UPPER LOS ANGELES RIVER AND TRIBUTARIES REVITALIZATION PLAN

Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details are not part of this plan.

MARCH 12, 2020

ACKNOWLEDGMENTS

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Pacoima Beautiful/Friends of the Los Angeles River

River LA

The River Project

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Min Kim

Kenny Tang

Jean Yang

MIG:

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Ariel Jones

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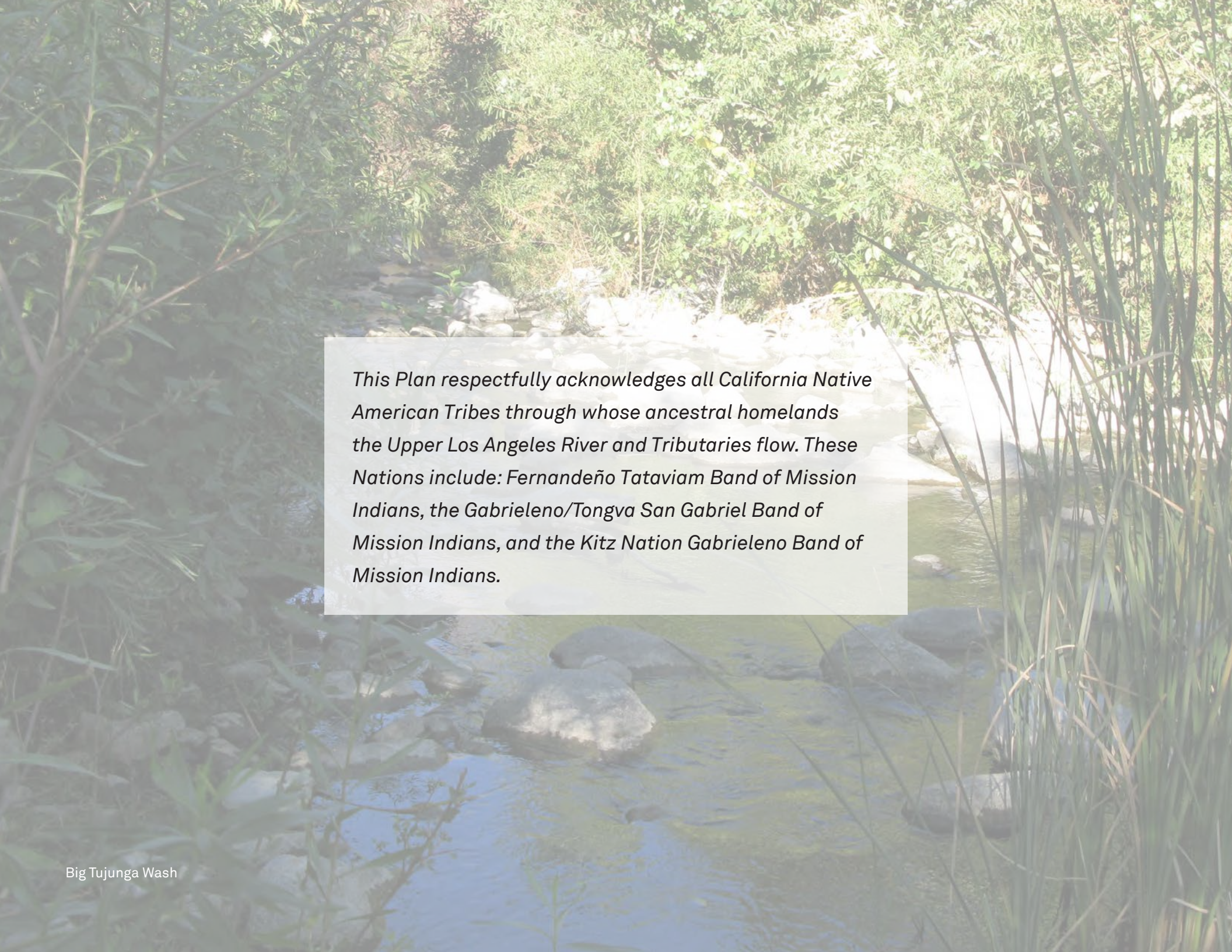
A special thank you to all those who attended public meetings, community members who took time out of their lives to provide additional details, anyone who provided feedback, told their story, or contributed to the plan in any way. It wouldn't have turned out the same without you.

Funded by the Santa Monica Mountains Conservancy through Proposition 84, Proposition 1, and Proposition 68



This Plan respectfully acknowledges all California Native American Tribes through whose ancestral homelands the Upper Los Angeles River and Tributaries flow. These Nations include: Fernandeño Tataviam Band of Mission Indians, the Gabrieleno/Tongva San Gabriel Band of Mission Indians, and the Kitz Nation Gabrieleno Band of Mission Indians.

Big Tujunga Wash

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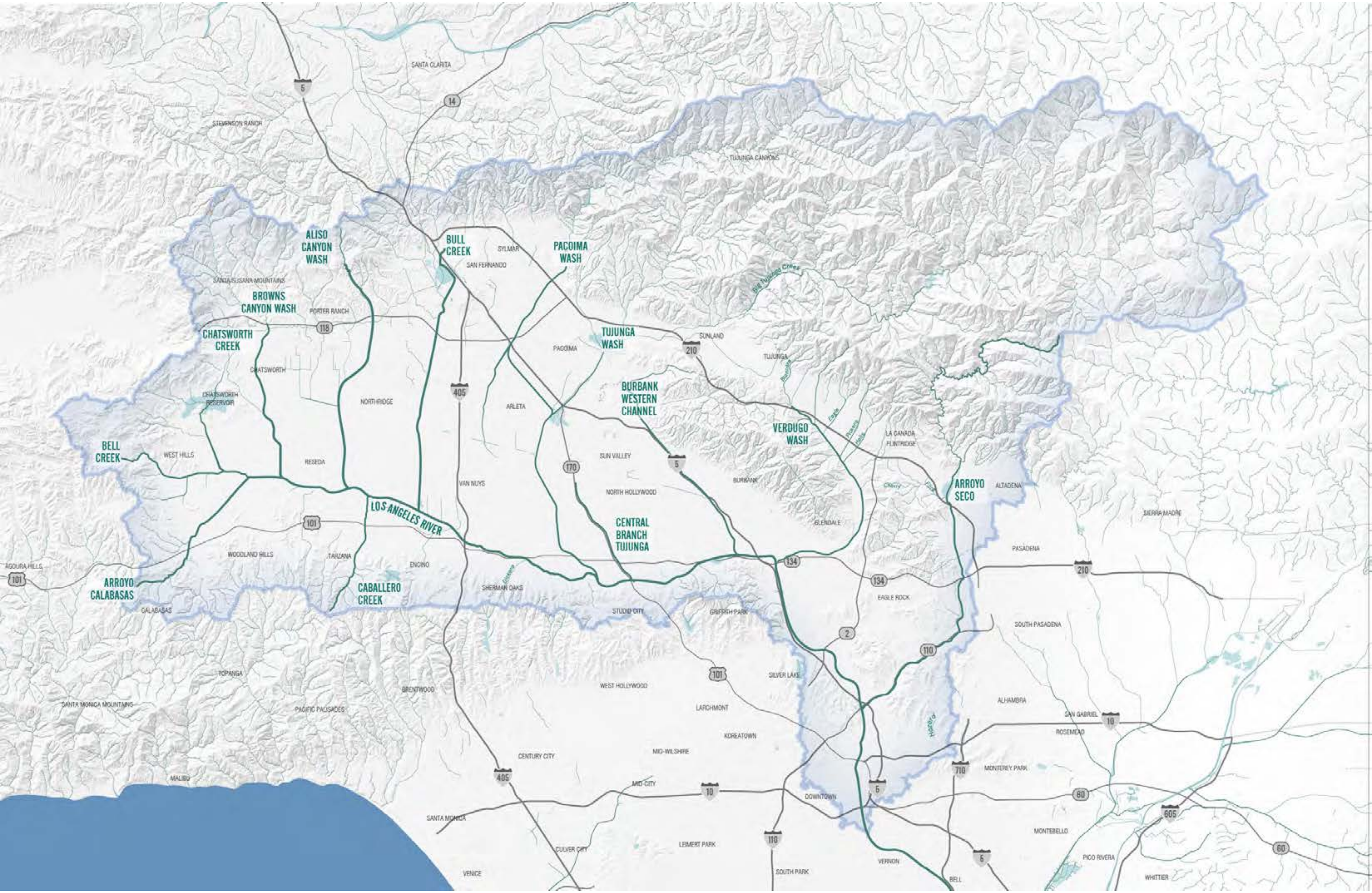
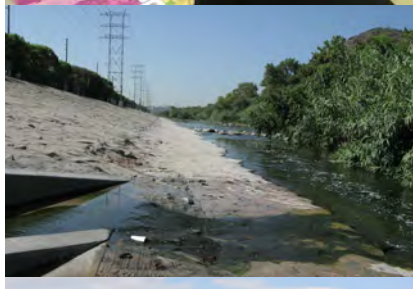
VOLUME 2

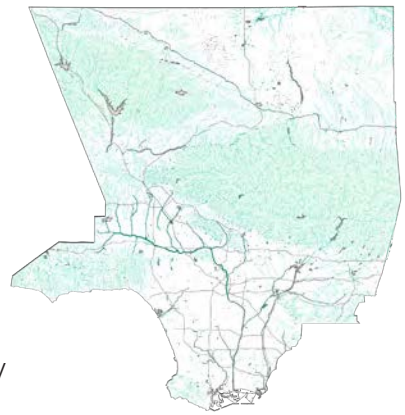


SANTA CLARITA
STEVENSON RANCH
TUJUNGA CANYONS
ALISO CANYON WASH
BULL CREEK
SYLMAR
SAN FERNANDO
PACOIMA WASH
SANTA SUSANA MOUNTAINS
BROWNS CANYON WASH
PORTER RANCH
CHATSWORTH CREEK
CHATSWORTH
CHATSWORTH RESERVOIR
TUJUNGA WASH
PACOIMA
SUNLAND
TUJUNGA
NORTHRIDGE
ARLETA
BURBANK WESTERN CHANNEL
VERDUGO WASH
LA CANADA FLINTRIDGE
BELL CREEK
WEST HILLS
RESEDA
SUN VALLEY
BURBANK
VAN NUYS
NORTH HOLLYWOOD
ARROYO SECO
ALTADENA
LOS ANGELES RIVER
GLENDALE
SIERRA MADRE
CENTRAL BRANCH TUJUNGA
PASADENA
WOODLAND HILLS
TARZANA
AGOURA HILLS
ENCINO
ARROYO CALABASAS
CABALLERO CREEK
SHERMAN OAKS
EAGLE ROCK
CALABASAS
STUDIO CITY
GRIFFITH PARK
SOUTH PASADENA
TOPANGA
SILVER LAKE
BRENTWOOD
WEST HOLLYWOOD
SANTA MONICA MOUNTAINS
PACIFIC PALISADES
LARCHMONT
ALHAMBRA
SAN GABRIEL
ROSEMEAD
KOREATOWN
CENTURY CITY
MID-WILSHIRE
MONTEREY PARK
MALIBU
MID CITY
DOWNTOWN
SANTA MONICA
MONTEBELLO
LEIMERT PARK
CULVER CITY
VERNON
PICO RIVERA
VENICE
SOUTH PARK
BELL
WHITTIER



EXECUTIVE SUMMARY

THE PLAN



The creation of the Upper Los Angeles River and Tributaries (ULART) Revitalization Plan (*the Plan*) represents an extraordinary and timely opportunity for the surrounding communities to experience historic change. The Los Angeles (LA) River is a heavily channelized waterway, flowing 51 miles from its inception at the confluence of Bell Creek and Arroyo Calabasas to its outlet in Long Beach. It is surrounded by densely urbanized and populated land uses. The upper LA River meanders eastward through the Simi Hills, Santa Susana Mountains, the San Fernando Valley, and into the Elysian Valley, crossing multiple jurisdictions (see map on next page). While there are a few areas that have more natural river type characteristics than the concrete channels the LA River is known for, these small pockets offer potential for ecological and wildlife habitat restoration. Portions of the tributaries also contain natural river characteristics that foster ecology and habitat and offer potential as well as opportunities for varying scales of restoration. There are unique challenges that constrain state and local agencies as they attempt to manage, maintain, reimagine, and revitalize the River and its adjacent communities. This plan seeks to discuss, examine, and analyze the role of the often forgotten or neglected tributaries as described in Assembly Bill (AB) 466. This legislation authorized the creation of an appointed Working Group for the Upper LA River and Its Tributaries using a community-centric, watershed management approach to develop a revitalization plan—included hereafter.

Photos top to bottom:

- June Water and Environment Committee meeting, Encino;
- Los Angeles River near Burbank Western Channel;
- Hansen Dam Recreation Area;
- Pedestrian Bridge near Mission High School;
- Devonwood Park;
- Culverts near Bette Davis Park

> To the extent that the city or county wishes to consider the revitalization plan, the conservancy shall submit the plan for adoption to the Los Angeles County Board of Supervisors for inclusion in the Master Plan of the County of Los Angeles and to the Los Angeles City Council for inclusion into the Los Angeles River Revitalization Master Plan."
>
> —AB 466

> The revitalization plan shall address the unique and diverse needs of the Upper Los Angeles River, Pacoima Wash, Tujunga Wash, and Verdugo Wash and the communities through which they pass."
>
> —AB 466

A WORKING GROUP FOR THE UPPER LA RIVER WATERSHED

In September 2017, Governor Jerry Brown signed Assembly Bill 466 (AB 466)—establishing within the Santa Monica Mountains Conservancy (SMMC), a Working Group focused on the revitalization efforts of the upper Los Angeles River and its tributaries (ULART). This Working Group, similar to the Working Group established by the AB 530 for the Lower LA River, was charged with the development of a plan *"through watershed-based planning methods and community engagement, a revitalization plan for the Upper Los Angeles River, the tributaries of the Pacoima Wash, Tujunga Wash, and Verdugo Wash, and any additional tributary waterway that the Working Group determines to be necessary. The bill would require the revitalization plan to address the unique and diverse needs of the Upper Los Angeles River, Pacoima Wash, Tujunga Wash, and Verdugo Wash, and the communities through which they pass, and to include watershed education programs"*. In addition, "*The revitalization plan shall require a master planning process that includes community engagement and a prioritization of disadvantaged communities*." Governor Brown signed State Senate Bill (SB 1126) in September 2018, which added the Arroyo Seco as a waterway.

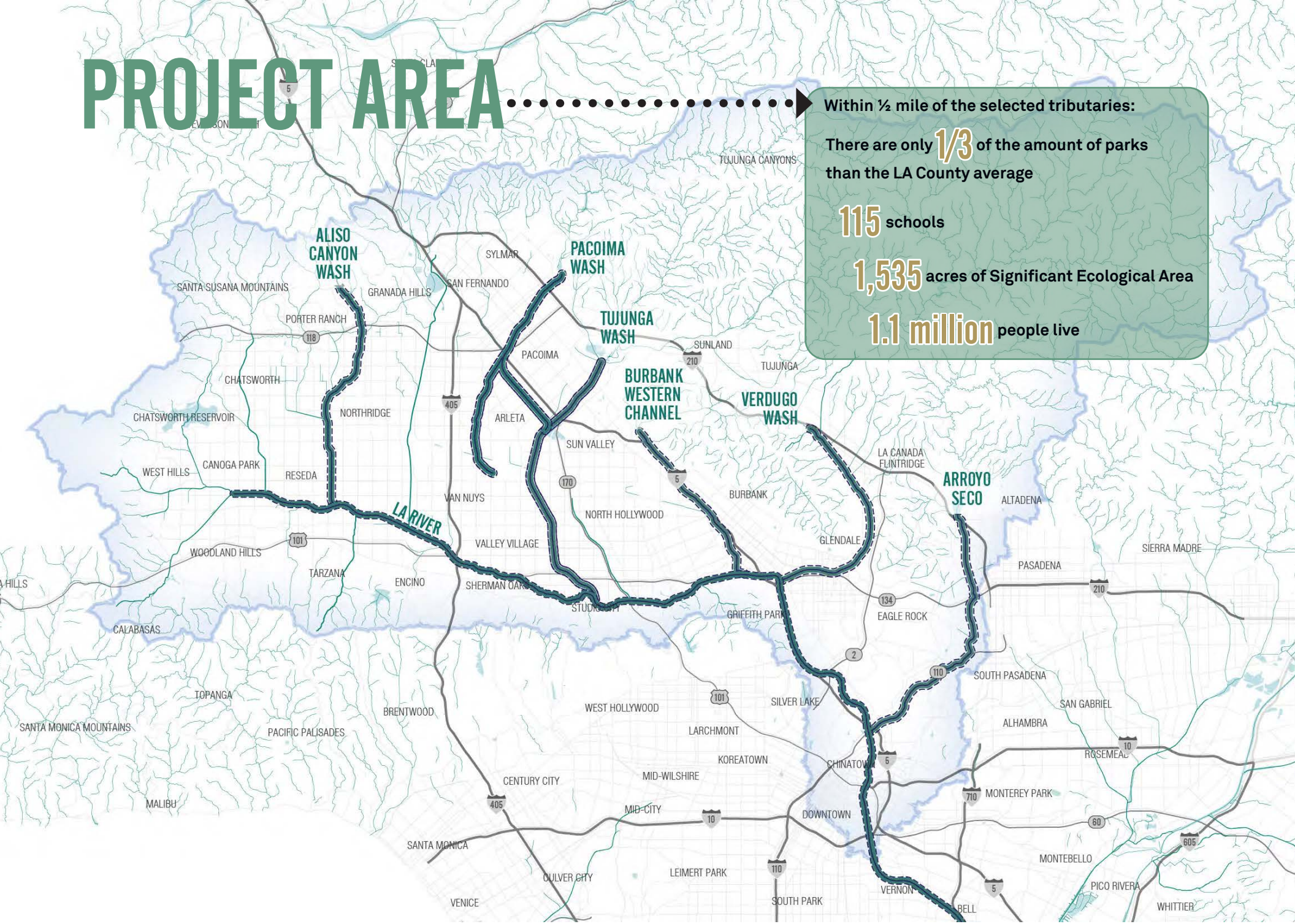
"A master planning process that includes community engagement and a prioritization of disadvantaged communities"

PLAN LAYOUT

This plan was laid out in two volumes; Volume 1 - The Plan and Volume 2 - Technical Appendices each with a different purpose and intended audience. Volume 1 contains a brief description of the existing conditions in the watershed, working group process, and next steps for *the Plan*. Volume 2 contains additional technical details, data analysis, and complete meeting materials, to be used as a technical reference for those reading *the Plan*.

Glendale Narrows with Griffith Park in the background

PROJECT AREA



Within ½ mile of the selected tributaries:

There are only 1/3 of the amount of parks than the LA County average

115 schools

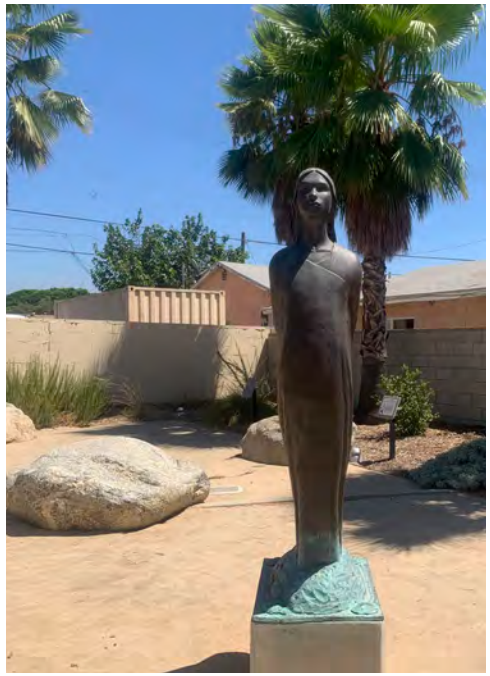
1,535 acres of Significant Ecological Area

1.1 million people live

THE NATIONS OF THE UPPER LOS ANGELES RIVER AND ITS TRIBUTARIES

The Paayme Paxaayt/Orit/Wanüt has always been, and will always be, a place of significance to the Native American Tribes through whose ancestral homelands the River flows, including the Fernandeño Tataviam Band of Mission Indians, the Gabrieleno/Tongva San Gabriel Band of Mission Indians, and the Kitz Nation Gabrieleno Band of Mission Indians. There are dozens of Tongva and Tataviam villages along the River.

Native American Tribes and indigenous groups in Los Angeles County are holders of both historical and practical experience and knowledge in dealing with the social and environmental issues the Plan is designed to address.



Top left: Near Verdugo Wash,
Bottom left: Learning Garden of the San Gabriel Mountains in Pacoima,
Above: Sculpture in Garden in Pacoima

THE APPOINTED WORKING GROUP WAS COMPRISED OF:

California State

- California State Assembly
- California State Senate
- State Parks Department

LA County

- Supervisor - First district
- Supervisor - Third district
- Supervisor - Fifth district
- Parks and Recreation Department
- Department of Public Works

Mayors

- City of San Fernando
- City of Burbank
- City of Glendale

LA City

- Los Angeles City Council- CD 7
  - Working Group Chairwoman
- Los Angeles City Council- CD 6
- Los Angeles City Council- CD 3
- City of LA Mayor's office
- LA Sanitation

Non-Governmental Organization

- Managing Director, Arroyo Seco Foundation
- Others

The complete list of Working Group Members can be found at https://bit.ly/2ki6aQc

Top to bottom, counter clockwise: December 2018 People and Recreation Committee Meeting, Working Group Members are sworn in at October 2018 Working Group Meeting, April 2019 Water and Environment Committee Meeting

GOALS AND OBJECTIVES

During the first Working Group meeting, the Working Group established the course of *the Plan*, determined the focus of the two committees—Water and Environment, and People and Recreation—and discussed the breadth and nucleus of the community engagement phases. Over 18 months, Working Group members and their alternates convened to develop *the Plan* through three main phases—inventory and analysis, concept development, and *the Plan*. The mission of the Upper LA River & Tributaries Revitalization Plan is to highlight/emphasize the objective with the following components:

- Nature based watershed management
- Open space
- Multiple benefits
- Safe access
- Alignment with community needs and feedback
- Alignment with funding sources
- Reduction and management of flood risks to communities
- Culture, arts, and education
- Reconciliation with previous efforts

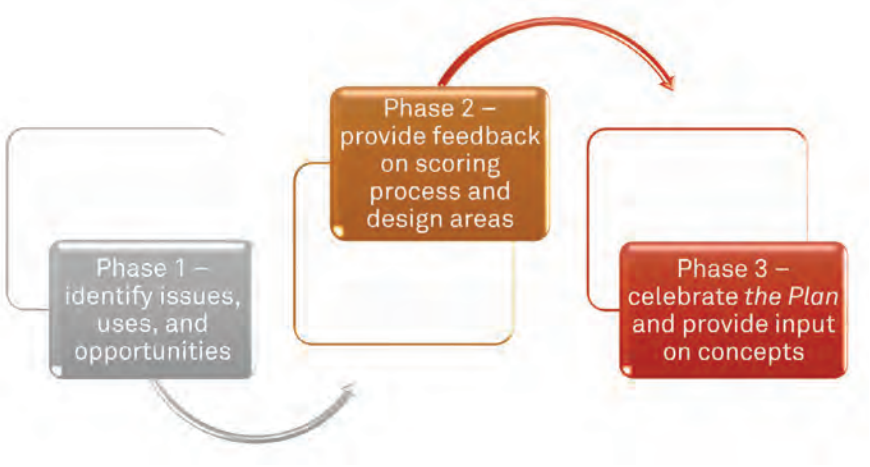
PROCESS

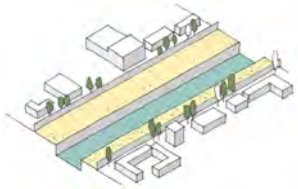
Typology is a term often used by planners to describe areas with common characteristics. It is defined as the study of or analysis or classification based on types or categories[1]

[1](Merriam Webster Dictionary)

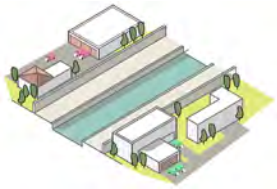
The Working Group used a ***3-phase process*** to develop *the Plan* and select the design areas (for complete explanation, see Volume 1 Chapter 2):

1. **Phase 1:** Define the Mission, Purpose, Goals and Objectives, and Identify opportunity areas for revitalizing the Upper LA River and its Tributaries
   a. Reviewed maps, literature and existing plans, and discussed locations and areas for revitalization, known as *opportunity areas* (OAs)
   b. Provided on the ground context for the areas around the tributaries, included problem areas, "would be nice to haves", and projects that have been discussed but have not had any major planning or funding.
   c. Considered inspirational imagery of urban river revitalization to help visualize and provide input on potential revitalization efforts for each OA. Community workshops presented similar imagery and asked similar questions about how area residents use the river and what they would like to see.
2. **Phase 2**: Develop scoring criteria, identify opportunity area "bundles", a larger design area, comprised of one or more OAs, and select a design area for additional analysis and illustrative development in *the Plan*
   a. Conditionally approved a process to score each OA.
   b. Reviewed scores assigned to the OAs.
   c. Discussed options for opportunity areas "bundles" and recommended a design area for additional analysis.
3. **Phase 3:** Develop *the Plan* and rendered perspectives
   a. Created illustrative plans and rendered perspectives for 6 design areas (more details provided in Chapter 3)
   b. Identified 9 project elements, or typologies/templates, that can be applied to multiple areas throughout the ULART study area: channel right-of-way, commercial, community connections, housing, in-channel improvements, industrial, institutions, parks and ecological connections, and stormwater basins.

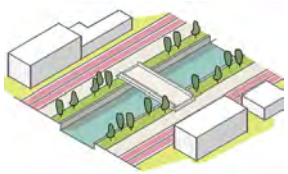




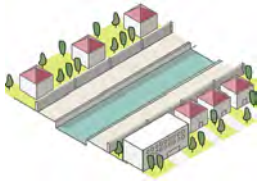
Channel Right-of-Way



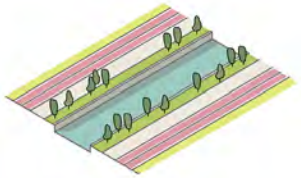
Commercial



Community Connections



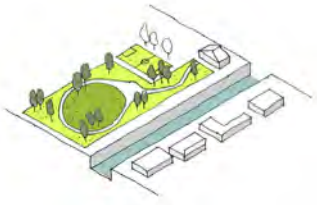
Housing



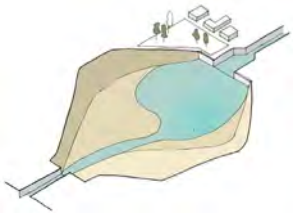
In-Channel Improvements:

Industrial

Institutions



Parks and Ecological Connections

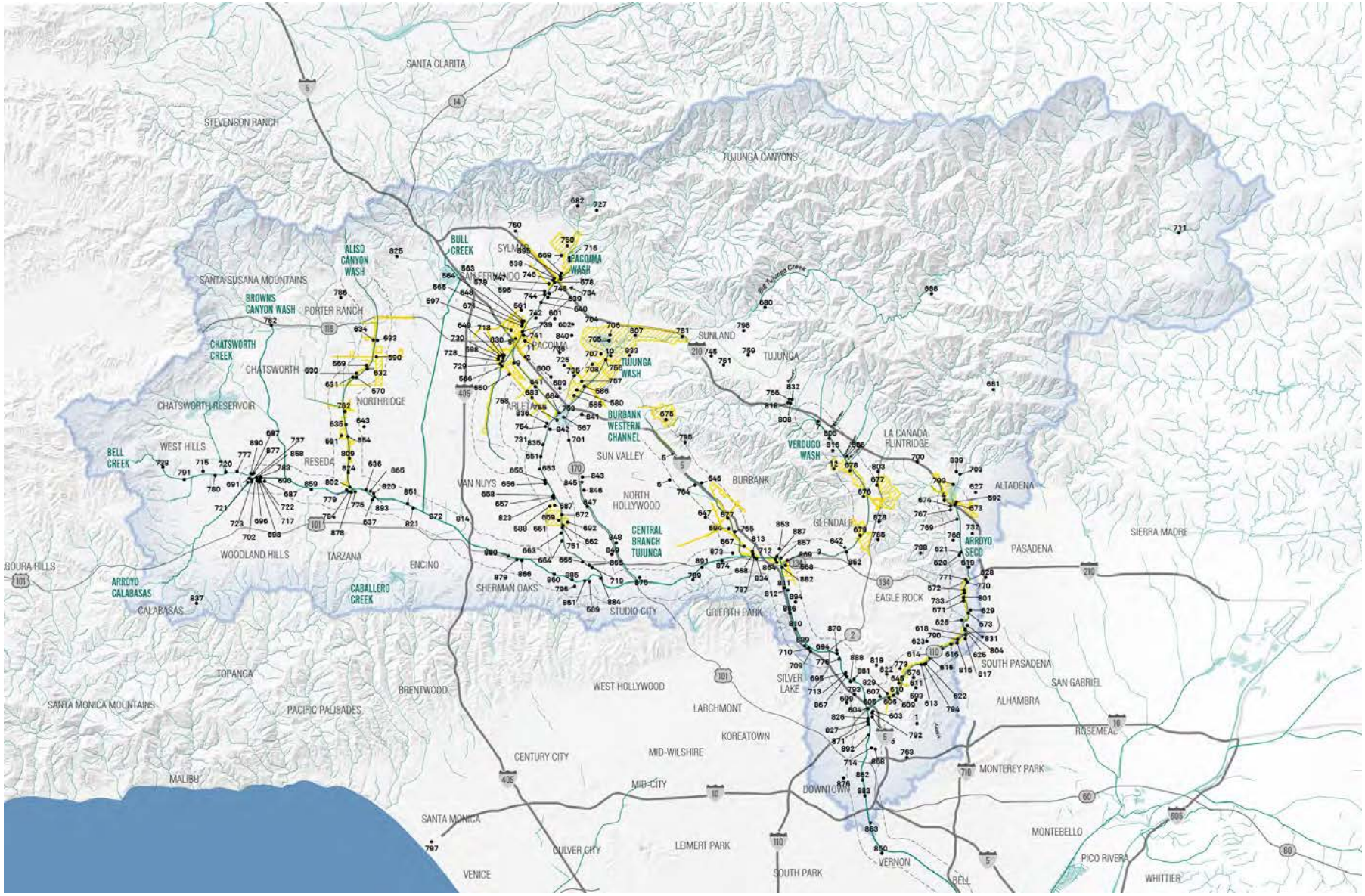


Stormwater Basin

December People and Recreation committee meeting in Glendale

June People and Recreation Committee Meeting in Encino

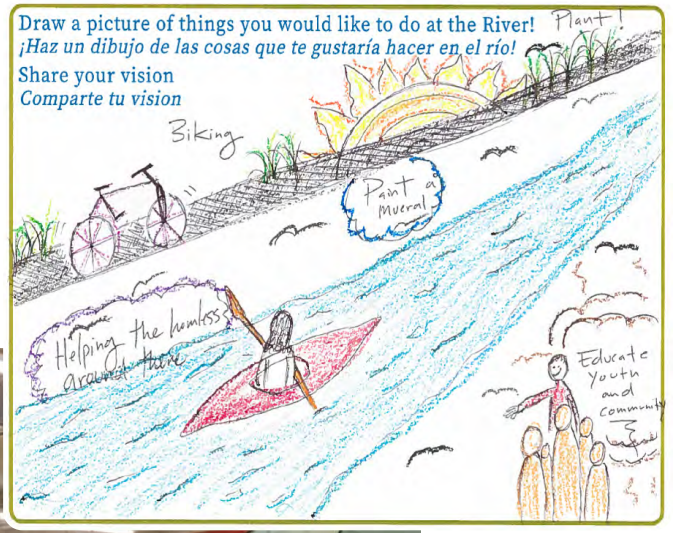
PROJECTS IDENTIFIED IN PLAN



COMMUNITY ENGAGEMENT AND OUTREACH

Required by the legislation, *the Plan* must use *watershed-based planning methods and community engagement to address the diverse needs of the Upper Los Angeles River, Pacoima Wash, Tujunga Wash, Verdugo Wash, Arroyo Seco, any additional waterways, and the surrounding communities.*

Community engagement occurred over nine months, through three phases, and an online survey, collecting input and feedback from the communities in the upper LA River and its tributaries. The following chapters detail how and where the input and feedback were incorporated into *the Plan*.



Phase 2 Community Engagement Event at the Discovery Cube in Sylmar.

NEXT STEPS

Acknowledging the need for project implementation and funding support, the following chapters of *the Plan* provide guidance on prioritization, funding, and implementation of projects. *The Plan* includes these elements to provide communities, advocates, agencies, and cities with tools to revitalize the Upper LA River and its tributaries in ways aligned with the Working Group's carefully developed goals and objectives. Benefits from these projects will only be realized if:

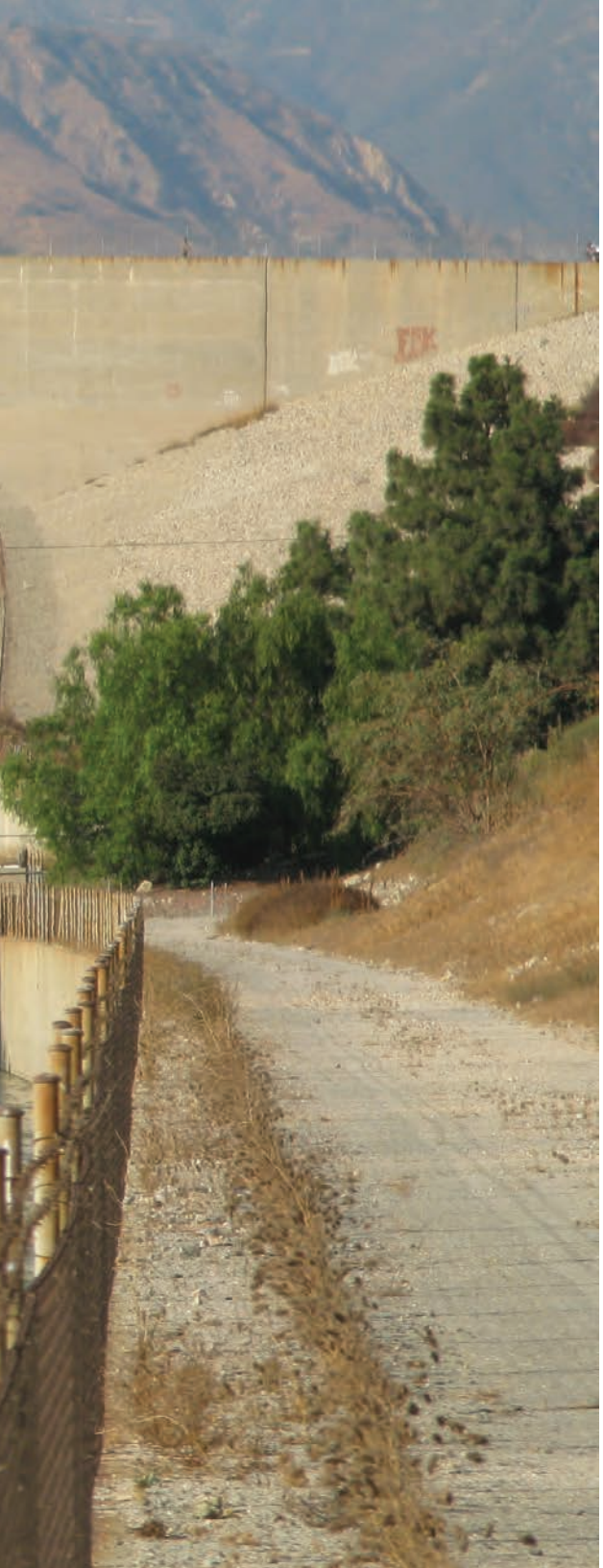
- Equitable planning approaches are used to select, place and scale projects while maintaining strong connections to the community.
- Projects are selected based on community support which meet the goals established by the Working Group and the community.
- Proposed projects continue to be assessed and adapted based on community needs.
- Coordination with traditional and nontraditional partners is encouraged to ensure support, funding and maintenance.
- Projects are integrated into existing and future land use, infrastructure, transportation, river revitalization and climate action plans.

