Safe, Clean Water Program

Fiscal Year 2021-2022

WASC Review Sheet

Project Name	
Project Lead	
Total SCW Funding Requested	
Phases for which SCW Funding is being requested	

Question	Yes/No	Notes
Does this project assist in achieving compliance with MS4 permit? If Yes, explain how.		
Does the project provide DAC benefits (refer to the ordinance for definition)? If Yes, explain how.		
Does the project provide benefits to the municipality? If Yes, explain how.		
Does the project prioritize nature-based solutions? If Yes, explain how.		
Does this meet the goals of the program stated in the ordinance (refer to Section 18.04)		
Does the project/scientific study have a nexus to stormwater and urban runoff capture and pollution reduction? If yes, explain how.		

Safe, Clean Water Program

Fiscal Year 2021-2022

WASC Review Sheet

Question	Yes/No	Notes
What is the plan for community engagement and what efforts have been made to date?		
What is the anticipated CEQA and permitting needs and how is this incorporated in the cost and schedule?		
Why is this the best location for this type of project?		
Were other alternatives considered? Why is this the best solution?		
How was the Project developed? (ie IRWMP/EWMP process, community engagement, etc…)		
If awarded partial funding by the WASCs, could the project fulfill their stated scope and benefits? If not funded, would the WASC lose the opportunity to fund this project at future rounds?		
General Notes (and follow up questions regarding any topic in the feasibility study/project submittal)		
Public Comments		

LOS ANGELES
UNIFIED SCHOOL DISTRICT

NORTH HOLLYWOOD HIGH SCHOOL
COMPREHENSIVE MODERNIZATION PROJECT

Safe, Clean Water Infrastructure Program FY21-22

Project Lead: Los Angeles Unified School District

Presenter: Mitra Nehorai, Senior Project Development Manager

Project Overview

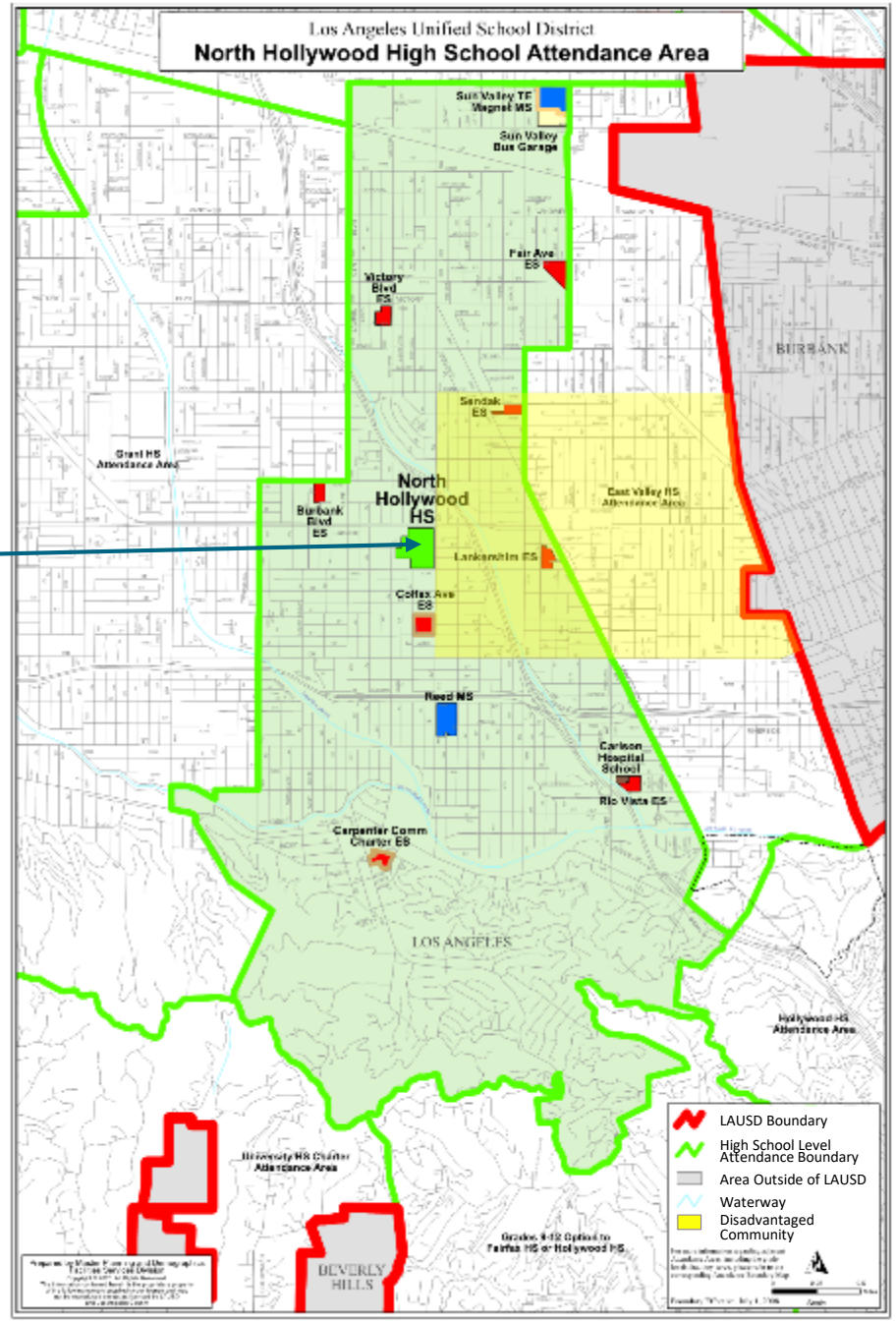
The N. Hollywood HS Comprehensive Modernization includes demolition of (35) existing buildings, modernization of (3) buildings, construction of (3) new buildings, new outdoor PE stations, combo baseball/softball field, and site improvements.

- The goal of the Project is to modernize and replace aging school facilities to provide safe and updated schools for 21st century learning.
- This project is funded by local bonds will be completed in 2025. SCW funding is requested for the Construction cost of the project's storm water quality portion, and for Monitoring, Operation and Maintenance of the storm water system.
- $ 3,154,945.03 Total Funding Requested

Project Location

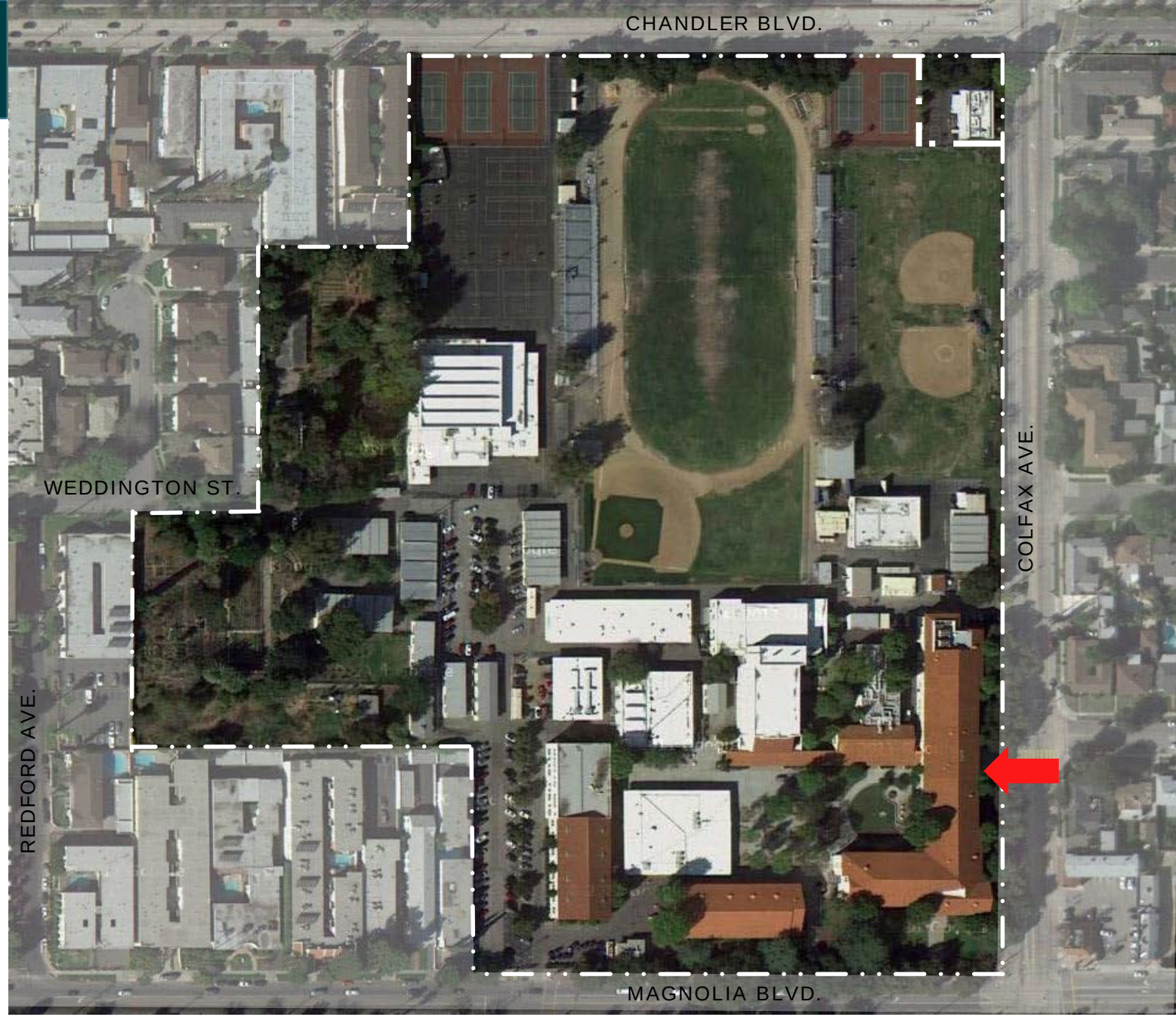
- North Hollywood High School is located in the Upper Los Angeles River Watershed.

- This School serves students from an adjacent Disadvantaged Community.



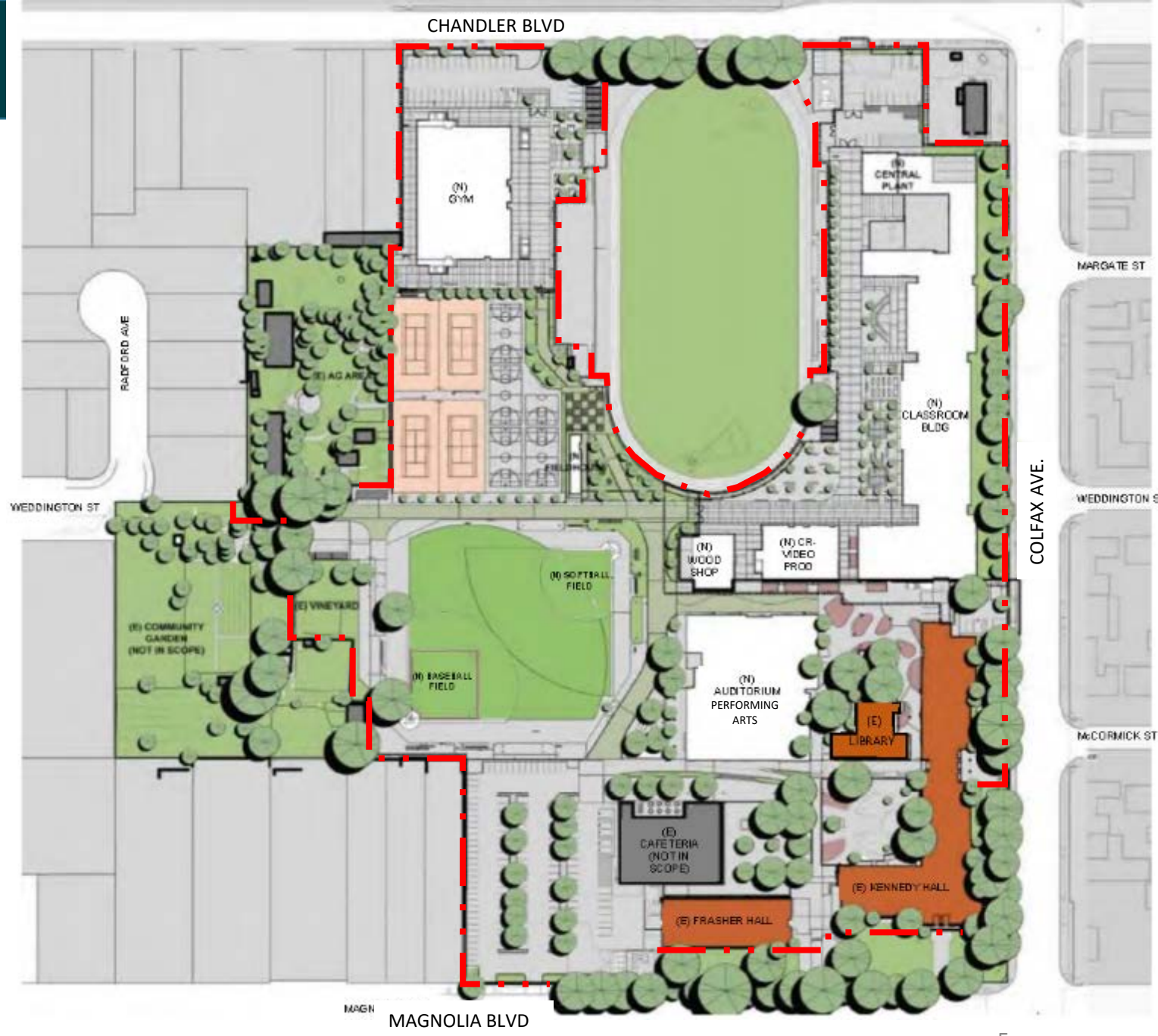
Project Background

- North Hollywood High School, originally called Lankershim High School, was built in 1927 on a peach and apricot orchard
- Campus Core Historic Buildings Designed by Myron Hunt & HC Chambers in Spanish Colonial Revival style
- North Hollywood HS was identified for a Comprehensive Modernization Project to address the most critical physical conditions of the school buildings and grounds of the 25.38 acre site.
- The Project was developed with a focus on student safety and bringing core indoor and outdoor educational facilities to adequate sizes and 21st century learning.



