

Jackson Elementary School Campus Greening and Stormwater Quality Improvement Project

Application for Infrastructure Program Funding

Fiscal Year 2022-2023

Upper Los Angeles River Watershed

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Mike Rudd, PE, Geosyntec



Project Overview

Multi-benefit project improves campus & neighborhood drainage and maximizes the student health benefits of natural infrastructure.

- Primary Objective: School Greening - integrate critical natural infrastructure amenities into Jackson school campus, transforming and deconstructing the “Asphalt Quilt” into greener, forest-based discovery areas to benefit students, families, and community members.
- Secondary Objectives: Regional Stormwater Compliance - multi-objective Green Infrastructure project will manage stormwater at school site and surrounding neighborhoods, to address TMDLs and protect water quality
- Project Status: Requesting Funding for Planning, Design, Construction, O&M.
- Total Funding Requested: \$ 3,018,148





URBAN GREENING 'WATERSHED APPROACH'

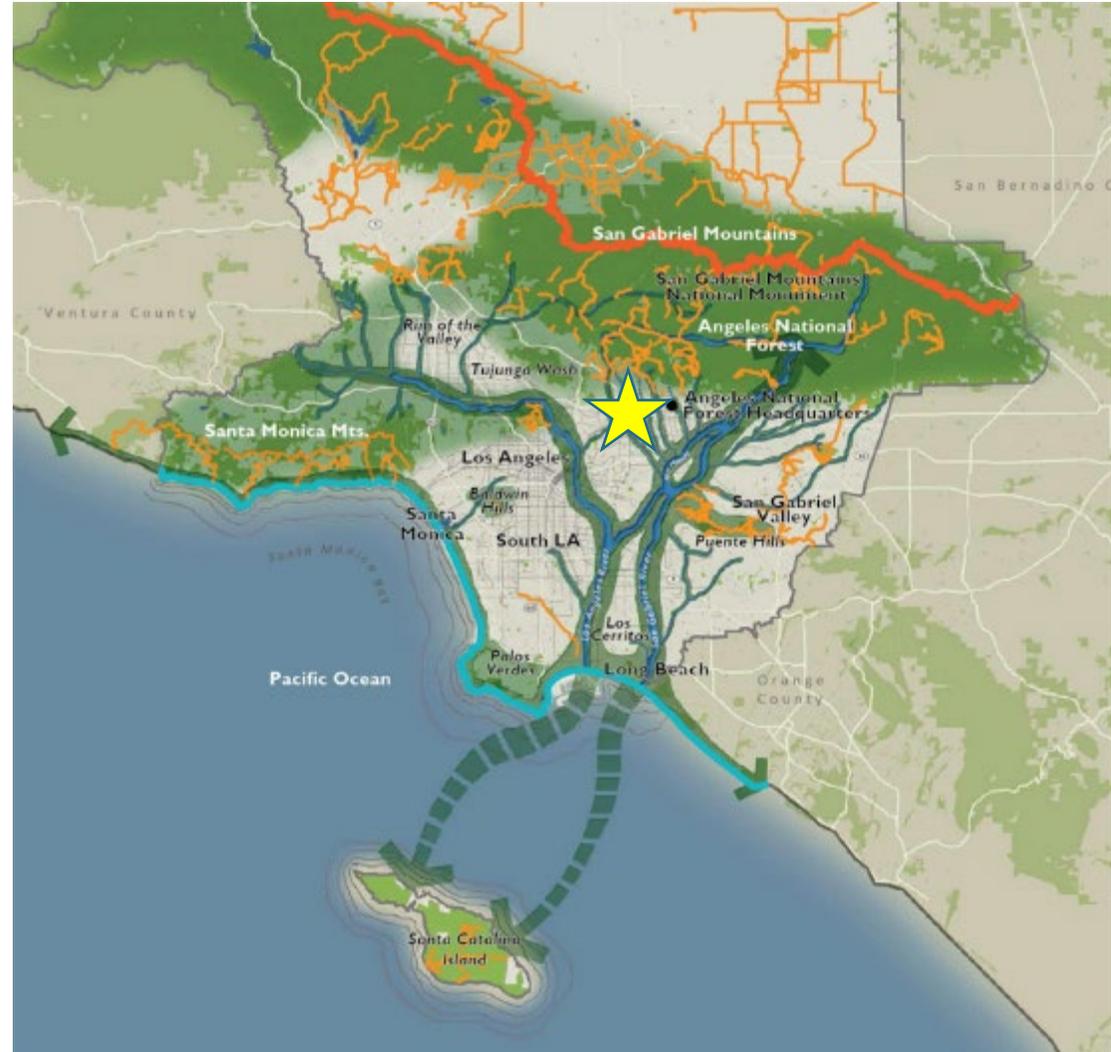
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501©3 Founded 2003

HQ in Altadena

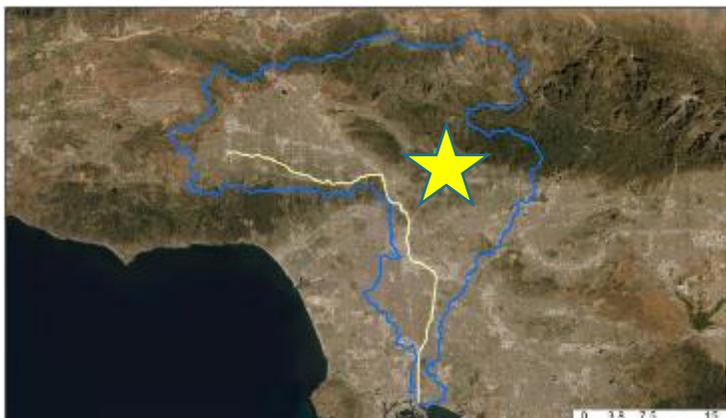
Who We Are ?

Non-profit organization committed to enhancing open space & protecting natural resources and biodiversity in our urban environments by creating a Landscape Scale 'Emerald Necklace' Natural Infrastructure network of multiple benefit sustainable parks, trails and schools throughout the Los Angeles Basin from the San Gabriel 'Mountains to the Sea.'

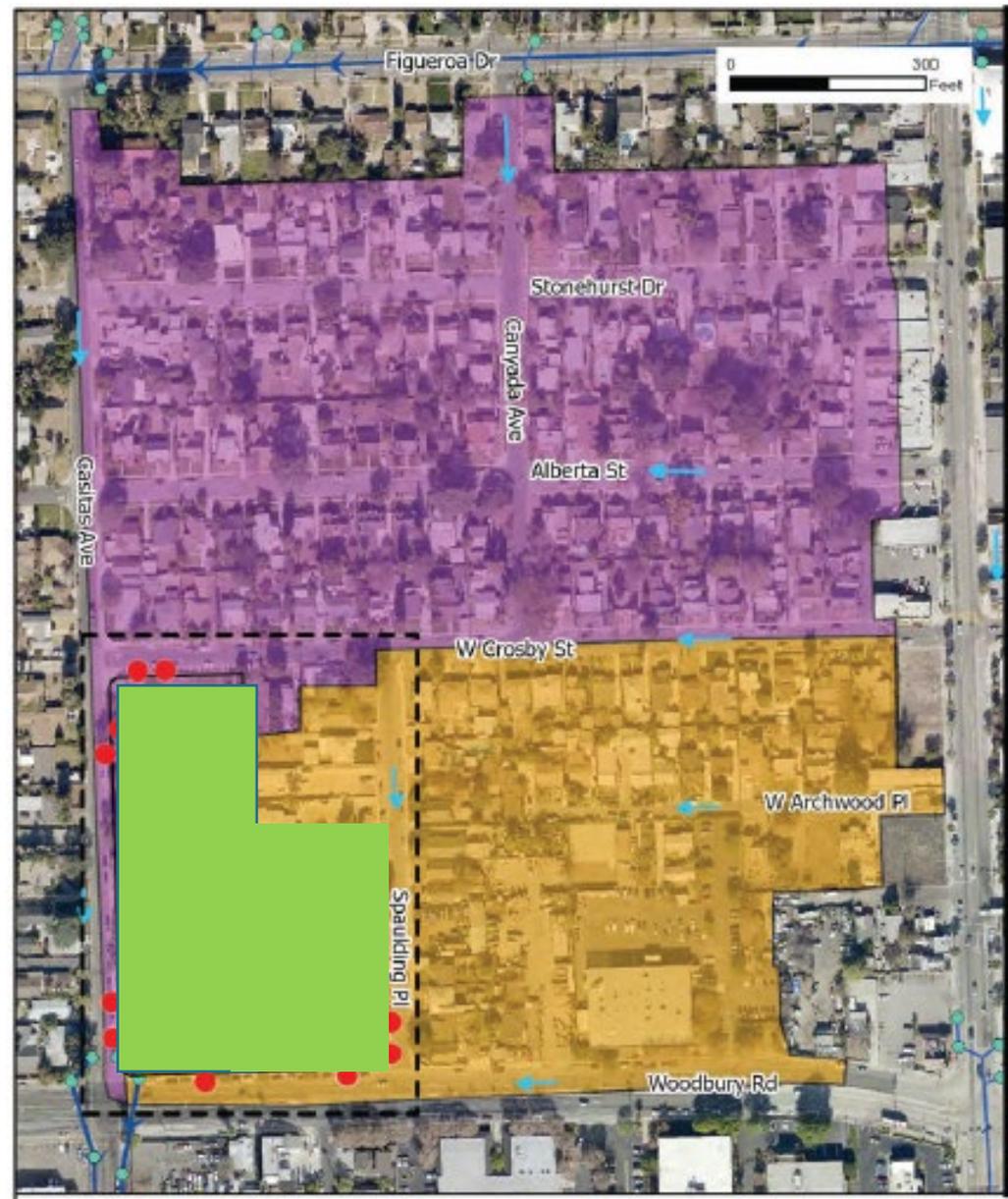
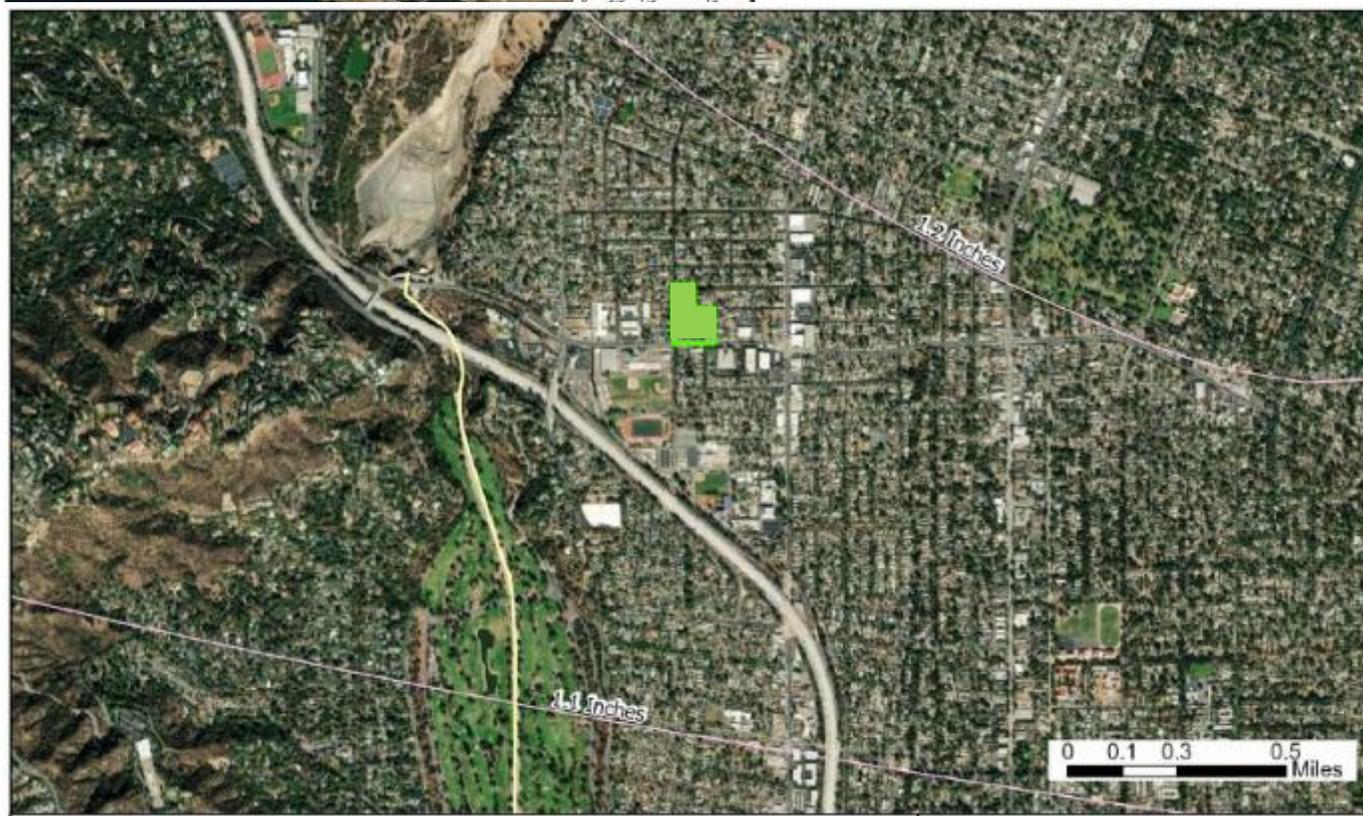