June 2019 Water and Environment Committee Meeting

LA River near Griffith Park and I-5.

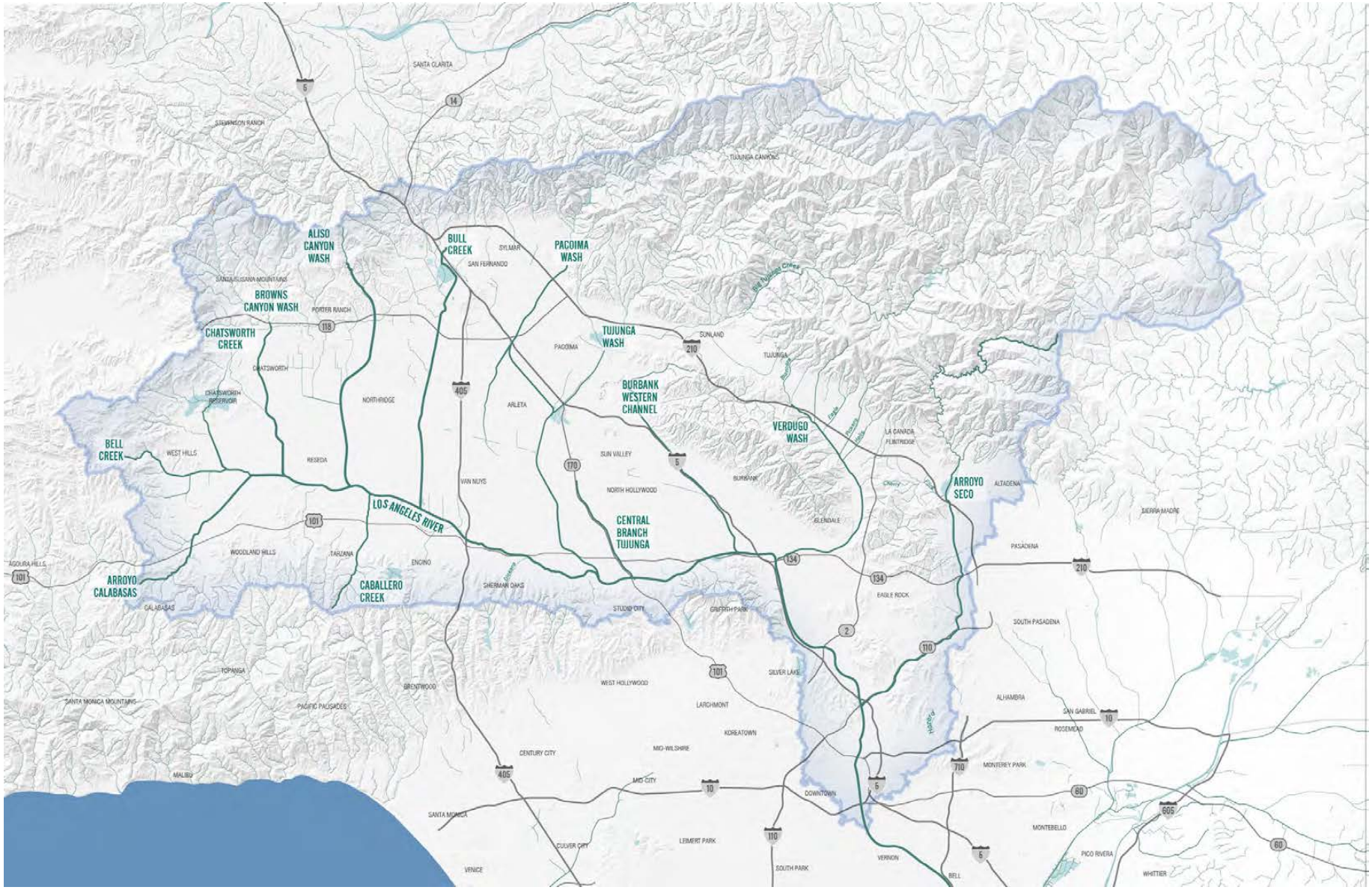
This *Plan* focuses on the LA River and tributaries per the legislative actions. Taken in total, the six tributaries within *the Plan* account for a majority of the water flowing from the overall watershed into the Los Angeles River mainstem. Projects are proposed within and adjacent to the tributaries, with the intention to create multi benefit templates, typical treatment components, that can be applied to multiple locations within a corridor as funding and planning progress. In this manner, the proposed projects do not need to be on a larger, regional scale. Rather, several smaller-scale efforts accomplished in an urbanized, space-restricted environment provide multiple benefits and positive impacts throughout the watershed and, by association, downstream in the Los Angeles River.

Hansen Dam



CHAPTER 1: INTRODUCTION OF THE UPPER LA RIVER WATERSHED AND TRIBUTARIES

The Plan covers the Upper Los Angeles River and Tributaries (ULART) Watershed with a focus on the Aliso Canyon Wash, Pacoima Wash, Tujunga Wash, Burbank Western Channel, Verdugo Wash, and Arroyo Seco. The conditions within the ULART vary drastically between each tributary and from their headwaters to their confluences, and while many of the characteristics of the tributaries are different, they have one major thing in common; they eventually converge with the Los Angeles River and impact the ecology, water quality, and flooding conditions downstream. In many of the previous planning efforts, the tributaries have been excluded from river planning, and are seldom examined based on their similarities; therefore, *the Plan* seeks to describe the conditions and attributes across the watershed, address the varied needs of the residents, and identify improvements to select tributary corridors within the ULART.



The Upper LA River Watershed and 13 Tributaries

OVERVIEW *of the ULART Existing Conditions*

The ULART Planning area consists of the entire LA River watershed feeding into the point where it meets the Lower Los Angeles River Revitalization Plan (more about that later) in the city of Vernon. This plan examines different conditions and challenges on different levels depending on the need:

– **Watershed:** All land whose rainwater drains to the point where the project area begins.

  Used for: Determine the overall impact of the plan on conditions that improve the overall health of the community and ecosystem in the planning area.

– **Tributary Watershed:** All land whose water drains to that tributary before reaching the Los Angeles River.

  Used for: determining quantities of stormwater and pollutants , as well as the ecosystem function and habitat values for that particular area.

– **Tributary Corridor:** ½ mile planning area on either side of the urbanized portion of the tributary.

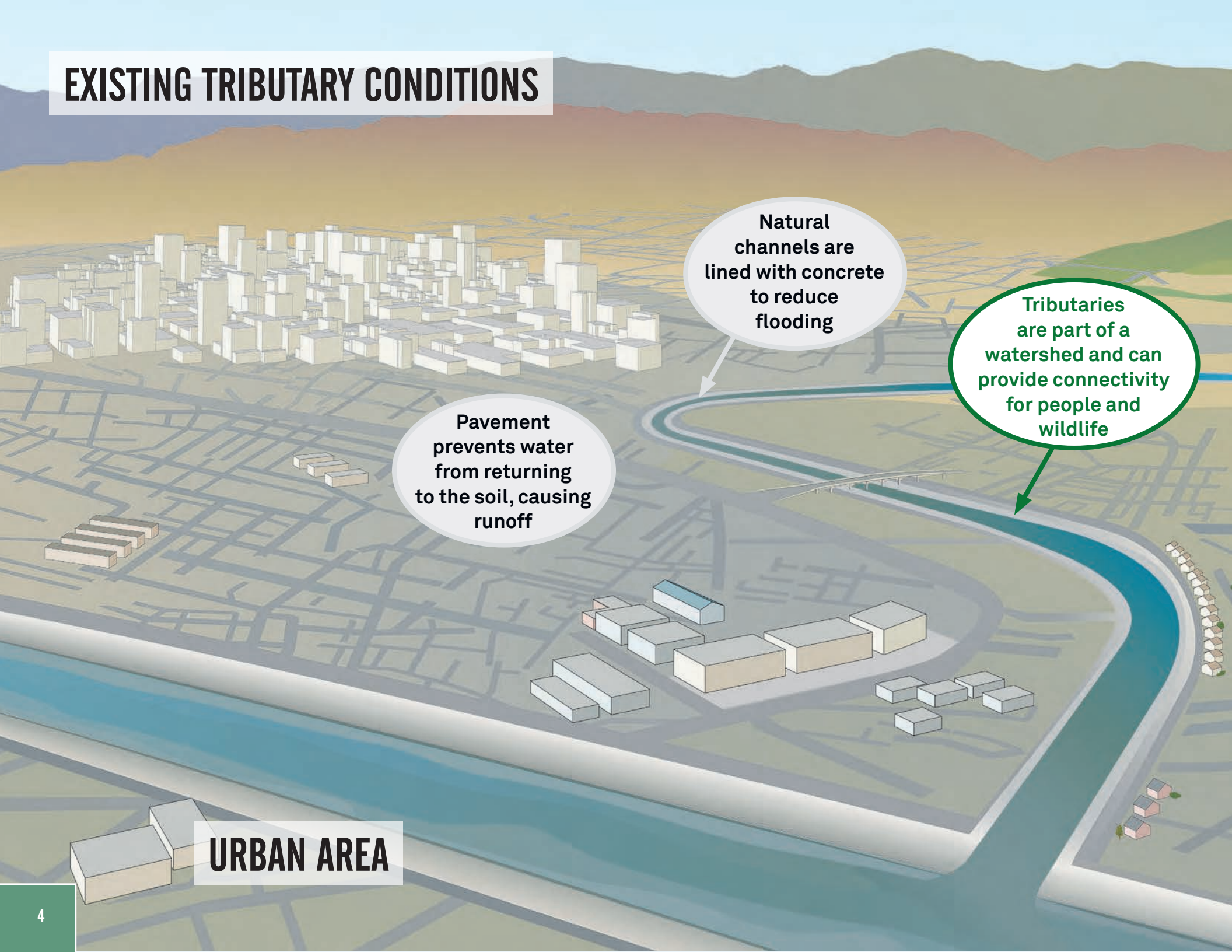
  Used for: representing the areas, resources, and population within walking distance of the river.

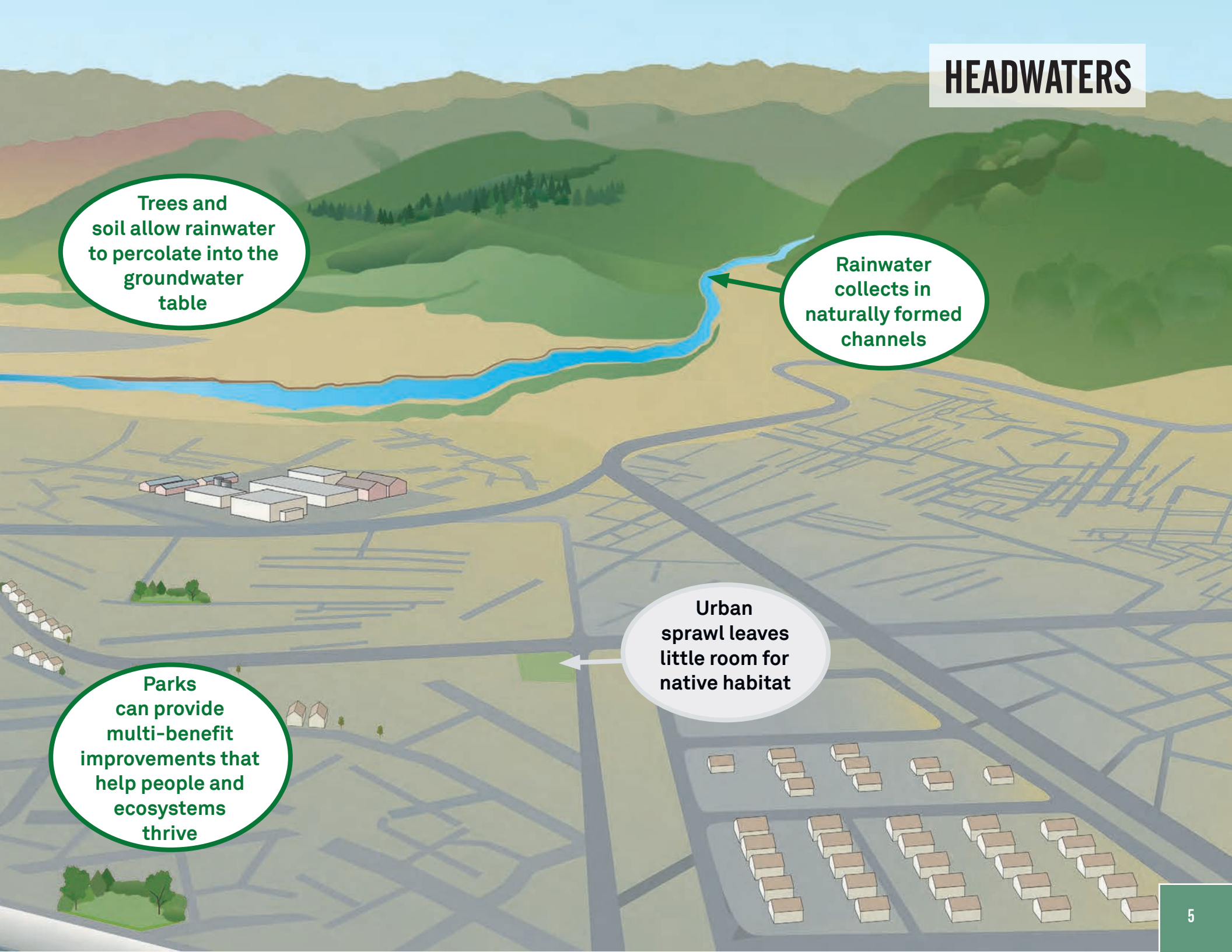
The ULART watershed is unique because of its variety of land uses and land types throughout the area. The tributaries are for the most part single-purpose flood control channels. The tributaries also receive flow from other watercourses, from the foothills of the San Gabriels into the River and through the six major tributaries. There is land for everything from forest to industrial to urban. Overall, the urbanized area is largely built out with little opportunities for new habitat or parkspace. However, the people who live within the watershed have very little use, and for the most part, the tributaries are inaccessible, and not suitable for purposes other than maintenance. Oftentimes there is little awareness of the presence of the tributary and the potential uses are only as a barrier to the other sides of their neighborhoods. However, these tributaries could function as so much more.

Near the LA River and I-95 Freeway

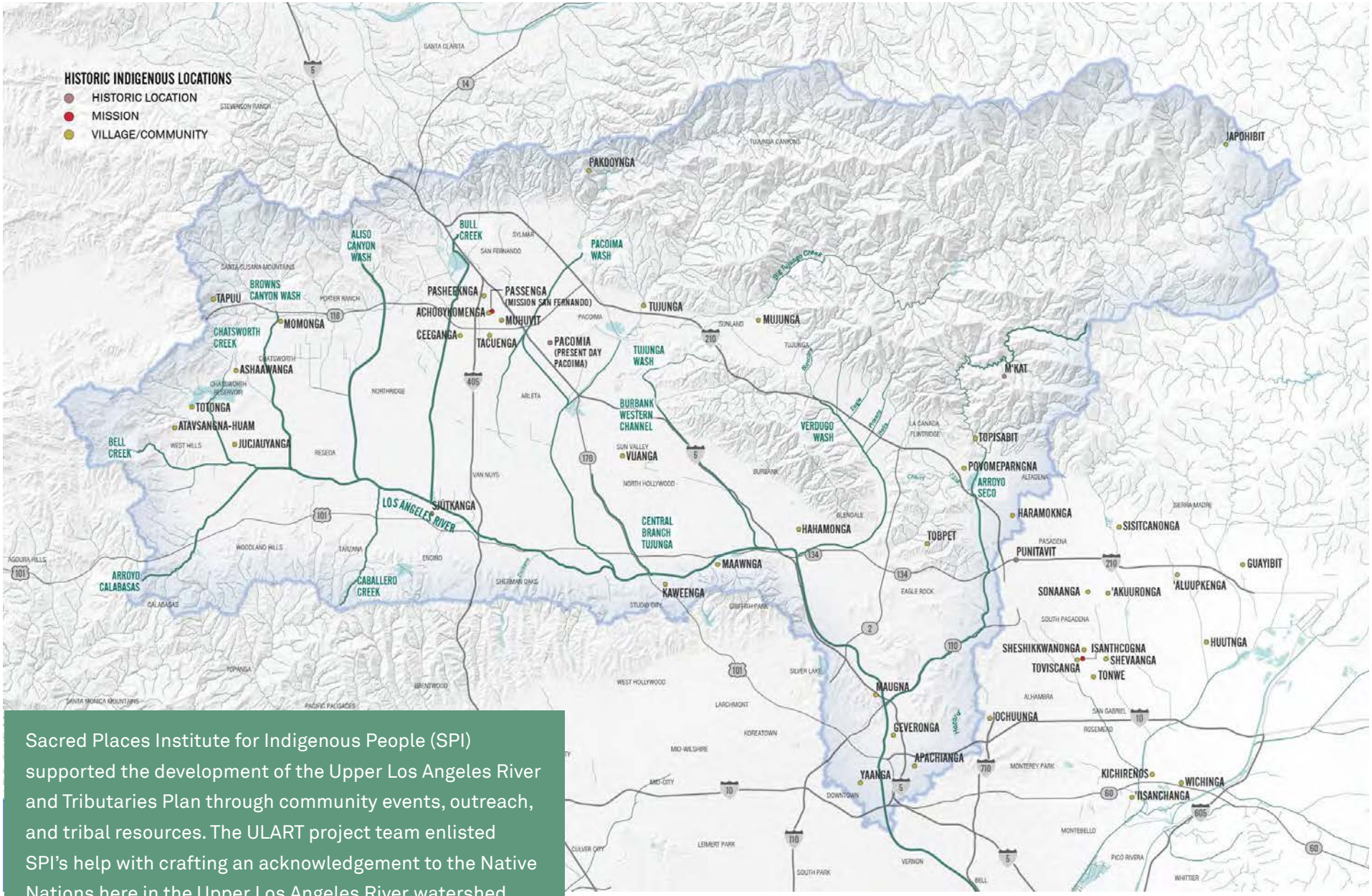
Verdugo Wash near LA River Confluence

EXISTING TRIBUTARY CONDITIONS




HEADWATERS
Trees and soil allow rainwater to percolate into the groundwater table
Rainwater collects in naturally formed channels
Urban sprawl leaves little room for native habitat
Parks can provide multi-benefit improvements that help people and ecosystems thrive

NATIVE NATIONS WITHIN THE UPPER LOS ANGELES RIVER AND ITS TRIBUTARIES



Sacred Places Institute for Indigenous People (SPI) supported the development of the Upper Los Angeles River and Tributaries Plan through community events, outreach, and tribal resources. The ULART project team enlisted SPI's help with crafting an acknowledgement to the Native Nations here in the Upper Los Angeles River watershed that is respectful and fully honors their contributions.

Locations are approximate, based on limited data available.

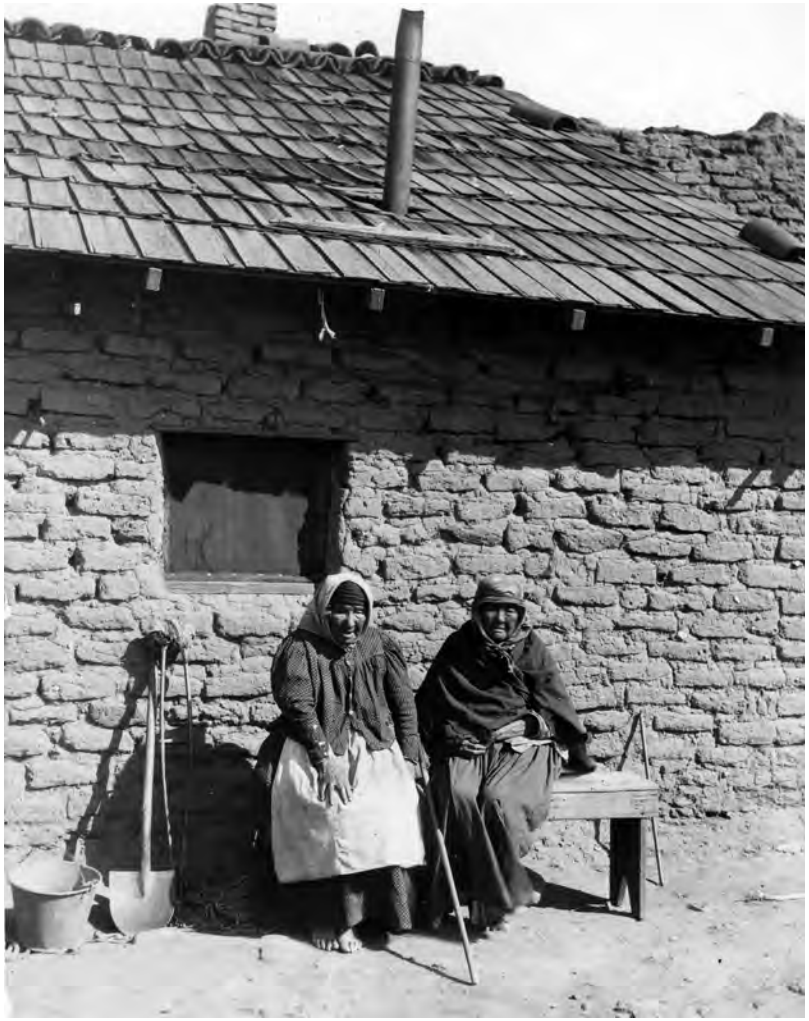
The Paayme Paxaayt/Orit/Wanüt has always been, and will always be, a place of significance to the Native American Tribes through whose ancestral homelands the River flows, including the Fernandeño Tataviam Band of Mission Indians, the Gabrieleno/Tongva San Gabriel Band of Mission Indians, and the Kitz Nation Gabrieleno Band of Mission Indians. There are dozens of Tongva and Tataviam villages along the River. Both communities' connection to land and water was disrupted with the establishment of the Spanish mission system. For the Tongva this disturbance arose in 1771 with the founding of the Mission San Gabriel.[1] For the Tataviam, their Spanish period began in 1797 with the "recruitment and enslavement of Indians to Misión del Señor San Fernando Rey de España (San Fernando Mission), the Seventeenth established mission in California."[2]

Native American Tribes and indigenous groups in Los Angeles County are holders of both historical and practical experience and knowledge in dealing with the social and environmental issues *the Plan* is designed to address. They have confronted the environmental effects that accompanied the colonial waves in California and have been uniquely impacted by these environmental challenges. It is these very groups who have historically been on the front-line fighting for the protection of the River since the time of first contact.

Despite the realities of historical and contemporary acts of settler colonial violence, including violence to ancestral lands and waters, California Native American Tribes and tribal community members are resilient and continue to speak their languages, cultivate traditional medicines and foods, protect and restore lands and waters within their ancestral homelands, and assert their sovereignty in land use and water management planning within their traditional territories along the River.

Additional information related to California Native American Tribes and TEK[4] can be found on California Landscape Conservation Partnerships Traditional Ecological Knowledge Resources page.

"It is difficult to be Indian under any circumstances; think what it must be like to see a phenomenon like Los Angeles spreading over your meadows and valleys, diverting your rivers, building parking structures on your holy sites, transforming the land that nurtured your ancestors into something unrecognizable."[3]



[1] http://www.tobevisible.org/timeline.html
[2] https://www.tataviam-nsn.us/heritage/history/historical-timeline/
[3] L. Frank Manriquez and Kim Hogeland, First Families-A photographic History of California Indians (Berkley: Heyday Books, 2007), 93.
[4] http://climate.calcommons.org/article/tek

HISTORY OF THE LA RIVER *with a Focus on the Upper Watershed and Tributaries*

1900: Two men stand at the headwaters of the Los Angeles River

1937: View of the Tujunga Wash in the San Fernando Valley before development

1948: Children swim under a bridge near Griffith Park

1949: Construction of channel walls for Valley Flood Control Plan

5,000 B.C.E. –1700's
Gabrieleno-Tongva and Gabrieleno peoples build villages along the River known as "Wenot" in the local dialect

1769
Gaspar de Portola and father Juan Crespi name the River

The first permanent Spanish settlement is established in San Diego and missions are established up the coast of present-day California[5]

1781
El Pueblo de la Reina de Los Angeles is founded where Olvera Street now exists

City of Los Angeles is established[6]

1825
A massive flood cuts a new path south of the pueblo to San Pedro Bay

1850
California becomes part of the United States[7]

Los Angeles incorporated as a City

Mid 1800's
Development boom results in homes and businesses being built in the floodplain

1886
City of Pasadena is incorporated[8]

1887
City of Burbank is established[9]

City of Glendale is established[10]

1914
Major flood causes $10M in damages

1915
Los Angeles County Flood Control District (LACFCD) is established[11]

San Fernando Valley is annexed by the City of Los Angeles[12]

1920
Devil's Gate Dam is built[13]

1934
The Montrose flood kills 45 people and destroys 100 homes, causes Congress to authorize concrete channels

1935
Army Corps begins channelization

1954: Motorists cross Pacoima Wash during a flood

1966: Aerial view of Hansen Dam and spreading basin

1984: Participant in the Great Wall Mural project indicates work

1938 — Most devastating flood on record occurs

Los Angeles River is channelized, and the following channels are created[14]:

- Arroyo Seco (construction began in 1935)[15]
- Aliso Canyon Wash
- Western Channel
- Pacoima Wash
- Tujunga Wash (1950s)[16]
- Verdugo Wash (late 1930s)

1940 — Hansen Dam is built[17]

1941 — Sepulveda Dam is completed

1960 — Tujunga Wash floods in January and February higher than a 50-year recurrent events

1969

1989 — Mayor Tom Bradley establishes first task force on the River to look at potential River improvements

1990 — County of Los Angeles River Task Force is formed

1992 — County receives open space assessment district funds to provide new River access through parks and bike trails

1996 — LA County began the LA River Master Plan

1997 — Elysian Valley Gateway Park: First pocket park opened along LAR by SMMC/ MRCA

2007 — The City of Los Angeles adopted the Los Angeles River Revitalization Master Plan

2010 — LAR deemed navigable water by EPA

2011 — Seasonal LA River Recreation Zone opens

2015 — Assembly Bill 530 (AB 530) adopted to establish the Lower Los Angeles River Working Group

2018 — Lower LA River Revitalization Plan Adopted

Assembly Bill 466 (AB 466)/ Senate Bill (SB 1126) adopted to establish the Upper Los Angeles River Working Group

2019 — AB 1558 River Ranger Program Plan Established

LITERATURE REVIEW PLANS

1. The California Resources Agency, San Gabriel and Lower Los Angeles Rivers and Mountains Conservancy, Santa Monica Mountains Conservancy (2001). *Common Ground - From the Mountains to the Sea*.
2. Los Angeles County Department of Public Works, Los Angeles County Department of Parks and Recreation, Los Angeles County Department of Regional Planning, Los Angeles County Department of National Parks Service, Los Angeles River Advisory Committee (1996). *Los Angeles River Master Plan*
3. City of Los Angeles Department of Public Works, Bureau of Engineering (2007). *Los Angeles River Revitalization Master Plan*
4. United States Army Corps of Engineers, Los Angeles District (2015). *Los Angeles River Ecosystem Restoration Integrated Feasibility Report*
5. County of Los Angeles Public Health Community Health Services (2011). *Pacoima Wash Vision Plan*
6. City of San Fernando (2004). *Cal Poly Pomona Pacoima Wash Greenway Master Plan*
7. United States Army Corps of Engineers, Los Angeles District, Los Angeles County Department of Public Works (Undated). *Arroyo Seco Watershed Ecosystem Restoration Feasibility Study*
8. Upper Los Angeles River Watershed Management Group (2016). *Enhanced Watershed Management Program (EWMP) for the Upper Los Angeles River Watershed*
9. Leadership Committee of the Greater Los Angeles County Integrated Regional Water Management Region (2014). *The Greater Los Angeles County Region Integrated Regional Water Management (GLAC IRWM) Upper Los Angeles River Subregional Report Plan*
10. The Nature Conservancy (2016). *Water Supply and Habitat Resiliency for a Future Los Angeles River: Site-Specific Natural Enhancement Opportunities Informed by River Flow and Watershed-Wide Action Los Feliz to Taylor*
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13. The River Project (2008). *Tujunga-Pacoima Watershed Plan*
14. United States Department of Interior National Park Service (2016). *Rim of the Valley Corridor Special Resource Study*
15. California Coastal Conservancy (2002). *Arroyo Seco Watershed Restoration Feasibility Study*
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ULART CONTEXT IN LA RIVER WATERSHED PLANNING

In the last 20 years, there have been multiple planning efforts in the Los Angeles Region. Plan topics ranging from drinking water supply, bikeways, parks, and even safe routes to school. These plans are often "single purpose" and only consider a portion of the watershed or include minimal detail in some areas. *The Plan* seeks to explore the spaces in between the existing plans and tie together the related objectives for each of the planning efforts to develop an evenly distributed, equitable and multi-benefit approach to improve projects across the entire watershed.

A BRIEF OVERVIEW OF THE UPPER LA RIVER PLANS

There are over 114 planning documents developed for this project area according to the County's LA River Master Plan Update (more details are provided later in this section[18]). Of those 114 planning documents, the ULART Literature review examined 16 plans that were most applicable (see Volume 2, Chapter E for full literature review).

Although the plans selected for the literature review cover a host of the typical multi-benefit ideals and concepts, they do cover the entire upper watershed. Limited data about the progress and implementation of these plans has been made available, with the Tujunga-Pacoima Watershed Plan and the Los Angeles City Los Angeles River Revitalization Plan being the most transparent about the progress since their plans were released.

Lastly, planning documents have a "shelf life", corresponding to the changing ecology, landscape, and communities they represent. Not all plans have aged as well as others; therefore, they were used in this plan primarily as references for identifying the known issues and interests of the community. *The Plan* seeks to continue the dialogue that began during these planning efforts amongst planners, NGOs, elected officials, agencies and local residents.

[18] http://dpw.lacounty.gov/wmd/watershed/lar/docs/LARMP%20Steering%20Committee%20Meeting%201-%20Summary%20and%20Appendices.pdf

FAMILY OF PLANS

There are two plans closely related to this Plan. The first plan, the Lower Los Angeles River Revitalization Plan (LLARRP), was completed in 2017 and serves as the corresponding version of this plan for the lower portion of the Los Angeles River Watershed (available online at www.lowerlariver.org). Both the LLARRP and ULART plans seek to unite the unique and diverse sociological, ecological, and political aspects of river planning in their region in a digestible and actionable manner. The two plans are meant to work in tandem; however, due to differences in the Working Groups and managing agencies, the decisions made regarding the best ways to represent these areas, the physical characteristics of the watersheds, the historical land uses, and the socio-economic conditions are also different. Both Lower and Upper River plans are formatted in a similar way and include the same tools for project implementation; however, the recommended methods for this process differ between the two planning efforts (See chapter 4 for additional details). The second related plan is the Los Angeles River Master Plan Update, to be released in 2020 (LA River Master Plan Update; materials available online at www.larivermasterplan.org). The County of Los Angeles in partnership with their consultant team is working to develop the LA River Master Plan Update, a comprehensive approach covering all 51 miles of the River. The effort was launched to update the original 1996 master plan, synthesizing more recent needs for portions of the River and bringing a comprehensive vision to the transformation of the LA River.

*LARMP and LLARRP are focused on the main-stem without considering the tributaries.

Arroyo Seco near Southwest Museum

CHAPTER 2:
THE PROCESS AND OUTREACH

California Assembly Bill 466 (AB 466) required the creation of a Working Group to develop *the Plan* to be administered by the SMMC. Senate Bill 1126 (SB1126) added one additional tributary (Arroyo Seco) to the plan and extended the timeline of the Working Group to June 30, 2020. *The Plan* is intended to be watershed-based and the planning process included outreach and community engagement to address the diverse needs of the ULART and its communities.

HISTORY OF THE LEGISLATION

California Assembly Bill 466 (AB 466), was signed into law on September 28, 2017. The legislation established the Upper Los Angeles River and Tributaries Working Group (Working Group) and required them

> *"to develop, through watershed-based planning methods and community engagement, a revitalization plan for the Upper Los Angeles River, the tributaries of the Pacoima Wash, Tujunga Wash, and Verdugo Wash, and any additional tributary waterway that the working group determines to be necessary*[1]*."*

Using watershed-based planning methods and community engagement, the Plan must address the diverse needs of the Upper Los Angeles River, Pacoima Wash, Tujunga Wash, Verdugo Wash, and the surrounding communities with a prioritization on disadvantaged communities. Funding from Proposition 1, Proposition 68, and Proposition 84 will aid the planning and development of the Plan.

Exactly one year after the approval of the AB 466, California Senate Bill 1126 (SB 1126) was signed into law. SB 1126, authored by State Senator Anthony Portantino, specified the Arroyo Seco as a tributary for the Working Group to include in the Plan, and extended the initial Plan deadline of March 1, 2019 to June 30, 2020.

August People and Recreation Committee Meeting, Pacoima City Hall, Pacoima

WORKING GROUP PROCESS

The Working Group convened for a period of 20 months through 23 publicly held working group and committee meetings to gather feedback and design a truly collaborative and inclusive planning process. To ensure that revitalization efforts included in *the Plan* were selected and designed to serve to the needs of the river communities and improve their quality

[1] https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201720180AB466 - Upper Los Angeles River and Tributaries Working Group, AB 466, 2017

of life, the Working Group developed and refined a planning process, also referred to as the technical framework—to carefully provide steps and check in points to establish a robust plan with iterative input (Volume 2, Chapter 1). This framework intentionally mirrors the process used for its sister document *The Lower Los Angeles River Revitalization Plan*[2] so that both documents can be incorporated into the larger LA River Master Plan Update currently being undertaken by Los Angeles County Public Works for the entire 51 miles of the LA River "mainstem."

The Working Group was chaired by Los Angeles City Council Woman Monica Rodriguez of the 7th district. The Working Group meetings consisted of time for public comment, presentation of progress, items for discussion, and in some cases workshops or small group activities to gather feedback.

Two committees were identified by the working group—**People and Recreation** and **Water and the Environment** (originally Hydrology and the Environment) to provide feedback throughout the process using viewpoints and lenses associated with the two categories.

Working Group Members were encouraged to join one or both committees depending on their area of expertise.