Project Details

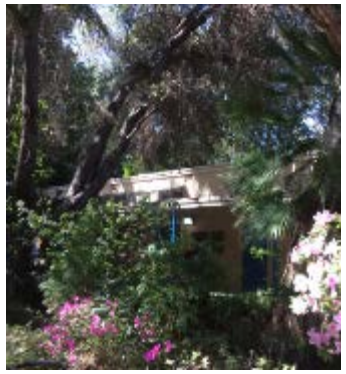
- Existing Building Modernization / Seismic Retrofit:
  - Administration/Classroom
  - Classrooms
  - Library
- New Buildings:
  - Classrooms
  - Gymnasium
  - Auditorium/Performing Arts
- Site improvements include:
  - Utilities Infrastructure, Underground Storm Water Retention Tanks and Pretreatment Systems
  - Accessibility
  - Landscape and hardscape amenities which are also used by the community outside of school hours
  - 153 new trees (total 365 trees)



Project Details

- The Project will enhance the School's learning environments in continued support of their educational programs including Biological Sciences/Zoom Magnet, STEM Magnet, Highly Gifted Magnet, School for Advanced Studies, Home Engineering Academy, Career Technical Education programs, Robotics, Music, Athletics, Academic Decathalons and Cyberpatriots championships.
- The School has a robust History of Animal Science and Agriculture programs including Ornamental Horticulture and Plant & Soil Science.
- A portion of the school is set aside for the use by the North Hollywood Community Garden, and independent 501(c)3 entity and Future Farmers of America Chapter.
- The Project's proposed post-development storm water treatment system has been designed to include storm water retention, treatment and infiltration, to reduce storm water run-off to the surrounding residential neighborhood, and replenish the ground water table in the community.



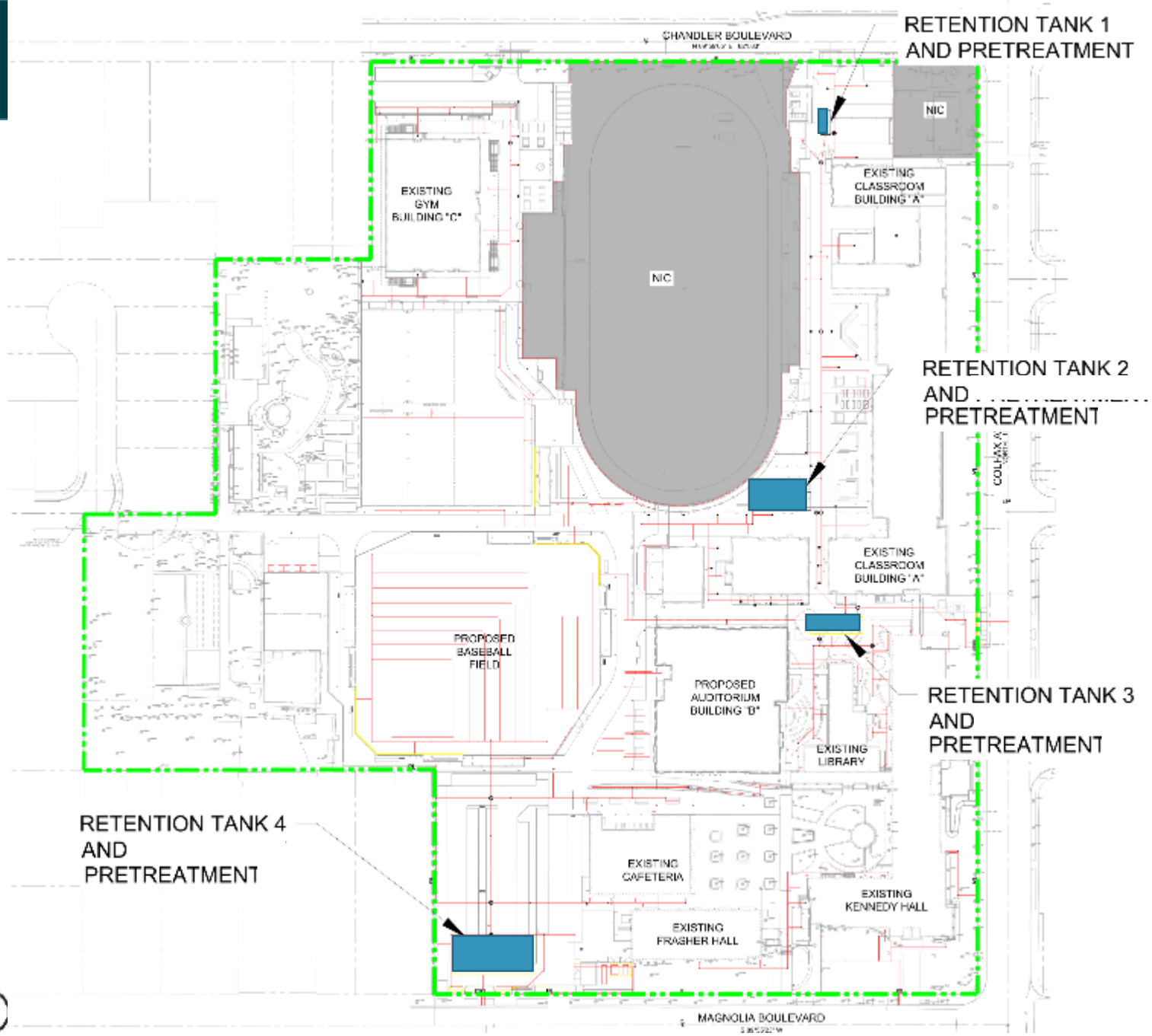




North Hollywood HS – Aerial

North Hollywood HS – Green Spaces, Recreational Areas

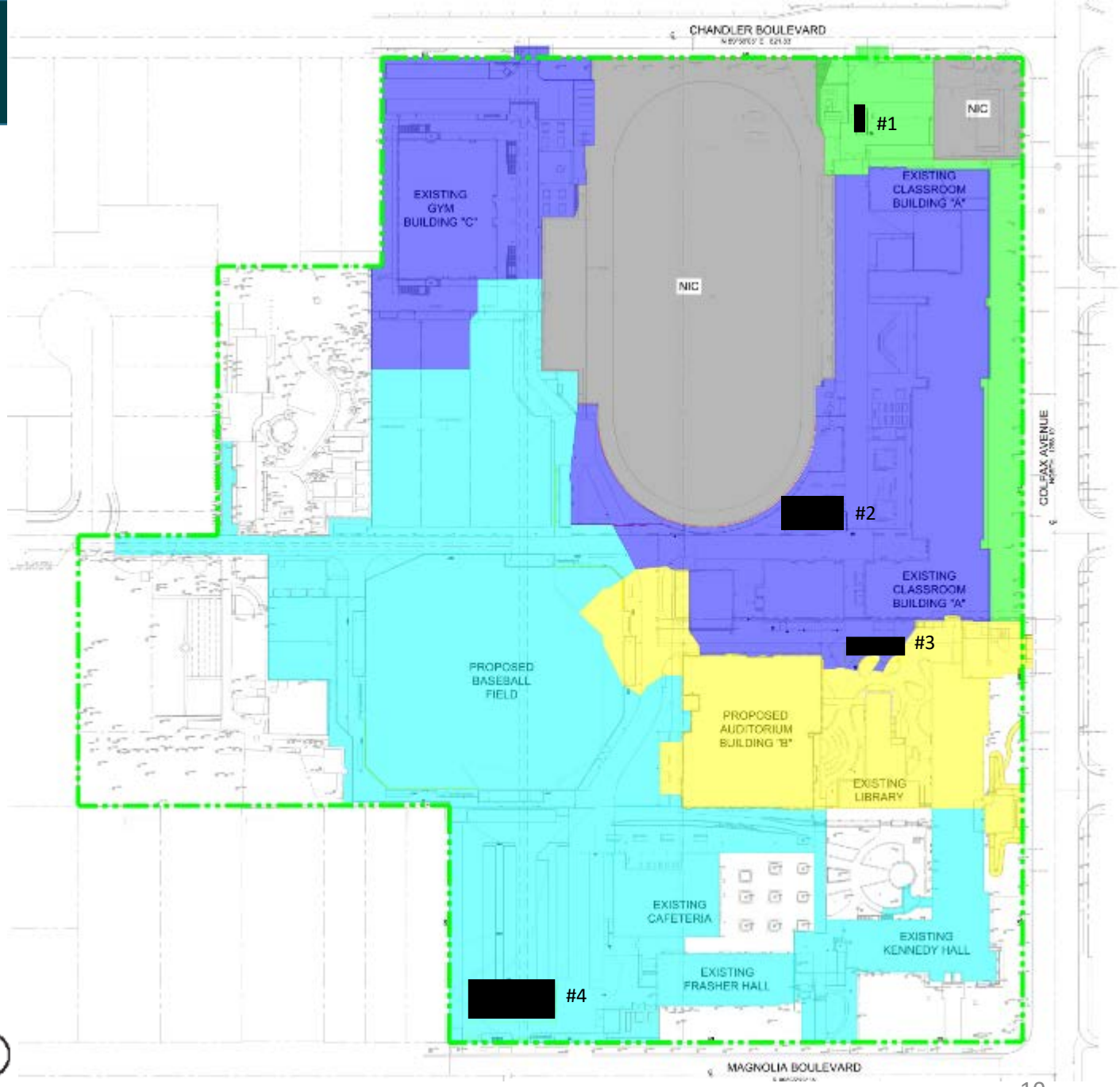
Project Details

- Locations of Retention Tanks and Pretreatment Systems



Project Details

- Major Tributary Areas
  - All capture area is considered to be institutional and all within the same municipality



Project Details - Metrics

Storm Water Conveyance System

Catch Basin w/Filter (Collection) → Contech CDS Unit (Pretreatment) → Retention Tank (Infiltration) → Overflow

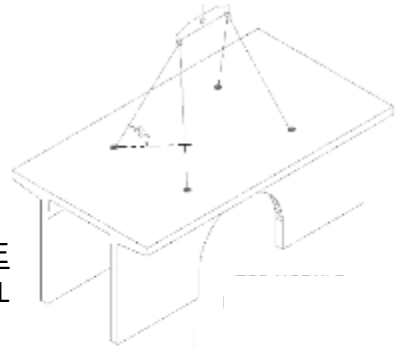
Metrics

- Infiltration Footprint Area = 0.223 acres [1]
- Ponding Depth = 6.05 ft [2]
- Stormwater Runoff Capture Area = 17.01 acres
- Impervious area = 12.63 acres
- Pervious Area = 4.38 acres
- Effective Draw Down Rate = 4.28 in/hr [3]
- 24-hour Storm Capacity = 3.2580 ac-ft
- Total Inflow Volume during 85th Percentile Design Event = 1.09 ac-ft
- Average Annual Storm Water Capture = 9.105 ac-ft
- Calculated Water Storage volume = 1.3492 ac-ft

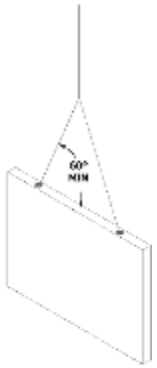
FOOTNOTES:

1. Includes footprint area of all Retention Tanks.
2. Ponding Depth is a weighted average based on Ponding Depth and infiltration footprint area of all retention tanks.
3. Effective Draw Down Rate is a weighted average based on infiltration rates provided in Geotechnical Report and infiltration footprint area of all retention tanks.

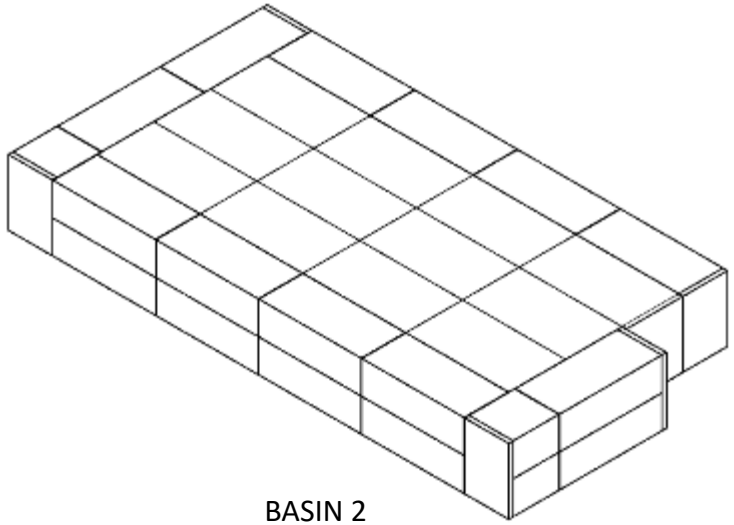
Project Details – Retention Tank Detail



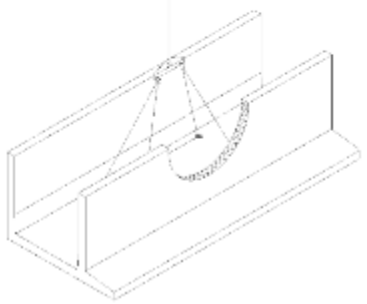
TOP MODULE
LIFTING DETAIL



END PANEL
LIFTING DETAIL



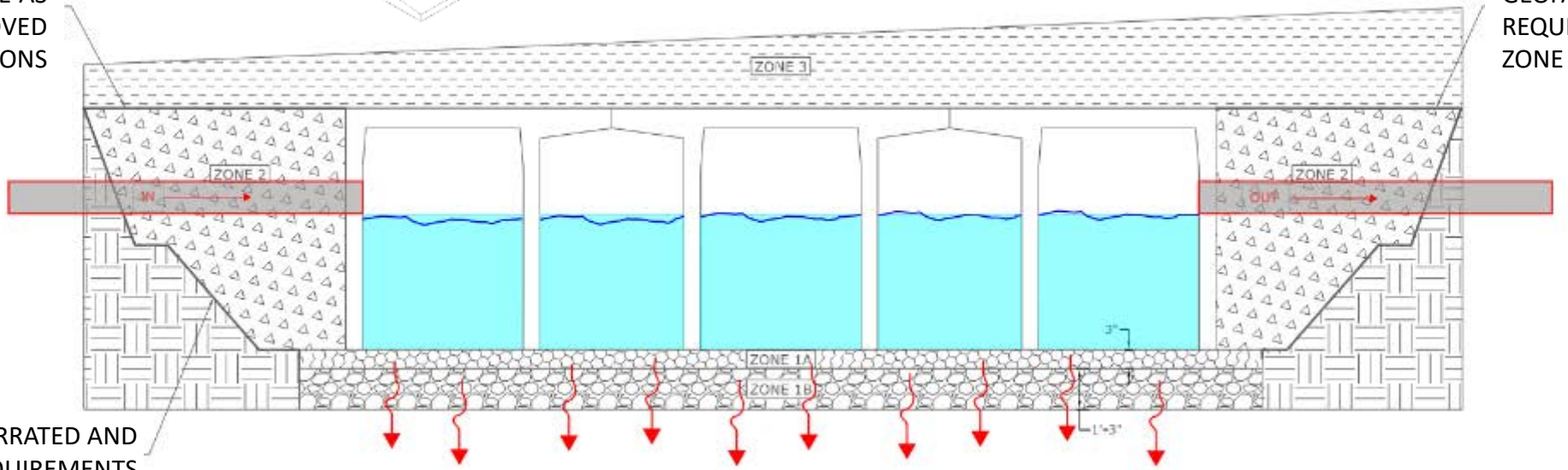
BASIN 2



BASE MODULE
LIFTING DETAIL

GEOFABRIC/GEOTEXTILE AS REQUIRED PER APPROVED ZONE 2 BACKFILL OPTIONS

GEOFABRIC/GEOTEXTILE AS REQUIRED PER APPROVED ZONE 2 BACKFILL OPTIONS



STEPPED OR SERRATED AND APPLICABLE OSHA REQUIREMENTS (SEE INSTALLATION SPECIFICATIONS)

