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# Primary Components

The San Gabriel Valley Council of Governments (SGVCOG), on behalf of the County of Los Angeles (County) and the Cities of Alhambra, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, South Pasadena, and Temple City is implementing the Load Reduction Strategy (LRS) Projects for the Rio Hondo River and Tributaries. The purpose of the Project is to help the agencies comply with the final dry-weather Water Quality Based Effluent Limitations (WQBELs), as specified by the Los Angeles River Bacteria Total Maximum Daily Load (TMDL). The Project includes the Alhambra Wash Dry-Weather Diversion, which will capture and treat runoff from Alhambra Wash, as shown in **Figure 1**. The Project's primary components will include:

- Diversion Structure
  - Rubber dam
  - Inlet structure
  - Diversion pipe
- Pump Station
- Pretreatment and Treatment System
- Building/Enclosure

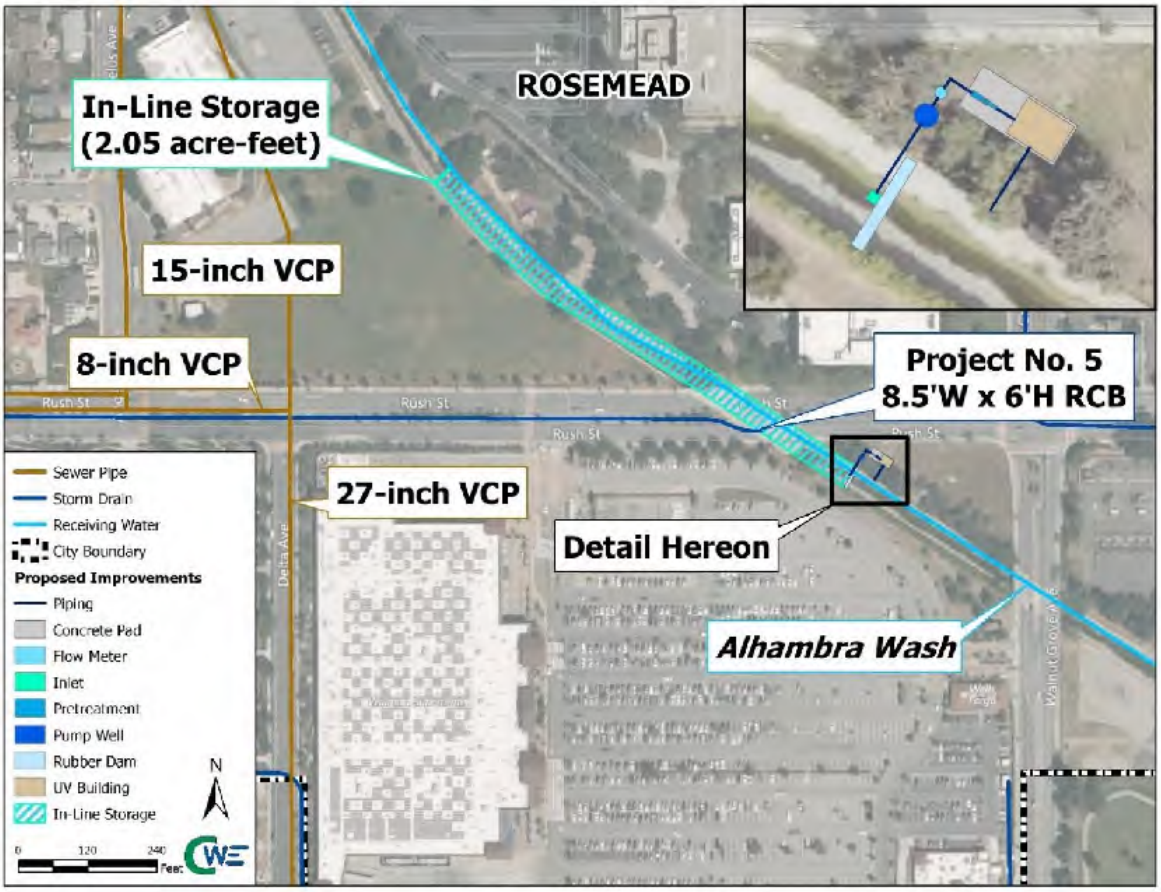



**Figure 1 Alhambra Wash Proposed Conditions Schematic**

# Design Elements

The improvements proposed at Alhambra Wash are illustrated in **Figure 1** and located near the intersection of Rush Street and Walnut Grove Avenue. The location of individual components is described below. Some of the improvements are within the adjacent property, which is owned by Southern California Edison. Opportunities to acquire the full property, partial property, or an easement will be further evaluated during the final design phase.

- Diversion structure – rubber dam and grated drop inlet within the channel and direct runoff to a gravity-driven pipe
- Pump station – belowground structure downstream of diversion system
- Pretreatment system – anticipated aboveground downstream of pump station
- Treatment system – located in enclosure/building
- Enclosure/building – house UV treatment system and rubber dam control structure

The Project will capture and treat runoff generated within the 11,120-acre drainage area shown in **Figure 2**. The Project will capture dry-weather runoff with a peak diversion rate of 1,000 gallons per minute (gpm) or 2.23 cubic feet per second (cfs).

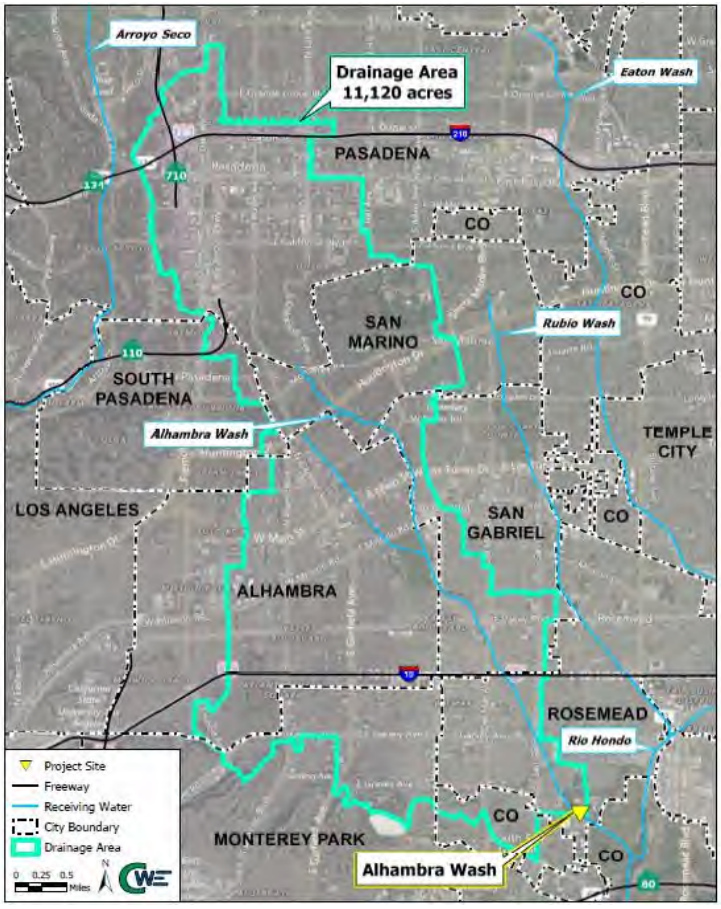



**Figure 2 Project Location and Drainage Area Map**

# Benefits

The Project aims to achieve the water quality goals identified in the Rio Hondo LRS, Los Angeles River bacteria TMDL, Upper Los Angeles River (ULAR) Enhanced Watershed Management Program (EWMP), and Los Angeles County Municipal Separate Storm Sewer System (MS4) Permit by enhancing water quality locally and in downstream water bodies. The Project provides multiple benefits, which are summarized below:

- Improve water quality locally and in the Rio Hondo and Los Angeles River
  - Reduce bacteria loading and discharges from the drainage system
  - Contribute towards meeting the Los Angeles River dry-weather bacteria TMDL targets
- Provide benefits in addition to water quality (community benefits)
  - Outreach and educational opportunities for the local community
  - Inform community of water quality challenges and strategies to improve it
  - Installation of permanent educational signage
  - Potential inclusion of trees and/or swale to increase shade and reduce heat island effect

# Outreach

To date, outreach on the Project has been limited to stakeholders. Several stakeholder meetings have been held, which have included the implementing Cities and other local agencies that may be impacted by the Project. Project information will be shared with the public during the engineering and construction phases to address concerns, answer questions, and give updates. Public outreach meetings are expected to be conducted virtually using an online platform. It is anticipated that the public and nearby residents will be notified about the meeting though online postings, postcards, and/or the local newspaper.

# Estimated Project Scoring

The Project has an estimated score of 65 points. Most of the points are earned from the water quality (dry) section as shown in **Figure 3** for addressing bacteria loading and other pollutants within the Rio Hondo and Los Angeles River. **Table 1** summarizes the points earned and includes a description of how the points were determined in the Safe Clean Water Program Module. Additional details are included in the Feasibility Study and funding application.

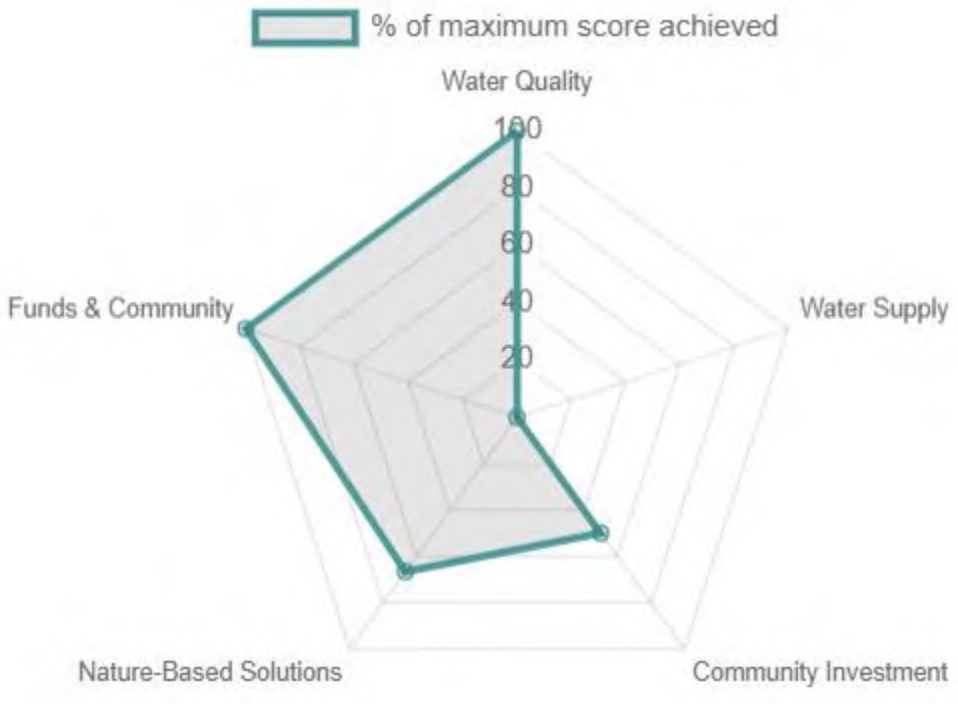
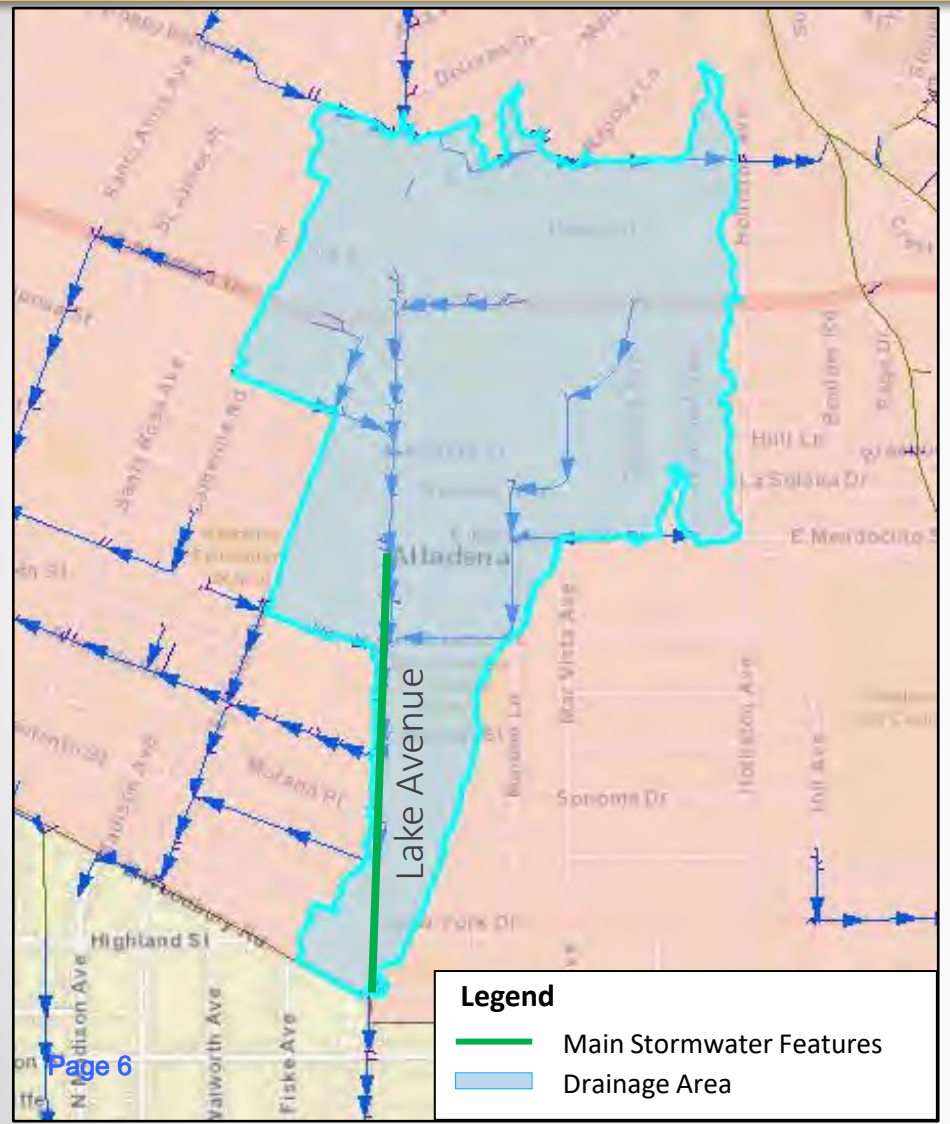


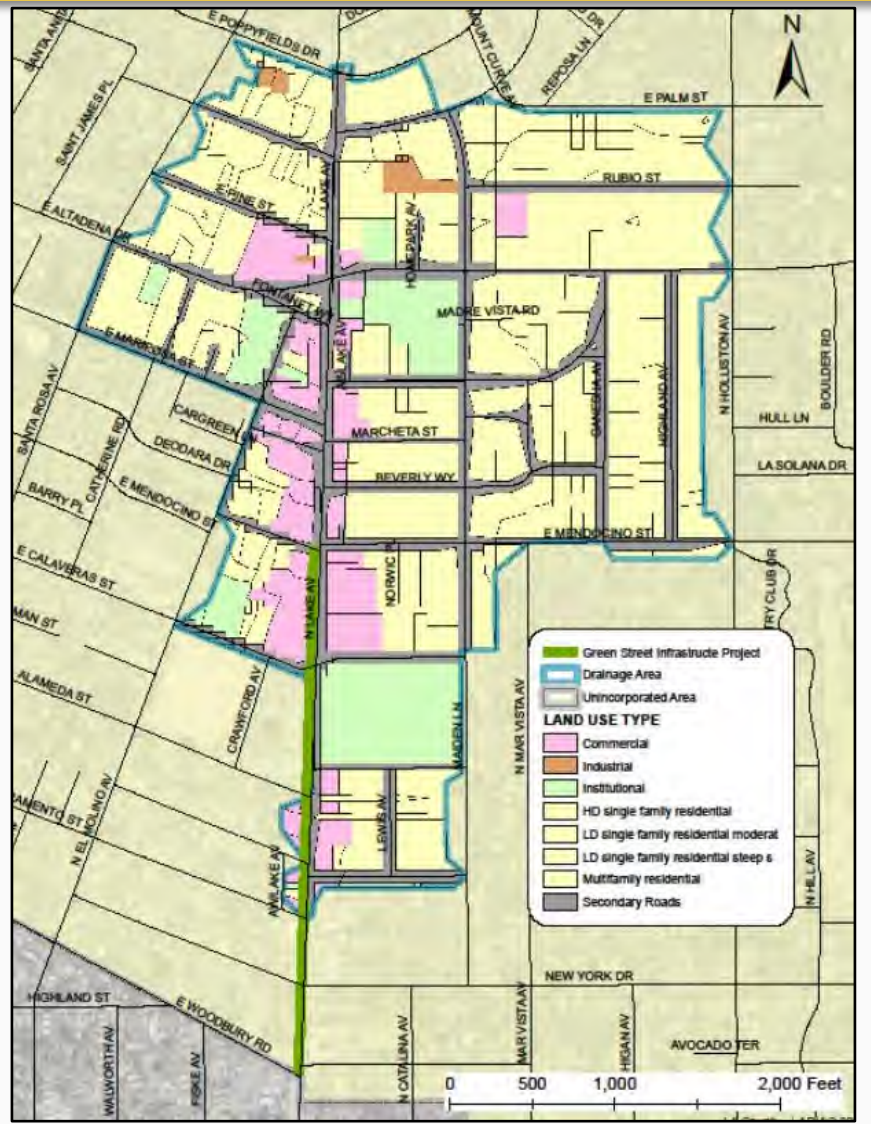

**Figure 3 Maximum Score of Each Scoring Section**

**Table 1 Summary of Project Scoring in Safe Clean Water Program Module**

| Category | Points | Description |
|---|---|---|
| Water Quality Wet + Dry (Part 1 and Part 2) | 40 | Project is expected to capture 100% of dry-weather runoff from a drainage area greater than 11,000 acres |
| Community Investment | 5 | Enhancing recreational opportunities, reducing heat island effect, and increasing shade through the planting of additional trees |
| Nature-Based Solutions | 10 | The pump well will promote infiltration, mimicing natural processes and natural materials will be used to plant trees and/or a swale |
| Leveraged Funding | 10 | At least 50% of the funding will be matched and the Project has support form local non-governmental organizations or community-based organizations |
| **Total:** | **65** | |

# Altadena – Lake Avenue Green Improvement Project Location





## Project Location

- Upper Los Angeles River
- Unincorporated Community of Altadena
- Lake Avenue between Mendocino Street and Woodbury Road
- Drainage Area = 262 acres
- Mostly residential and commercial
- DAC within ½ mile of project

# Altadena – Lake Avenue Green Improvement Project Design Elements/Benefits

## Project Design Elements

- 3 Diversion Points (from main storm drain line)
- Pretreatment Devices: Debris Separating Baffle Boxes
- 55 Drywells for infiltration
- 600 square feet of bioswales
- 2,640 square feet of pervious pavement

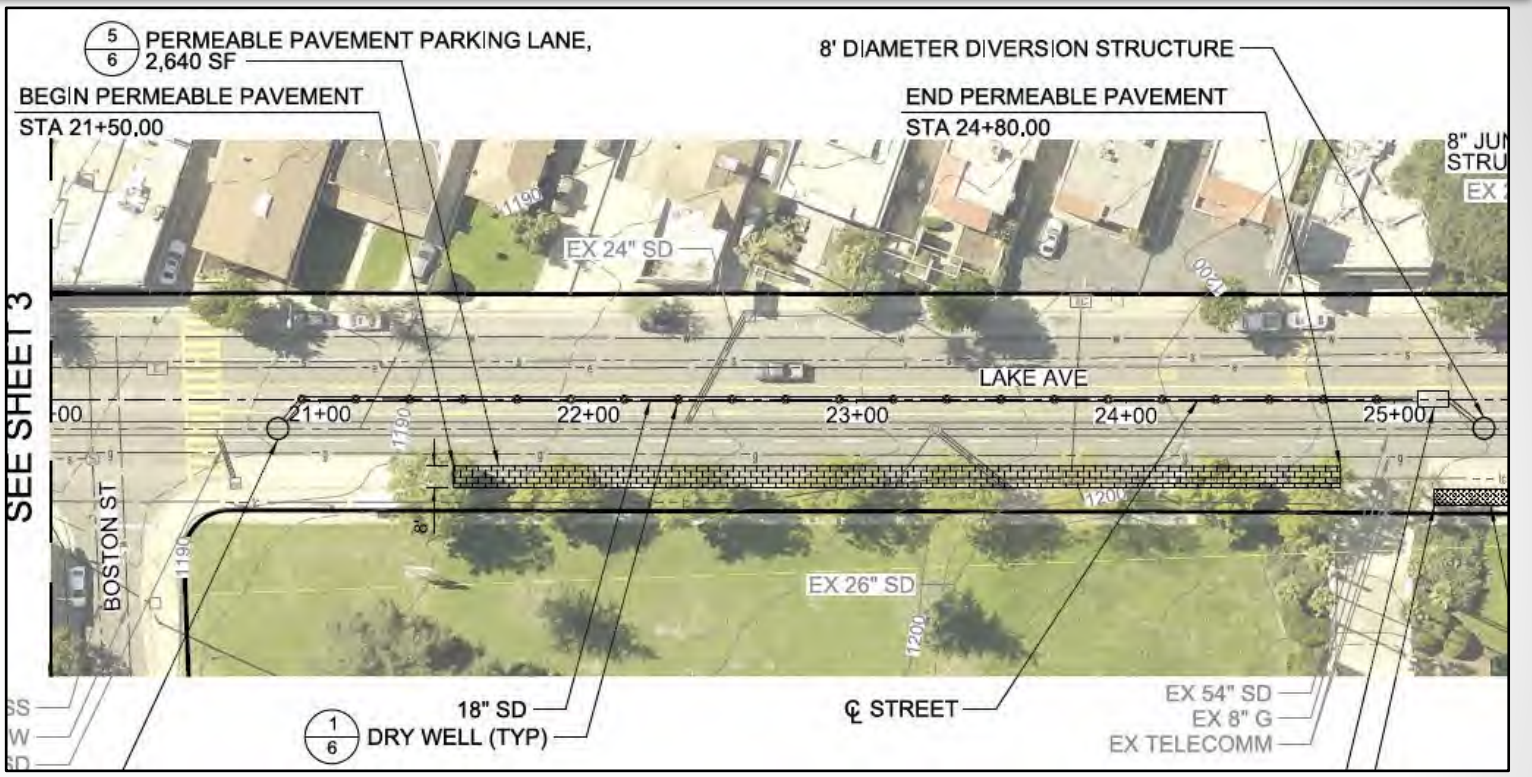
**24-hour BMP Capacity > 14 acre-feet**

## Project Benefits

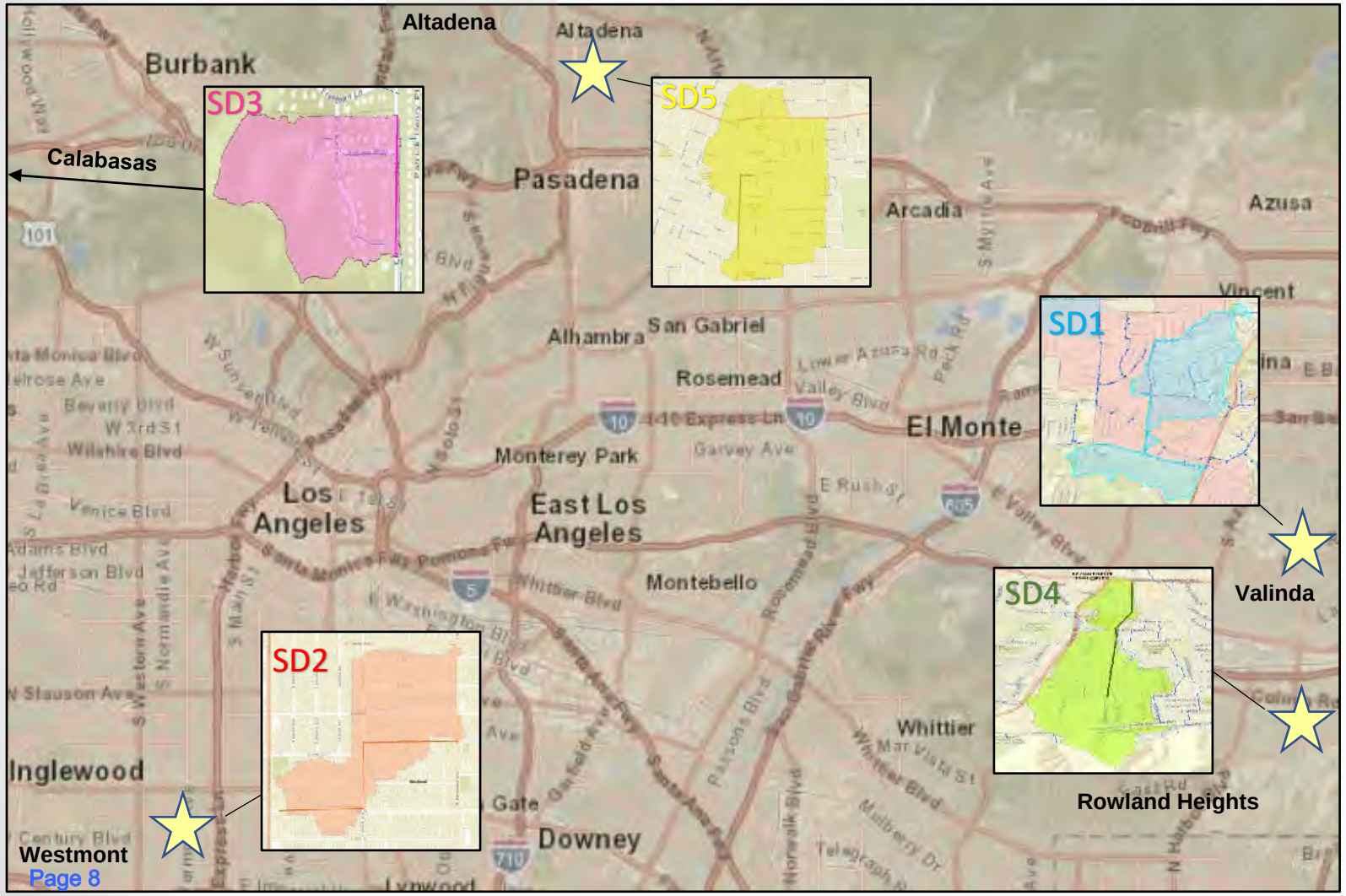
- **Water Quality**: removing pollutants from stormwater before entering Arroyo Seco and Los Angeles River
  - Primary Pollutant: Total Zinc = 67% reduction
  - Secondary Pollutant: Trash = 100% reduction

- **Water Supply**: replenishing the Raymond Groundwater Basin
  - 196 acre-feet per year for water supply

- **Community Enhancement:**
  - Improve localized flooding
  - Increase vegetation and create new habitat
  - Reduce heat island effect and increase shade
  - Enhance traffic safety




# Altadena – Lake Avenue Green Improvement Project Outreach



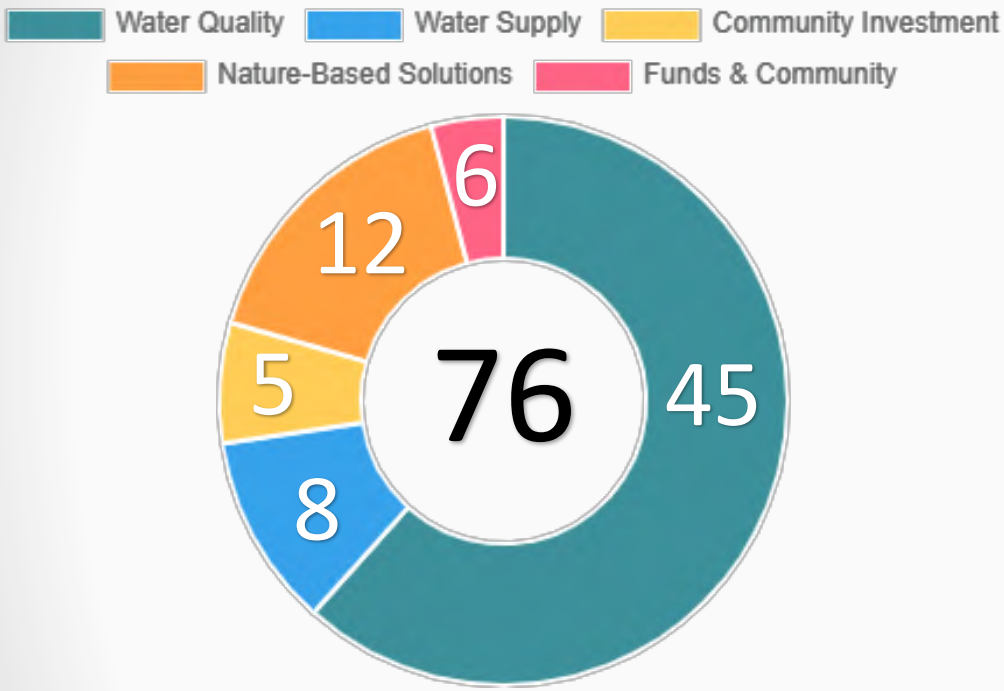

## Green Street Master Plan

- Objective: to identify the most strategic and cost-effective locations for green street projects
- Circulated potential green street sites to the Green Infrastructure Feasibility Team, consisting of numerous divisions within Los Angeles County Public Works and Los Angeles County Parks and Recreation
- Several sights selected for each Supervisorial District based on the needs of all stakeholders
- Met with Supervisorial District 5 to identify areas in need of improvement and enhancement
- Green street site along Lake Avenue in the unincorporated community of Altadena selected as signature green street project.