[2] LACDPW, 2018

PROCESS TIMELINE

2018

August 2018 WG – Introduction to the planning effort and determining the role of the Working Group in developing the Plan.
—Marvin Braude Building, Van Nuys

September 2018 CM – Creation of goals, objective, and mission statement
—Marvin Braude Building, Van Nuys

October 2018 WG – Inclusion of Aliso Canyon and Burbank Western
—Buena Vista Branch Library, Burbank

November 2018 CM – Tributary background information
—Pacoima City Hall, Pacoima

December 2018 CM – Workshop to identify opportunity areas
—Pacific Park Community Center, Glendale

2019

January 2019 WG – Presentation and Review of Opportunity Areas
—Marvin Braude Building, Van Nuys

February 2019 WG – Potential improvements workshop prioritization by tributary and land use
—L.A. Sanitation Media Center, Glassell Park

March 2019 WG – Typology Discussion
—L.A. Sanitation Media Center, Glassell Park

April 2019 CM – Review of Design Elements and Opportunity Areas Identified to dateo
—Donald C. Tillman Water Reclamation Plant and Japanese Garden, Van Nuys

May 2019 WG – Approval of scoring methodology and presentation of list of sites identified
—Buena Vista Branch Library, Burbank

June 2019 CM – Site selection and prioritization
—Balboa Sports Center, Encino

July 2019 WG – Concept Development
—Studio-MLA, Downtown Los Angeles

August 2019 CM – Plan and additional concept development.
—Pacoima City Hall, Pacoima

September 2019 WG – Draft Plan section release and discussion of selected design area concepts
—Plaza de Cultura y Artes, Downtown Los Angeles

2020

November 2019 WG – Implementation and Next Steps
—Buena Vista Branch Library, Burbank

March 2020 WG – Plan Adoption Celebration
— Valley Municipal Building, Van Nuys

WG Working Group CM Committee Meeting

MISSION *Statement, Goals & Objectives*

The purpose of developing a mission, goals, and objectives is two-fold: 1) to provide agreed upon guidelines of the values of *the Plan;* and 2) to provide a way to measure and evaluate progress of *the Plan*. Both current and future projects can be compared to these adopted guidelines, which are flexible enough to be applied across different types of projects and physical locations.

During the November 2018 and December 2018 committee meetings, and January 2019 Working Group meetings, the Mission Statement, and Goals and Objectives were discussed, amended, and ultimately adopted by the Working Group. These statements help guide the framework, process, and analysis for *the Plan* going forward.

REVITALIZATION PLAN MISSION STATEMENT

The mission of the Upper LA River & Tributaries Revitalization Plan is to develop prioritized opportunities with the following components:

- Nature-based watershed management
- Open space
- Multiple benefits
- Safe access
- Alignment with community needs and feedback
- Alignment with funding sources
- Reduction and management of flood risks to communities
- Culture, arts, and education
- Reconciliation with previous efforts

REVITALIZATION PLAN GOALS AND OBJECTIVES

The goals and objectives of the Upper LA River & Tributaries Revitalization Plan are to foster the creation of prioritized opportunities to:

- Focus on community engagement especially in underserved communities with an emphasis on environmental justice
- Focus on Tributary areas where there is not already project building efforts; especially those that are neglected shall be prioritized—although all tributaries in the study area shall be accounted for
- Refer to previous planning efforts whenever possible and fill in gaps, identify and resolve inconsistencies

WATER AND ENVIRONMENT COMMITTEE PURPOSE

The purpose of the Water and Environment committee is to identify and prioritize the opportunities that focus on the community need for safety and responsibility for flood risk and a sustainable environment for the Upper Los Angeles River and its Tributaries using an integrated approach.

Burbank Western Channel

WATER AND ENVIRONMENT COMMITTEE GOALS AND OBJECTIVES

- Create equitable opportunities to enhance watershed health, ecosystem functions, habitat, and biodiversity; increase local water supplies; and improve water quality
- Reduce flood risk to communities by prioritizing natural systems
- Balance the utilization of available space and resources for both the environment and the community
- Assess all opportunities for resiliency to climate change

PEOPLE AND RECREATION COMMITTEE PURPOSE

The purpose of the People and Recreation Committee is to identify and prioritize opportunities that focus on the community need for public space and recreation within and along the Upper Los Angeles River and its tributaries. Opportunities should include special consideration for:

- Culture and arts
- The special needs community
- Economic and workforce development opportunities
- Recreation and equitable access for all
- Integration of the water and environment
- Safety and access

PEOPLE AND RECREATION COMMITTEE GOALS AND OBJECTIVES

- Feature and promote the importance of the community and local culture
- Identify and create improved, inspirational, inclusive access and connectivity to public space, the river and tributaries for all users
- Incorporate and Identify opportunities for education, recreation, ecosystem and habitat restoration, passive recreation, and examine their relationship with baseflows
- Provide connectivity to safe parks, open spaces, trails
- Focus on social equity and environmental justice during the planning process
- Strengthen local business and vendors to foster job creation and economic growth

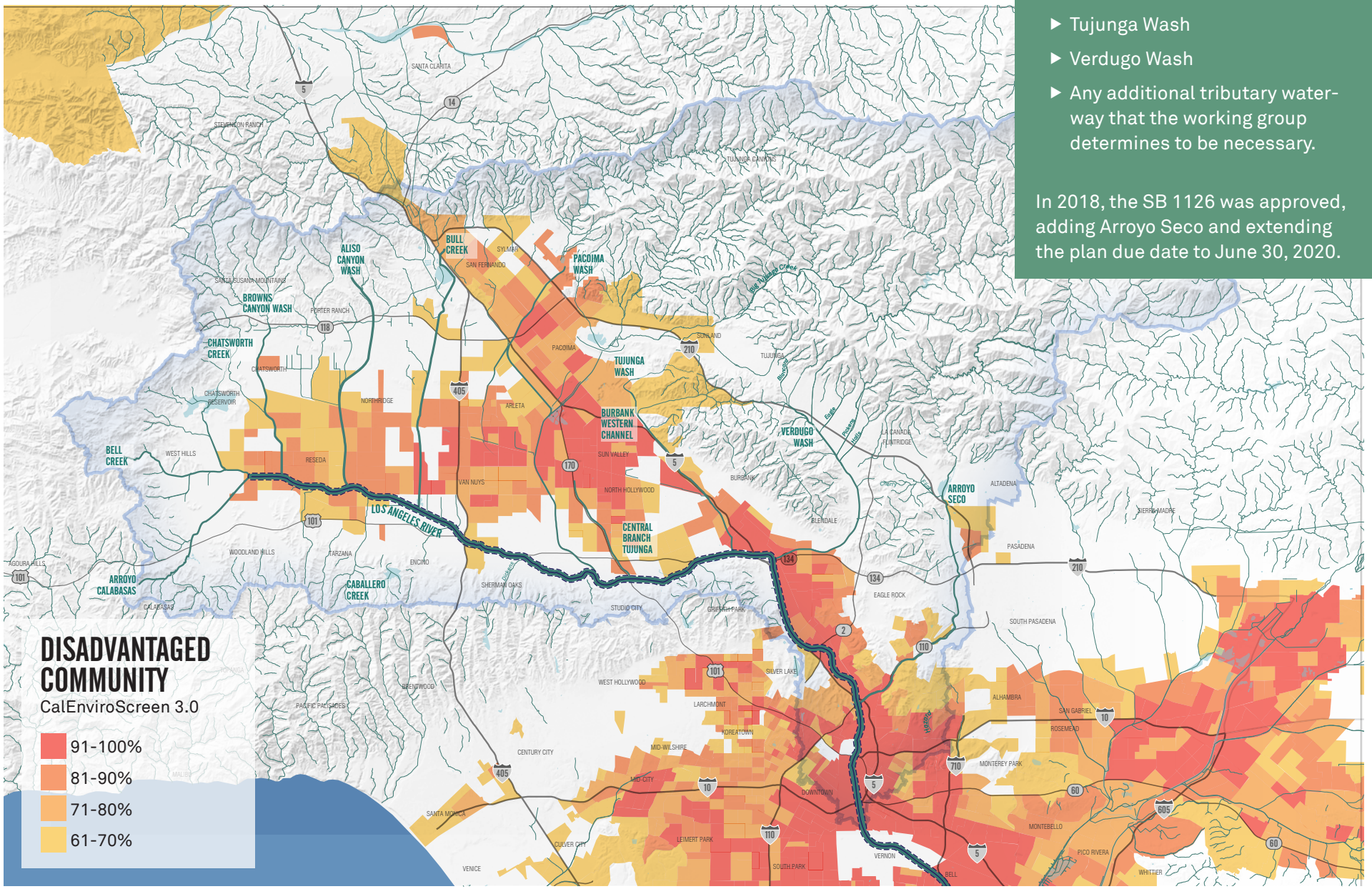
December 2018 Water and Environment committee meeting

TRIBUTARY SELECTION PROCESS

In 2017, the AB 466 was approved, and included:

- The Upper Los Angeles River
- Pacoima Wash
- Tujunga Wash
- Verdugo Wash
- Any additional tributary water-way that the working group determines to be necessary.

In 2018, the SB 1126 was approved, adding Arroyo Seco and extending the plan due date to June 30, 2020.



TRIBUTARY EVALUATION AND INCLUSION

The tributary evaluation matrix, below, was created to evaluate the 13 tributaries based on 10 criteria—4 based on the goals of Water and Environment, 4 based on the goals of People and Recreation, and 2 criteria that prioritized disadvantaged communities. The 13 tributaries evaluated through this process were selected based on the following criteria: open channels, and within the study area identified in the legislation.

The Working Group voted to include Aliso Canyon, and eventually Burbank Western Channel in the study area. A 0.5-mile buffer was created around each of the urbanized portions of the tributaries to be representative of the people and conditions within walking distance of the river.

Key reasons the Burbank Western Channel was included are the high CalEnviroScreen (CES) score (69), and high imperviousness (57%). Aliso Canyon Wash was included primarily because of its low park provision (1.91) and high amount of Significant Ecological Area (13,900 acres). Additional details regarding the tributary evaluation matrix are presented in Volume 2, Chapter A.

The Working Group and community members identified additional tributaries and areas:

- Hazard Stream
- Hollenbeck Park
- Bell Creek
- Big Tujunga Wash
- Blanchard Canyon Channel
- Rio Hondo
- Eagle Wash
- Halls Wash
- Dickens Wash
- Cherry Canyon

		Tujunga Wash	Pacoima Wash	Burbank Western Channel	Aliso Canyon Wash	Browns Canyon Wash	Arroyo Seco	Verdugo Wash	Caballero Creek	Arroyo Calabasas	Bull Creek	Central Branch Tujunga	Bell Creek	Chatsworth Creek
PEOPLE & RECREATION	A. Park Accessibility* % People within 1/2 mile of a park. Source: 2010 Census Data/LA County Park Assessment	5 (80%)	5 (80%)	4 (85%)	8 (70%)	10 (54%)	2 (91%)	1 (97%)	12 (50%)	7 (75%)	10 (54%)	9 (65%)	13 (40%)	3 (87%)
	B. Park Provision* acres of park space per 1,000 people. Source: 2010 Census Data/LA County Park Assessment	11 (1.65)	12 (1.45)	6 (3.76)	9 (1.91)	1 (13)	3 (9.36)	5 (5.24)	10 (1.87)	13 (1.44)	4 (5.63)	8 (3.01)	7 (3.53)	2 (11.5)
	C. Population Density* people per acre. Source: 2010 US Census	13 (38)	4 (18)	10 (26)	6 (19)	9 (25)	8 (23)	11 (29)	12 (36)	2 (17)	1 (15)	2 (17)	7 (21)	4 (18)
	D. Vacant Land* % of total. Source: LA County GIS Portal	9 (6.1%)	8 (5.9%)	4 (3.5%)	7 (5.7%)	6 (5.6%)	10 (6.5%)	11 (9.1%)	12 (14.2%)	13 (16.9)	3 (1.4%)	2 (1.3%)	5 (3.7%)	1(1%)
HDH	E. Household Income* $. Source: 2010 US Census	10 ($51K)	12 ($46K)	10 ($51K)	6 ($58K)	5 ($60K)	12 ($46K)	8 ($55K)	6 ($58K)	3 ($80K)	4 ($74K)	9 ($52K)	2 ($81K)	1 ($82K)
	F. Community Burden (CES 3.0)* State percentile range. Source: State of California, CES 3.0	**12 (70)**	**13 (76)**	**11 (69)**	**8 (60)**	**7 (59)**	**9 (62)**	**5 (51)**	**3 (47)**	**4 (48)**	**6 (58)**	**10 (66)**	**1 (41)**	**2 (42)**
WATER & ENVIRONMENT	G. Impervious Land Cover % total land cover. Source: National Landcover Data Base, Model	9 (49%)	11 (53%)	12 (57%)	8 (42%)	10 (52%)	2 (34%)	5 (39%)	4 (38%)	2 (34%)	6 (40%)	12 (57%)	7(41%)	1 (33%)
	H. Tributary Length miles. Source: USGS National Hydrography Dataset	12 (9.8)	13 (11)	6 (6.3)	9 (8.5)	5 (5.9)	11 (9.7)	8 (8.3)	2 (3.3)	6 (6.3)	10 (9.3)	4 (4.2)	3 (3.7)	1 (2.3)
	I. Tributary Drainage Area acres. Source: LA County GIS Portal	13(111K)	12 (38.7K)	9 (18.5K)	7 (13.6K)	8 (14K)	11 (30.2K)	10 (19.4K)	1 (2.4K)	5 (9.2K)	6 (12.8K)	2 (5.3K)	4 (8K)	3 (6.3K)
	J. Significant Ecological Area acres. Source: LA County GIS Portal	8 (13.9K)	5 (8.4K)	8 (13.9K)	11 (26K)	12 (26.9K)	4 (8.2K)	7 (11.3K)	6 (11K)	10 (19.5K)	13 (35K)	1 (0)	2 (1.3K)	3 (3.6K)
	TOTAL SCORE	102	95	80	79	73	72	71	68	65	63	59	51	21

* within 0.5 miles of the tributary

Version 2

COMMUNITY ENGAGEMENT PLAN AND RESULTS

The Working Group also solicited ideas and inspiration from the community through ten extensive outreach and input events.

- During the **first phase**, the Working Group listened to the people talk about their vision for the river. These stories and recommendations were used to develop the list of building blocks—or improvements—that could be used for sites throughout the watershed.
- In the **second phase**, the Working Group shared the technical framework, scoring method, and draft design areas for each tributary. The input collected in Phase 2 was used to determine where improvements would go in each of the design areas.
- During the **third phase**, the Working Group solicited feedback on the draft *Plan* and shared how the communities' visions were captured in *the Plan* through the development of specific goals and objectives. The input collected during this phase was incorporated into the final draft of *the Plan* to update suggested project level improvements and address unanswered questions.

23 PUBLICLY ACCESSIBLE WORKING GROUP AND COMMITTEE MEETINGS

July Working Group Meeting at Studio MLA offices, Los Angeles

Community Meeting at DreamWorks Animation Campus, Glendale

10 COMMUNITY MEETINGS SUPPORTED BY 7 NON-GOVERNMENTAL ORGANIZATIONS

PHASE 1

MORE THAN **200** ATTENDEES

AT 4 MEETINGS

Discovery Cube, Sylmar, CA
March 13, 2019

LA Zoo, Los Angeles, CA
March 20, 2019

Kidspace, Pasadena, CA
April 4, 2019

Rose Goldwater Community Center, Canoga Park, CA
April 9, 2019

PHASE 2

MORE THAN **325** ATTENDEES

AT 2 MEETINGS

Discovery Cube, Sylmar, CA
July 9, 2019

DreamWorks Animation Campus, Glendale, CA
July 11, 2019

PHASE 3

120 ATTENDEES

AT 4 MEETINGS

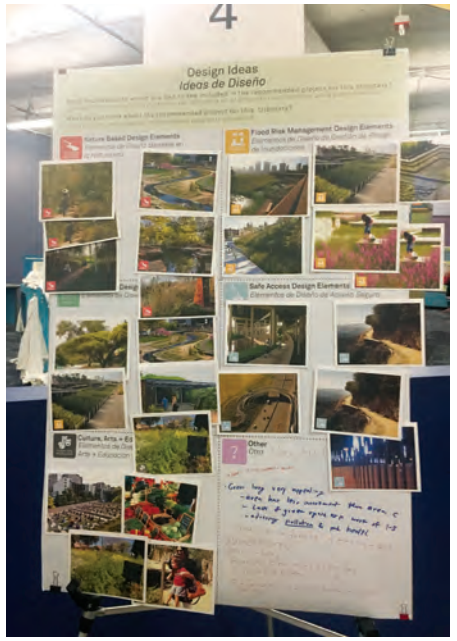
Pacoima City Hall
October 10, 2019

Los Angeles River Center & Gardens, Los Angeles
October 15, 2020

Glendale Adult Recreation Center
January 9, 2020

Los Angeles River Center & Gardens, Los Angeles
January 9, 2020

Community Event at the Discovery Cube, Sylmar



Above: Feedback from Phase 2 Community Meetings

PHASE 1: PLAN INFORMATION VISION INPUT

The purpose of the Phase 1 outreach was 3-fold:

- Educate about what makes the plan different from other similar plans
- Present how input will be used
- Ask for big picture visions from the community

During the community outreach, the attendees were asked to put a dot on the Upper LA River map indicating where they lived. Participants responded to a series of questions related to the tributaries and sections of the LA river that are being studied. Community members viewed visionary examples of opportunities for the tributaries. Then the community members were asked to share a memorable experience along/in the river. The following is a synopsis of the responses. All of the materials presented and feedback collected during this phase can be found in Volume 2, Chapter C.

PRIMARY ACTIVITIES

- 63 people said they use the river or tributaries to walk or run
- 43 people said they biked along the river
- 15 people visit parks
- 9 people enjoy bird watching
- 8 people kayak

SAFETY AND ACCESS CONCERNS (REASONS PEOPLE DIDN'T VISIT THE RIVER)

- Homelessness
- Unsafe spaces and locations
- Crime/personal safety
- Access

NATURALIZED ENVIRONMENTS

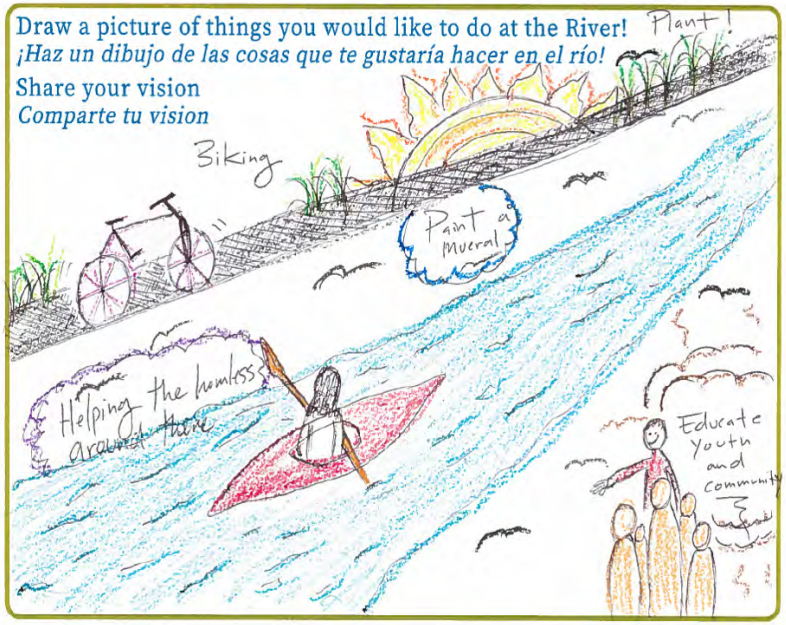
- Resource conservation
- Native habitat restoration
- Wildlife
- Improved air quality

INVITING AND ENGAGING ENVIRONMENT

- Recreation: active and passive
- Activation of spaces
- Landscaping and greenery
- Interaction with nature

PUBLIC ACCESS AND CONNECTIONS

- Lighting
- Defined pathways
- Wayfinding
- Multi-modal
- Security



River Dreams

I have river dreams.

I dream of a river that is wide and narrow and deep and shallow—a river that can be whatever it wants and needs and was born to be.

A river clean and fresh, born of waters from the sky, carried down the mountains and spreads itself out and replenishes the lands as it share its life giving soul as it makes its way to the sea.

I have river dreams and I know the river does too.

Amen

LOCAL CULTURE AND HISTORY

- Indigenous peoples
- Native American tribes
- Ecology: land and habitat

COMMUNITY FOCUSED

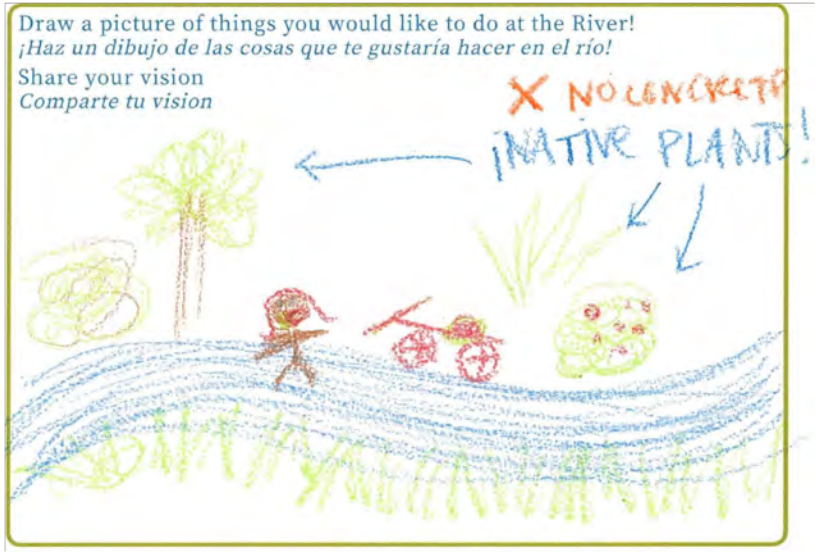
- Inclusive
- Avoid gentrification
- Community involvement

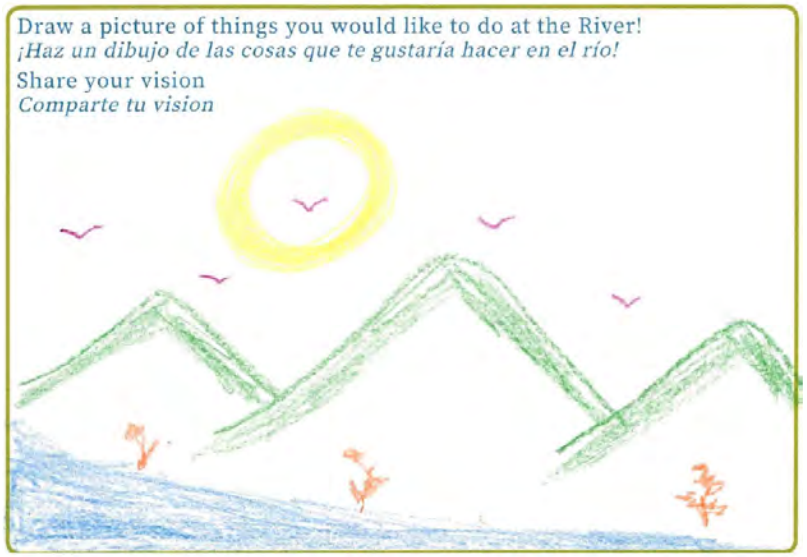
COMPREHENSIVE WATERSHED MANAGEMENT

- Water quality
- Drainage
- Flooding
- Infiltration
- Groundwater

EDUCATION

- Programming
- Inclusive
- Stewardship





WEBTOOL FEEDBACK

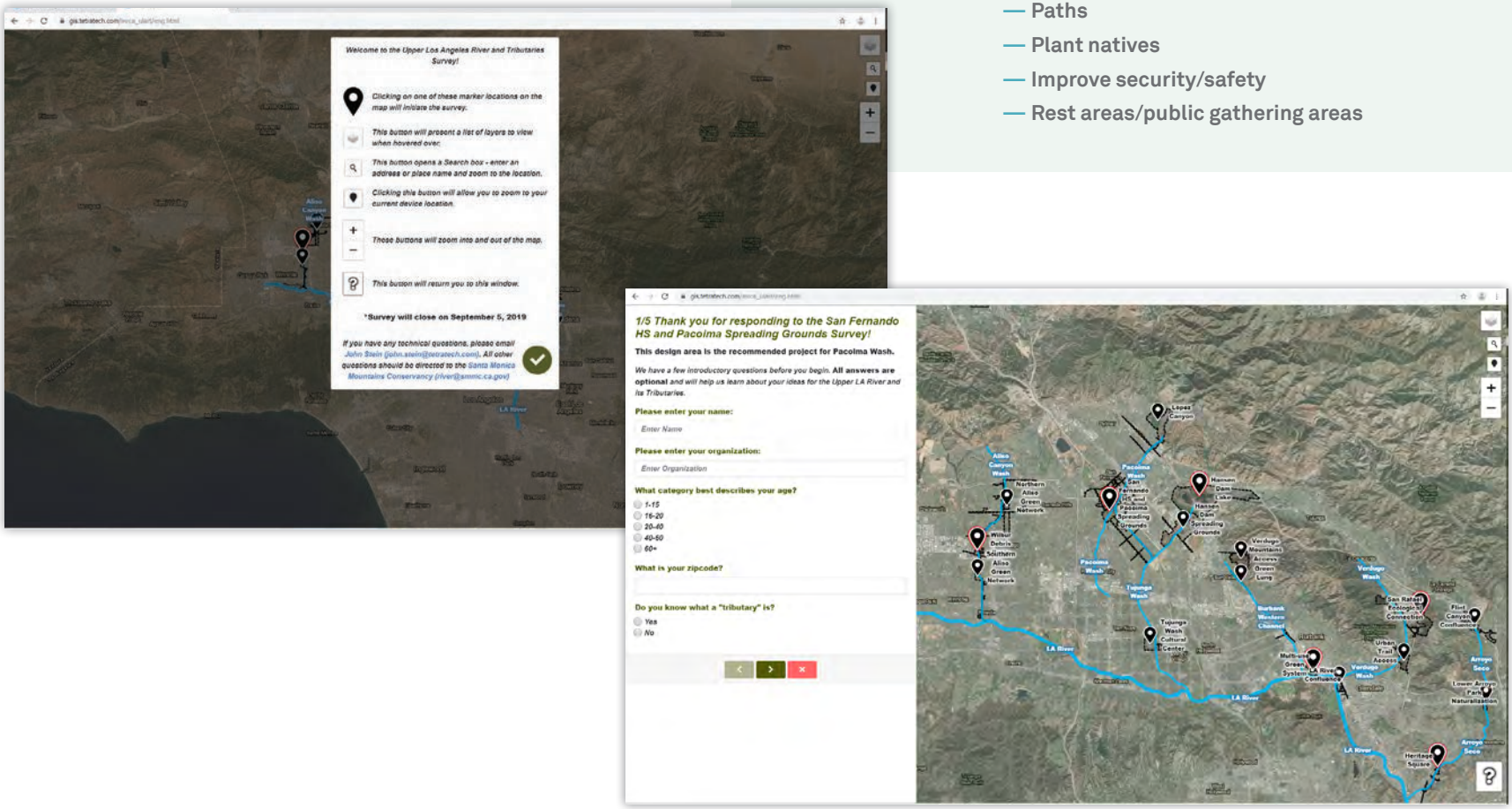
The Upper Los Angeles River and Tributaries Plan webtool and survey was active from July 27 through September 8, 2019. Community members were asked to review the bundled design areas in each tributary and answer a few short questions about the design areas—including feedback about opportunities and issues with each of the design areas. Community members could also suggest new projects and opportunity areas.

OVER 1000 RESPONSES

120 ADDITIONAL PROJECTS IDENTIFIED

Common Improvements Requested

- Paths
- Plant natives
- Improve security/safety
- Rest areas/public gathering areas



PHASE 2: SUMMARY OF DESIGN AREA FEEDBACK

The purpose of the Phase 2 community outreach workshops was to solicit input on the design areas (bundled opportunity areas) for each tributary. Participants were asked two questions: what improvements would you like to see included in the recommended project for this tributary; and what do you think about the recommended project for this tributary? The following is a synopsis of the responses. All of the materials presented and feedback collected during this phase can be found in Volume 2, Chapter C.

OVERARCHING THEMES

- Improved connectivity
- Naturalized river
- Educational opportunities
- Safe environment
- Greening
- Connectivity for horse-friendly trails

ALISO CANYON WASH

- Create a Natural Space where people can do things
- Link the community and the tributaries
- Make it a place where the community can grow, gather, and sell

PACOIMA WASH

- Ensure more natural parks and open space
- Create ways for us to move around the city safely
- Celebrate OUR community
- Create Flood Protection that is beautiful

TUJUNGA WASH

- Make the park safer and easier to get to
- Educate people about the story of our community
- Create pockets for recreation and places for nature
- Enhance the opportunity for ecological habitat

BURBANK-WESTERN CHANNEL

- Make Connections to other parks and schools
- Create a place where people can learn about nature and our community
- Create places to rest along the path
- Mitigate the pollution from the highway

VERDUGO WASH

- Ensure design and features that create safe access
- Create areas that provide small gathering spaces
- Incorporate trails and pathways

ARROYO SECO

- Create more greening opportunities
- Incorporate educational components
- Include design elements that make it more inviting and safe

Feedback from Phase 2 Community Meeting

PHASE 3:

Phase 3 of outreach focused on making the draft plan available for comment in multiple ways. The Draft Plan was released on December 20, 2019 through an online commenting tool. Additionally, hard copies were available for review and comment at MRCA headquarters. Two in person workshops were held in English with a Spanish translator in January 2020 where hard copies of the plan, instructions on how to use the website, and plan staff were available to capture comments or answer questions.

Phase 3 themes and input included:

- Adjustments to design area components to clearly show and allow for desired community uses
- Suggestions for next steps and collaboration with other planning efforts
- Edits to graphics to improve readability
- Include more references to native peoples

January listening session at the River Center and Gardens, Los Angeles

January listening session at the Glendale Adult Recreation Center, Glendale

PROJECT *Selection Process*

The planning team compiled and selected projects in line with the legislation, Working Group desires, community input, and recommendations for gaps in projects by typology. The following steps were used to create the list:

1. GOALS AND OBJECTIVES

Before developing the project list for the plan, the Working Group and committees defined the overall goals they wanted to achieve with the improvement projects. Defining the goals and objectives provided a framework for the types of projects and suggestions the plan is looking to compile and solicit from the public.

2. LITERATURE REVIEW

All plans and reports for the Upper LA River watershed were reviewed to identify existing and planned improvement projects. Literature reviewed included the Tujunga-Pacoima Watershed Plan, Arroyo Seco Watershed Restoration Feasibility Study, LA River Urban Wildlife Refuge Report etc. The purpose of this step was to create a baseline condition of the watershed and develop a comprehensive list of projects. The literature review identified any recurrence in public suggestions and allowed the public and Working Group to focus on areas where there were not already projects taking place. (Refer to Chapter 2, page 9.)

3. TYPOLOGY ANALYSIS

A desktop typology analysis was conducted to identify suitable opportunity areas (OAs) based on land use type. This analysis highlighted areas that would be ideal opportunities for improvement projects, such as publicly owned, vacant, open, easements, or park areas.

4. PUBLIC AND WORKING GROUP SUGGESTIONS (MULTIPLE ROUNDS)

Multiple public and Working Group meetings were held to solicit suggestions and input from the communities. Through this process, local and on the ground knowledge of the needs of the neighborhoods were aggregated to identify and develop over one hundred OAs. During the meetings, attendees were given the opportunity to identify areas for improvement and development that aligned with the plan's goals and objectives.

5. PUBLIC OUTREACH WEBTOOL

Public outreach was conducted using an online webtool and cell phone application to ensure all members of the community had the opportunity to provide input similar to the public meetings. The webtool allowed the user to identify areas and potential projects. The online public outreach tool has recorded over 120 project suggestions. The webtool was available in both English and Spanish. Approximately 1,000 responses were received via the webtool, which included 120 new OA suggestions.

6. MRCA AND WG MEMBER INPUT

The planning team continuously fielded and incorporated suggestions provided by MRCA and working group members. These suggestions typically came through personal correspondence or email.

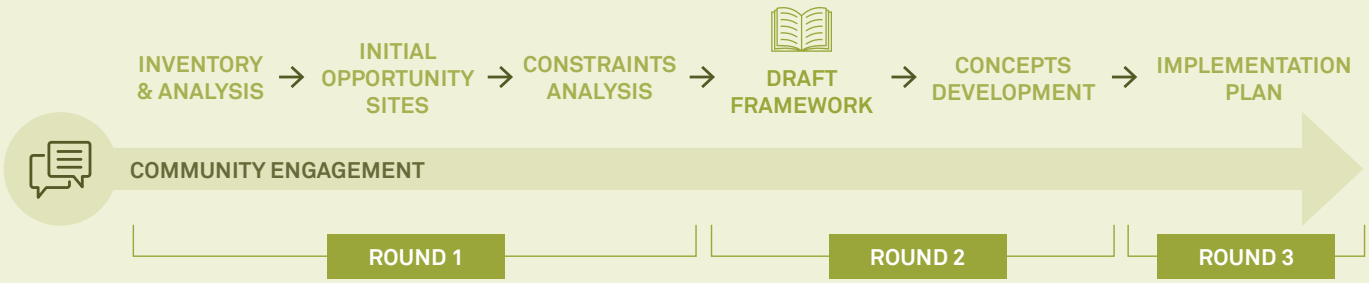
The OAs were compiled into a project list, then each OA was assigned an unique and descriptive name, analyzed based on existing conditions, and paired with any comments specific to it. Chapter 3 discusses how each project was scored and how to find projects within this document.

FEEDBACK INCLUSION

The feedback from each phase is included in multiple locations throughout ***the Plan***.

- Projects identified during Phase 1 outreach are included in Chapter 3 and Appendix D (see page D-8 for more details in this process).
- Data sets were used to create an inventory related to the goals and objectives of ***the Plan***. The Working Group and members of the public were asked to share which data sets they wanted to have included (for example "please include information from the LA County Rec and Parks Needs Assessment to determine where parks are most needed").
- Specific locations were developed into Opportunity areas and bundled into design areas (refer to Volume 2, Chapter D, page D-8 for more information).
- Site features identified during Phase 2 were incorporated into the Design Areas where possible (for example "add green space along the Tujunga Wash right of way from Chandler Blvd to Magnolia Blvd" and also added to the typology templates (for example "include opportunities to widen bridges for improved pedestrian access").
- Phase 3 comments were used to develop the language of the draft ***Plan*** to more clearly capture the comments and feedback received.
- The materials presented and information collected during each phase of outreach is included in Appendix C-Community Feedback.

WHEN WILL THE PLAN BE COMPLETED?



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Blue Heron in the soft bottom portion of the LA River

CHAPTER 3: REVITALIZATION PLAN

Using the process described in Chapter 2, the Working Group identified site-specific revitalization projects for over 250 locations throughout the river and tributary study area, focusing on public open space or public land for public use. In addition to the site-specific projects, the members of the Working Group realized a need for templates, or typologies (project elements), to facilitate distributed improvements throughout the Upper Los Angeles River and Tributaries Study Area. This chapter highlights and describes the opportunity areas, design areas, typologies (project elements), and policies key to revitalization along the river and tributaries.

INTRODUCTION

While the planning process gathered community input, analyzed available planning and data it also strove to align with the spirit of the AB 466 AND SB 1126 legislation; to create a plan with prioritized projects that would address the multiple areas the river and tributaries touch. The river and tributaries are embedded in the urban environment, they offer opportunities for multi-benefit projects that will improve quality of life for surrounding communities.

THIS CHAPTER CONTAINS:

i. **Watershed Project Map** – a map showing where the projects are within the Upper LA River Watershed

ii. **Typologies (project elements)** – typical condition descriptions, images, and renderings for each typology can be used as a starting point for similar projects not identified as part of this planning efforts.

iii. **Scoring** – an explanation of how the opportunity areas were evaluated and prioritized using a scoring system.

