



Lakewood Equestrian Center

Infrastructure Program

Fiscal Year 2022-2023

Lower San Gabriel River Watershed Area

City of Lakewood

Presented by John Hunter



Project Overview

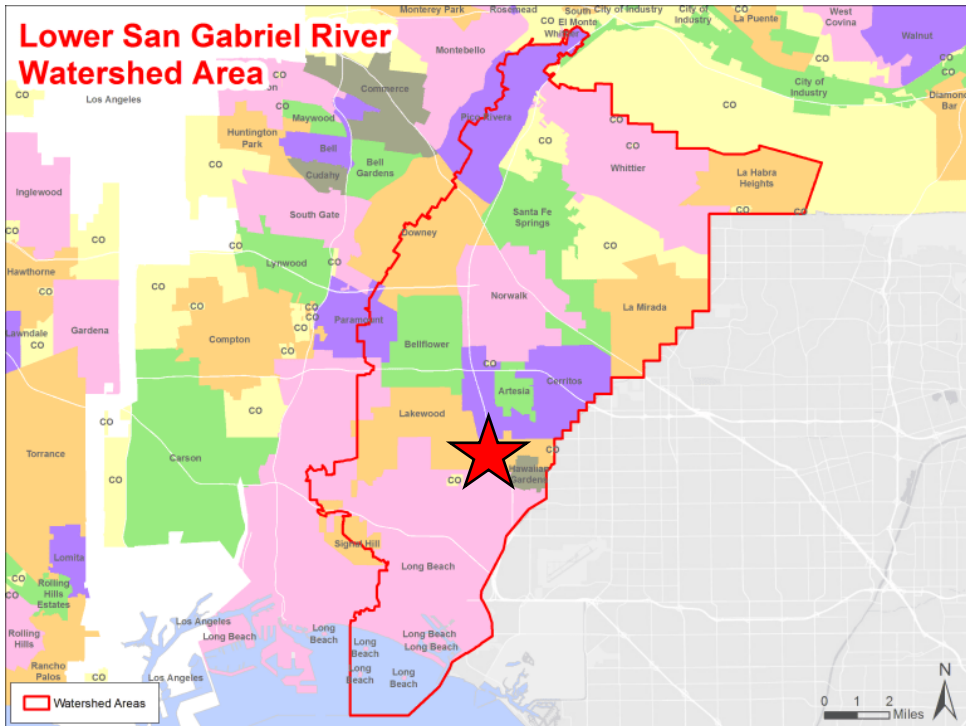
Regional stormwater capture project designed to revitalize community facilities at the Lakewood Equestrian Center

- Objectives:
 - Improve water quality within the San Gabriel River Watershed
 - Revitalize invaluable community facilities and recreational opportunities such as the petting zoo and pony ride (including making them ADA accessible)
 - Address the wants, needs, and concerns of the community and realize the goals of the Lakewood Equestrian Center & Surrounding Open Space Master Plan (Master Plan)
 - Implement nature-based solutions
 - Potentially offset potable water demands by utilizing captured flows for irrigation at adjacent Rynerson Park
- Project Status: Design
- Total Funding Requested: \$1,114,794





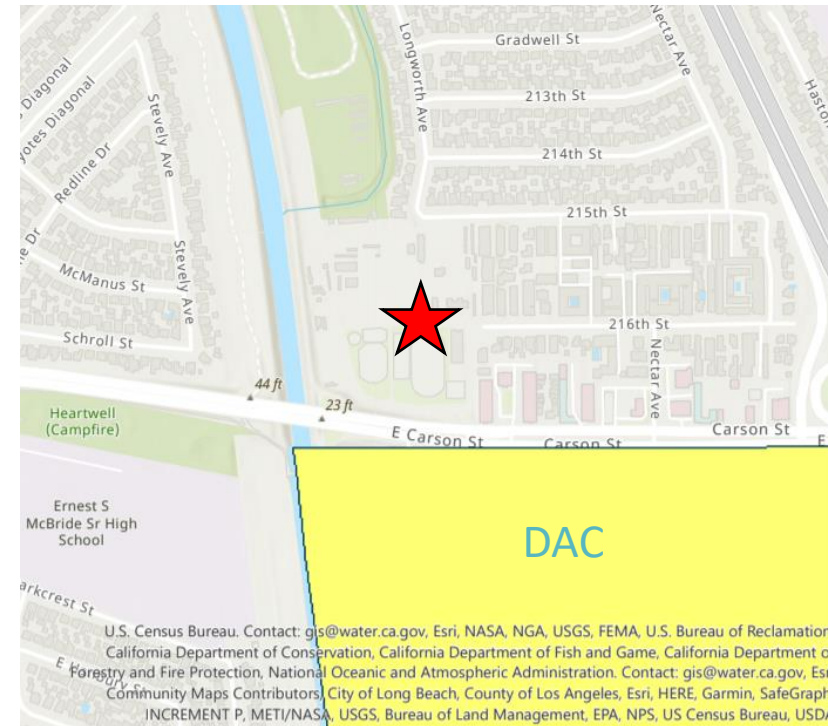
Location



The project is located in the City of Lakewood, within the Lower San Gabriel River Watershed Area



The project has a capture area of over 290 acres, encompassing portions of the Cities of Lakewood and Cerritos



Per the DWR DAC Mapping Tool, the project is located immediately north of a DAC block group



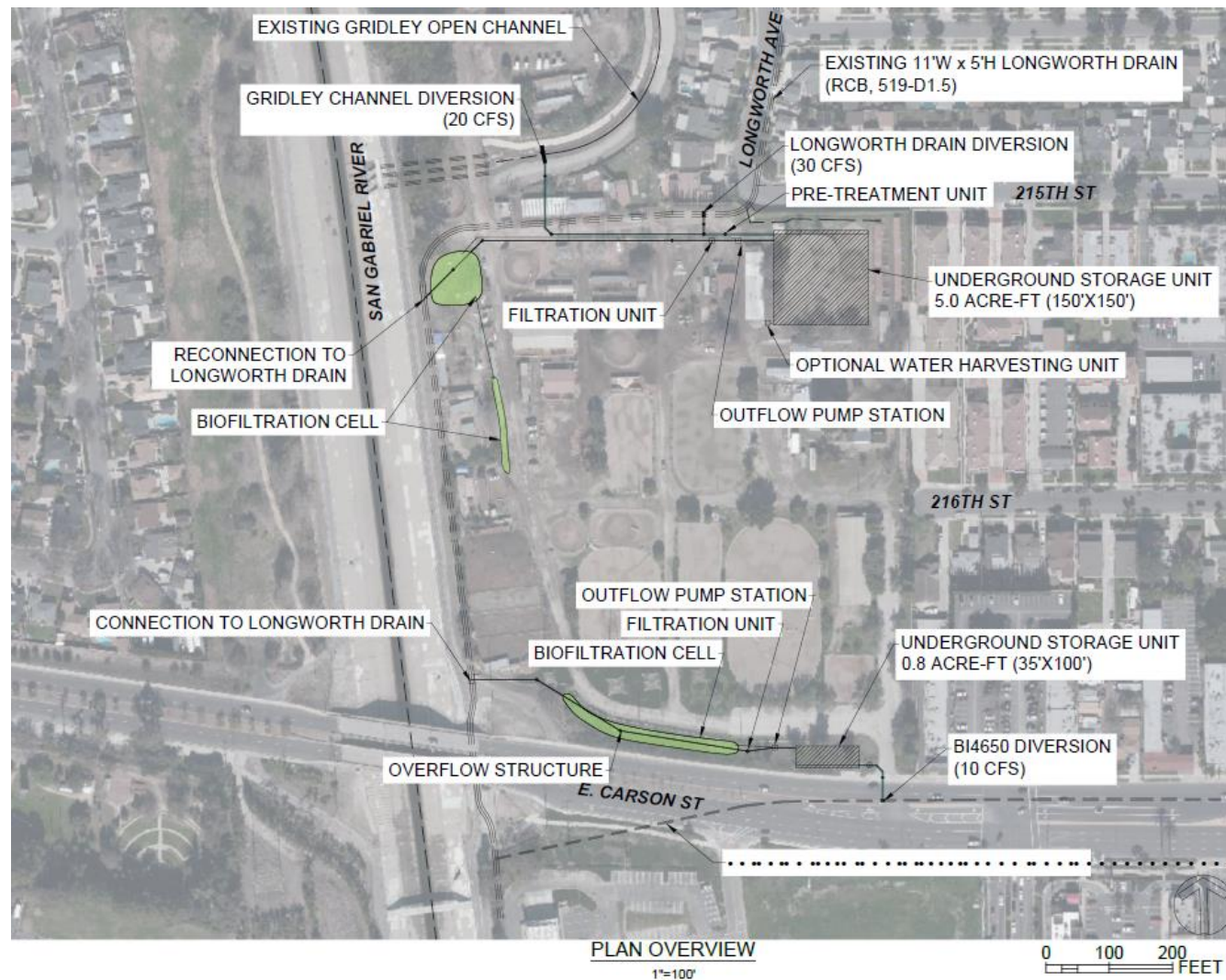
Background

- The Lakewood Equestrian Center is a public equestrian facility that has been **in operation since 1946**
- Visitors can participate in riding lessons, horse boarding and training, pony rides, a petting zoo, and other activities; notably, the site houses **Pony Time** (which promotes recreation and special events) and **Shoestring City Ranch** (a 100% volunteer-run non-profit organization focused on equine therapy programs)
- In 2020, the City successfully applied to the Rivers and Mountains Conservancy Prop 68 Grant Program for the development of the Lakewood Equestrian Center & Surrounding Open Space Master Plan (Master Plan), a long-term planning document to guide future growth and improvements
- The City funded a geotechnical study (to determine the infiltration rates at the site) and a subsequent feasibility study (to develop preliminary configurations for the proposed stormwater capture/treatment system) in the first half of 2021
- **The site was identified as an optimal site for a regional project** in the recently updated 2021 LSGR WMP; the project will therefore implement the LSGR WMP and represent progress toward compliance with the MS4 Permit and applicable TMDL milestones
- **Local DACs will benefit** from the much-needed revitalization of the site
- The City has conducted substantial community outreach and the design will comply with all LA County anti-displacement avoidance measures



Details

- The site operates as an equestrian facility open to the public, and the design must allow for continuation of these uses
- Preliminary geotechnical investigations determined that infiltration is substantial at this site, with **design infiltration rates of 12.0 inches/hour**; however, **shallow groundwater** conditions will limit infiltration to near-surface practices
- Preliminary optimization analyses and the conceptual plan include three diversion points: the Longworth Drain and the Gridley Drain will have their flows partially diverted to a northerly located subsurface BMP, and the BI4650 Storm Drain will have its flows partially diverted to a southernly located subsurface BMP
- The subsurface filtration BMP storage outflows will be routed to nature-based infiltration cells





Cost & Schedule

Phase Costs			
Phase	Description	Cost	Completion Date
Design	Pre-Design, Design, and Construction Support	\$ 1,063,994.00	07/2023
Design	Additional Community Outreach	\$ 50,000.00	07/2023
Design	Environmental Planning and Permitting	\$ 106,399.00	07/2023
Design	Agency Project Management	\$ 265,999.00	07/2023
Construction	Construction	\$ 10,639,943.00	07/2028
Construction	Construction Management	\$ 1,063,994.00	07/2028
Construction	Construction Surveying	\$ 20,000.00	07/2028
Total Funding:		\$ 13,210,329.00	

Annual Cost Breakdown	
Annual Maintenance Cost:	\$ 74,000.00
Annual Operation Cost:	\$ 74,000.00
Annual Monitoring Cost:	\$ 15,000.00
Project Life Span:	50 years