Project Location

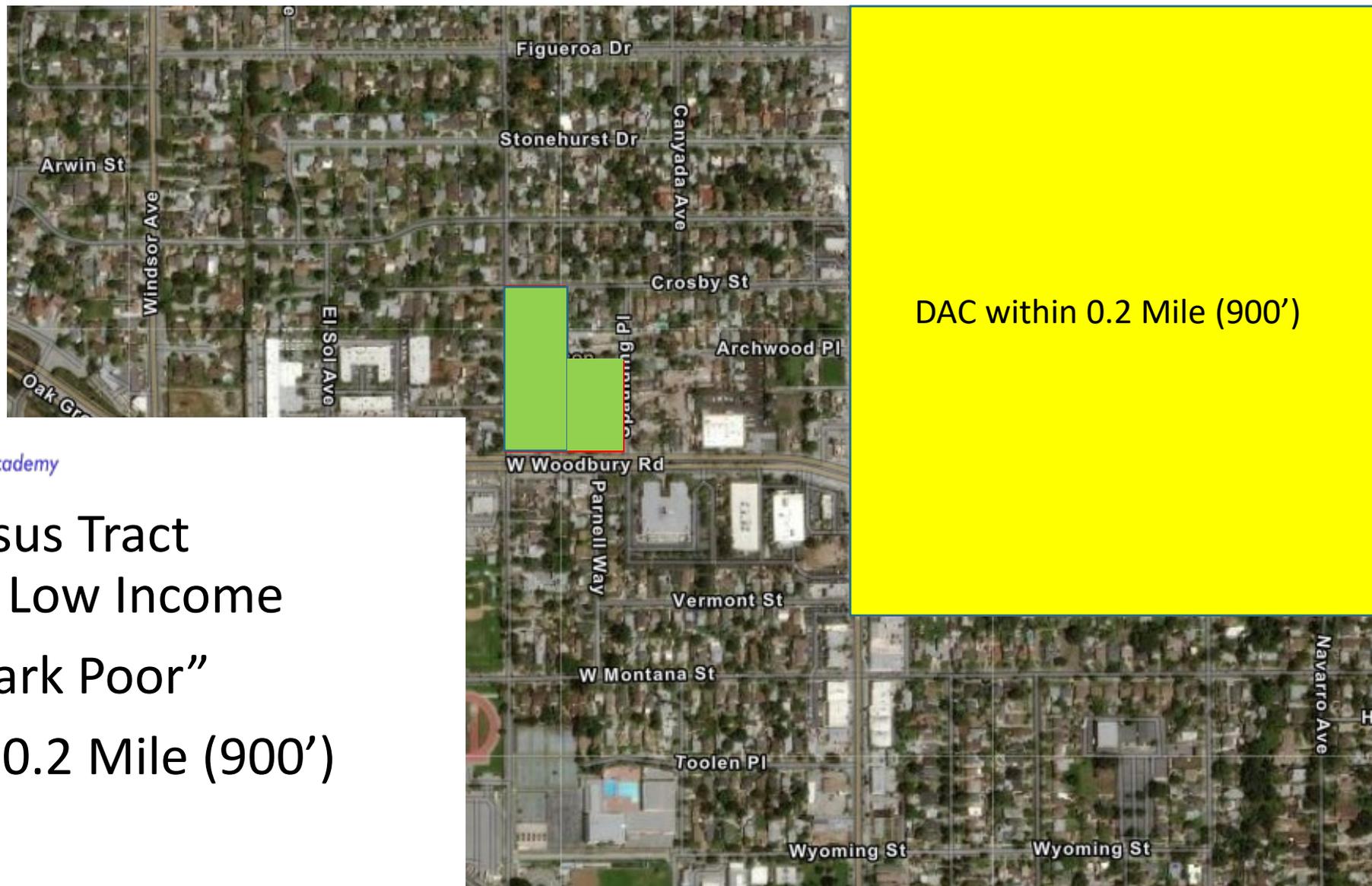


- Location in the LAR Watershed
- 40-Ac Capture Area
- Proposed Drywells
- Unincorporated LAC





Proximity to Disadvantaged Communities



- Within Census Tract Considered Low Income
- Severely “Park Poor”
- DAC within 0.2 Mile (900’)



Surrounding Land Ownership





Project Background

- Planning/Outreach/Collaboration for Campus Greening Project ongoing since 2014
- Nuisance flooding on surrounding streets and on campus
- Project developed in cooperation with Amigos/PUSD and LAC
- Supported by the ULAR Watershed Management Group
 - Captures and infiltrates runoff from 40-acre capture area
 - Alleviates nuisance flooding
 - Treats 7 ac-ft of stormwater annually
- Removes 60% of existing asphalt from campus
- Treats 100% of the 85th percentile, 24-hr storm



Project Background

- **School Greening benefits:**
 - Less than 0.2 miles from DAC, and 0.75 miles from SDAC
 - Severely park-poor area w/ 0.1 acre of parks per 1000 people
 - No accessible park within 0.5 miles
 - Increase available variety of recreation spaces
 - DAC/LIC community members use campus for afterschool and other programs
 - Community forest with tree canopy & shade to fight urban heat islands and provide ecosystem service benefits to community
- **Stormwater Capture benefits:**
 - Alleviate nuisance flooding on campus and in surrounding neighborhoods (help address vector issues)
 - Remove pollutants from captured runoff that would have gone downstream through DAC areas – protect water as precious resource



The Health Benefits of Urban Greening at Schools



Urban Greening Improves Physical Wellness

Urban green spaces encourage exercise and are a more restorative environment than indoor settings.¹

Green spaces provide necessary places and opportunities for physical activity. Exercise improves cognitive function, learning, and memory.^{1,2}

In a study, residents of areas with the highest levels of greenery were three times as likely to be physically active and 40% less likely to be overweight or obese than residents living in the least green settings.³

Childhood asthma rates are the highest in parts of the city where tree density is the lowest.⁴



Urban Greening Improves Mental Wellness

The experience of nature helps to restore the mind from the mental fatigue of work or studies, contributing to improved work performance and satisfaction.^{5,6,7}

People who visit green spaces for 30 minutes or more a week have lower rates of depression and high blood pressure.⁸

Even brief glimpses of natural elements improve brain performance by providing a cognitive break from the complex demands of urban life.⁹

Urban nature can provide calming and inspiring environments and encourages learning, inquisitiveness, and alertness.^{10,11}



Urban Greening Improves Academic Performance

Memory performance and attention span improve by 20 percent after spending an hour interacting with nature.¹²

Symptoms of ADD in children can be reduced through activity in green settings, thus "green time" can act as an effective supplement to traditional medicinal and behavioral treatments.^{13,14,15}

Nature experiences are important for encouraging imagination and creativity, cognitive and intellectual development, and social relationships.^{16,17,18}

College students with more natural views from their dorm windows scored higher on attention tests and rated themselves as able to function more effectively.¹⁹