Cost & Schedule

Phase	Description	Cost	Completion Date
Construction	Construction	$ 3,044,545.03	12/2025
TOTAL		**$ 3,044,545.03**	

- $ 283.3M Total Cost of Construction for Comprehensive Modernization Project
- Annual Costs comprised of Operations & Maintenance, Monitoring
- 30-year Project Lifespan, $ 3,560,209.66 Lifecycle Cost

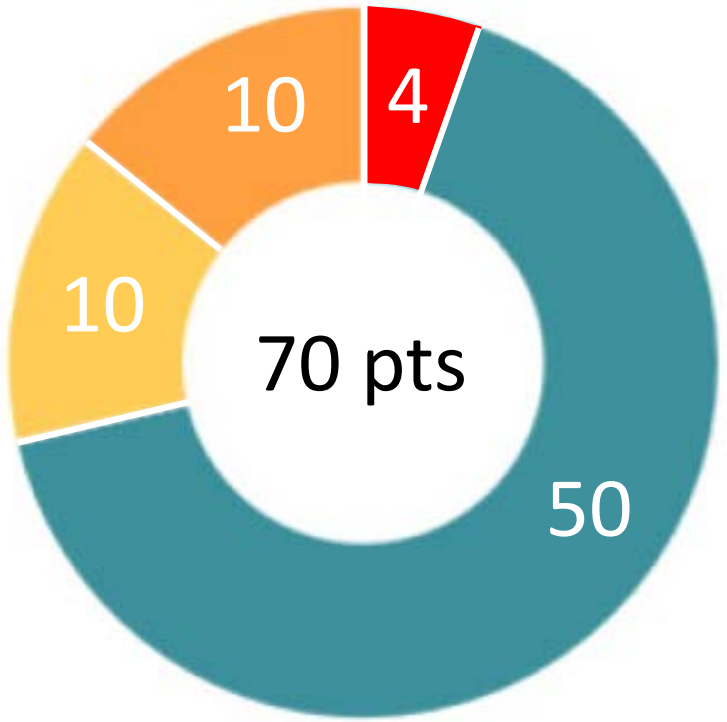
Funding Request

Year	SCW Funding Requested	Phase	Efforts during Phase and Year
1	$ 758,692.99	Construction	Construction Phase 1 (2021)
2	$ 758,692.98 $ 24,000.00 $ 3,600.00 Total Yr 2: $ 786,292.98	Construction O&M Monitoring	Construction Phase 1 (2022) Phase 1 Phase 1
3	$ 509,053.02 $ 24,000.00 $ 3,600.00 Total Yr 3: $ 536,653.02	Construction O&M Monitoring	Construction Phase 2 (2023) Phase 1 Phase 1
4	$ 509,053.02 $ 24,000.00 $ 3,600.00 Total Yr 4: $ 536,653.02	Construction O&M Monitoring	Construction Phase 2 (2024) Phase 1 Phase 1
5	$ 509,053.02 $ 24,000.00 $ 3,600.00 Total Yr 4: $ 536,653.02	Construction O&M Monitoring	Construction Phase 2 (2025) Phase 1 and 2 Phase 1 and 2
TOTAL	$ 3,154,945.03		

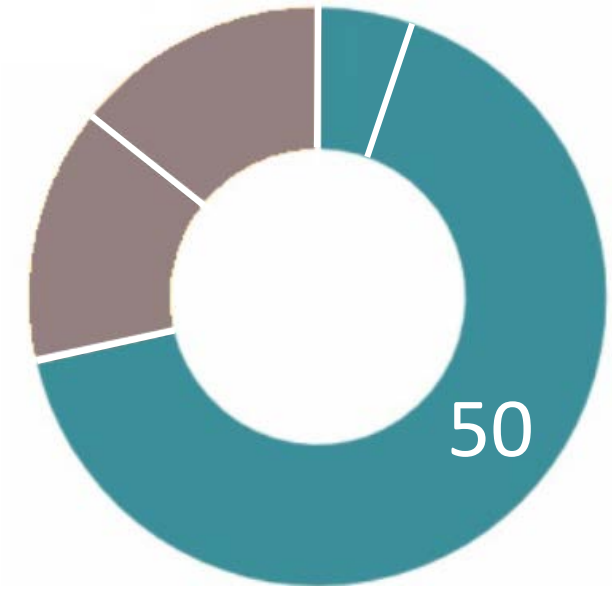
- Future potential SCW funding requests would include Operations and Maintenance and Monitoring costs.

Preliminary Score

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

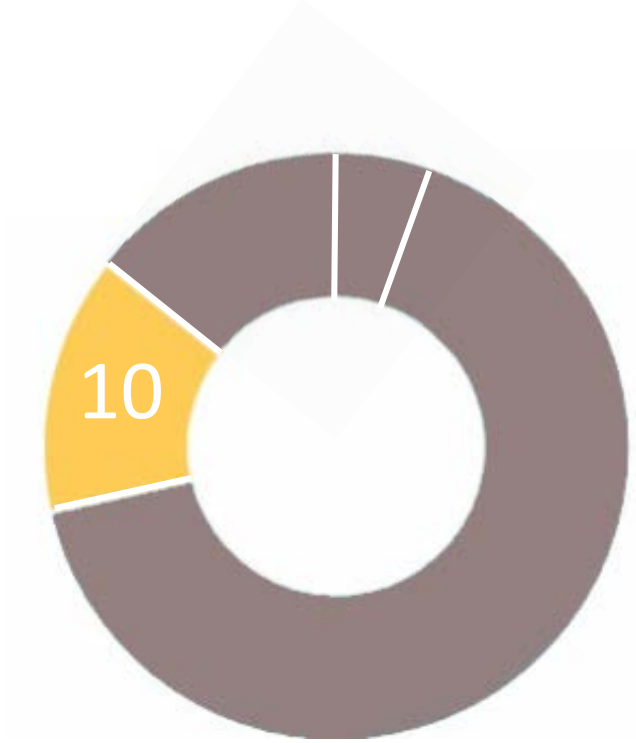


Water Quality Benefits

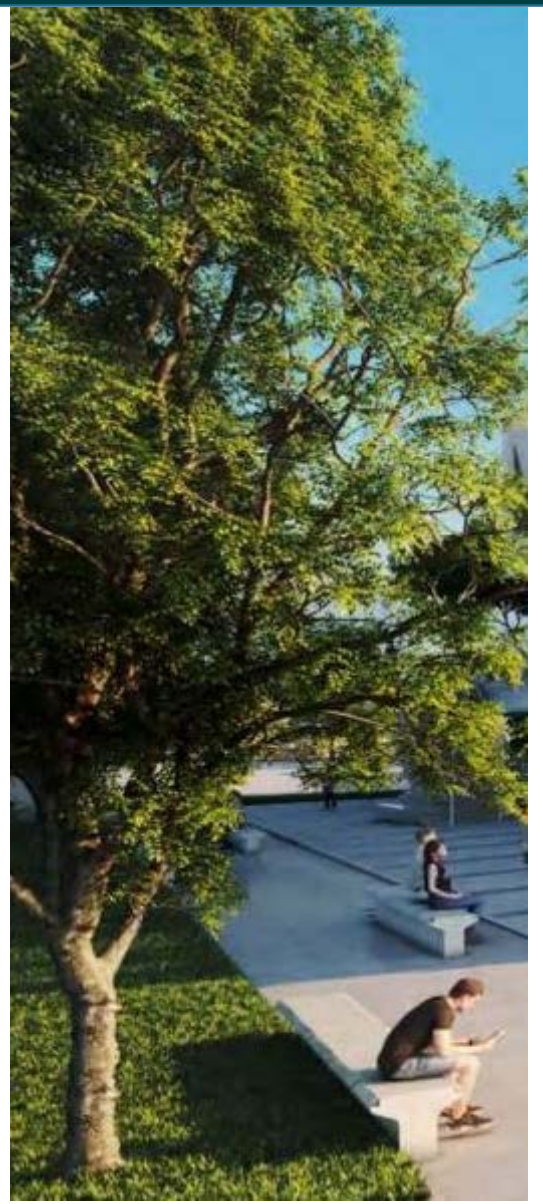


- The new storm drain system will be designed to collect all surface runoff from the project site and from roof drainage.
- The project encompasses a 17.01 ac capture area with a 12.63 ac impervious area.
- The project will decrease the impervious area through additional planted areas and is therefore anticipated to decrease storm water runoff.
- The project infiltration facility has a 0.223 ac footprint and a 6.05 sf ponding depth. The module generated storage volume is 1.9500 ac-ft.
- Site is divided into four capture areas, each with its own retention tank. The underground soils will further clean and treat the conveyed runoff and naturally recharge the ground water table. The reduction in the runoff as a result of infiltration will decrease the pollutants and the overall runoff discharged to the public right-of-way thus reducing the potential of ponding and flooding of local streets, neighborhoods, and the local water shed.

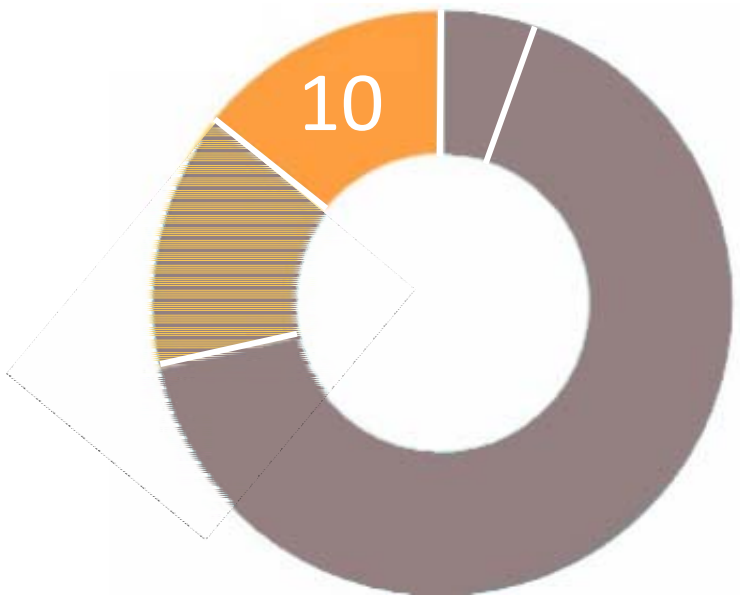
Community Investment Benefits



- MS4 Compliance
- Infiltration – 100% 85th Percentile Volume Storage
- Recharge Water table
- Natural Sediment Filtration & Pollutant Reduction
- Flood Management
- Flood Conveyance

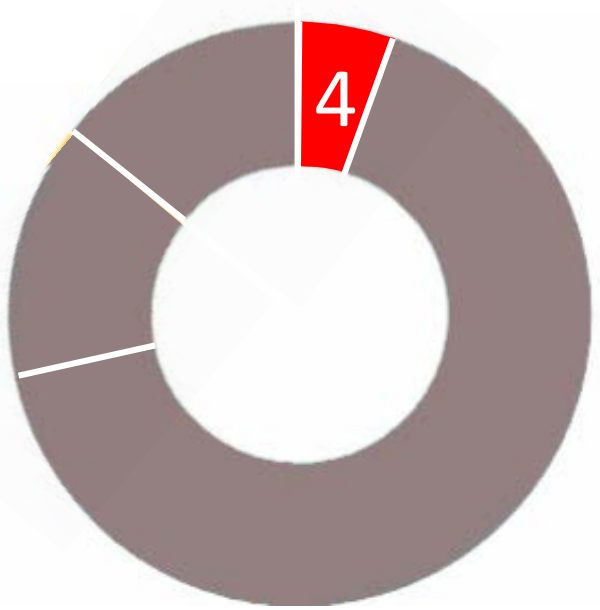


Nature Based Solutions



- New playfields and green spaces will positively impact the school community by providing areas for the student community and general local community to safely engage in sports activities
- 153 new trees (365 total) and vegetation creates, enhances and restores natural habitats
- Increases Shade and reduces local heat island effect
- Reduces Global warming

Leveraging Funds and Community Support



- Leveraging Funds and Community Support
  - North Hollywood HS has an active and engaged local community. The Project Advisory Board including neighborhood council members, parents, staff are in strong support of this project.
  - The North Hollywood Community Gardens (NHCG) has provided a letter in strong support of this project. NHCG is a registered 501(c)3 non-profit entity operating under their own constitution and rules, completely autonomous from North Hollywood HS.
- Community Outreach
  - LAUSD's outreach mission is to build greater public understanding, broader participation and productive partnerships for LAUSD projects.
  - The Project's Community Relations Organizer's Community Outreach plan extends to the school community, parents, staff, neighborhood councils, community-based organizations and businesses, local elected officials and anyone in the community who expresses interest and provides contact information.
  - Community meetings are held at each milestone of the project. All input is responded to and documented for follow up by the design team and LAUSD officials.
  - Informational bulletins are sent out on a regular basis throughout the life of the project.


Thank You
Questions?