Funding Request

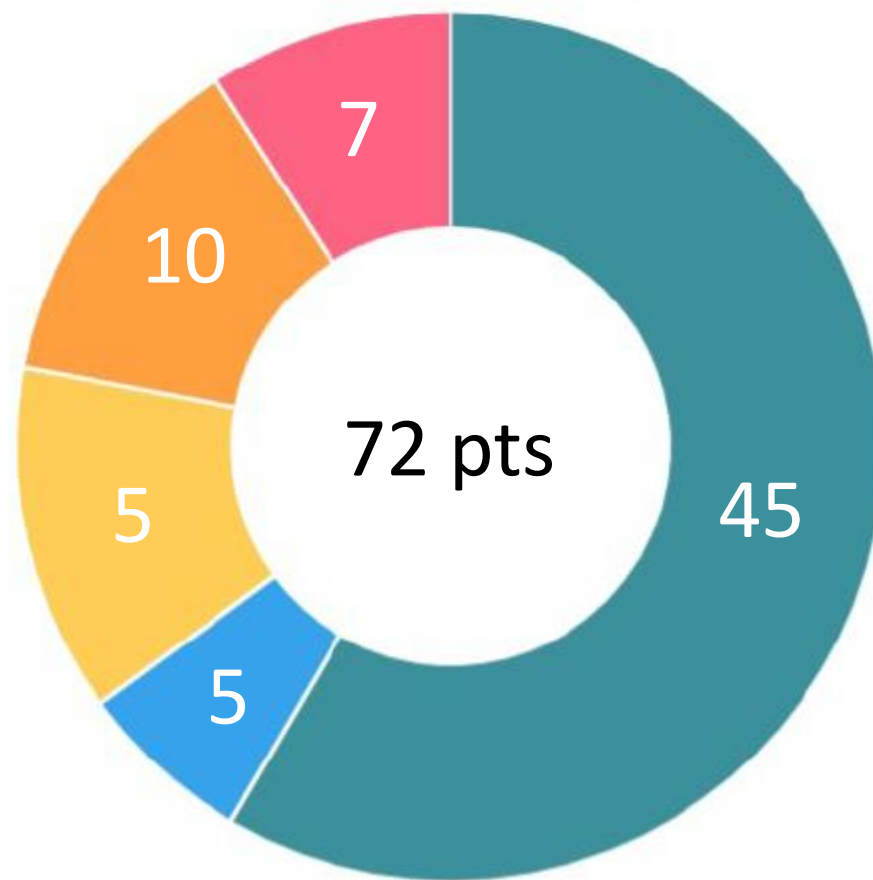
Funding Requested by Year & Phase			
Year	SCW Funding Requested	Phase	Efforts during Phase and Year
Year 1	\$ 1,114,794.00	Design	Design; Additional Community Outreach; Environmental Planning and Permitting; Agency Project Management
Total Year 1	\$ 1,114,794.00		
Total Funding:	\$ 1,114,794.00		

Upon completion of final design, future SCWP funding requests will be submitted for project construction, operations and maintenance, and monitoring



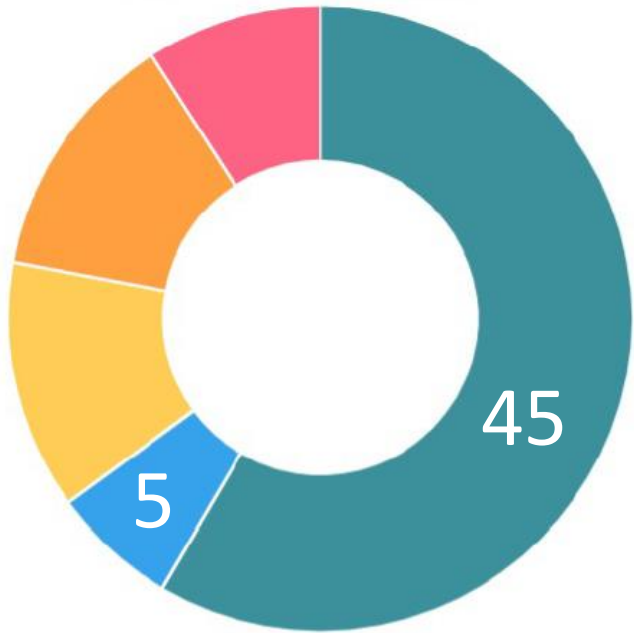
Score (per Scoring Committee)

Water Quality Water Supply Community Investment Nature-Based Solutions Funds & Community





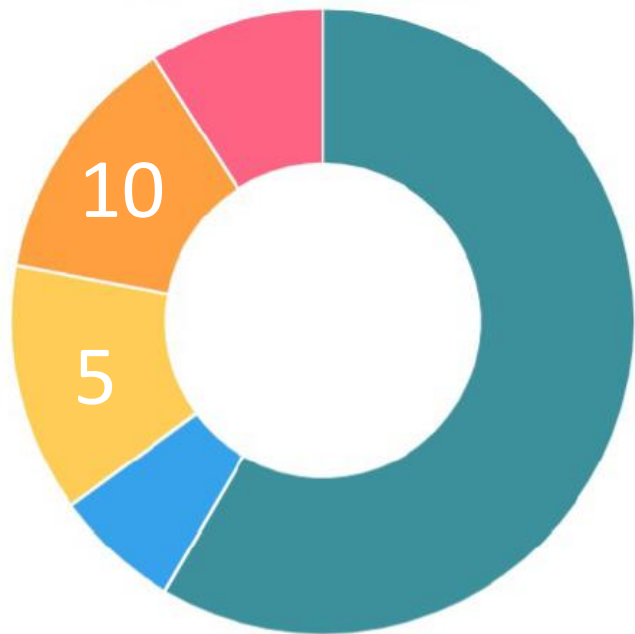
Water Quality & Water Supply Benefits



- Treatment mechanisms: infiltration, capture and use, and filtration.
- Per the Scoring Committee, the project will capture above the 85th percentile storm event; thus 100% of the peak inflow would be managed by the subsurface storage units and nature-based infiltration cells
- Proposed elements include:
 - Three distinct diversions (Gridley Drain and Longworth Drain to the north, and the BI4650 Storm Drain to the south)
 - Dual best management practice (BMP) systems:
 - Flow from the northerly diversions will be directed to an underground storage unit (5.0 acre-feet) before being conveyed to a biofiltration cell and potentially used for irrigation at Rynerson Park
 - Flow from the southerly diversion will be directed to an underground storage unit (0.8 acre-feet) before being conveyed to a biofiltration cell
- Zinc (the limiting pollutant per the LSGR WMP) as well as other pollutants will be addressed
- Water quality and supply benefits and cost effectiveness will be more fully analyzed during the final design process



Community Investment Benefits & Nature-Based Solutions



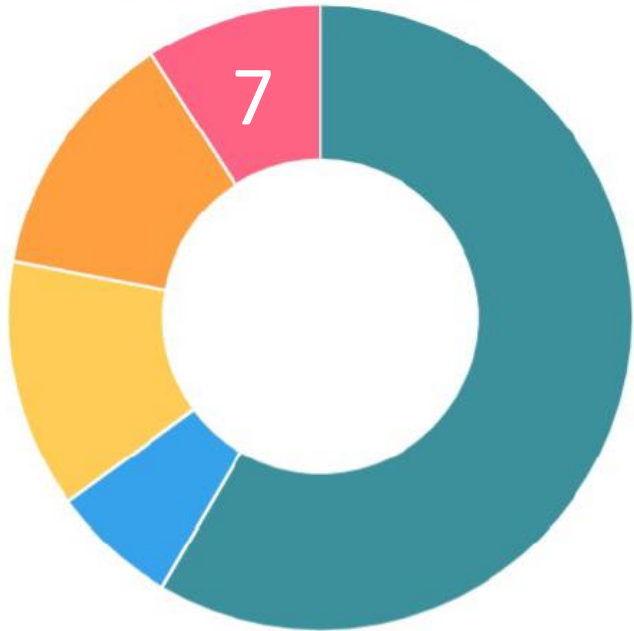
- Flood management: the project's diversions and detention capabilities could reduce potential stress on the local storm drain system
- **Enhanced public space, recreational opportunities, and accessibility:** the project will revitalize facilities at the Lakewood Equestrian Center (e.g., pony ride, petting zoo); allow for greater opportunities for programming and education; and improve accessibility, safety, and security (e.g., ADA compliance)
- Improved access to waterways: per the Master Plan, **the project will increase connectivity to nearby Rynerson Park and the San Gabriel River trail system**
- **Increased greening and nature-based solutions:** the nature-based infiltration cells will beautify the project site and create additional vegetated space; post-construction landscape plans will also include the planting of native trees, shrubs, and grasses





Leveraging Funds & Community Support

- Leveraging Funds
 - **The City will contribute up to \$371,600 (25%) toward the total design costs** using its Municipal Program allocation from the Safe Clean Water Program; these funds were budgeted for in the City's FY 2020-2021 Annual Plan
 - This does not include the Rivers and Mountains Conservancy Prop 68 Grant that funded the development of the Master Plan
- Community Support
 - Extensive outreach to solicit community input was conducted as part of the development of the Master Plan; this included multiple community meetings, focus groups, and a survey that generated over 1,000 responses (see image to the right for a summary)
 - The project has received letters of support from Boy Scouts of America Troop 134, Camp Fire Angeles, Lakewood Neighborhood Watch, and SJ Equestrian
 - \$50,000 for additional outreach has been included in the design phase budget





Questions?

Heartwell Park at Clark Channel Stormwater Capture Project

Funding Program - Infrastructure Program
Fiscal Year 2022-2023
Lower San Gabriel River

Project Lead: City of Long Beach

Project Proponent: Los Cerritos Channel Watershed Group

Presenters: Richard Watson (Richard Watson & Associates)

Oliver Galang (Craftwater Engineering)



Project Overview

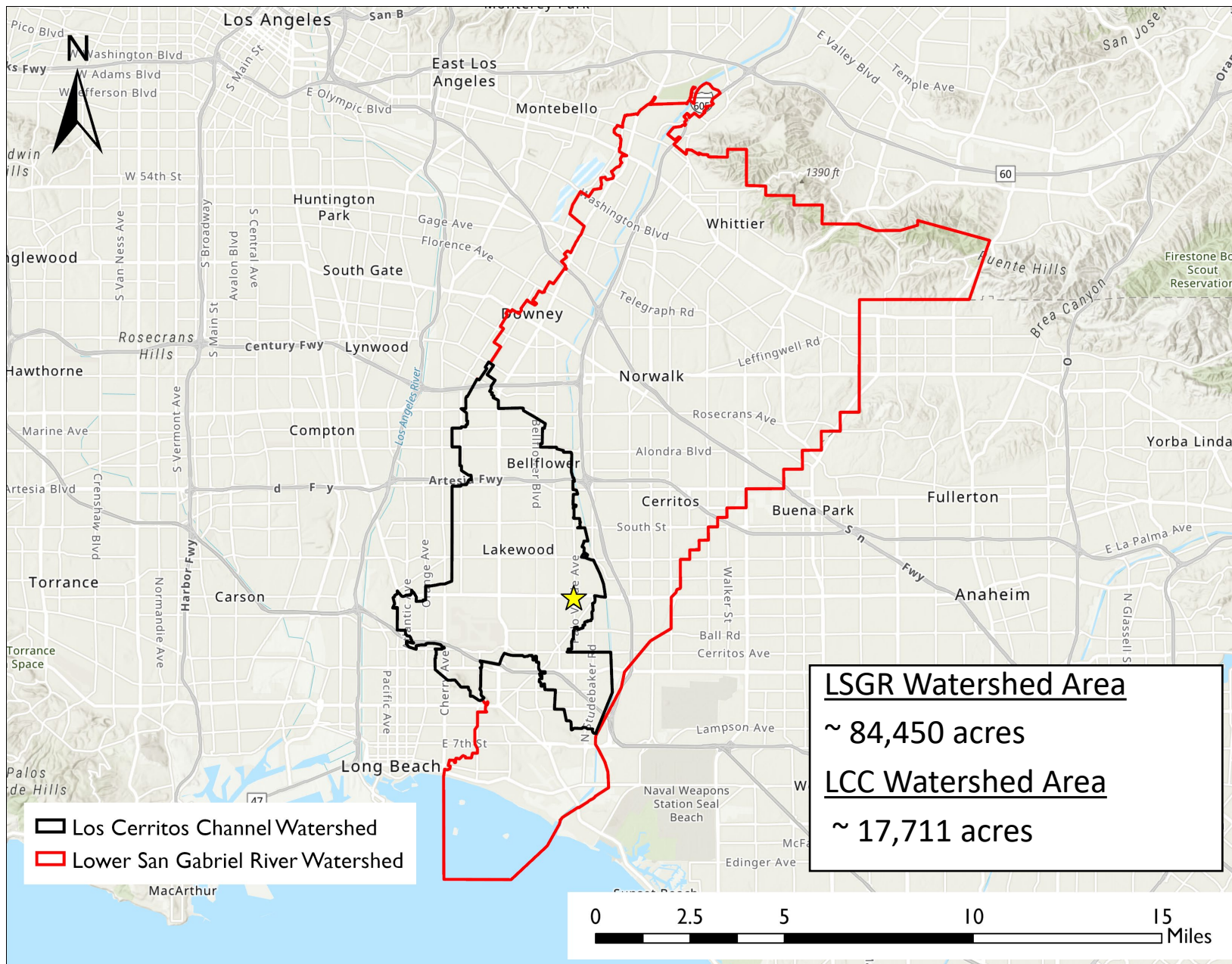
Phase I of a Regional stormwater capture and filtration facility located at Heartwell Park adjacent to the Clark Channel