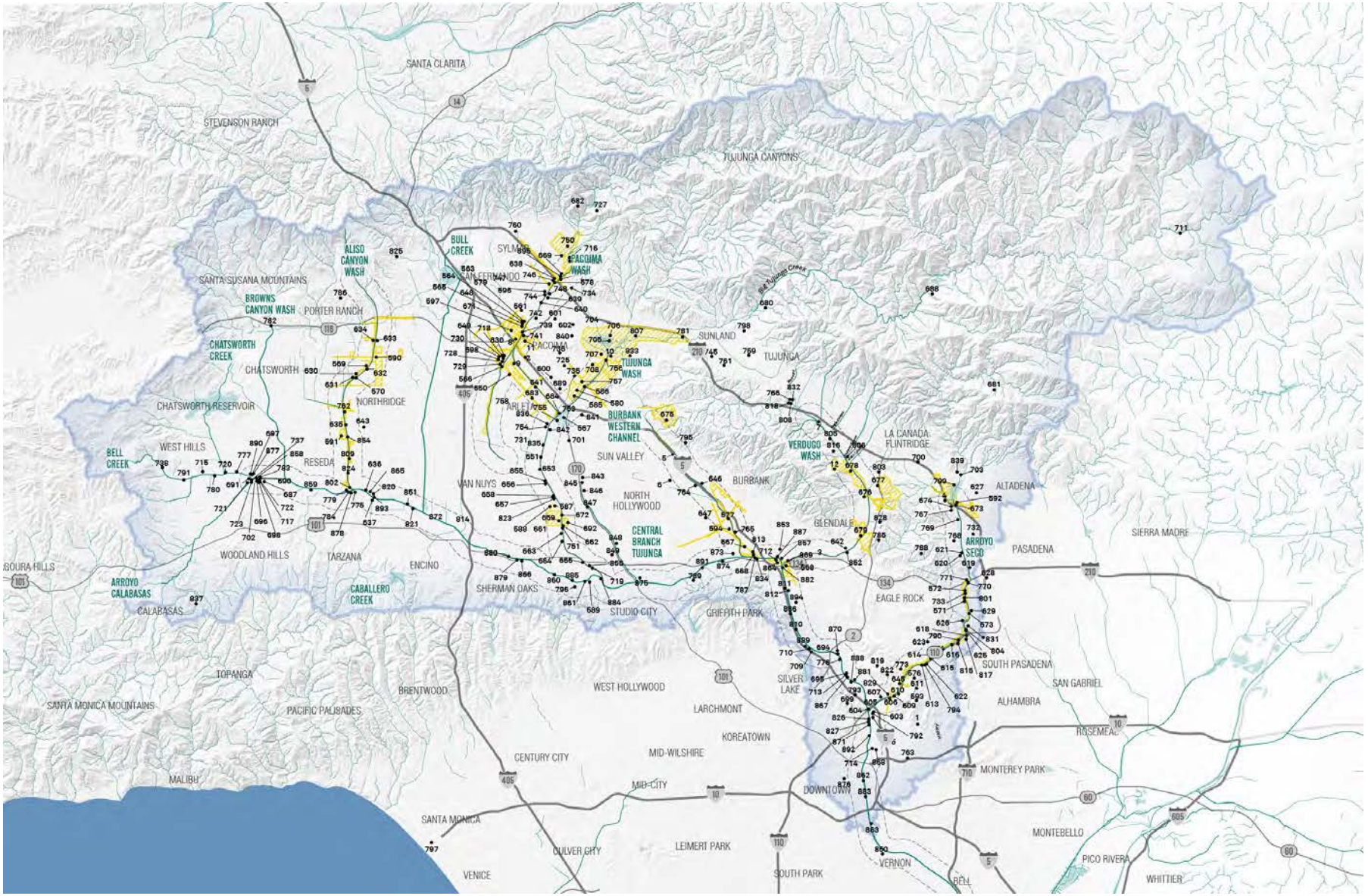
iv. **Tributary Profile and Projects** – a brief description of the current and unique conditions at each tributary, a map of all projects identified along the tributary, and suggested next steps for projects.

v. **Design Areas and Renderings** – 17 specific design areas were identified within the Upper LA River and Tributaries corridor to demonstrate multiple common land uses, and to build upon and fill gaps between previous planning efforts. The community provided feedback on these 17 Design Areas in July of 2019, and the Working Group chose 6 of these design areas—one per tributary—for additional development. The value of these areas is to serve as case studies or model concepts that illustrate how both *the Plan* mission and the wants and needs expressed by the community could be addressed.

The 344 opportunity areas identified by Working Group and community members were included in the analyses presented in this chapter. The opportunity areas for each tributary are provided in this table:

TRIBUTARY	OPPORTUNITY AREA ID
Aliso Canyon Wash	OA_590 - OA_591, OA_630 – OA_635, OA_643, OA_762, OA_779, OA_784, OA_802, OA_809, OA_824, OA_854, OA_878
Pacoima Wash	OA_8, OA_11, OA_561 - OA_566, OA_578 - OA_579, OA_595 - OA_598, OA_638 - OA_640, OA_648, OA_649, OA_669 - OA_671, OA_684, OA_704, OA_716, OA_718, OA_724, OA_728 - OA_730, OA_739 - OA_750, OA_758, OA_830,
Tujunga Wash	OA_2, OA_9, OA_10, OA_567, OA_580 - OA_588, OA_599 - OA_602, OA_641, OA_650 - OA_666, OA_672, OA_689, OA_692, OA_701, OA_705 - OA_708, OA_753 - OA_757, OA_823, OA_835, OA_841, OA_855, OA_861, OA_884
Burbank Western Channel	OA_5, OA_6, OA_577, OA_594, OA_647, OA_667, OA_675, OA_764, OA_765, OA_787, OA_813, OA_834, OA_873, OA_874, OA_838, OA_843 - OA_849, OA_875,
Verdugo Wash	OA_3, OA_7, OA_12, OA_568, OA_676 - OA_679, OA_766, OA_805, OA_806, OA_811, OA_816, OA_828, OA_852, OA_864, OA_869, OA_882, OA_887,
Arroyo Seco	OA_4, OA_571 - OA_576, OA_592 - OA_593, OA_607 - OA_629, OA_644 – OA_645, OA_673 - OA_674, OA_685 - OA_686, OA_700, OA_703, OA_732, OA_733, OA_767 - OA_773, OA_778, OA_790, OA_792 - OA_794, OA_799 - OA_801, OA_804, OA_815, OA_817, OA_822, OA_826 - OA_827, OA_829, OA_831, OA_850, OA_856, OA_871, OA_895
LA River Mainstem	OA_720, OA_715, OA_738, OA_1, OA_636, OA_637, OA_680 - OA_682, OA_688, OA_711, OA_726, OA_727, OA_731, OA_745, OA_759 - OA_761, OA_763, OA_589, OA_603 - OA_606, OA_642, OA_646, OA_668, OA_687, OA_690 - OA_699, OA_702, OA_709 - OA_723, OA_737, OA_751, OA_775, OA_896

WATERSHED OPPORTUNITY AREAS

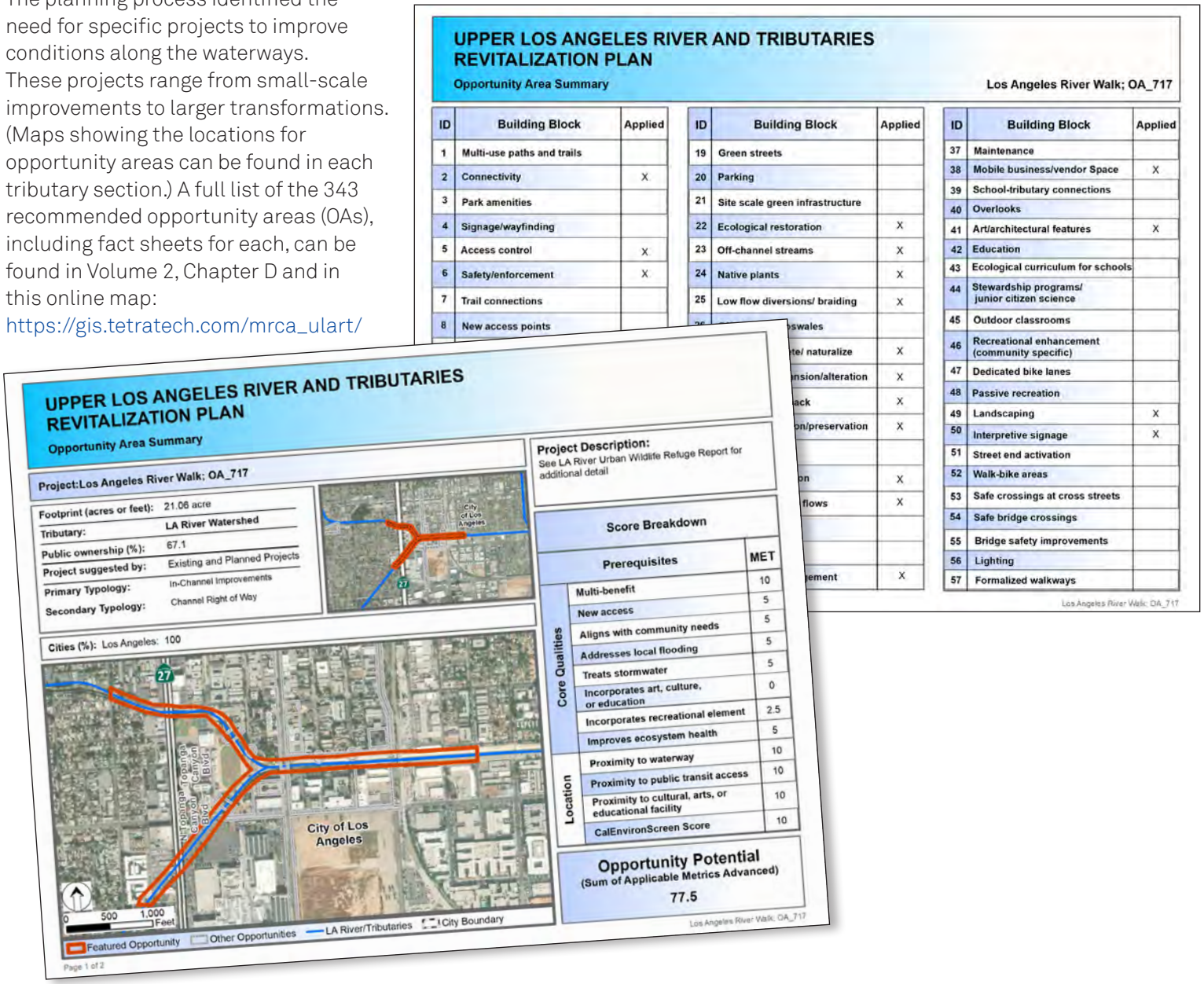


Opportunity Area

Design Area Bundles

OPPORTUNITY AREA FACT SHEET

The planning process identified the need for specific projects to improve conditions along the waterways. These projects range from small-scale improvements to larger transformations. (Maps showing the locations for opportunity areas can be found in each tributary section.) A full list of the 343 recommended opportunity areas (OAs), including fact sheets for each, can be found in Volume 2, Chapter D and in this online map: https://gis.tetratech.com/mrca_ulart/



UPPER LOS ANGELES RIVER AND TRIBUTARIES REVITALIZATION PLAN

Opportunity Area Summary

Los Angeles River Walk; OA_717

ID	Building Block	Applied
1	Multi-use paths and trails	
2	Connectivity	X
3	Park amenities	
4	Signage/wayfinding	
5	Access control	X
6	Safety/enforcement	X
7	Trail connections	
8	New access points	

ID	Building Block	Applied
19	Green streets	
20	Parking	
21	Site scale green infrastructure	
22	Ecological restoration	X
23	Off-channel streams	X
24	Native plants	X
25	Low flow diversions/ braiding	X
	swales	
	te/ naturalize	X
	nsion/alteration	X
	ack	X
	on/preservation	X
	on	X
	flows	X
	ement	X

ID	Building Block	Applied
37	Maintenance	
38	Mobile business/vendor Space	X
39	School-tributary connections	
40	Overlooks	
41	Art/architectural features	X
42	Education	
43	Ecological curriculum for schools	
44	Stewardship programs/ junior citizen science	
45	Outdoor classrooms	
46	Recreational enhancement (community specific)	
47	Dedicated bike lanes	
48	Passive recreation	
49	Landscaping	X
50	Interpretive signage	X
51	Street end activation	
52	Walk-bike areas	
53	Safe crossings at cross streets	
54	Safe bridge crossings	
55	Bridge safety improvements	
56	Lighting	
57	Formalized walkways	

Los Angeles River Walk; OA_717

UPPER LOS ANGELES RIVER AND TRIBUTARIES REVITALIZATION PLAN

Opportunity Area Summary

Project:Los Angeles River Walk; OA_717

Footprint (acres or feet):	21.06 acre
Tributary:	LA River Watershed
Public ownership (%):	67.1
Project suggested by:	Existing and Planned Projects
Primary Typology:	In-Channel Improvements
Secondary Typology:	Channel Right of Way

Project Description:
See LA River Urban Wildlife Refuge Report for additional detail

Cities (%): Los Angeles: 100

Score Breakdown

	Prerequisites	MET
Core Qualities	Multi-benefit	10
	New access	5
	Aligns with community needs	5
	Addresses local flooding	5
	Treats stormwater	5
	Incorporates art, culture, or education	0
	Incorporates recreational element	2.5
	Improves ecosystem health	5
Location	Proximity to waterway	10
	Proximity to public transit access	10
	Proximity to cultural, arts, or educational facility	10
	CalEnvironScreen Score	10

Opportunity Potential
(Sum of Applicable Metrics Advanced)
77.5

Los Angeles River Walk; OA_717

Page 1 of 2

BUNDLED DESIGN AREA FACT SHEET

As described below, opportunity areas, or OAs, were combined (bundled) to create large scale revitalization projects referred to as "design areas". Individual fact sheets were created for each design area to allow for ease in viewing the project information and score.

UPPER LOS ANGELES RIVER AND TRIBUTARIES REVITALIZATION PLAN

Design Area Summary

Project:	Lower Arroyo Park Naturalization; Design Area ID: AS_B
Footprint (acres):	69.5
Tributary:	Arroyo Seco
Public ownership %	97.9
Project suggested by:	Bundle
Number of OAs:	5
Score:	67.5
City:	Pasadena 100%

Project Description:

Opportunity to remove Arroyo Seco's concrete lining and restore the natural stream bed.

UPPER LOS ANGELES RIVER AND TRIBUTARIES REVITALIZATION PLAN

Design Area Summary

Northern Aliso Green Network; Design Area ID: AC_A

A. Prerequisites	
Community Engagement and Outreach	Go
Does not create flooding	Go
Within 1/2 mile of tributary	Go
Funding	Go

B. Core Qualities	
1. Serves more than one of the following purposes as a primary goal:	10
Nature-based and watershed management:	x
	x
ion:	x
ble access:	x

B. Core Qualities (cont.)	
3. Meets more than one community need:	5
4. Addresses unmet drainage needs or local flood complaints:	5
Treats stormwater that otherwise has no existing opportunity to be treated:	5
Or Treats stormwater that enters a drainage system with opportunities for structural BMPs:	n/a
5. Incorporates art, culture or education:	5
6. Creates new passive recreational element:	5
Or improves existing recreational element:	
Identified as needing improvement to	n/a

C. Location Score (cont.)	
1. Proximity to Tributary:	
Project is within 500' of waterway:	10
Or is within ¼ mile of a waterway:	n/a
Within ¼ mile of a public transit point:	10
Within ¼ mile of a cultural, arts or education facility:	10
2. CalEnviroScreen:	
CalEnviroScreen 3.0 score is >= 95:	0
Or between 85 and 94	0
Or between 75 and 84	0
Total Score:	80

R LOS ANGELES RIVER AND TRIBUTARIES TALIZATION PLAN

ity Area Summary

Lower Arroyo Park Naturalization; Design Area ID: AS_B

uilding Block	Applied
paths and trails	x
ty	
ties	
yfinding	
rol	x
cement	
ions	
oints	
ng	
ges	
bridges	
parks	
habitat areas	
equestrian paths	
ulti-use trails	
gional trails	
17 Connection to public transit	
18 Trail heads	

ID	Building Block	Applied
19	Green streets	
20	Parking	
21	Site scale green infrastructure	
22	Ecological restoration	x
23	Off-channel streams	
24	Native plants	x
25	Low flow diversions/ braiding	
26	Off-channel bioswales	
27	Remove concrete/ naturalize	x
28	Floodplain expansion/alteration	x
29	Floodplain buyback	
30	Habitat restoration/preservation	x
31	Water capture	
32	Channel expansion	x
33	Ponds fed by low flows	
34	Joint use spaces	
35	Restrooms	
36	Debris flow management	

ID	Building Block	Applied
37	Maintenance	
38	Mobile business/vendor Space	
39	School-tributary connections	
40	Overlooks	
41	Art/architectural features	
42	Education	
43	Ecological curriculum for schools	
44	Stewardship programs/ junior citizen science	
45	Outdoor classrooms	
46	Recreational enhancement (community specific)	
47	Dedicated bike lanes	
48	Passive recreation	
49	Landscaping	x
50	Interpretive signage	
51	Street end activation	
52	Walk-bike areas	
53	Safe crossings at cross streets	
54	Safe bridge crossings	
55	Bridge safety improvements	
56	Lighting	
57	Formalized walkways	

THE ULART PLANNING PROCESS: CHANGING OPPORTUNITIES INTO PROJECTS

The ULART planning process identified over 300 opportunity areas and developed a prioritization system to help bundle and create projects from these opportunity areas. These projects are physical measurements of how the Plan's goals and objectives are being met. These goals and objectives incorporate the priorities and mission of the ULART Working Group and communities. The planning team solicited input from the Working Group and communities and included this in the project development. Additional details for this process can be found in Volume 2, Chapter A. Major steps associated with identifying opportunity areas and prioritizing projects include:

1. **Existing conditions analysis.** Using existing publicly available data, determine what areas are suitable to meet project goals (see Volume 1, Chapter 2 for detail), how the areas are currently being used and locations of any community assets such as schools and community centers. This information was presented on large scale maps during Working Group and community meetings to help solicit feedback and allow commenters to easily locate gaps for potential projects.

2. **Project identification.** Developing the initial project list through literature review (Volume 2, Chapter E) and Working Group member feedback. Projects were added to the list through September 2019 to allow adequate time for analysis and to incorporate the new projects into *the Plan*. Additional projects within the study area identified after *the Plan* is approved will help keep *the Plan* updated to better meet the changing needs within the communities. See step 8 for more information about additional projects.

3. **Opportunity area development.** Developing a term to include all ideas identified or shared, including those that were not complete projects, an opportunity area is any location where one or more improvements have been recommended. This term is also used in the Lower LA River Revitalization Plan to describe the same. The difference between a project and an opportunity area is that a project implies it is a physical location with specific and already identified goals, whereas an opportunity area is made up of ideas tied to an approximate location. Opportunity areas allow the idea to move forward while still incorporating input and additional components to meet multiple goals and objectives of the Plan. Opportunity areas were the starting point for the identification of typologies and creation of design areas, further described in items 4, 6, and 7. A complete list of opportunity areas can be found in Volume 2, Chapter D.

4. **Typology (project element) categorization and assignment.** Using opportunity areas identified by the Working Group and community members, the planning team grouped projects into fewer than 10 categories based on land use and other recreational or habitat uses. The working group provided input on which typologies represent the study area, and what components align with each one. Additional information of the selected typologies selected are presented in this chapter, and in Volume 2, Chapter A.

5. **Prioritization and scoring system development.** Developing the scoring system based on Working Group goals and objectives, the planning team determined that flood risk management, location within the upper Los Angeles River watershed, and eligibility for known funding sources should be prerequisites for any opportunity area to be included in *the Plan*. Opportunity areas were then scored

based on the goals and objectives of the Plan, for example, if it served a disadvantaged community, could alleviate nearby flooding, or provided additional access to the waterways. A complete discussion of the scoring system is provided in Volume 2, Chapter A. The purpose of scoring was to help guide the selection of the opportunity areas with the greatest need and also the greatest potential for improvement.

6. **Bundling of projects for design areas.** By bundling opportunity areas, the planning team was able to combine these areas and incorporate feedback received from the Working Group and communities. For example, one idea might suggest that an area was a dangerous intersection for pedestrians, and another idea might be to add trees and green infrastructure. While neither of those ideas describes a complete project, these represent the beginning of a design area bundle. Neighboring ideas or those with aligning purposes were grouped together (bundled) to form multi-benefit projects on a community scale. The Working Group and communities frequently noted that the tributaries and nearby freeways act as barriers between communities and open space; therefore, multiple Design Areas contain stretched spaces between communities and open space to connect the two land uses. The Working Group then recommended one Design Area per tributary for additional analysis, as presented in this chapter.
7. **Blue Sky Areas.** During the August 2019 Committee meetings, members of the Working Group decided to elevate several design areas for "blue sky" potential. "Blue Sky" thinking eliminates restrictions and allows for all possibilities. This thinking was applied to some of the previously recommended design areas and areas of similar scale and impact within the study area, asking the planning team to take these design areas the extra step to help address the needs of the community and the environment. Additional analysis on Blue Sky design areas and public parcel locations for housing can be found in Volume 2, Chapter F. Some preliminary feedback from permitting agencies has been received to aid in the initial conceptual designs for Blue Sky projects. However, the Blue Sky areas are meant to be conceptual and visionary and have not been wholly evaluated by land owners, permitting agencies, or for feasibility. Additional study and coordination will be required for all design areas identified in the Plan, especially the Blue Sky areas.
8. **Future opportunity areas.** The Plan represents a snapshot in the history of the ULART, all data used for scoring are clearly described in Volume 2, Chapter A and a set of maps showing all of the tributary corridors have been included to allow the plan user to score new projects. Data sources are included to allow these to be updated after the plan is updated, and the purpose of the scoring maps is to provide a resource to determine new project scores without having to use mapping software or use a computer.

ULART PLAN RESILIENCY

Prioritizing, designing, and planning initiatives with measurable outcomes.

WHAT DOES THIS PLAN INCLUDE?

To understand the potential to enhance and develop existing water infrastructure, public space, transport networks, institutions, and commercial spaces that are climate resilient, socially inclusive, ecologically productive and contribute to reducing carbon emissions, the Plan developed **11 multi-benefit design concepts** (see map on p232) and project elements for the **344 opportunity areas** suggested by community members, stakeholders, and working group members (see map on p29).

THE PLAN WILL PROVIDE

17.5 SQUARE MILES
OF NEW + ENHANCED SPACES[1]

EQUIVALENT TO
3 GRIFFITH PARKS

1.53 MILLION PEOPLE
WITH ACCESS TO NEW + ENHANCED SPACES[2]

EQUIVALENT TO
THE POPULATION OF SAN DIEGO

625k DISADVANTAGED PEOPLE
WITH ACCESS TO NEW + ENHANCED SPACES[3]

EQUIVALENT TO
THE POPULATION OF DETROIT

[1] Square mileage was calculated with AutoCAD and ArcGIS. The 11 design area concepts account for 10 mi². The 344 opportunity areas account for 7.49 mi².

[2] According to the 2010 census, 635,107 people live within 1/2 mile of the 11 design area concepts and 911,906 people live within 1/2 mile of the 344 opportunity areas.

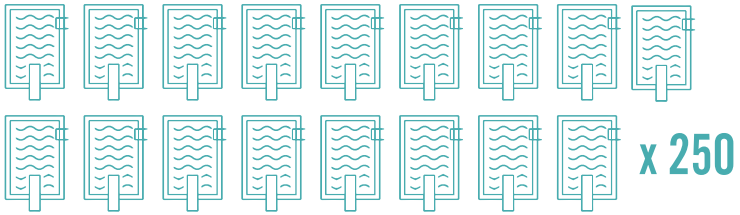
[3] According to CalEnviroScreen 3.0, 45% of the people living within 1/2 mile of the 11 design area and 37% of the people living within 1/2 mile of the 344 opportunity areas are considered disadvantaged.

RESILIENCY BENEFITS

The following summarizes the benefits calculated for the Plan's 11 multi-benefit design concepts, the 344 opportunity areas, and the contribution towards the OurCounty Sustainability Plan goals.[4] Please see Appendix F for a full description of the methodology.

WATER

The design includes **9.6 square miles** *of new or enhanced permeable cover*



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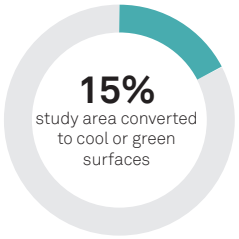
STORMWATER CAPTURE

8,695 acre-feet

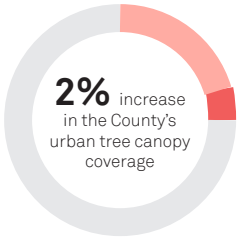
EQUIVALENT TO **4,348** OLYMPIC-SIZED SWIMMING POOLS

OURCOUNTY GOAL TARGET 2A



PLANTING

OURCOUNTY GOAL TARGET 2D



The design includes **256,617 trees, 3,060 acres** *of additional tree canopy coverage that provide the following benefits:*

313,917 tons
Additional Carbon Sequestration

8,547 tons
Additional Carbon Dioxide Avoided

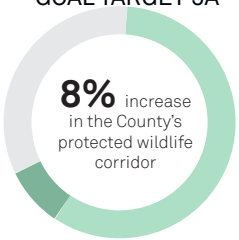
168 tons
Additional Pollutant Removal

HABITAT

The design includes **7.6 square miles** *of new and enhanced ecological habitat*

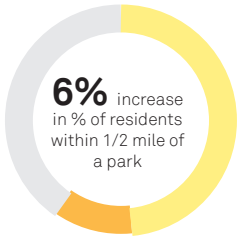
EQUIVALENT TO **14.5** VERDUGO MOUNTAINS OPEN SPACE PRESERVE

OURCOUNTY GOAL TARGET 5A



COMMUNITY

OURCOUNTY GOAL TARGET 6A



The design includes **8.4 square miles** *of new and enhanced open space and* **1,058 miles** *of new or enhanced community connections*

740 miles
Green Streets

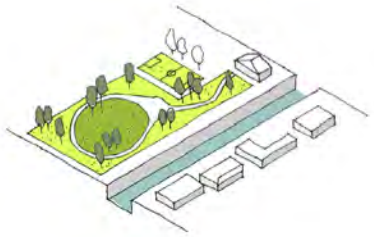
212 miles
Multi-modal paths

106 miles
Trails

[4] The Los Angeles Countywide Sustainability Plan (OurCounty) proposes to make LA County a more equitable, prosperous and resilient region in the years ahead. It was unanimously adopted by the Los Angeles County Board of Supervisors in 2019

PROJECT ELEMENTS (TYPOLOGIES)

Typology is a term often used by planners to describe areas with common characteristics. It is defined as the study of, analysis, or classification based on types or categories (Merriam Webster Dictionary). It can also represent one kind of attribute or several and need include only those features that are significant for the problem at hand (Britannica). In March and April, the Working Group identified and refined the typologies for the Upper Los Angeles River and its tributaries.



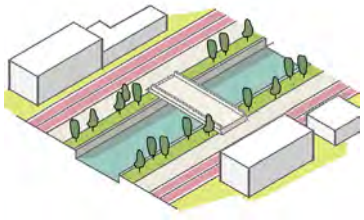
Parks and Ecological Connections

Similar to institutions, this typology refers to parks where people gather and recreate. Ecological connections are areas that connect the community with wildlife and nature, these are places like where neighborhoods and open space, nature preserves, or mountains meet.

The plan shows examples of multi-benefit parks, passive parks, and ecological connectors.

Stormwater Basin

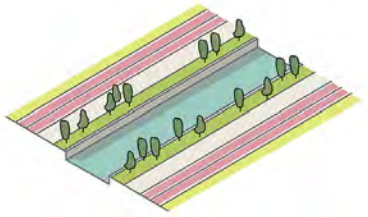
This typology typically refers to areas in a channel used specifically for infiltrating water into the ground or removing contaminants and debris, such as spreading grounds and debris basins. People generally do not interact directly with stormwater basins but may engage with the basin passively through educational signage and observation.



Community Connections

This typology refers to areas that physically connect residential communities, e.g., bridges, bike paths, access points to a waterway, pedestrian bridges across a waterway etc. These areas are heavily trafficked by the public and encourage passive recreation.

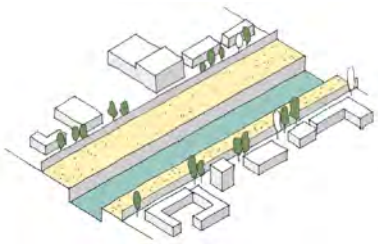
The plan shows project elements for existing and new bridges, green streets, and highway filtration forest opportunities.



In-Channel Improvements:

This includes areas in the waterway with opportunities for multi-use changes such as low flow channel creation, art on channel walls, concrete removal, or flow diversion. People generally do not have the chance to enter channels except in instances where access is specifically granted for recreation such as kayaking. Additional coordination with channel owners and additional analysis will need to be performed for each instance of an improvement.

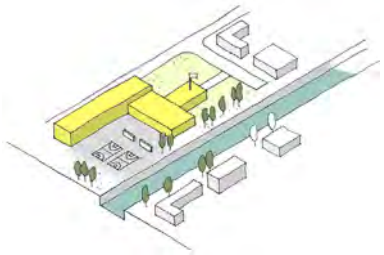
The plan shows precedents low flow channels, channel naturalization, and improvements that don't require structural change.



Channel Right-of-Way

This includes the area of land next to the waterway that is typically reserved for maintenance access.

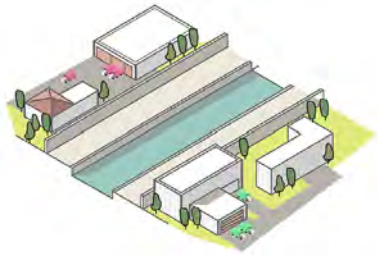
The plan shows project elements for channel rights-of-way that are less than 12 feet wide, ones that are between 12 and 25 feet wide, and ones that are more than 25 feet wide.



Institutions

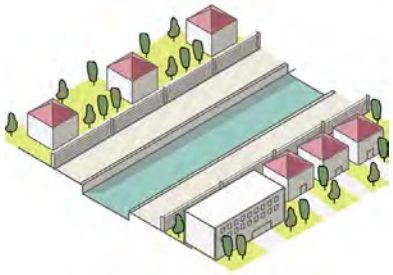
Institutions include organizations like schools, libraries, community centers, and churches. These places share the common characteristic of being an area or building where the community can gather and meet

The plan shows precedents for elementary schools, high schools, and museums.



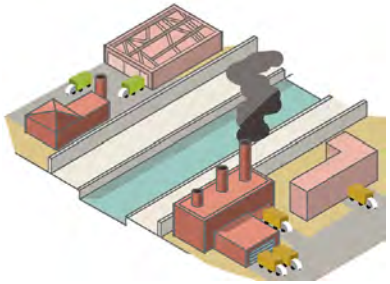
Commercial

Commercial project elements study areas of privately-owned businesses geared toward hosting people during certain periods of time. Some examples are; retail stores, parking lots, malls, hotels, office buildings and medical centers. People often gather at and travel to these places to stay, eat, and/or shop.



Housing

Much of the area within the watershed consists of single family residential housing. Single family residences in the study area typically have a lot in common like yard space, drive way, some trees, and large roof area. People use their homes in multiple ways throughout the day and night as private spaces.



Industrial

These areas consist of privately-owned businesses geared toward the manufacturing and production of materials and goods. Places such as factories, storage facilities, as well as mining and shipping operations are found in industrial areas. Activities in industrial areas are usually limited to those who work there; the general public does not typically have reason to enter industrial areas.

CHANNEL RIGHT-OF-WAY (EXISTING CONDITIONS)

Channel right-of-ways are an opportunity to create bioswales and other BMPs, native planting, trails, passive spaces, and nodes along the waterway. These spaces will invoke some of the rich textures of the Upper Los Angeles River watershed.

Each of the channel right-of-ways along the Upper Los Angeles River and Tributaries fall into one of the following three groups.

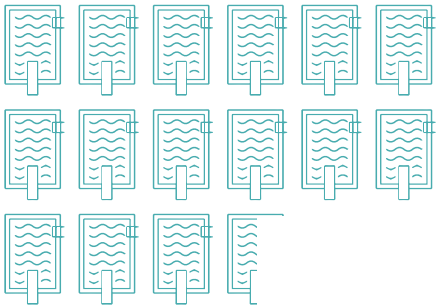
- **Channel Right-of-Ways that are less than 12' wide** could include trail-side planting to treat localized stormwater runoff and provide urban wildlife connectivity
- **Channel Right-of-Ways that are between 12-25' wide** could be linked to create a long and continuous multi-use route (pedestrians, bicyclists, equestrians, scooters, etc.) that encourages people to get out and exercise
- **Channels Right-of-Ways that are more than 25' wide** will provide separated bike and pedestrian paths and help integrate BMPs, nature and education zones near the waterways

PROJECT ELEMENT BENEFITS

There were **383 acres** *that were identified as opportunities to enhance Channel Right-of-Ways. Analyzing these project elements through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.*

WATER

274 acres *of new or enhanced permeable cover that will help capture* 33 acres-feet *of stormwater*



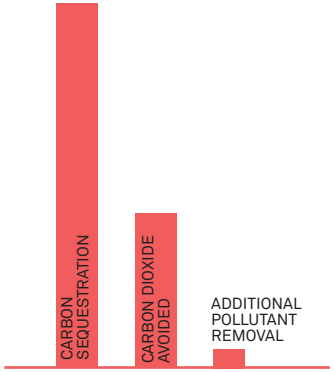
WATER BENEFITS

16.5

Olympic-sized swimming pools of stormwater captured each year

AIR

30,522 trees *that sequester carbon, and remove pollutants from the air*



AIR POLLUTION BENEFITS

33,834 tons
Additional Carbon Sequestration

794 tons
Additional Carbon Dioxide Avoided

13 tons
Additional Pollutant Removal

HABITAT

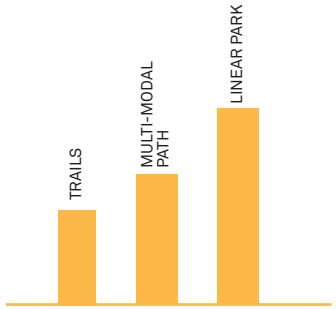
The design includes 74 acres *of new and enhanced ecological habitat and* 350 acres *of additional tree canopy*

ECOLOGICAL BENEFITS

175%
Larger than the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

94 acres *of new and enhanced open space and* 103 miles *of new or enhanced multi-modal paths*



COMMUNITY BENEFITS

27 miles
Trails

29 miles
Multi-Modal Paths

47 miles
Linear Park

< 12’ WIDE CHANNEL RIGHT-OF-WAY

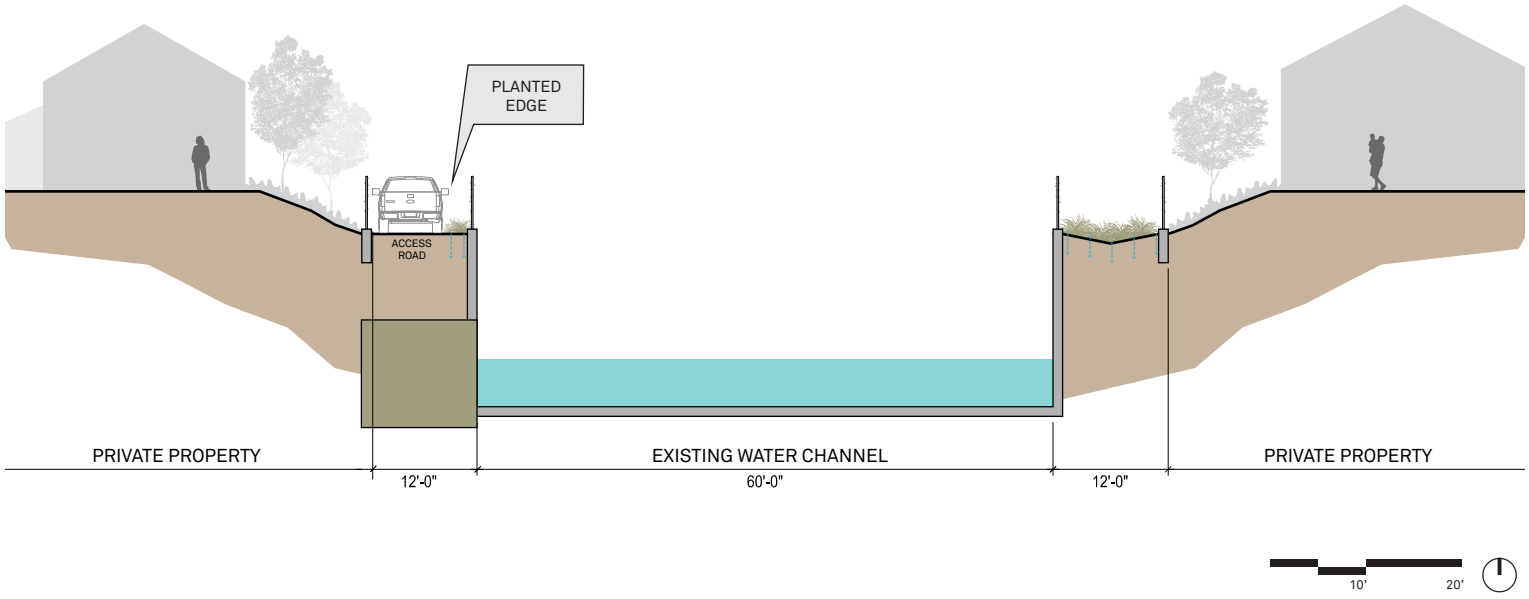
Channel right-of-ways less than 12-feet wide should maintain space for maintenance vehicles. Where it is possible, a planted edge should be planted to allow for water permeability, cleaning, and urban wildlife connectivity.