LOS ANGELES
UNIFIED SCHOOL DISTRICT

JEFFERSON HIGH SCHOOL
COMPREHENSIVE MODERNIZATION PROJECT

Safe, Clean Water Infrastructure Program FY21-22

Project Lead: Los Angeles Unified School District

Presenter: Scott Singletary, Senior Project Development Manager

Project Overview

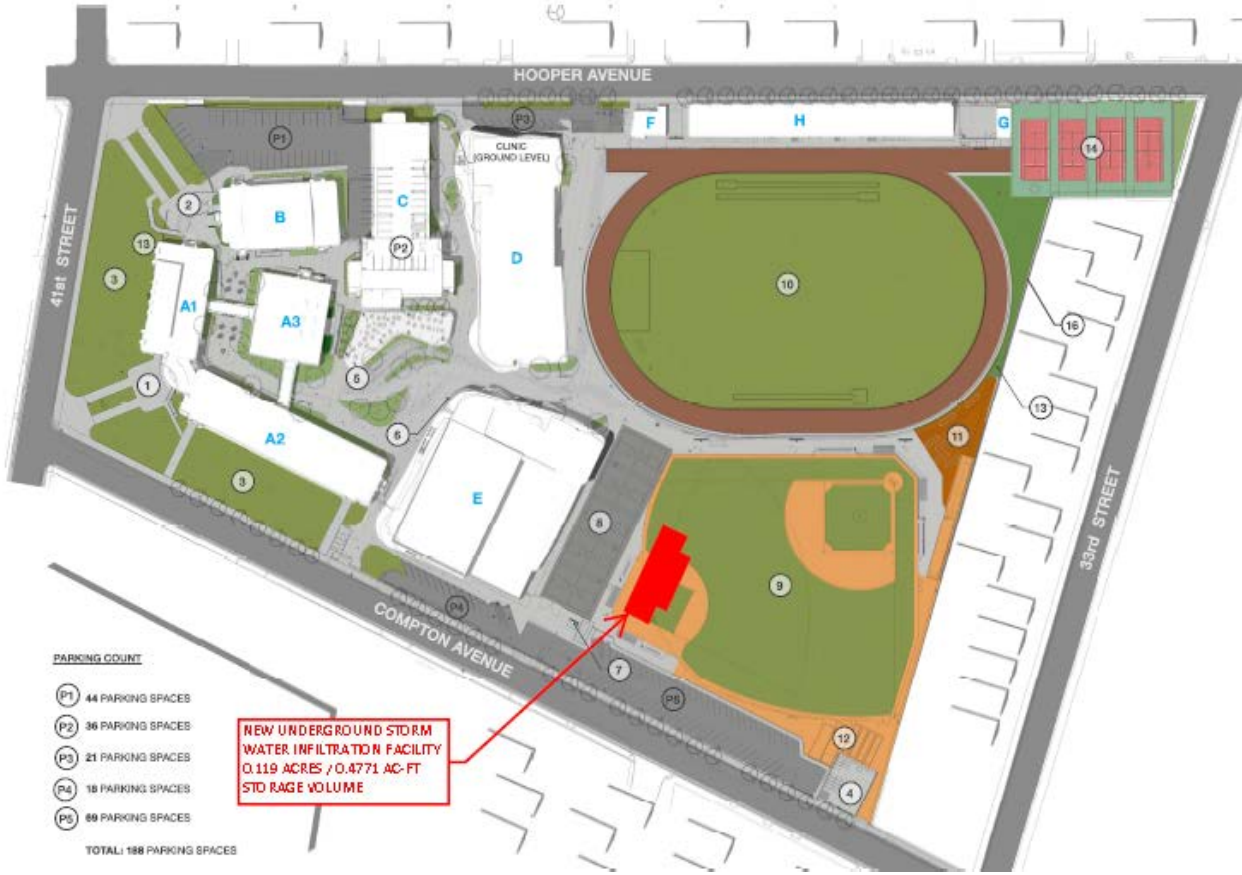
The TJHS Comprehensive Modernization project includes the construction of new buildings, Modernization of existing buildings and site improvements, new fields including underground storm water retention concrete structures for a stormwater pretreatment and infiltration system.

- The goal of the Project is to modernize and replace aging school facilities to provide safe and updated schools for 21st century learning.
- The education, safety and welfare of the students is the primary objective of this project.
- The $187M Comprehensive Modernization project funded by local bonds and will be completed in 2025. SCW funding is requested for the construction cost of the storm water portion of the project and for operation, maintenance and monitoring of the storm water system.
- $1,980,560 Total Funding Requested.

Project Location

Watershed Area: Upper Los Angeles River

Project Location



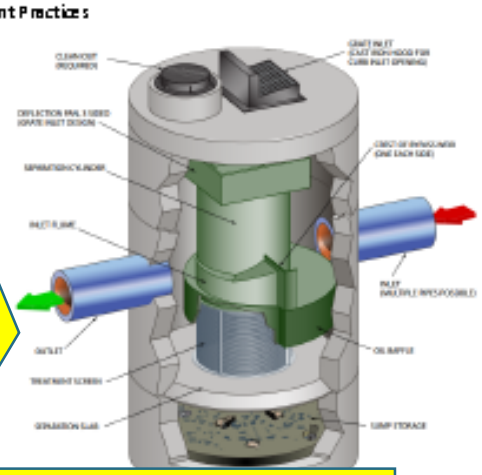
Project Background

- The Historic Thomas Jefferson High School was originally build in 1917 and rebuilt after the Long Beach Earthquake of 1933 between 1935 and 1937.
- The Comprehensive Modernization Project modernizes existing buildings, builds new buildings and upgrades campus wide infrastructure.
- The campus currently has no storm water best management practices. None of the runoff is treated before it leaves the site.
- This project incorporates a pre-treatment dual vortex hydrodynamic separator (DVS), model DVS-72 by Oldcastle, which will capture up to 42 cubic feet of sediment & 49 cubic feet of oil and floatable storage space, before the storm water enters the infiltration facility.
- The projects storm water underground concrete infiltration facility is designed to capture and infiltrate 100% of the 24 hour 85th percentile storm event.
- The infiltration chamber will reduce the drainage runoff and reduces chances of flooding.
- The underground infiltration facility is designed to capture and infiltrate up to 1.90 acre feet of water in a 24 hour capacity. It will reduce the following Pollutants by over 99% : zinc, copper, lead, nitrogen phosphorous and E.coli.
- Jefferson High School is located in and serves students from Disadvantaged Community (DAC). The project will provide recreational opportunities to the DAC during weekends and after school hours.

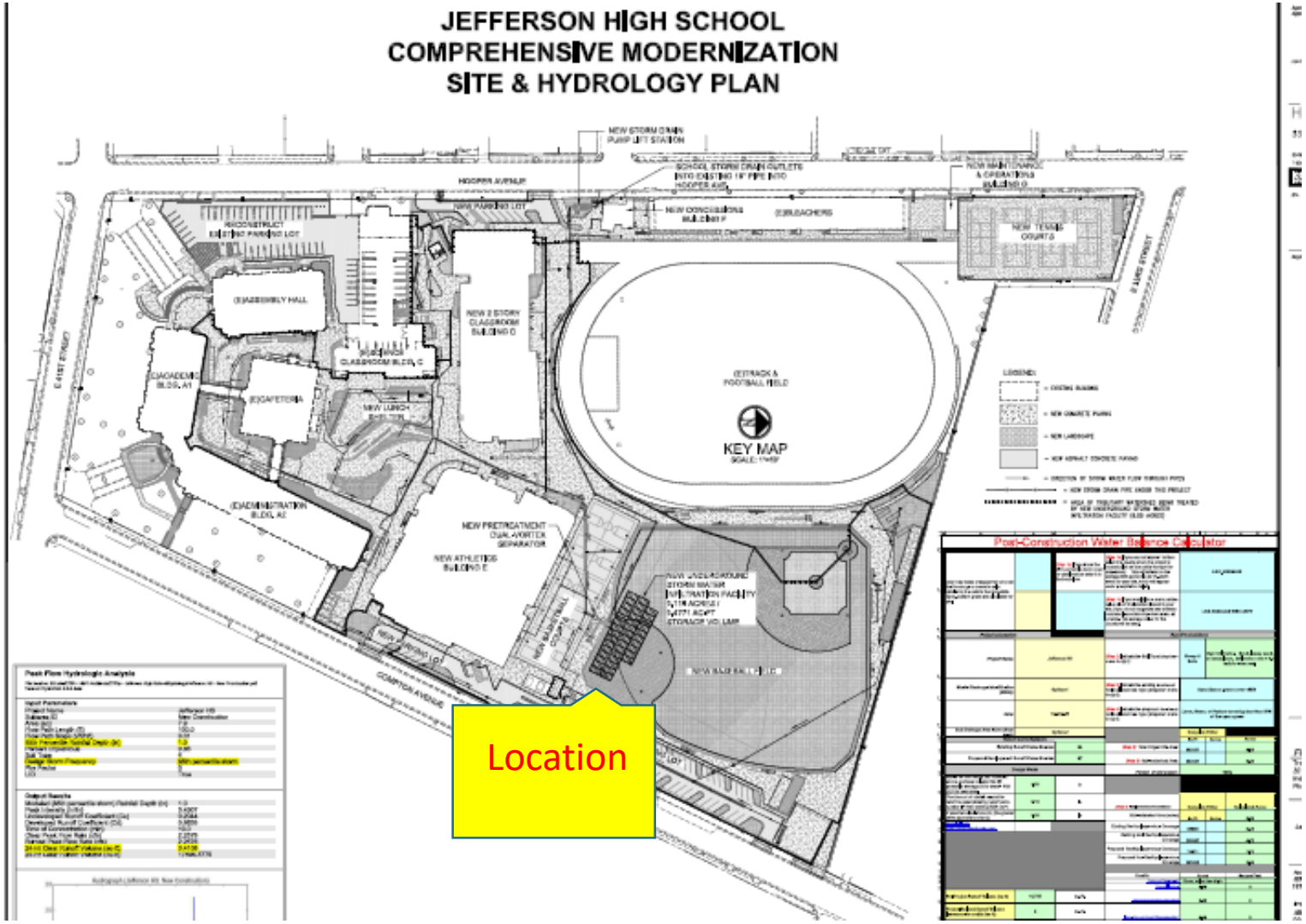
Jefferson High School – Aerial View when Completed

Project Details

Contech Dual Vortex separator Pre (Treatment Device)



u/g Concrete stormwater storage tanks (Infiltration BMP)



Location

Jefferson High School – Main Quad - Greening

Jefferson High School –Native Planting

Green open space between buildings

Jefferson High School – Tree Plan – New Trees added

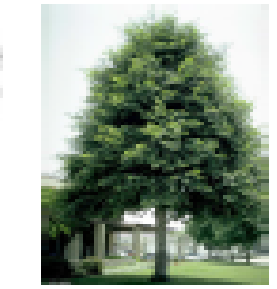
Tree Plan at Project Completion – *Plan de Árboles Existentes al Terminar el Proyect*

TOTAL TREES

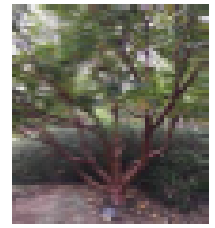
- Existing Trees: (51)
- Proposed Trees: (73)
- Protected Trees: (11)
  - 4 existing
  - 7 new
- Total Trees: 125

Jefferson High School

Proposed Trees – *Plan de Árboles Propues*

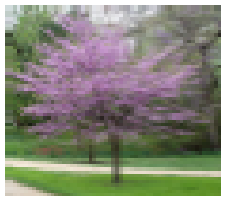


ALNUS RHOMBIFOLIA
White Alder



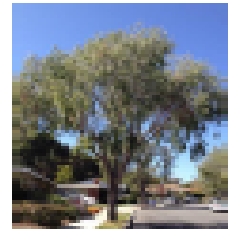
ARBUTUS UNEDO
Strawberry Tree

CERCIS OCCIDENTALIS
'FOREST PANSY'
Forest Pansy Western Redbud



CERCIS OCCIDENTALIS
Western Redbud

CEDRUS DEODARA
Deodar Cedar



GINKGO PARVIPLORA
Australian Willow

LOPHOSTEMON
CONFERTUS
Brisbane Box

OLEA EUROPEA
'SWAN HILL'
Swan Hill Olive

SCHINUS MOLLE
California Pepper

Cost & Schedule

Phase	Description	Cost	Completion Date
Construction	Construction	$1,842,560	06/2025
Design	Design	$162,145	12/2020
Planning	Planning	$81,625	11/2018
TOTAL		**$2,086,330**	

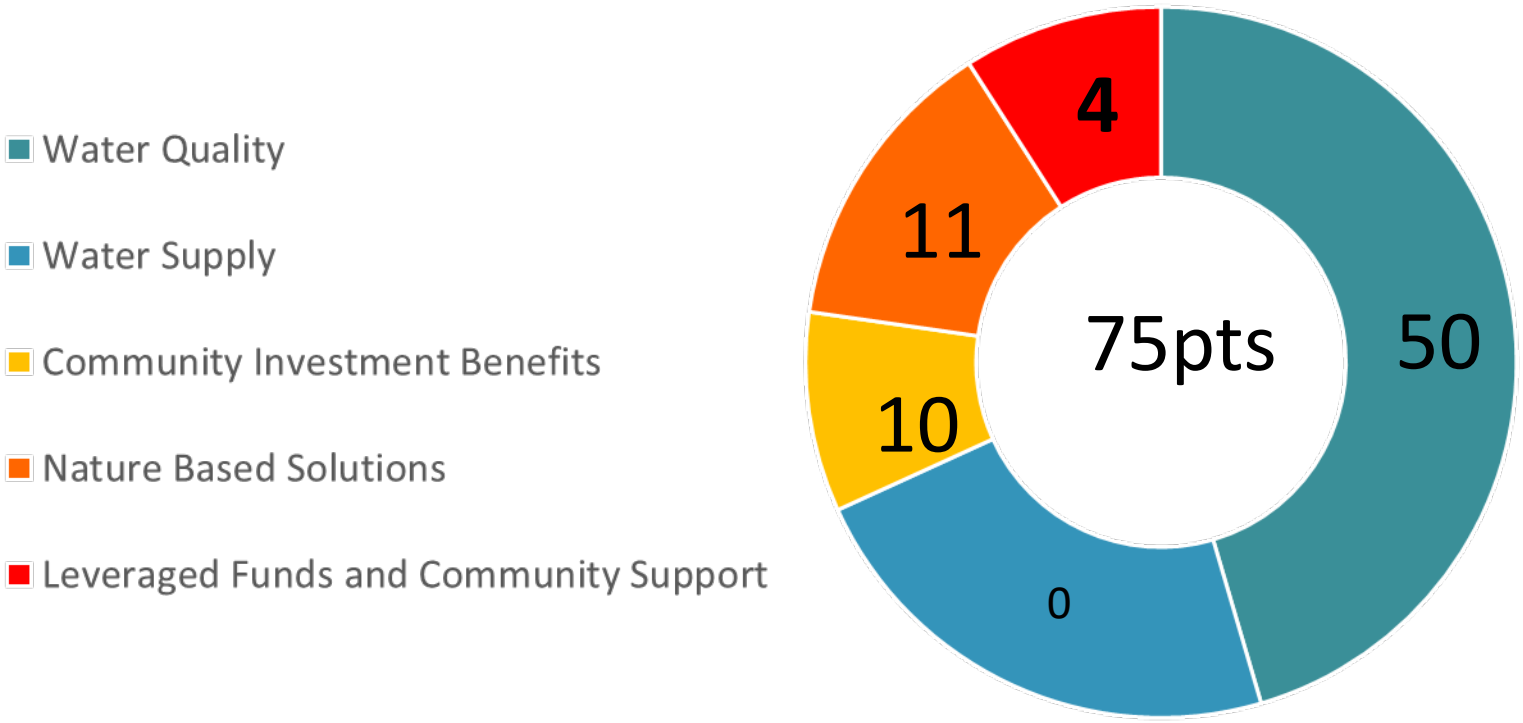
- Total Cost of Construction for Stormwater components $2.086,330
- Project Lifespan is 30 Years with a Lifecycle Cost of $2,358,225.