- **Primary Objective:** Improve WQ in LCC through a combination of nature-based solutions
- **Secondary Objectives:** Offset potable use in the lake & provide public education
- **Project Status:** SCW funding request for **Design & Construction**
- **Total Funding Requested:** \$23,874,000



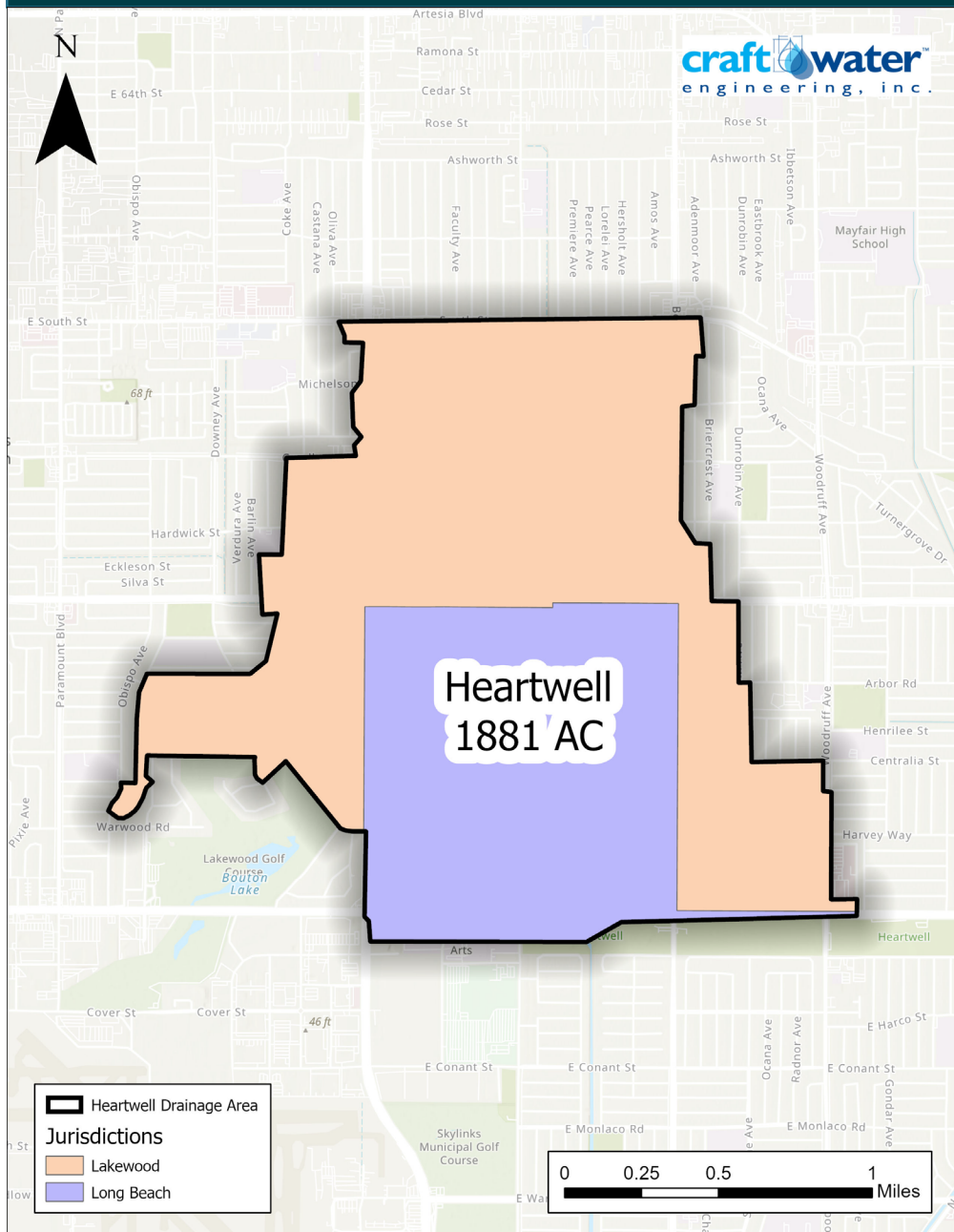


Project Location – Watershed Map





Project Location – Primary Capture Area

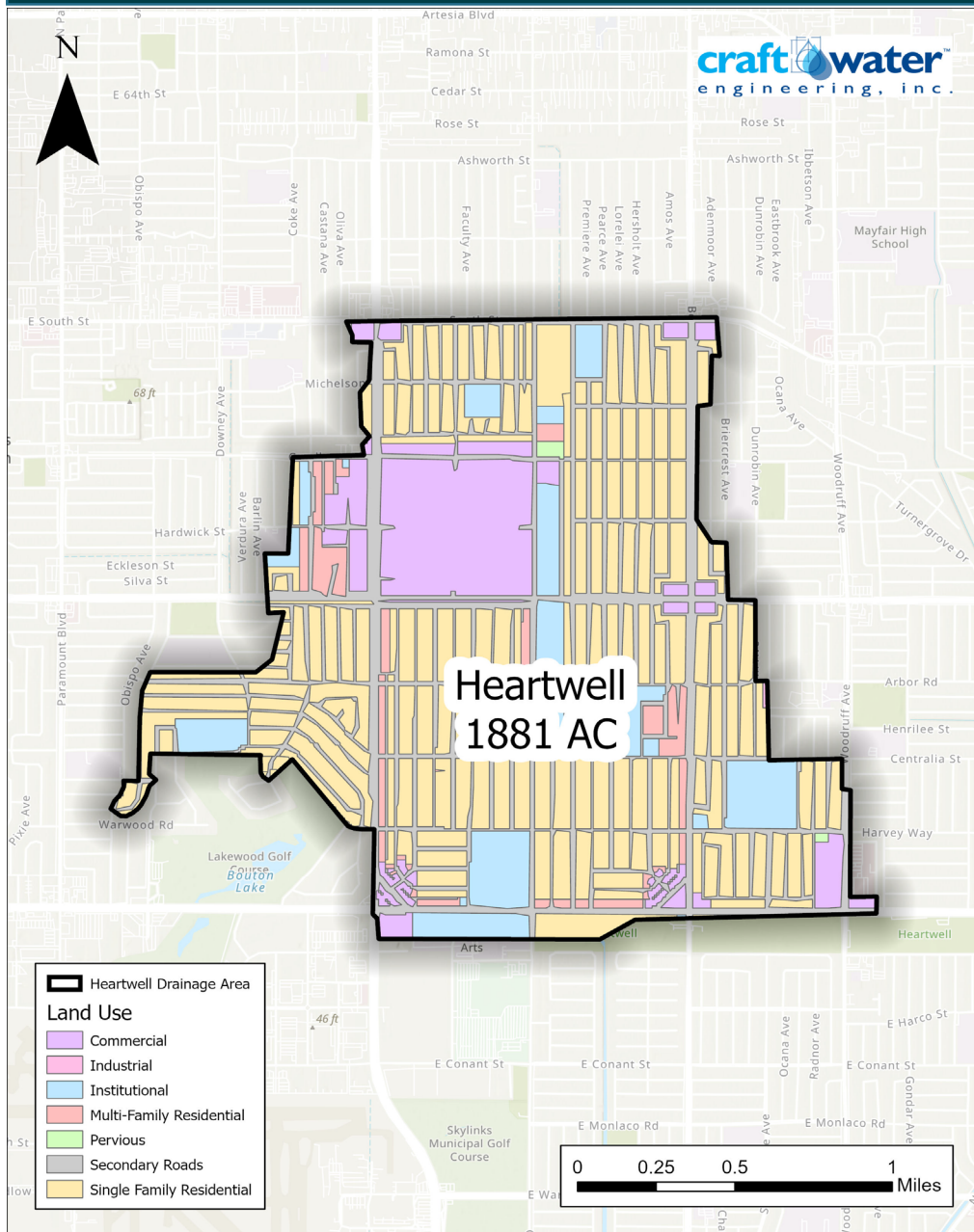


craft water
engineering, inc.

Jurisdiction	Area (acres)	% Watershed
Lakewood	1,170	62.2%
Long Beach	710	37.8%
TOTAL	1,881	100%



Project Location – Land Use



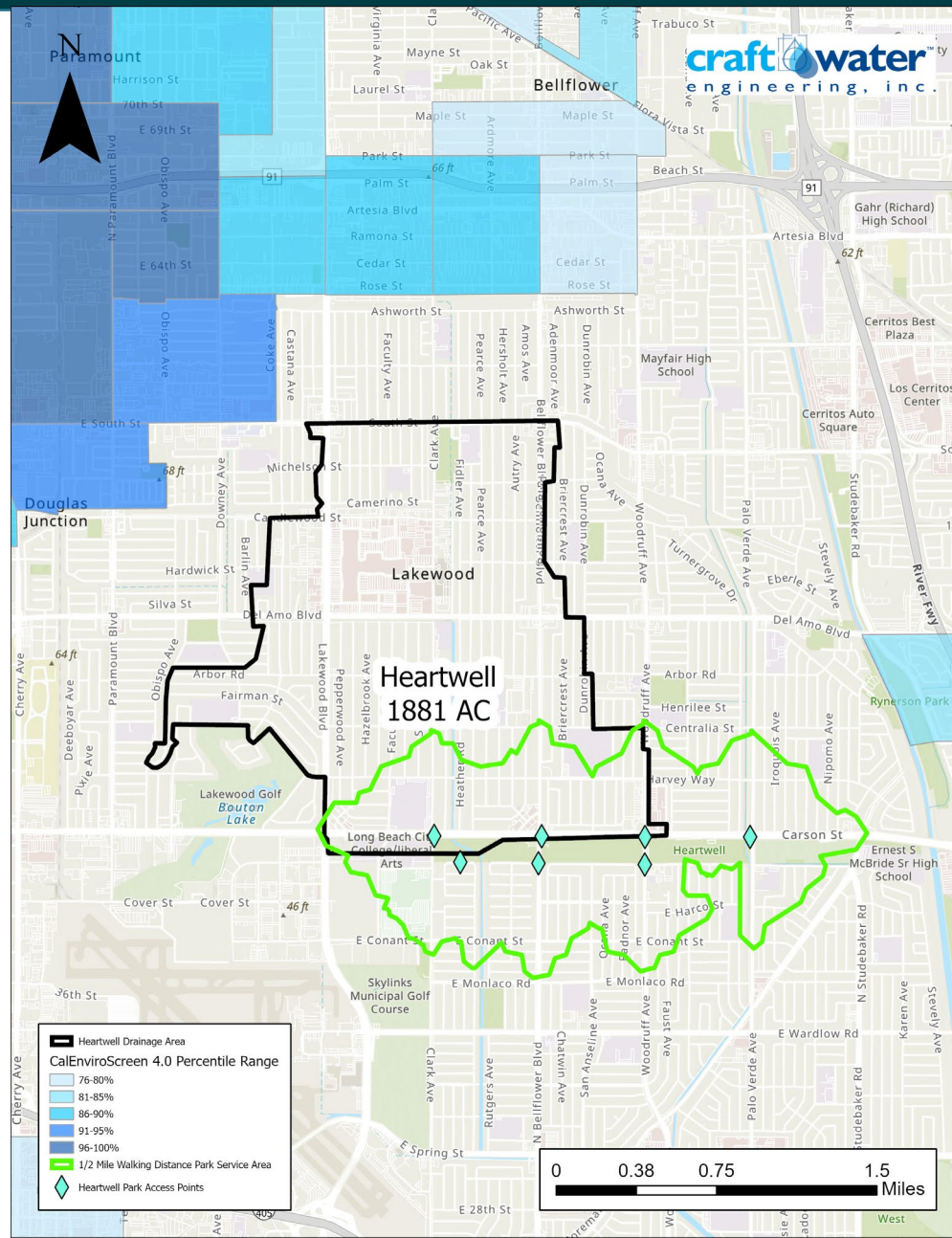
• Primary Drainage Area

- Impervious: 1,082 acres
- Pervious: 799 acres

Land-use	Area (acres)	% of Impervious
Single Family Residential	450.37	41.62%
Multi-Family Residential	47.90	4.43%
Commercial	192.06	17.75%
Institutional	113.29	10.47%
Industrial	0.40	0.04%
Highway & Interstates	0.00	0.00%
Secondary Roads & Alleys	277.98	25.69%
TOTAL IMPERVIOUS	1,082	100%