**Physical Fitness
Greater Variety of
Opportunities**

**Mental Health
Anxiety Reduction
Mindfulness &
Focus**

**Immersive Lessons
Campus as Living lab
Outdoor Learning
Opportunities**



Project Details – Campus Greening



JACKSON STEM
Dual Language Magnet Academy



Project Details – Address Interior Flooding





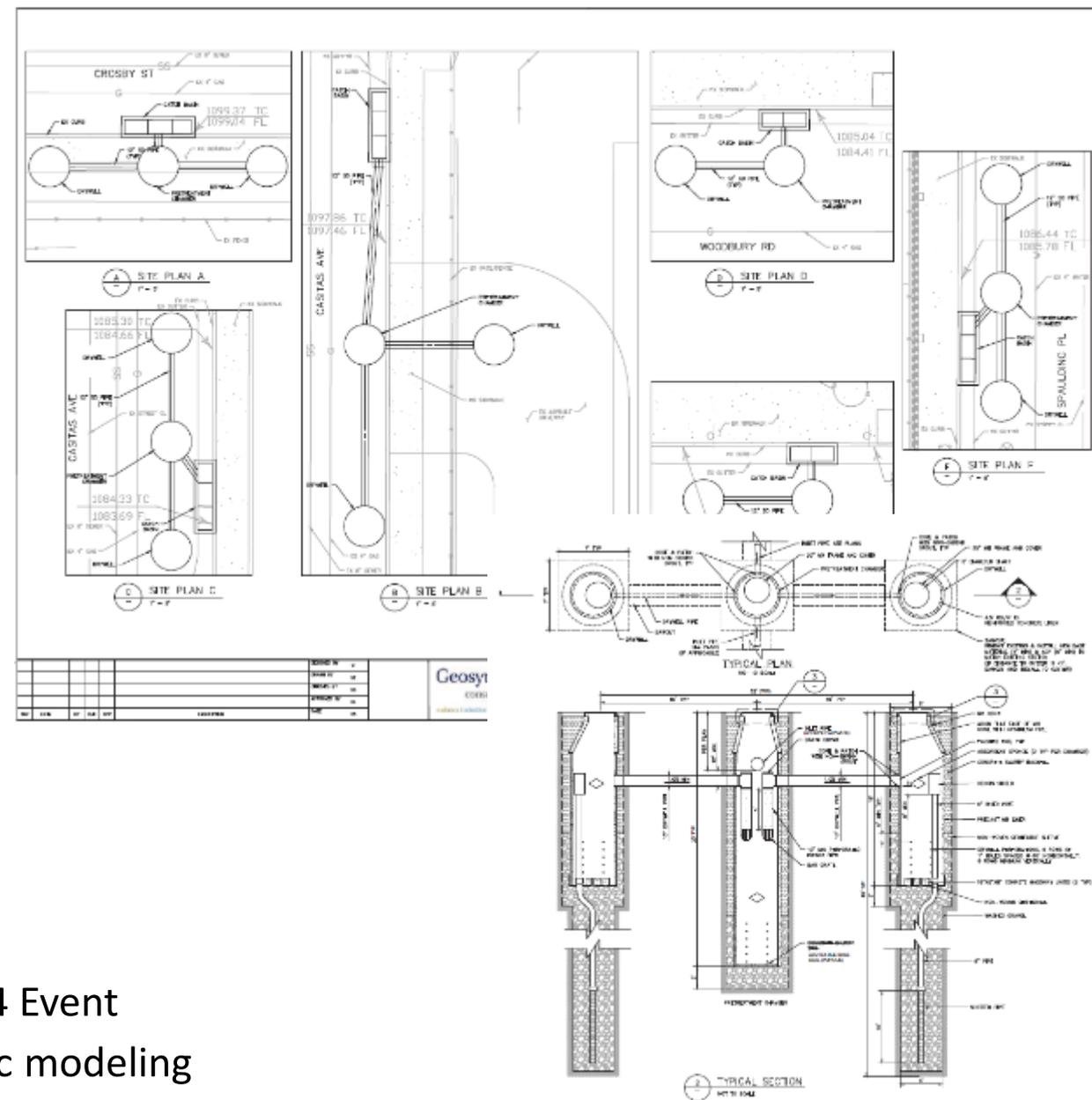
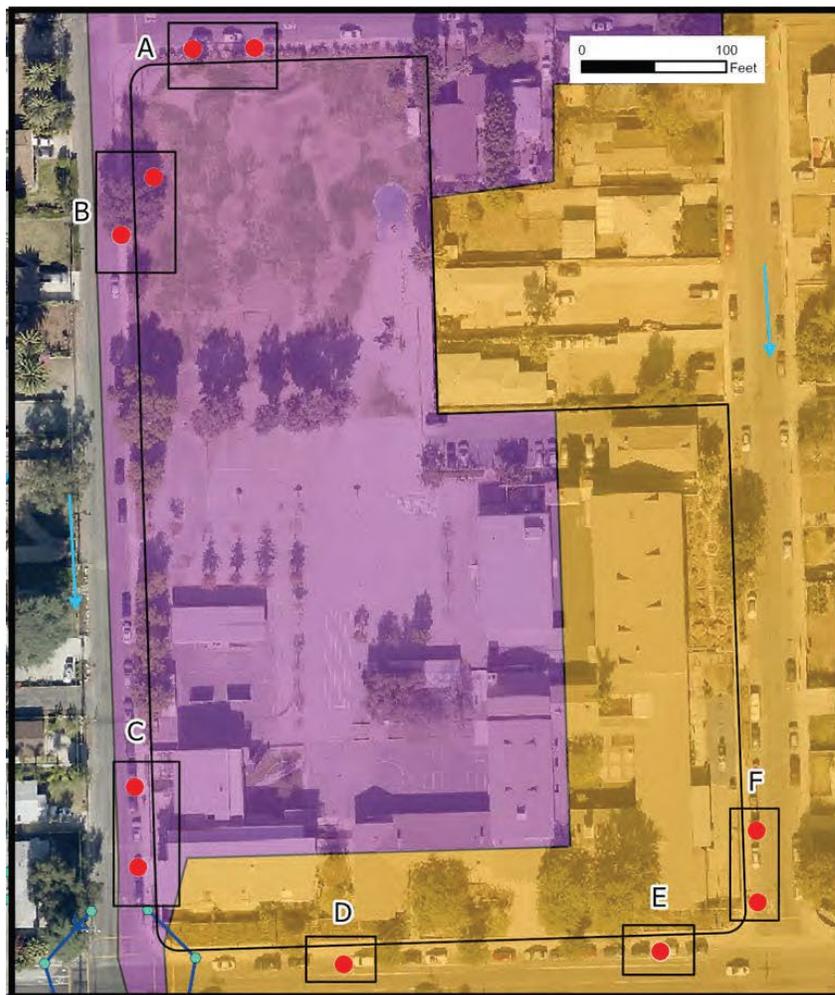
Project Details – Address Permitter Flooding



JACKSON STEM
Dual Language Magnet Academy



Stormwater Capture and Infiltration



- 40-Acre capture area
- Facilities sized to capture/infiltrate 100% of the 85th/24 Event
- Design support by geotech investigation and hydrologic modeling



Cost & Schedule

Phase Costs			
Phase	Description	Cost	Completion Date
Planning	Design of water quality improvement components, and permitting.	\$ 355,200.00	12/2022
Construction	Construction, including CM, contingency, and mobilization.	\$ 3,256,000.00	09/2023
Total Funding:		\$ 3,611,200.00	

Annual Cost Breakdown	
Annual Maintenance Cost:	\$ 68,000.00
Annual Operation Cost:	\$ 7,600.00
Annual Monitoring Cost:	\$ 25,000.00
Project Life Span:	40 years

Module-generated Life-Cycle Cost for Project*	\$ 5,801,802.10
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Leveraged Funds

Additional Funding				
Type of Cost Share	Sub-Phase Description	Funding Amount	Funding Status	PDF
Grant Awards	Learning Landscape Grant, 8/12/20	\$ 5,000.00	Commitment Received	Grant Award - Learning Landscapes.pdf
Grant Awards	Disney Foundation Grant	\$ 100,000.00	Commitment Received	Grant Award - Disney Corp Social Responsibility.pdf
Grant Awards	Urban Greening Grant	\$ 764,852.00	Commitment Received	Grant Award - Urban Greening.pdf
Total Funding:		\$ 869,852.00		



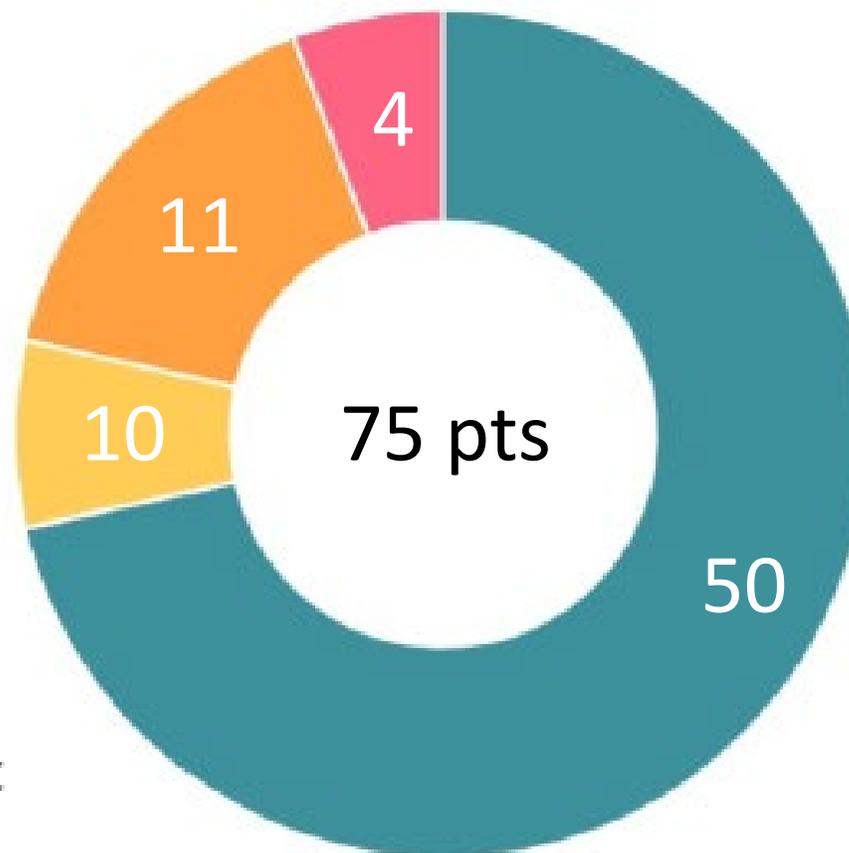
Funding Request

Funding Requested by Year & Phase			
Year	SCW Funding Requested	Phase	Efforts during Phase and Year
Year 1	\$ 355,200.00	Design	Includes design, permitting, and ROW.
Year 1	\$ 100,000.00	Construction	Finish construction of campus greening elements on PUSD property (CEQA completed for PUSD campus elements in 2021).
Total Year 1	\$ 455,200.00		
Year 2	\$ 2,286,148.00	Construction	Construct curb inlets, drywells, and finalize any campus drainage and greening elements that didn't get finished in year 1.
Total Year 2	\$ 2,286,148.00		
Year 3	\$ 75,600.00	O & M	First year of O&M.
Year 3	\$ 25,000.00	Monitoring	First year of monitoring.
Total Year 3	\$ 100,600.00		
Year 4	\$ 75,600.00	O & M	Second year of O&M.
Year 4	\$ 25,000.00	Monitoring	Second year of monitoring.
Total Year 4	\$ 100,600.00		
Year 5	\$ 75,600.00	O & M	Third year of O&M.
Total Year 5	\$ 75,600.00		
Total Funding:	\$ 3,018,148.00		