Annual Cost Breakdown	
Annual Maintenance Cost:	$12,000.00
Annual Operation Cost:	$12,000.00
Annual Monitoring Cost:	$3,600.00
Project Life Span:	**30 years**

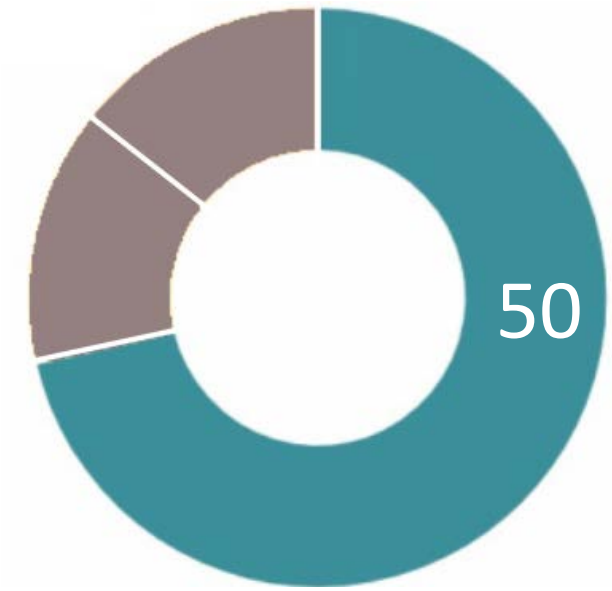
Funding Request

Year	SCW Funding Requested	Phase	Efforts during Phase and Year
1	$396,112	Construction, Operations, Maintenance & Monitoring	2021-Construction, Operations, Maintenance & Monitoring
2	$396,112	Construction, Operations, Maintenance & Monitoring	2022-Construction, Operations, Maintenance & Monitoring
3	$396,112	Construction, Operations, Maintenance & Monitoring	2023-Construction, Operations, Maintenance & Monitoring
4	$396,112	Construction, Operations, Maintenance & Monitoring	2024-Construction, Operations, Maintenance & Monitoring
5	$396,112	Construction, Operations, Maintenance & Monitoring	2025-Construction, Operations, Maintenance & Monitoring
TOTAL	**$1,980,560**		

Preliminary Score

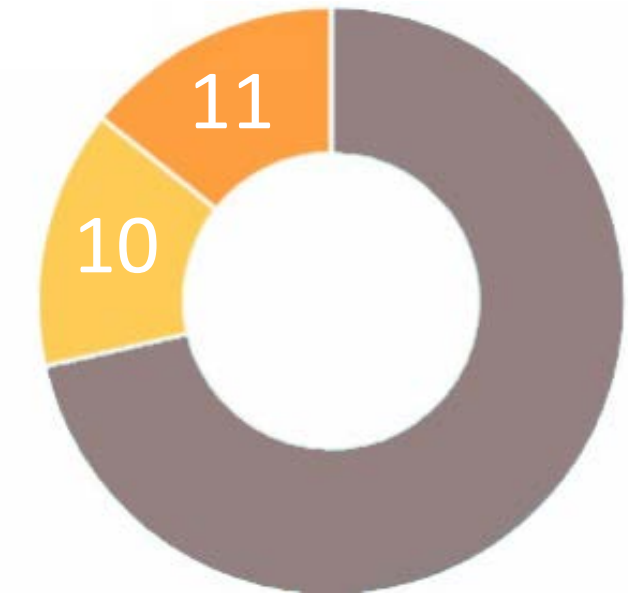


Water Quality & Water Supply Benefits



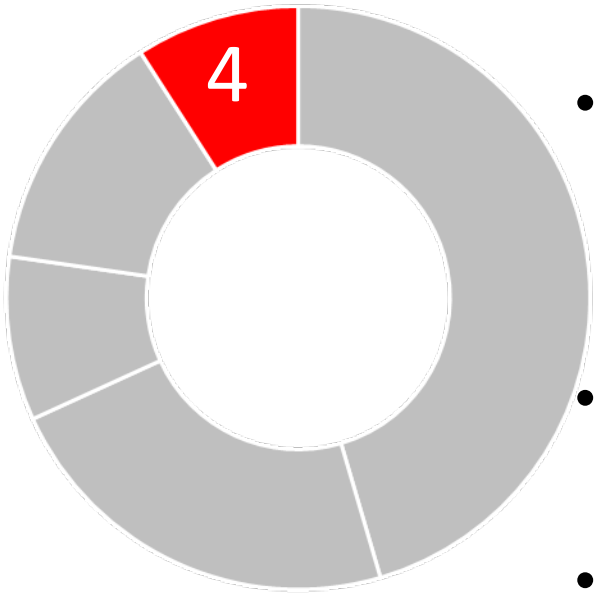
- The new storm drain system will be designed to collect all surface runoff from the project site and from roof drainage of buildings. Infiltration will recharge groundwater.
- The project encompasses a 18.51 acres and capture area is 8.09 acres and 5.24 acres impervious area.
- The project will decrease the impervious area through additional planted areas and is therefore anticipated to decrease storm water runoff.
- The project infiltration facility has a .12 ac footprint and a 4 ft ponding depth. The Infiltration capacity volume is 1.90 ac-ft in 24 hr capacity.
- The infiltration system provides stormwater runoff treatment through a pretreatment device.
- The treatment system will treat the storm removing pollutants by 99% Zinc, Copper, Lead, Bacteria.

Community Investment Benefits and Nature Based Solutions



- Community Investment Benefits
  - The Jefferson HS Stormwater system provides flood control. It is designed to collect and treat an 85th percentile storm through infiltration.
  - Removes harmful pollutants from Stormwater before infiltration. Onsite storage reduces flooding in neighborhood.
  - The project provides new natural turf for the baseball/softball field.
  - Project provides space for Neighborhood Clinic
  - Protection of existing mature trees, addition of new trees and plants, and construction of a new shade structure will increase ecological function and increase shade areas for students and teachers
  - Areas of existing asphalt pavement will be replaced with natural color concrete paving to reduce heat island effect
- Nature Based Solutions
  - The campus landscape design incorporates 73 new trees, green areas and planters throughout the exterior circulation spaces and in the main Quad using a California native planting pallet.

Leveraging Funds and Community Support



- Community Support
  - The mission of the outreach process for LAUSD is to build greater public understanding, broader participation and productive partnerships for LAUSD projects.
  - The outreach process is initiated by assigning a LAUSD community relations point person who assembles a contact list for each project that includes parents, staff, neighbors with 500 ft of the school, neighborhood councils, community-based organizations, and local elected officials and anyone who provides contact information.
  - Community meetings are held at each milestone of the project. All community input is responded to and documented for follow up by the design team and LAUSD officials.
  - Informational bulletins are sent out on a regular basis throughout the life of the project.
  - The TJHS Alumni Association Support letter was submitted for this Project
  - The South Central Family Health Clinic Supports this Project
  - The LA Conservancy Support Letter was submitted for this Project


Questions?

LAUSD Living Schoolyards Program Pilot Study

Scientific Studies Program

TreePeople • LAUSD • Studio-MLA

Presenter: Ariel Lew Ai Le Whitson

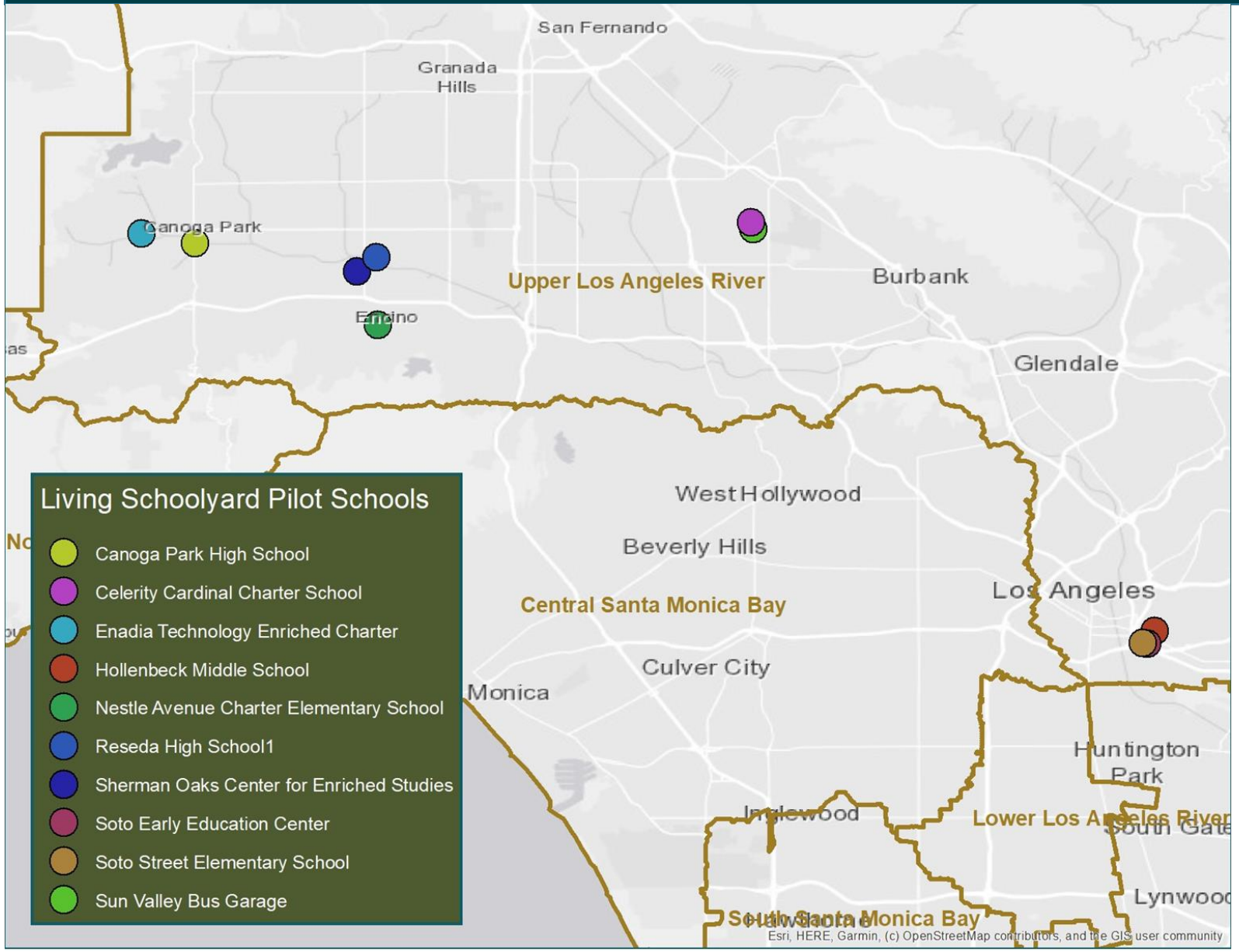
Director of Education and Community

Study Overview

This study addresses two needs: the need for nature-based, multi-benefit stormwater capture project implementations which address the critical need to upgrade school campuses, replacing asphalt and concrete with bioswales, native plants, trees, and rain gardens; and the region-wide need to provide more land for stormwater capture.

Despite their extensive coverage throughout the urban landscape, schools have long been considered “off limits” for stormwater management by regional water quality plans; this study endeavors to unlock these sites as new opportunities to support watershed-wide water quality improvement, local water resiliency, and enhanced campuses for better educational outcomes.

Study Location



10 Pilot Sites

3 in Boyle Heights
7 in San Fernando Valley

1 Pair Of Adjacent Sites

Celerity Cardinal Charter School (formerly Sun Valley Middle School)

Sun Valley Bus Garage

Study Details: Problem Statement

PROBLEMS

SCHOOLS

A vast number of Los Angeles public schools are

- covered in asphalt,
- crowded with students,
- surrounded by freeways, landfills, dense industrial areas and commercial airports.
- lacking immediate access to parks and natural spaces

PROBLEMS

STORMWATER

Greater Los Angeles area has a tremendous need to infiltrate stormwater.

Greater Los Angeles area is largely built out leaving little land available for infiltration.

INTERESTING FACTS

- LAUSD is the largest landowner in LA County.
- LAUSD has active programs for school greening and on-site stormwater capture
- LAUSD has been reluctant to accept off-site stormwater.

Issues

- Technical/Safety
- Regulation/Bureaucratic
- Liability

Study Details: Objectives and Outcomes

This study addresses the region-wide need to provide more land for stormwater capture and prioritizes nature-based, multi-benefit stormwater capture project implementations that address the critical need to upgrade school campuses, replacing asphalt and concrete with bioswales, native plants, trees, and rain gardens.

1. Determine for each school campus which school greening activities can best **support the District's water quality reqmts, student learning and health;** and best **increase community engagement and partnerships.**

2. Determine how and the degree to which each school campus can **improve water quality** and contribute to the **attainment of water-quality goals**.

3. Determine how best to and by how much **each school campus can infiltrate stormwater** and thus **increase regional drought preparedness and resilience**.

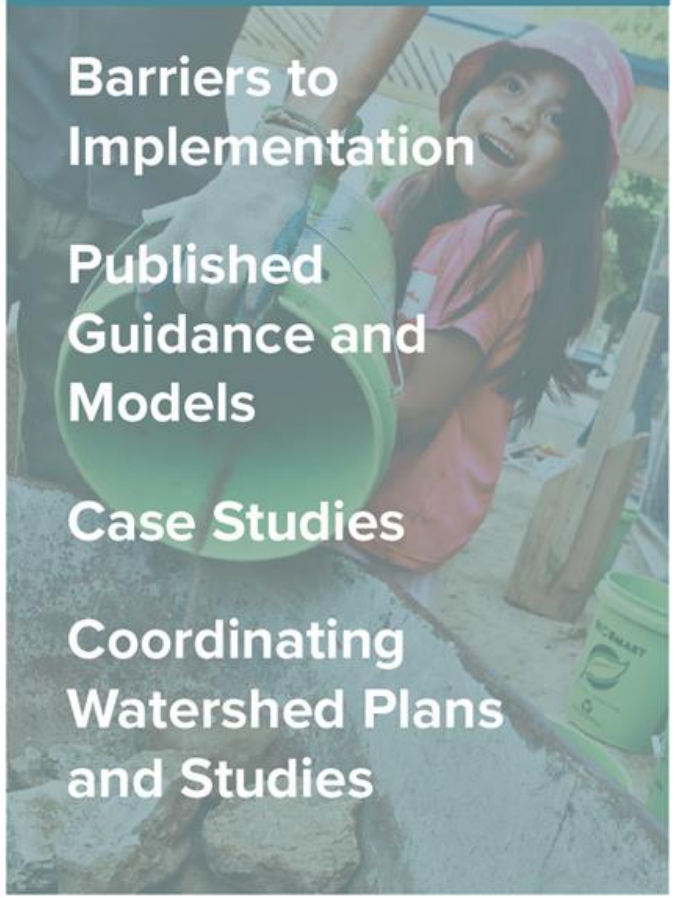
4. Determine how and the degree to which each school campus and surrounding neighborhoods can help **adapt to the effects of climate change** through increasing tree canopy and green space.