Project Location – Disadvantaged Communities (DAC)



- **Disadvantaged Communities** within the Heartwell Park at Clark Channel Drainage Area using **CalEnviroScreen 4.0**
- **No disadvantaged communities** are within the drainage area nor the ½ mile by walking distance service area. *Therefore, the project will not claim DAC credit.*
- **Heartwell Park is a Regional Park** and accessible to all communities



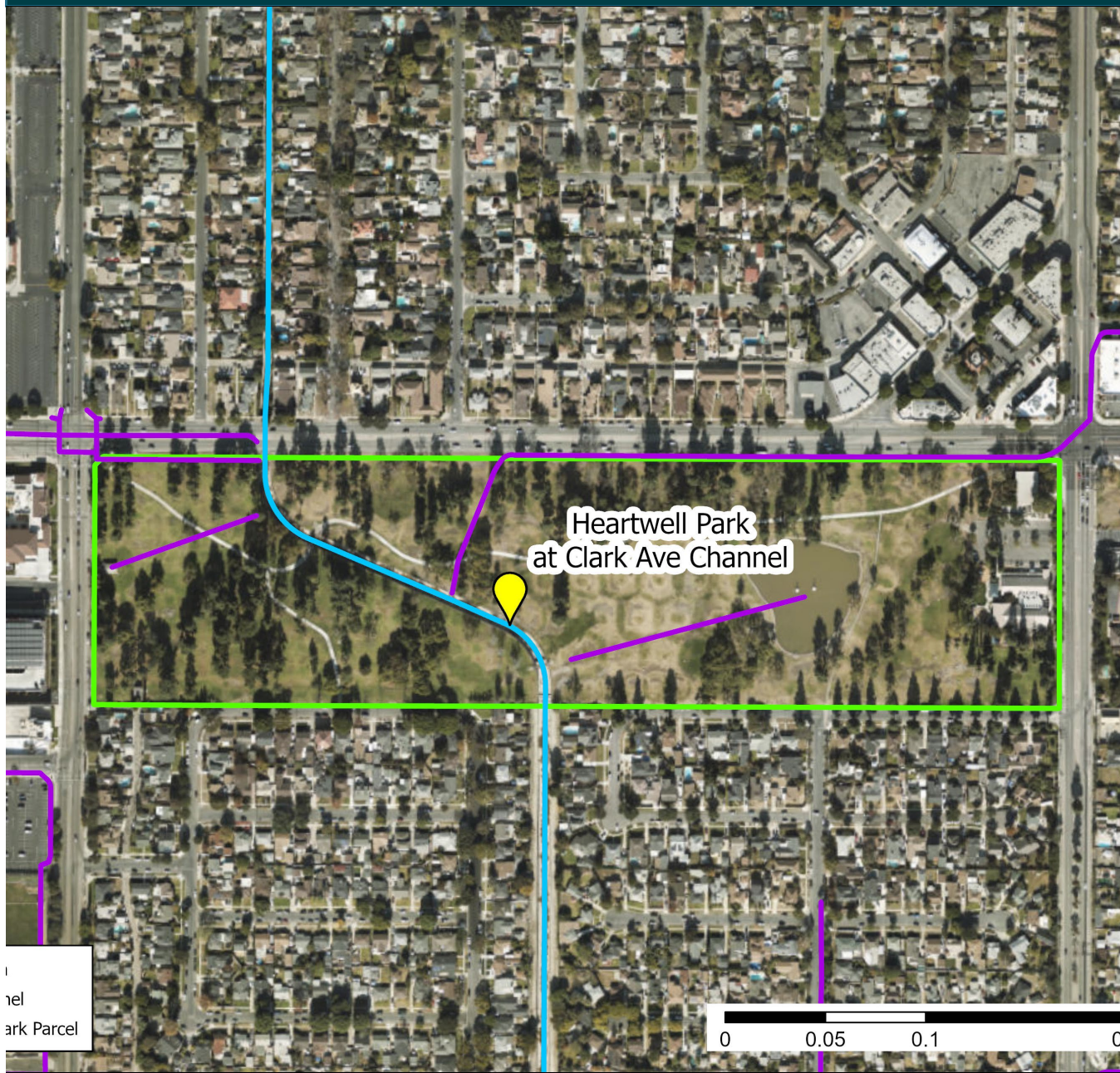
Project Location – Parcel Map



The **Heartwell Park at Clark Channel** site is southwest of the intersection of Clark Ave and Carson St in Long Beach



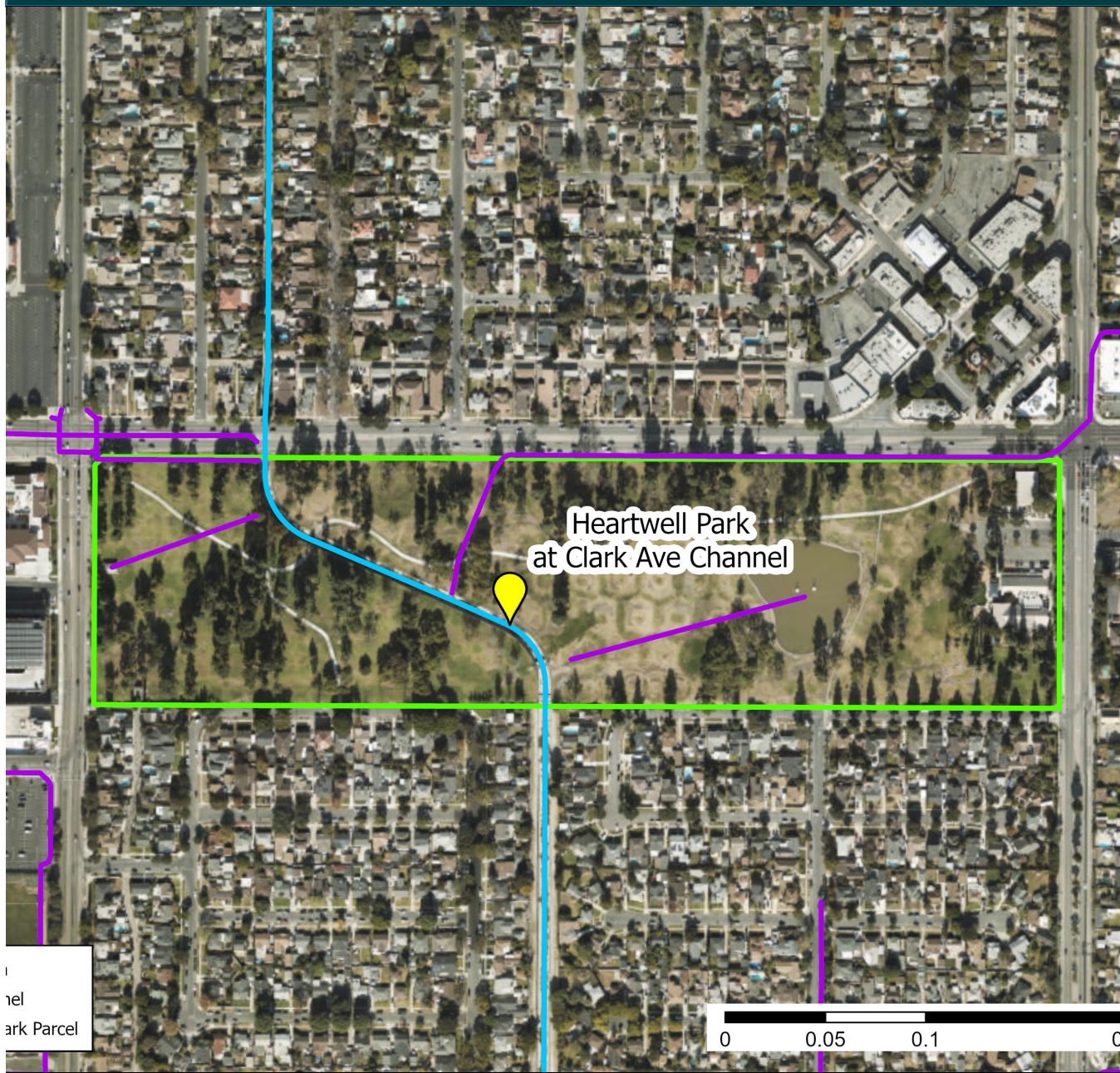
Project Background



- Site was identified in the Los Cerritos Channel (LCC) Watershed Management Program (WMP 2015, *Updated 2021*)
- Project Selected due to
 - Large primary drainage area (1,881 acres)
 - Proximity to Clark Channel
 - Opportunity to revitalize and enhance public park spaces in Heartwell Park
 - Ability to offset potable water use at Heartwell Park Lake with stormwater
 - Pollutant treatment capacity



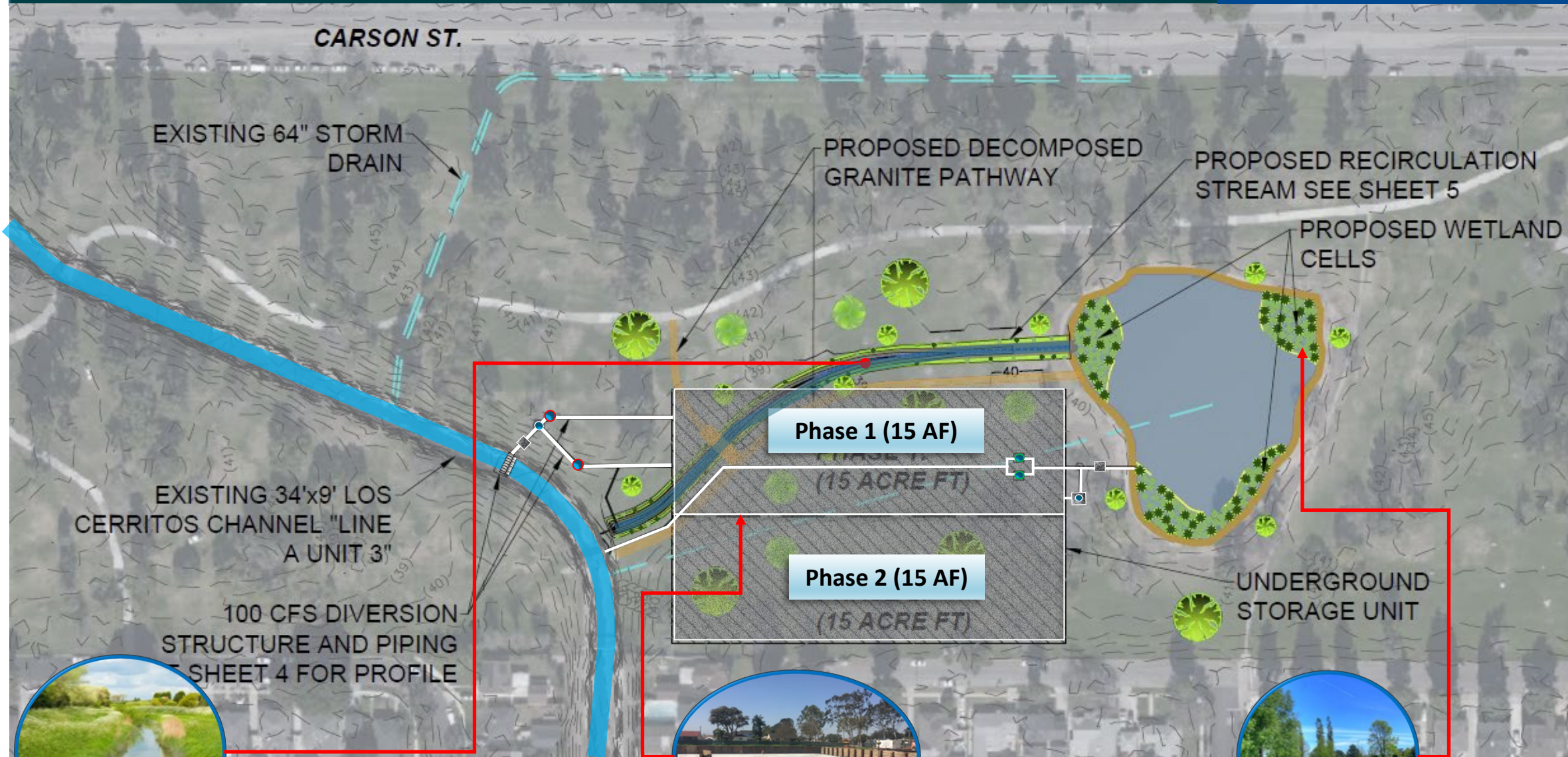
Project Benefits



- **Water Quality** Improvement in the Clark Channel and the Los Cerritos Channel by removing trash, metals, bacteria, and nutrients in stormwater and urban runoff
- **Nature-Based** integrated in-lake wetland cells, recirculating treatment stream, and sustainable native landscaping
- **Park Recreational Enhancements** with enhanced habitat area, stream, and walking pathways
- **Public Access to Waterways** with enhanced walking paths along the lake and stream to the Clark Channel