## Future Public Outreach

- **Community Meetings** will be held during the design phase of the project to receive feedback from the residents to incorporate in final plans
- **COVID Implications:** due to the recent pandemic, community meetings will be held virtually unless State orders change.

# Altadena – Lake Avenue Green Improvement Project Scoring




| Scoring Section | Score | Score Calculation |
|---|---|---|
| Water Quality Wet + Dry Weather Part 1 | 20 | 14.1 AF/$9.9M = 1.4 AF capacity/$-M<br>> 1.0 AF/$-Million = 20 pts |
| Water Quality Wet + Dry Weather Part 2 | 25 | Primary Pollutant (Zinc) = 67% > 50% = 15 pts<br>Secondary Pollutant (Trash) = 100% > 80% = 10 pts |
| Water Supply Part 1 | 3 | $412,592/196 AF = $2,105/AF = 3 pts |
| Water Supply Part 2 | 5 | 196 AF/year = 5 pts |
| Community Investment (CI) | 5 | Project improves flood management (1), creates new habitat and wetlands (2), and reduces heat local island effect (3). 3 CI Benefits = 5 pts |
| Nature-Based Solutions | 12 | Project implements natural processes (5 pts), utilizes natural materials (5 pts), and removes 54% of impermeable area (2 pts). |
| Leveraging Funds Part 1 | 6 | >50% Funding Matched = 6 pts |
| Leveraging Funds Part 2 | N/A | |
| Totals | 76 | |

# Primary Components

Amigos de los Rios (AdlR) is a 501c3 organization whose mission is to expand natural infrastructure and create effective multi-benefit urban greening demonstration projects throughout eastern L.A. County. As part of our vision, AdlR has over the past five years outlined and developed plans for a project called the Altadena Pedestrian Loop Project, a series of interconnected streets, parks, civic spaces linked by urban greening and improved natural infrastructure. The Project will capture and infiltrate surface runoff through permeable pavement as shown in **Figure 1**. The Project's primary components will include:

- Bioretention systems
  - Rain Gardens
- Green medians
- New landscaping (native trees and plants)
- Pervious pavement
  - Parking areas
  - Cross walk
  - Intersection
  - Gutters

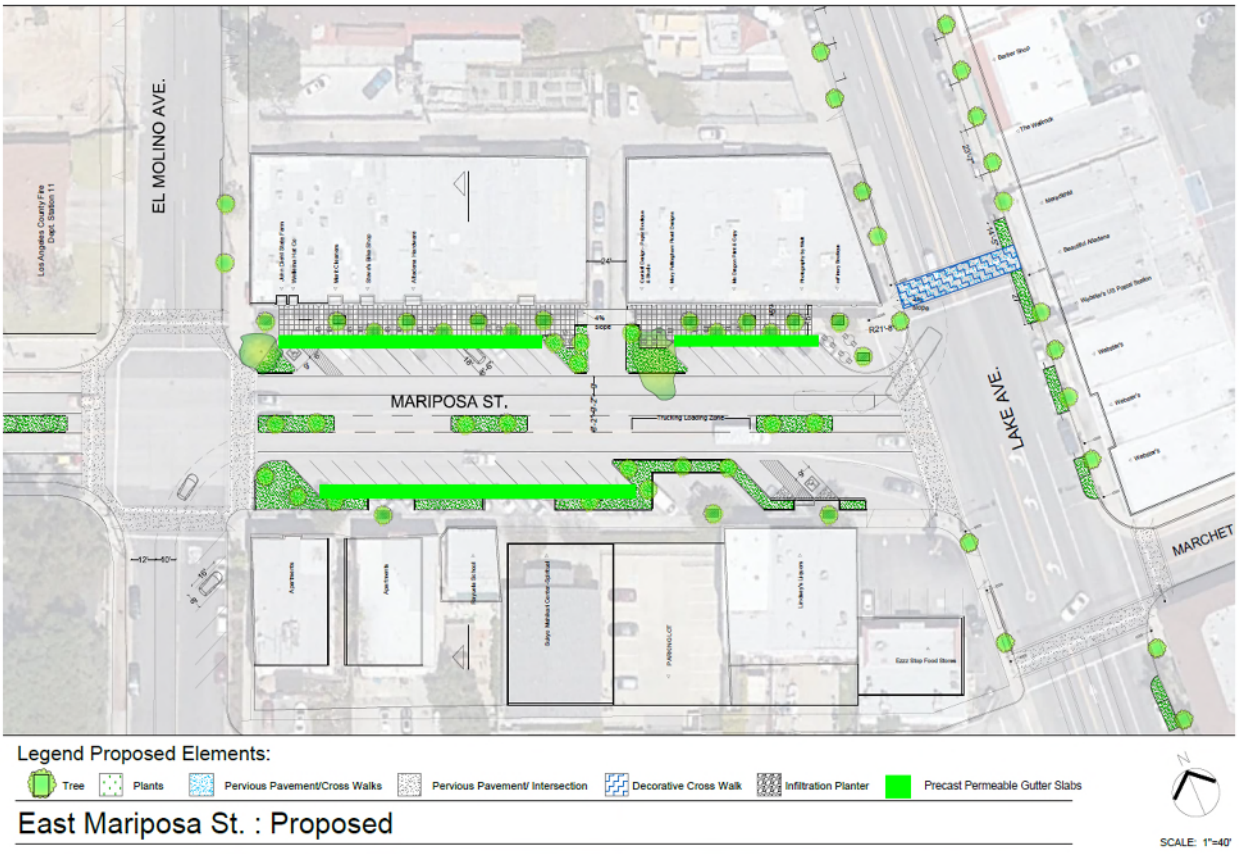



**Figure 1 Project Concept**

# Design Elements

The Project is located on Mariposa Street between El Molino Avenue and Lake Avenue as illustrated in **Figure 1**. Improvements are located as follows:

- Permeable surfaces total approximately 10,600 square feet (gutter, parking spaces, intersection)
- Pervious pavement cross walk on Lake Avenue
- Tree wells and LID infiltration planters
- Green median and/or rain gardens

The Project will capture and infiltrate runoff generated within the drainage area shown in **Figure 2**, which is an equivalent drainage area of approximately 2.83 acres. The single storm capture volume for the 85$^{th}$ percentile 24-hour storm is expected to be the following:

- Approximately 11,003 cubic feet
- Discharge: 0.7856 cfs (1.2 inch rainfall depth)


**Figure 2 Project Location and Drainage Area Map**

# Benefits

The Project aims to achieve the water quality goals identified in the Upper Los Angeles River (ULAR) Enhanced Watershed Management Program (EWMP) by enhancing water quality locally. The Project provides multiple benefits, which are summarized below:

- Improve water quality locally and in downstream waterbodies
  - Reduce bacteria and metals discharges from drainage system
- Enhance transportation corridor
  - Installation of decorative crosswalk
  - Construction of green medians
  - Increase green space in parkways
- Create opportunities for education and outreach in local communities
  - Inform community of water quality challenges and strategies to improve it
  - Installation of permanent educational signage
  - Implementation of community meetings
- Provide enhanced environment for native species through the installation of native vegetation
- Improve street parking through native landscaping and permeable pavement
- Reduce intersection flooding

# Outreach

AdlR is headquartered in Altadena for past 18 years and has developed this project vision in collaboration with local community stakeholders including: Altadena Town Council, Altadena Safe Streets Committee, Local Students, Businesses, Service Organizations and Community Based Organizations focused on healthy sustainable 'livable' communities and environmental resources protection. The proposed Altadena Mariposa Green Street Demonstration project (Project) is a key feature of the larger overall urban greening project. The Project consists of collaborative designing and implementing multi-objective Green Street elements along a corridor of Mariposa Avenue between El Molino Avenue and Lake Avenue. Supporters include Youth Conservation Corps members and Emerald Necklace Youth Stewards who will participate in the project greening implementation: 5 Altadena Community Service Groups, 9 Local Environmental & Health Community Nonprofits, 4 local chapters of National Environmental Nonprofits, 11 Environmental Education & Research Institutions, and 14 Local Mariposa Street Businesses. This type of civic 'multi benefit' project to improve outdoor spaces for pedestrians in a time of COVID really resonates with community stakeholders. Ongoing Project information will be shared with members of the Altadena Safe Streets Committee and engaged community stakeholders. AdlR will host events that follow COVID safety protocol to continue collaborative work with stakeholders and nearby residents on the project. We will use existing channels that we have developed and including social media online postings, emails, postcards, and the local newspaper.

# Estimated Project Scoring

The Project has an estimated score of **70 points**. Most of the points are earned from the water quality (wet and dry) section as shown in **Figure 3** for addressing bacteria loading and other pollutants within the Los Angeles River. **Table 1** summarizes the points earned and includes a description of how the points were determined in the Safe Clean Water Program Module. Additional details are included in the funding application.

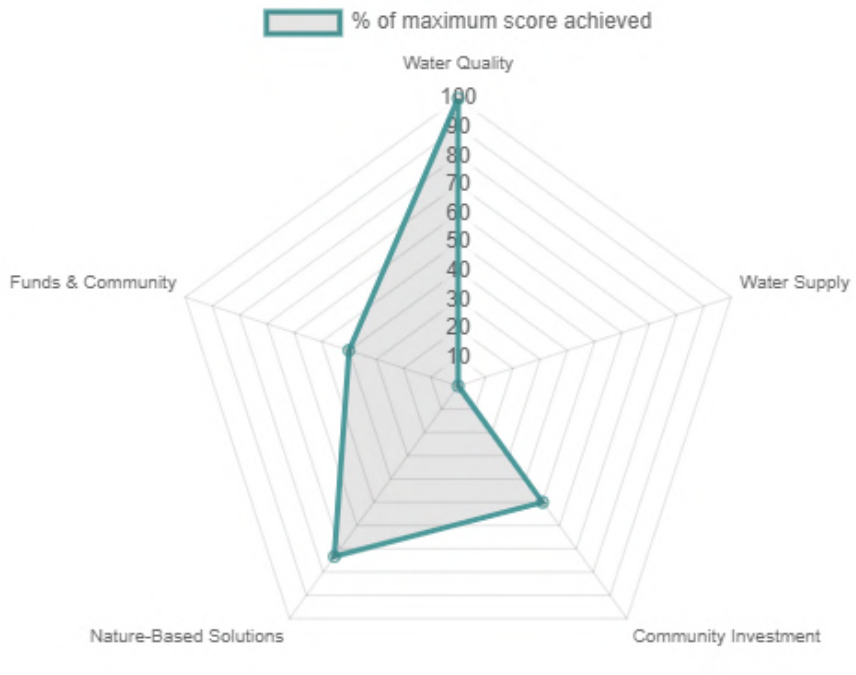



**Figure 3 Maximum Score of Each Scoring Section**

**Table 1 Summary of Project Scoring in Safe Clean Water Program Module**

| Category | Points | Description |
|---|---|---|
| Water Quality Wet + Dry (Part 1 and Part 2) | 50 | Cost effective project when comparing volume capture to total cost and reduces bacteria and other pollutant loading to the Los Angeles River |
| Community Investment | 5 | Reducing local island effect and increasing shade through the planting of additional trees |
| Nature-Based Solutions | 11 | Replacing asphalt with permeable pavement, enhancing the landscape with additional trees and vegetation, and promoting infiltration, which naturally occurred prior to development. |
| Leveraged Funding | 4 | The Project demonstrates strong support from local Non-Profit Organizations and Community-Based Organizations |
| **Total:** | **70** | |

### 4.5.8 Lower Arroyo Park

Lower Arroyo Park is located within the City of South Pasadena in an area that drains to Arroyo Seco. A channelized portion of Arroyo Seco runs through the center of the proposed site parcel. Park facilities include two baseball diamonds, open field space, and playground equipment. The potential BMP type is proposed as a below-ground retention/infiltration basin situated beneath the baseball diamonds and other open field space in the southwest corner and northern portions of the park.

No maximum drainage area was identified for this site since it is located adjacent to a receiving waterbody, Arroyo Seco. After review of available site opportunities and surrounding infrastructure, a smaller (alternative) drainage area was delineated, encompassing approximately 145 acres.

After reviewing the hydrologic model results and estimated runoff volume for the various diversion scenarios, it was determined that this project site was suitable for a retention/infiltration BMP sized to accommodate more than the 85$^{th}$ percentile design storm flows contributed from the smaller alternative drainage area. As a result, the recommended active volume of the BMP is 3.7 acre feet.

**Table 4-10** below summarizes key conceptual design parameters of the BMP proposed at Lower Arroyo Park. **Figure 4-32** presents summary facts of the Lower Arroyo Park signature project. **Figures 4-33** to **4-35** provided on the following pages show proposed site features and the tributary drainage area(s) considered during the engineering and environmental feasibility analysis.

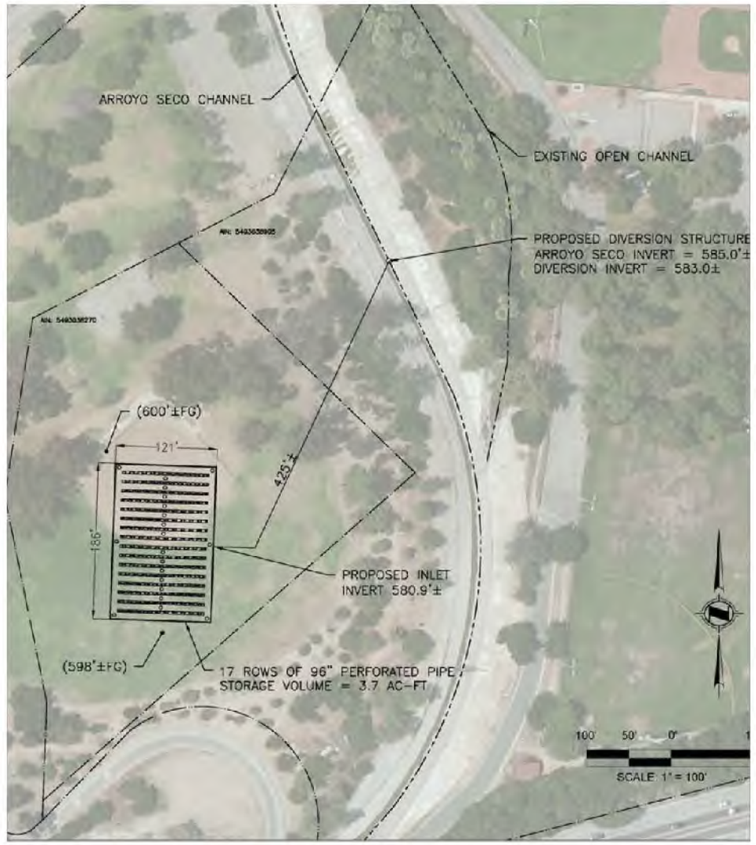
**Table 4-10. Key Design Parameters for Lower Arroyo Park**

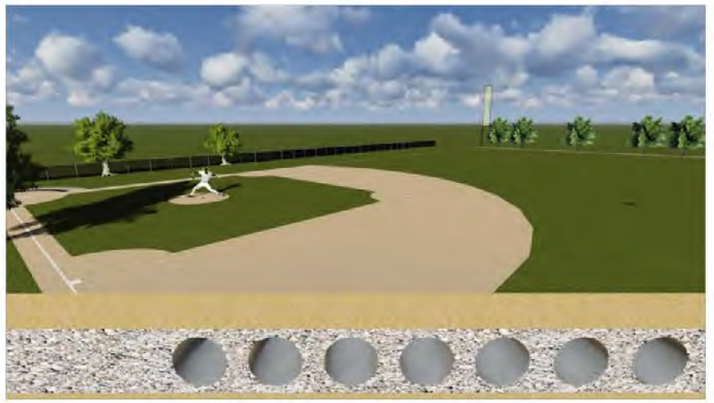
| Summary of Lower Arroyo Park (SP01) | | |
|---|---|---|
| Project Site Parameters | Total (Maximum) Drainage Area | 145 ac |
| | Alternative (Minimum) Drainage Area | 145 ac |
| | Maximum Recommended BMP Volume | 265 ac-ft |
| | Alternative Recommended BMP Volume | 3.7 ac-ft |
| | Groundwater Depth | 25 ft |
| | Maximum BMP Opportunity Area | 10.6 ac |
| BMP Design Parameters | | |
| | Recommended Maximum BMP Depth (below ground surface) | 25 ft |
| | Available BMP Volume | 265 ac-ft |
| | **Recommended Active BMP Volume** | **3.7 ac-ft** |

| Site Location | | | |
|---|---|---|---|
| Site Location, City | South Pasadena | Site Name | Lower Arroyo Park |
| Latitude | 34° 7′ 18.123″ N | Longitude | 118° 10′ 4.0620″ W |
| Landuse | Open Space | Street Address | San Pasqual Avenue & Stoney Drive |
| Major Watershed | Upper Los Angeles River | Land Owner | City of South Pasadena |
| Existing Land Use of Site: Park | | | |

| Watershed Characteristics | | Retrofit Characteristics | |
|---|---|---|---|
| Drainage Area Max/Min, ac | 145/145 | Proposed Retrofit | Subsurface Infiltration |
| Hydrologic Soil Group | Hanford Gravelly Sandy Loam | Recommended BMP Footprint, ft² | 22506 |
| Soil Infiltration Rate, in/hr | 0.80 | Available BMP Volume, ac-ft | 265 |
| Manages 85th Percentile, 24 hr Design Storm Event? | Yes | BMP Water Storage Depth, ft | 9 |
| Recommended Active BMP Volume, ac-ft | 3.7 | Gravel Depth, ft | 1 |
| Approximate Rainfall Event Depth Captured Based on Recommended Volume, inch = 0.8 | | | |

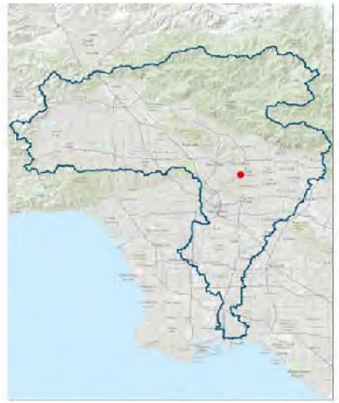
| Budget- Level estimates for both soft and hard costs | $5,132,000 | Schedule | 1 year design, 6 months bid, 9 months construction (2 ¼ years total) |
|---|---|---|---|



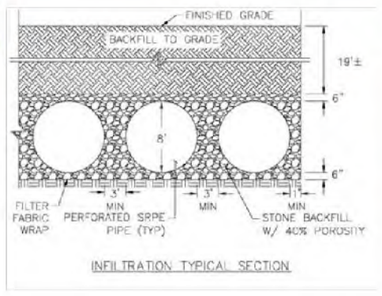



Rendered Improvements

Drainage Map



Watershed and Vicinity




Upper Los Angeles River Enhanced Management Program
Signature Project: Lower Arroyo Park
FACT SHEET PN 182198

Note: Figures are not to scale

**Figure 4-32. Summary Facts: Lower Arroyo Park Signature Project**


**Figure 4-33. Lower Arroyo Park Subsurface Infiltration Drainage Area**


**Figure 4-34. Lower Arroyo Park Subsurface Infiltration Site Location**

October 13, 2020

Mr. Brent Maue, Assistant City Engineer
City of Pasadena, Department of Public Works
100 N Garfield Avenue
Pasadena, CA 91101

Safe Clean Water Program

**RE: Letter of Support for the City of Pasadena's San Rafael/San Pascual Treatment Wetlands Stormwater Capture Park Project under the Upper Los Angeles Enhanced Watershed Management Plan**

Dear Watershed Area Steering Committee:

The Upper Los Angeles Watershed Management Group (ULAR WMG) would like to express our support of the City of Pasadena's San Rafael/San Pascual Treatment Wetlands Stormwater Capture Project (Project) and their collaborative application with the City of South Pasadena for Measure W grant funding. The proposed Project seeks to improve water quality discharged to the San Rafael Creek through capture, infiltration, groundwater basin recharge and restoration of natural streambed processes, improving the water quality of the Arroyo Seco and the Los Angeles River, and tailored to meet our compliance efforts as detailed in the Upper Los Angeles River (ULAR) Enhanced Watershed Management Program (EWMP). In addition, this multi-benefit Project will incorporate nature-based solutions—such as new recreational walking paths, native landscaping, and natural treatment wetlands—creating vital aquatic habitat, community enhancement, and public outreach and educational opportunities.

The ULAR EWMP was developed with the intention of utilizing a multi-pollutant approach that maximizes the retention and use of urban runoff as a resource for groundwater recharge and irrigation, while also creating additional benefits for the communities in the ULAR watershed through a combination "toolbox" of Distributed and Regional Stormwater Projects to address applicable stormwater quality regulations. One of the original eight Regional Projects identified in the EWMP model, the Lower Arroyo Park, was deemed infeasible and eliminated in 2017. The proposed Project resurrects and re-envisions that concept, targeting pollutants from two LA River tributary watershed areas (641561 and 641580)—that require priority load reductions of 9 and 36%, respectively—to meet the compliance targets through capture and treatment of over ten times the required volume (26 AF), exceeding the final bacteria and metals compliance goals, and eliminating all of the regional and distributed BMP requirements in these collective jurisheds. Further, by mitigating the dry weather flows from the San Rafael Creek, Pasadena is satisfying their commitment to address their high priority non-stormwater outfall through structural controls as outlined in the Segment B Tributary Load Reduction Strategy (LRS) Report submitted and approved by the Regional Board. As such, the San Rafael/San Pascual

Treatment Wetlands Stormwater Capture Park Project is an identified and crucial Regional Project of the ULAR EWMP Implementation Plan, helping us to achieve our Recipe for Final EWMP Compliance as detailed in Appendix 7.A.60 and .75 and the subsequent LRS Report.

By December 2017, the Participating Agencies of the ULAR EWMP, including the County of Los Angeles (County) and the Los Angeles County Flood Control District (LACFCD), were required to satisfy a 31% interim EWMP milestone. This interim milestone specified that each jurisdiction implement Best Management Practices (BMPs) to manage a specific capture volume under the Reasonable Assurance Analysis (RAA) storm condition for each receiving water. The San Rafael/San Pascual Treatment Wetlands Stormwater Capture Park Project is located adjacent to—and intercepts flows—that would otherwise flow to the Arroyo Seco. To date, the City of Los Angeles (City), the City of Pasadena, and Unincorporated County have achieved 2.59 of the collective 12.08 AF volume required to achieve their interim targets through structural controls and LID efforts. The Project's additional 6.5 AF design volume capture will allow Pasadena to meet and exceed their 2017 6.93 AF target milestone allowing them to come into full compliance, in addition to assisting their partnering Agencies (City and County) in moving forward towards satisfying their required volume managed.

The ULAR EWMP Watershed Management Group (WMG) recognizes the need and value of prioritizing stormwater projects within our ULAR Watershed Management Area (WMA). As such, as the ULAR Watershed Lead—on behalf of the ULAR WMG—we offer our full support to the Cities of Pasadena and South Pasadena in their efforts to obtain Measure W Round 2 grant funding for their San Rafael/San Pascual Treatment Wetlands Stormwater Capture Park Project. We are confident that this Project will help to restore the water quality and beneficial uses of the Arroyo Seco—and downstream LA River—satisfying interim compliance milestones—and contributing towards the long term compliance efforts of the ULAR EWMP.