5. Determine the best **nature-based solutions for each school campus**.

6. Determine how school greening efforts can result in **multiple benefits**.

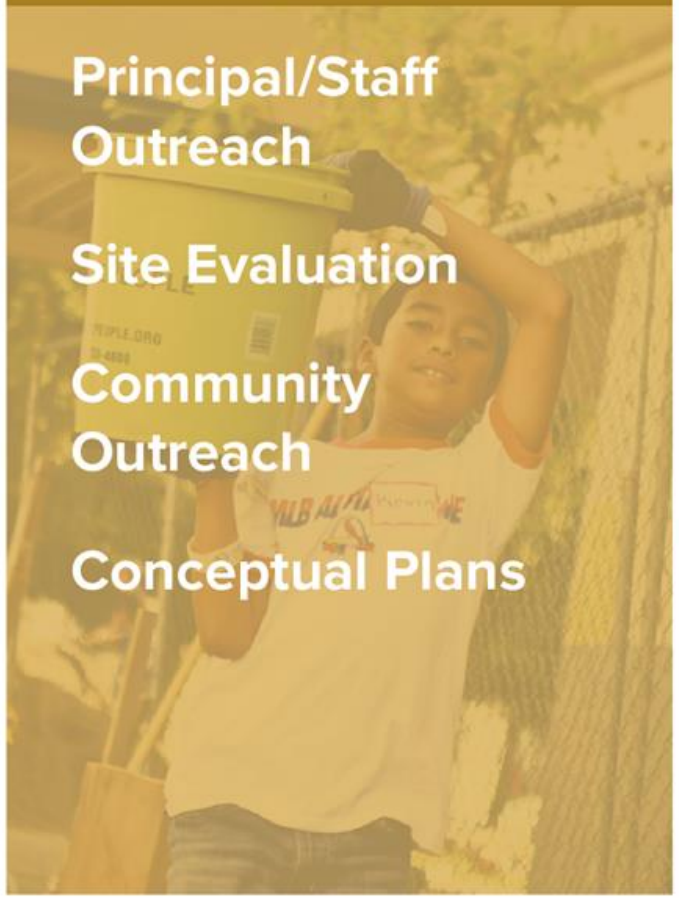
Study Details: Phases

Background Research



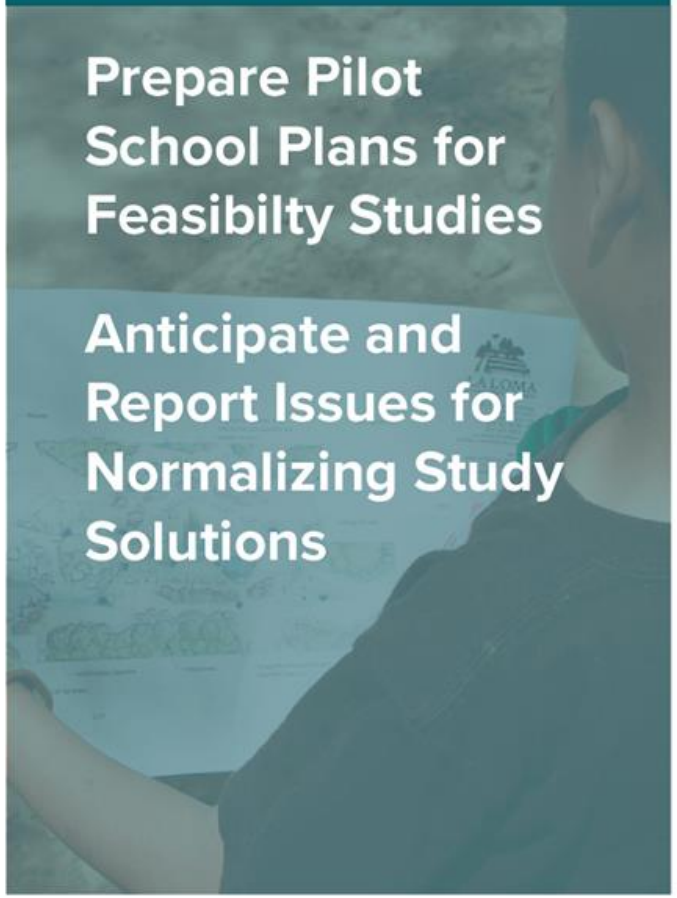
- Barriers to Implementation
- Published Guidance and Models
- Case Studies
- Coordinating Watershed Plans and Studies

10 Pilot Schools



- Principal/Staff Outreach
- Site Evaluation
- Community Outreach
- Conceptual Plans

Planning



- Prepare Pilot School Plans for Feasibilty Studies
- Anticipate and Report Issues for Normalizing Study Solutions

Study Details: Regional Collaboration

- LAUSD MOU
- Over 40 years of School Greening in LA County
- Disadvantaged Community Involvement Program (WaterTalks)
- OurWaterLA
- LA County Public Works, Bassett High School Project
- Ballona Creek Enhanced Watershed Management Plan (EWMP),
- Upper Los Angeles River EWMP,
- Stormwater Capture Master Plan, and
- Upper Los Angeles River preSIP Scientific Study

Cost & Schedule

Phase	Description	Cost	Completion Date
1	Background Research	$172,394	Start + 2 months
2	Develop 10 Pilot Schools	$530,508	Phase 1 + 12 months
3	Plan Expansion to Other Schools	$240,477	Phase 2 + 4 months
TOTAL		**$943,379**	

Assume start 9/1/2021

Organizational Chart and Responsibilities

LAUSD

- Operational Support
- Review & Input

TreePeople

- Study Oversight
- Community Engagement
- Research Other Implementations
- Develop Educational Materials
- Develop Implementation Plan

Studio-MLA

- Research Barriers and Challenges
- Community Engagement
- Concept Designs
- Implementation Plan

Craftwater Engineering

- Modeling Stormwater Flows
- Modeling Water Quality
- Modeling Water Infiltration
- BMP Design
- Identifying Synergies with Correlating Activities in the Watershed

Funding Request

WASC	Year 1	Year 2	Year 3	Year 4	Year 4
CSMB					
LLAR					
LSGR					
NSMB					
RH					
SCR					
SSMB					
ULAR	$651,958	$291,421			
USGR					
TOTAL	**$651,958**	**$291,421**			

Summary of Benefits


Questions?

Backup Slides

Fire Effects Study in the Upper Los Angeles Watershed Management Area

Scientific Studies Program

Upper Los Angeles River Watershed Management Group (ULAR WMG)

Dawn Petschauer (LA Sanitation), Matt Rich and Brenda Stevens (Wood) , Brianna Datti (Craftwater)

Study Overview

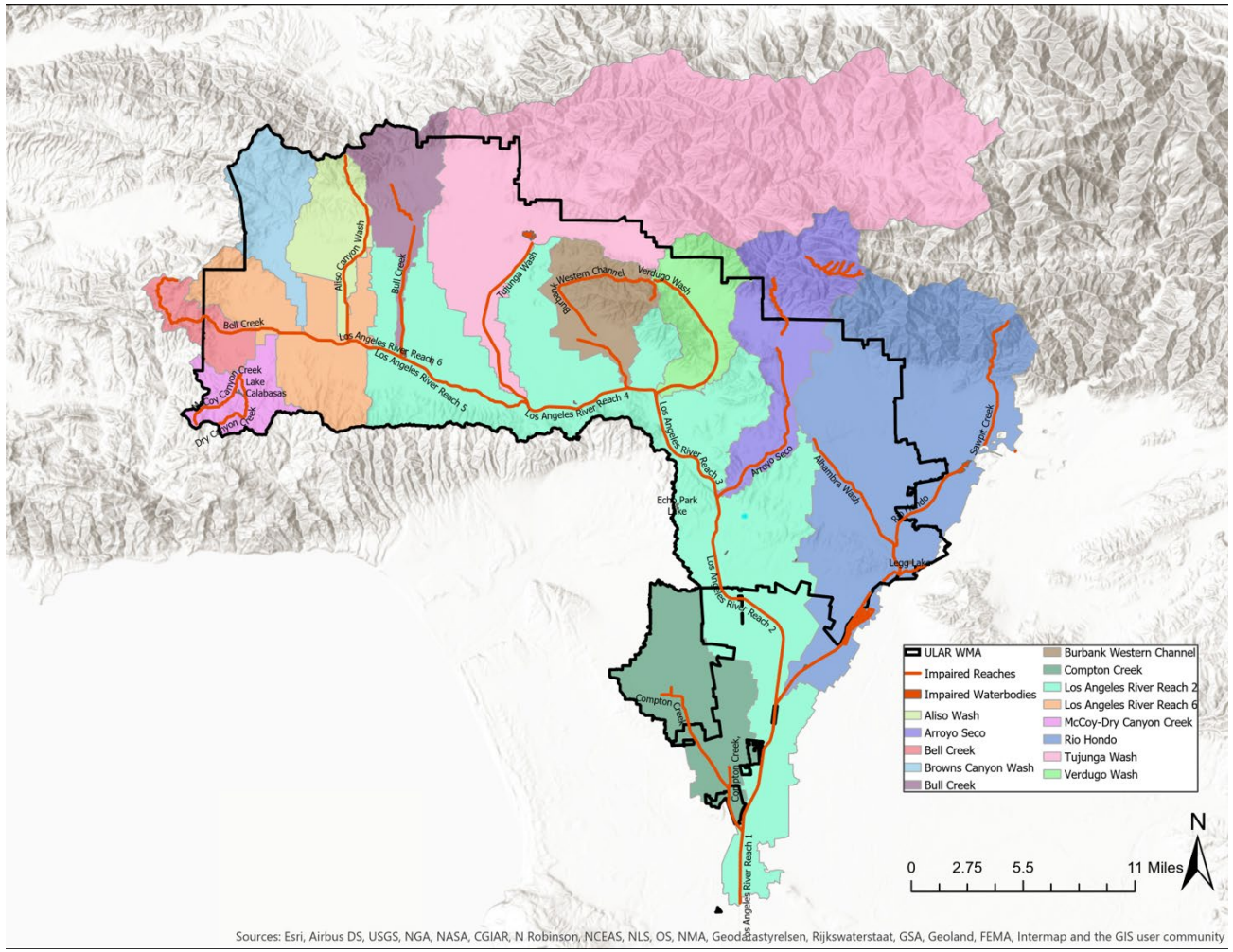
Summary:

Targeted data collection and subsequent modeling can be used to characterize fire-related impacts and help plan more resilient management program under these conditions and address impending TMDL milestones.

Nexus to Stormwater and Urban Runoff capture and pollution reduction:

- Post-fire data collection, analysis, and watershed modeling will be used to evaluate impacts of fire on stormwater and urban runoff and to help develop effective strategies to address water quality impacts from fires.

Study Location



ULAR Watershed Management Area (WMA) and impaired reaches.

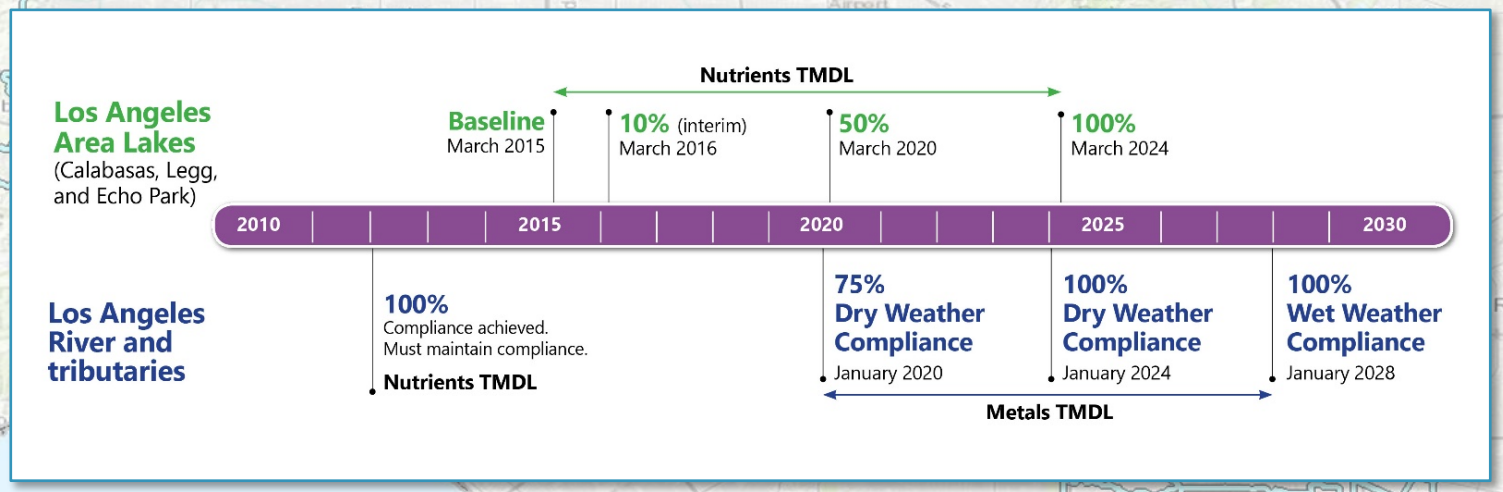
Map of Study Area

The study will include various MS4 outfalls and receiving water locations in the ULAR and Rio Hondo Watersheds.