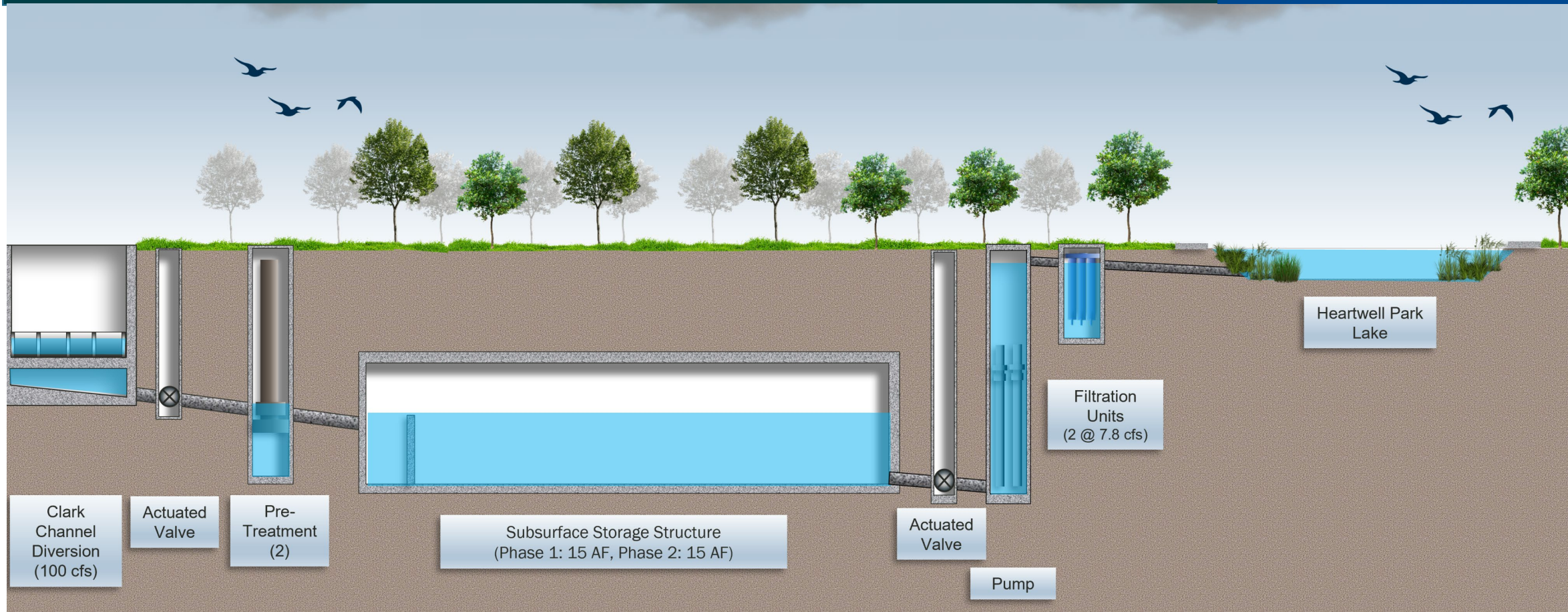


Project Details - Site Plans





Project Details – Site Plans



Diversion Rate	Storage Capacity	Filtration Unit	24-Hour Capacity	Primary Pollutant Reduction (Zinc)	Secondary Pollutant Reduction (Copper)
100 cfs	30 ac-ft (Ph 1: 15 AF) (Ph 2: 15 AF)	15.76 cfs	61.08 ac-ft	76.3% (443.7 lbs)	73.7% (126.0 lbs)



Project Details – Existing Conditions



Existing Conditions

- Infiltration Rate: 0.14 in/hr
- Groundwater Depth: 35 ft BGS
- Current Use: Park Space
- Owner: City of Long Beach

*Feasibility and stormwater capture studies done

*Alternative footprint sizes, treatment methods and diversion rates examined



Cost & Schedule

Phase	Description	Cost	Completion Date
Design	Final Design (30/60/90/100)	\$1,894,000	06/2022
Design	Public Outreach during Design	\$50,000	06/2022
Design	Environmental Planning (CEQA) and Permitting	\$379,000	06/2022
Design	Agency Management (Design)	\$497,000	06/2022
Construction	Construction Cost Phase 1	\$18,916,000	09/2024
Construction	Construction Cost Phase 2	\$18,970,000	09/2026
Construction	Construction Administration and Design Support*	\$3,790,000	09/2026
Construction	Construction Survey*	\$40,000	09/2025
Construction	Agency Management (Construction)*	\$450,000	09/2026
TOTAL		\$45,098,203	

* Agency PM, Construction Administration and Design Support, and Construction Survey divided by half for Phase I and Phase II

Annual Costs

Maintenance Cost:	\$153,000
Operation Cost:	\$50,000
Monitoring Cost:	\$25,000
Project Life Span:	50

Life-Cycle Costs

Life-Cycle Cost for Project:	\$50,568,812
Annualized Cost for Project:	\$2,107,569



Funding Request

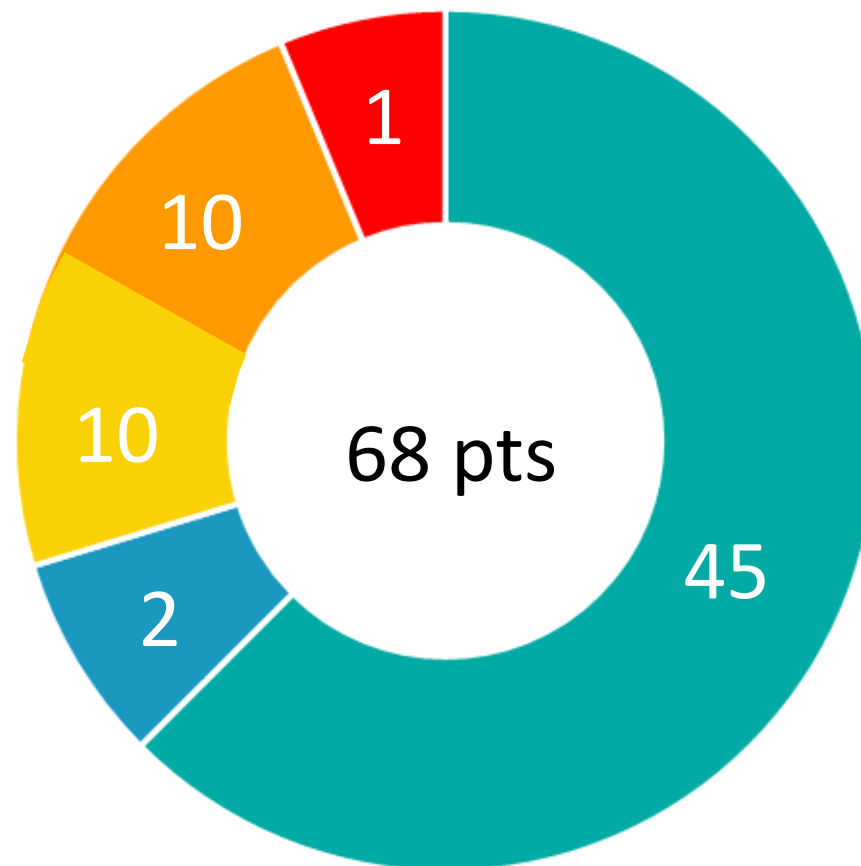
Year	SCW Funding Requested	Phase	Efforts during Phase and Year
1	\$2,821,000	Design	Professional design services (30/60/90/100) Environmental planning (CEQA), Permitting, Community outreach, agency project management (design phase)
2	\$10,536,500	Construction**	Construction Phase 1 - Year 1 , Agency project management, construction administration, staking, survey
3	\$10,516,500	Construction**	Construction Phase 1 – Year 2 , Agency project management, construction administration, construction survey
TOTAL	\$23,874,000		

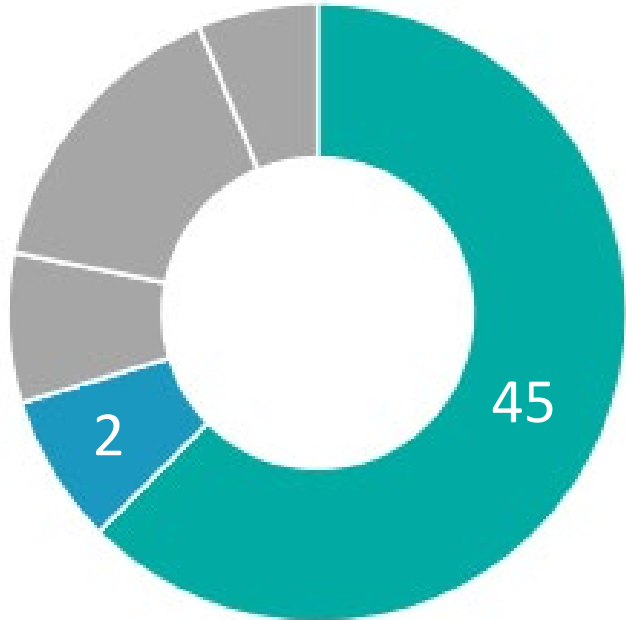
**Construction Cost could be expanded over 3-year period at \$7,017,667 per year, or alternatively, funding for DESIGN ONLY could be granted at this time to allow for applications for Grant Funding of Construction, or part of Construction.