Sincerely,

Dawn Petschauer

Dawn Petschauer
Upper LA River Watershed Lead
On behalf of the ULAR EWMP WMG

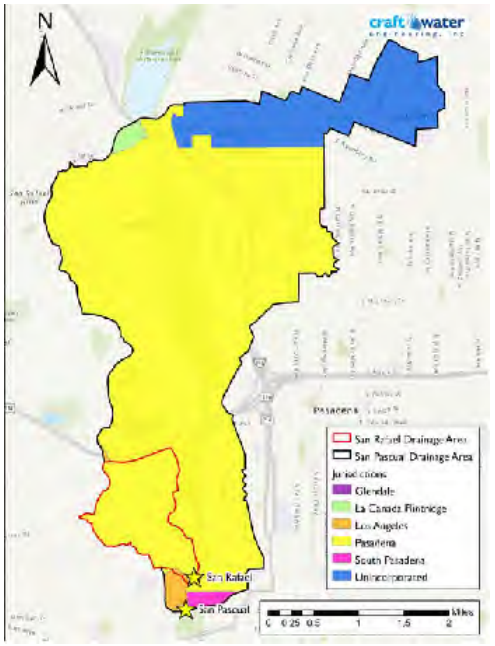
cc: Kris Markarian, City of Pasadena
Brent Maue, City of Pasadena
Sean Singletary, City of Pasadena
Julian Lee, City of South Pasadena
Alfredo Magallanes, City of Los Angeles, LASAN

# ULAR WATERSHED MANAGEMENT GROUP, CITY OF PASADENA/CITY OF SOUTH PASADENA
# SAN RAFAEL/SAN PASCUAL TREATMENT WETLANDS STORMWATER CAPTURE PROJECT

## EXISTING SITE CONDITIONS



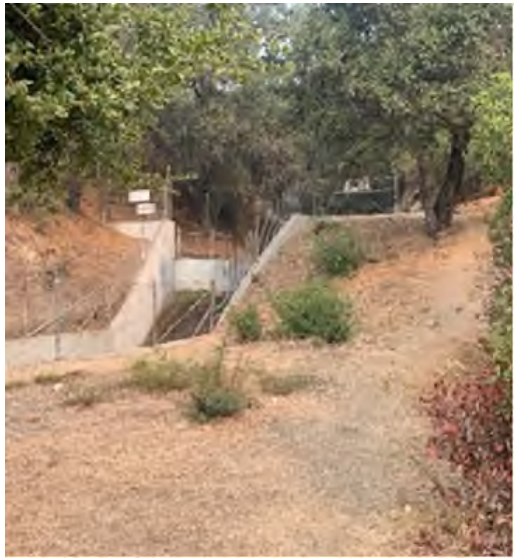
## DRAINAGE AREA




## DRAINAGE CHARACTERISTICS

| | |
|---|---|
| **REGIONAL WATER MANAGEMENT PLAN** | Upper LA River Watershed |
| **TOTAL DRAINAGE AREA** | **5,005 acres**<br>Pasadena (82.4%)<br>Unincorporated LA County (15.2%)<br>City of Los Angeles (1.1%)<br>La Canada Flintridge (0.7%)<br>South Pasadena (0.6%)<br>Glendale (0.1%) |
| **INFILTRATION RATE** | 0.89 in/hr (San Rafael)<br>0.3 in/hr (San Pascual) |
| **APPROX. DEPTH TO GROUNDWATER** | 91 ft BGS |
| **MODELED AVERAGE ANNUAL RUNOFF VOLUME** | 4,583<br>ac-ft per year |

## San Rafael Creek



## Arroyo Seco Channel

## BMP CHARACTERISTICS

| | | |
|---|---|---|
| LOCATIONS | San Rafael Creek near San Rafael Avenue<br>Arroyo Seco Channel near San Pascual Avenue | 34°07'31.5"N/ 118°09'58.7"W<br>34°07'14.2"N/ 118°10'02.0"W |

**Proposed BMP Description:** The project includes two sites: San Rafael located in Pasadena and San Pascual in South Pasadena. The San Pascual site was included in the Adaptive Management Section of the Upper Los Angeles River Enhanced Watershed Management Program (EWMP) Group's Annual Report. The project seeks to improve water quality discharged to San Rafael Creek and the Arroyo Seco Channel through capture, infiltration, and restoration of natural streambed processes. The project also proposes to provide water supply benefit by infiltrating to the local groundwater basin. The project includes a stormwater drop-inlet diversion from the LACFCD San Rafael Creek and enhancement of an existing drop inlet structure in the LACFCD Arroyo Seco Channel and a series of 2.6 acre-foot and 6.5 acre-feet infiltration basins and treatment wetlands. During dry-weather events, the water will pass through a natural stream at San Rafael for eventual discharge into the infiltration basin while the San Pascual site will retain the water within the treatment wetland for irrigation at the Arroyo Park and Arroyo Seco Golf Course. During wet-weather events, the water captured will be filtered through a pretreatment unit, flow into the infiltration basin/treatment wetland, and pass through a filtration device. This project has the potential to offer runoff storage and water quality benefits for these jurisdictions that can address the additional needs for stormwater management identified to achieve compliance in the EWMP.

**Project Benefits:**

- **Water Quality** Improvement in the San Rafael Creek and the Arroyo Seco Channel by removing trash, metals, and nutrients in stormwater and urban runoff
- **Nature-Based** infiltration recharge basins with sustainable native landscaping and storage
- **Park recreational enhancements** with a wetland/habitat area and continuous irrigation water supply
- **Public Access to Waterways** with improved public access to natural treatment wetlands and pedestrian pathways

craft water engineering, inc.

## SAN RAFAEL PROPOSED CONCEPTUAL SITE LAYOUT


Natural Infiltration Basin

Public Access

Natural Stream

## PRELIMINARY SCW SCORING

| SECTION | Score |
|---|---|
| **A.1 Wet Weather Water Quality Benefits**<br>• A.1.1 Water Quality Cost Effectiveness > 1.0 AF/$Million<br>• A.1.2 Pollutant Reduction >80% | 40 |
| **B. Significant Water Supply Benefits**<br>• B1. Water Supply Cost Effectiveness<br>• B2. Water Supply Benefit Magnitude | 5 |
| **C. Community Investment Benefits**<br>• Improved flood management<br>• Creation/enhancement/restoration of parks<br>• Improved public access to waterways<br>• Enhanced/new recreational opportunities<br>• Reducing local heat island effect<br>• Increasing number of trees and/or vegetation | 10 |
| **D. Nature-Based Solutions** | 10 |
| **E. Leveraging Funds and Community Support**<br>• Strong local, community-based support | 10 |
| **TOTAL SCORE** | **75** |

## CROSS SECTION


## PROJECT CHARACTERISTICS

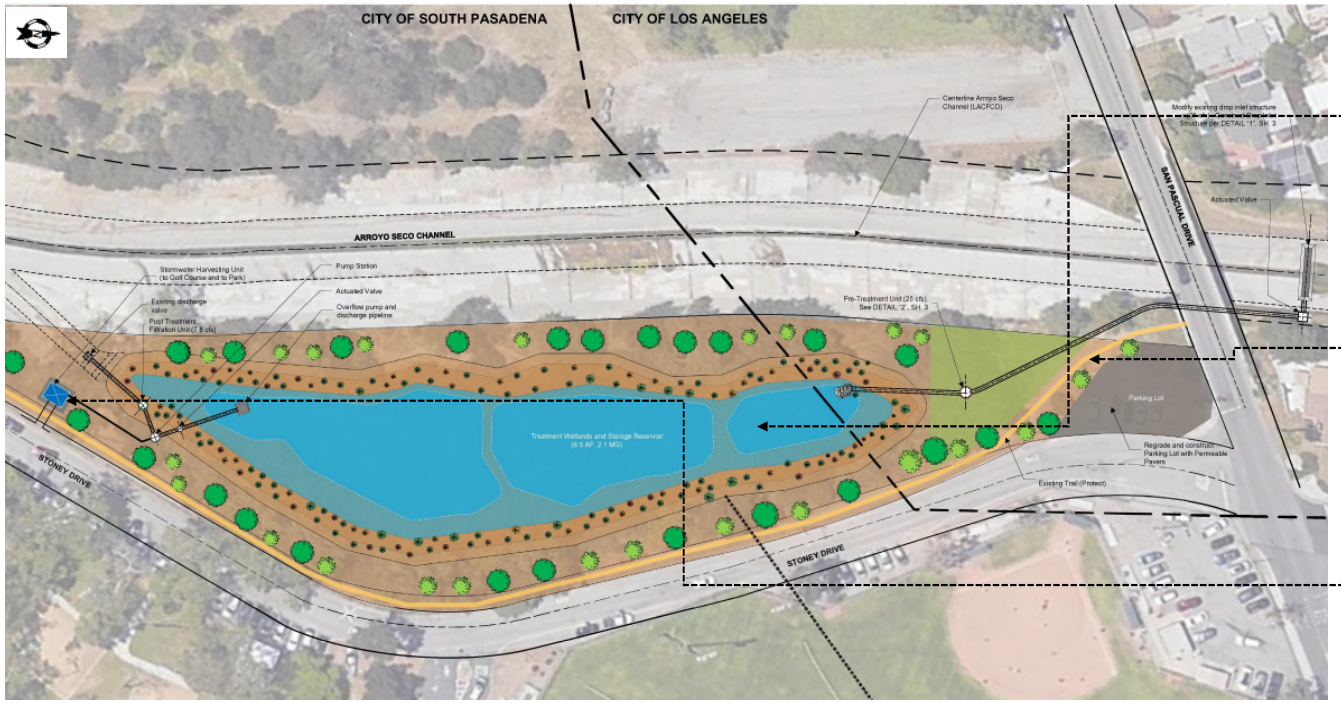
| | |
|---|---|
| Primary Pollutant<br>Zinc Reduction Achieved (% Zn reduction) for both projects | 873 lb/yr (67.7%) |
| Secondary Pollutant<br>Copper (% Cu reduction) for both projects | 235 lbs/yr (68.2%) |
| Design Diversion Rate<br>San Rafael Creek | 25 cfs |
| Storage Capacity for Infiltration Basin with 2.88 filtration unit | 2.6 ac-ft (0.88 MG) |
| 24-Hour Capacity for both San Rafael and San Pascual Sites | 27.9 ac-ft |
| Construction Cost Estimate for both San Rafael and San Pascual Sites | $6,333,095 |

ULAR WATERSHED MANAGEMENT GROUP, CITY OF PASADENA/CITY OF SOUTH PASADENA

# SAN RAFAEL/SAN PASCUAL TREATMENT WETLANDS STORMWATER CAPTURE PROJECT

craft water engineering, inc.

## SAN PASCUAL PROPOSED CONCEPTUAL SITE LAYOUT

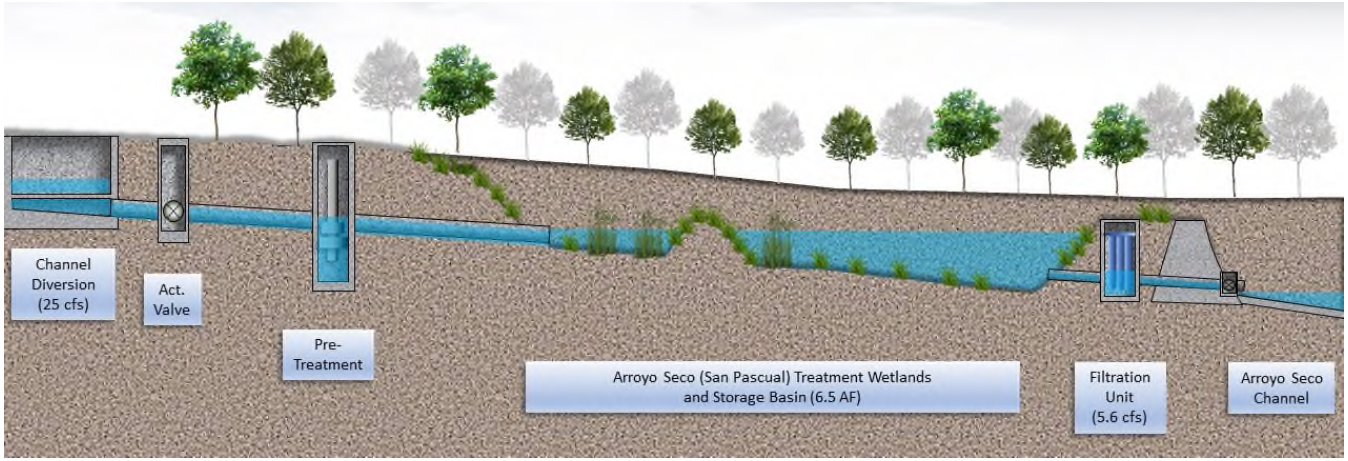



Natural Treatment Wetland

Public Access

Stormwater Harvesting Unit

## CROSS SECTION




## PROJECT CHARACTERISTICS

| | |
|---|---|
| Primary Pollutant<br>Zinc Reduction Achieved (% Zn reduction) for both projects | 873 lb/yr (67.7%) |
| Secondary Pollutant<br>Copper (% Cu reduction) for both projects | 235 lbs/yr (68.2%) |
| Design Diversion Rate<br>Arroyo Seco Channel | 25 cfs |
| Storage Capacity for Natural Treatment Wetlands with 5.76 cfs filtration unit | 6.5 ac-ft (2.1 MG) |
| 24-Hour Capacity for both San Rafael and San Pascual Sites | 27.9 ac-ft |
| Construction Cost Estimate for both San Rafael and San Pascual Sites | $6,333,095 |

ULAR WATERSHED MANAGEMENT GROUP, CITY OF PASADENA/CITY OF SOUTH PASADENA

**SAN RAFAEL/SAN PASCUAL TREATMENT WETLANDS STORMWATER CAPTURE PROJECT**

craft water engineering, inc.

# Ballona Creek TMDL Project

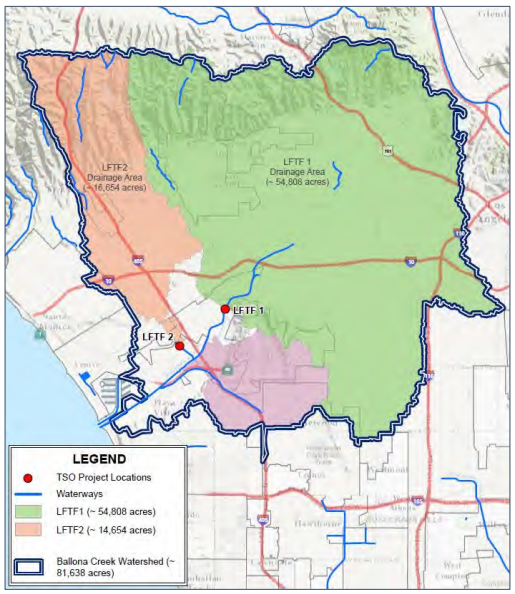
**Watershed**
- **Area:** 128 square miles
- **90th Percentile Dry Weather Flow Rate:** 29 MGD
- **Prominent Land Uses:** Residential, Transportation, Commercial, Industrial

**Project Collaborators % of Watershed Area**
- City of Los Angeles: 80%
- Los Angeles County: 3.8%
- City of Culver City: 3.8%
- City of Beverly Hills: 4.5%
- City of West Hollywood: 1.4%
- City of Inglewood: 2.3%
- LACFCD: N/A

Low Flow Treatment Facility #1 (LFTF-1)

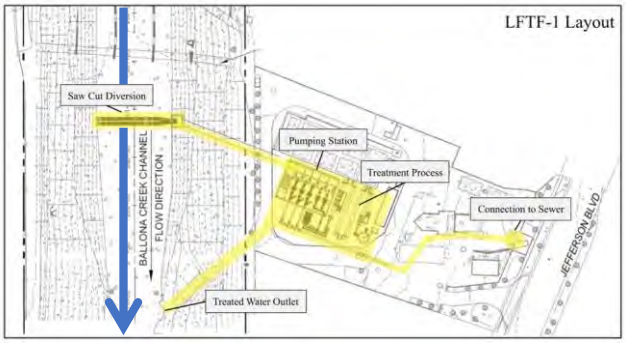
Low Flow Treatment Facility #2 (LFTF-2)

**Project Goals:**
- Regulatory water quality compliance
- Support water contact recreation
- Ecosystem enhancement
- Increase local water supply




# Low Flow Treatment Facility #1

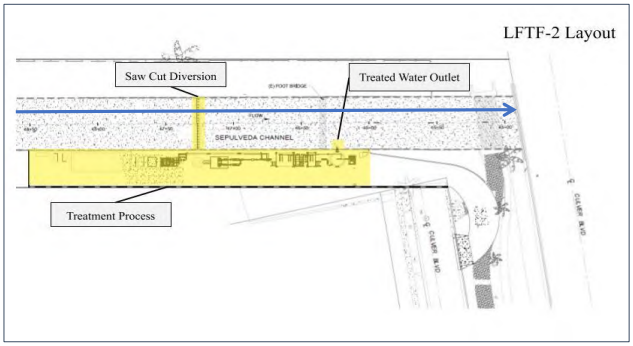
**Project Description:**
- Ballona Creek Reach 2
- Drainage area: 54,572 Acres
- Design Capacity: 29 MGD
- Up to 6 MGD for ozone disinfection
- Up to 23 MGD for conveyance to HWRP for recycling
- Retrofit of abandoned NOTF facility

# Low Flow Treatment Facility #2

**Project Description:**

- Sepulveda Channel
- Drainage Area: 14,789 Acres
- Design Capacity: 1.3 MGD
- Up to 1.3 MGD for ozone disinfection
- New constructed facility


# Project Benefits

- **Regulatory Water Quality Compliance:**
  - Specified in the Ballona Creek EWMP
  - Designed to comply with dry weather bacteria TMDL throughout the watershed for over 330 days a year
  - Designed to meet watershed needs in collaboration with the Culver City Mesmer Low Flow Diversion

- **Support Water Contact Recreation:**
  - Supports the REC-1 and REC-2 Basin Plan designations
  - Protects public health during currently observed activities along Creek, Estuary, and the Santa Monica Bay

# Project Benefits (cont.)

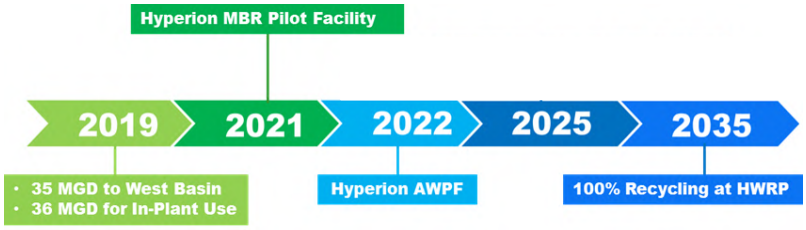
- **Ecosystem Enhancement:**
  - Enhances current conditions in Ballona Creek, Estuary, Wetlands, and the Santa Monica Bay
  - Lowers levels of bacteria, organic chemicals, trash, metals entering the Estuary and Santa Monica Bay

- **Increase Local Water Supply:**
  - 5,060 AF/year (1.6 billion gal/year) diverted for local water supply
  - 100% water recycling at Hyperion Water Reclamation Plant by 2035
  - 2 new water recycling pilot plants in the next few years


1. Membrane bioreactors


2. Reverse osmosis


3. Advanced oxidation




# Project Outreach

Project Collaborators

Permitting Agencies:
- LAWQRCB
- Army Corp of Engineers
- California Department of Fish and Wildlife
- LA County Flood Control District
- LA DOT, LA DWP, SoCal Edison, METRO

Community Outreach:
- Ballona Creek Renaissance
- Friends of Ballona Creek
- Heal the Bay
- LA Waterkeepers
- Surfrider Foundation
- Council for Watershed Health
- Natural Resource Defense Council
- LA Council Districts 5,6,10,11
- Neighborhood Councils (Westchester, Del Rey, West Adams)
- Del Rey Residents Association

**CEQA / Environmental Impact Report**
State Clearinghouse # 2017021047


- **Notice of Preparation:** February 17, 2017
- **Scoping:** February 17 – March 20, 2017
- **Public Scoping Workshop:** March 2, 2017
- **Public Review and Comments Draft EIR:** August 17 – October 16, 2017
- **Public Comment Workshops:** September 20, 2017
- **Completion Final EIR:** March 2018
- **State Clearinghouse Certification:** August 1, 2018

LASAN sent consultation notification letters to 11 Tribes, and held formal consultations with representatives of the following three tribal nations:

- Tongva Ancestral Territorial Tribal Nation
- Gabrieleño Band of Mission Indians – Kizh Nation
- Gabrielino-Tongva Indians of California Tribal Council

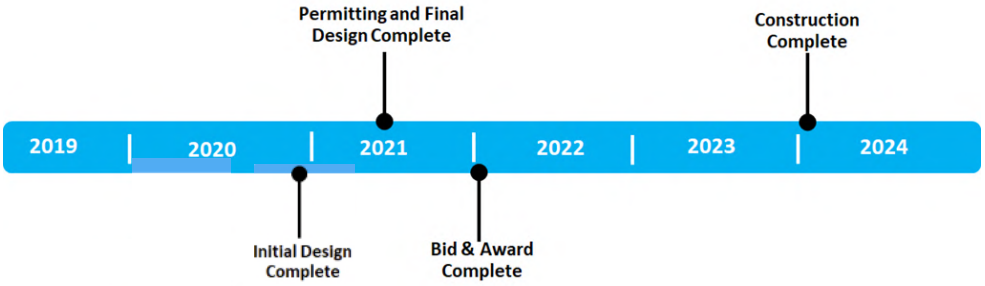
# Project Schedule

**Completed:**

- 70% facility design, CEQA and Full EIR, 1602 California Fish & Wildlife Permit
- Geotechnical, Structural, Hydrological, Surveying Reports

**Ongoing:**

- 401 Permit from LARWQCB, 404 and 408 Permits from Army Corp of Engineers, LACFCD Permits
- 100% facility design at both locations



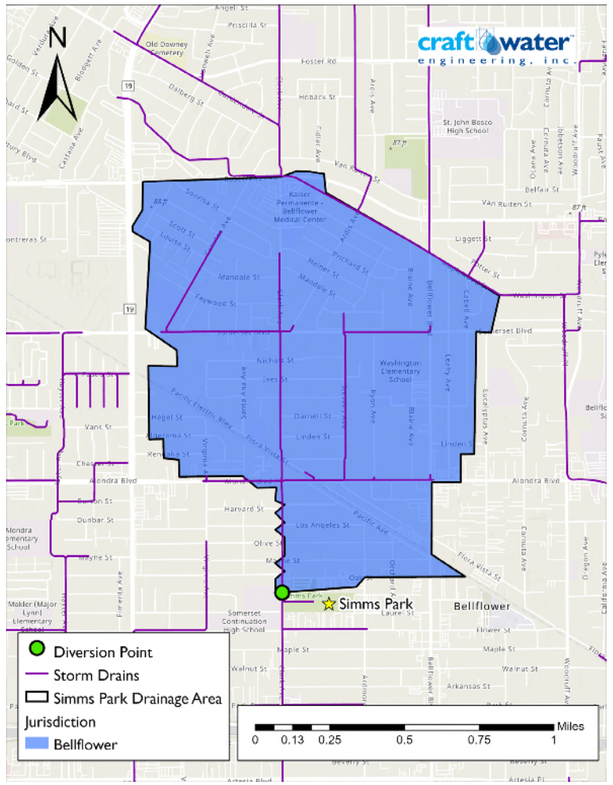

# Safe, Clean Water Scoring

| | |
|---|---|
| **Water Quality (Dry Weather):**<br>Designed to manage 100% of all tributary dry weather flows.<br>Tributary size is larger than 200 acres. | 40/50 |
| **Water Supply:**<br>Water Supply Cost Effectiveness is less than $1000/AF.<br>Water Supply Benefit Magnitude is greater than 300 AF/year. | 25/25 |
| **Community Investment Benefits:** 4 claimed benefits<br>(1) Creation, enhancement, or restoration of parks, habitat, or wetlands. (2) Improve public access to waterways. (3) Enhanced or new recreational opportunities. (4) Increasing the number of trees increase and/or other vegetation at the site location that will increase carbon reduction/sequestration and improve air quality. | 5/10 |
| **Nature-Based Solutions:**<br>Project earns 5 points for implementing or mimicking natural processes. | 5/15 |
| **Leveraged Funding:**<br>Project has more than 50% funding matched.<br>Project demonstrates strong local, community-based support. | 10/10 |
| **Final Score:** | **85/110** |

# LOS CERRITOS CHANNEL WATERSHED MANAGEMENT PROGRAM, CITY OF BELLFLOWER
# SIMMS PARK STORMWATER CAPTURE PROJECT
# PROJECT FACT SHEET

## EXISTING SITE CONDITIONS


## DRAINAGE AREA




## DRAINAGE CHARACTERISTICS

| | |
|---|---|
| REGIONAL WATER MANAGEMENT PLAN | Los Cerritos Channel Watershed Management Program |
| DRAINAGE AREA | 758 acres<br>Bellflower (100%) |
| FILTRATION RATE | 7.84 cfs<br>(6.37 inches per hour) |
| APPROX. DEPTH TO GROUNDWATER | 35 ft BGS |
| MODELED AVERAGE ANNUAL RUNOFF VOLUME | 433<br>ac-ft per year |

## Clark Avenue Storm Drain

## Simms Park

## BMP CHARACTERISTICS

LOCATION Simms Park
16614 Clark Avenue, Bellflower

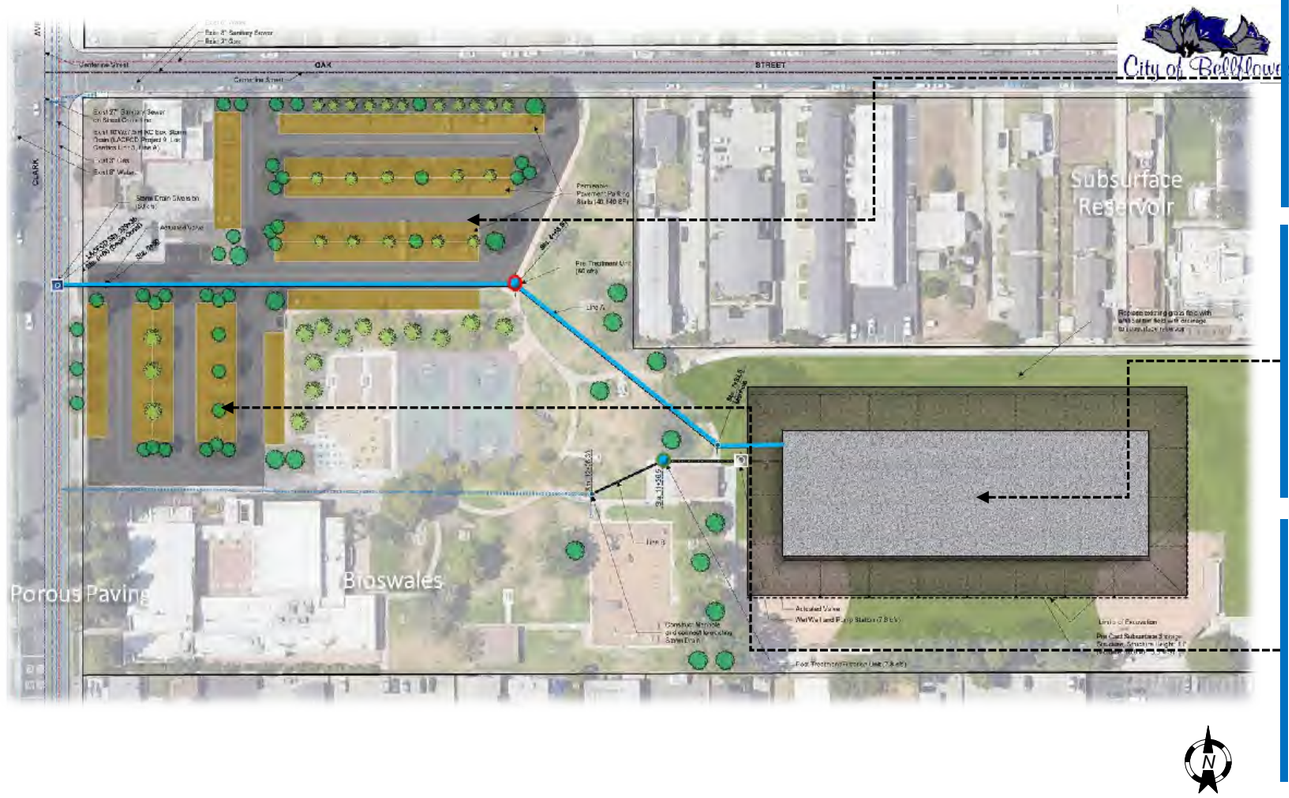
LAT: 33° 53’00.42"N
LONG: 118° 7’52.97"W

**BMP Description:** The Simms Park site is owned and operated by the City of Bellflower and has been identified as a Tier 1 Priority Project along the Los Cerritos Channel corridor. Runoff within this corridor ultimately drains to the main Los Cerritos Channel and finally the Pacific Ocean. The project seeks to improve water quality discharged to these important water bodies. In addition, portions of the project also propose to reduce the impervious footprint by converting the parking lot into a permeable surface and adding bioretention areas between parking stalls. The project consists of a stormwater diversion from the LACFCD BI0009 Unit 3 Line A, storm drain. The water captured will be filtered by a hydrodynamic separator, stored in a 4.0 MG/12.2 AF underground storage reservoir. Additional features include parking lot enhancements (native landscaping, permeable pavement, and bioswales) and an artificial turn field. The treatment drainage area for the project at 758 acres captures runoff from only the City of Bellflower. This project has the potential to offer runoff storage and water quality benefits for the City that can address the additional needs for stormwater management identified to achieve compliance in the WMP. The project is upstream of the currently under-construction Mayfair Park Stormwater Capture Project in Lakewood and will work in tandem to provide watershed wide benefit.