Depending on soil conditions and pressure on the channel walls, there is an opportunity to develop detention basins.

The planting strategic should be appropriate for the goals, respond to local conditions and promote natural ecologies.

<12’-WIDE CHANNEL ROW GOALS

- Provide urban wildlife connectivity
- Improve and stabilize soil next to the waterways
- Treat and infiltrate localized stormwater runoff (Depending on soil conditions and pressure on the channel walls)



Section of an improved 12’-wide channel right-of-way (typ)

BENEFITS PER ACRE

For each of the 54.5 acres of ***<12’ channel right-of-way opportunities*** *identified we may expect the following benefits per acre*

WATER

0.2 acres
New or Enhanced Permeable Paving

2,111 gallons
Additional Stormwater Capture from planting

AIR

0.02 tons
Carbon Sequestration from Planting & Trees

HABITAT

0.2 acres
New/Enhanced Ecological Habitat

BENEFITS PER ACRE

*For each of the 49.1 acres of **12-25' channel right-of-way** opportunities identified we may expect the following benefits per acre*

WATER

0.73 acres
New or Enhanced Permeable Paving

22,213 gallons
Additional Stormwater Capture from planting

AIR

63 trees

70.4 tons
Carbon Sequestration from trees and planting

1.7 tons
Additional Carbon Avoided

55.7 pounds
Additional Pollutant Removal

HABITAT

0.2 acres
New/Enhanced Ecological Habitat

0.7 acres
New / Enhanced Tree Canopy

COMMUNITY

0.2 acres
New / Enhanced Open Space

0.4 miles
Community Connections

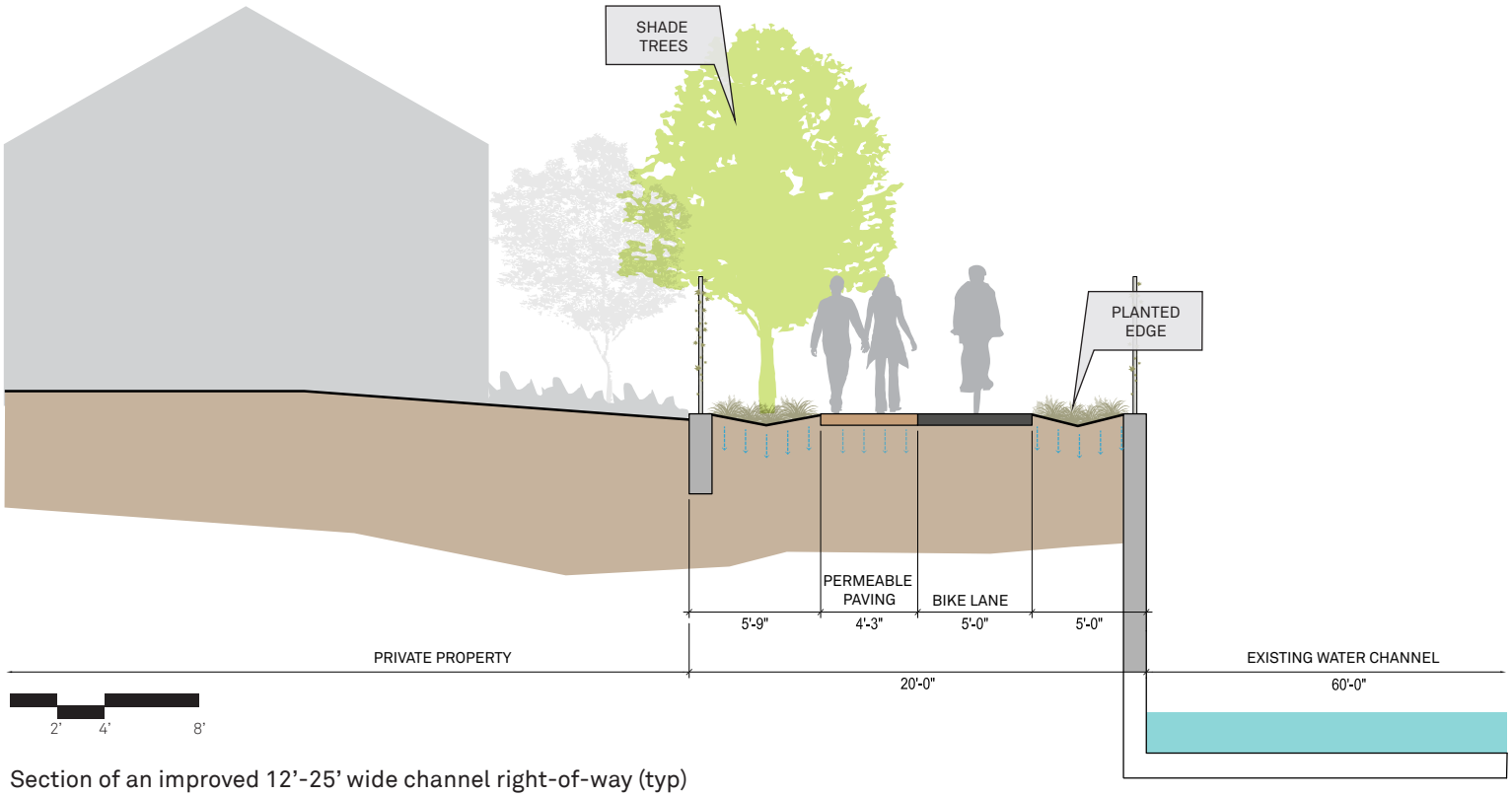
12-25' WIDE CHANNEL RIGHT-OF-WAY

Channel right-of-ways that are between 12' and 25' are an opportunity to create long, continuous, and safe multi-use routes that could invoke the waterway's unique identity.

The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.

12-25' CHANNEL ROW GOALS

- Improve regional connections to the LA river and other multi-use paths
- Allow people to enjoy the unique opportunity to take nature hikes in an urban area
- Provide shade and windbreaks to the path and adjacent buildings
- Treat and infiltrate localized stormwater runoff (Depending on soil conditions and pressure on the channel walls)
- Provide urban wildlife connectivity
- Improve and stabilize soil next to the waterways



Section of an improved 12'-25' wide channel right-of-way (typ)

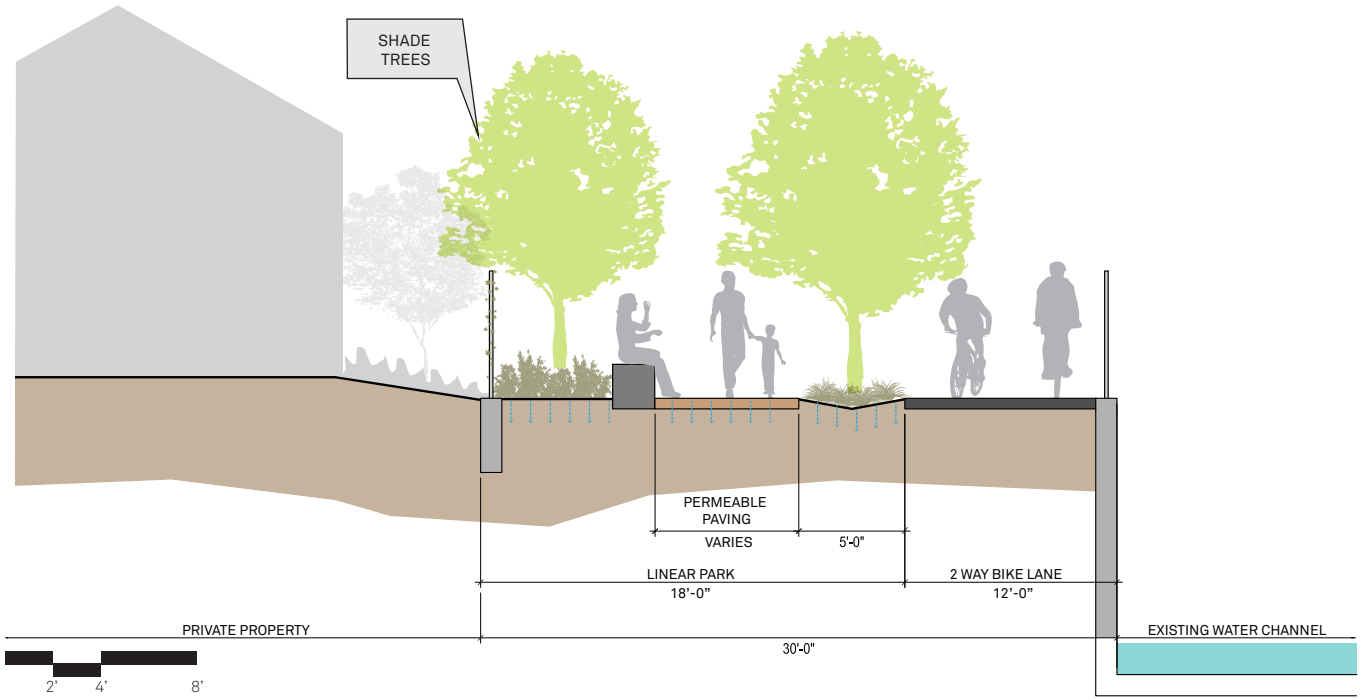
25’+ WIDE CHANNEL RIGHT-OF-WAY

Channel right-of-ways that are more than 25-feet wide can be transformed into a networked system of linear parks and outdoor classrooms. These active nodes can supplement further developments along the waterway.

Structures, planting, and amenities along the existing right-of-way should be linear and flow with the waterway. The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.

25’+ CHANNEL ROW GOALS

- Increase open space access to surrounding communities
- Distinguish specific places with landscape features targeted to children (i.e., groves, gardens, mounds)
- Integrate BMPs, natural gardens, and education zones next to the waterways
- Improve regional connections to the LA river and other multi-use paths
- Provide shade and windbreaks to the path and adjacent buildings
- Treat and infiltrate localized stormwater runoff (Depending on soil conditions and pressure on the channel walls)
- Provide urban wildlife connectivity and habitat
- Improve and stabilize soil next to the waterways



Section of an improved 25’-wide channel right-of-way (typ)

BENEFITS PER ACRE

*For each of the 279 acres of **25’+ channel right-of-way** opportunities identified we may expect the following benefits per acre*

WATER

0.8 acres
New or Enhanced Permeable Paving

34,362 gallons
Additional Stormwater Capture from planting

AIR

98 trees

108.8 tons
Carbon Sequestration from Planting and Trees

2.6 tons
Additional Carbon Avoided

86.1 pounds
Additional Pollutant Removal

HABITAT

0.2 acres
New/Enhanced Ecological Habitat

1.1 acres
New / Enhanced Tree Canopy

COMMUNITY

0.3 acres
New / Enhanced Open Space

0.3 miles
Community Connections

COMMUNITY CONNECTIONS

This project element refers to opportunities to physically connect communities, e.g., green streets, highways, sidewalks, bike paths, access points to a waterway, pedestrian bridges across a waterway, etc. The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.

Community connections fall into one of the following three groups:

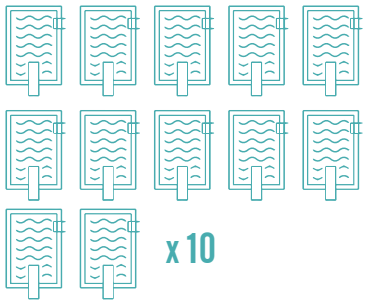
- **Existing and New Bridges** that enhance the utility and character of each waterway
- **Green Streets** that link the waterways to the surrounding community physically and hydrologically
- **Highway Filtration Forests** that buffer pollutants from escaping the highway

PROJECT ELEMENT BENEFITS

There were **1,019 acres** *that were identified as opportunities to develop Community Connections. Analyzing these project elements through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.*

WATER

513 acres *of new or enhanced permeable cover that will help capture* 210 acre-feet *of stormwater*



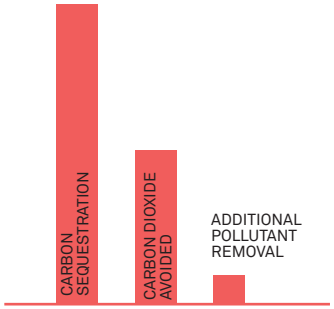
WATER BENEFITS

123

Olympic-sized swimming pools of Stormwater Captured each year

AIR

34,732 trees *that sequester carbon, and remove pollutants from the air*



AIR POLLUTION BENEFITS

38,500 tons
Additional Carbon Sequestration

903 tons
Additional Carbon Dioxide Avoided

15 tons
Additional Pollutant Removal

HABITAT

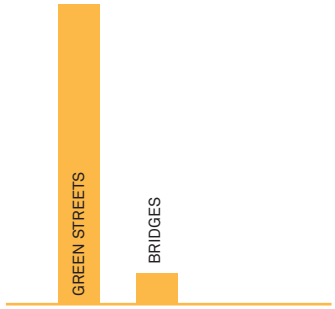
The design includes 122 acres *of new and enhanced ecological habitat and* 399 acres *of additional tree canopy*

ECOLOGICAL BENEFITS

50%
the size of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

4 acres *of new and enhanced open space and* 164 miles *of new or enhanced multi-modal paths*



COMMUNITY BENEFITS

157 miles
Green Streets

7 miles
Bridges

COMMUNITY CONNECTIONS - EXISTING & NEW BRIDGES

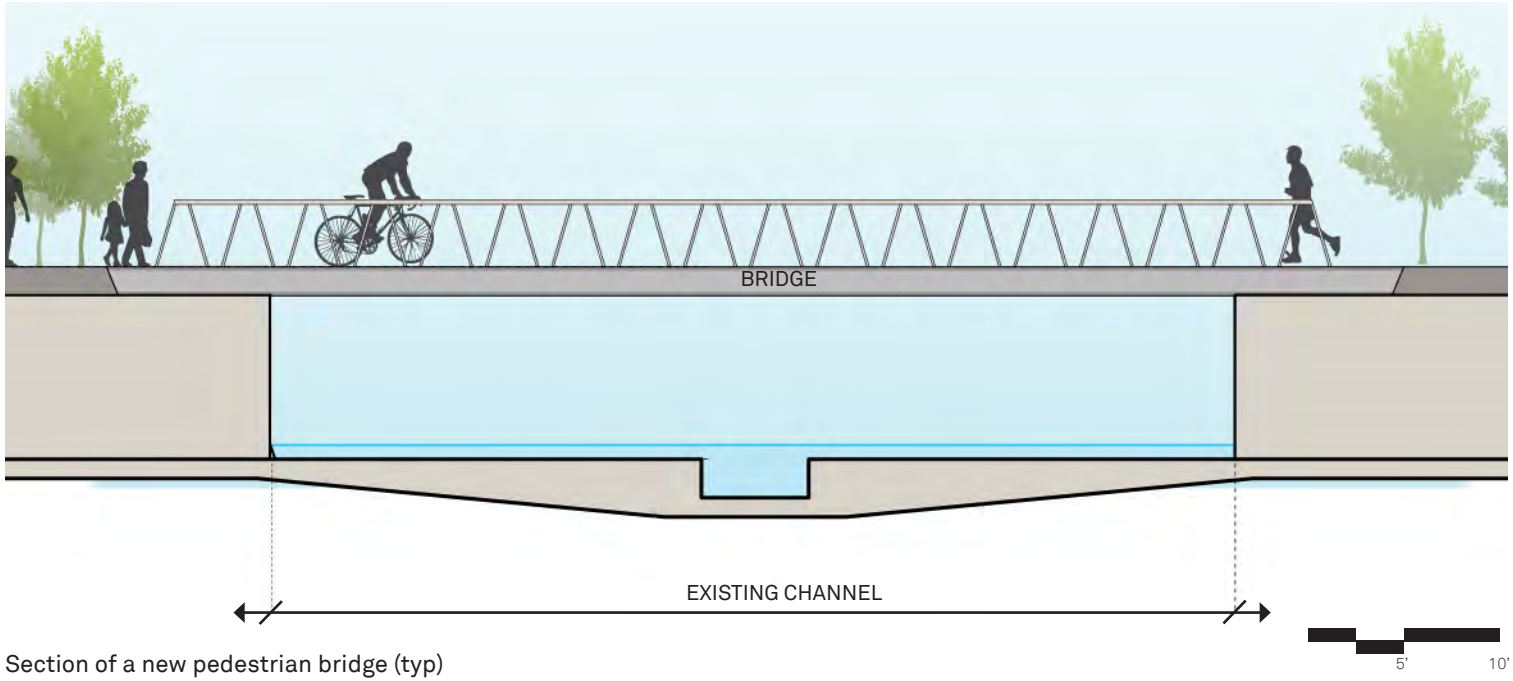
Short of the channel itself, bridges are one of the most prominent feature along the waterways, and should be considered in a way that can create connectivity AND enhance the character and utility of the tributaries and Upper Los Angeles River. As structures, they should serve as both important links and landmarks.

Bridges should be designed to provide a unique perspective on the corridor and recognize the waterways as a unique feature, not merely a dividing infrastructure.

New and existing bridges could be installed with small parks, plaza, or recreation areas on each side. The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.

EXISTING & NEW BRIDGES GOALS

- Link neighborhoods, schools, and parks
- Celebrate creek crossings with features that respond to the waterways, including vegetation, habitat, signage, and bridge design
- Enhance existing bridges with retrofits that add attractive and distinctive elements
- Facilitate proper usages of trails and channel right-of-ways by creating easy access across the waterways and onto safe connections
- Promote awareness of the tributaries with signage, educational features, outdoor classrooms, and overlooks
- Provide maximum space between bridge abutments to allow for water dynamics, river movement, and prevent scouring



Section of a new pedestrian bridge (typ)

BENEFITS PER ACRE

*For each of the 32.8 acres of **Existing and New Bridge** opportunities identified we may expect the following benefits per acre*

WATER

0.3 acres
New or Enhanced Permeable Paving

10,464 gallons
Additional Stormwater Capture from planting

AIR

30 trees

33.1 tons
Carbon Sequestration from Planting and Trees

0.8 tons
Additional Carbon Avoided

26.2 pounds
Additional Pollutant Removal

HABITAT

0.1 acres
New/Enhanced Ecological Habitat

0.3 acres
New / Enhanced Tree Canopy

COMMUNITY

0.1 acres
New / Enhanced Open Space

0.2 miles
Community Connections

BENEFITS PER ACRE

*For each of the 786.5 acres of **Green Street** opportunities identified we may expect the following benefits per acre*

WATER

0.3 acres
New or Enhanced Permeable Paving

10,464 gallons
Additional Stormwater Capture from planting

AIR

30 trees

33.1 tons
Carbon Sequestration from Planting and Trees

0.8 tons
Additional Carbon Avoided

26.2 pounds
Additional Pollutant Removal

HABITAT

0.1 acres
New/Enhanced Ecological Habitat

0.3 acres
New / Enhanced Tree Canopy

COMMUNITY

0.2 miles
Community Connections

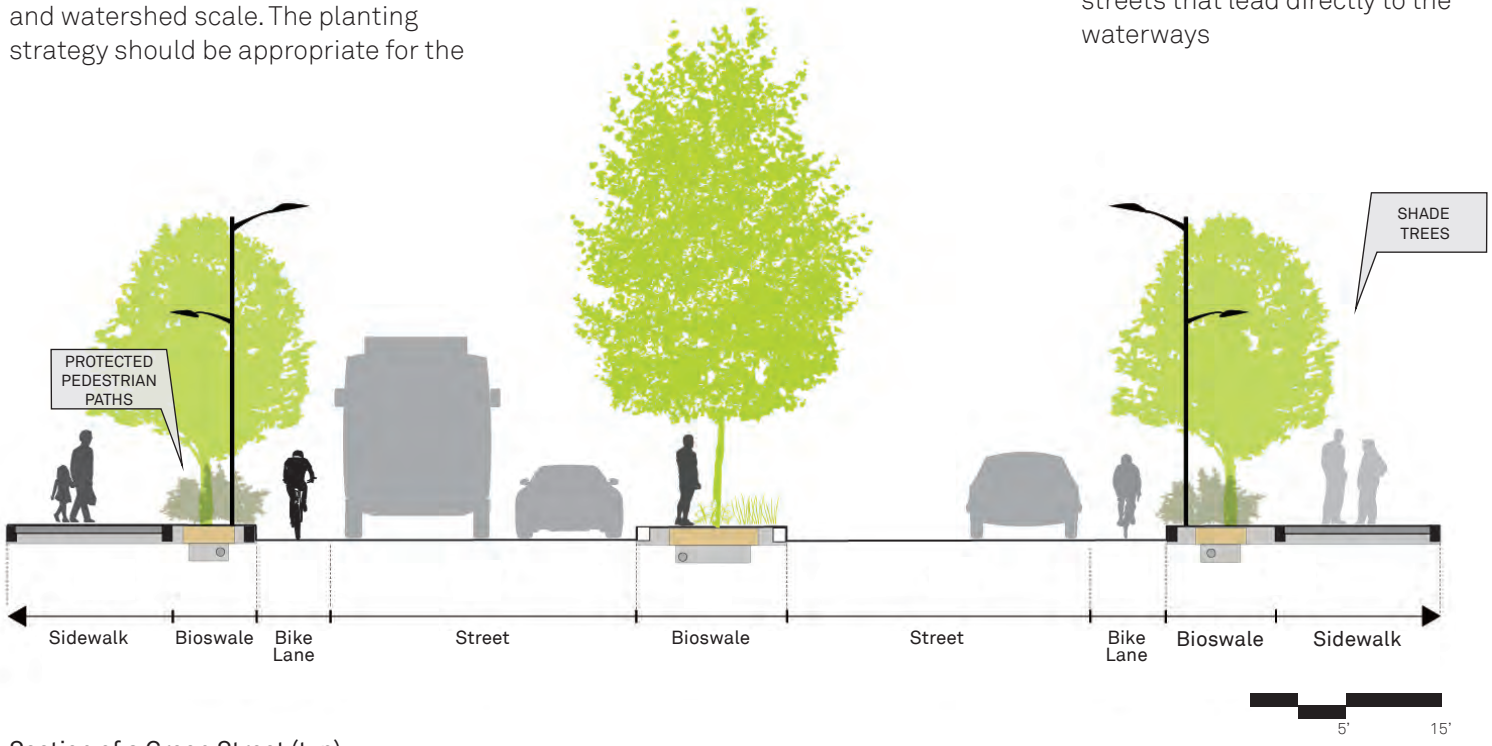
COMMUNITY CONNECTIONS - GREEN STREETS

Green streets provide a safe, shaded way for multiple modalities to access the tributaries and create a hydrological and physical link to the waterways. They are an opportunity to both increase awareness of the tributaries, expand the Plan into the neighborhoods, and encourage the local community to explore the waterways.

The green street design should communicate this relationship so that the community understands how the system is interconnected at a tributary and watershed scale. The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.

GREEN STREET GOALS

- Develop a network of green streets connecting the waterways to the surrounding community
- Increase awareness of the waterways by highlighting when streets cross each waterway and demonstrating the hydrological and physical connection between the streets and our waterways
- Prioritize green street connections between destinations, especially schools and parks
- Treat and infiltrate localized stormwater runoff before it enters the waterways
- Reduce summer temperatures through shade and evaporation of green streets
- Reduce heating needs by placing trees to block winds
- Improve way-finding by greening streets that lead directly to the waterways



Section of a Green Street (typ)

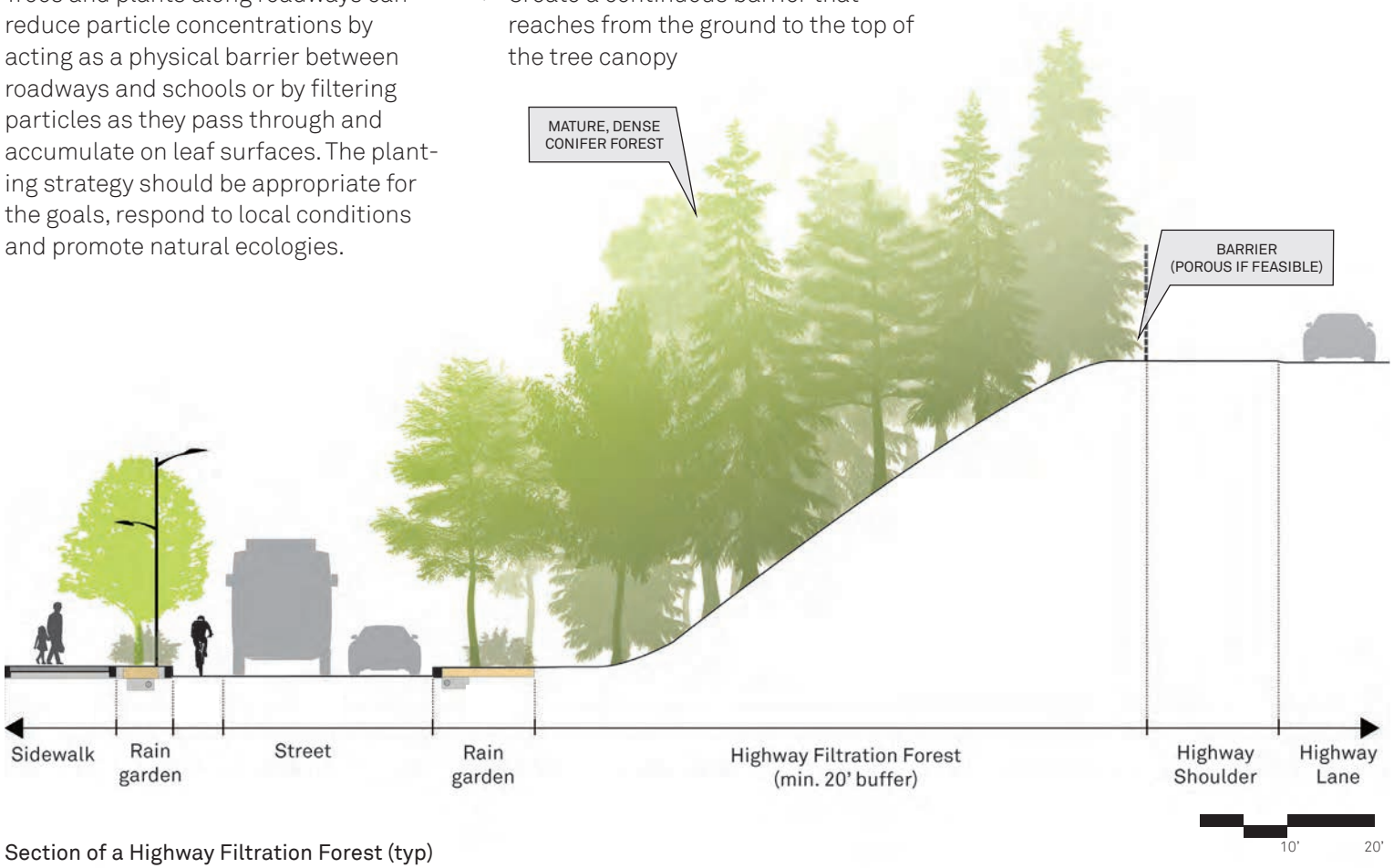
COMMUNITY CONNECTIONS - HIGHWAY FILTRATION FOREST

Exposure to traffic-related air pollution has been linked to a variety of short- and long-term health effects,including asthma, reduced lung function, impaired lung development in children, and cardiovascular effects in adults (EPA).

Trees and plants along roadways can reduce particle concentrations by acting as a physical barrier between roadways and schools or by filtering particles as they pass through and accumulate on leaf surfaces. The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.

HIGHWAY FILTRATION FOREST GOALS

- Create a physical vegetative barrier that will block highway pollution from entering the community
- Locate trees as close as possible to the highway to increase particle removal rates
- Create a continuous barrier that reaches from the ground to the top of the tree canopy
- Choose drought tolerant, native trees with a leaf structure that maximizes pollution removal. To reduce fire risk, mix coniferous trees with trees with low fire risk



Section of a Highway Filtration Forest (typ)

BENEFITS PER ACRE

*For each of the 199.8 acres of **Highway Filtration Forest** opportunities identified we may expect the following benefits per acre*

WATER

0.6 acres
New or Enhanced Permeable Paving

17,932 gallons
Additional Stormwater Capture from planting

AIR

51 trees

56.8 tons
Carbon Sequestration from Planting and Trees

1.3 tons
Additional Carbon Avoided

44.9 pounds
Additional Pollutant Removal

HABITAT

0.2 acres
New/Enhanced Ecological Habitat

0.59 acres
New / Enhanced Tree Canopy

PARK & ECOLOGICAL CONNECTIONS

Parks along the waterways are one of the best opportunities to redefine the Upper Los Angeles River and Tributaries as a rich ecological and recreational corridor. All spaces will be designed for universal access.

Each park and ecological connector offers the opportunity to celebrate the waterways and protect and enhance it through structural BMPs and other landscape features.

Parks and Ecological Connections fall into one of the following groups

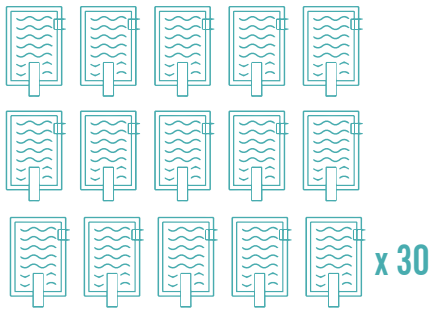
- **Multi-Benefit Parks** can simultaneously provide flexible, multipurpose open space (i.e., floodable sports fields, playgrounds, gardens) for the community and contribute to stormwater management and habitat goals
- **Passive Parks** can include BMPs, nature gardens, and educational zones which support local ecology and provide a natural respite for the community
- **Ecological Habitat and Connections** can provide the physical and natural environments for wildlife to access food, shelter, safety and mates

PROJECT ELEMENT BENEFITS

*There were **2,948 acres** that were identified as opportunities to develop Parks and Ecological Connections. Analyzing these project elements through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.*

WATER

2,480 acres *of new or enhanced permeable cover that will help capture* **905 acre-feet** *of stormwater*



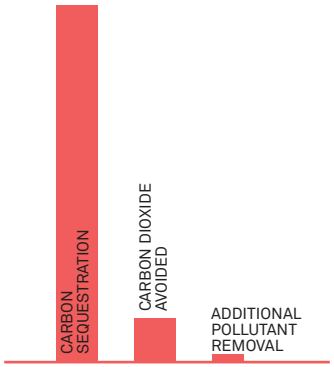
WATER BENEFITS

452

Olympic-sized swimming pools of Stormwater Captured each year

AIR

106,565 trees *that sequester carbon, and remove pollutants from the air*



AIR POLLUTION BENEFITS

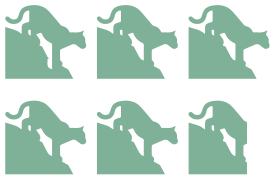
105,696 tons
Additional Carbon Sequestration

2,899 tons
Additional Carbon Dioxide Avoided

47 tons
Additional Pollutant Removal

HABITAT

The design includes **1,439 acres** *of new and enhanced ecological habitat and* **859 acres** *of additional tree canopy*

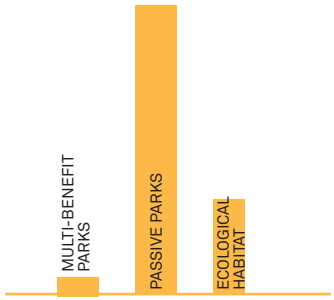


ECOLOGICAL BENEFITS

5.89 times
Larger than the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

2,342 acres *of new and enhanced open space and* **306 miles** *of new or enhanced multi-modal paths*



COMMUNITY BENEFITS

133 acres
Multi-Benefit Parks Community

2053 acres
Passive Parks

156 acres
Trails

PARK & ECOLOGICAL CONNECTIONS - MULTI-BENEFIT PARKS

Multi-beneficial park space along the Upper LA River and Tributary corridor can provide amenities for the community (i.e., sports fields, playgrounds, and trails) while also advancing the plan's goals for flood risk management, watershed management, and ecological enhancements. The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.

MULTI-BENEFIT PARK GOALS

- Create flexible, multi-purpose spaces that can contribute to active recreation needs, habitat, ecology, and water management
- Enhance the diversity of recreational opportunities available to the community
- Prioritize surfaces that are permeable and improve flood-risk management
- Integrate BMPs, nature gardens, and educational zones
- Create specific places with landscape features for children (i.e. butterfly gardens, mounds, vegetable gardens)
- Provide parks with unique identities through the installation of site-specific and context responsive public art

Parc Fluvial Del Besos East Bank (Barcelona, Spain). This project in Barcelona along the River Besos provides a delicate balance between riparian habitat and informal recreation needs. On the east bank, people can picnic, ride bikes and play soccer. The west bank provides habitat and nesting ground for birds.