- Cost Share = The LCC Watershed Group funded the Feasibility Study for this project. Future funding opportunities to be explored.
 - \$228,000 for O&M/Monitoring – Year 4 and beyond



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

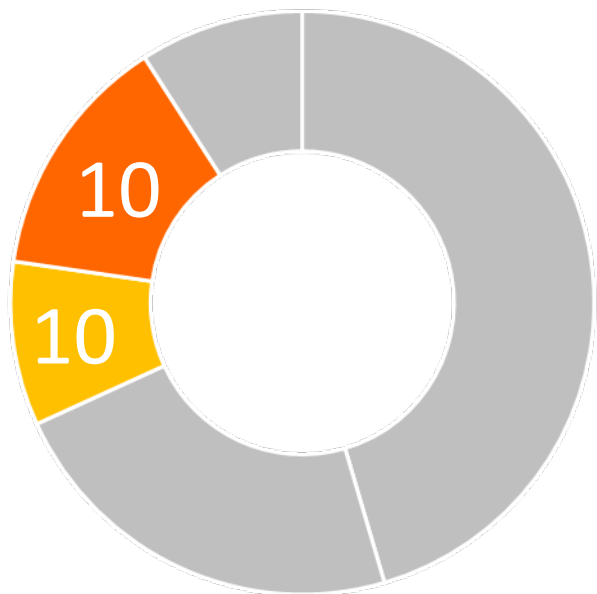




- **Primary Mechanisms**
 - Runoff/pollutant capture
 - Filtration
 - Connection to the park and/or golf course irrigation system
 - Connection to sanitary sewer
- **Wet** weather project type
- Tributary Area: **1,881 acres**
- 24 Hour Capacity: **61.08 ac-ft (Phase I and II)**
- Pollutant Load Reduction
 - Primary Pollutant (Zinc) – **76.3% (443.7 lbs-annual avg)**
 - Secondary Pollutant (Copper) – **73.6% (126.0 lbs-annual avg)**
- Average Annual Capture for Water Supply: **38 ac-ft**
- Water Supply Use
 - **Onsite Irrigation Use** for Heartwell Park and use of stormwater to fill the Heartwell Lake
- Water Supply Cost Effectiveness : **\$55,462/ac-ft**



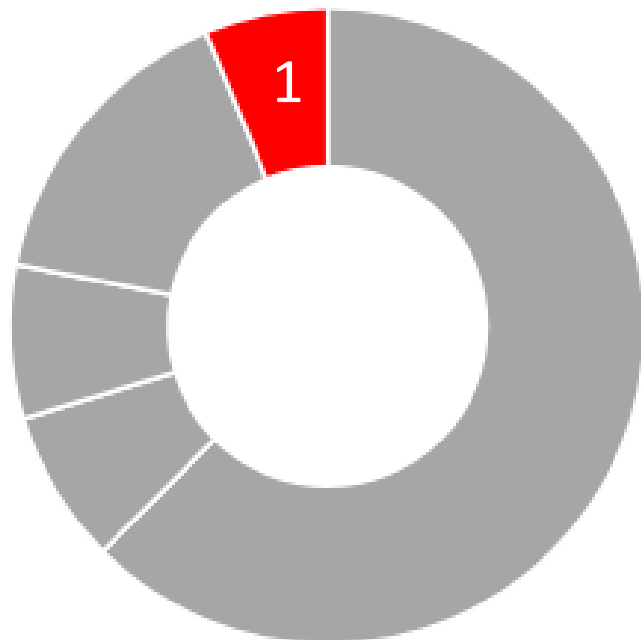
Community Investment Benefits and Nature Based Solutions



- Community Investment Benefits
 - Improves flood management, flood conveyance, or flood risk mitigation
 - Creates parks, habitat or wetland
 - Improves public access to waterways
 - Creates or enhances new recreational opportunities
- Nature Based Solutions
 - Project implements natural processes and utilizes natural materials
 - Integrated wetlands cells within the Lake
 - Treatment within recirculating stream and for lake overflows to the Clark Channel
 - Post-construction landscaping includes native trees, shrubs, and grasses



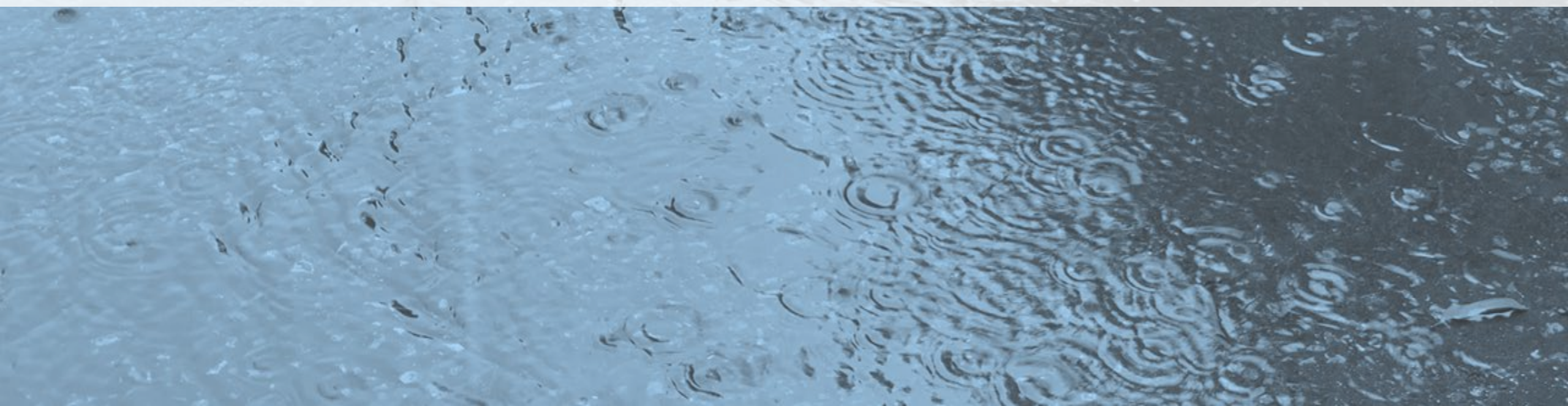
- Leveraging Funds
 - Feasibility Study Cost funded by the LCC Watershed Group.



- Community Support
 - City of Long Beach will conduct an active Public Outreach effort
 - Local, community-based support from
 - Conservation Corps of Long Beach
 - Los Cerritos Wetlands Authority



Questions?





Artesia Park Stormwater Capture Project

Infrastructure Program

Fiscal Year 2022-2023

Lower San Gabriel River Watershed Area

City of Artesia

Presented by Okina Dor & John Hunter



Project Overview

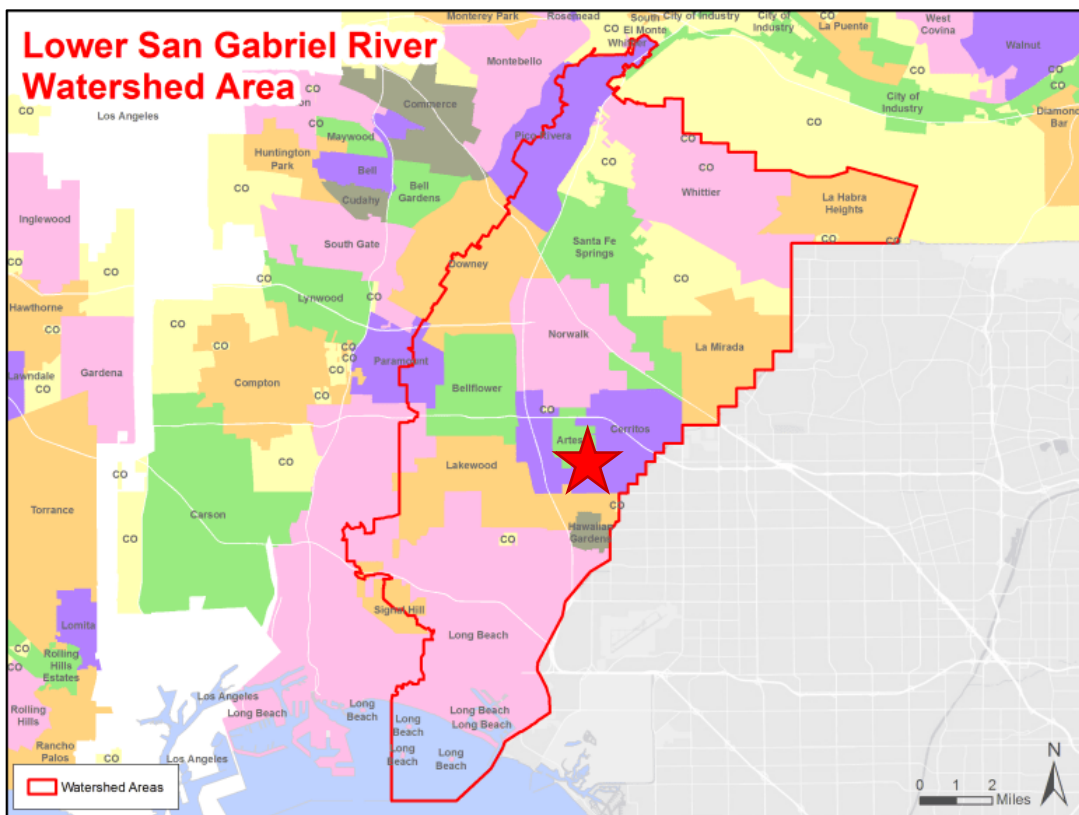
Regional stormwater capture facility located at Artesia Park beneath the open space of the existing park surface

- This project was the runner-up during the Round 2 (FY 2021-2022) SIP deliberations
- Objectives:
 - Improve water quality within the Coyote Creek and San Gabriel River Watersheds and achieve compliance with the Lower San Gabriel River Watershed Management Program (LSGR WMP)
 - Potentially offset potable water supply (possibly through capture and use or water recycling)
 - Mitigate flooding issues on Clarkdale Avenue
 - Invest in community by enhancing an existing park, including a new field surface and nature-based solutions
 - Benefit nearby and downstream disadvantaged communities
- Project Status: Design
- Funding Requested: \$1,250,502

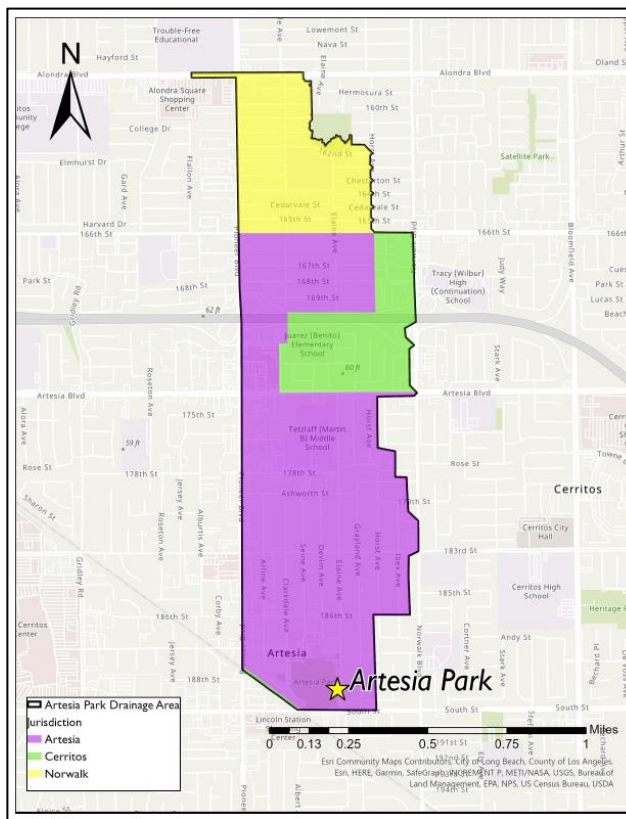




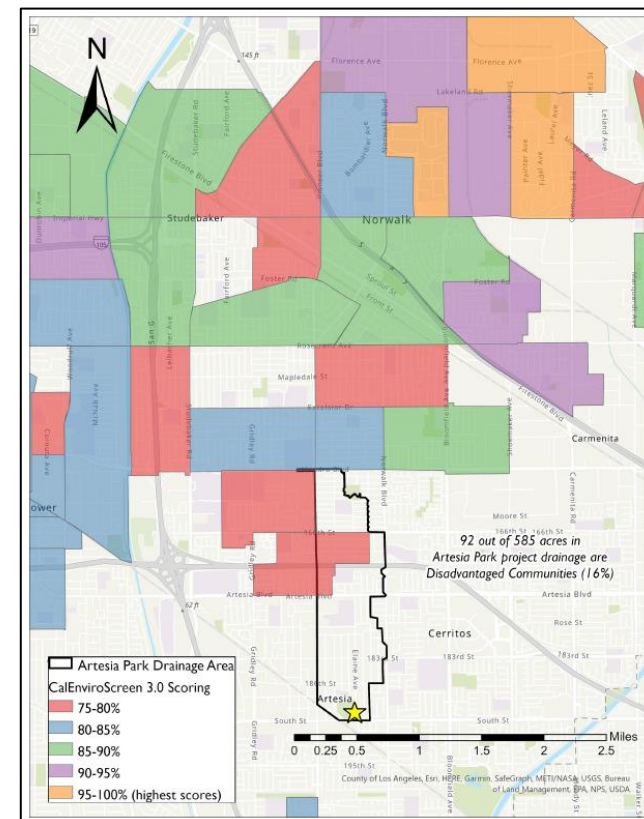
Location



The project is located in the City of Artesia, within the Lower San Gabriel River Watershed Area



