
## Project Background

<table>
<thead>
<tr>
<th>2019</th>
<th>2020</th>
<th>2020 - 2021</th>
<th>2021</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LA Green New Deal Sustainability Plan</strong></td>
<td><strong>LASAN’s Healthy Soils Advisory Panel</strong></td>
<td><strong>Healthy Soils Motion ‘Regenerate LA’</strong></td>
<td><strong>Regenerate LA project</strong></td>
</tr>
<tr>
<td>Includes 2 healthy soils pilot projects</td>
<td>Key stakeholders outlined soil health priorities in healthy soils strategy</td>
<td>Introduced by Councilmember Paul Koretz</td>
<td>Partnership between KTG, LA Compost, LARAP, LASAN</td>
</tr>
<tr>
<td></td>
<td></td>
<td>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</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Endorsed and supported by LASAN and LARAP General Manager - Mike Shull</td>
<td></td>
</tr>
</tbody>
</table>

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

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

- 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

<table>
<thead>
<tr>
<th>Year</th>
<th>SCW Funding Requested</th>
<th>Phase</th>
<th>Efforts during Phase and Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>$300,000</td>
<td>1</td>
<td>Feasibility study</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOTAL</td>
</tr>
</tbody>
</table>

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.
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
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.
Previous and Ongoing Microplastics Studies

**Microplastics Methods**

- **San Pedro Bay**
  - Integrated river/coastal ocean monitoring/modeling

- **Newport Bay**
  - Fluvial flux and sedimentation monitoring

- **Santa Ana River**
  - Preliminary investigations/Method Development

**Study Type**

- **Inter-laboratory comparison study to harmonize methodologies**

**Target**

- **Microplastics**
  - **San Pedro Bay**
  - **Newport Bay**
  - **Santa Ana River**

**Study Systems**

- **Laboratory analysis of blind samples from water, sediment and tissue matrices spiked with a range of microplastics particles.**
  - **San Pedro Bay**
    - Los Angeles River
    - San Gabriel River
    - Coyote Creek
    - Santa Ana River below Prado
    - San Pedro Bay
  - **Newport Bay**
    - San Diego Creek
    - Santa Ana Delhi Channel
    - Marsh and subtidal sediment
  - **Santa Ana River**
    - Santa Ana River above Prado
    - Arlington Channel

**Partners**

- > 35 participating laboratories

**LAC Stormflow Pilot**

- Initial river monitoring with LACPW autosamplers
  - Los Angeles River
  - Ballona Creek
  - Dominguez Channel
  - Malibu Creek

**Study Details**

- **Previous and Ongoing Microplastics Studies**
  - **San Diego Creek**
  - **Santa Ana Delhi Channel**
  - **Marsh and subtidal sediment San Pedro Bay**
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 m²) 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

<table>
<thead>
<tr>
<th>MES</th>
<th>S01</th>
<th>S10</th>
<th>S13</th>
<th>S28</th>
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<tr>
<td>Institution/Year</td>
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<td>y2</td>
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<td>y2</td>
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<td>LACPW</td>
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<td>3</td>
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<tr>
<td>UCR</td>
<td>3</td>
<td>6</td>
<td>3</td>
<td>3</td>
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</tr>
</tbody>
</table>

Microplastics Samples (n) from Stormwater
**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

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

**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
<table>
<thead>
<tr>
<th>Study Component</th>
<th>Year 1 2022</th>
<th>Year 2 2023</th>
<th>Year 3 2024</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study design <em>(completed by initiation of project)</em></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Microplastics monitoring of LAC stormflow</td>
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<td></td>
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<tr>
<td>Microplastics flux modeling</td>
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</tr>
<tr>
<td>Monitoring optimization analysis</td>
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</tr>
<tr>
<td>Stakeholder and technical advisory committee meetings</td>
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<td></td>
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<tr>
<td>Final reporting</td>
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## Funding Request

<table>
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<tr>
<th>WASC</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
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<tr>
<td>CSMB</td>
<td>$85,158.75</td>
<td>$86,442.50</td>
<td>$76,150.25</td>
<td>$247,751.50</td>
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<td>LLAR</td>
<td>$85,158.75</td>
<td>$86,442.50</td>
<td>$76,150.25</td>
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<td>LSGR</td>
<td>$85,158.75</td>
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<td>$76,150.25</td>
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<tr>
<td>TOTAL</td>
<td>$340,635.00</td>
<td>$345,770.00</td>
<td>$304,601.00</td>
<td>$991,006.00</td>
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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%).
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?