BENEFITS PER ACRE

*For each of the 147.6 acres of **Multi-benefit park** opportunities identified we may expect the following benefits per acre*

WATER

0.9 acres
New or Enhanced Permeable Paving

11,200 gallons
Additional Stormwater Capture from planting

AIR

32 trees

28.2 tons
Carbon Sequestration from Planting and Trees

0.8 tons
Additional Carbon Avoided

28.1 pounds
Additional Pollutant Removal

HABITAT

0.4 acres
New/Enhanced Ecological Habitat

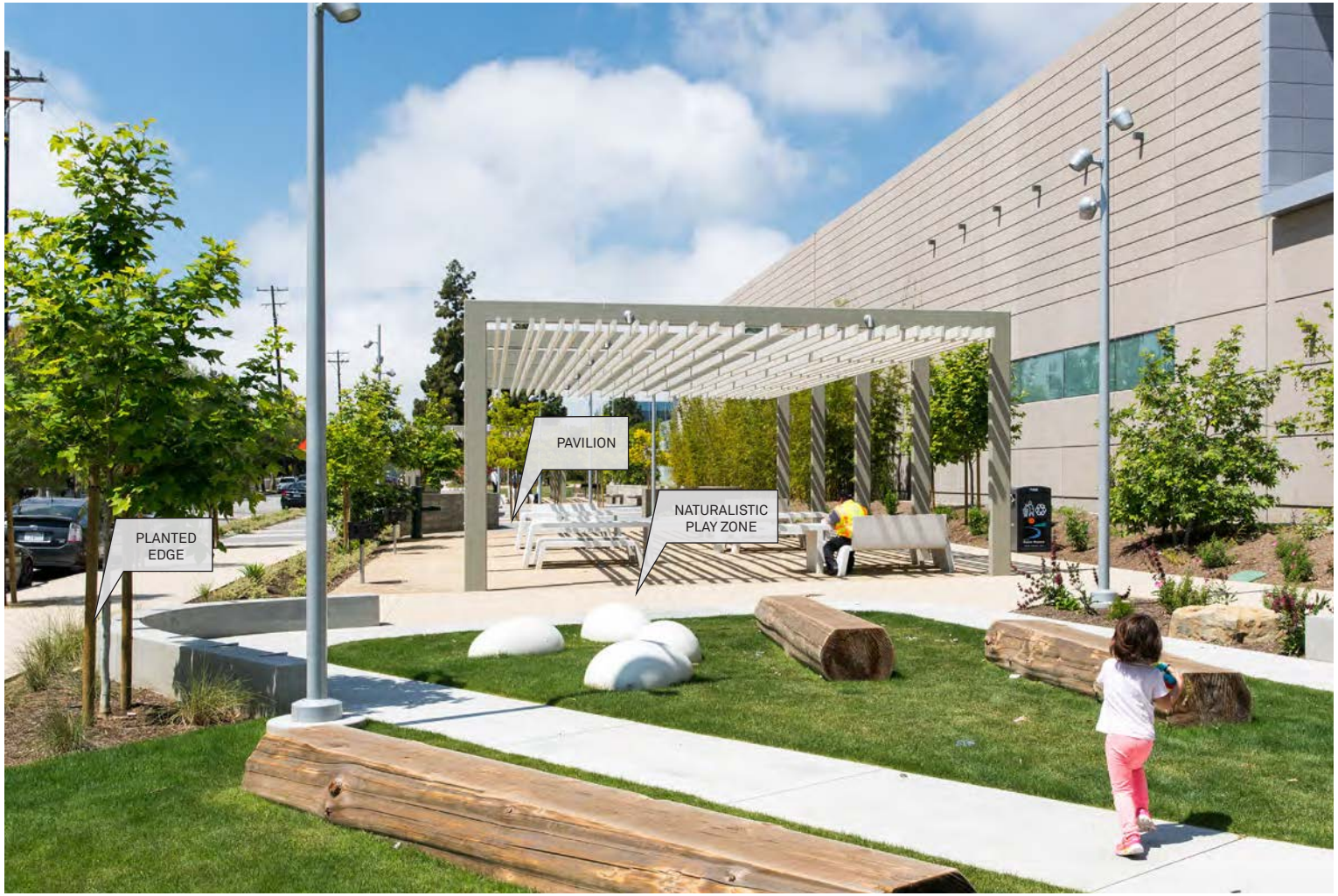
0.3 acres
New / Enhanced Tree Canopy

COMMUNITY

0.9 acres
New / Enhanced Open Space

0.4 miles
Community Connections

PARK & ECOLOGICAL CONNECTIONS - MULTI-BENEFIT PARKS



Ishihara Park Adventure Play Room (Santa Monica, CA). The 2.35-acre park (formerly a parking lot) is ¼ mile long and varies in width from 60 to 110 feet, a similar dimension to multiple park opportunities along the Upper Los Angeles River and Tributaries waterways. The concept for Ishihara Park was a "park in rooms" — a series of small garden rooms that balance play, ecology, habitat, and stormwater management.

PARK & ECOLOGICAL CONNECTIONS - PASSIVE PARK

Passive spaces are an opportunity to re-establish natural communities that were once prevalent on the Los Angeles River Watershed. This could include alluvial fan sage scrub, coast sage scrub, southern cottonwood-willow riparian forest, the southern sycamore riparian woodland, and California Walnut Woodland.

Existing invasive plant species such as Mexican Fan Palm, castor bean and fountain grass occurring on site should be controlled using Integrated Past Management (IPM) practices, prior to implementing ecological enhancements.

The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies. In addition to providing the community with beautiful native space, these communities have the potential to support native wildlife.

PASSIVE PARK GOALS

- Plant vegetation, treat localized stormwater runoff and provide habitat along the waterways
- Provide opportunities for communities to explore and enjoy the area's natural ecology
- Raise importance of the rich ecological habitat around the waterways

Ed P. Reyes Greenway Stormwater Treatment Swale (Los Angeles, CA). Located on the north bank of the Los Angeles River, this park converted a former street-end into a "stormwater greenway" that cleans water within its 135-acre drainage area. The park feature mimics a dry-creek or arroyo ecosystem that supports biological communities and filters/cleans runoff of bacteria, oils, and other pollutants before it enters the River.

BENEFITS PER ACRE

*For each of the 2,281 acres of **Passive Park** opportunities identified we may expect the following benefits per acre*

WATER

0.9 acres
New or Enhanced Permeable Paving

12,600 gallons
Additional Stormwater Capture from planting

AIR

36 trees

38.1 tons
Carbon Sequestration from Planting and Trees

0.9 tons
Additional Carbon Avoided

31.6 pounds
Additional Pollutant Removal

HABITAT

0.4 acres
New/Enhanced Ecological Habitat

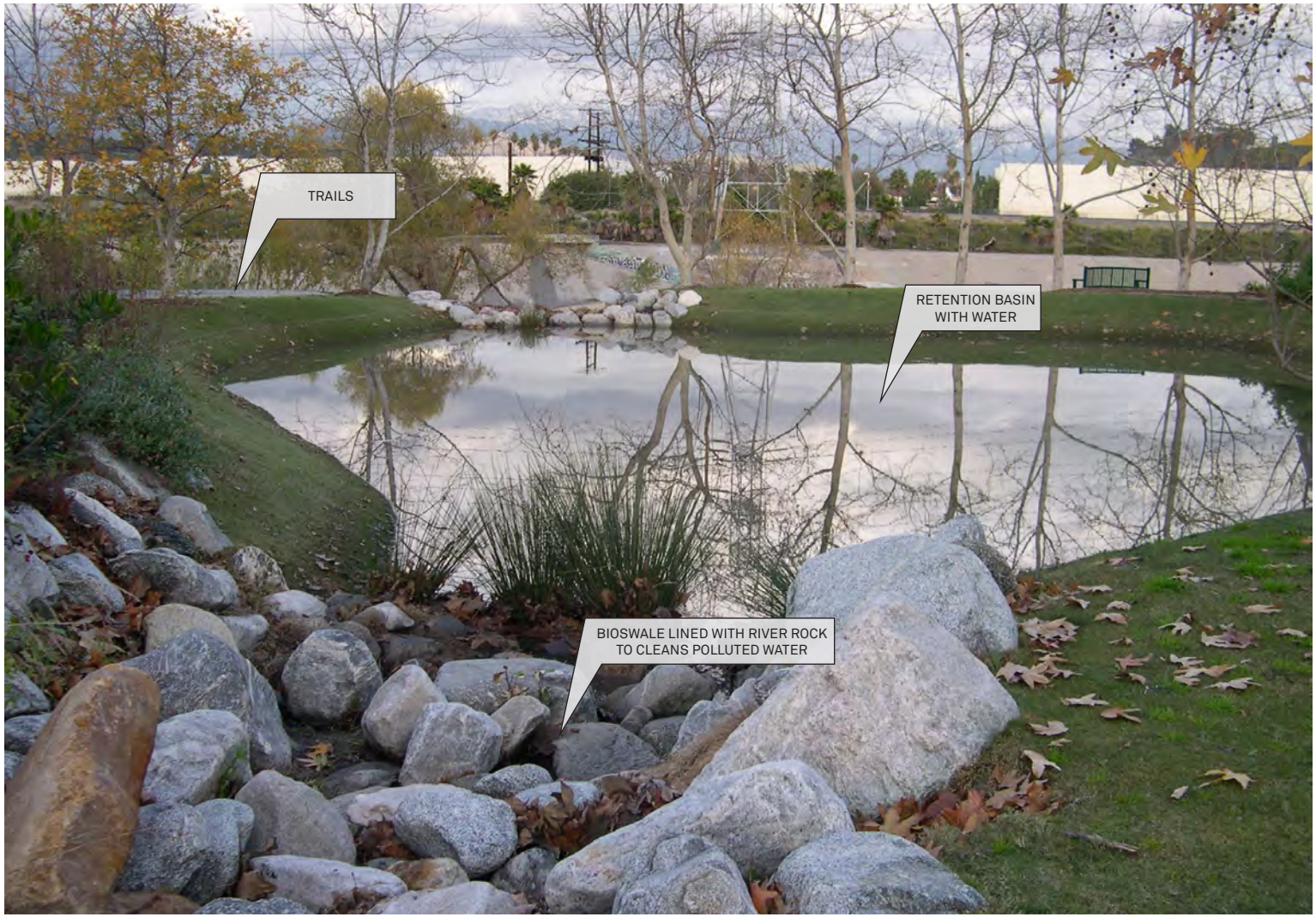
0.3 acres
New / Enhanced Tree Canopy

COMMUNITY

0.9 acres
New / Enhanced Open Space

0.1 miles
Community Connections

PARK & ECOLOGICAL CONNECTIONS - PASSIVE PARK



Lewis MacAdams Riverfront Park, formerly Marsh Park, (Los Angeles, CA). Lewis MacAdams Riverfront Park is a 3.9-acre park adjacent to the Los Angeles River in Elysian Valley. The park is designed to clean water that flows from city streets before it enters the River. Polluted water runs through a series of bioswales and basins that collect, filter, and infiltrate water that replenishes the groundwater aquifer. On non-rainy days, the turf basin acts as a flexible place that facilitates play, picnics, and community events.

PARK & ECOLOGICAL CONNECTIONS - ECOLOGICAL HABITAT & CONNECTOR

One of the greatest threats to natural resource preservation in the Upper Los Angeles River and Tributaries is the loss of habitat connectivity from increased development and urban encroachment. Over time, open spaces have become increasingly fragmented, and isolated —reducing the viability of native plant and animal population.

As is true across ecosystems globally, species native to the Upper Los Angeles Rivers and Tributaries study area rely on specific components of the landscape such as large trees, water, and other physical structures to complete their life cycles. The Upper Los Angeles River and Tributaries Plan will build upon the existing native vegetation pattern and support creation of wildlife habitat. In areas where that isn't possible, some man-made structures may serve as adequate substitutes.

ECOLOGICAL HABITAT & CONNECTOR GOALS

- Protect and enhance areas that have been identified as key regional wildlife connectors with high habitat value
- Prioritize the protection of area that connect larger blocks of natural land
- Protect wildlife from urban areas through fencing, appropriate lighting, and sound protection

Colorado State Highway 9 Wildlife Underpass (State Highway 9 between Green Mountain Reservoir and Kremmling, Colorado) showcases some key criteria for wildlife crossing that were mentioned in the Caltrans Wildlife Crossing Guidance Manual. First, it is wide enough to allow mammals to see habitat and light on the opposite side of the culvert (Wildlife may perceive danger in underpasses that are too narrow). This underpass also works in conjunction with highway fencing and vegetation to help funnel wildlife toward the corridor.

BENEFITS PER ACRE

*For each of the 519 acres of **Ecological Habitat & Connector** opportunities identified we may expect the following benefits per acre*

WATER

0.8 acres
New or Enhanced Permeable Paving

13,300 gallons
Additional Stormwater Capture from planting

AIR

38 trees

28.16 tons
Carbon Sequestration from Planting and Trees

1.2 tons
Additional Carbon Avoided

33.3 pounds
Additional Pollutant Removal

HABITAT

0.9 acres
New/Enhanced Ecological Habitat

0.3 acres
New / Enhanced Tree Canopy

PARK & ECOLOGICAL CONNECTIONS -ECOLOGICAL HABITAT & CONNECTOR

Liberty Canyon Wildlife Crossing (Liberty Canyon, CA). At the site of the proposed wildlife overpass over the 101 freeway, Caltrans have begun developing a habitat that connects an existing stream bed north of the 101 to the a stream bed south of Agoura Road. For wildlife crossings, vegetation must be carefully chosen to attract or repel designated species. To detract animals from vehicular traffic, many wildlife overpasses and underpasses remove road-side vegetation. Vegetation is left in the areas leading to the overpass or underpass to encourage wildlife usage of the overpass / underpass.

COMMERCIAL

This project element typically consists of privately-owned businesses such as retail stores, malls, hotels, office buildings, parking lots and medical centers fronting onto the waterways. These can become an important means of providing waterway-adjacent space.

Commercial spaces along the waterways could become multi-program nodes catalyze further improvements. These spaces will improve the energy, activity, and attraction of the waterways.

COMMERCIAL GOALS

- Enhance and share waterway-adjacent spaces
- Reorient commercial properties towards the waterways
- Treat or reuse on-site stormwater before it leaves the site and is ultimately discharged into the waterways
- Increase tree canopy and vegetation to filter pollutants, provide shade, cool the area, and sequester carbon

PROJECT ELEMENT BENEFITS

There were **40 acres** *that were identified as opportunities to enhance Commercial areas. Analyzing these project elements through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology*

WATER

20 acres *of new or enhanced permeable cover that will help capture* **5.1 acre-feet** *of stormwater*

WATER BENEFITS

2.5
Olympic-sized swimming pools of Stormwater Captured each year

AIR

323 trees *that sequester carbon, and remove pollutants from the air*

AIR POLLUTION BENEFITS

1,128 tons
Additional Carbon Sequestration

26 tons
Additional Carbon Dioxide Avoided

0.4 tons
Additional Pollutant Removal

HABITAT

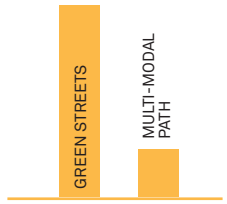
The design includes **6 acres** *of new and enhanced ecological habitat and* **12 acres** *of additional tree canopy*

ECOLOGICAL BENEFITS

3%
of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

10 miles *of new or enhanced multi-modal paths*



COMMUNITY BENEFITS

8 miles
Green Streets

2 miles
Multi-modal Paths

COMMERCIAL EXAMPLE

Spoke Bicycle Cafe along the LA River (Los Angeles, CA). Spoke Cafe's "front door" opens onto the LA River's bike path, helping to activate the river front and create engagement with the water.

COMMERCIAL EXAMPLE

Chicago Riverwalk (Chicago, IL) offers a connected and well-proportioned series of commercial spaces on the south bank of the Chicago River's main branch. The design includes a buffer zone between the development and the river with infiltration planters and a structural paving system that enables soil volumes and irrigation using reclaimed stormwater.

BENEFITS PER ACRE

*For each of the 40 acres of **Commercial** opportunities identified we may expect the following benefits per acre*

WATER

0.5 acres
New or Enhanced Permeable Paving

8,817 gallons
Additional Stormwater Capture from planting

AIR

8 trees

27.9 tons
Carbon Sequestration from Planting and Trees

0.7 tons
Additional Carbon Avoided

22.1 pounds
Additional Pollutant Removal

HABITAT

0.2 acres
New/Enhanced Ecological Habitat

0.3 acres
New / Enhanced Tree Canopy

COMMUNITY

0.1 acres
New / Enhanced Open Space

0.3 miles
Community Connections

INDUSTRIAL

Industrial project elements focus on privately-owned businesses geared toward the manufacturing and production of materials and goods. This includes factories, storage facilities, warehouses and shipping operations. Activities in industrial areas are usually limited to those who work there; the general public does not typically have reason to enter industrial areas.

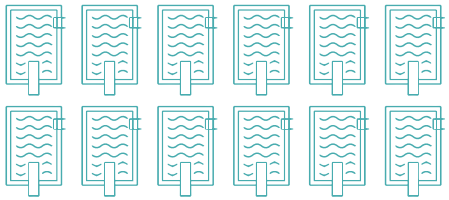
The typical industrial parcel is characterized by impermeable surfaces, and poor air quality created by industrial uses and the high volume of heavy duty trucks moving within the area that diminish air quality and induce the urban heat island effect. The exceptionally high level of impervious surfaces forces rainwater to sheet flow off of paved surfaces and rooftops, picking up months of pollutants that collect during dry weather, and carrying it to surface waters downstream.

PROJECT ELEMENT BENEFITS

There were **218 acres** *that were identified as opportunities to develop Industrial Land. Analyzing and measuring these project elements through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.*

WATER

109 acres *of new or enhanced permeable cover that will help capture* **63 acre-feet** *of stormwater*



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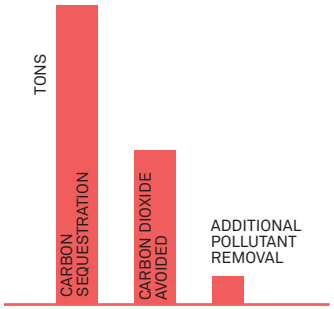
WATER BENEFITS

31

Olympic-sized swimming pools of Stormwater Captured each year

AIR

1,745 trees *that sequester carbon, and remove pollutants from the air*



AIR POLLUTION BENEFITS

6,092 tons
Additional Carbon Sequestration

143 tons
Additional Carbon Dioxide Avoided

2.4 tons
Additional Pollutant Removal

HABITAT

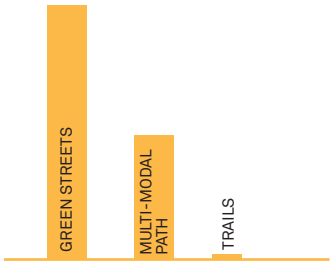
The design includes **33 acres** *of new and enhanced ecological habitat and* **63 acres** *of additional tree canopy*

ECOLOGICAL BENEFITS

0.15
Larger than the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

9 miles *of new or enhanced multi-modal paths*



COMMUNITY BENEFITS

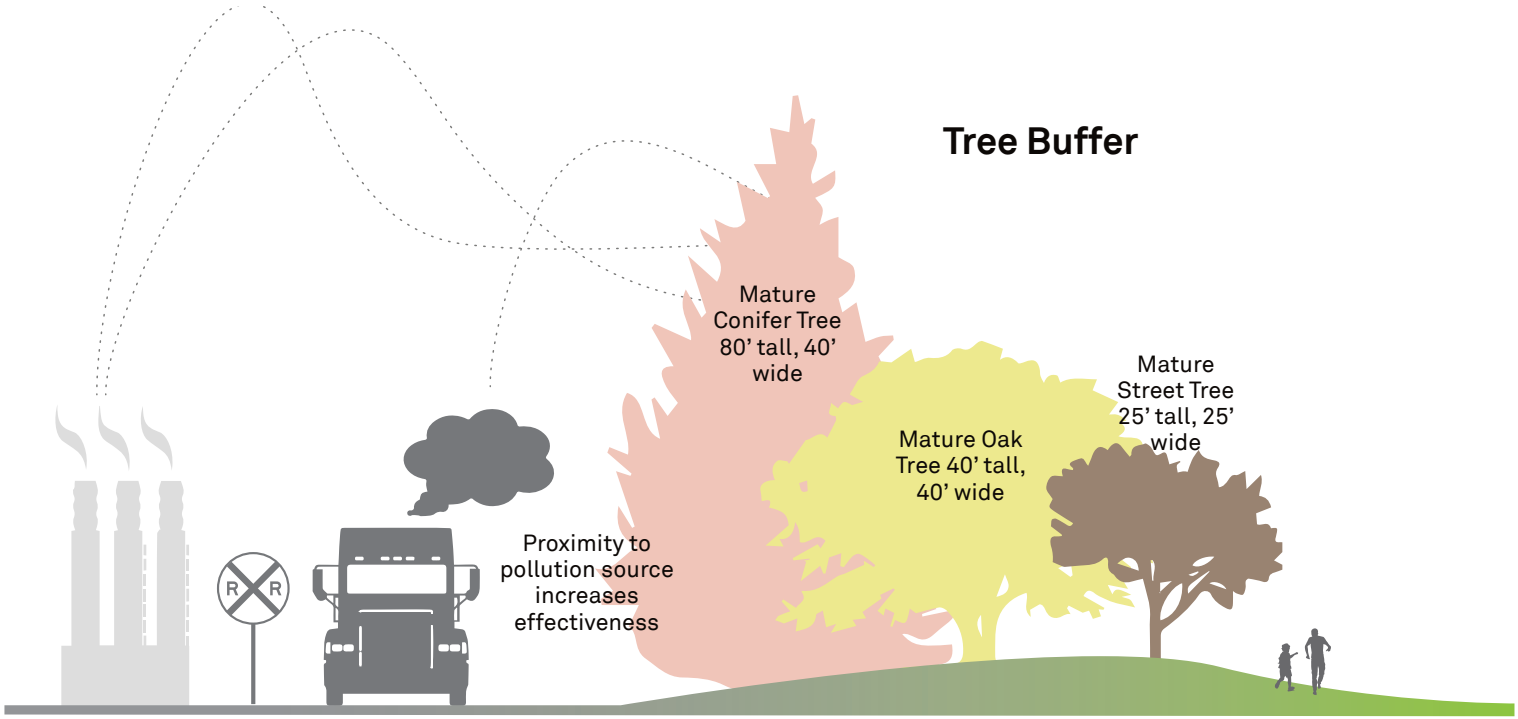
6 miles
Green Streets

3 miles
Multi-modal paths

INDUSTRIAL EXAMPLE

INDUSTRIAL GOALS

- Treat or re-use on-site stormwater before it leaves the site and is ultimately discharged into the waterways
- Increase tree canopy and vegetation to filter pollutants, provide shade, cool the area, and sequester carbon
- Reduce the amount of heat absorbed and emitted by roofs and pavements to mitigate the urban heat island effect
- Create a safer, more comfortable, and easier-to-navigate environment for pedestrians, bicyclists, and vehicles by adding and improving sidewalks, adding crosswalks, improving visibility, and connecting to existing and planned bike routes.
- The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.



Improving Air Quality. Opportunities to improve air quality in the study area include: increasing tree canopy and vegetation to filter pollutants, provide shade, cool the area,sequester carbon, and reduce the amount of heat absorbed and emitted by roofs and pavements to mitigate the urban heat island effect.

BENEFITS PER ACRE

*For each of the 218 acres of **Industrial** opportunities identified we may expect the following benefits per acre*

WATER

0.5 acres
New or Enhanced Permeable Paving

8,817 gallons
Additional Stormwater Capture from planting

AIR

8 trees

27.9 tons
Carbon Sequestration from Planting and Trees

0.7 tons
Additional Carbon Avoided

22.1 pounds
Additional Pollutant Removal

HABITAT

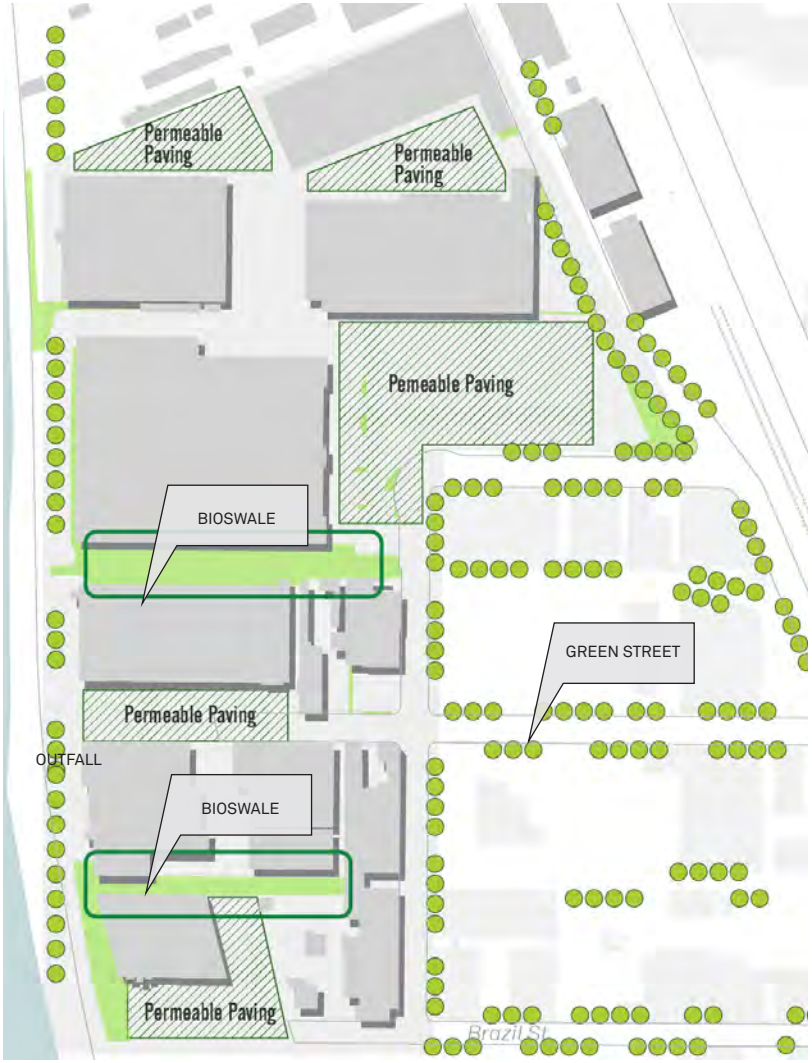
0.2 acres
New/Enhanced Ecological Habitat

0.3 acres
New / Enhanced Tree Canopy

COMMUNITY

0.1 miles
Community Connections

INDUSTRIAL EXAMPLE

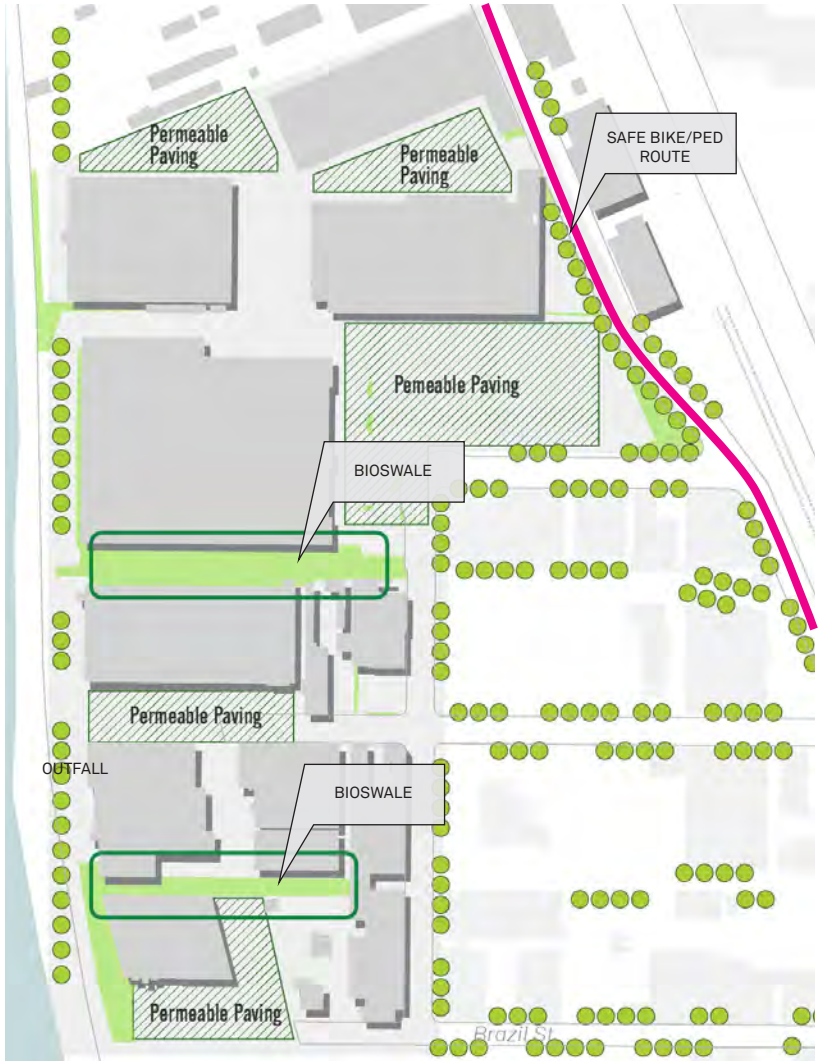


Parking lot treatment

Rain tank

Improving Water Quality. Given the unknown groundwater contamination areas in industrial areas, it is recommended that stormwater flows are detained (held for a period of time, then released) rather than retained. Stormwater could be captured and reused, or captured and treated through a serious of features, including bioswales, rain tanks for collection, rain gardens, and detention basins for treatment. Rain tanks would need to be sited adjacent to buildings to collect roof runoff. Water quality features could be installed within street right-of-ways, street ends, and parking lots.

INDUSTRIAL EXAMPLE



Safe intersection with good visibility

Safe pedestrian crossing

Improving Connectivity and Access. Circulation in industrial areas is generally intended to accommodate industrial truck traffic. These areas typically lack the amenities and infrastructure for automobiles, bicycles, and pedestrians to safely navigate the area. To address these challenges, the goal for connectivity is to make a safer, more comfortable, and easier-to-navigate environment for pedestrians, bicyclists, and vehicles.

INSTITUTIONAL

Numerous schools, museums, and community centers front onto the waterways, giving the Upper Los Angeles River and Tributaries plan an incredible opportunity to create a networked community of environmental learning. This network could help provide system-wide data about the waterways and become of series of activated nodes along the corridor. The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.

The institutions will become gateways to the waterways and permanently establish the waterways into the community's collective consciousness.

INSTITUTIONAL GOALS

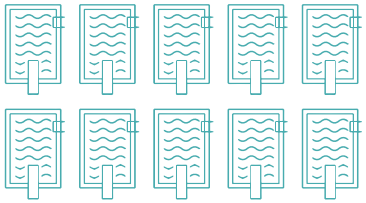
- Teach future and current generations about the importance and value of the waterways and the Upper Los Angeles Watershed
- Establish each institution's identity along the water way with outdoor classrooms and native gardens.
- Green and enhance streets that connect the institutions to the waterways
- Integrate water quality retrofits and improvements with educational amenities

PROJECT ELEMENT BENEFITS

There were **150 acres** *that were identified as opportunities to enhance Institutional areas. Analyzing these project elements through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.*

WATER

75 acres *of new or enhanced permeable cover that will help capture* **22 acre-feet** *of stormwater*



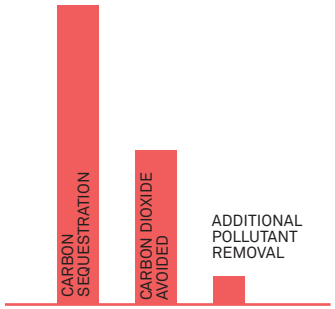
WATER BENEFITS

11

Olympic-sized swimming pools of Stormwater captured each year

AIR

1,494 trees *that sequester carbon, and remove pollutants from the air*



AIR POLLUTION BENEFITS

2,391 tons
Additional Carbon Sequestration

56 tons
Additional Carbon Dioxide Avoided

0.95 tons
Additional Pollutant Removal

HABITAT

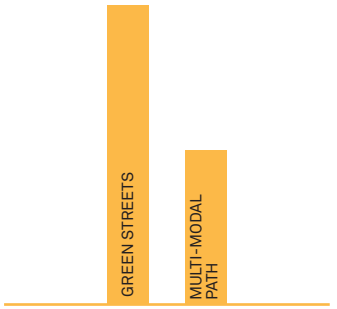
The design includes **30 acres** *of new and enhanced ecological habitat and* **25 acres** *of additional tree canopy*

ECOLOGICAL BENEFITS

12%
of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

30 acres *of new and enhanced open space and* **11 miles** *of new or enhanced multi-modal paths*



COMMUNITY BENEFITS

7 miles
Green Streets

4 miles
Multi-modal paths

INSTITUTIONAL EXAMPLE - SCHOOL

Eagle Rock Elementary (Los Angeles, CA). The first LAUSD School to implement a Proposition 84 Stormwater Grant, Eagle Rock Elementary converted an asphalt playground into a place where children can learn and play surrounded by nature. The new landscape cools the school campus, treats and infiltrates runoff from the buildings and pavement, and increases biodiversity and habitat for native species.

BENEFITS PER ACRE

*For each of the 149 acres of **School** opportunities identified we may expect the following benefits per acre*

WATER

0.5 acres
New or Enhanced Permeable Paving

5,046 gallons
Additional Stormwater Capture from planting

AIR

10 trees

16.0 tons
Carbon Sequestration from Planting and Trees

0.4 tons
Additional Carbon Avoided

12.6 pounds
Additional Pollutant Removal

HABITAT

0.2 acres
New/Enhanced Ecological Habitat

0.2 acres
New / Enhanced Tree Canopy

COMMUNITY

0.2 acres
New / Enhanced Open Space

0.1 miles
Community Connections

INSTITUTIONAL EXAMPLE - SCHOOL

Sidwell Friends (Washington, District of Columbia). As part of their 2007 renovation, Sidwell Friends built terraced wetlands as the primary filtration mechanism for building wastewater. Below the surface, dirty water from the kitchens and bathrooms flows through the dirt and sand to remove contaminants. The water never breaches the surface; so students in the courtyard cannot smell the odor, nor contact the water directly.

INSTITUTIONAL EXAMPLE - MUSEUM

Natural History Museum (Los Angeles, CA). Once a parking lot, the Natural History Museum converted their foreground into an immersive series of interpretive gardens for visitors to witness nature up close. This includes outdoor classrooms (as pictured above), a living wall, vegetated urban edges, a pollinator garden and a water story that showcases aquatic life and follows an ephemeral stream. The Nature Gardens are now home to over 400 new plants — 70% of them native to the area — which provide habitat for insects, birds and mammals and serve as a research extension for the Museum.

BENEFITS PER ACRE

*For the one **Museum** opportunity identified we may expect the following benefits per acre*

WATER

0.5 acres
New or Enhanced Permeable Paving

2,800 gallons
Additional Stormwater Capture from planting

AIR

8 trees

15.3 tons
Carbon Sequestration from Planting and Trees

0.3 tons
Additional Carbon Avoided

10.2 pounds
Additional Pollutant Removal

HABITAT

0.3 acres
New/Enhanced Ecological Habitat

0.2 acres
New / Enhanced Tree Canopy

COMMUNITY

0.2 acres
New / Enhanced Open Space

0.1 miles
Community Connections

HOUSING

HOUSING DESCRIPTION

This project element refers to areas that could become potential sites for housing development. By locating housing near the tributaries, residents will enjoy easy access and a connection to the water. Additionally, housing developments can contribute to environmental goals of the Plan. A further analysis of Housing Opportunities can be found in Chapter F.