**Project Benefits:**

- **Water Quality** Improvement in the Los Cerritos Channel by treating stormwater and urban runoff
- **Nature-Based** parking lot enhancements and bioretention with sustainable native landscaping and permeable pavement
- **Park recreational enhancements** with a new artificial turf playing field and habitat area
- **Reduced Heat Island** with the incorporation of permeable pavements and new trees throughout the parking lot

## PROPOSED CONCEPTUAL SITE LAYOUT




**Parking Lot: Permeable Pavement and Bioswales**

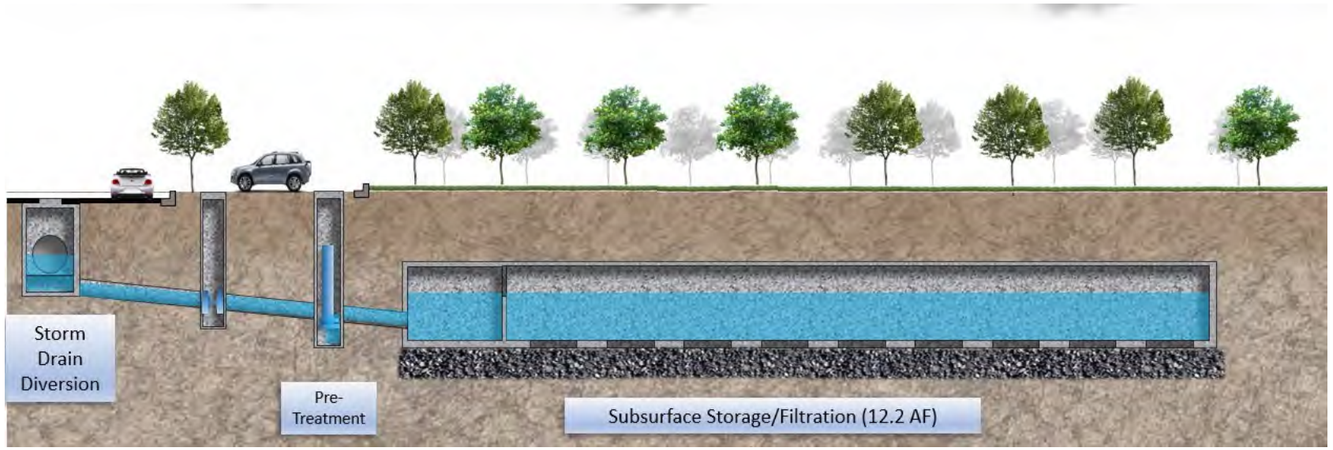
**Pre-Cast Subsurface Infiltration Facility**

**Bioretention Swales**

## PRELIMINARY SCW SCORING

| SECTION | TOTAL COST |
|---|---|
| **A.1 Wet Weather Water Quality Benefits**<br>• A.1.1 Water Quality Cost Effectiveness > 1.0 AF/$Million<br>• A.1.2 Pollutant Reduction >80% | 20<br>25 |
| **B. Significant Water Supply Benefits**<br>• B1. Water Supply Cost Effectiveness<br>• B2. Water Supply Benefit Magnitude | 0<br>2 |
| **C. Community Investment Benefits**<br>• Improved flood management<br>• Creation/enhancement/restoration of parks<br>• Reducing local heat island effect<br>• Increasing number of trees and/or vegetation | 5 |
| **D. Nature-Based Solutions** | 12 |
| **E. Leveraging Funds and Community Support**<br>• Strong local, community-based support | 4 |
| **TOTAL SCORE** | **68** |

## TYPICAL CROSS SECTION




## PROJECT CHARACTERISTICS

| | |
|---|---|
| <u>Primary Pollutant</u><br>Zinc Reduction Achieved (% Zn reduction) | 188.1 lb/yr (80.2%) |
| <u>Secondary Pollutant</u><br>Copper Reduction Achieved (% Cu reduction) | 51.4 lb/yr (78.5%) |
| <u>Design Diversion Rate</u><br>Project No. BI0009, Unit 3, Line A | 60 cfs |
| Storage Capacity for Subsurface Storage and Infiltration Reservoir | 12.2 ac-ft<br>(4.0 MG) |
| 24-Hour Capacity | 27.75 ac-ft |
| Construction Cost Estimate | $14,851,529 |

LOS CERRITOS CHANNEL WATERSHED MANAGEMENT PROGRAM, CITY OF BELLFLOWER

**SIMMS PARK STORMWATER CAPTURE PROJECT**

**PROJECT FACT SHEET**

# BROADWAY-MANCHESTER MULTI-MODAL GREEN STREETS PROJECT

## Project Scope

The Broadway-Manchester Multi-Modal Green Streets Project will divert and capture up to the 85th percentile storm runoff in a distributed manner over the entire 2.8 mile length of the project area.

## Project History/Background

The Broadway-Manchester Multi-Modal Green Streets Project lies along a 2.8-mile corridor of Manchester Avenue (from Vermont Avenue to Broadway) and Broadway (from Manchester Avenue to Imperial Hwy.) located in the historically underserved community of South Los Angeles. The Project embodies an integrated approach to stormwater management, mobility, and equity that is both intentional and resourceful. The project was envisioned by the community where stormwater improvements were overlaid with bicycle infrastructure, pedestrian safety improvements, improved transit connections, and programmed public spaces to create a safe, green, and vibrant neighborhood.

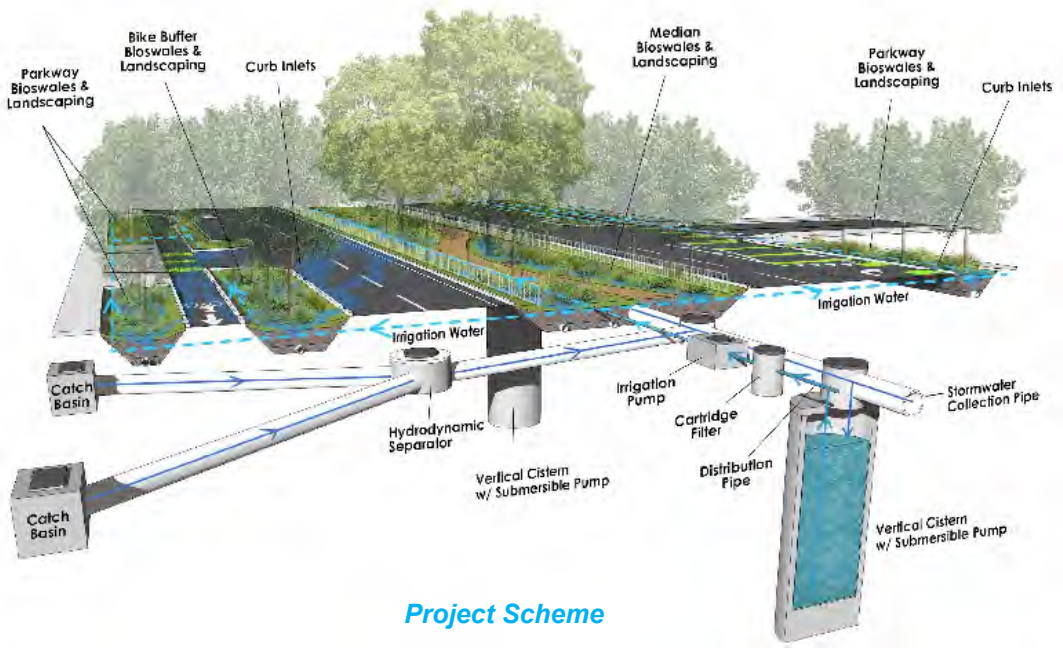
The Project was awarded $24.6M through the Active Transportation Program (ATP) that precludes inclusion of stormwater BMP elements. The purpose of the Broadway-Manchester Multi-Modal Green Streets Project is to include stormwater BMP elements in the funded ATP project to accomplish stormwater quality compliance, provide water supply benefits, and realize community investment and environmental sustainability benefits consistent with the goals of the County Safe Clean Water Program. Aligning goals of the ATP and the Safe Clean Water Program will result in a holistic street design that reflects the community's vision for their neighborhood.

## Project Overview

| | |
|---|---|
| Project Location | Manchester Ave. (from S. Vermont Ave. to S. Broadway) and S. Broadway (from Manchester Ave. to Imperial Hwy) |
| Watershed | Upper Los Angeles River |
| Drainage Area | 205.1 acres |
| Total Project Capacity | 9.4 AF |
| Estimated Volume Capture Annually | 100 AF/yr<br>(29 AF/yr onsite irrigation water) |
| Pollutants Addressed | Bacteria, Nitrogen, Phosphorus, Copper, Zinc |
| Primary & Secondary Pollutant Load Reduction | 81% Removal |
| Potable Water Offset for Irrigation | 40% |
| Bioswales | 635,980 SF |
| Landscaping | 25 acres |
| Trees | 843 |


Project Location

Drainage Area




Project Scheme

# BROADWAY-MANCHESTER MULTI-MODAL GREEN STREETS PROJECT


## Community Benefits

- **Improved Public and Environmental Health**
  - Stormwater capture and reuse for on-site irrigation to maintain landscaping
  - Water quality improvements with pollution reduction
  - Flood mitigation by slowing runoff with bioswales
  - Planting over 800 trees to improve air quality, shade equity, and heat island impact
  - Create a palette of native and California-friendly plants and shade trees to help capture and uptake nutrients from runoff
  - Improve transit, bike, and pedestrian connections to local schools, jobs, housing, and other amenities for community members
- **Provide Community Assets**
  - New landscaped bioswales in parkways, curb extensions, widened medians, and bike buffers
  - Create supplementary park space for a tree-lined pedestrian path with future programmed activity nodes, such as fitness areas, tot lots and community plazas

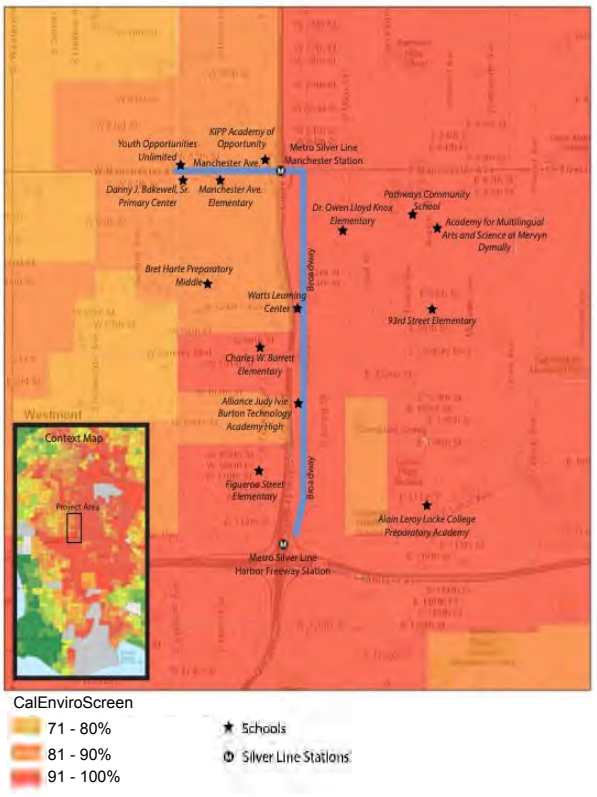
**2.8 Miles of Green Streets**

**100 AF/yr Stormwater Capture**

**25 Acres of Green Space**

## Disadvantaged Community (DAC)

Statewide, community members are subject to some of the highest exposure and vulnerability to pollution. Based on CalEnviroScreen, all six of the census tracts that comprise the project area range from the 85th to 100th percentile for the most disadvantaged California communities in relation to pollution and health burdens. Quality of life is impacted by residents' increased risks for pollutant exposure, asthma, cardiovascular disease, high traffic density, housing burden, linguistic isolation, and high levels of unemployment.



# BROADWAY-MANCHESTER MULTI-MODAL GREEN STREETS PROJECT

## Community Engagement

The project is the result of a collaborative process between community members, City departments, and consultants.

It is an integral part of a larger, citywide vision for the Broadway and Manchester corridors, which seeks to revitalize a historically neglected part of the City of Los Angeles. Several related efforts are underway including affordable housing developments, local businesses enhancements, and projects intended to improve safety, access, and multimodal transit options.

## Timeline

**2015**
- City Council Office met with key stakeholders to learn their concerns, and to provide informational presentations from city public works departments

**2016**
- Fiesta Broadway Street Festival
- Community Advisory Council (CAC) is formed

**2017**
- Vision Zero South LA Workshop
- 3 CAC Meetings
- Joint Block Club Meeting
- Broadway Avenue Holiday Tree Lighting Ceremony

**2018**
- 3 Design Workshops
- 1 CAC Meeting
- Manchester Ave Elementary Walk Audit
- Vision Zero Town Hall
- Broadway Toy and Turkey Giveaway
- Martin Luther King Parade Community Festival

**2019**
- Plans to develop a version of the project that will address safety

**2020**
- 800+ project postcards mailed to residents and businesses
- 2 Vision Zero Digital Town Halls
- Southeast LA Neighborhood Council Meeting
- Bilingual fact sheet mailed to 3000+ addresses
- Broadway, Our Way Workshop and Bike Ride

**Future Outreach Plan/Engagement**:
- Strategy Sessions
- Community Partner Engagement and Training
- Stakeholder Community Meetings (Project Launch, Existing Conditions & Refined Design, Project Benefits / Impacts, Final Draft Design)

## Methods

- Bilingual (English-Spanish) material and interpreters
- ADA accessible venues
- Interactive events of different sizes
- Flyers
- Visual surveys and online surveys
- Postcards
- Mailers

## 5800 Community Participants

- 650 Participants at Festivals and Special Events
- 40 Members at Community Advisory Council Meetings
- 145 Attendees at Workshops and Town Halls
- 165 Attendees at Community Partner Focus Meetings
- 1000 Visual Surveys
- 800 Mailed Project Postcards
- 3000 Mailed Bilingual Fact Sheets

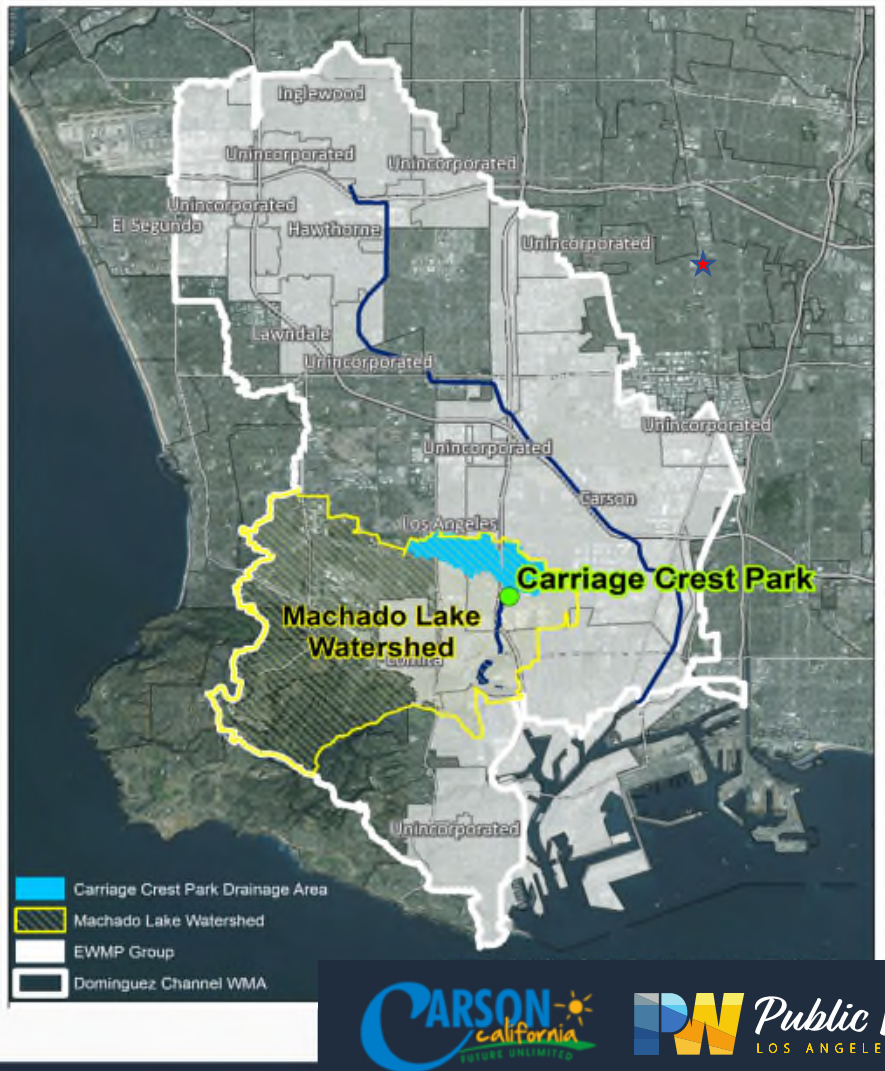
# BROADWAY-MANCHESTER MULTI-MODAL GREEN STREETS PROJECT

| Anticipated Safe, Clean Water Program Score | | | | |
|---|---|---|---|---|
| **Section** | **Category** | **Max Points** | **Score** | **Justification** |
| A.1 Wet + Dry Weather Water Quality Benefits | The Project provides water quality benefits | **50** | **41** | 9.4 ac-ft BMP capacity, 110% of 85th percentile 24-hr runoff volume |
| | A.1.1 Water Quality Effectiveness | 20 | 11 | 0.6 acre-feet capacity/$-Million |
| | A.1.2 Water Quality Benefits | 30 | 30 | 81% removal of primary and secondary pollutants |
| B. Significant Water Supply Benefits | The Project provides water re-use and/or water supply enhancement benefits | **25** | **5** | 100 AF/yr (29 AF/yr onsite irrigation water) |
| | B1. Water Supply Cost Effectiveness | 13 | 0 | $11,959/AF |
| | B2. Water Supply Benefit Magnitude | 12 | 5 | 100 AF/yr |
| C. Community Investments Benefits | The Project provides Community Investment Benefits | **10** | **10** | 1. Flood risk mitigation<br>2. Creation, enhancement, and restoration of parks and habitat<br>3. New recreational opportunities<br>4. Greening of schools<br>5. Reduces local heat island effect and increases shade<br>6. Increases the number of trees and other vegetation that will increase carbon reduction and improve air quality |
| D. Nature-Based Solutions | The Project implements Nature-Based Solutions | **15** | **10** | • Adds new bioswales in parkways to treat first flush<br>• Plants new native vegetation in street median and parkways<br>• Removes 6% impermeable area |
| E. Leveraging Funds and Community Support | Leveraging Funds and Community Support | **10** | **7** | Extensive community engagement<br>25% cost sharing through approved ATP Grant |
| | E1. Cost-Share | 6 | 3 | 25% Funding Matched |
| | E2. Local Support | 4 | 4 | Strong community support as a result of engagement and community-driven design process |
| | **Total Score** | | **73** | Multi benefit project in DAC area providing stormwater quality, water supply, and nature-based solutions benefits |

# Carson Stormwater and Runoff Capture Project at Carriage Crest Park

- Dominguez Channel EWMP
- $18.72 M for 27AF/ storm capacity
- Construction end December 2020

Request: 50% of O&M funding



# Carson Stormwater and Runoff Capture Project at Carriage Crest Park

**Project Area**

- 785 Acre Tributary (Wet)
- 1146 Acre Tributary (Dry)
- 27 AF per rain event capacity
- Treat up to 454 AFY of Stormwater Runoff

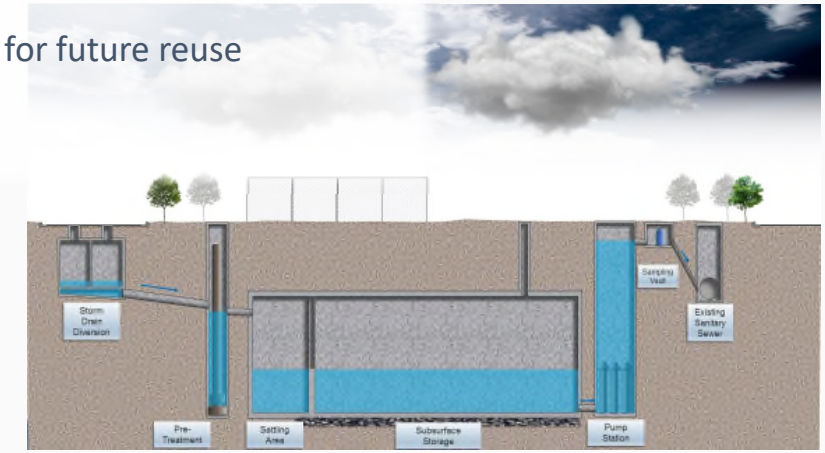
**Benefits**

Improved Water Quality

- Protect beneficial uses Machado Lake and Wilmington Drain
- Reduction of target pollutants (Nutrients, Bacteria, Toxics, Sediment, Trash)

Water Supply

- Recycled water for future reuse
- 454 AFY





CARSON california FUTURE UNLIMITED

Public Works LOS ANGELES COUNTY

# Carson Stormwater and Runoff Capture Project at Carriage Crest Park

Community Benefits

- Improves flood risk mitigation
- Enhances/ restore park space
- Enhances recreational opportunities
- Reduce heat island effect
- Increase number of trees/vegetation

Nature Based Solutions

- New trees, vegetation, and soil

Funds and Community

- Fully funded: $18.72M planning, design, and construction costs received from agreements with Caltrans and Los Angeles County

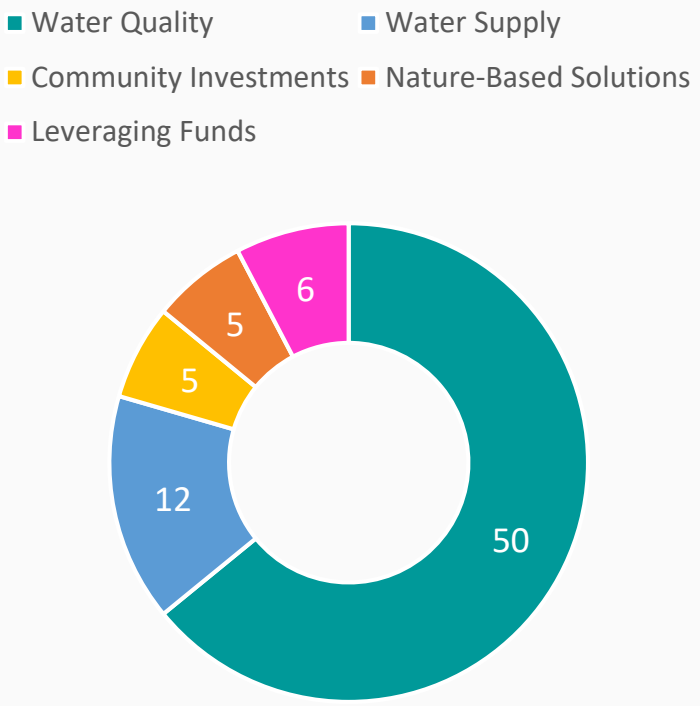
# Carson Stormwater and Runoff Capture Project at Carriage Crest Park

**Estimated Project Scoring**

- Water Quality – 50 points
- Water Supply – 12 points
  - Recycled water for future reuse
  - 454 AFY
- Community Investments – 5 points
  - Improves flood management, flood risk mitigation
  - Reduce Heat Island Effect
  - Increase number of trees
- Nature-Based Solutions – 5 points
  - Utilizes Natural Materials
- Leveraging Funds – 6 points

**Total Score**

- 78 points



# Cerritos Sports Complex

## Project Lead: City of Cerritos

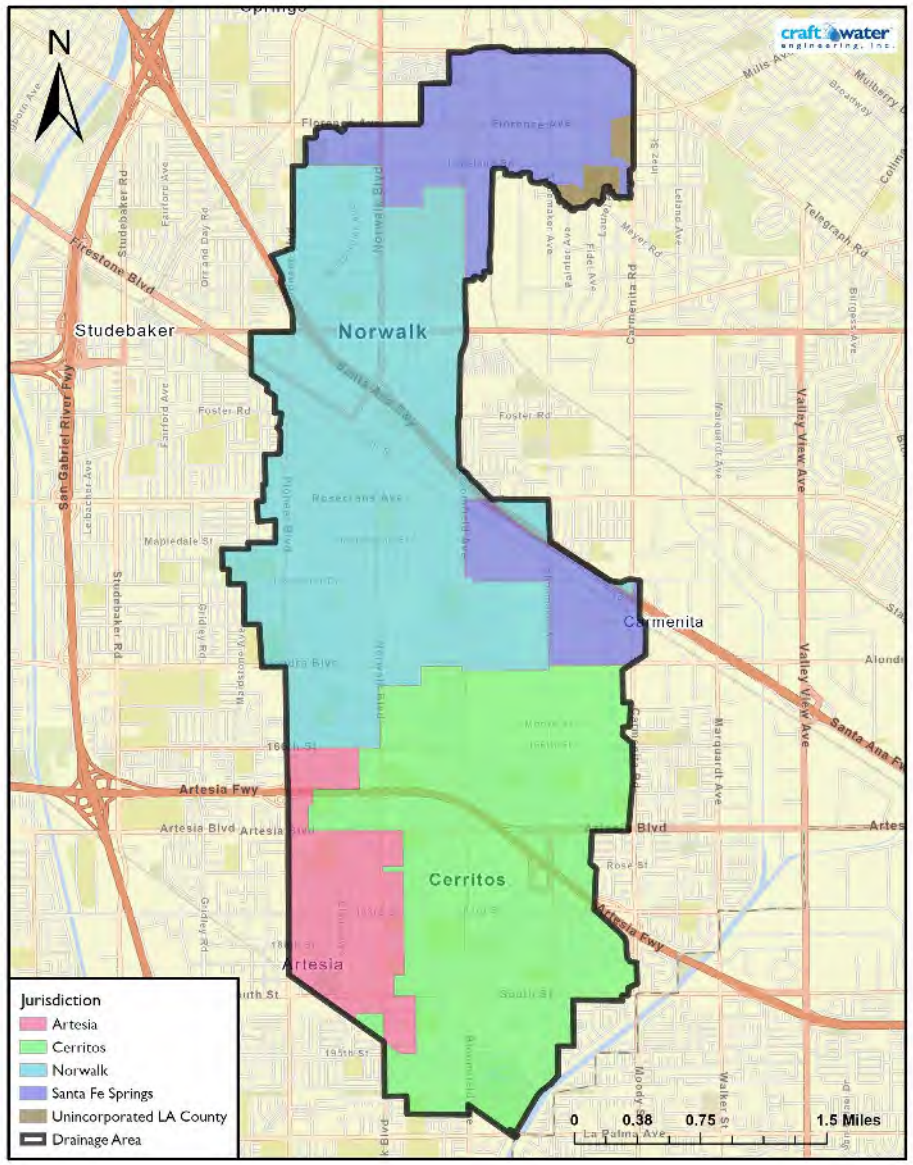
- **Application for Design Funding Only**
- Project was originally presented to the LSGR WASC in 2019 as a 30+ AF design/build stormwater capture project ultimately costing an estimated $45 million.
- Original application situated the treatment facility within the boundary of a closed landfill. Due to the concerns poised by the landfill and the overall cost of the project, the LSGR WASC opted not to fund the project at that time.
- **Requesting $2,408,000 for design and permitting over a two-year period**