Study Details

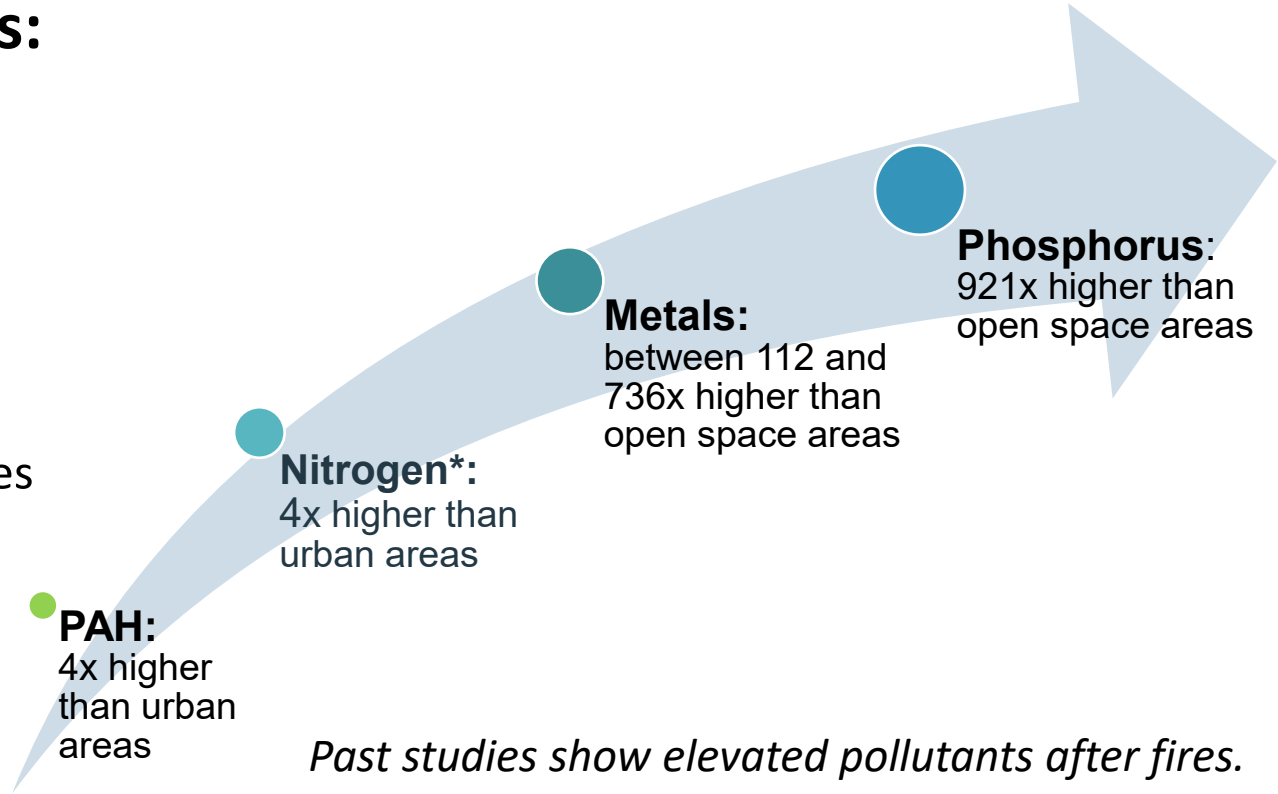
Problem Statement:

Wildfires produce pollutants including aerially-deposited particulates, fire retardants/suppression, sediment, and ash. An increase in nutrients and metals has also been documented, which is critical for the ULAR WMG due to existing impairments and approaching TMDL compliance deadlines.



Study Details (continued)

- **Study Objectives and Outcomes:**
  - Objectives:
    - Collaborate with regulators and stakeholders,
    - Address water quality data gaps,
    - Model fate and transport.
  - Outcomes:
    - Understand the impacts of wildfires and develop strategies to protect water quality.
- **Past studies:**
  - Effects of Post-fire Runoff on Surface Water Quality, SCCWRP (2009).
  - Water Quality Impacts of Forest Fires, Tecle and Neary, J. (2015).



Study Details (continued):

Study Methodology/Approach:

Historical data review

Coordination with Regulatory Updates

Design a monitoring plan

Conduct new monitoring

Technical advisory and data analysis

Modeling fire effects and climate change

Study Details (continued):

Monitoring Plan:

Sites

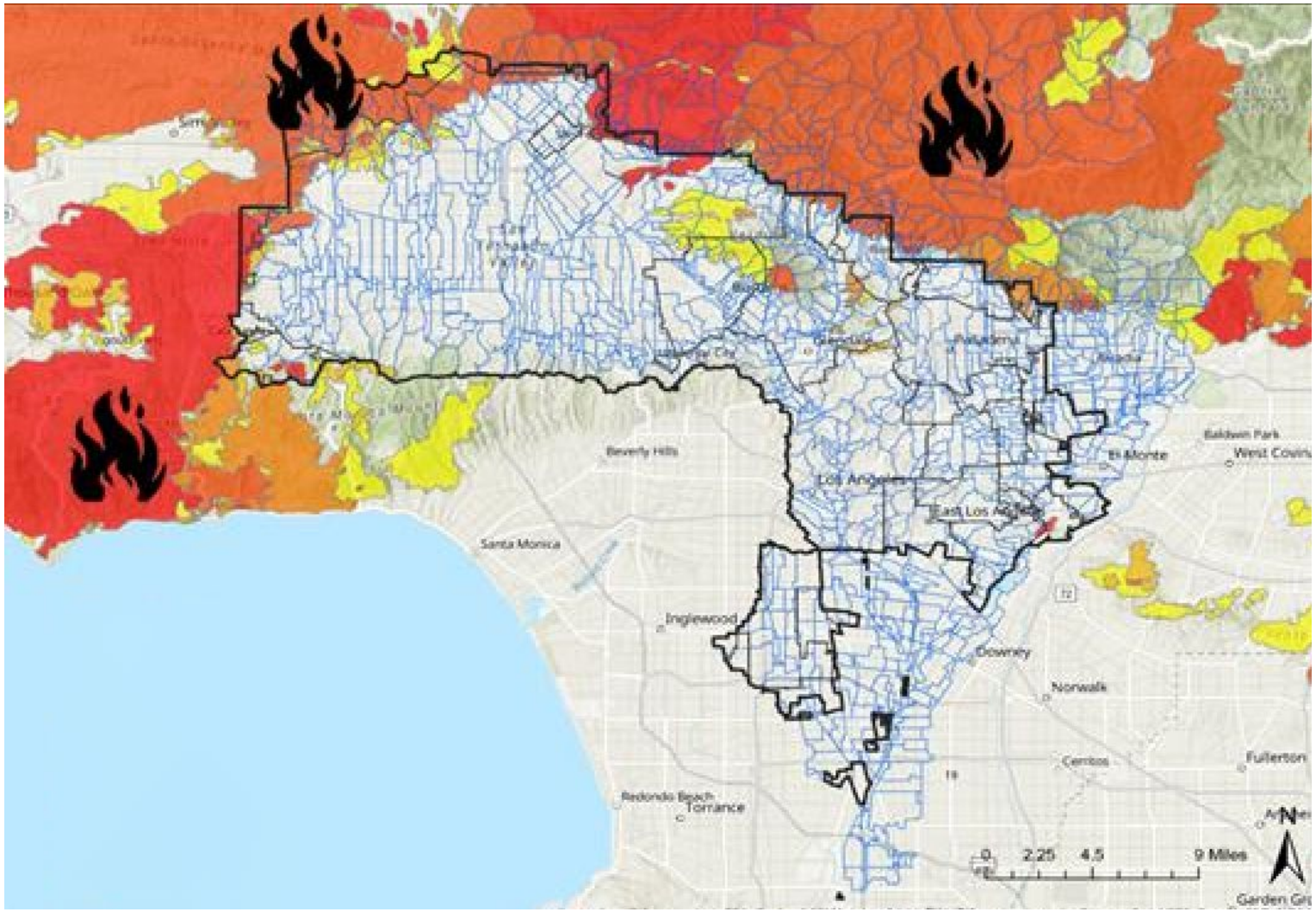
- Burned/reference
- Outfall/receiving water

Timeframe

- Two years sampling
- Wet and dry weather

Pollutants

- Nutrients
- Metals
- Sediment



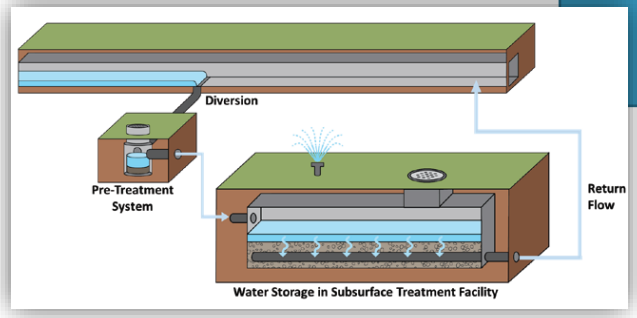
Study Details (continued):

Modeling Fire Effects and Climate Change:

Post-fire landscape changes

Climate change scenarios

Changes to baseline pollutant loads



Constructed/ Planned BMPs

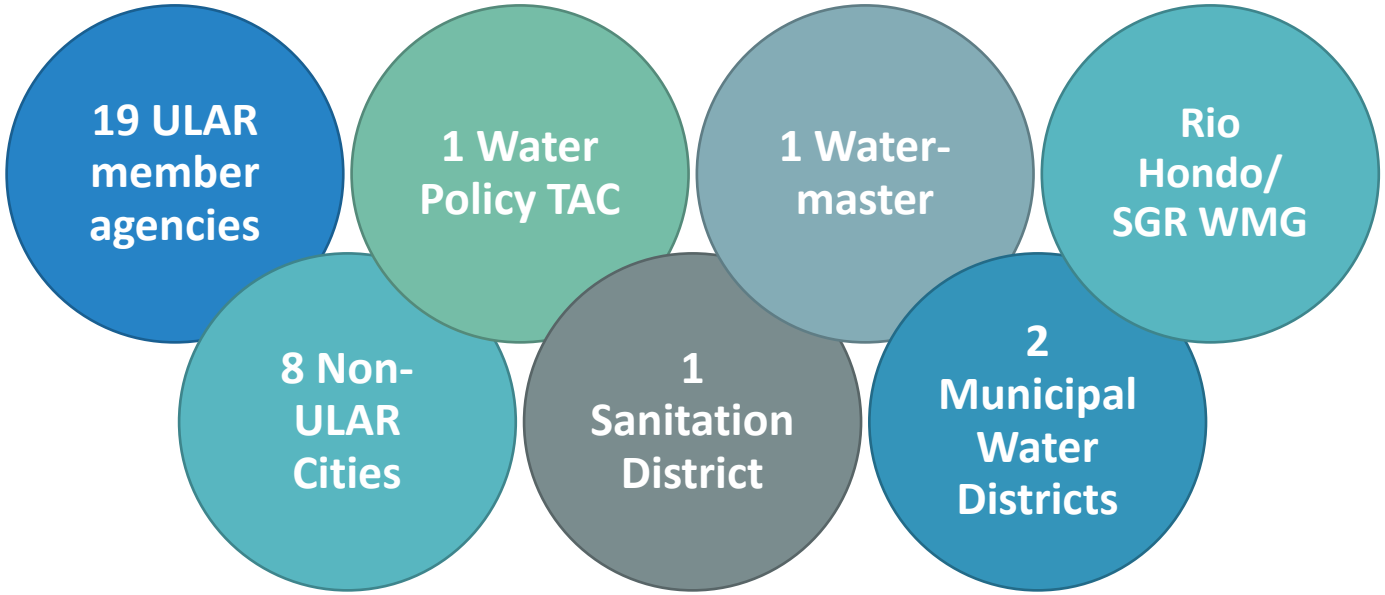
Range of nutrient and metal loads reduced

Compare to compliance targets

Study Details (continued):

Regional collaboration efforts:

- San Gabriel River Regional Monitoring Program collaboration
- Regional Water Quality Control Board coordination
- Additional interest from the agencies below:



An overview of this study was presented to the LARWQCB on August 19, 2020 and was received in a spirit of cooperation and support.

Cost & Schedule

Annual Cost for Fire Effects Study

Phase	Description	Cost	Completion Date
1	Source Characterization and Contaminant Fate	$264,436	June 2021
2	Data Collection	$257,161	September 2022
3	Modeling and Prediction	$283,403	June 2023
Total		**$805,000**	

Funding Request

Requested Funding from each WASC

WASC	Year 1	Year 2	Year 3
CSMB	--	--	--
LLAR	--	--	--
LSGR	--	--	--
NSMB	--	--	--
RH	$60,820	$59,147	$65,183
SCR	--	--	--
SSMB	--	--	--
ULAR	$203,616	$198,014	$218,220
USGR	--	--	--
TOTAL	**$264,436**	**$257,161**	**$283,403**

Summary of Benefits

Study Benefits to Water Quality, Water Supply and Community:

This study will model post-fire water quality and help inform better BMP design to provide a more resilient environment.

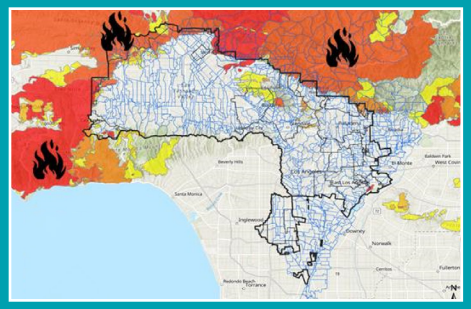
Benefits of this Fire Effects Study include:

Identifying and designing effective management strategies;

Informing the community on the impacts of wildfire on water quality; and

Predicting impacts on water quality from future wildfires and other climate change scenarios


Questions?



SAFE, CLEAN WATER PROGRAM REGIONAL SCIENTIFIC STUDY

Fire Effects Study for the ULAR Watershed Management Group

Study Lead: San Gabriel Valley Council of Governments on behalf of the ULAR WMG (19 Agencies)

OBJECTIVE

Characterize the effects of wildfires on water quality and model the potential future effects in order to develop effective strategies and comply with upcoming TMDLs.

BACKGROUND AND SCOPE

The frequency and intensity of wildfires has drastically increased in southern California and is expected to continue increasing due to climate change and human activities in and near natural forest and foothill areas. Previous studies have indicated wildfires in the region are impacting the water quality of stormwater runoff and in receiving waters. To improve water quality strategies, to address the impacts of post-fire runoff on downstream receiving waters, and to better protect public health and beneficial uses, the Fire-Effects Study will help better understand how post-fire runoff affects contaminant flux, the effect of post-fire runoff on downstream receiving waters and the factors that influence how long post-fire runoff effects persist. These data will support the development of watershed models that will help predict how land use and other environmental changes from fires impact baseline pollutant loading and how climate change scenarios may further exacerbate these impacts. In addition, best management practices (BMP) models will help plan for a more resilient management program that meets water quality objectives and supports beneficial use goals under these conditions, and addresses impending interim and final TMDL milestones.