HOUSING GOALS

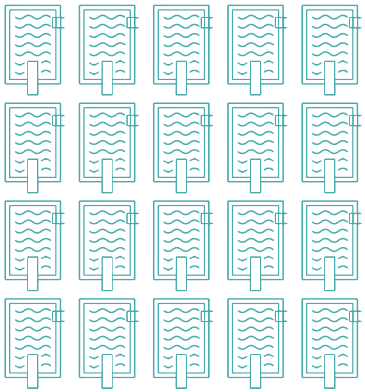
- Integrate sustainable and resilient designs which conserve energy, protect water systems, and clean the air
- Provide meaningful open spaces for residents and/or the public to recreate and connect with nature
- Locate residents within walking distance to the Upper LA River and Tributaries to provide easy access

PROJECT ELEMENT BENEFITS

There were **131 acres** *that were identified as opportunities to develop Multi-Benefit Housing concepts. Analyzing and measuring these project elements through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.*

WATER

66 acres *of new or enhanced permeable cover that will help capture* 41 acre-feet *of stormwater*



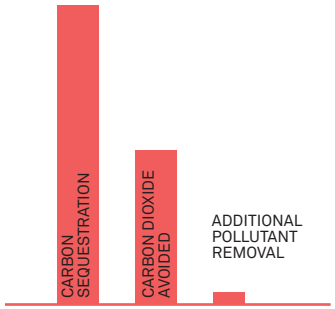
WATER BENEFITS

20

Olympic-sized swimming pools of Stormwater Captured each year

AIR

1,313 trees *that sequester carbon, and remove pollutants from the air*



AIR POLLUTION BENEFITS

1,340 tons
Additional Carbon Sequestration

34 tons
Additional Carbon Dioxide Avoided

0.6 tons
Additional Pollutant Removal

HABITAT

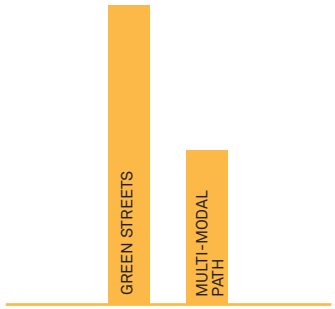
The design includes 13 acres *of new and enhanced ecological habitat and* 14 acres *of additional tree canopy*

ECOLOGICAL BENEFITS

5%
of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

13 acres *of new and enhanced open space and* 20 miles *of new or enhanced multi-modal paths*

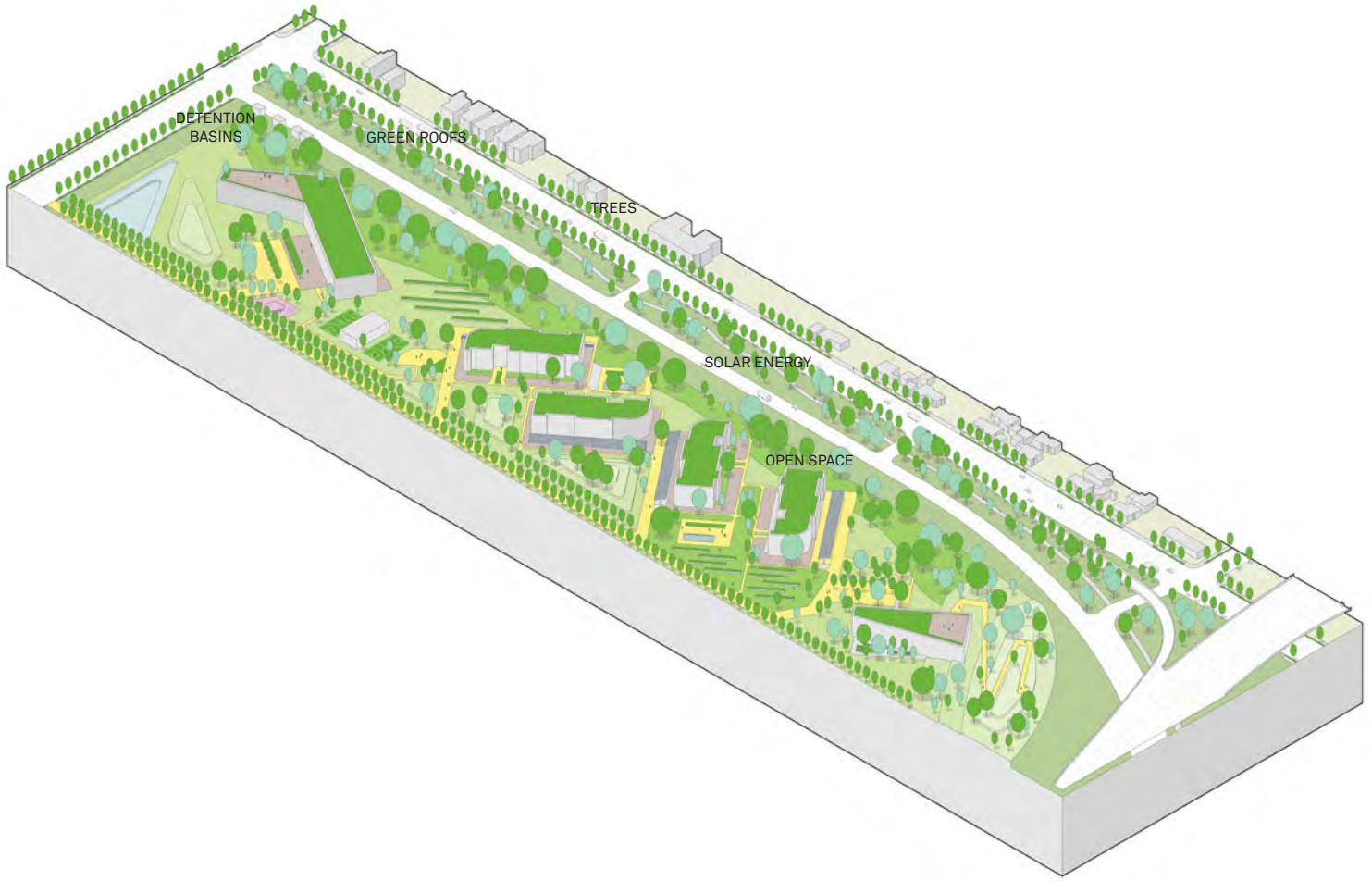


COMMUNITY BENEFITS

13 miles
Green Streets

7 miles
Multi-modal paths

HOUSING



Housing Typical Design. Housing Developments can utilize green roofs, solar panels, permeable surfaces, trees, open space, energy efficient utilities, and other green infrastructure to realize the ULART Plan goals while providing much needing living spaces for the County's already underhoused population.

BENEFITS PER ACRE

*For each of the 131 acres of **Housing** opportunities identified we may expect the following benefits per acre*

WATER

0.5 acres
New or Enhanced Permeable Paving

3,500 gallons
Additional Stormwater Capture from planting

AIR

10 trees

10.2 tons
Carbon Sequestration from Planting and Trees

0.3 tons
Additional Carbon Avoided

8.8 pounds
Additional Pollutant Removal

HABITAT

0.1 acres
New/Enhanced Ecological Habitat

0.11 acres
New / Enhanced Tree Canopy

COMMUNITY

0.1 acres
New / Enhanced Open Space

0.2 miles
Community Connections

STORMWATER BASIN

STORMWATER BASIN DESCRIPTION

This project element refers to areas in or near the channel that could be used specifically for infiltrating water into the ground or removing contaminants and debris. In addition to spreading grounds and debris basins, there is an opportunity to daylight storm drains from the existing pipeline and divert the water onto vacant land.

These stormwater basins could be planted with native vegetation that is able to withstand periods of high water and dry weather. The planting strategy should be appropriate for the goals, respond to local conditions and promote natural ecologies.

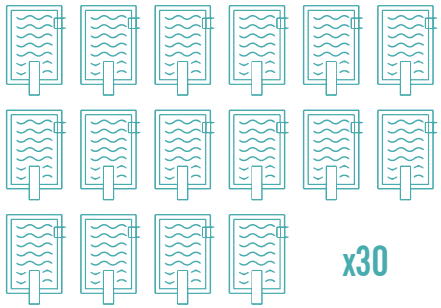
The basin would enable infiltration, removal of particulate pollutants through sedimentation, and some disinfection through sunlight In addition, there is opportunity to create berms and paths that allow the public to visually connect with the waterways and demonstration projects. Interpretive signage and art installations that serve as wildlife habitat can also be incorporated.

PROJECT ELEMENT BENEFITS

There were **1,185 acres** *that were identified as opportunities to develop multi-benefit Stormwater Basins. Analyzing these project elements through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.*

WATER

830 acres *of new or enhanced permeable cover that will help capture* 821 acre-feet *of stormwater*



WATER BENEFITS

410
Olympic-sized swimming pools of Stormwater Captured each year

AIR

29,653 trees *that sequester carbon, and remove pollutants from the air*

AIR POLLUTION BENEFITS

32,871 tons
Additional Carbon Sequestration

771 tons
Additional Carbon Dioxide Avoided

13 tons
Additional Pollutant Removal

HABITAT

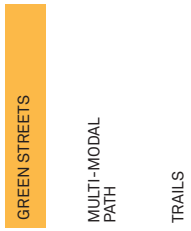
The design includes 593 acres *of new and enhanced ecological habitat and* 340 acres *of additional tree canopy*

ECOLOGICAL BENEFITS

240%
Larger than the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

296 acres *of new and enhanced open space and* 119 miles *of new or enhanced multi-modal paths*



COMMUNITY BENEFITS

52 miles
Green Streets

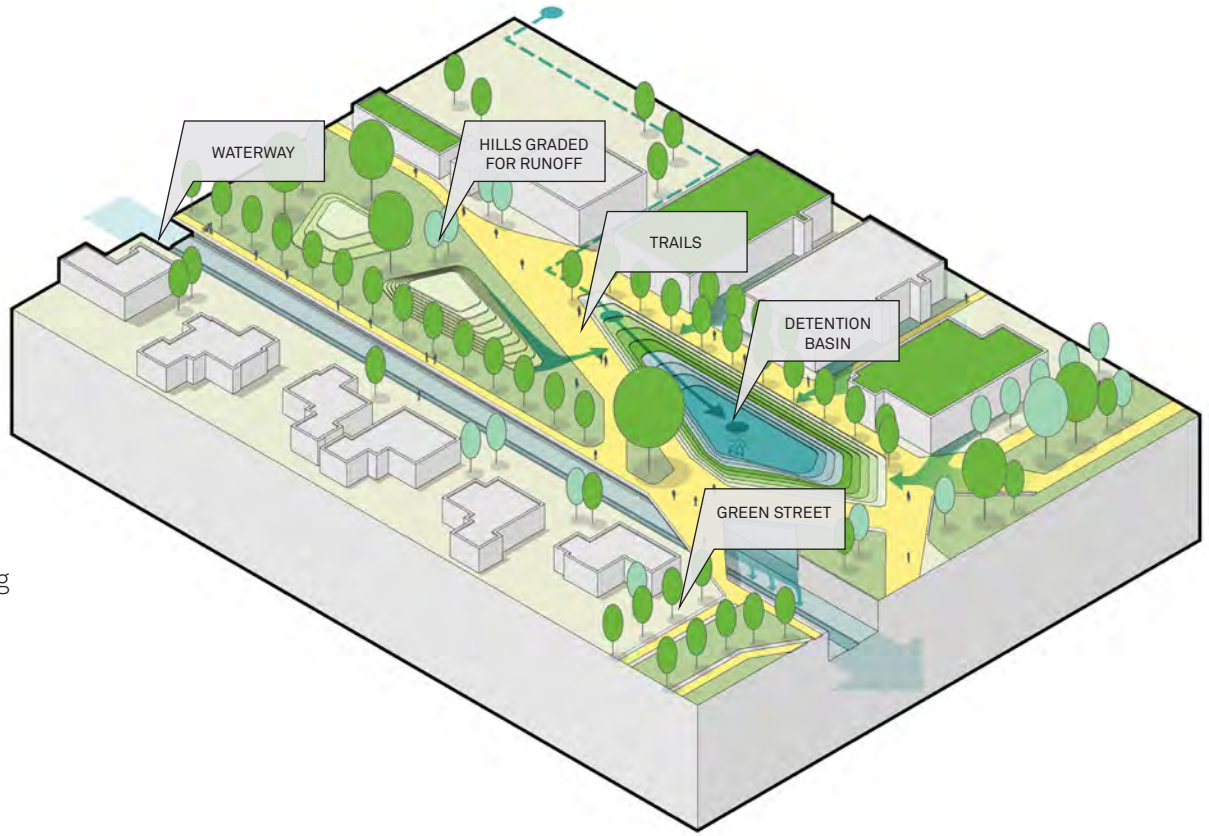
40 miles
Multi-modal paths

33 miles
Trails

STORMWATER BASINS

STORMWATER BASIN GOALS

- Slow water velocity to reduce downstream erosion
- Reduce polluted runoff though removal of particulate pollutants, sedimentation and some disinfection through sunlight
- Raise awareness and engage community residents with the waterways
- Improve habitat through storing and transforming nutrients



Stormwater Basin and Habitat Enhancement Project Typical Design. This design element allows stormwater runoff to flow more slowly in the surface drainage course, and hence gain additional detention time that facilitates sedimentation of particulate pollutants contained in the stormwater runoff and enables some disinfection through exposure to sunlight.

Adjacent areas can be gently graded to allow for additional stormwater management on site. Planting with native, climate-appropriate plant species that can withstand seasonal changes in water will create a larger area of stormwater management and provide ecological enhancement that better supports beneficial plant and wildlife species.

BENEFITS PER ACRE

*For each of the 1,185 acres of **Stormwater Basin** opportunities identified we may expect the following benefits per acre*

WATER

0.7 acres
New or Enhanced Permeable Paving

8,755 gallons
Additional Stormwater Capture from planting

74,946 gallons
Additional Stormwater Capture from infiltration

AIR

25 trees

27.7 tons
Carbon Sequestration from Planting and Trees

0.7 tons
Additional Carbon Avoided

21.9 pounds
Additional Pollutant Removal

HABITAT

0.5 acres
New/Enhanced Ecological Habitat

0. acres
New / Enhanced Tree Canopy

COMMUNITY

0.3 acres
New / Enhanced Open Space

0.1 miles
Community Connections

IN-CHANNEL IMPROVEMENTS

Channelizing streams unavoidably impacts water flow by altering runoff patterns, changing water availability to downstream reaches, eliminating habitats, and reducing the community's access to the waterways.

There are three scenarios for in-channel improvements that could improve water quality, ecological processes, aesthetics, and access. People generally do not have the chance to enter channels except in instances where access is specifically granted for recreation such as kayaking.

- **STREAM NATURALIZATION** de-armouring and naturalizing the waterways could provide enhanced avian and aquatic habitat and community access. Modifications would include bioengineering for bank stabilization and slope retention with gabion basketry.
- **LOW FLOW MODIFICATIONS** would rework the channel bed and banks, and add features such as flow deflectors and pools/riffles, to provide increased flow complexity and habitat heterogeneity
- **NON-STRUCTURAL CHANNEL MODIFICATIONS** are improvements such as murals on the channel wall and in-channel bike paths that don't require rebuilding efforts

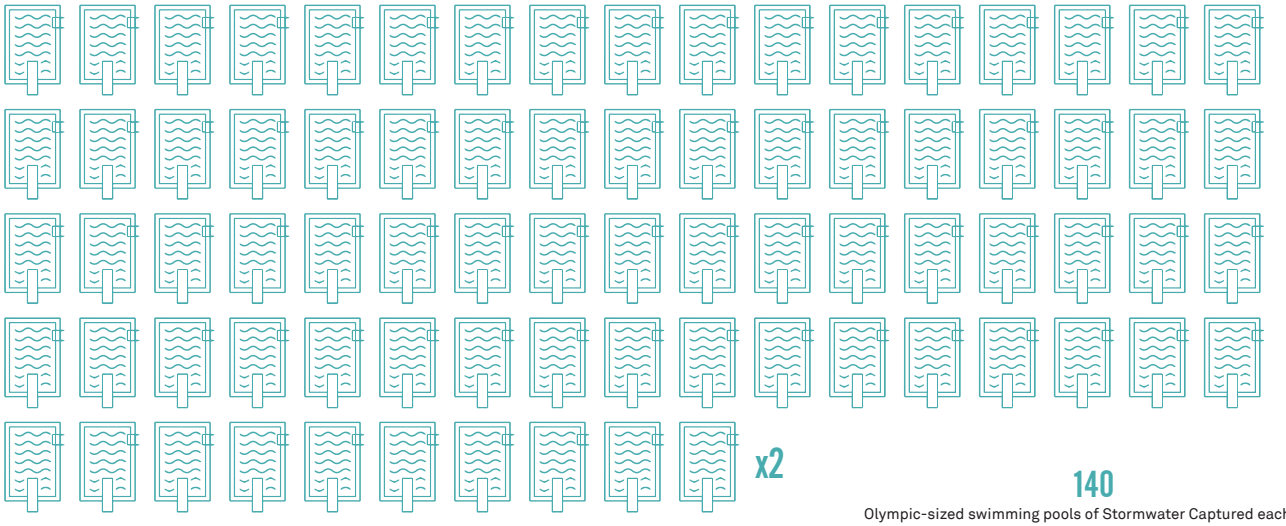
IN-CHANNEL IMPROVEMENT GOALS

- Slow water flow to decrease downstream flooding potential
- Create opportunities for riparian habitat through the storage and transformation of nutrients
- Provide visual and physical access to the waterways
- Establish the identity of the waterways as living, green infrastructure
- Enrich the experience of the ecological and cultural experience of the tributaries

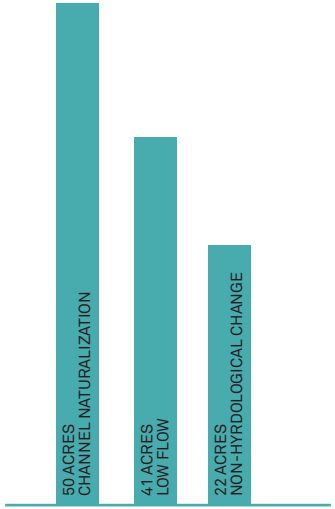
PROJECT ELEMENT BENEFITS

There were **113 acres** *that were identified as opportunities to create in-channel improvements. Analyzing and measuring these project elements through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology*

45 acres *of new or enhanced permeable cover that will help capture* **280 acre-feet** *of stormwater*



140
Olympic-sized swimming pools of Stormwater Captured each year



113 acres
Identified for In-Channel Improvements

IN-CHANNEL IMPROVEMENTS - CHANNEL NATURALIZATION

Cherry Creek (Denver, CO). For 40 years, Cherry Creek was a single-purpose channelized flood-control infrastructure device. Starting in 1996, a urban renewal plan modified the creek and revitalized creek-front neighborhoods. This included day-lighting portion of the covered stream, removing parts of the concrete walls, and building bike trails along the creek. Naturalistic drop structures were built that provided informal pedestrian areas while simultaneously stabilizing the channel bottom.

IN-CHANNEL IMPROVEMENTS - CHANNEL NATURALIZATION

Bimini Slough Ecological Park Trash Filter and Swale (Los Angeles, CA). To irrigate this 1/4 acre park, North East Trees suggested developing a 180' bio-filtrated swale to capture and filter urban runoff from a 5.8 acre drainage area that previously flowed untreated directly into a storm drain to the Pacific Ocean. Recycled broken concrete, permeable surfaces, river rocks, boulders, and low water using indigenous plants help filter water-borne pollution and allow rain water to infiltrate into the ground.

IN-CHANNEL IMPROVEMENTS - LOW FLOW CHANNELS

Original Configuration of Caltrans Channel

Low Flow Channel Modification

Caltrans Channels (Santa Barbara, CA). To encourage steel head migration, the city of Santa Barbara modified the existing Caltans channel. The previous design prevented fish from migrating upstream — the flow was too fast and too shallow for fish to swim upstream. The modified design includes resting areas ("side pockets") at 40 foot intervals to allow fish to swim upstream during and/or following rain events.

The modifications to the channels were built in 2011-2013. Observations during rains following completion of the upper channel have shown that the modified channel is performing as designed, with flow rates and depths that are acceptable for steel-head passage.

IN-CHANNEL IMPROVEMENTS - NO-STRUCTURAL CHANGE

The Great Wall of Los Angeles (Los Angles, CA). On the wall of the Tujunga Wash Channel Wall, Judith Baca and over 400 students and created a half-mile long pictorial representation of the history of ethnic peoples of California from prehistoric times to the 1950's.

IN-CHANNEL IMPROVEMENTS - NO-STRUCTURAL CHANGE

The Arroyo Seco In-Channel Bike Path (Pasadena, CA). A continuous path along the waterway provides grade-separated connection along the bottom of the channel. In-channel bike paths provide a lower cost alternative to bridge modifications and re-building efforts.

TRIBUTARY PROFILES

Each tributary section is intended to serve as a standalone section. In tandem with the executive summary they can be disbursed as an abridged version of the planning document for those that do not have the time to read *the Plan* in its entirety. Additional information about each of these projects and design areas is available in Volume 2, Chapter D.

Tributaries are in presented in order from west to east as follows:

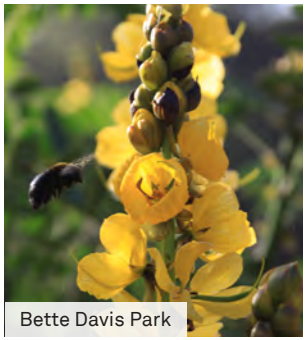
- Aliso Canyon Wash
- Pacoima Wash
- Tujunga Wash
- Burbank Western Channel
- Verdugo Wash
- Arroyo Seco

All tributaries contain the following information in this order

- Tributary overview
  - Regional Site map
  - Channel shapes
  - Character
- OA Maps for entire tributary
- Design area overview
  - All design areas
- Selected Design Areas and renderings
  - Recommended next steps

Mural Wall at Pacoima City Hall

Hansen Dam



Bette Davis Park

Arroyo Seco

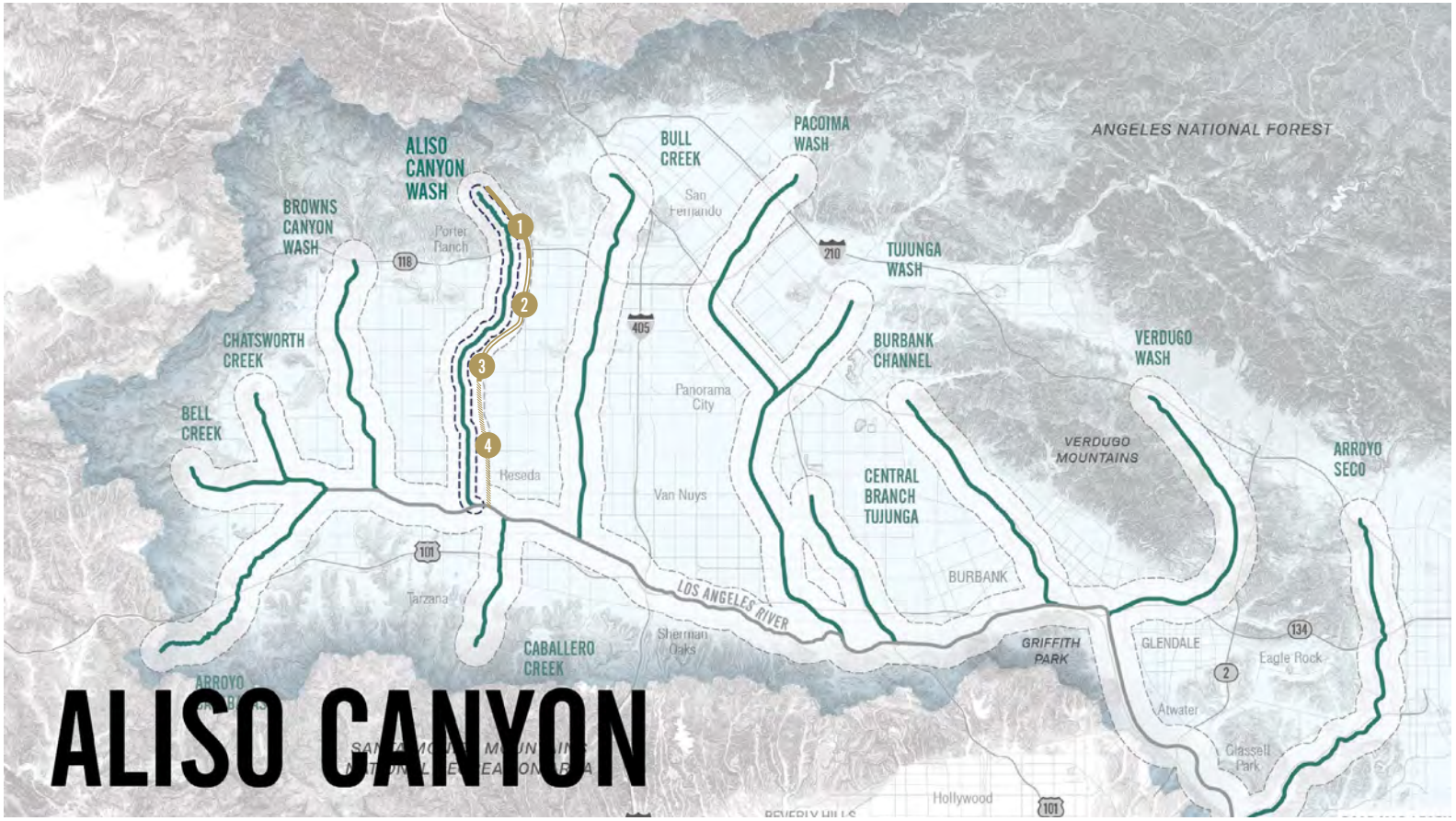
Burbank Metrolink

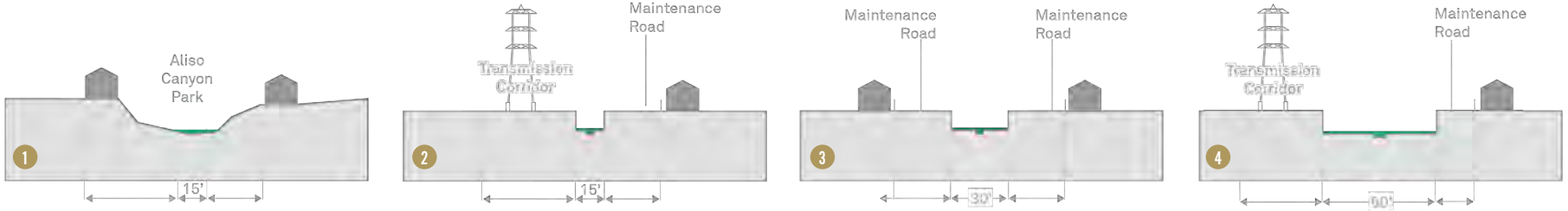
Glendale Sports Complex

Pedestrian Bridge by Mission High School

Aliso Canyon Wash

Hansen Dam



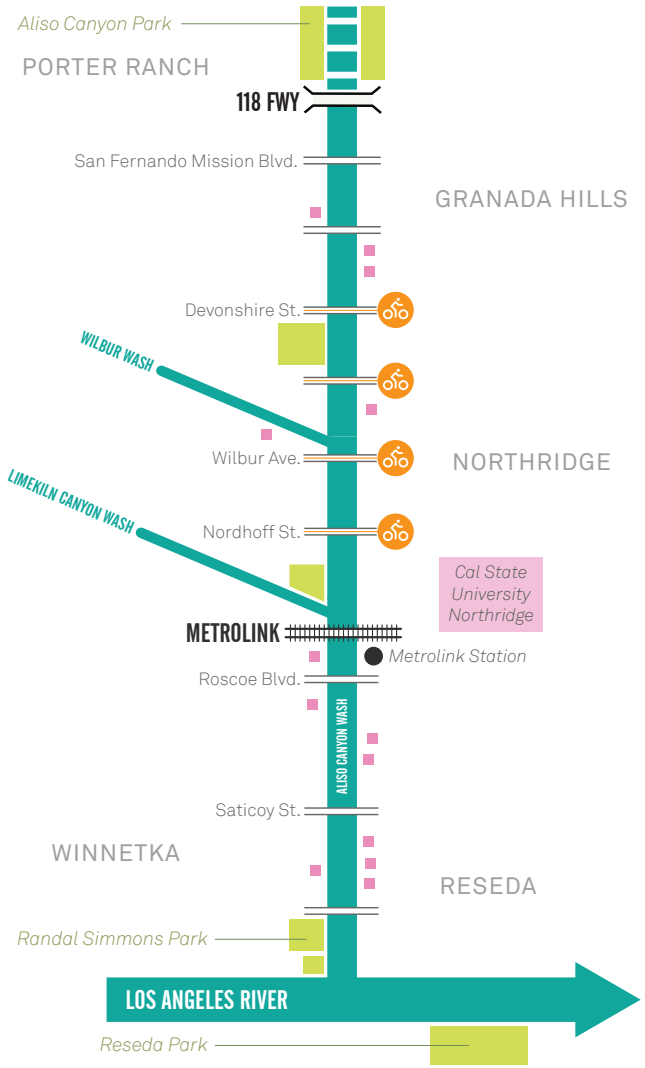


Segment 1.
This segment runs 1.5 miles from San Fernando Valley in the Granada Hills to the 118 Freeway. Here the Aliso Canyon Wash is an un-channelized natural drainage running through Aliso Canyon Park with tract home residential development to its east and west.

Segment 2.
This segment runs 2.7 miles through Northridge residential neighborhoods from the 118 past Wilbur Wash to Plummer Street. Nurseries and wide transmission corridors are typical in this segment.

Segment 3.
This segment runs 0.7 miles through Northridge residential neighborhoods from Plummer Street to the Wilbur Debris Basin.

Segment 4.
This segment runs 3 miles from the Metrolink Northridge station to the confluence of the Aliso Canyon Wash and the LA River. Nurseries and transmission corridors are typical in this section. Single-family residential is the majority of adjacent land use. Cleveland High School and the LA River and Aliso Creek Confluence Park are directly adjacent to the tributary in this segment.



ALISO CANYON

Aliso Canyon Wash begins as an engineered channel exiting the Aliso Debris Basin just south of the Ronald Regan Freeway (SR 118) in Granada Hills, and flows through Northridge to its confluence with the Los Angeles River in Reseda. **The wash is concrete-lined with vertical walls throughout its 6.4-mile length.**

Equestrian Community along portions of tributary length that use portions of the unpaved path. Power corridor along sections. **Phase 1 of Aliso Creek Confluence Park opened in 2016.**

POPULATION WITHIN 0.5 MILES

- Density[2]: 19 people/acre (LA County Avg: 13)
- Household Income[2]: $58K (LA County Avg: $54K)
- Community Burden[3]: Top 40% of State

KEY ADJACENCIES INCLUDE

- Porter Ranch
- Cal State Northridge
- Northridge Recreation Center
- Northridge MetroLink Station
- Cleveland High School
- Blythe Street Elementary
- Randal D. Simmons Park
- Commercial zones on Zelah Ave and Nordhoff Way, Sherman Way

18 SCHOOLS WITHIN 0.5 MILES

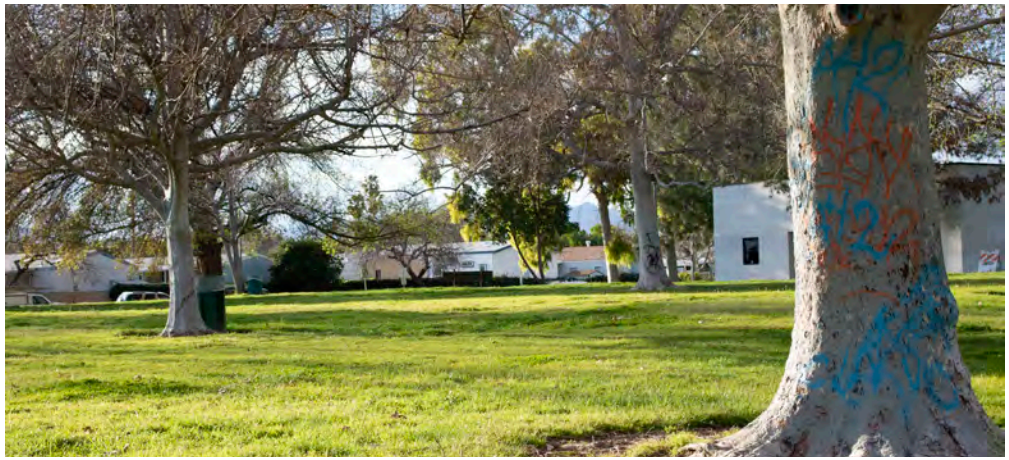
PARK SPACE

- Park Provision[5]:1.91 acres per 1,000 people (LA County Avg: 3.3 acres per 1,000 people)
- Mixture of local parks, and regional open spaces

SOME PREVIOUS PLANNING EFFORTS

- The Los Angeles River Revitalization Master Plan (City of LA) will include the development of the confluence of Aliso Canyon Creek and the Los Angeles River (Aliso Creek Confluence Park) as a proposed project.
- This area will provide opportunities for habitat restoration, greenways and bike trails as well as water quality treatment via restored wetlands.