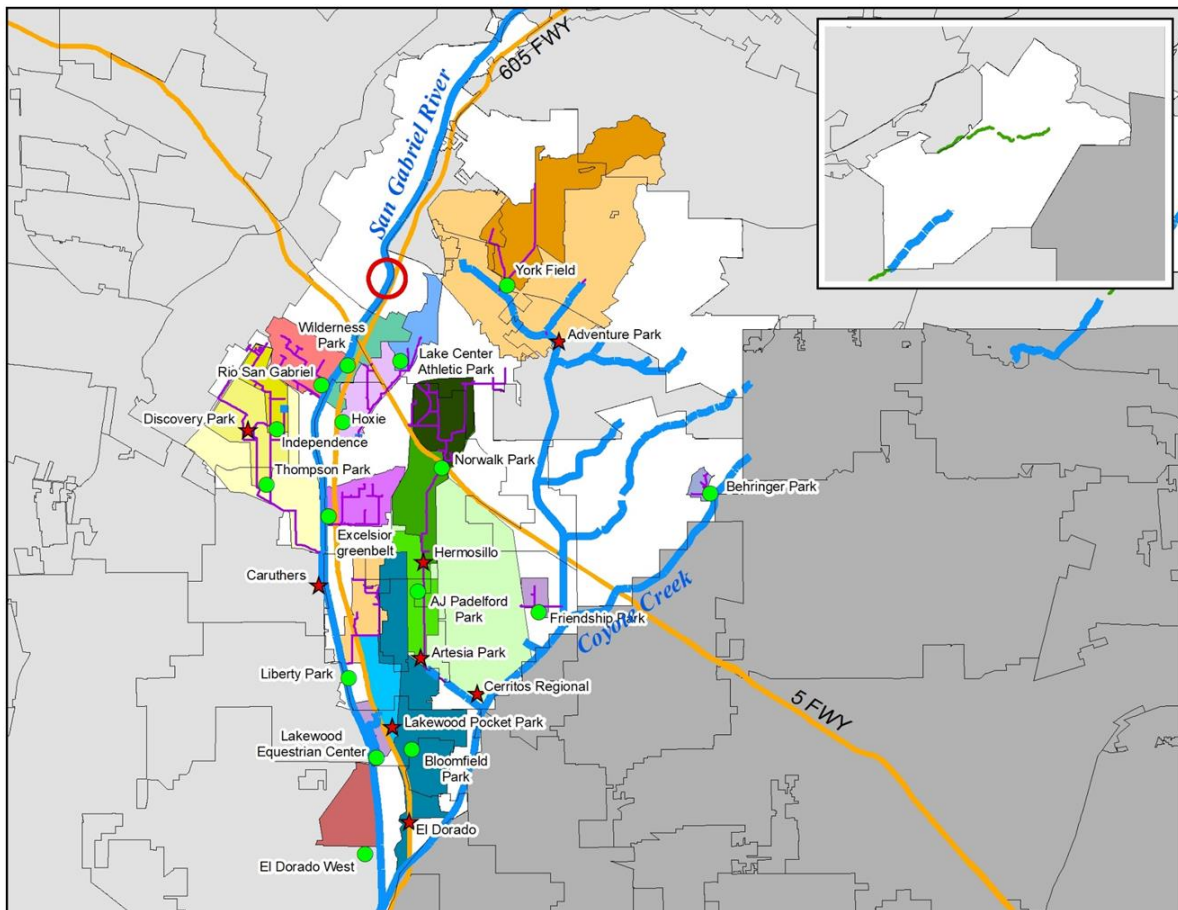
The project has a drainage area of 585 acres, including portions of Artesia (388 acres), Cerritos (86 acres), and Norwalk (111 acres)



The project is located less than half a mile south of a DAC; additionally, downstream DACs will benefit from improved water quality



Background



The project is part of the overall Stormwater Corridor approach being taken by the LSGR Watershed Management Group

- The site was identified in the LSGR WMP (approved in 2015) and has high potential due to the significant drainage area, location of the adjacent storm drains, and available development space
- The project was uploaded to the Opti database for inclusion in the GLAC IRWMP
- The project will therefore implement the LSGR WMP and represent progress toward compliance with the MS4 Permit and applicable TMDL milestones
- The LSGR Watershed Management Group funded geotechnical testing and the development of a Feasibility Study (including 10% design plans) in the first half of 2020
- Local DACs will benefit from improved park facilities, notably including the revitalized baseball fields
- Design will comply with all LA County anti-displacement avoidance measures



Existing Site Conditions



- The site operates as a park and currently contains baseball/softball fields, basketball courts, bike route stop/rest area, outdoor fitness zone, playground, various picnic shelters, restrooms, concession stands, and a tennis court in addition to the Artesia Community Center, Artesia Library, and groundwater pump station
- Left: southern park boundary
- Center: existing basketball courts and anticipated location of a portion of the subsurface storage structure (currently prone to flooding during rain events)
- Right: existing baseball fields and anticipated location of a portion of the subsurface storage structure



Details

- Per the preliminary concept plan, the scope of the project will include:
 - Diversion and pre-treatment system
 - Underground storage reservoir (5.0 acre-feet)
 - Filter and discharge system
 - Ephemeral biofiltration creek and bioretention garden
 - Low impact development (LID) BMPs in the parking lots and pathways
 - Surface improvements (e.g., replacement/creation of fields, vegetation)
- Preliminary hydrological analyses and a utility review have been conducted
- Stormwater capture optimization methods were used when considering project alternatives





Cost & Schedule

Phase Costs			
Phase	Description	Cost	Completion Date
Design	Final Design (30/60/90/100)	\$ 931,381.00	09/2023
Design	Environmental Planning (CEQA) and Permitting	\$ 186,276.00	09/2023
Design	Agency Management (Design)	\$ 82,845.00	09/2023
Design	Public Outreach Campaign	\$ 50,000.00	09/2023
Construction	Construction Cost	\$ 9,313,806.00	09/2025
Construction	Construction Administration and Design Support	\$ 931,381.00	09/2025
Construction	Agency Management (Construction)	\$ 150,000.00	09/2025
Construction	Construction Survey	\$ 20,000.00	09/2025
Total Funding:		\$ 11,665,689.00	

Annual Cost Breakdown	
Annual Maintenance Cost:	\$ 103,000.00
Annual Operation Cost:	\$ 25,000.00
Annual Monitoring Cost:	\$ 15,000.00
Project Life Span:	50 years



Funding Request

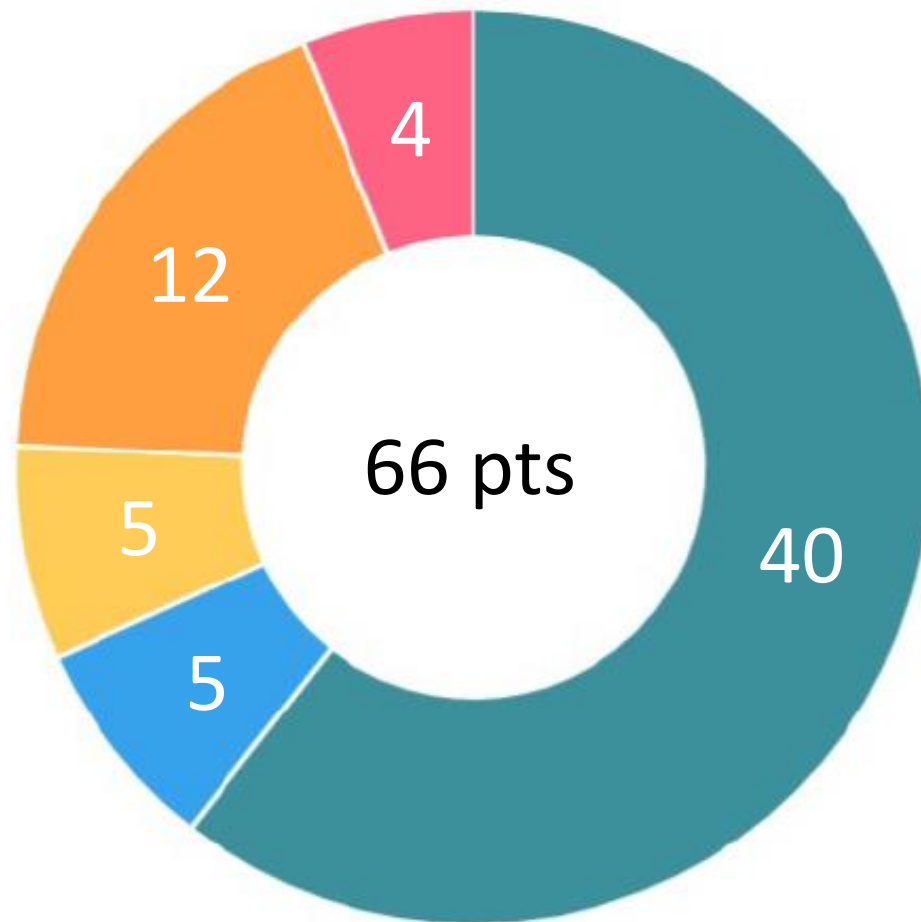
Funding Requested by Year & Phase			
Year	SCW Funding Requested	Phase	Efforts during Phase and Year
Year 1	\$ 186,276.00	Design	Environmental Planning (CEQA) and Permitting
Year 1	\$ 931,381.00	Design	Professional Design Services (30/60/90/100)
Year 1	\$ 82,845.00	Design	Agency Project Management (Design Phase)
Year 1	\$ 50,000.00	Design	Public Outreach Campaign
Total Year 1	\$ 1,250,502.00		
Total Funding:	\$ 1,250,502.00		

Upon completion of final design, future SCWP funding requests will be submitted for project construction, operations and maintenance, and monitoring



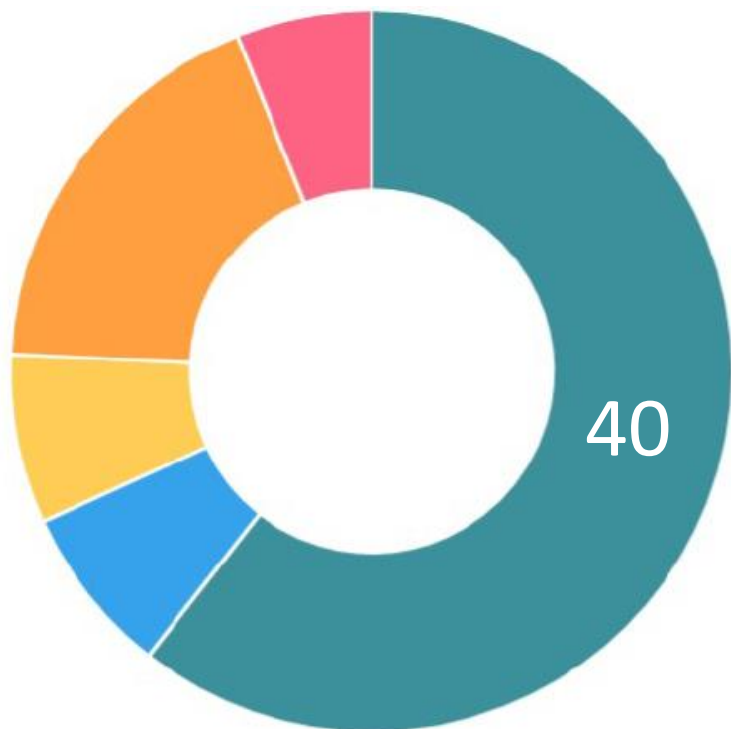
Preliminary Score

Water Quality Water Supply Community Investment Nature-Based Solutions Funds & Community