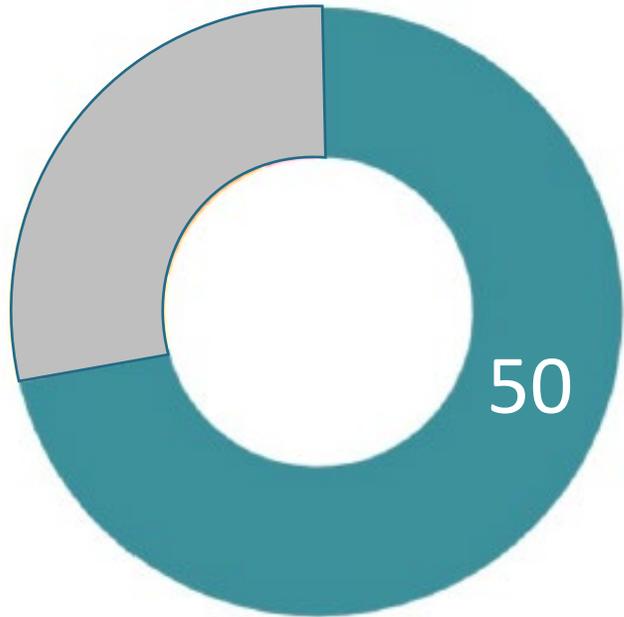
Preliminary Score

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





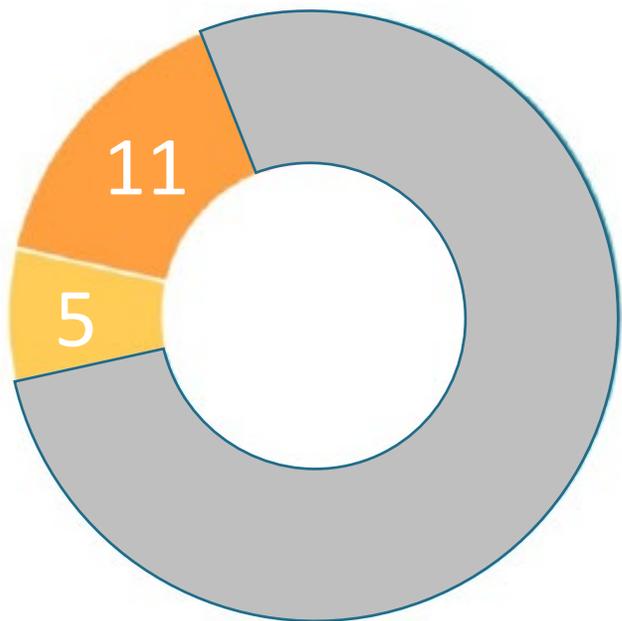
Water Quality & Water Supply Benefits



- Water Quality Part 1 (20)
 - Captures and Infiltrates 100% of the Design Storm
 - Analyzed for Wet (but will also capture Dry Weather flows)
 - 40-Acre Tributary Area
 - 6.0 Ac-ft 24-hr BMP Capacity / \$3.26M Construction Costs > 1.0
- Water Quality Part 2 (30)
 - 84% Primary Pollutant (Zinc)
 - 90% Secondary Pollutant (Trash)



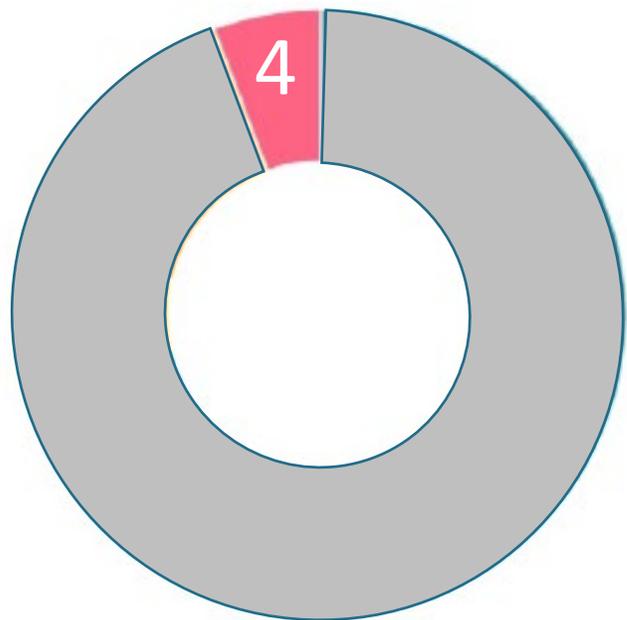
Community Investment Benefits and Nature Based Solutions



- **Community Investment Benefits (5)**
 - Improves flood management/risk downstream and addresses nuisance flooding
 - Creates new and enhances existing recreational opportunities in this “park poor” neighborhood
 - Creates and enhances green spaces at school by removing pavement and planting trees
 - Reduces local heat island effect
 - Increases shade
- **Nature Based Solutions (11)**
 - Primary mechanisms are gravity and infiltration into the soil
 - Remove and replace asphalt paving with DG paths and planting 32 trees and over 800 shrubs
 - Over 60% of existing asphalt removed (39% impervious reduction)



Leveraging Funds and Community Support



- Leveraging Funds (0)
 - \$870k has been received from Water Alliance Learning Landscapes, Disney Foundation and CNRA Urban Greening grants
 - 22% funding matched
- Community Support (4)
 - Widespread community support
 - 16 letters of support from community-based organizations
 - Letters from County Maintenance and PUSD pledging support
 - Amigos has been working with PUSD for more than 6 years connecting with students, teachers, administrators, parents and local residents
- Amigos has developed a Project Advisory Team including students, teachers, educational/occupational therapists, parent groups and other stakeholders to support the next phases of the project.



Questions?

LA River Green Infrastructure Project

Infrastructure Program

Fiscal Year 2022-2023

Upper Los Angeles Watershed Area

Project Lead: Michael Scaduto, City of LA Sanitation and Environment

Presenters: Lorena Matos, City of LA Sanitation and Environment



SAFE
CLEAN
WATER



Project Overview

The LA River Green Infrastructure Project adds new green infrastructure to residential, collector, and arterial streets in disadvantaged Community (DAC) areas along the LA River between Canoga Ave and White Oak Ave. Greening components of the Project will be along Independence Ave (in front of Hart Street Elementary School), Winnetka Ave, Victory Blvd, Reseda Blvd, and White Oak Ave. The parkway bioswales and trees located along these streets will enhance the aesthetic of the neighborhood and provide cleaner air, natural habitat, and shade, reducing Heat Island Effects. Greening components will improve the park space and habitat for the Reseda Park along Reseda Blvd. In addition to providing for a greener, more livable and walkable neighborhood, the bioswales contribute to enhanced water quality using plants and soils that treat dry weather runoff, reducing pollutants and contaminants.

- Primary Objective: 100% bacteria removal
- Secondary Objective: 100% trash removal
- Project Status: Feasibility Study
- SCW funding requested for Planning, Design, Construction
- Total Funding Requested: \$31,821,160





History

History:

- MS4 Permit Requires receiving Water Limitations be achieved to demonstrate compliance
- CREST Study (~\$6- 7M) to identify loading locations - “hot spots”
- City proposed a Load Reduction Strategy
- RB approved Load Reduction Strategy
 - Deadline to comply is March 2023
- Failure to deliver = City did not fulfill its obligation that we proposed as a means of compliance.



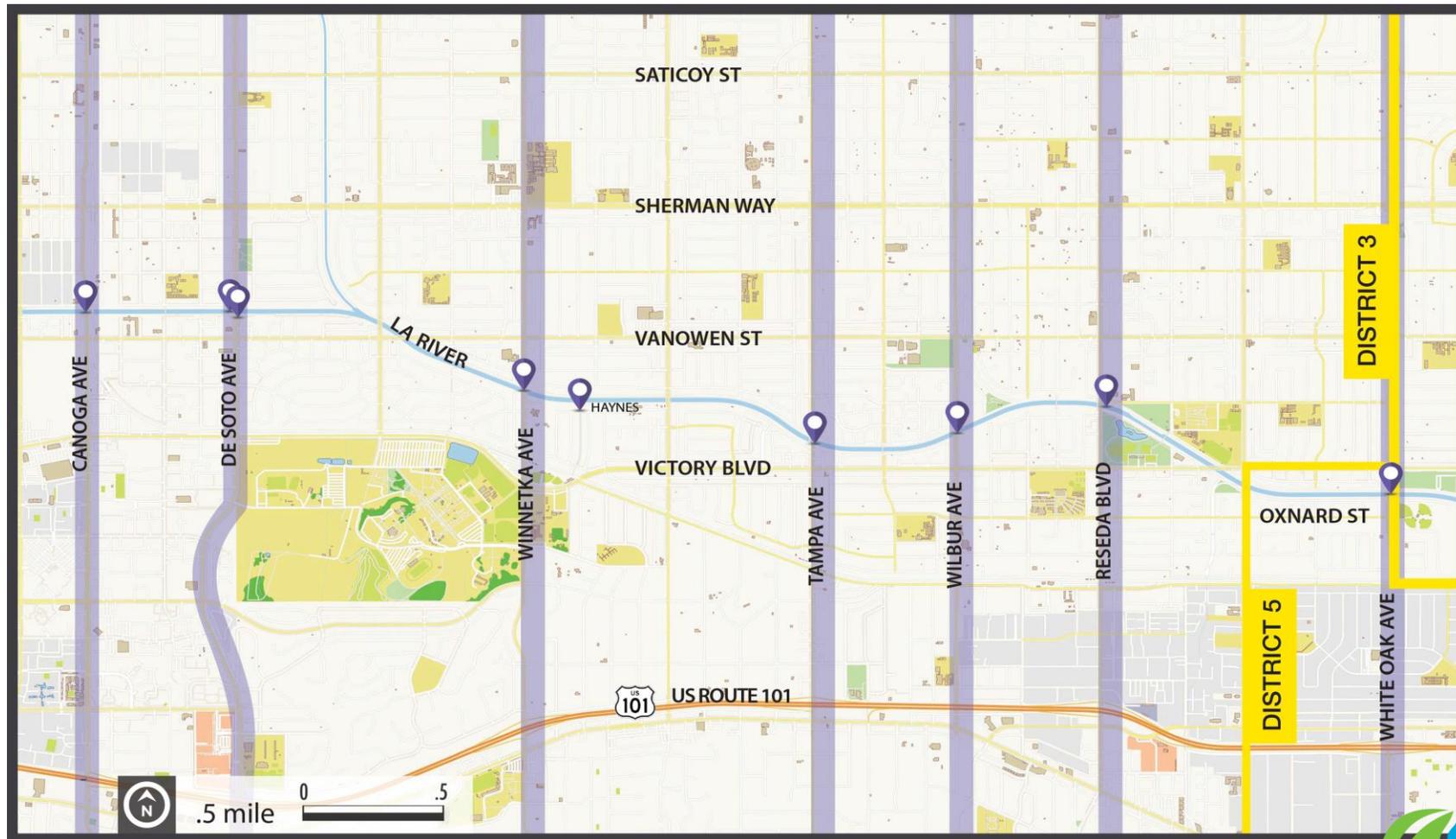
Watershed Area



- Watershed Area: Upper Los Angeles River (ULAR) Watershed
- Project Location: Los Angeles River