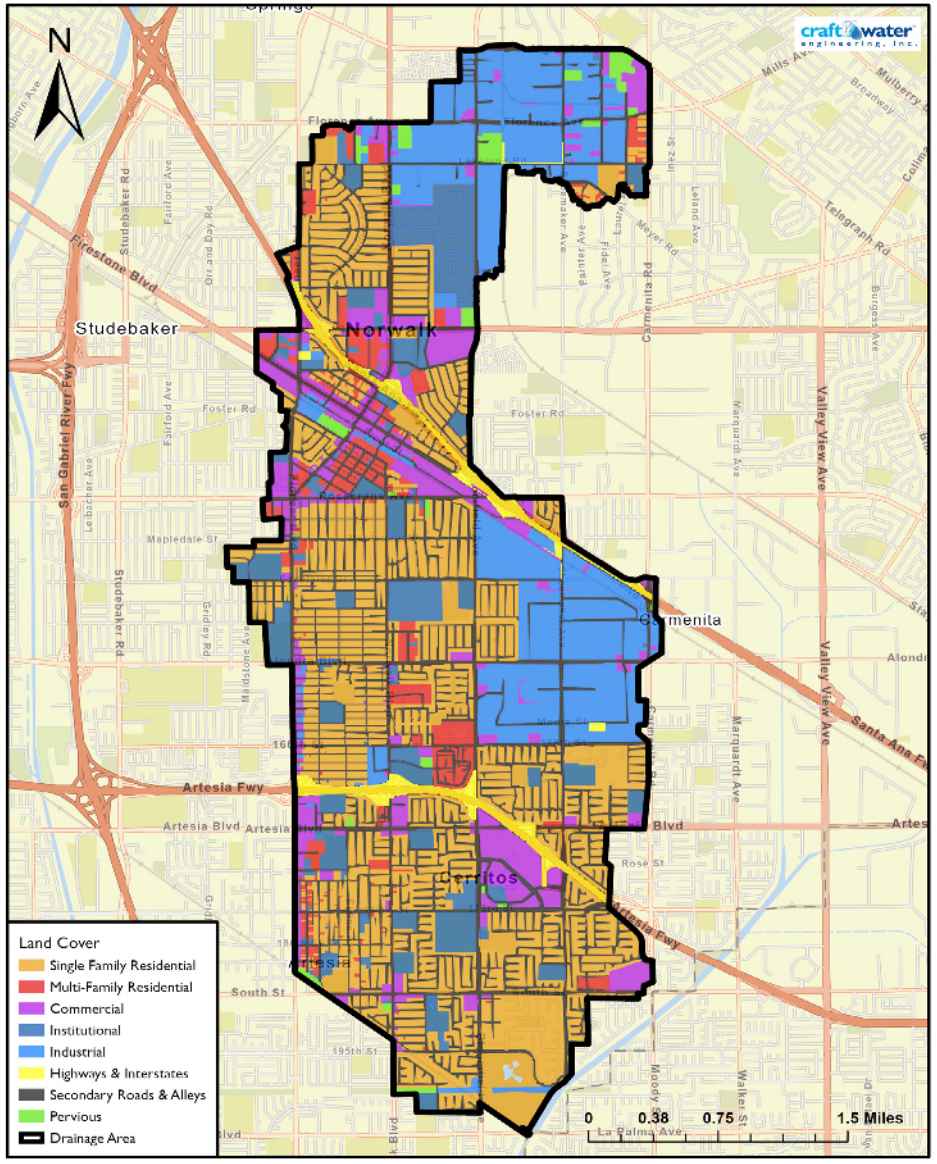
# Application for Design and Permitting Funding in FY 21-22 and 22-23

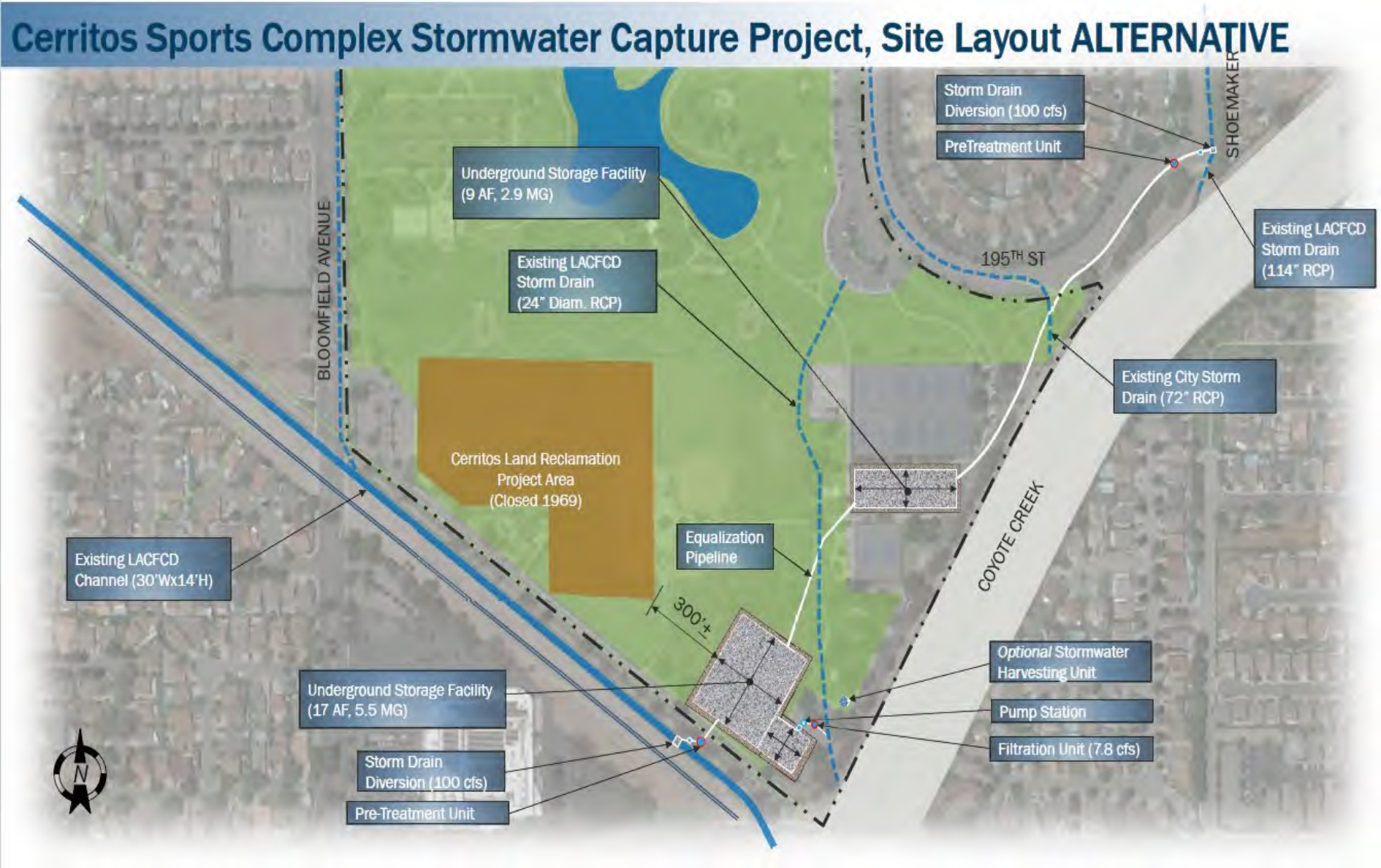
**Presented in 2 Phases:**

- Only phase 1 is deemed feasible within the immediate future.
- The 30x14 ft channel diversion south of the project site will be diverted at up to 100 cfs
- Sub subsurface storage (17 AF), and filtration unit (7.8 cfs) with water capture and reuse
- Upon completion of the design and detailed scope and cost estimates, a separate request for construction funding is anticipated as early as fiscal year 23-24. (eventual construction costs preliminarily estimated at $19.8 Million)
- The picnic area, parking lot and adjacent bike path area will see an emphasis on nature-based improvements with increased shade, native/drought tolerant plans and bio-swales. Due in part to the proximity of the land fill, a considerable effort at community involvement will be made.
- Phase 2 is included herein only for conceptual and long-term planning. No planning or construction funding is requested at this time.
- Storm Drain Diversion (at Shoemaker), subsurface storage (9 AF) and equalization pipeline connection (estimated cost of $18 Million)

# Drainage Area (6,472 Acres)






- Project has been relocated 300 ft south east of the landfill
- The northern diversion from Shoemaker is conceptual only

# Site Layout

## East Rancho Dominguez: Compton Boulevard et. al.

**Project Scope:**
This project will reconstruct 2.1 miles of major roadway including parkway improvements and curb ramp upgrades. Complete street and stormwater quality features are being analyzed for inclusion in the project.

**Project Benefits:**
This project will improve the quality of life for residents and lessen wear and tear on vehicles. This project will also help preserve natural resources by using recycled and in-place materials, resulting in cost savings and reduction in greenhouse gas, energy, and landfill deposition. Complete street features will include trees and signage to enhance the pedestrian experience and stormwater quality features will help improve water quality in Compton Creek.

**Project Location:**
Various roadways within the Unincorporated Community of East Rancho Dominguez. The County is also working with the City of Compton to potentially include 0.5 miles of roadway improvements within their jurisdiction. See the location map for project limits.

**Stormwater Element Details**

- Over 66 infiltration drywells to be installed
- 3.9 Acre-ft design capacity
- 90 Acre Drainage Area

**Location Map:**


Data contained in this map is produced in whole or part from the Los Angeles County Department of Public Works' digital database.

# FACT SHEET

## DAVID M. GONZALES RECREATION CENTER STORMWATER CAPTURE PROJECT

The David M. Gonzales Recreation Center Stormwater Capture Project is a proposed regional project led by the the Los Angeles Department of Water and Power in collaboration with the Los Angeles Department of Public Works Bureau of Engineering, Bureau of Sanitation, and the Los Angeles Department of Recreation and Parks. The goal of this project is to improve the City of Los Angeles's water quality and water supply by pre-treatment and infiltration of stormwater while also providing community enhancements and flood mitigation for the park and the disadvantaged community.

**97 POINTS**

**COUNTY SCORE**
**Safe Clean Water (SCW) Program**

### WET WEATHER WATER QUALITY BENEFITS

50/50

**49.78** AF/DAY Capacity

**97 %** Zinc Removal

**89%** E. coli Removal

### SIGNIFICANT WATER SUPPLY BENEFITS

12/25

**342** AF/YR Captured

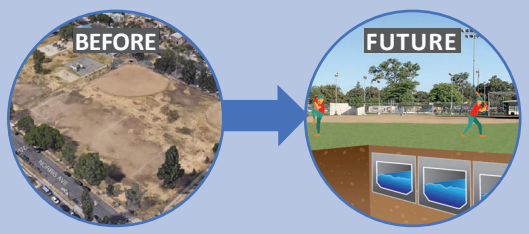
### NATURE BASED SOLUTIONS

15/15

Removes **100%** of impermeable area, adds native vegetation including **>40** trees and native plants

### COMMUNITY BENEFITS

10/10




- ✓ Flood Management
- ✓ Park Enhancements
- ✓ New Recreational Opportunities
- ✓ Greening of School
- ✓ Increased Trees and Shade
- ✓ Carbon Reduction

### LEVERAGING FUNDS AND COMMUNITY SUPPORT

10/10

**50 %** LADWP Funding

**50 %** SCW Funding

Total Project Cost ~ $39M

Community Support

Council for Watershed Health

Mountains Recreation & Conservation Authority

Pacoima Beautiful

MONICA RODRIGUEZ L.A. CITY COUNCILWOMAN

# Project Fact Sheet:

# East Los Angeles College Northeast Drainage Area and City of Monterey Park Biofiltration Project

## Project Description

The East Los Angeles College (ELAC) Northeast Drainage Area & City of Monterey Park Biofiltration Project will consist of three biofiltration systems. The biofiltration systems will be integrated into 1) the existing landscaped planter island in the median of the ELAC Transit Center, 2) the landscaped planter on the south edge in the ELAC Transit Center located in the City of Monterey Park right-of-way near the northeast part of the ELAC campus, and 3) the existing landscaped planter area along the perimeter of ELAC Parking Structure #4 adjacent to West Floral Drive and Collegian Avenue. The project will install biofiltration systems capable of accepting discharge from the drainage area, consisting of approximately 6.5 acres in the northeast portion of the ELAC campus and the ELAC Transit Center owned and operated by the City of Monterey Park. In order to facilitate drainage to these proposed biofiltration areas, some modifications to existing infrastructure are required. A concrete drainage swale is needed as part of the project to direct stormwater runoff from one of the drainage areas into the Transit Center biofiltration system, a pavement grind and overlay to the fire lane south of the ELAC Transit Center is needed to direct stormwater into the proposed biofiltration system on the south edge of the ELAC Transit Center, and modifications to the Parking Structure #4 runoff drainage system will be needed to direct runoff from the parking structure roof deck to the other biofiltration system along the northern and eastern perimeter of the parking structure. The completed project will provide stormwater mitigation and compliance under the future Small MS4 Permit for the project drainage area on the ELAC campus, as the State Water Board has identified its intention to designate community colleges with adoption of the next Small MS4 Permit.

## Multiple Project Benefits

This project will effectively capture and treat 0.3 acre-ft of stormwater runoff by upgrades to existing vegetated planter areas on the ELAC campus and in the ELAC Transit Center. The proposed improvements will not only result in functional treatment of stormwater runoff, but also enhanced aesthetics of the existing vegetated planter areas. Figure 1 is a rendering of the proposed biofiltration areas along the perimeter of Parking Structure #4 that would treat runoff from Drainage Area No. 1

**Figure 1 – Biofiltration planter rendering along Parking Structure #4 with frontage along West Floral Drive.**

## Project Sizing

The stormwater sizing criteria for the ELAC Northeast Drainage Area and City of Monterey Park Biofiltration Project is identified in Small MS4 Permit (SWRCB Order No.2013-001-DWQ), as this is the criteria that LACCD and ELAC will be subject to when LACCD is designated under the Small MS4 Permit. The volumetric criteria based on the 85$^{th}$ percentile 24-hour storm event identified in Section F.5.g.2.b. of the Small MS4 Permit was utilized in sizing the systems (results shown in Table 1 below).

**Table 1 - ELAC Northeast Drainage Area & City of Monterey Park Biofiltration Project Sizing**

| Drainage Area | BMP Type | Drainage Area Impervious (sq. ft.) | Drainage Area Pervious (sq. ft.) | Precip. Dep (in) | Design Volume (cu. ft.) | BMP Area Required (sq. ft.) | BMP Area Available (sq. ft.) | BMP Ponding Depth (ft.) |
|---|---|---|---|---|---|---|---|---|
| No. 1 | Biofiltration | 66,690 | 3,510 | 1 | 5,031 | 3,354 | 3,355 | 1.5 |
| No. 2 | Biofiltration | 122,200 | 16,400 | 1 | 9,302 | 6,201 | 6,235 | 1.5 |
| No. 3 | Biofiltration | 45,000 | 14,000 | 1 | 3,492 | 2,328 | 4,200 | 1.5 |

## Design Criteria

The structural stormwater measures or BMPs for the ELAC Northeast Drainage Area & City of Monterey Park Biofiltration Project will consist of two vegetated biofiltration systems to be located in existing landscaped planter island in the ELAC Transit Center located in the City of Monterey Park right-of-way and a third biofiltration system in the existing landscaped planter area along the perimeter of Parking Structure #4 adjacent to West Floral Drive and Collegian Avenue. Bioretention/biofiltration areas are depressed areas that accept stormwater discharges and include an aggregate layer with an underdrain, an engineered bioretention soil media, a mulch layer, bioretention plants, and an overflow drain for larger storm events. Biofiltration areas can accept sheet flows or concentrated flows and are volume-based systems. Figure 2 identifies a biofiltration planter box that has an impermeable liner developed by the California Stormwater Quality Association (CASQA)/Central Coast Low Impact Development Initiative (LIDI), which will be used for the biofiltration area that will treat runoff from Drainage Area No. 1 and Drainage Area No. 3. Figure 3 identifies a slope-sided bioretention developed by the CASQA)/ LIDI, which will be used for the biofiltration area that will treat runoff from Drainage Area No. 2 (except that it will also include an impermeable liner due to soil that is not conducive to infiltration). More information about the CASQA/LIDI biofiltration/bioretention designs are available at californialid.org.

**Figure 2 – Biofiltration Planter with Waterproof Liner – CASQA/LIDI**

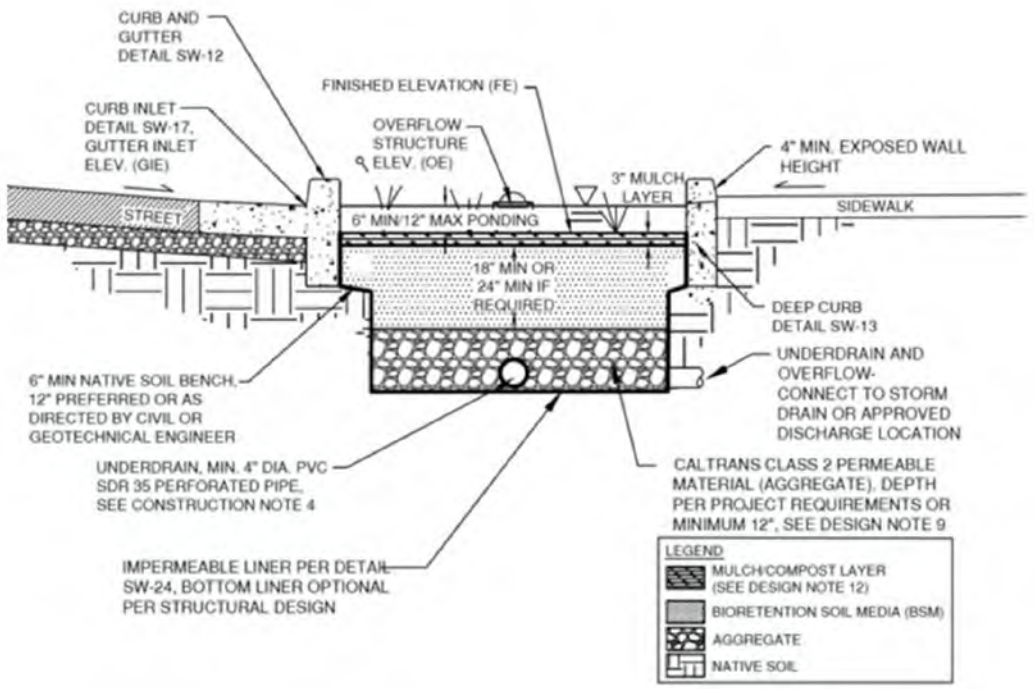


**Figure 3 – Street Slope-Sided Bioretention with Underdrain – CASQA/LIDI**

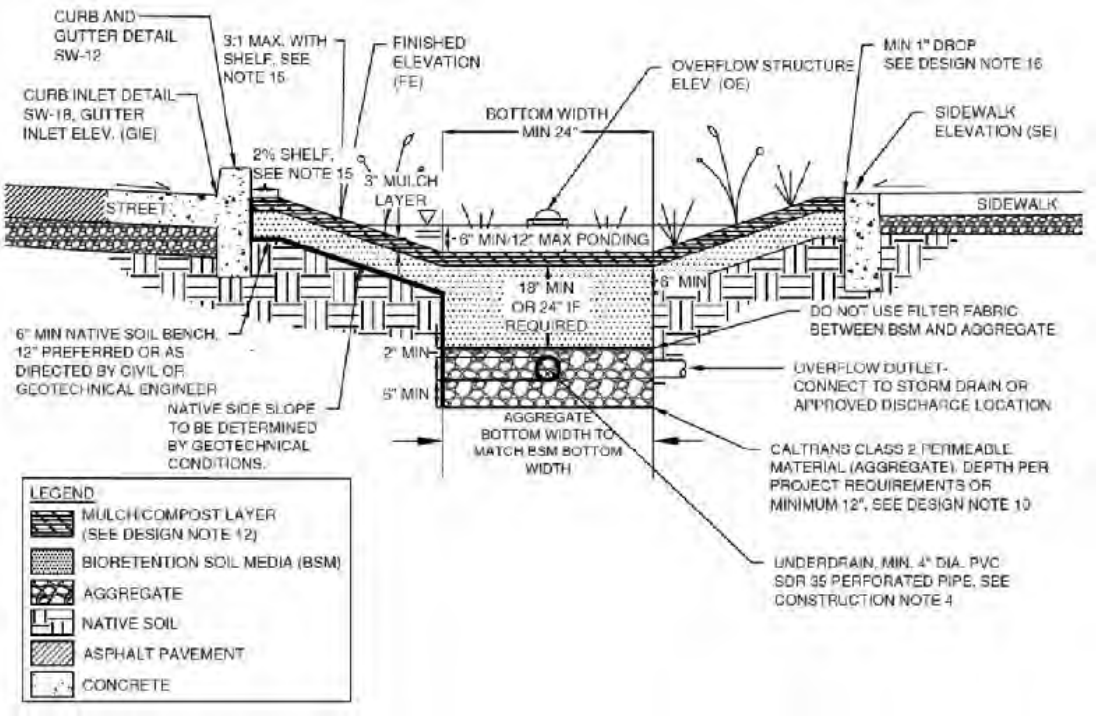



Figure 4 below is a rendering of the proposed biofiltration areas along the perimeter of Parking Structure #4 that would treat runoff from Drainage Area No. 1. Figure 5 below identifies a rendering of the proposed biofiltration area within the ELAC Transit Center island that would treat runoff from Drainage Area No. 2. Figure 6 below identifies a rendering of the proposed biofiltration area within the landscaped planter on the south edge in the ELAC Transit Center that would treat runoff from Drainage Area No. 3.

**Figure 4 –Bioretention Planter Rendering Along Parking Structure #4 (Collegian Ave. frontage)**

**Figure 5 – Bioretention Rendering looking northeast in ELAC Transit Center Median**

**Figure 6 – Bioretention Rendering looking northeast in landscaped planter on the south edge of the ELAC Transit Center**

# Primary Components

The San Gabriel Valley Council of Governments (SGVCOG), on behalf of the County of Los Angeles (County) and the Cities of Alhambra, Monterey Park, Pasadena, Rosemead, San Gabriel, San Marino, South Pasadena, and Temple City is implementing the Load Reduction Strategy (LRS) Projects for the Rio Hondo River and Tributaries. The purpose of the Project is to help the agencies comply with the final dry-weather Water Quality Based Effluent Limitations (WQBELs), as specified by the Los Angeles River Bacteria Total Maximum Daily Load (TMDL). The Project includes the Eaton Wash Dry-Weather Diversion, which will capture and treat runoff from Eaton Wash, as shown in **Figure 1**. The Project's primary components will include:

- Diversion Structure
  - Rubber dam
  - Inlet structure
  - Diversion pipe
- Pump Station
- Pretreatment and Treatment System
- Building/Enclosure

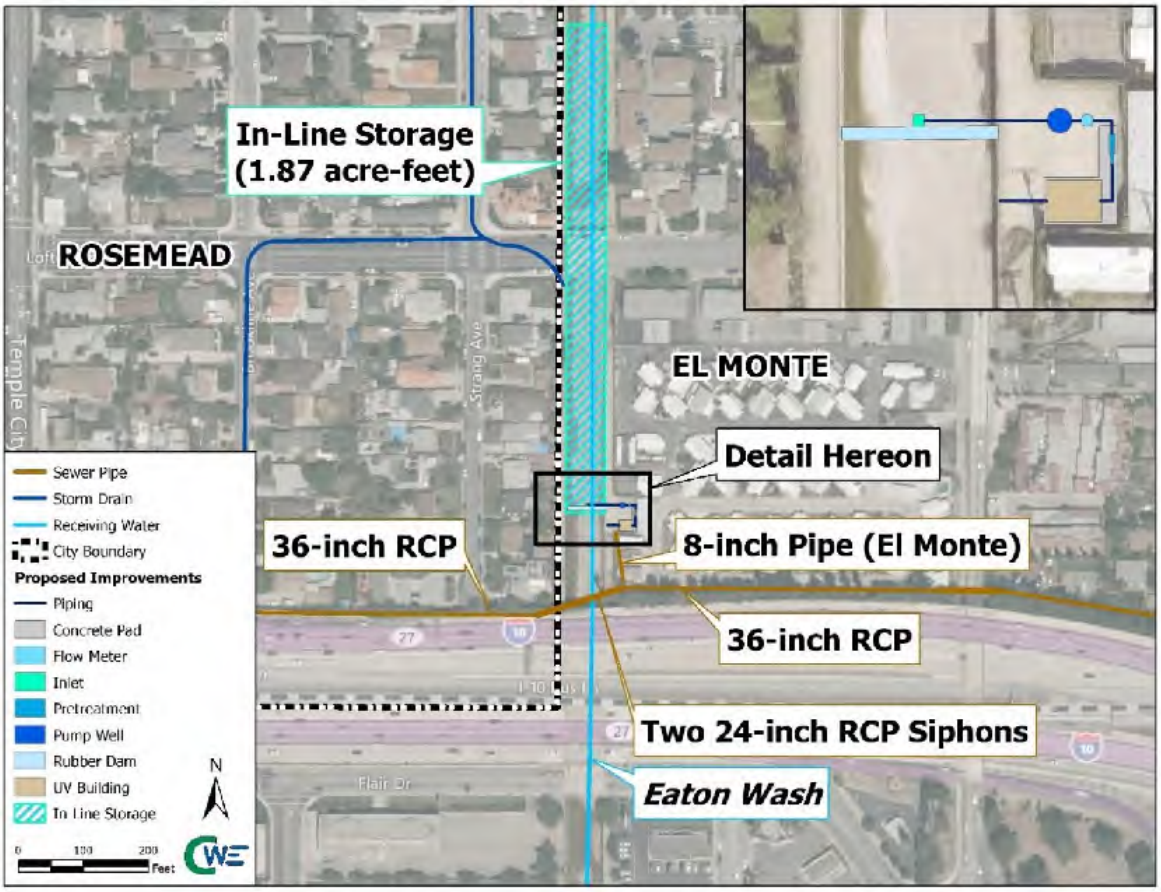



**Figure 1 Eaton Wash Proposed Conditions**

# Design Elements

The improvements proposed at Eaton Wash are illustrated in **Figure 1** and located near the between the 10 Freeway and Loftus Drive near Strang Avenue. The location of individual components is described below. The improvements are located within Eaton Wash and the access road next to the channel. Improvements are located as follows:

- Diversion structure – rubber dam and grated drop inlet within the channel and direct runoff to a gravity-driven pipe
- Pump station – belowground structure downstream of diversion system
- Pretreatment system – anticipated aboveground downstream of pump station
- Treatment system – located in enclosure/building
- Enclosure/building – house UV treatment system and rubber dam control structure

The Project will capture and treat runoff generated within the 15,680-acre drainage area shown in **Figure 2**. The Project will capture dry-weather runoff with a peak diversion rate of 630 gallons per minute (gpm) or 1.40 cubic feet per second (cfs).


**Figure 2 Project Location and Drainage Area Map**

# Benefits

The Project aims to achieve the water quality goals identified in the Rio Hondo LRS, Los Angeles River bacteria TMDL, Upper Los Angeles River (ULAR) Enhanced Watershed Management Program (EWMP), and Los Angeles County Municipal Separate Storm Sewer System (MS4) Permit by enhancing water quality locally and in downstream water bodies. The Project provides multiple benefits, which are summarized below:

- Improve water quality locally and in the Rio Hondo and Los Angeles River
  - Reduce bacteria loading and discharges from the drainage system
  - Contribute towards meeting the Los Angeles River dry-weather bacteria TMDL targets
- Provide benefits in addition to water quality (community benefits)
  - Outreach and educational opportunities for the local community
  - Inform community of water quality challenges and strategies to improve it
  - Installation of permanent educational signage
  - Potential inclusion of trees and/or swale to increase shade and reduce heat island effect

# Outreach

To date, outreach on the Project has been limited to stakeholders. Several stakeholder meetings have been held, which have included the implementing Cities and other local agencies that may be impacted by the Project. Project information will be shared with the public during the engineering and construction phases to address concerns, answer questions, and give updates. Public outreach meetings are expected to be conducted virtually using an online platform. It is anticipated that the public and nearby residents will be notified about the meeting though online postings, postcards, and/or the local newspaper.