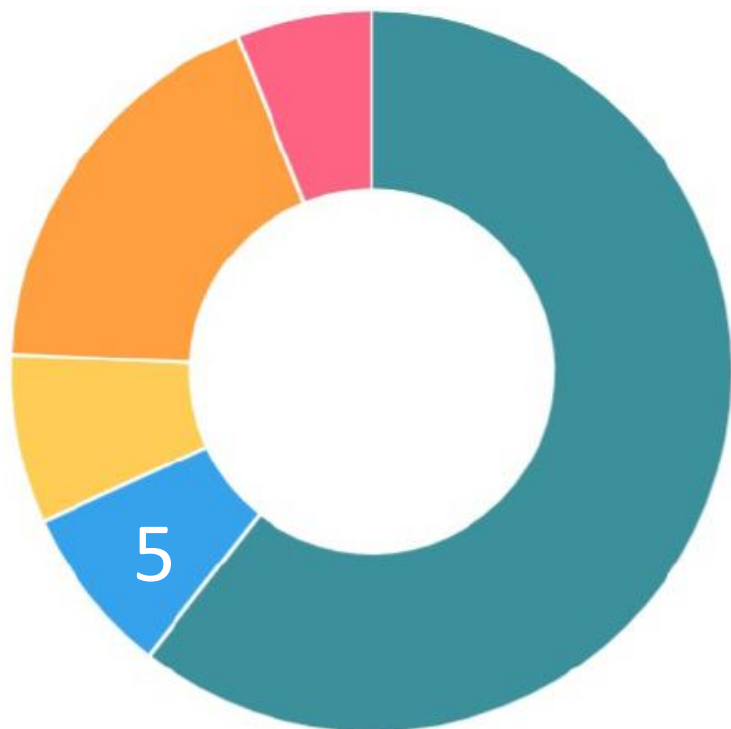
Water Quality Benefits



- The project:
 - Will achieve its water quality objectives through runoff/pollutant capture, filtration, and release
 - Typically has adequate available storage in the BMP during dry conditions to capture all dry weather flows
 - Has a drainage area of 585 acres, encompassing portions of the Cities of Artesia (388 acres), Cerritos (86 acres), and Norwalk (111 acres)
 - Will address zinc and bacteria (the primary and secondary limiting pollutants identified in the LSGR WMP, respectively) in addition to other pollutants
- The proposed storage reservoir has a capacity of 5.0 acre-feet
- Low impact development (LID) components such as permeable pavements and bioretention areas will be installed in the parking lots and pathways to treat the local runoff



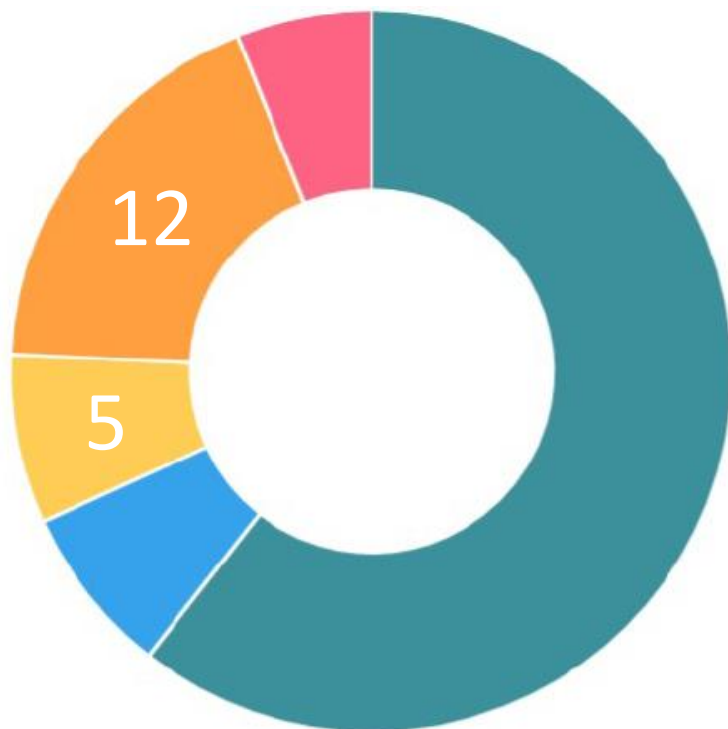
Water Supply Benefits



- The project has potential to provide multiple benefits at the nexus of water supply and stormwater including:
 - On-site irrigation use: the design process will explore the possibility of utilizing captured flows to offset on-site irrigation needs at the park and along the ephemeral stream
 - Water recycling: there are sanitary sewer lines in the vicinity of the project, but further capacity study would be required to determine if discharges to these would be feasible
- The project may therefore reduce reliance on local groundwater (currently an on-site well is used) and increase drought resiliency
- LID BMPs such as permeable pavement in the parking lots will treat local runoff



Community Investment Benefits & Nature-Based Solutions



- Flood management:
 - The system's detention capabilities could improve the flood retention capabilities of the whole storm drain system
 - A new catch basin will be installed to mitigate flooding issues that have impacted Clarkdale Avenue on the west side of the park (including City Hall)
- Enhanced park space and recreational opportunities:
 - The park surface (including the baseball/softball outfields) will be replaced as the storage structure is installed
 - The ephemeral bioretention stream will culminate in a bird and butterfly garden
 - **Notably, the City has a high park need: it currently has 1 park acre per 1,000 acres, while the county average is 3.3 park acres per 1,000 acres**
- Reduced heat island effect and increased shade: landscape plans post construction include additional native trees, shrubs, and grasses to be installed
- Additional nature-based solutions: permeable pavements and bioretention planters will be installed in the parking lots



Proposed Ephemeral Stream/Bioswale



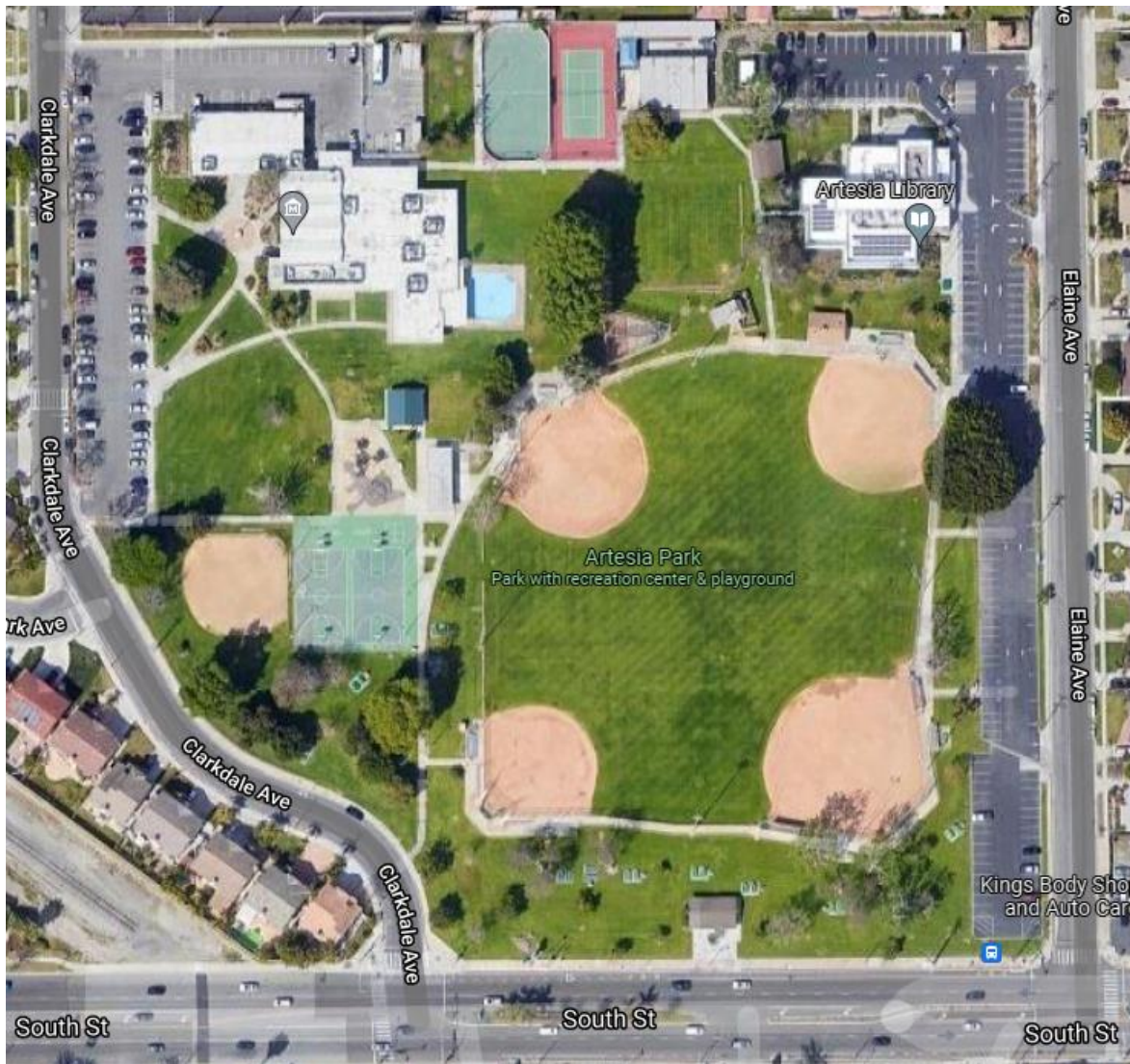
Before



After



Proposed New Trees/Vegetation



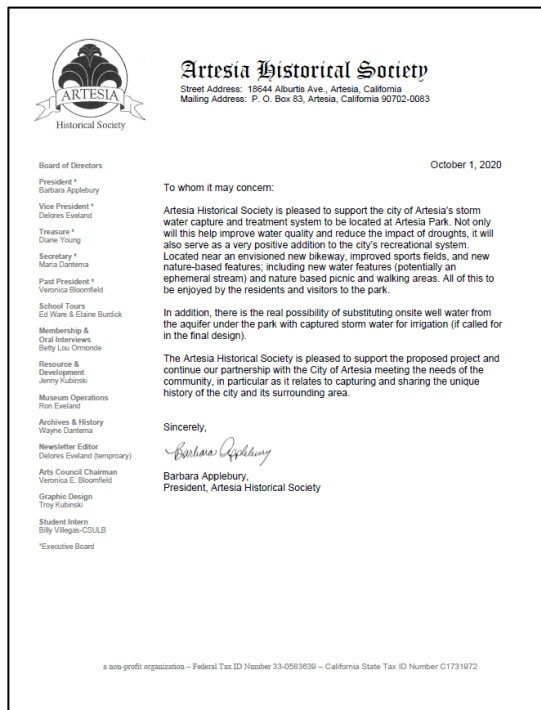
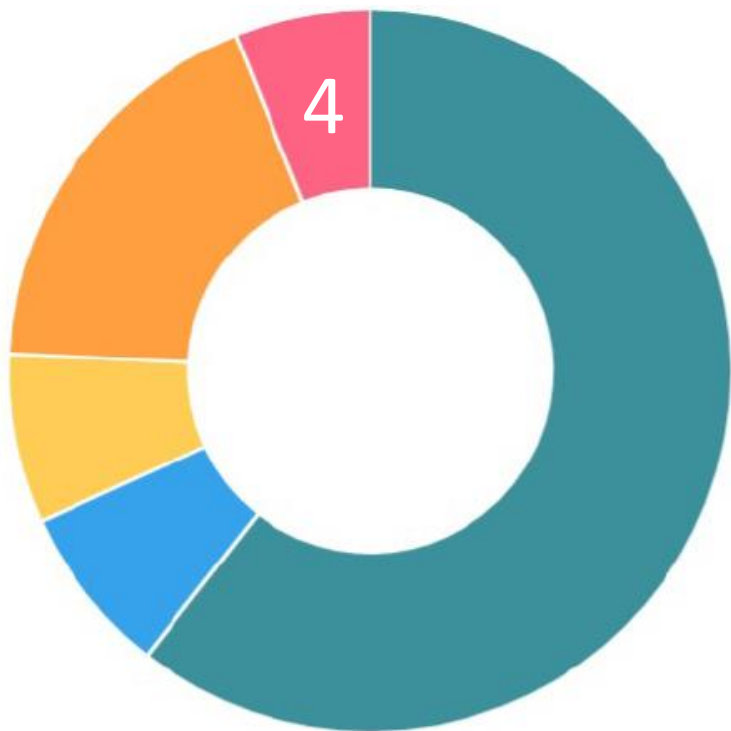
Before



After



Community Support



- The project has received letters of support from the Artesia Historical Society and Friends of the Artesia Library
- The funding request includes \$50,000 for public outreach efforts, which will include community development meetings and informational signage



Leveraging Funds

- The LSGR Watershed Management Group provided funding for the Feasibility Study (including 10% design plans) and the preliminary geotechnical testing for the project
- The City will utilize its municipal allocation of the Safe Clean Water Program to provide its share of the design costs for the project
- The City will continue to pursue additional funding sources to support the construction costs of the project; already, the City has applied for an Urban Flood Protection grant through the California Natural Resources Agency, but was unsuccessful; completion of 100% design will aid these efforts



Questions?