Project Location



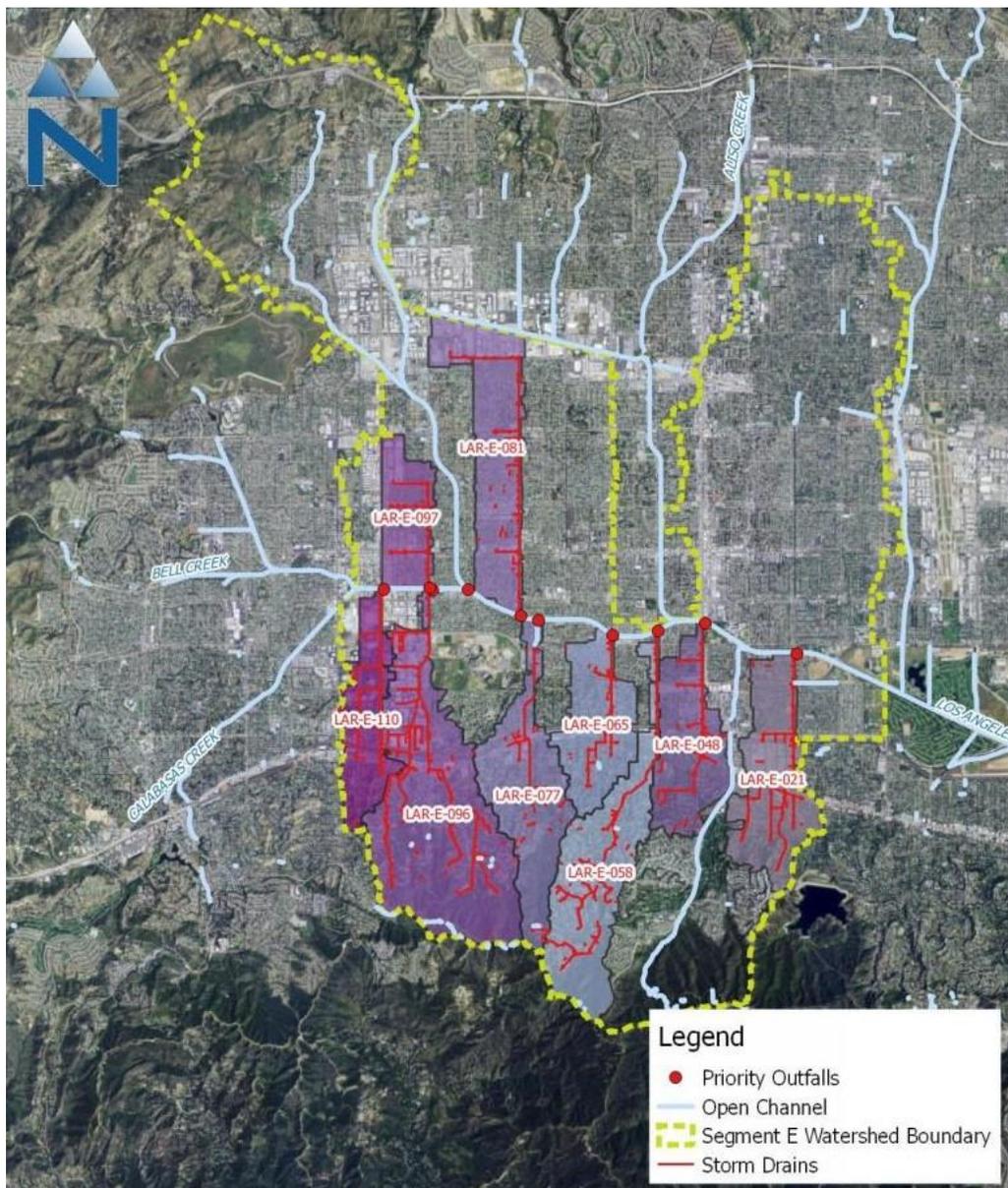
Project Location:

- Encino
- Reseda
- Woodland Hills
- Winnetka
- Canoga Park





Capture Area



Capture Area(s):

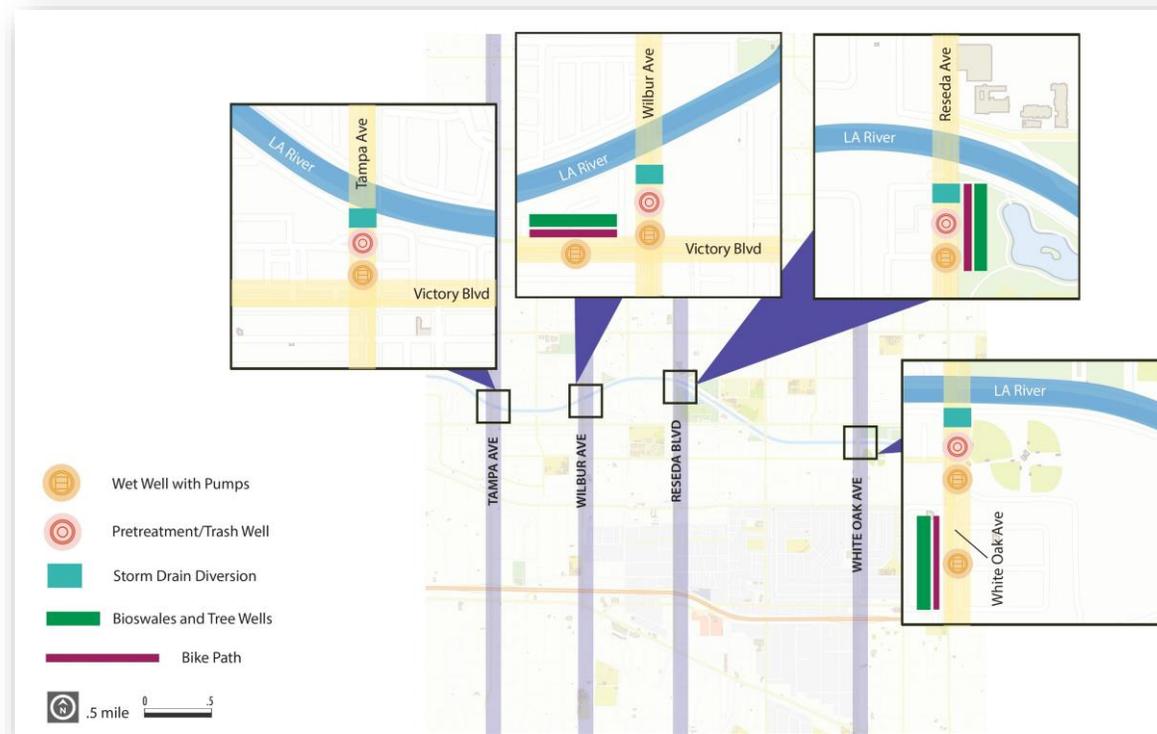
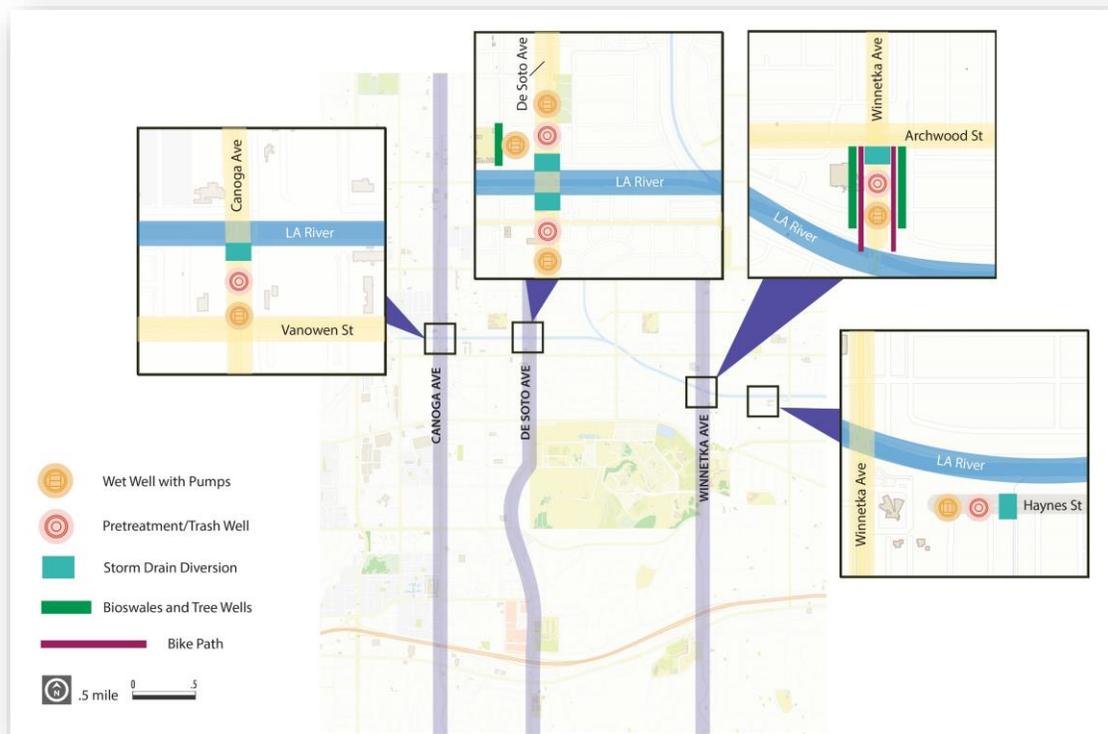
- Part of LA River Segment E bacteria Load Reduction Strategy (LRS)
- 9 priority capture areas
- 9,717-acre total capture area
- 319 acre-feet dry weather runoff captured per year