# Estimated Project Scoring

The Project has an estimated score of 62 points. Most of the points are earned from the water quality (dry) section as shown in **Figure 3** for addressing bacteria loading and other pollutants within the Rion Hondo and Los Angeles River. **Table 1** summarizes the points earned and includes a description of how the points were determined in the Safe Clean Water Program Module. Additional details are included in the Feasibility Study and funding application.

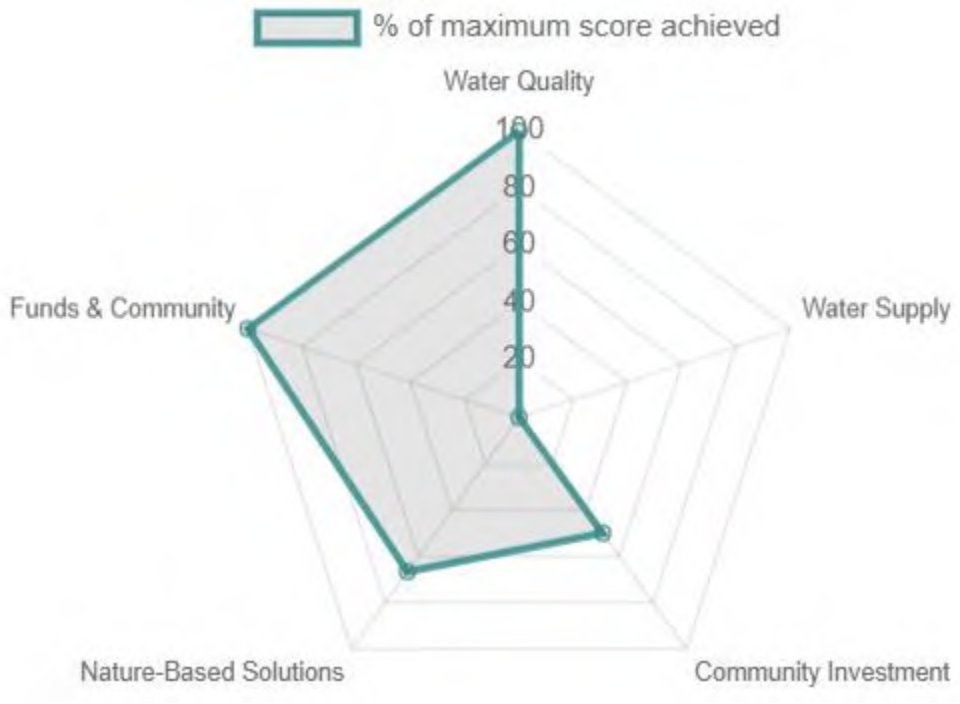



**Figure 3 Maximum Score of Each Scoring Section**

**Table 1 Summary of Project Scoring in Safe Clean Water Program Module**

| Category | Points | Description |
|---|---|---|
| Water Quality Wet + Dry (Part 1 and Part 2) | 40 | Project is expected to capture 100% of dry-weather runoff from a drainage area greater than 15,600 acres |
| Community Investment | 5 | Enhancing recreational opportunities, reducing heat island effect, and increasing shade through the planting of additional trees |
| Nature-Based Solutions | 10 | The pump well will promote infiltration, mimicing natural processes and natural materials will be used to plant trees and/or a swale |
| Leveraged Funding | 10 | At least 50% of the funding will be matched and the Project has support form local non-governmental organizations or community-based organizations |
| **Total:** | **65** | |

# Fairplex Stormwater Capture Project

## Project Description

The City of Pomona proposes to capture stormwater runoff to provide treatment and groundwater recharge at Fairplex (Project area), located at 1101 W. McKinley Ave. in Pomona, California. The project will capture 31.04 acre-feet (af) of stormwater runoff from a 488-acre drainage area surrounding the project area. The 24-hour, 85$^{th}$ percentile rainfall depth will be captured and treated using a hydrodynamic separator before it flows to an underground infiltration gallery (NDS Storm Chamber®) to provide infiltration-based treatment and groundwater recharge. The project area, vicinity map and stormwater capture area are shown in Figure 1.

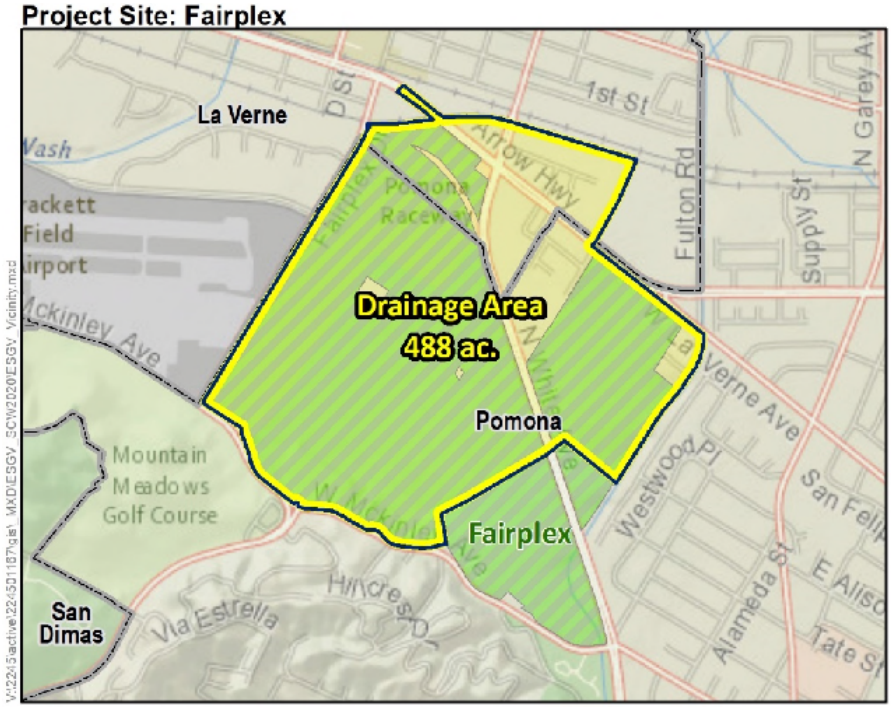



*Figure 1: Project Area, Vicinity and Drainage Area Map*

Existing site features at the project area are shown in Figure 2.

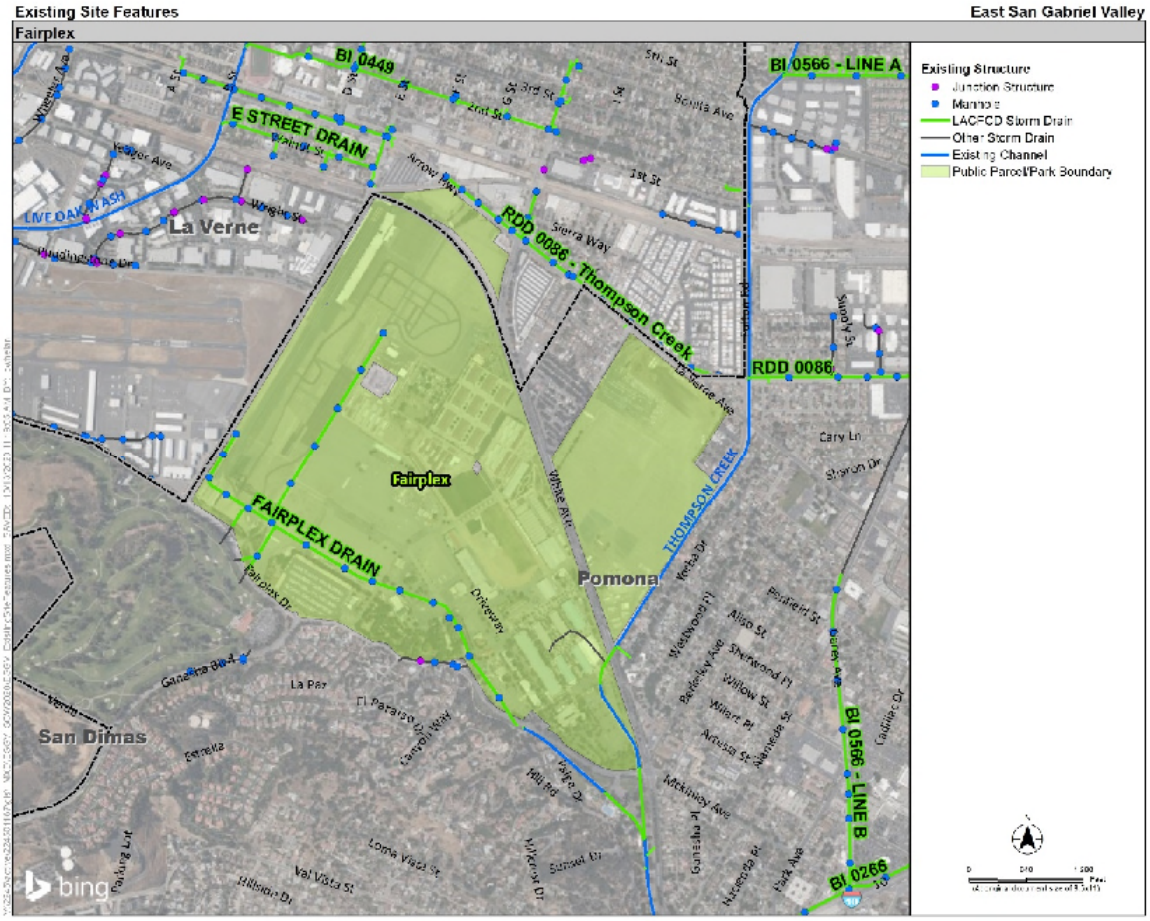



*Figure 2: Existing Site Features*

## Proposed Connections and Project Features

- ✓ Divert from LACFCD's RDD0086 – THOMPSON CREEK (W Arrow Hwy). Flows will be conveyed via gravity to a hydrodynamic separator for pretreatment and then conveyed via gravity to the infiltration gallery.
- ✓ Divert from LACFCD'S FAIRPLEX DRAIN (North of W McKinley Ave). Flows will be conveyed via gravity to a hydrodynamic separator for pretreatment and then pumped to the infiltration gallery.
- ✓ Install a new catch basin adjacent to Thompson Creek and drainage conveyance. Flows will be conveyed via gravity to a hydrodynamic separator for pretreatment and then conveyed to the infiltration gallery.
- ✓ Install an underground infiltration gallery (NDS StormChamber) within Grandstand Field on the Fairplex grounds.
- ✓ Connect emergency overflow pipe from the infiltration gallery to Thompson Creek.

Proposed project features are shown in Figure 3.

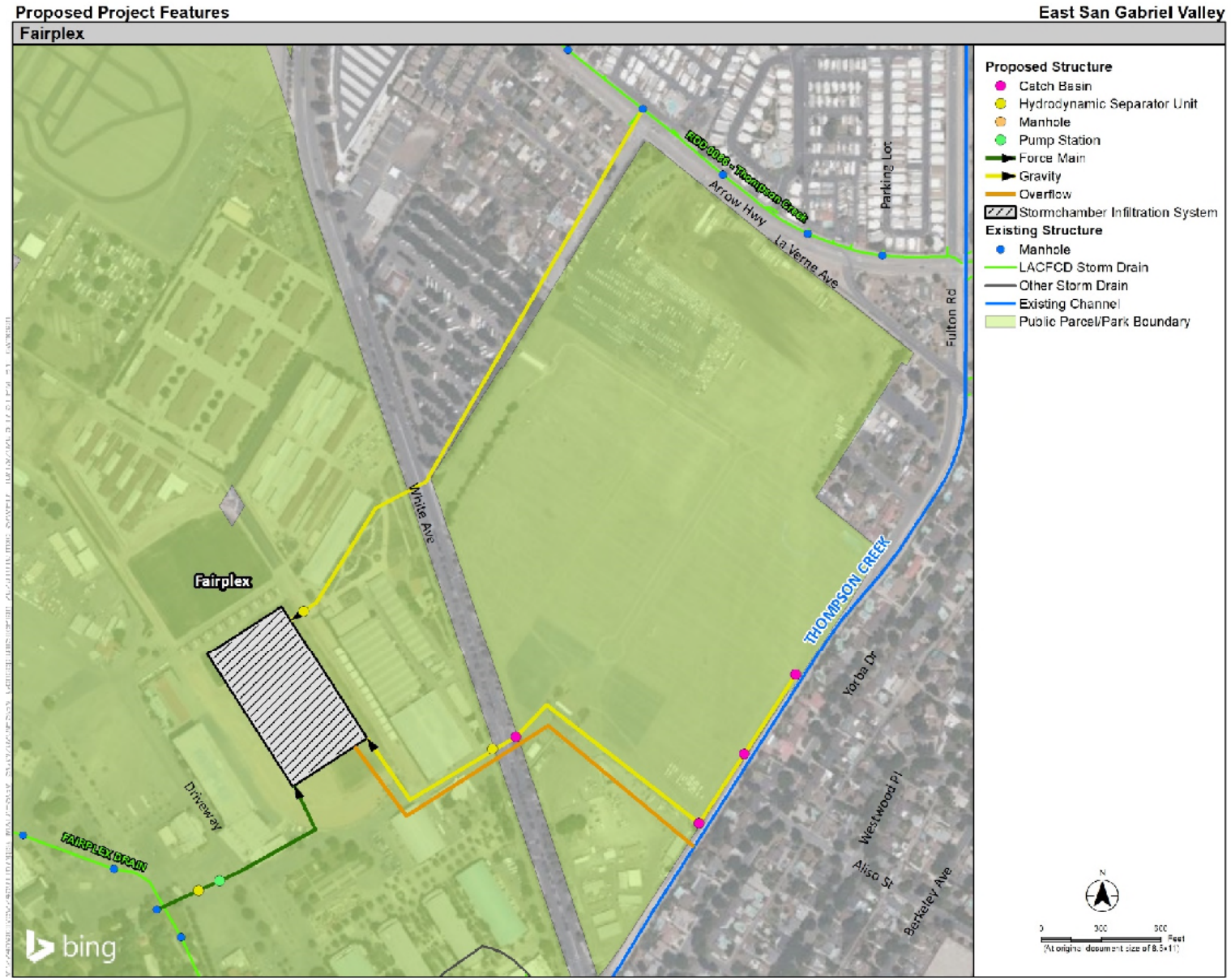



*Figure 3: Proposed Connections and Project Features*

## Project Benefits

- ✓ Prevent and reduce amount of pollutants discharged into Thompson Creek.
- ✓ Groundwater recharge by capturing and infiltrating runoff.
- ✓ Provide educational signage that explain the environmental and community benefits of the proposed project
- ✓ Restore and improve Grandstand Field.

## Project Cost Estimate

- ✓ Preliminary total project cost estimate: $31.9 M
- ✓ Preliminary construction estimate: $29.0 M
- ✓ Design (Soft costs): $2.9 M

## Tentative Milestone Schedule

- ✓ September 2021 – August 2022 Design and Permitting
- ✓ September 2022 – August 2024 Construction

## Outreach

The project teams have engaged with the Los Angeles County Fair Association that uses the 487-acre Fairplex to conduct the Los Angeles County Fair and year-round business. A specific plan is going to be developed by the Los Angeles County Fair Association for the Fairplex in coordination with the local community. Project specific input from the community will also be sought during the design phase.

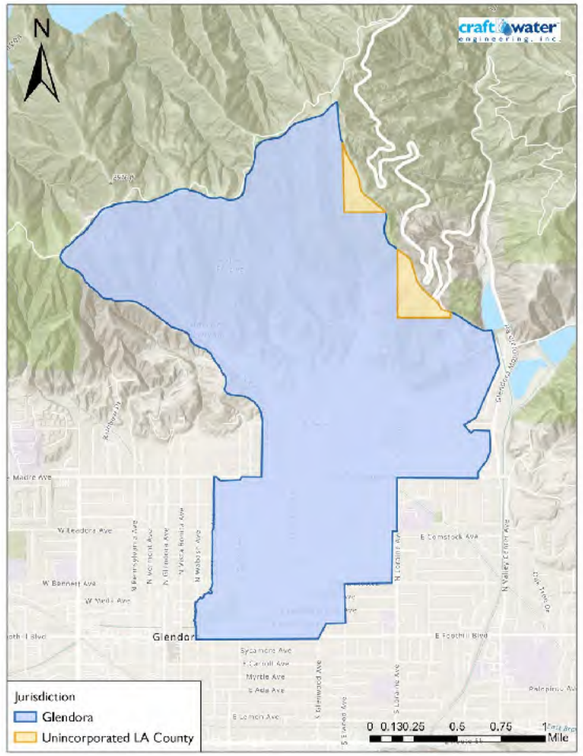
## Detailed Summary of the Estimated Project Scoring

According to Safe Clean Water Project online scoring criteria, the estimated score for this project is 73 points. The system scores the project from 5 different perspectives, which are:

- ✓ Water Quality (50/50)
- ✓ Water Supply (12/25)
- ✓ Community Investment (2/10)
- ✓ Nature-Based Solutions (5/15)
- ✓ Leveraging Funds (4/10)

## EXISTING SITE CONDITIONS


## DRAINAGE AREA




## DRAINAGE CHARACTERISTICS

| | |
|---|---|
| **REGIONAL WATER MANAGEMENT PLAN** | Upper San Gabriel River Watershed |
| **TOTAL DRAINAGE AREA** | **1,596 acres**<br>Glendora(97.5%)<br>Unincorporated LA County (2.5%) |
| **INFILTRATION RATE** | 1.9 in/hr |
| **APPROX. DEPTH TO GROUNDWATER** | >70 ft BGS |
| **MODELED AVERAGE ANNUAL RUNOFF VOLUME** | 851<br>ac-ft per year |

## Finkbiner Park Site, Northeast Baseball Field

## Little Dalton Wash

## BMP CHARACTERISTICS

**LOCATION** Finkbiner Park
160 N Wabash Ave, Glendora, CA

LAT: 34.137192
LONG: -117.862228

**Proposed BMP Description:** Finkbiner Park is an 11.46-acre, multipurpose recreational facility, located in the City of Glendora. It sits at the bottom of a 1,596-acre watershed that drains through the upstream storm drain system into Little Dalton Wash, which runs along the southern edge of the park. Finkbiner Park is improved with multiple facilities including four (4) grass and infield soil areas of 4 baseball fields, a basketball court, and concrete walking paths where the project is proposed. The site has the potential to provide significant water quality benefits for the City of Glendora due to the sizable drainage area, location of the adjacent storm drains, and available development space. The project includes a 65 cfs diversion from Little Eaton Wash and a 10 cfs diversion from MTD 1129. The diversions go to a pretreatment unit and then to the 19 ac-ft subsurface storage where it is then infiltrated into the subgrade. This project has the potential to offer runoff storage, water quality improvements, and water supply benefits for this drainage area that can address the additional needs for stormwater management identified to achieve compliance in the EWMP.

**Project Benefits:**

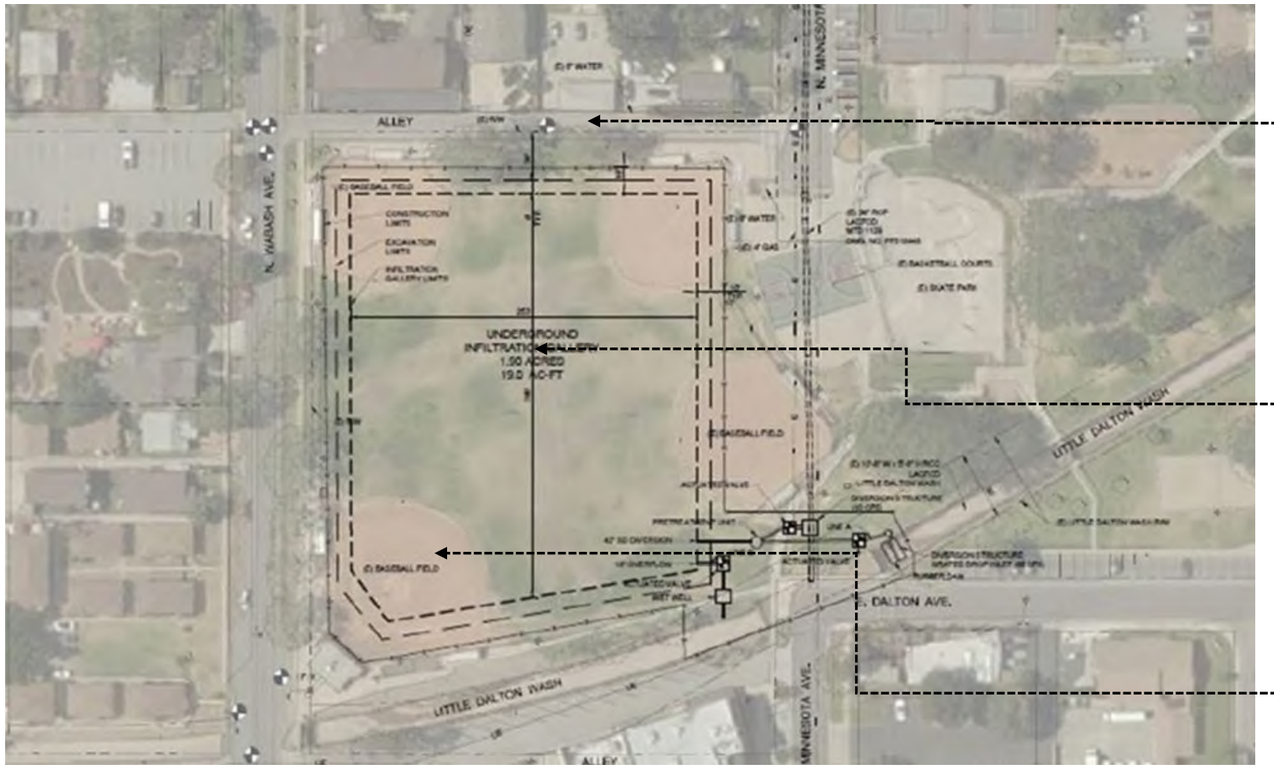
- **Water Quality** Improvement in the Upper San Gabriel River by removing trash, metals, and nutrients in stormwater and urban runoff
- **Park recreational enhancements** with maintaining a public play space, restoring park facilities and irrigation system for improved coverage
- **Public education** on local water supply and demands

UPPER SAN GABRIEL RIVER WATERSHED GROUP, CITY OF GLENDORA

# FINKBINER PARK STORMWATER CAPTURE PROJECT FACT SHEET

craftwater engineering, inc.

## PROPOSED CONCEPTUAL SITE LAYOUT




**Green Alley**

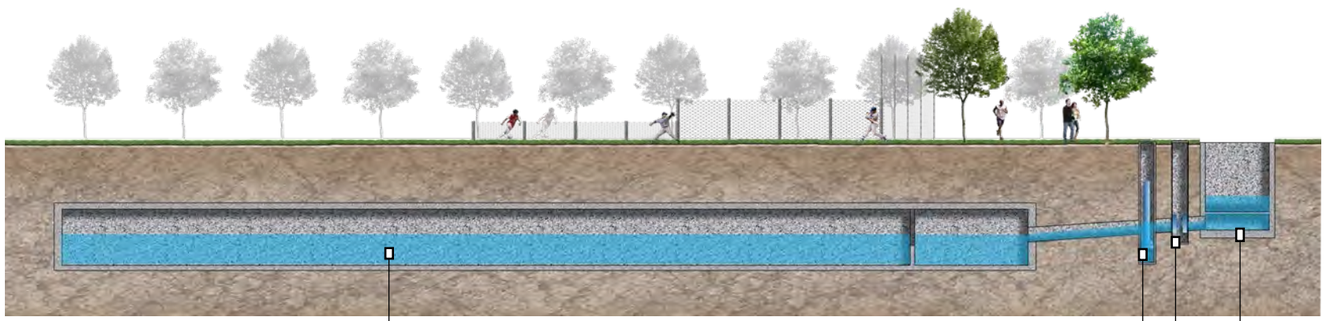
**Pre-Cast Subsurface Infiltration Facility**

**New Baseball Fields**

## PRELIMINARY SCW SCORING

| SECTION | Score |
|---|---|
| **A.1 Wet Weather Water Quality Benefits**<br>• A.1.1 Water Quality Cost Effectiveness > 1.0 AF/$Million<br>• A.1.2 Pollutant Reduction >80% | 20<br>25 |
| **B. Significant Water Supply Benefits**<br>• B1. Water Supply Cost Effectiveness<br>• B2. Water Supply Benefit Magnitude | 3<br>12 |
| **C. Community Investment Benefits**<br>• Improved flood management<br>• Creation/enhancement/restoration of parks<br>• Improved public access to waterways<br>• Enhanced/new recreational opportunities | 5 |
| **D. Nature-Based Solutions** | 12 |
| **E. Leveraging Funds and Community Support**<br>• Municipal match = 25%<br>• Strong local, community-based support | 3<br>4 |
| **TOTAL SCORE** | **84** |

## CROSS SECTION




## PROJECT CHARACTERISTICS

| | |
|---|---|
| <u>Primary Pollutant</u><br>Zinc Reduction Achieved (% Zn reduction) | 159 lb/yr (81.5%) |
| <u>Secondary Pollutant</u><br>Bacteria Reduction Achieved (% Bacteria reduction) | 1.24 x $10^{13}$MPN (56.4%) |
| <u>Design Diversion Rate</u><br>Little Dalton Wash and MTD 1129 | 75 cfs |
| Storage Capacity for Subsurface Storage Structure | 19.0 ac-ft |
| 24-Hour Capacity | 24.5 ac-ft |
| Construction Cost Estimate | $19,526,111 |

UPPER SAN GABRIEL RIVER WATERSHED GROUP, CITY OF GLENDORA

# FINKBINER PARK STORMWATER CAPTURE PROJECT FACT SHEET

craftwater engineering, inc.

# Furman Park Stormwater Capture and Infiltration Project

## City of Downey | Regional Project Program

City of Downey

JLHA MUNICIPAL CONTRACTOR

## Overview

**Project Description:** Regional stormwater capture and infiltration system that will also improve utility and recreational facilities at a community park in Downey.

**Total Project Cost:** $14,325,670

**SCW Funding Requested:** $12,325,670 for Design and Construction

**Cost Share:** City intends to commit $2,000,000 of municipal funds towards the project.

**Benefits:**

- **Water quality:** divert runoff and stormwater from nearby storm drain line, treat, and infiltrate into a subsurface **8.4ac-ft capacity storage** infiltration facility. Project will address total zinc as the primary pollutant and bacteria as the secondary pollutant.
- **Water supply:** as part of the Montebello Forebay area, the project has the potential to capture and **recharge 577.5 ac-ft per year** to the Central Basin aquifer.
- **Disadvantaged Community:** Furman Park is enjoyed by the local community and neighboring DAC communities. Measure S funds were utilized to improve turf, playground equipment, sports fields, and community utiliteis in July 2020. Funding request includes **$100,000** for a public outreach.
- **Nature-Based:** Using Measure S funds, the planned vegetated bioswale and permeable pavement at the parking lot were completed in July 2020. A recycled water line was also extended to the SW corner of the park in anticipation of recycled water irrigation. A bird and butterfly garden will be installed in the area above the underground storage facility.