GOALS OF STUDY

Source Characterization

Do fires contribute to loading of nutrients and metals into waterbodies in the ULAR Watershed? (Existing studies and monitoring)

Fate

Where do these pollutants go? How do they migrate? *(Monitoring)*

Prediction

How does the data gathered from this study help anticipate future impacts to water quality? *(Data Analysis and Modeling)*

How do land use changes from fires impact baseline pollutant loading? *(Modeling)*

How do climate change scenarios impact baseline pollutant loading? *(Modeling)*

Regulatory Change

How can this study help understand how to achieve compliance metrics? *(Regulatory Interface)*

KEY OUTCOMES

- Characterize fate and transport of pollutants from fires
- Address data gaps in water quality data
- Model future effects due to increased fires and climate change
- Possibly leverage region-wide
- Coordinate with Stakeholders and Regional Board

MULTI-FACETED APPROACH

- Historical data review
- Coordination with Biotic Ligand Model
- Design a monitoring plan
- Conduct new monitoring
- Technical advisory and data analysis
- Modeling fire effects and climate change

COST

WASC	Year 1	Year 2	Year 3
RH	$60,820	$59,147	$65,183
ULAR	$203,616	$198,014	$218,220
TOTAL	**$264,436**	**$257,161**	**$283,403**

SCHEDULE

Develop monitoring and assessment plan	Implement MAP	Data evaluation and modeling	Reporting
April/May 2021	July 2021—Sept 2022	Sept 2022—April 2023	April—June 2023

Cost & Schedule (continued)

Annual Tasks and Costs

Year 1 Source Characterization and Contaminant Fate:

-Literature review

-Data gap analysis

-Develop monitoring plan

-Begin monitoring

-Initial model setup

Year 2 Data Collection:

-Continue dry and wet weather monitoring

-Model setup and establish scenarios (historical extremes, climate change inputs)

Year 3 Prediction:

-Modeling results

-Strategy development

-Develop post-fire numeric goals

-Interface with regulators

Year 1: $264,436

Year 2: $257,161

Year 3: $283,403

Overview of Pathogen Reduction Study

Presented by Richard Watson, Richard Watson & Associates, Inc. (RWA)

Project Lead: Gateway Water Management Authority

Presentation to the Upper Los Angeles River WASC

18 March 2021

Summary of Study

- This Study aims to use the latest available science to measure water-borne pathogens across watersheds. It will help identify key sources of human health risk, and develop cost-effective protective strategies

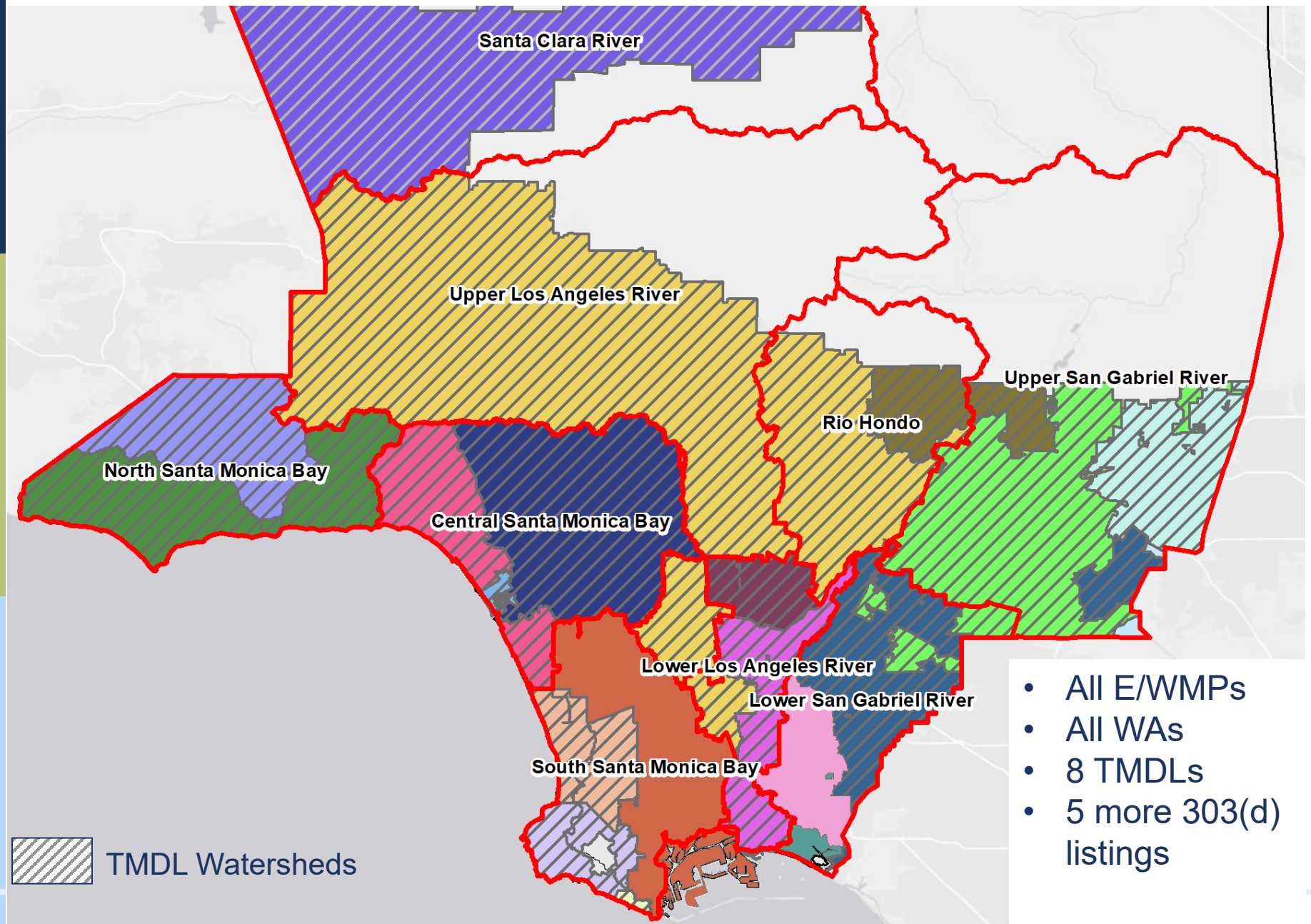
- USEPA and academia agree not all sources of bacteria are equally risky, but we do not have the information we need to focus limited resources on the riskiest sources first.

- Objectives of Study
  - Leverage recent USEPA, academic, and stakeholder driven research
  - Produce strategies for incorporation into Program Plans
  - Support informed decisions that help us protect more people sooner

Study Overview

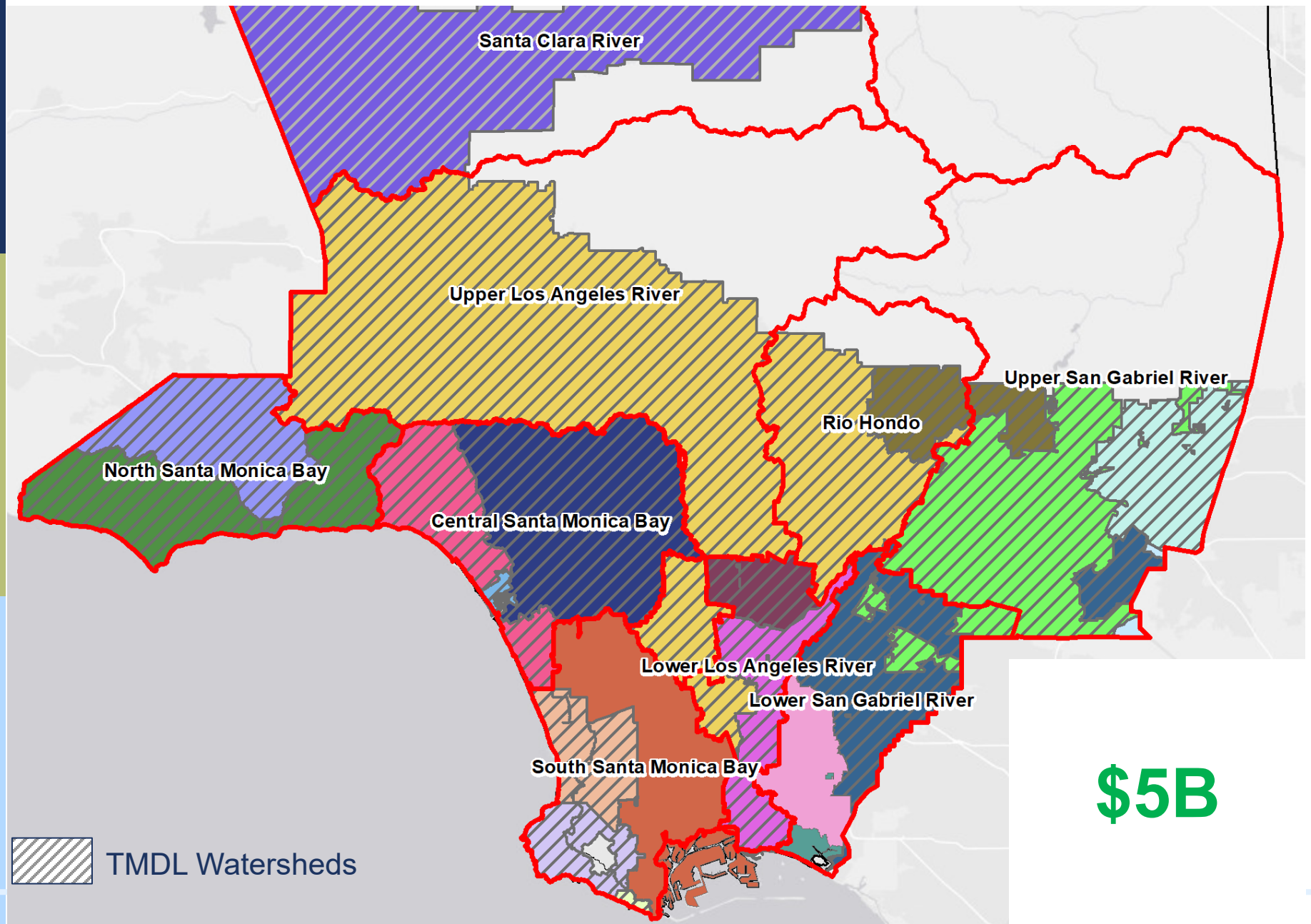
- Nexus to Stormwater and Urban Runoff Capture and Pollution Reduction
  - Study will facilitate improved targeting of pathogen sources and water to capture and/or treat
  - Study could reduce need to capture stormwater for bacteria compliance purposes while improving the protection of human health
  - Study may lead to partnering with various parties, such as wastewater agencies and homeless services agencies, to address human sources of pathogens.

Study Location



- All E/WMPs
- All WAs
- 8 TMDLs
- 5 more 303(d) listings

Study Location



$5B

Scientific Study Details

Problem Statement:

- Waterborne pathogens represent the most significant potential threat to the health of people recreating in and around the ocean and inland waters of Los Angeles County.

- Current standards are based on FIB (fecal indicator bacteria), which are used as proxies for pathogens.
  - FIB are ubiquitous; a vast network of structural control measures would need to be implemented to provide adequate control – projected cost over $5 billion.
  - USEPA and academia agree that human sources of pathogens pose the greatest risk
  - Unless high-risk sources are targeted, water capture projects may receive large FIB loads, but miss the highest risk human sources.

(Continued)

Scientific Study Details (Continued)

Expected Outcomes

- Completion of a needed regional study in LA County to identify the sources of pathogens and the most effective BMPs to address them. Studies have been completed elsewhere identifying human sources of pathogens as the highest driver of risk to human health.
- The latest science will be used to support the reduction of human pathogens and protect human health.
- Combined with scientific advancements, the results will provide an opportunity to improve the current bacteria strategy using source-specific indicators, improved viral detection methods, and risk modeling frameworks.
- The study results will facilitate meaningful, appropriate, productive actions by Permittees that will effectively reduce human health risks.

Scientific Study Details (Continued)

Methodology:

- Study work plan will be developed through a stakeholder-led process with the input of technical experts, including academics.
  - Stakeholder engagement is at the forefront of the study to ensure that diverse viewpoints are incorporated.

- Study will collect samples from beaches and waterbodies. Samples will be analyzed for traditional bacterial indicators, viruses, and human markers during wet and dry weather.
  - Identify areas with highest risk to support a focus on those areas
  - Identify the sources causing the highest risk to focus on those sources

- Study will assess control measure effectiveness and efficiency
  - Identify the best BMPs to address the sources
  - Support planning, applying municipal funds, requests for SCWP funding, and actions by other parties

Scientific Study Details (Continued)

- *Regional collaboration efforts:*
  - Small Group Initiated Discussions and built a scope for a Safe, Clean Water Regional Program project
  - Presented Approach to E/WMP Groups
  - Discussed with proponents of watershed-specific studies
  - Discussed with Regional Board staff
- Revised study to address concerns
  - Clearly focused on human pathogens
  - Clarified that study is a component of overall strategy to protect human health
  - Clarified that implementation continues during the study
  - Recognized that we do not need to wait until the end of the study to take action
  - Reduced first year cost of study

Cost & Schedule

Phase	Description	Cost	Schedule
Task 1	Stakeholder Process	$484,000	7/21 – 6/26
Task 2	Health Risk Assessment	$5,816,208	7/21 – 9/25
Task 3	Risk Management	$1,702,100	4/22 – 3/26
Task 4	Application of Study Findings	$484,000	1/25 – 6/26
TOTAL		**$8,486,308**	

Funding Request

WASC	Year 1	Year 2	Year 3	Year 4	Year 5
CSMB	$45,659	$333,041	$322,298	$319,612	$53,716
LLAR	$32,801	$239,256	$231,539	$229,609	$38,590
LSGR	$42,810	$312,259	$302,186	$299,668	$50,364
NSMB	NA	NA	NA	NA	NA
RH	$29,477	$215,011	$208,075	$206,341	$34,679
SCR	$15,378	$112,168	$108,550	$107,645	$18,092
SSMB	$47,156	$343,964	$332,869	$330,095	$55,478
ULAR	$98,952	$721,766	$698,483	$692,663	$116,414
USGR	$48,435	$353,290	$341,893	$339,044	$56,982
TOTAL	**$360,668**	**$2,630,755**	**$2,545,893**	**$2,524,677**	**$424,315**

Summary of Benefits

- By developing a better understanding of pathogens present in the region's watersheds, the relative risk to human health they pose, and the effectiveness of various control measures, new or adapted BMPs can be established that improve water quality and reduce human health risks at our beaches and inland waterbodies.
- Short-term: results could be used to protect people from health risks that aren't currently known.
- Long-term: results will enable the targeted placement of BMPs in locations where they can maximize the prevention or treatment of key sources of human pathogens.

Questions and Thank You

Richard Watson

Richard Watson & Associates

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