Municipality Benefits

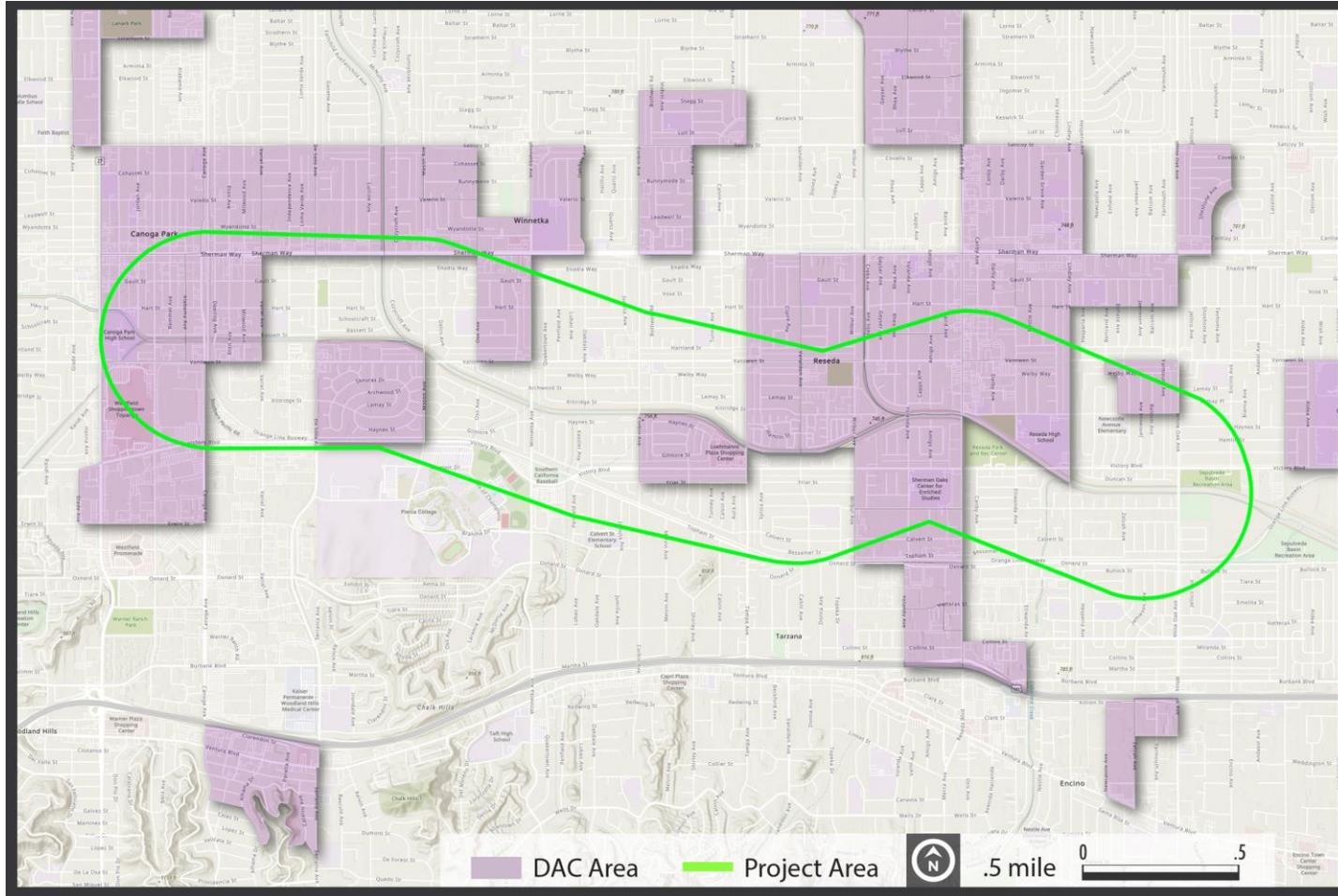
Benefits include:

- 9,717-acre capture area
 - 319 acre-feet of recycled runoff annually
 - 100% dry-weather runoff captured
- 100% bacteria and trash removed
 - 120 new trees
 - 14,676 square feet of parkway bioswales





Disadvantaged Communities (DAC)



Community Benefits:

- Improved water quality and habitat
- Enhanced local streets accessing the LA River
- Enhanced recreational opportunities
- Increased shade and reduced heat island effect
- Increased trees and vegetation



Project Background

Why was the Project location selected?

- The Project is part of a Load Reduction Strategy (LRS) to help comply with the LA River Watershed Bacteria TMDL.
- The targeted capture areas were selected to reduce the bacteria loading rate by approximately 134 billion MPN per day to achieve the dry-weather waste load allocation for the Upper Los Angeles River (ULAR) Group.
- The Project is in an area of greatest need and highest potential for cost-effective implementation of BMPs.

How was the Project developed?

- A feasibility study was conducted that evaluated alternatives for dry-weather runoff quality enhancement and reuse.

Which regional water management plan includes the proposed project?

- This is a proposed Regional project led by the City to implement a multi-benefit dry-weather project for the ULAR Watershed Enhanced Watershed Management Program (EWMP).

Description of benefits to municipality/municipalities

- Enhancement of habitat and parks, improved access to waterways, enhanced recreational opportunities, increased shade, and increased vegetation.

Disadvantaged Community (DAC) Benefits

- Addition of trees and other landscaping will improve air quality through the natural processes of plant respiration and photosynthesis.
- Recreational improvements include improved walkability and bikeability of local streets, securing safe routes and safety corridors, and improved water quality within the LA River and its recreation areas.
- There will also be advantages in both education and employment.
- New green infrastructure will be added to residential, collector, and arterial streets in DAC areas along the LA River between Canoga Ave and White Oak Ave.



Project Details

Description of current site conditions

- Generally flat residential, commercial, and open space/public facility areas with parkways in some areas ranging from about 3 feet to 7 feet wide.
- Local streets generally have few trees, with some trees unevenly spaced where trees had likely been removed and not replaced.
- Canoga Ave, De Soto Ave, Winnetka Ave, Tampa Ave, Wilbur Ave, Reseda Blvd, and White Oak Ave are arterials running north-south through the Project area. The streets have few trees, except for Winnetka Ave and Wilbur Ave, which have several. With the exception of Tampa Ave and Reseda Blvd, the streets have parkways in at least some areas. Canoga Ave has a nicely landscaped parkway, pedestrian and bike lanes, and a landscaped bioswales area. Reseda Blvd is adjacent to Reseda Park and has no street trees or parkways.
- Haynes St is a residential street with many parkways and few trees. There is a greenway lot on the north side of Haynes St directly beneath the storm drain line.
- White Oak Ave has short and/or narrow medians with few trees and no other landscaping. This street also has partially landscaped parkways between White Oak Ave and the adjacent service roads/streets.
- All storm drain outfalls along the Project area have noticeable dry-weather runoff.

Completed studies/analysis

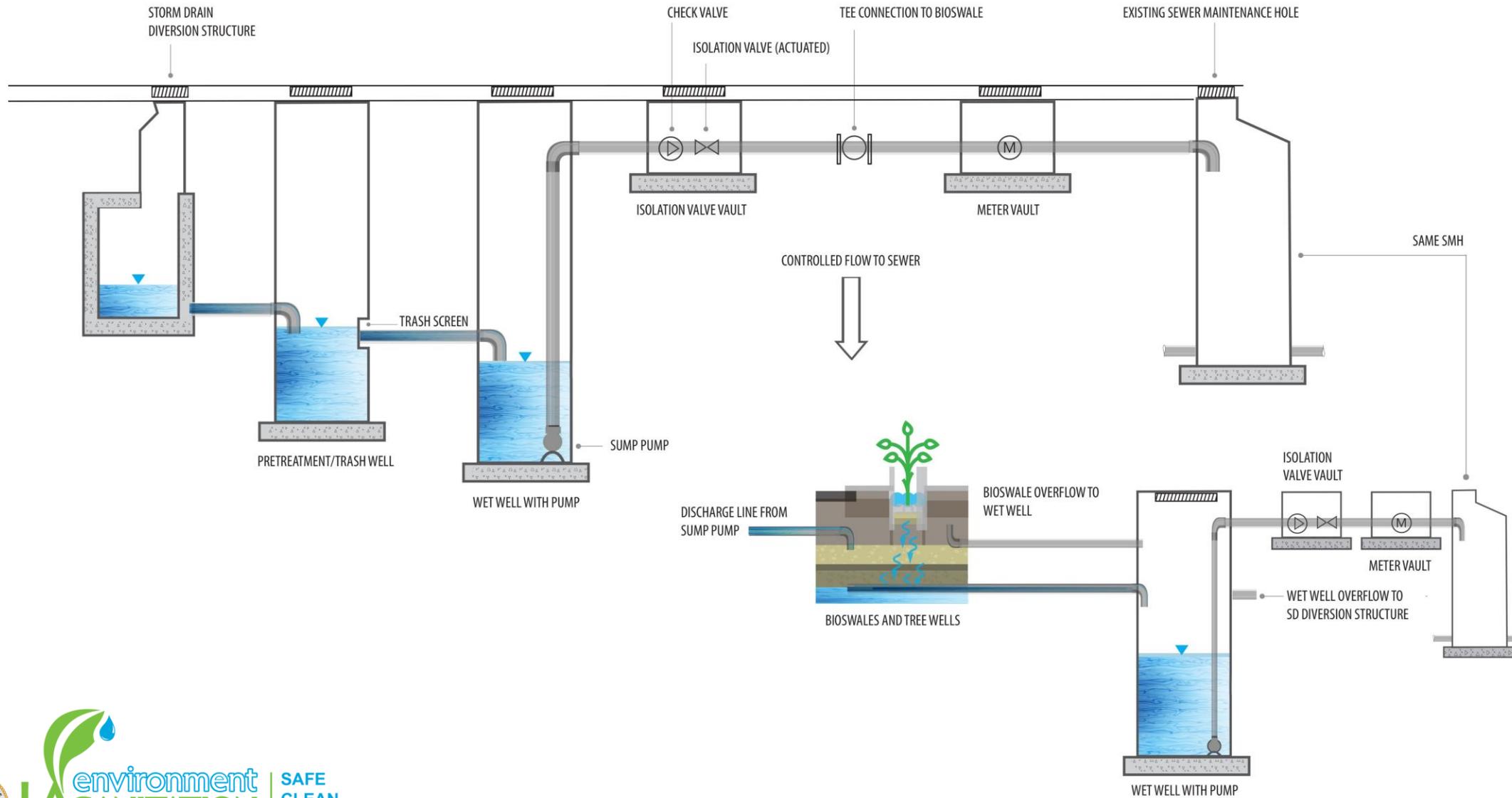
- Feasibility study

Description of any alternatives considered

- Storage/infiltration wells
- Off-site storage and infiltration
- Storage for irrigation