## Location

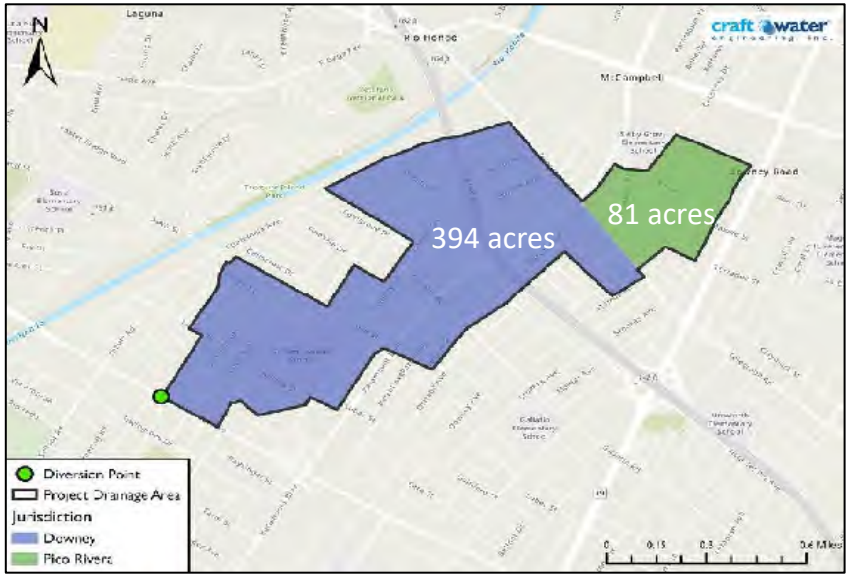
**Coordinates:** (33.953775, -118.137414)

**High Soil Infiltration Rate:**
- 18 in/hr at 10 ft
- 51 in/hr at 35 ft

**Depth to Groundwater:** > 51.5 ft

**Montebello Forebay:** project is in the Montebello Forebay area, which accounts for nearly half of total groundwater replenishment in the Central Basin.

## Drainage Area




**Total Drainage Area:** 475 ac

**Jurisdictions Included in Drainage Area:**
- City of Downey: 394 ac
- City of Pico Rivera: 81 ac

**Watershed:** Lower Los Angeles River Watershed Management Group (LLAR WMG) identified Furman Park as a top priority site for construction of a regional BMP to achieve TMDL compliance targets. The LLAR WMG contributed **$70,000** for the project's 10% design plan and preliminary design report.

# Design


## Project Design:

**Wet Weather:** the full 85th percentile storm is being captured by the project as the diversion can capture peak flowrate and the storage and throughflow are large enough to capture full storm event volume.

**Diversion:** proposed flow rate of 50 cfs from BI0020 Storm Drain Line.

**Pretreatment:** hydrodynamic separator to remove sediment/trash larger than 2.4mm, remove 80% of particles 130 microns or larger, and remove hydrocarbons from captured runoff/stormwater before infiltration.

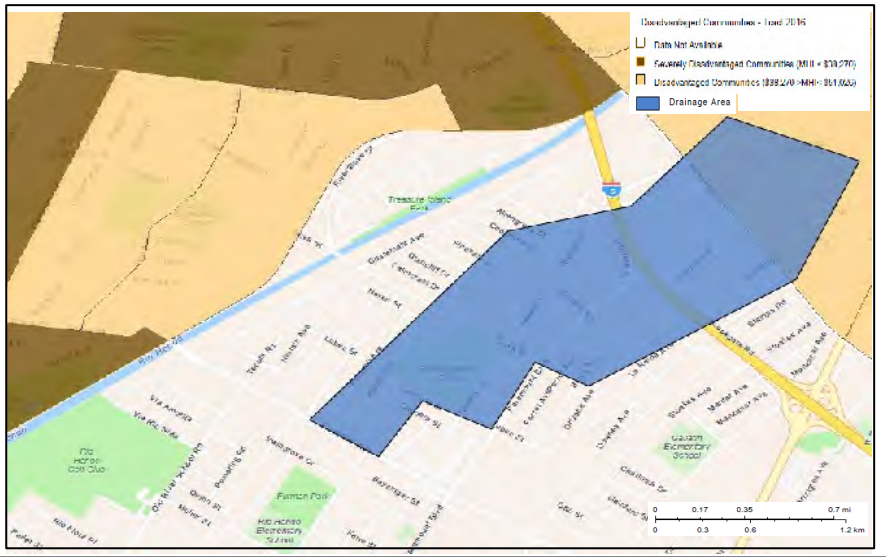
**Infiltration Facility:** 8.78 ac-ft storage reservoir with a storage depth of 4.5 ft, a freeboard depth of 1 ft, and a footprint of 1.87 acres.

**Treatment and Discharge:** in case of a storm event with volume larger than project design, a pump and filter system will lift water from the storage tank and discharge flow to an existing storm drain in the southwest area of the park. Estimated treatment rate is 16.8 cfs.

**Dry wells:** to be considered if feasible.



# Community Benefits and Nature-Based Solutions




## Community Benefits:

- **Improve flood management:** infiltration system will reduce stress on the storm drain system of an area close to the Rio Hondo and prone to flooding during large storm events.
- **Enhance park facilities:** removal and improvement of exercise equipment, addition of recycled water for irrigation, and new competition baseball fields.
- **Create watershed educational opportunities:** adjacent Rio Hondo Elementary School has opportunity to learn about stormwater. Birds and butterfly native garden will include educational signage.
- Additional **native Californian landscaping and bird and butterfly garden** will reduce heat island effect and increase shade and tree count.

## Nature-Based Solutions:

- Using Measure S funds, the planned vegetated bioswale and permeable pavement have already been completed.
- Further native California landscaping planned for post-construction plans.

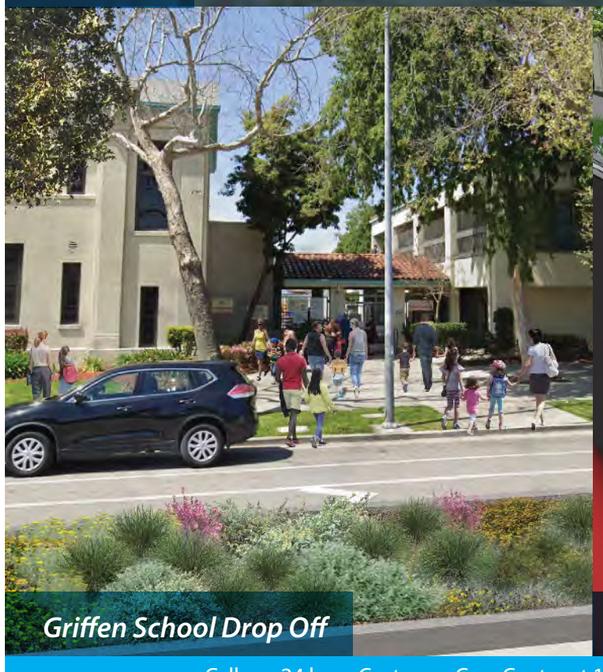
As a covered entity under Title II of the Americans with Disabilities Act, the City of Los Angeles does not discriminate on the basis of disability and, upon request, will provide reasonable accommodation to ensure equal access to its programs, services and activities

# Lincoln Park Neighborhood Green Street Network Project

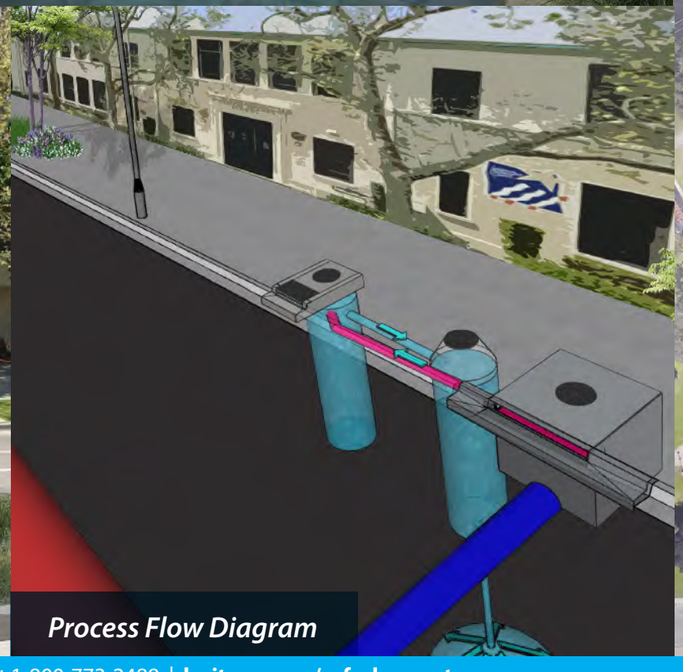
## FACT SHEET

The goal of this project is to improve water quality within the Upper Los Angeles River Watershed (ULAR). Other improvements include flood mitigation and habitat restoration. Improvements to the park will also make improve the safety of the park, and access for the communityas well as improve community access through improvements to the lake. However, the green street network is where the project really provides direct benefits to the community: more than three miles of green streets through the Lincoln Heights neighborhood will improve air quality and provide aesthetically appealing green spaces for residents to enjoy year-round. Additional trees through the neighborhood will provide shade, reducing reduce the heat island effect and cooling the area for pedestrians and people engaged in active recreation. The 46 drywells will be largely invisible from the surface (save for a few covered access holes), but will reduce flooding, especially during significant storm events. Collectively, these improvements will be a newer, fresher, and greener start to this neighborhood, all without displacing any residents or businesses.

*Bioswales*



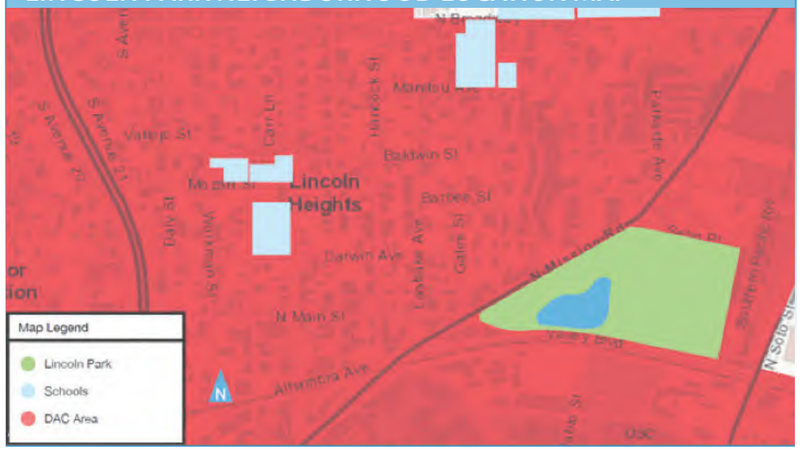
*Griffen School Drop Off*



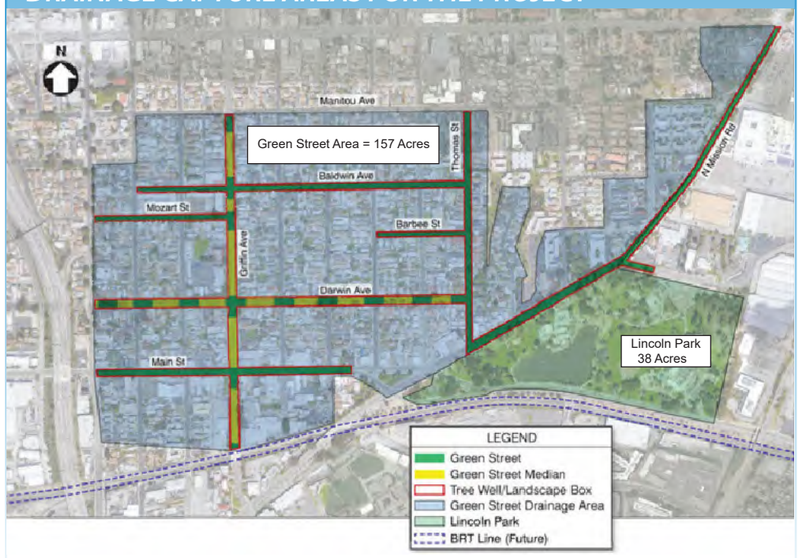
*Process Flow Diagram*

# Lincoln Park Neighborhood Green Street Network Project

## LINCOLN PARK NEIGHBORHOOD LOCATION MAP




## DRAINAGE CAPTURE AREAS FOR THE PROJECT




## SUMMARY OF COST ESTIMATE

| Description | Cost |
|---|---|
| Construction Cost (Including 20% Contingency) | $16,448,704 |
| Project Delivery (Engineering & Design, Legal, Adm, etc.) | $2,185,874 |
| Total Project Cost | $18,634,578 |
| Annual Operation and Maintenance | $255,371 |
| Project Life Cycle Cost (50-Years): | $23,506,519 |

## LOCATION

Lincoln Park Neighborhood Green Street Network

3501 Valley Blvd, Los Angeles, CA 90031

City of Los Angeles, Department of Recreation and Parks

Neighborhood Council:

Council District: 1 (Gilbert Cedillo)

Supervisorial District: 1 (Hilda Solis)

Assembly District: 51 (Wendy Carrillo)

State Senate District: 24 (Maria Elena Durazo)

Congressional District: 34 (Jimmy Gomez)

## SCOPE

- 46 dry wells
- 500 trees
- 1,100 parkway planters
- 16 new vegetated medians

## DAC BENEFITS

Describe how the project will provide benefits to a DAC: The project will provide educational opportunities for members of the community to learn about stormwater and water resources. Benefits from increased trees and greening will include additional shade, improved air quality and a reduction in the heat island effect. In addition, the project will provide water quality benefits by reducing pollutants in local runoff at the park and in runoff from the project watershed, which is also largely a DAC. The project will provide water supply benefits through groundwater recharge of the underground aquifer, which is used as a water supply source for the area. Community investments from the project include six of the seven SCW defined community investments (improved flood mitigation, restoration of parks, enhanced recreational opportunities, increasing shade, carbon sequestration, and greening at schools). Flood mitigation benefits will also accrue to the area as the dry wells will remove surface water during rain events.

## GREEN STREET ELEMENTS

Because the park is in an urban area and the neighborhood surrounding the park generally lacks green elements, the project will include a series of green street elements that will both capture stormwater and functionally extend the park into the neighborhood to the east. These elements will be placed throughout a 156-acre area bordered roughly by Manitou Avenue, Thomas Street, the street to the south, and the street to the east and along Mission Road. By connecting the park to the neighborhood, the park also connects to schools in the area. See Figure 9 for proposed green street elements at Griffin Elementary School.

## PRELIMINARY PROJECT SCHEDULE | TOTAL DURATION: 59 MONTHS

| Task Name | YR1-FY21/22 | | | | YR2-FY22/23 | | | | YR3-FY23/24 | | | | YR4-FY24/25 | | | | YR5-FY25/26 | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
| Planning | | | | | | | | | | | | | | | | | | | | |
| Baseline Monitoring | | | | | | | | | | | | | | | | | | | | |
| Design | | | | | | | | | | | | | | | | | | | | |
| Permitting | | | | | | | | | | | | | | | | | | | | |
| Procurement | | | | | | | | | | | | | | | | | | | | |
| Construction | | | | | | | | | | | | | | | | | | | | |
| Optimization | | | | | | | | | | | | | | | | | | | | |
| Outreach | | | | | | | | | | | | | | | | | | | | |

## ANTICIPATED SAFE CLEAN WATER PROGRAM SCORE

| Section | Score Range | Scoring Standards | Score | Notes |
|---|---|---|---|---|
| | 50 max | The Project provides water quality benefits | | |
| A.1 Water Quality Benefits | 20 max | A.1.1: For Wet Weather BMPs Only: Water Quality Cost Effectiveness (Cost Effectiveness) = (24-hour BMP Capacity)[1] / (Capital Cost in $Millions)<br><0.4 (acre feet capacity / $-Million) = 0 points<br>0.4-0.6 (acre feet capacity / $-Million) = 7 points<br>0.6-0.8 (acre feet capacity / $-Million) = 11 points<br>0.8-1.0 (acre feet capacity / $-Million) = 14 points<br>>1.0 (acre feet capacity / $-Million) = 20 points | 20 | 85th percentile storm is 46AF. Capital cost is $16,448,704. For calculation 46/16.4 = 2.8. |
| - OR - | 30 max | A.1.2: For Wet Weather BMPs Only: Water Quality Benefit - Quantify the pollutant reduction<br>Primary Class of Pollutants<br>>80% = 20 points (Max available)<br>Second or More Classes of Pollutants<br>>80% = 10 points (Max available) | 30 | 86.3% Zinc load reduction and 100 trash load reduction. |
| A.2 Dry Weather Water Quality Benefits | 20 points | A.2.1: For dry weather BMPs only. | | N/A. Wet weather BMP |
| | 20 max | A.2.2: For Dry Weather BMPs Only. | | N/A. Wet weather BMP |
| B. Significant Water Supply Benefits | 25 max | The Project provides water supply benefits | | |
| | 13 max | B1. Water Supply Cost Effectiveness. | 0 | $10,921 /ac-ft. |
| | 12 max | B2. Water Supply Benefit Magnitude. The yearly additional water supply volume resulting from the Project is:<br>• 25 - 100 ac-ft/year = 2 points | 2 | 76.84 AF per year of water capture. |
| C. Community Investments Benefits | 10 max | The Project provides Community Investment Benefits | | |
| | 10 points | C1. Project includes:<br>• One of the Community Investment Benefits identified = 2 points<br>• Three distinct Community Investment Benefits identified = 5 points<br>• Six distinct Community Investment Benefits identified= 10 points | 10 | Can define 6 Community Investment Benefits (flood mitigation, restoration of parks, enhanced recreational opportunities, increasing shade, carbon sequestration and greening at schools). |
| D. Nature-Based Solutions | 15 max | The Project implements Nature-Based Solutions | | |
| | 15 points | D1. Project:<br>• Implements natural processes or mimics natural processes = 5 points<br>• Utilizes natural materials = 5 points<br>• Removes Impermeable Area from Project (1 point per 20% paved area removed) = 5 points | 10 | Natural processes used and California-native vegetation is preferred. |
| E. Leveraging Funds and Community Support | 10 max | The Project achieves one or more of the following: | | |
| | 6 max | E1. Cost-Share. Additional Funding has been awarded for the Project. | 0 | |
| | 4 points | E2. The Project demonstrates strong local support. | 0 | |
| **Total** | **Total Points All Sections 110** | | **72** | **Total points for proposed project** |

# Lone Hill Stormwater Capture Project

## Project Description

The City of San Dimas proposes to capture stormwater runoff to provide treatment and groundwater recharge at Lone Hill Park (Project area), located at 500 N Shellman Ave in San Dimas, California. The project will capture 9.50 acre-feet (af) of stormwater runoff from a 219-acre drainage area located north and northeast of the project area. The 24-hour, 85th percentile rainfall depth will be captured and treated using a hydrodynamic separator before it flows to an underground infiltration gallery (NDS Storm Chamber®) to provide infiltration-based treatment and groundwater recharge. The project area, vicinity map and stormwater capture area are shown in Figure 1.

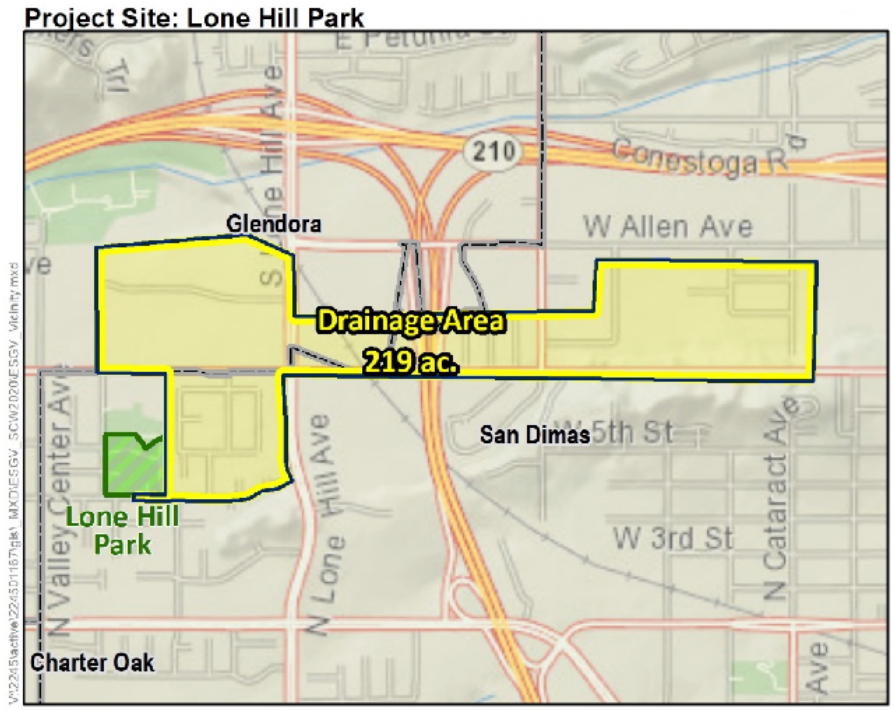



*Figure 1: Project Area, Vicinity and Drainage Area Map*

Existing site features at the project area are shown in Figure 2.


*Figure 2: Existing Site Features*

## Proposed Connections and Project Features

- ✓ Connect to LACFCD's JUANITA AVENUE DRAIN (W Juanita Avenue, west of Kennedy Road). Flows will be conveyed via gravity to a hydrodynamic separator for pretreatment and then pumped to the infiltration gallery.
- ✓ Connect to LACFCD's BI 1121 (W Gladstone Street at N Shellman Ave). Flows will be conveyed via gravity to a hydrodynamic separator for pretreatment and then pumped to the infiltration gallery.
- ✓ Install an underground infiltration gallery (NDS StormChamber) within Lone Hill Park beneath a proposed parking lot, ADA accessible playground, and drought tolerant demonstration garden.
- ✓ Connect emergency overflow pipe from the infiltration gallery to LACFCD's JUANITA AVENUE DRAIN (W Juanita Avenue at Shellman Ave).

Proposed project features are shown in Figure 3.

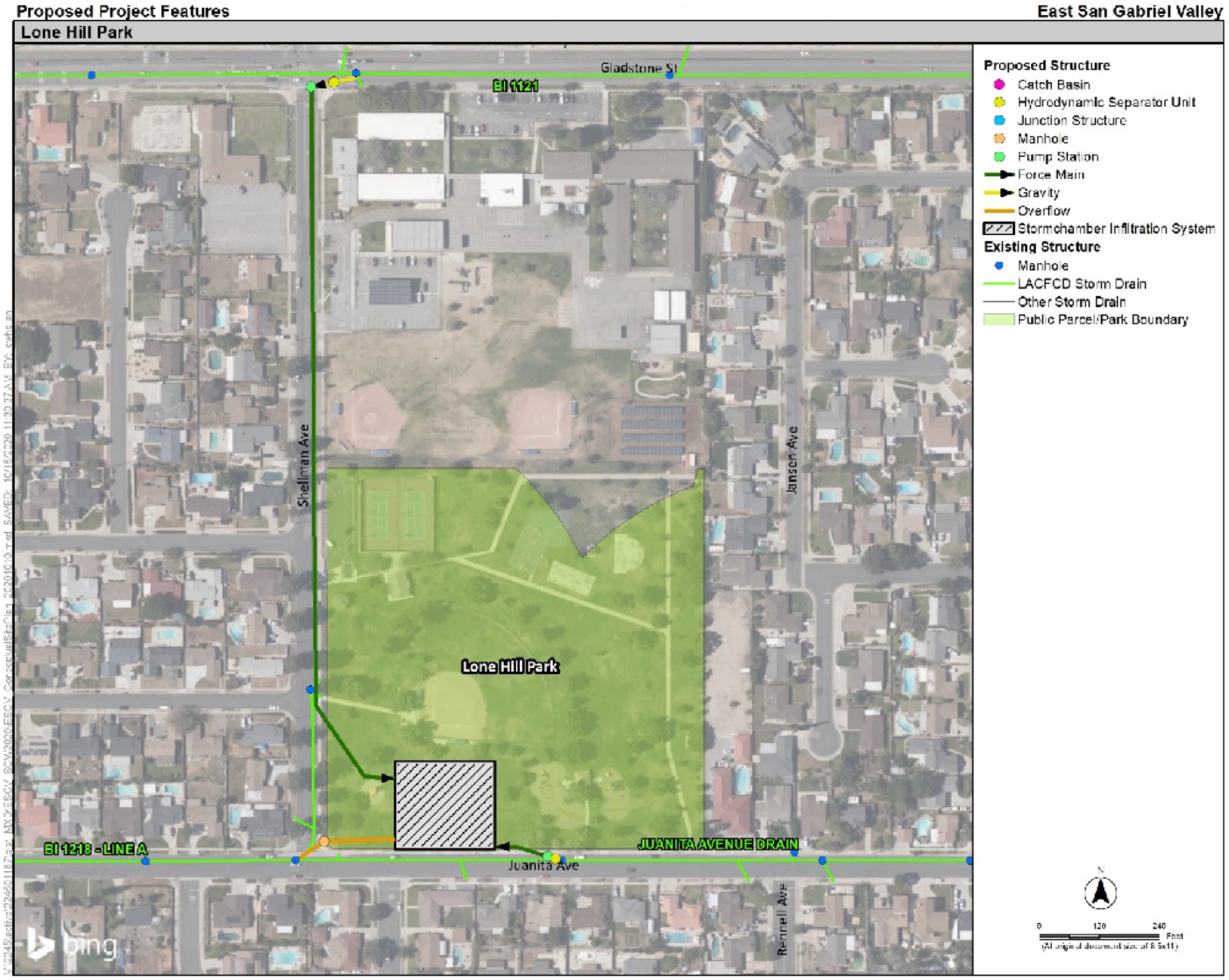



*Figure 3: Proposed Connections and Project Features*

## Project Benefits

- ✓ Prevent and reduce amount of pollutants discharged into San Dimas Wash and Charter Oak Creek.
- ✓ Provide park improvements including ADA accessible special needs playground, 20-30 space parking lot, drought tolerant demonstration garden with educational signage, and turf reduction.


*Figure 4: Park Improvements - Concept*

## Project Cost Estimate

- ✓ Preliminary total project cost estimate: $9.9 M
- ✓ Preliminary construction estimate: $9M
- ✓ Design (Soft costs): $0.9 M

## Tentative Milestone Schedule

- ✓ September 2021 – August 2022 Design and Permitting
- ✓ September 2022 – August 2024 Construction

## Outreach

- ✓ The project concept was presented at a city council and housing authority meeting.

## Detailed Summary of the Estimated Project Scoring

According to Safe Clean Water Project online scoring criteria, the estimated score for this project is 74 points. The system scores the project from 5 different perspectives, which are:

- ✓ Water Quality (50/50)
- ✓ Water Supply (5/25)
- ✓ Community Investment (5/10)
- ✓ Nature Based Solutions (10/15)
- ✓ Funds & Community (4/10)

# Project Fact Sheet:
# Los Angeles Pierce College (LAPC) Northeast Campus Stormwater Capture & Use and Biofiltration Project

## Project Description

The LAPC Northeast Stormwater Capture & Use and Biofiltration Project will consist of two underground cisterns or tanks for the capture of stormwater and an underground irrigation system for the distribution and use of the captured stormwater. The underground cisterns or tanks will be placed under a portion of the LAPC soccer field and underneath a grassed area to the east of the LAPC baseball field. These systems will also include hydrodynamic separators as pre-treatment systems, an underground irrigation system to be placed under the LAPC ball fields, pumps for pumping water into the underground irrigation system, and filtrations systems such as sand filters or mechanical filters to remove solids prior to pumping into the underground irrigation system. Additionally, the project proposes to incorporate vegetated biofiltration areas in the campus football stadium parking lot (Parking Lot 5) located primarily in the pavement area in the center of existing parking stall rows, and along the eastern portion of the parking lot perimeter. These vegetated areas will be sized to accept sheet flow runoff from the parking lot asphalt surface.