Project Schematic

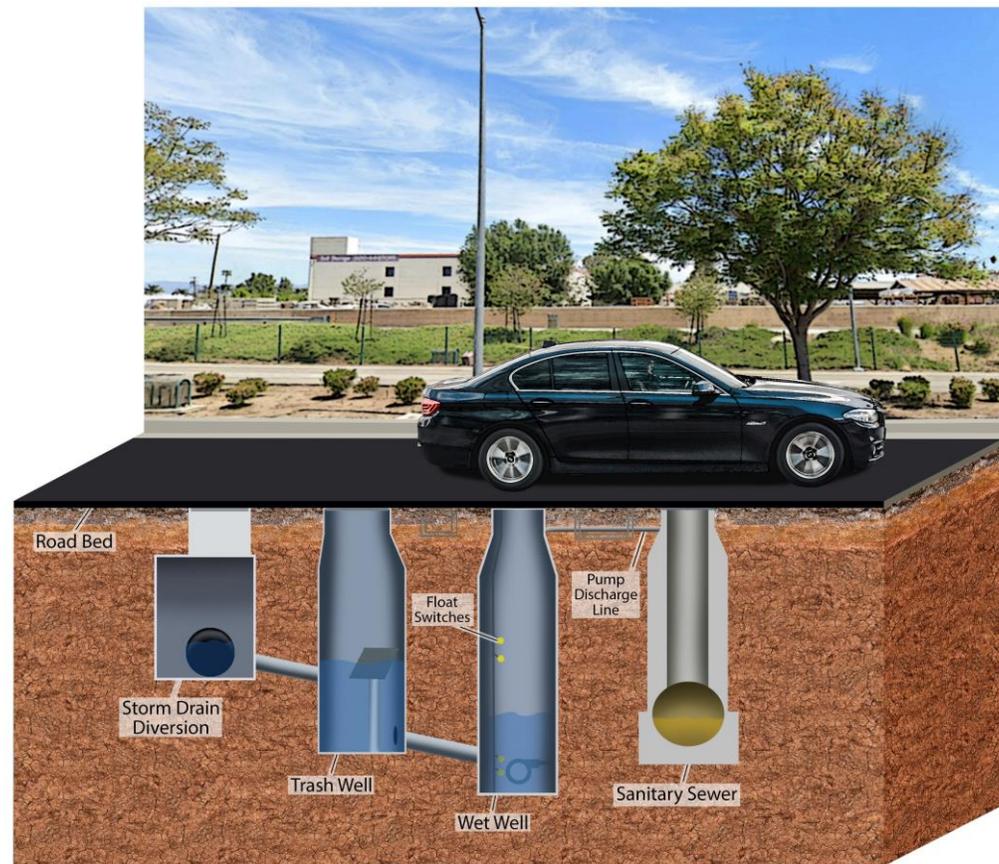




Project Details



Parkway Bioswales and Street Trees



Typical Dry-weather Diversion
(no bioswales or street trees)



Site Plan 1/3

Typical Dry-weather Diversion:

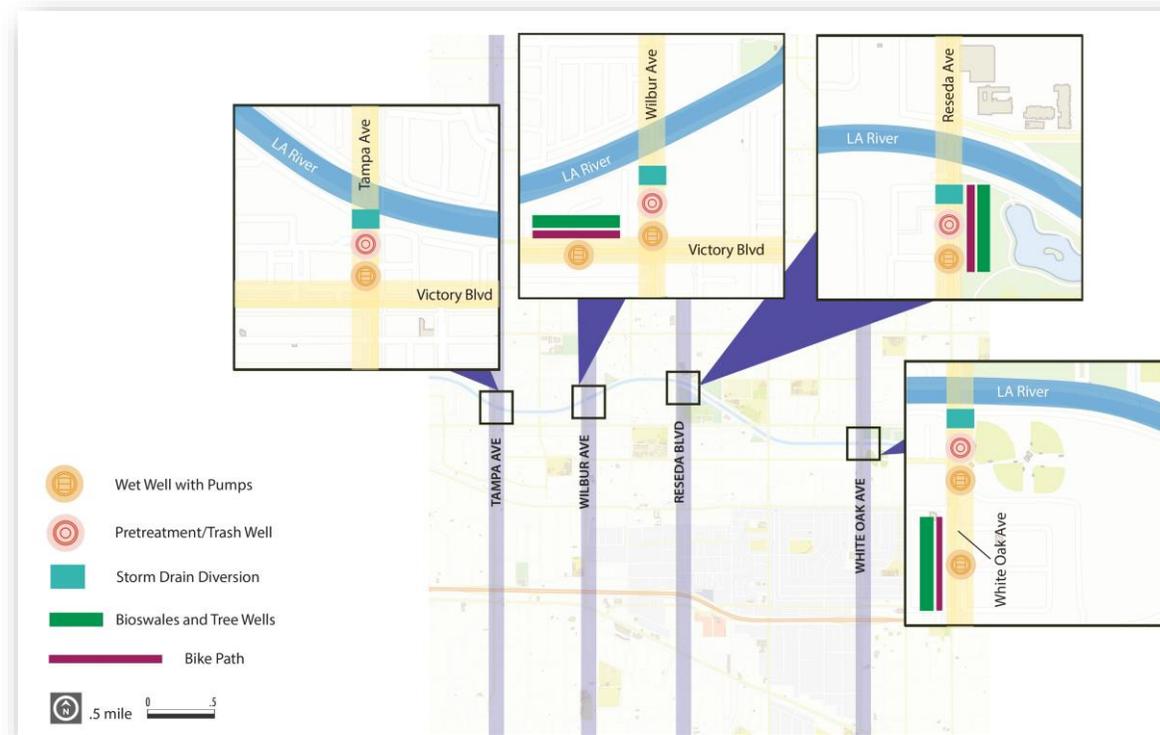
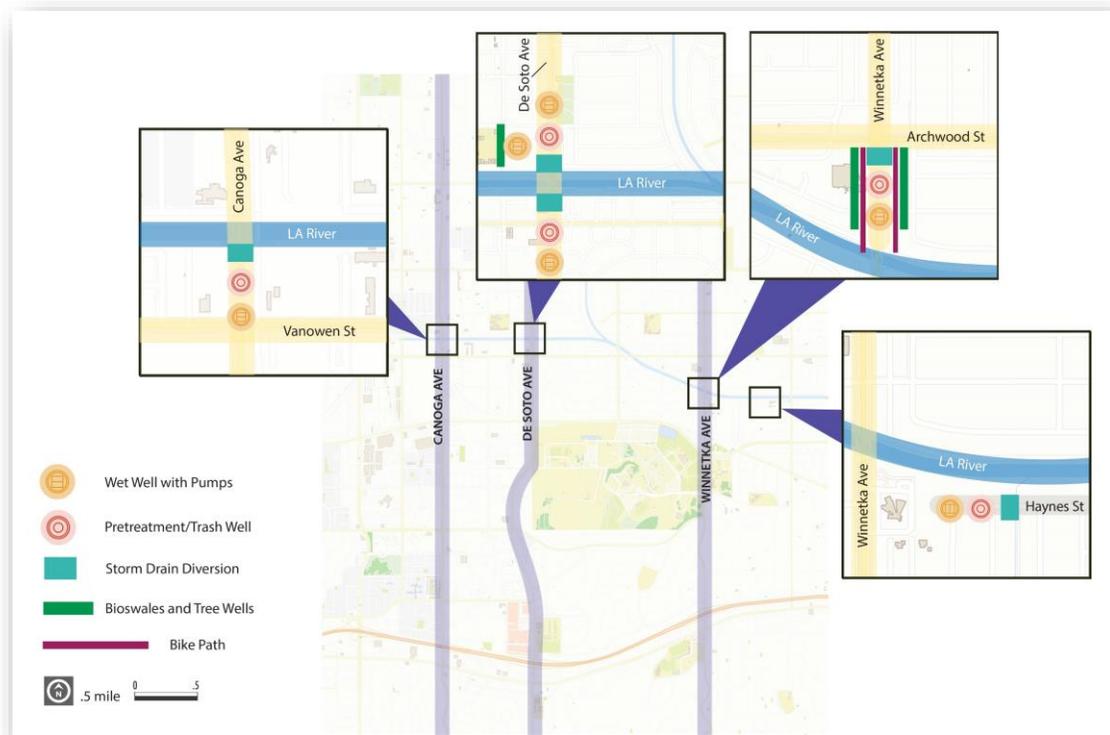
- Canoga Ave, Desoto Ave (south), Haynes St, and Tampa Ave.

Dry-weather Diversion with Bioswales/Tree Wells:

- Desoto Ave (north)/Independence Ave, Winnetka Ave, Victory Blvd at Wilbur Ave, Reseda Blvd, and White Oak Ave.

Upgraded Bike Lanes:

- Winnetka Ave, Victory Blvd at Wilbur Ave, Reseda Blvd, and White Oak Ave.





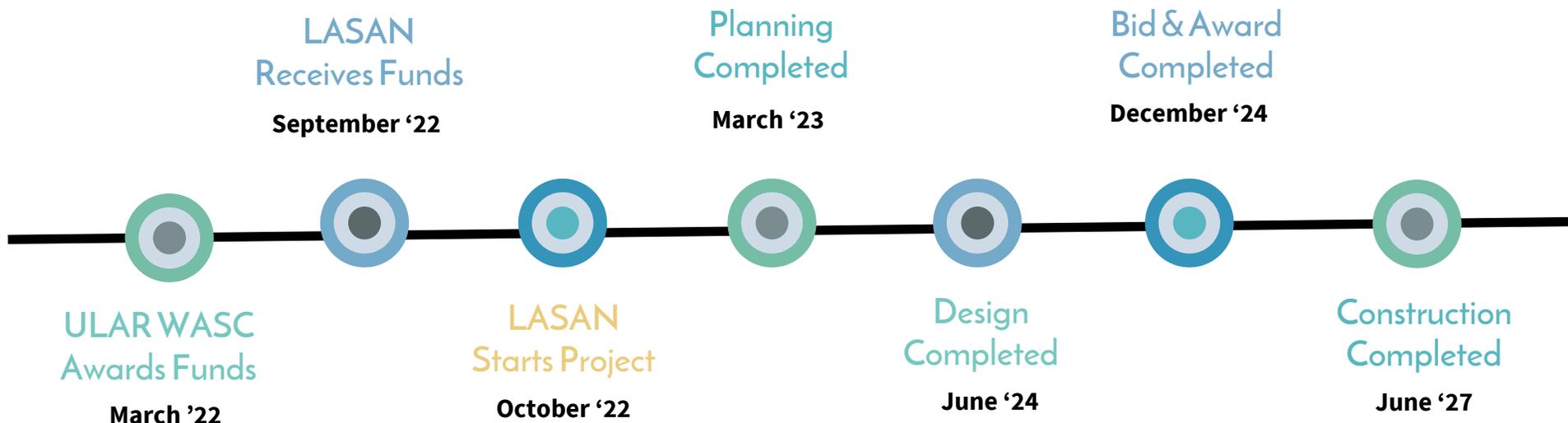
Funding Request

Year	SCW Funding Requested	Phase	Efforts During Phase and Year
1	\$1,984,500	Planning and Design	Planning and Design
2	\$2,380,327	Design and Monitoring	Design and Monitoring
3	\$1,679,285	Design and Monitoring	Design and Monitoring
4	\$25,777,048	Design and Construction	Design and Construction
5	\$0		
TOTAL	\$31,821,160		

- Leveraged funding: None
- Future potential SCW funding requests: O&M and replacement/refurbishment of diversion system components



Schedule & Maintenance Cost

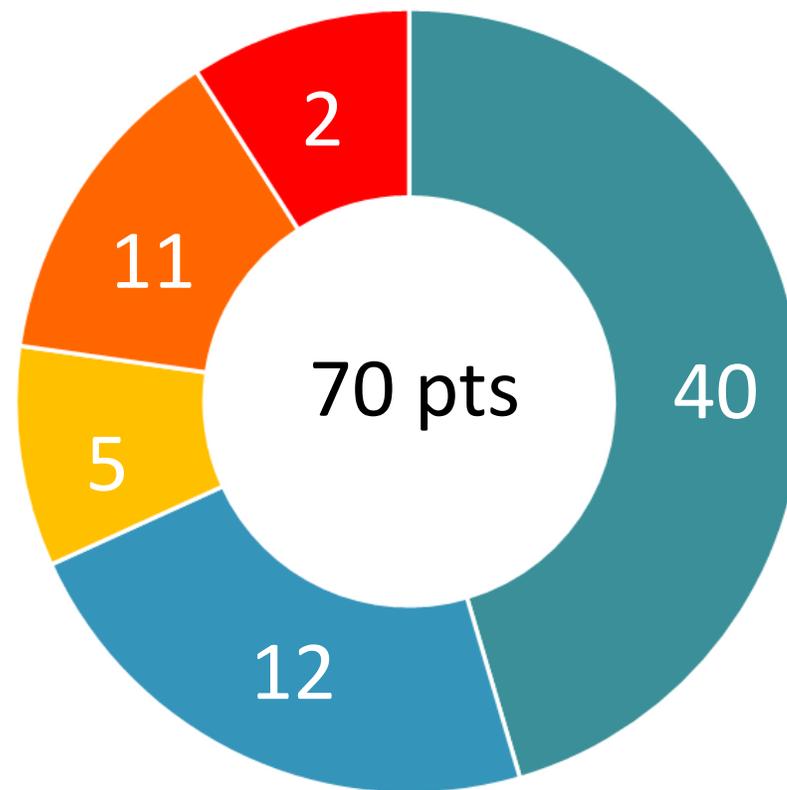


- Annual costs include inspection and cleaning of diversion components, as well as maintenance of trees and bioswales
- Project lifespan: 50 years
- Lifecycle cost: \$60,754,523



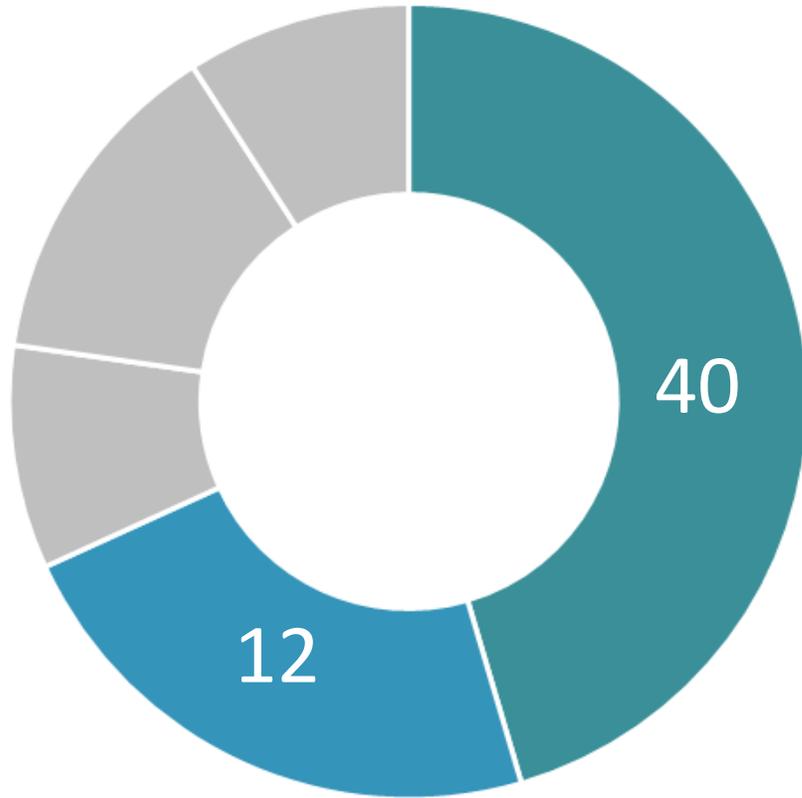
Score

- Water Quality
- Water Supply
- Community Investments Benefits
- Nature Based Solution
- Leveraged Funds and Community Support





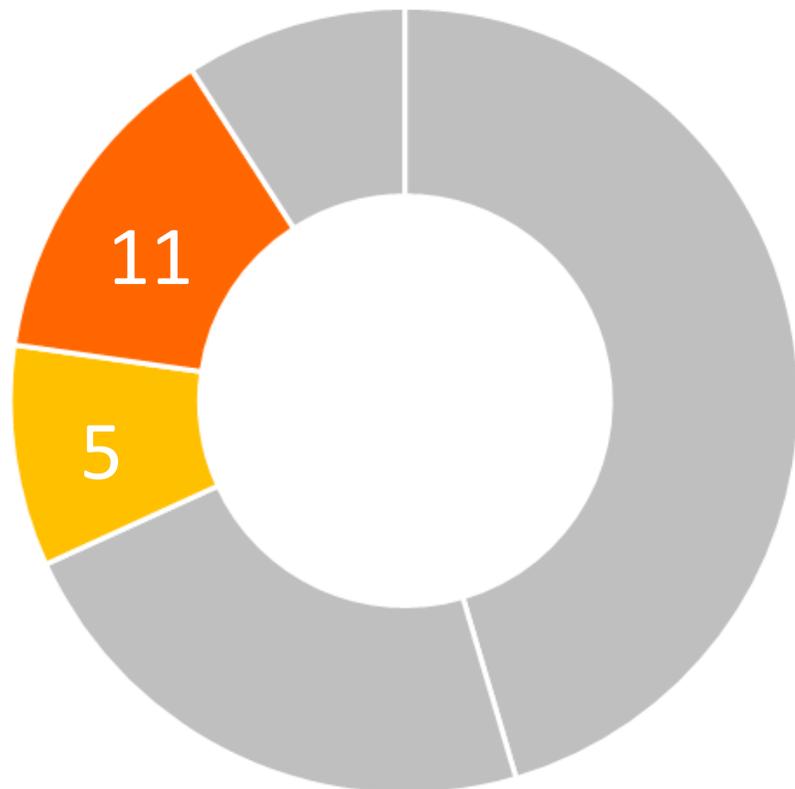
Water Quality & Water Supply Benefits



- Dry-weather diversions, bioswales, and street trees
- Dry weather
- Tributary area: 9,717 acres
- Pollutant reduction: 100% bacteria, 100% trash
- Annual Water Supply Volume: 319 AF/yr
- Water Supply Use: Recycling at treatment plant
- Water Supply Cost-Effectiveness: \$7,942/AF



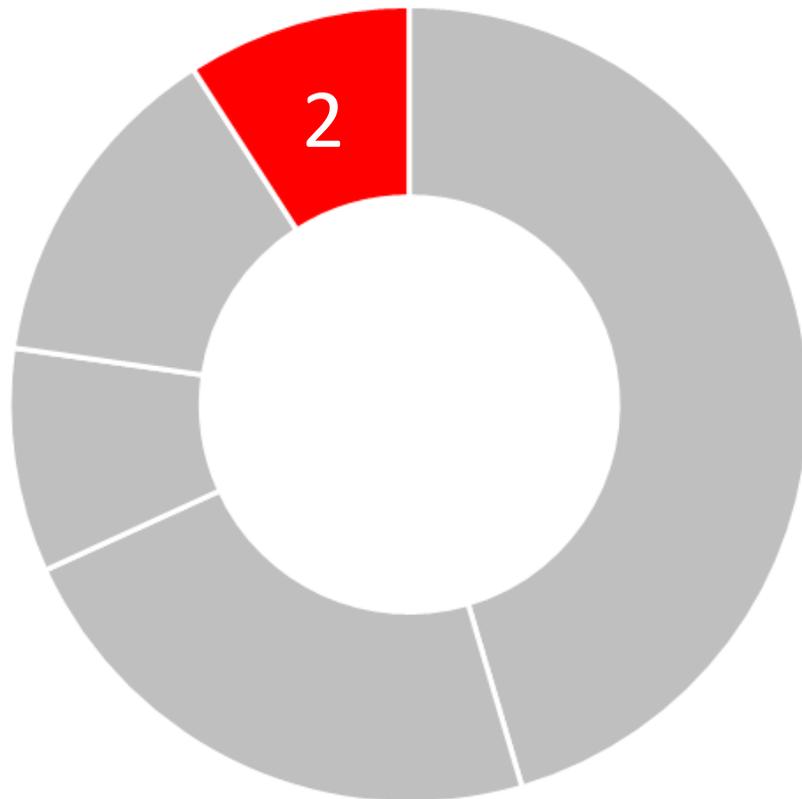
Community Investment Benefits and Nature-Based Solutions



- Community Investment Benefits
 - Creation/enhancement of habitat and parks
 - Improved access to waterways
 - Enhanced recreational opportunities
 - Increased shade and reduction of heat island effects
 - Increased trees and vegetation
- Nature-based Solutions
 - Mimics natural processes in trees and bioswales
 - Utilizes natural materials in bioswales



Leveraging Funds and Community Support



■ Leveraging Funds

- Project does not leverage funds

■ Community Support

- Project has strong support from:
 - Los Angeles River Walkers and Watchers
 - TreePeople
 - City Council District 3
 - Winnetka Neighborhood Council
- Planned engagement
 - CD 3 community engagement
 - LADWP



Questions?