## Multiple Project Benefits

This project will effectively capture runoff from approximately 80% of the LAPC campus impervious area and demonstrates a significant reduction in runoff to the local storm drain network while also providing a non-potable water supply and therefore reducing the potable water demand for irrigation associated with the campus ball fields.

## Project Phasing

In 2019, a thorough utility survey was conducted for the entire LAPC campus. The resulting information shows that the Northeast portion of the campus can be effectively subdivided into two drainage areas, Northeast-North (Phase 1) and Northeast-South (Phase 2). LACCD is planning the implementation of the Northeast-North, Phase 1, of the project which drains a slightly larger area of the northeast campus and is associated with underground storage of stormwater under a portion of the LAPC soccer field. The Northeast-South stormwater project, Phase 2, includes the Northeast-South drainage area and incorporates underground storage below the grassy field beyond the outfield fence of the LAPC baseball field. In addition to the stormwater capture and use system, the project also includes a biofiltration element for capture of stormwater from LAPC Parking Lot 5, providing the additional benefits of a nature-based solution. Phase 2 will be implemented if Safe Clean Water Program funds are awarded.

## Project Sizing

The stormwater sizing criteria for the LAPC Northeast Stormwater Capture & Use and Biofiltration Project is identified in Small MS4 Permit (SWRCB Order No.2013-001-DWQ), as this is the criteria that LACCD and LAPC will be subject to when LACCD is designated under the Small MS4 Permit. The State Water Board has identified its intention to designate community colleges with adoption of the next Small MS4 Permit. The volumetric criteria based on the 85$^{th}$ percentile 24-hour storm event, identified in Section F.5.g.2.b. of the Small MS4 Permit, was utilized in sizing the systems (results shown in Table 1 below).

| Drainage Area | BMP Type | Drainage Area (sf) | | Precip | Design Volume | Area (sf) | | BMP |
|---|---|---|---|---|---|---|---|---|
| | | Imp (sf) | Perv (sf) | Depth (in) | (cf) | Min Required | Available | Depth (ft) |
| Northeast-North (LAPC 3A) | Capture & Use | 2,194,481 | 944,118 | 1 | 172,454 | 43,113 | 106,800 | 4.0 |
| Northeast-South (LAPC 3B) | Capture & Use | 1,758,418 | 1,414,255 | 1 | 143,667 | 35,917 | 206,744 | 4.0 |
| Stadium Parking | Biofiltration | 150,543 | 16,727 | 1 | 11,430 | 7,620 | 7,693 | 1.0 |

## Design Criteria

The structural stormwater measures or BMPs for the Capture & Use components of the project will consist of 1) two underground cisterns or tanks for the capture of stormwater in the soccer pit; 2) three pretreatment hydrodynamic separators (e.g. CDS unit) just upstream of the underground cisterns or tanks, 3) pumps for pumping the captured stormwater, 4) filtration systems to remove solids to prevent clogging in the irrigation system, and 5) an underground irrigation system located in the LAPC athletic fields for the use of the captured stormwater.

Acceptable underground water storage tanks include the following systems, also identified in Figure 1 below:

a. The Contech DuroMaxx system is an underground water storage tank system. DuroMaxx steel-reinforced polyethylene (SRPE) pipe combines steel and polyethylene (PE) to make a strong and durable pipe for stormwater detention and infiltration applications. DuroMaxx provides the lightweight, durability of traditional HDPE with the added structural strength of steel, making it the suitable option for deep burial and corrosive soil applications.

b. The StormTrap™ SingleTrap® Concrete Underground Storage System is a concrete underground water storage system. It capitalizes on design flexibilities to meet requirements without disturbing existing utilities or changing project configurations to meet stormwater needs. SingleTrap can be employed with a variety of stormwater applications that best fit the project's water quality and total water storage requirements without compromising its structural integrity.

c. The Atlantis Flo Tank Underground Water Storage Tank is designed to store water in a modular type system. The Atlantis Flo-Tank® is a structural lightweight modular tank system used to construct underground water storage for various applications. The modular nature of the system allows for the easy construction of tanks of any volume and can be designed to accommodate specific site conditions.

**Figure 1 – Contech DuroMaxx Underground Water Storage Tank (upper left); StormTrap™ SingleTrap® Concrete Underground Storage System (upper right); Atlantis Flo Tank Underground Water Storage Tank (bottom).**

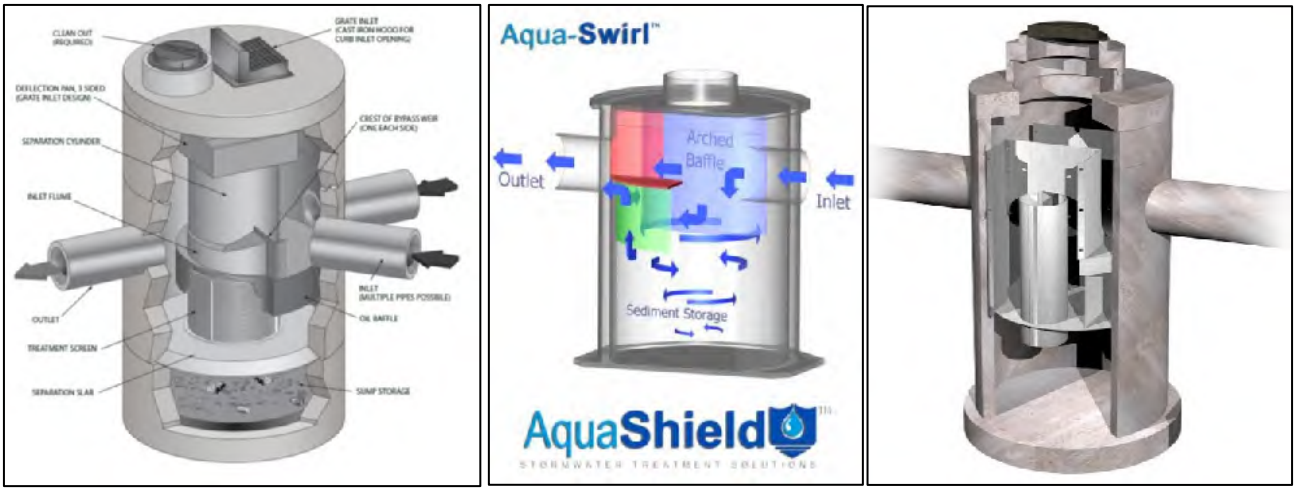
The following are acceptable hydrodynamic separator systems, also identified in Figure 2 below:

a. The Contech Continuous Deflective Separator (CDS) system is deployed for the stormwater quality control of trash, debris, sediment, and hydrocarbon removal and can be used as a pretreatment device. The CDS is a swirl concentrator hybrid technology that uses continuous deflective separation – a combination of swirl concentration and indirect screening to screen, separate and trap debris, sediment, and hydrocarbons from stormwater runoff.

b. The Aqua-Swirl™ Stormwater Treatment System is a custom engineered, post-construction flow-through water quality device designed to remove coarse sediment, debris and free-floating oil by utilizing hydrodynamic separation technology. Aqua-Swirl™ technology is a modular high flow rate treatment system that has no moving parts and operates under gravity flow conditions within a single swirl chamber.

c. The Old Castle Dual Vortex Separator uses an integral "flow through" high-flow bypass, an effective system for the removal and retention of sediment, debris and pollutants from stormwater runoff. Captured debris and floatables are retained even during high flows. At peak flows, excess flows breach the control weir and exit the system without impacting treatment or re-entraining captured pollutants.

**Figure 2 – Examples of hydrodynamic separators: Contech CDS hydrodynamic separator unit (left); Aqua-Swirl hydrodynamic separator (middle); Old Castle Dual Vortex hydrodynamic separator (right).**




Additionally, the Capture & Use project will require underground irrigation and filtration systems. For underground irrigation, acceptable technologies include the Hunter Industries Eco-Mat which is designed to suit a variety of hard-to-irrigate areas. The Eco-Mat uses a specifically engineered combination of inline emitter tubing and fleece, which evenly disperses water from under the surface. Another acceptable system, the Netafim Subsurface Drip System is one of the only products proven to work in turf with their Techline® CV and Techline® DL Dripline.

The purposes of the filtration systems for the Northeast Stormwater Capture & Use Project is to ensure that the underground irrigation system does not get clogged with solids from stormwater as well as meet any regulatory requirements. During project design, coordination with the manufacturer of the selected underground irrigation system will ensure proper identification of the required filtration for the respective system. For subsurface irrigation, which is proposed for the Northeast Stormwater Capture & Use Project, California Maximum Contamination Levels and the California Toxics Rule Standards are identified as required standards by the Los Angeles County Department of Public Health (LACDPH). Coordination must also occur with the LACDPH to identify if these standards apply to this project and then integrate a filtration system that meets these standards or standards identified by LACDPH for use prior to discharge into the subsurface irrigation system. Sand filter vaults are a commonly used filtration system for such applications. A sand filter is a device that uses sand or gravel to filter out, or strain, particles and particle-bound constituents found in stormwater. The primary treatment process is filtration. Common constituents that are removed include total suspended solids (TSS), total phosphorus, total and dissolved metals, microbiological constituents, and litter.

Additionally, the project will, incorporate biofiltration planters in LAPC Parking Lot 5. Bioretention/biofiltration systems are depressed areas that accept stormwater discharges and include an aggregate layer with an underdrain, an engineered bioretention soil media, a mulch layer, bioretention plants, and an overflow drain for larger storm events. Bioretention/biofiltration areas can accept sheet flows or concentrated flows and are volume-based systems. The cross section in Figure 3 identifies a typical parking lot bioretention planter box developed by CASQA/LIDI that will be used for the design. More information about the CASQA/LIDI bioretention designs are available at californialid.org.

**Figure 3 – Bioretention with Underdrain – CASQA/LIDI**

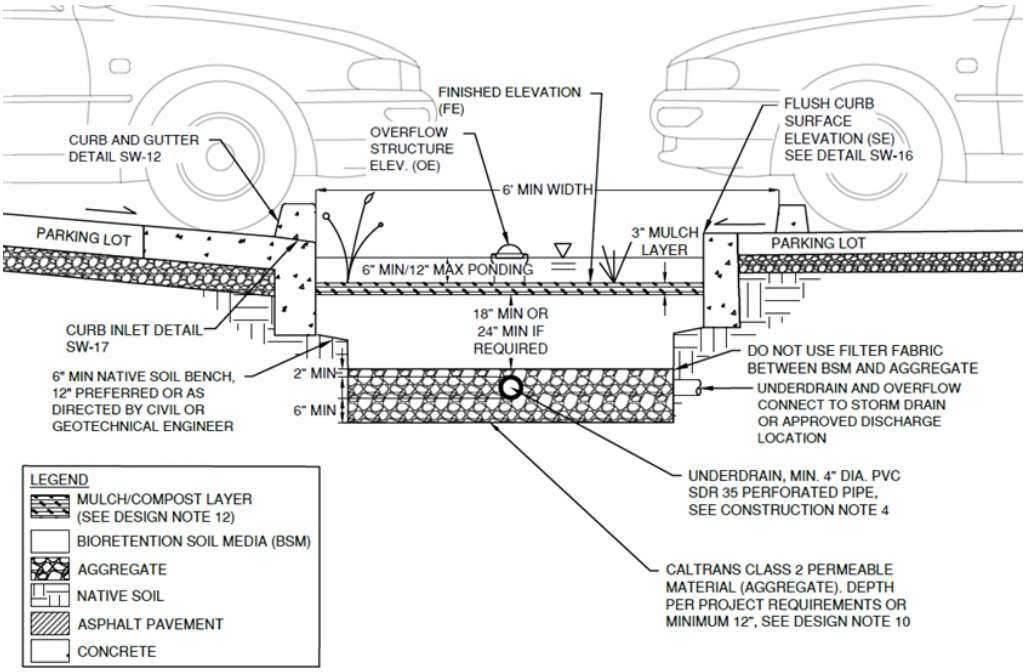
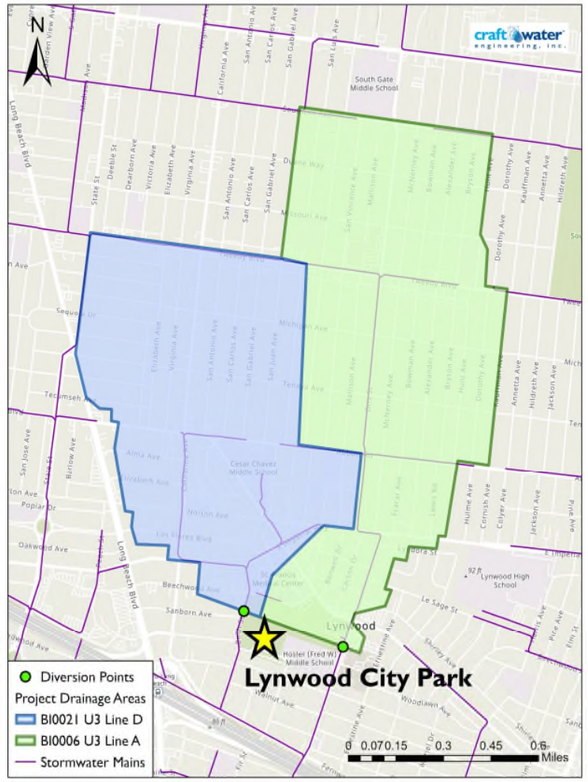



**Figure 4 – LAPC Lot 5 Biofiltration Planter Rendering.**

# LOWER LOS ANGELES RIVER WATERSHED MANAGEMENT PROGRAM, CITY OF LYNWOOD
# LYNWOOD PARK STORMWATER CAPTURE PROJECT
# PROJECT FACT SHEET

## EXISTING SITE CONDITIONS


## DRAINAGE AREA




## DRAINAGE CHARACTERISTICS

| | |
|---|---|
| REGIONAL WATER MANAGEMENT PLAN | Lower Los Angeles River Watershed Management Program |
| DRAINAGE AREA | 955 acres<br>Lynwood (36.8%)<br>South Gate (63.2%) |
| INFILTRATION RATE | 0.83 to 1.03 inches per hour |
| APPROX. DEPTH TO GROUNDWATER | 43 ft BGS |
| MODELED AVERAGE ANNUAL RUNOFF VOLUME | 647 ac-ft per year |

## Bullis Road, Southerly View

## Lynwood Park

## BMP CHARACTERISTICS

| | |
|---|---|
| LOCATION Lynwood Park<br>11301 Bullis Road, Lynwood | LAT: 33° 55’39.86"N<br>LONG: 118° 12’6.68"W |

**Proposed BMP Description:** The Lynwood Park site is owned and operated by the City of Lynwood and is located within the Lower Los Angeles River watershed. The project seeks to improve water quality discharged to the Lower Los Angeles River and will restore and rehabilitate areas of the park. The project proposes two stormwater diversion structures from two branches of the LACFCD East Compton Creek storm drains. The water captured will be filtered by hydrodynamic separators and infiltrated in a 3.6 MG/11.2 AF underground storage reservoir. Additional features include parking lot enhancements (native landscaping, permeable pavement, and bioswales), an ephemeral stream, and a butterfly garden.

The treatment drainage area for the project at 955 acres captures runoff from the jurisdictions of Lynwood and South Gate. This project has the potential to offer runoff storage and water quality benefits for these jurisdictions that can address the additional needs for stormwater management identified to achieve compliance in the WMP.

**Project Benefits:**

- **Water Quality** Improvement in the Lower Los Angeles River by treating stormwater and urban runoff
- **Water Supply** recharge through infiltration from the subsurface reservoir
- **Nature-Based** parking lot enhancements with sustainable native landscaping and permeable pavement
- **Park recreational enhancements** with an ephemeral stream and butterfly garden

## PROPOSED CONCEPTUAL SITE LAYOUT


**Parking Lot: Permeable Pavement and Bioswales**

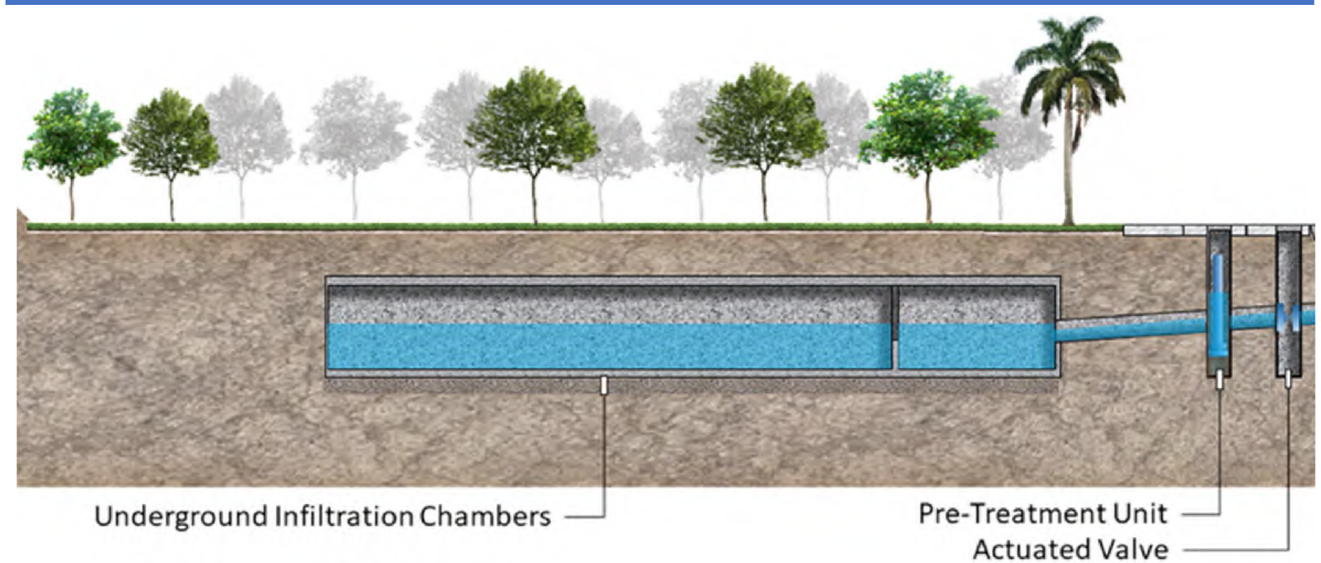
**Pre-Cast Subsurface Infiltration Facility**

**Ephemeral Stream to butterfly garden**

## PRELIMINARY SCW SCORING

| SECTION | TOTAL COST |
|---|---|
| **A.1 Wet Weather Water Quality Benefits**<br>• A.1.1 Water Quality Cost Effectiveness<br>• A.1.2 Water Quality Benefit Magnitude | 50 |
| **B. Significant Water Supply Benefits**<br>• B1. Water Supply Cost Effectiveness<br>• B2. Water Supply Benefit Magnitude | 0 |
| **C. Community Investment Benefits**<br>• Improved flood management<br>• Creation/enhancement/restoration of parks<br>• Improved public access to waterways<br>• Enhanced/new recreational opportunities<br>• Reducing local heat island effect<br>• Increasing number of trees and/or vegetation | 10 |
| **D. Nature-Based Solutions** | 10 |
| **E. Leveraging Funds and Community Support**<br>• Strong local, community-based support | 4 |
| **TOTAL SCORE** | **74** |

## TYPICAL CROSS SECTION




## PROJECT CHARACTERISTICS

| | |
|---|---|
| <u>Primary Pollutant</u><br>Zinc Reduction Achieved (% Zn reduction) | 133 lb/yr (92.5%) |
| <u>Secondary Pollutant</u><br>Bacteria (% Bacteria load reduction) | 2.7 x $10^{14}$ MPN (98.1%) |
| <u>Design Diversion Rates</u><br>• Project No. 6, Unit 3, Line A (Bullis Road)<br>• Project No. 6, Unit 3, Line D (Birch Street) | 20 cfs<br>40 cfs |
| Storage Capacity for Subsurface Storage and Infiltration Reservoir | 11.2 ac-ft<br>(3.6 MG) |
| 24-Hour Capacity | 27.78 ac-ft |
| Construction Cost Estimate | $12,952,744 |

LOWER LOS ANGELES RIVER WATERSHED MANAGEMENT PROGRAM, CITY OF LYNWOOD

# LYNWOOD PARK STORMWATER CAPTURE PROJECT

PROJECT FACT SHEET

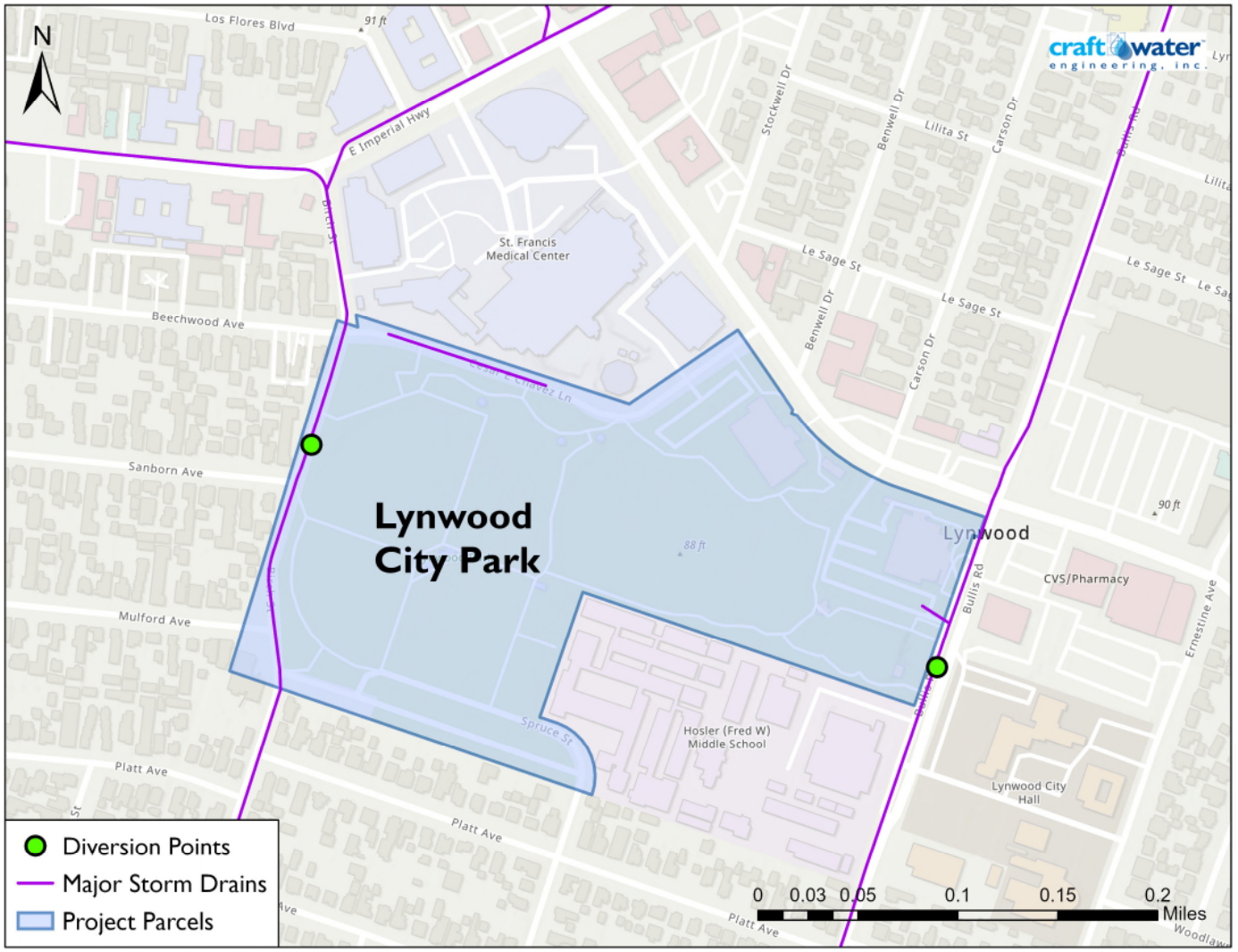



***Figure 7***. Map of parcels and ROW boundaries for Lynwood City Park project.

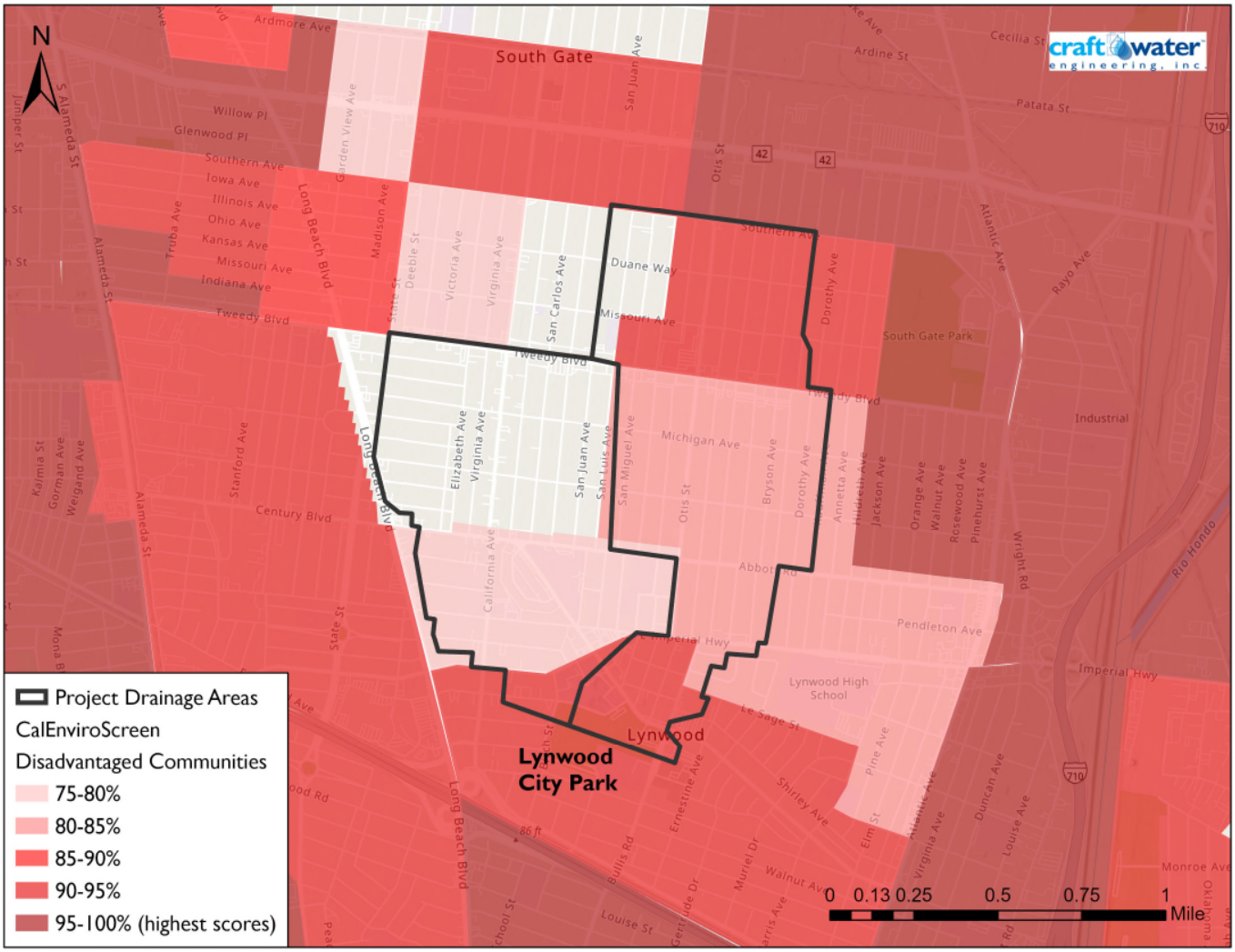



***Figure 10.*** Disadvantaged Communities within the Lynwood City Park Drainage Area