[2] 2010 Census
[3] State of California, CES 3.0
[5] 2010 Census/LA County Park Assessment

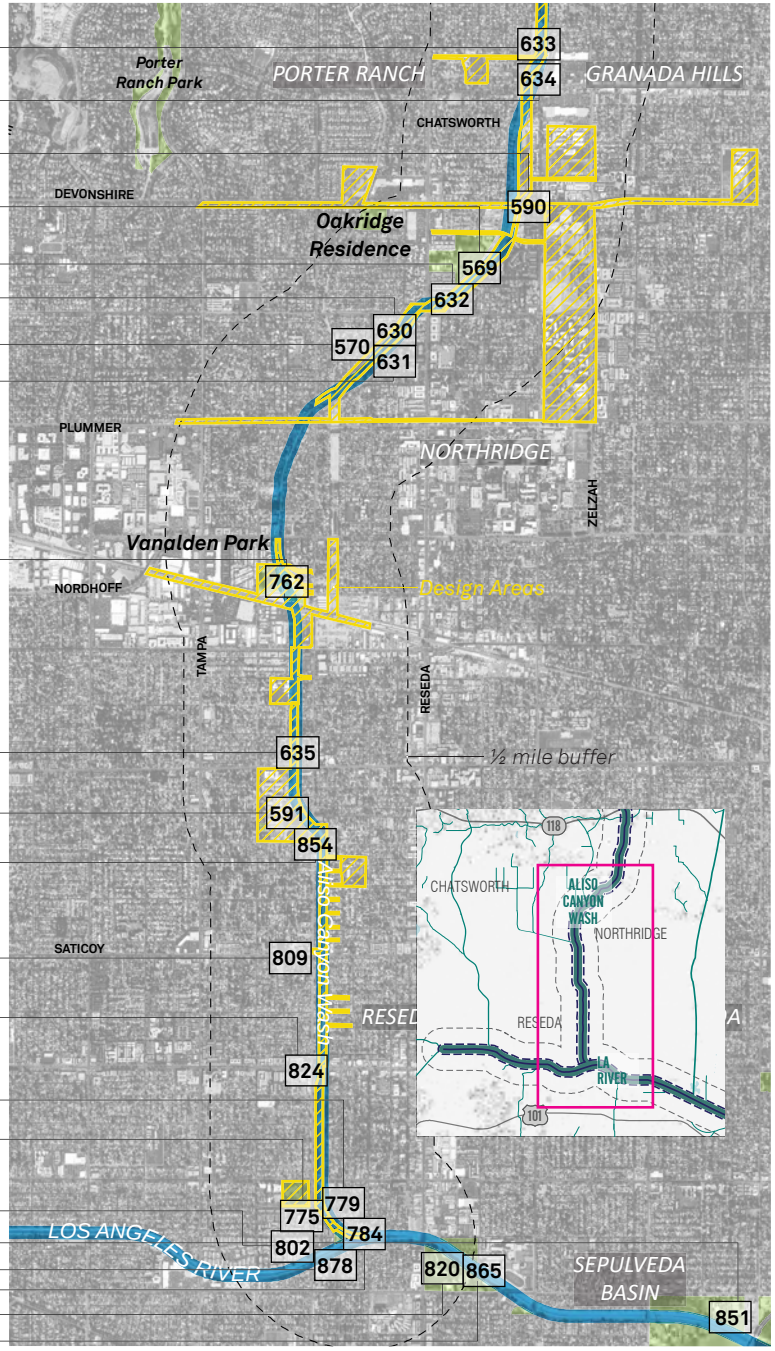


Vanalden Park along Aliso Canyon Wash

Aliso Canyon Wash

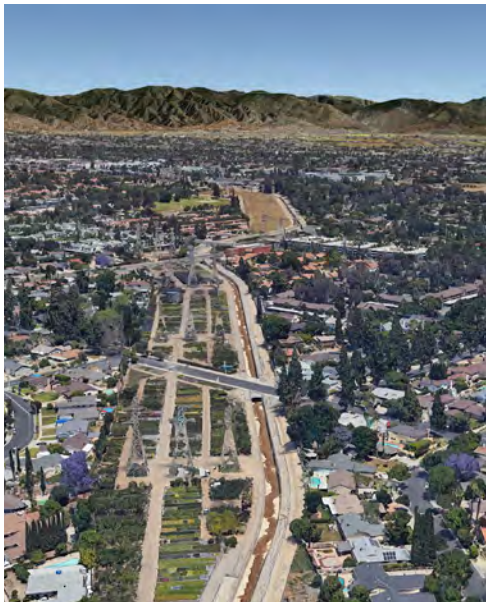
OPPORTUNITY AREAS ON ALISO CANYON WASH - CHATSWORTH ST TO LA RIVER

- OA 633 Aliso Canyon Enhanced Community Connectivity-4
- OA 634 Aliso Canyon Enhanced Community Connectivity-5
- OA 590 Aliso Canyon Community and Education Facility
- OA 569 Aliso Canyon Community Connectivity and Expanded Stormwater Capture Project- 1
- OA 632 Aliso Canyon Expanded Community Connectivity-3
- OA 630 Aliso Canyon Enhanced Community Connectivity-1
- OA 570 Aliso Canyon Community Connectivity and Expanded Stormwater Capture Project- 2
- OA 631 Aliso Canyon Enhanced Community Connectivity-2
- OA 762 Aliso Canyon Expanded Stormwater Capture
- OA 635 Aliso Canyon Enhanced Community Connectivity-6
- OA 591 Aliso Canyon Open Space, Education, and Nature Based Infiltration Park
- OA 854 Aliso Canyon Creek
- OA 809 Aliso Creek Mult-Use Path and Park Connector between Saticoy and Sherman
- OA 824 Sherman Way Mutli Use Path
- OA 779 Aliso Creek North Bank Bikeway and Street End Stormwater Treatment
- OA 775 Reseda River Loop Greenway Project
- OA 802 LAR and Aliso Creek Confluence Park Extension
- OA 851 LA River Valley Bikeways and Greenway
- OA 878 Aliso Creek Confluence Park / Reseda River Loop
- OA 784 Aliso Confluence Park Bikeway
- OA 820 Reseda Park and Rec Center Green Belt
- OA 865 Reseda Expansion



COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team



Northern Aliso Canyon Typical Condition

CalState Northridge

Aliso Canyon Wash (View from Yolanda Ave)

NORTHERN ALISO GREEN NETWORK

A Community and Ecological Connector

This community and ecological connector could include:

- **Tree allees and green streets** to improve connectivity, improve air quality, and capture stormwater
- **Shaded multi-use paths** to make it easier and safer for people to get outside and stay active
- **New passive recreation opportunities and urban ecological habitat** carved out in vacant lots and moments along the wash and nursery easement
- **Improvements at existing schools** to capture stormwater, reduce flood risk, and provide active recreation opportunities.

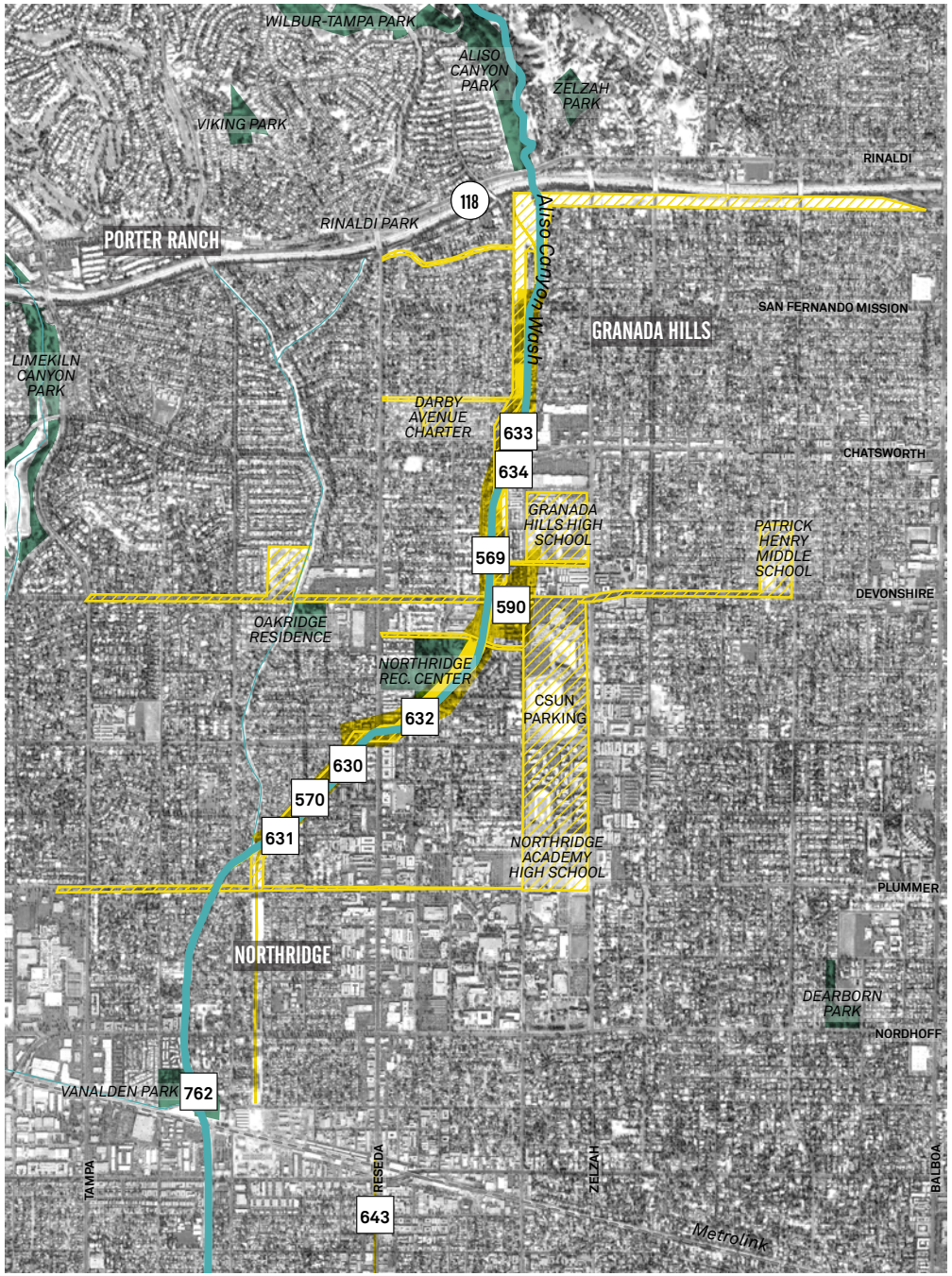
LAND OPPORTUNITIES

- Right-of-way along the wash
- Existing utility lines

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Reduces pollution impact
- Increased open space
- Reduced local flooding
- Create safe connections

Aliso Design Areas// Northern Aliso Green Network



NORTHERN ALISO GREEN NETWORK DESIGN AREA

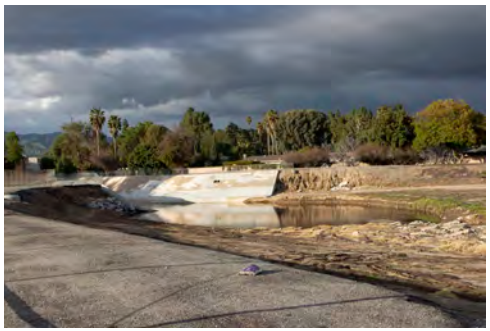
OPPORTUNITY AREAS IN THIS DESIGN AREA

- **569** Aliso Canyon Community Connectivity & Expanded Stormwater Capture Project-1
- **570** Aliso Canyon Community Connectivity & Expanded Stormwater Capture Project-2
- **590** Aliso Canyon Community and Education Facility
- **630** Aliso Canyon Enhanced Community Connectivity-1
- **631** Aliso Canyon Enhanced Community Connectivity-2
- **632** Aliso Canyon Enhanced Community Connectivity-3
- **633** Aliso Canyon Enhanced Community Connectivity-4
- **634** Aliso Canyon Enhanced Community Connectivity-5

4 mi 8 mi


Aliso Canyon South of Wilbur Debris Basin


Vanalden Park


Wilbur Debris Basin

WILBUR DEBRIS BASIN

Central Pivot Point of the Aliso Canyon Network

This community and ecological connector could include:

- **Habitat and ecological enhancement** at Vanalden Park
- **Potential trails and multi-use paths** along Aliso Canyon Wash and the utility easement corridor will connect the community to public transit and other community institutions
- **Improvements at existing schools** to capture stormwater, reduce flood risk, and provide active recreation opportunities.
- **Compatible with existing plans** for the Aliso Creek – Limekiln Creek Restoration Project which involves the excavation for and construction of several storm water structures and devices to treat on-site and off-site runoff

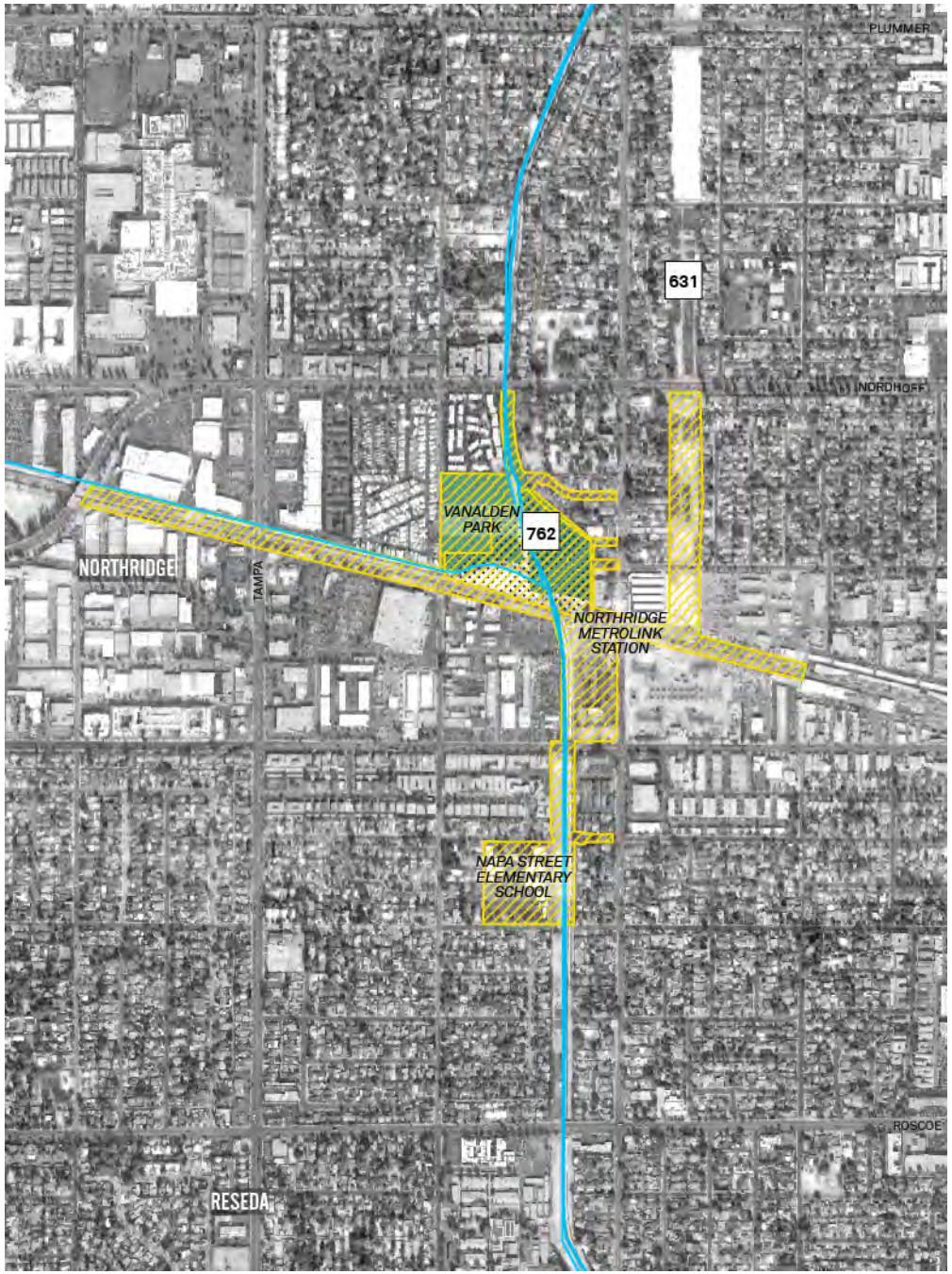
LAND OPPORTUNITIES

- Right-of-way along the wash
- Existing utility lines
- Vanalden Park
- Public Transit Stop

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- First-mile, last-mile connection to public transit
- Meets existing need for reduced air pollution and more park area
- Numerous requests have been made to replace and upgrade Vanalden Park

Aliso Design Areas// Wilbur Debris Basin



WILBUR DEBRIS BASIN DESIGN AREA

OPPORTUNITY AREAS IN THIS DESIGN AREA

631 Aliso Canyon Enhanced Community Connectivity-2

762 Aliso Canyon Expanded Stormwater Capture

City of Los Angeles Lime Creek Restoration Project

1.5 mi 3 mi

Aliso Design Areas WILBUR DEBRIS BASIN (69 ACRES)

IMAGINE!

Wednesday, 3pm. Along the Aliso Canyon Wash, a group of bicyclists with mounted child carriers are on their way to pick up their elementary-school aged children. A local Northridge resident is bringing some pickled radishes that she grew in the Aliso Community Gardens to the local farmers market. Soon the elementary schools will let out and the area will be filled with children digging holes; catching frogs and exploring the waterways and infiltration basins.

CONTEXT

The 69-acre Wilbur Debris Basin design area is at an important intersection of water, transportation, utility, commercial, and parks infrastructure. At the center of the design area is the Northridge Metrolink Station which abuts the "RS-J" power station facility to the east. To the north is the debris basin as well as Vanalden Park. Wilbur Debris Basin design area concept imagines a community connector that runs south from Plummer to Chase Street. It's a shady place to stroll that connects and houses a variety of quality spaces: the parks, outdoor classrooms, play areas, coffee shops, public transit stations, and infiltration basins. It's a space where ecology and community mix. A place where you might spot a pelican on your walk.

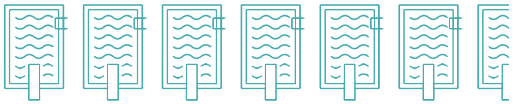
About 16,440 people live within ½ mile of Aliso Canyon Wash in this area. The average CalEnviroScreen score for census tracts in this area is in the 70th percentile for the state.

RESILIENCY BENEFITS

Analyzing the Wilbur Debris Basin design area concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **50.5 acres** *of new or enhanced permeable cover*



STORMWATER CAPTURE

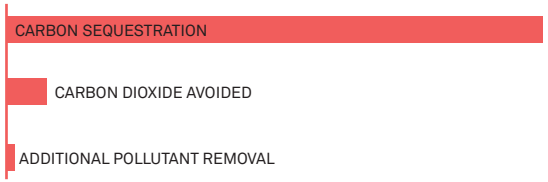
13.2 acre-feet

or **6.5**

Olympic-sized swimming pools

AIR

The design includes **870 trees** *that sequester carbon, and remove pollutants from the air*



921 tons
Additional Carbon Sequestration

27 tons
Additional Carbon Dioxide Avoided

0.76 tons
Additional Pollutant Removal

HABITAT

The design includes **49 acres** *of new and enhanced ecological habitat and* **10 acres** *of additional tree canopy*

20%
the size of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

The design includes **42 acres** *of new and enhanced open space and* **4 miles** *of new or enhanced community connections*

2.4 miles
Green Streets

1.2 miles
Multi-modal paths

0.4 miles
Trails

Aliso Design Areas// Wilbur Debris Basin

Existing Conditions looking North along Aliso Canyon Wash just south of Napa Street

Aliso Design Areas// Wilbur Debris Basin

Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details, are not part of this plan

View looking North along Aliso Canyon Wash just south of Napa Street

WILBUR DEBRIS BASIN DESIGN AREA CONCEPT

URBAN NURSERY

ENHANCEMENTS TO VANALDEN PARK

ENHANCEMENTS TO LIMEKILN RESTORATION PROJECT

ENHANCEMENTS TO METROLINK STATION

ALISO PATH

ENHANCEMENTS TO PALS YOUTH CENTER

GREEN STREET

ENHANCEMENTS TO EXISTING ELEMENTARY SCHOOL

250' 500'

Aliso Design Areas// Wilbur Debris Basin

THE URBAN GARDEN HUB re-imagines the existing nurseries in the Wilbur Debris Basin design concept as a community space where people can explore sustainable ways to grow native plants, fruits, and vegetables. Test plots allow urban farmers to test gardening techniques, responsible water use, and ecosystem layering. The urban garden hub also includes spaces for children to play throughout a landscape of small hills, climbing surfaces, natural textures, and native plants.

Aliso Design Areas// Wilbur Debris Basin

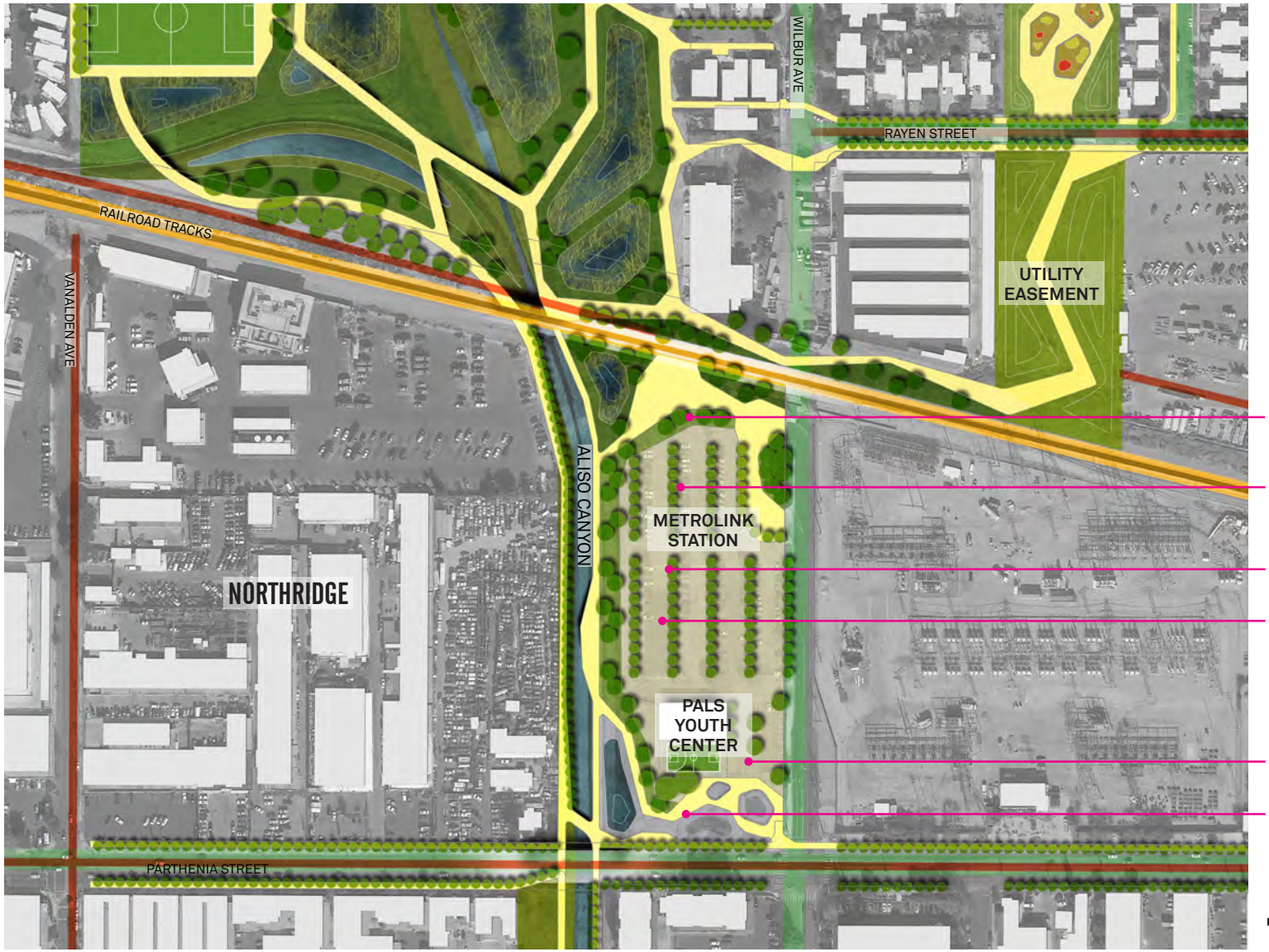
THE LIMEKILN CREEK HUB. (ENLARGEMENT)

The City of Los Angeles is currently enhancing the Aliso and Limekiln Creek flood control channels with water quality improvements. This includes the diversion and treatment of all dry weather and a portion of wet weather flows; construction of bio-filtration basins; vegetation restoration, and subsurface irrigation. This design concept proposes creating trails, gathering spaces, and interpretive signage that will help the community to enjoy and learn from these improvements.

Aliso Design Areas// Wilbur Debris Basin

THE TRANSIT HUB. (ENLARGEMENT)

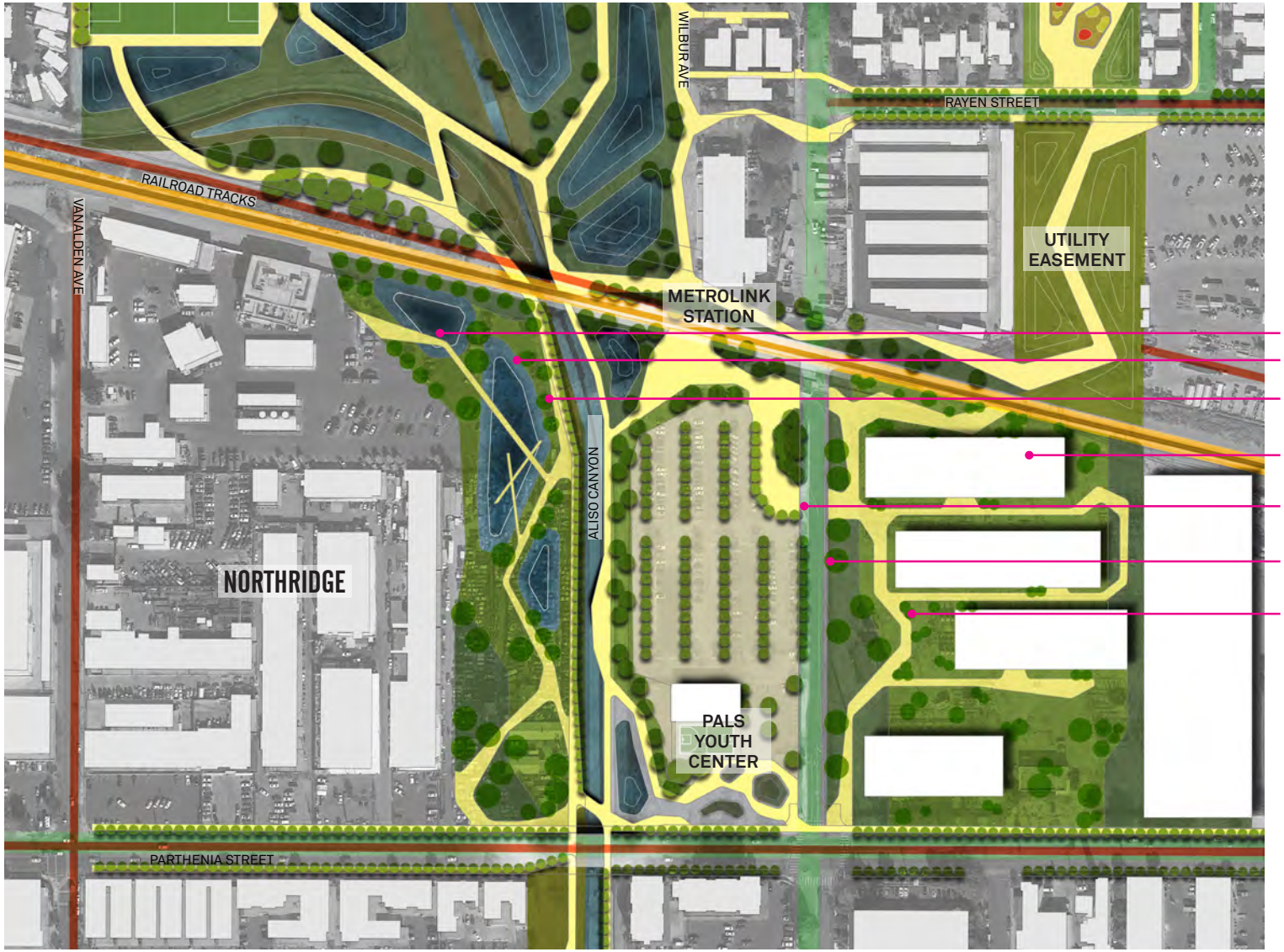
Plans are in the works to add a new track across the northwest San Fernando Valley rail corridor. There is an opportunity to mitigate the impact of these changes to the neighborhood and demonstrate the community's commitment to sustainable and ecological nature-based solutions. The concept includes a vegetative buffer around the tracks, a demonstration garden with a bioretention pond outside the Metrolink station and the addition of trees and permeable paving at the existing parking lot. At the Pal Youth Center, an immersive natural play area for imaginative play could be added to the existing sports fields.



Aliso Design Areas// Wilbur Debris Basin

THE TRANSIT HUB. (BLUE SKY ALTERNATIVE ENLARGEMENT)

Recent technological advancements can reduce the size required for substations. Given its discrete size and location next to a public transit stop, the existing electrical substation along Parthenia Street could be reduced and provides space for a mix of residential, habitat, and stormwater land use. The design below calls for a combination of housing, flexible open space, and trails leading to the adjacent Wilbur Debris Basin design area concept.



NEXT STEPS

Additional required analyses and next steps for the Wilbur Debris Basin design area include:

- A preliminary engineering report that including feasibility-level analyses, cost estimates, and coordination
- Analysis of collection capacity and storage for stormwater capture
- Analysis of expected flows during wet and dry weather
- Geotechnical evaluation for potential placement of passive recreation, outdoor classrooms, and sustainable parking lots should be conducted
- Soil remediation analyses should be performed to determine extent of possible existing contamination
- Assessment if substation footprint can be reduced to allow alternate land uses
- Housing suitability analysis
- Structural analysis of proposed bridge crossings, green infrastructure, and access points should be conducted for final design
- Identification and procurement of the appropriate water rights for water diversions should be researched
- Assessment of the effects of increased water demand from vegetation and wildlife
- Studies to determine the priority species (plant and wildlife)
- Access requirement determination and coordination with utility owners for transmission tower and utility easement use requirements
- An Environmental Impact Report/ Statement (EIR/EIS) may need to be completed to assess any potential environmental impacts
- Investigation of land records identifying property ownership, including possible acquisition options
- Water quality analysis—including pollutant settling and oxygen demand requirements
- Air quality assessment should be performed, and
- Study to assess the potential for planting native vegetation to restore historical habitat wherever possible
- Coordination with current landowners and ongoing projects on site
- Perform a housing sustainability assessment to asses potential impacts of future proposed project

Aliso Canyon Wash near Cleveland HS

Cleveland High School Sports Fields

LA River + Aliso Creek Confluence Park

SOUTHERN ALISO GREEN NETWORK

A Community and Ecological Connector

This community and ecological connector could include

- **Shaded multi-use paths** will connect the Northridge Metrolink Station to the confluence with the Los Angeles River
- **Tree allee and green streets** to improve connectivity, improve air quality, and capture stormwater
- **New passive recreation opportunities and urban ecological habitat** could be carved out in vacant lots and moments along the wash and nursery easement

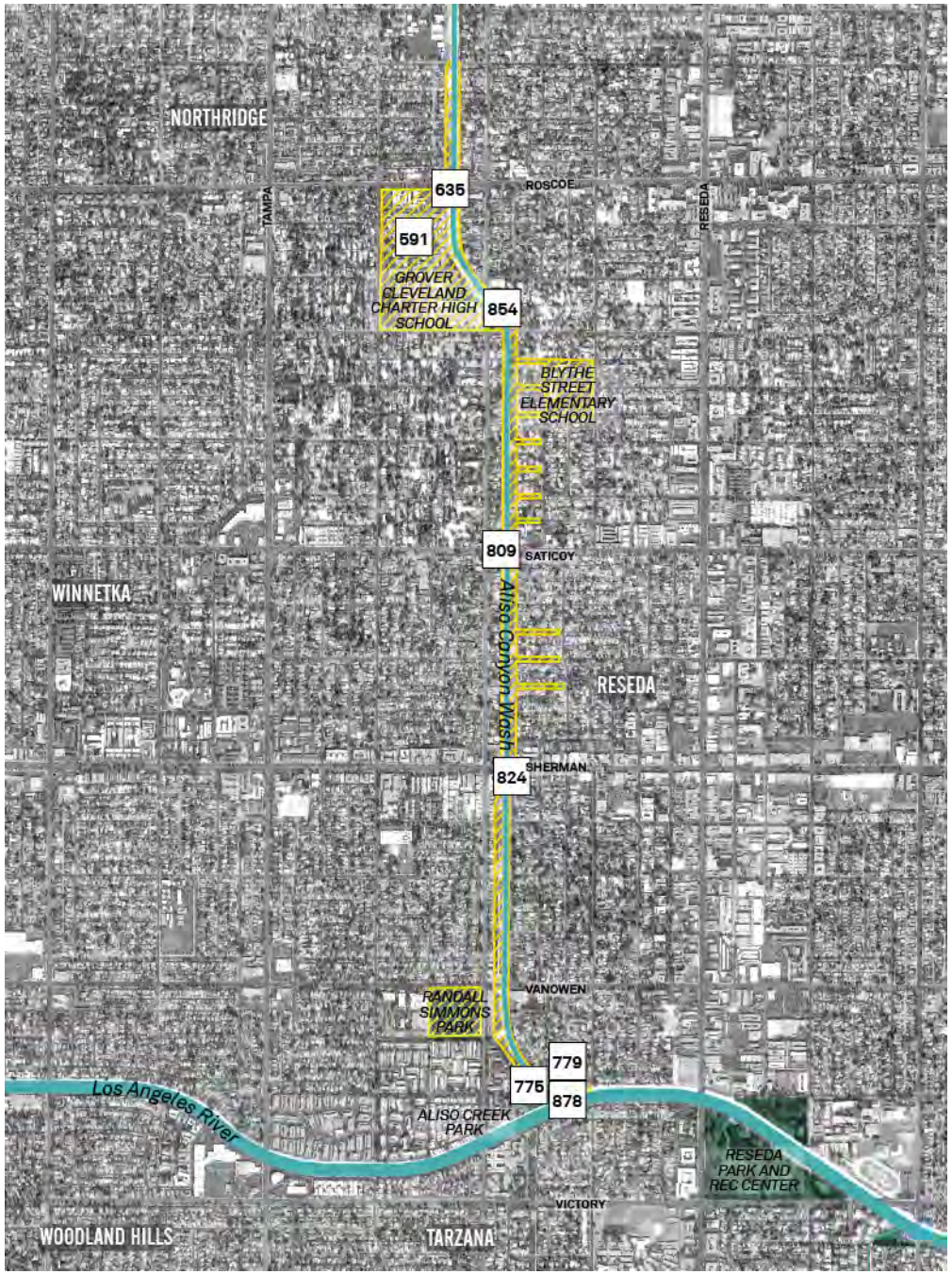
LAND OPPORTUNITIES

- Right-of-way along the wash
- Existing utility lines

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Reduces pollution impact
- Increased open space
- Reduced local flooding
- Create safe connections

Aliso Design Areas// Southern Aliso Green Network



SOUTHERN ALISO GREEN NETWORK DESIGN AREA

OPPORTUNITY AREAS IN THIS DESIGN AREA

- **591** Aliso Canyon Open Space, Education, and Nature Based Infiltration Park
- **635** Aliso Canyon Enhanced Community Connectivity-6
- **775** Reseda River Loop Greenway Project
- **779** Aliso Creek North Bank Bikeway and Street End Stormwater Treatment
- **784** Aliso Confluence Park Bikeway
- **802** LAR and Aliso Creek Confluence Park Extension
- **809** Aliso Creek Multi-Use Path and Park Connector between Saticoy and Sherman
- **824** Sherman Way Multi-Use Path
- **854** Aliso Canyon Creek
- **878** Aliso Creek Confluence Park/Reseda River Loop

2.5 mi 5 mi

Aliso Design Areas SOUTHERN ALISO GREEN NETWORK (113 ACRES)

IMAGINE!

Monday at 12pm. In a city known for crazy traffic, the tree-lined Aliso green network world apart. Birds overhead fly between the Los Padres National Forest and the Sepulveda Basin. The connector path is filled with vegetation that provides habitat for wildlife and forms a verdant buffer between adjacent residential neighborhoods. It has become a park where commuters walk and ride their bicycles from CalState Northridge down to the LA river; where children squeal as they run and climb and swing in playgrounds; where people sit under beautiful old trees and watch the river wander by.

CONTEXT

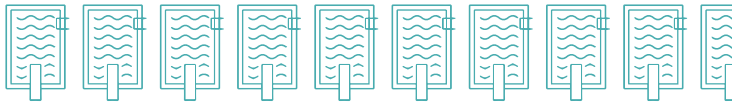
The 113-acre Southern Aliso Green Network design area is comprised of the Wash and the adjacent utility easement stretching from Parthenia Street in Northridge to the Los Angeles River confluence in Reseda—about 2.75 miles south. The design area includes many schools along the corridor including Napa Street Elementary School, Cleveland High School, Joaquin Miller High School, Blythe Street Elementary School, and John R. Wooden High School.

RESILIENCY BENEFITS

Analyzing the Southern Aliso Green Network design are concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **54 acres** *of new or enhanced permeable cover*



STORMWATER CAPTURE

19.36 acre-feet

or **9.5**

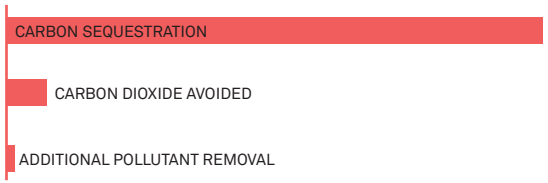
Olympic-sized swimming pools

WATER

AIR

AIR

The design includes **12,462 trees** *that sequester carbon, and remove pollutants from the air*



AIR POLLUTANT REMOVAL

13,191 tons
Additional Carbon Sequestration

405 tons
Additional Carbon Dioxide Avoided

11 tons
Additional Pollutant Removal

HABITAT

The design includes **173 acres** *of new and enhanced ecological habitat and* **143 acres** *of additional tree canopy*

HABITAT CREATION

70%
the size of the 244-acre Verdugo Mountain Open Space Preserve

HABITAT

COMMUNITY

COMMUNITY

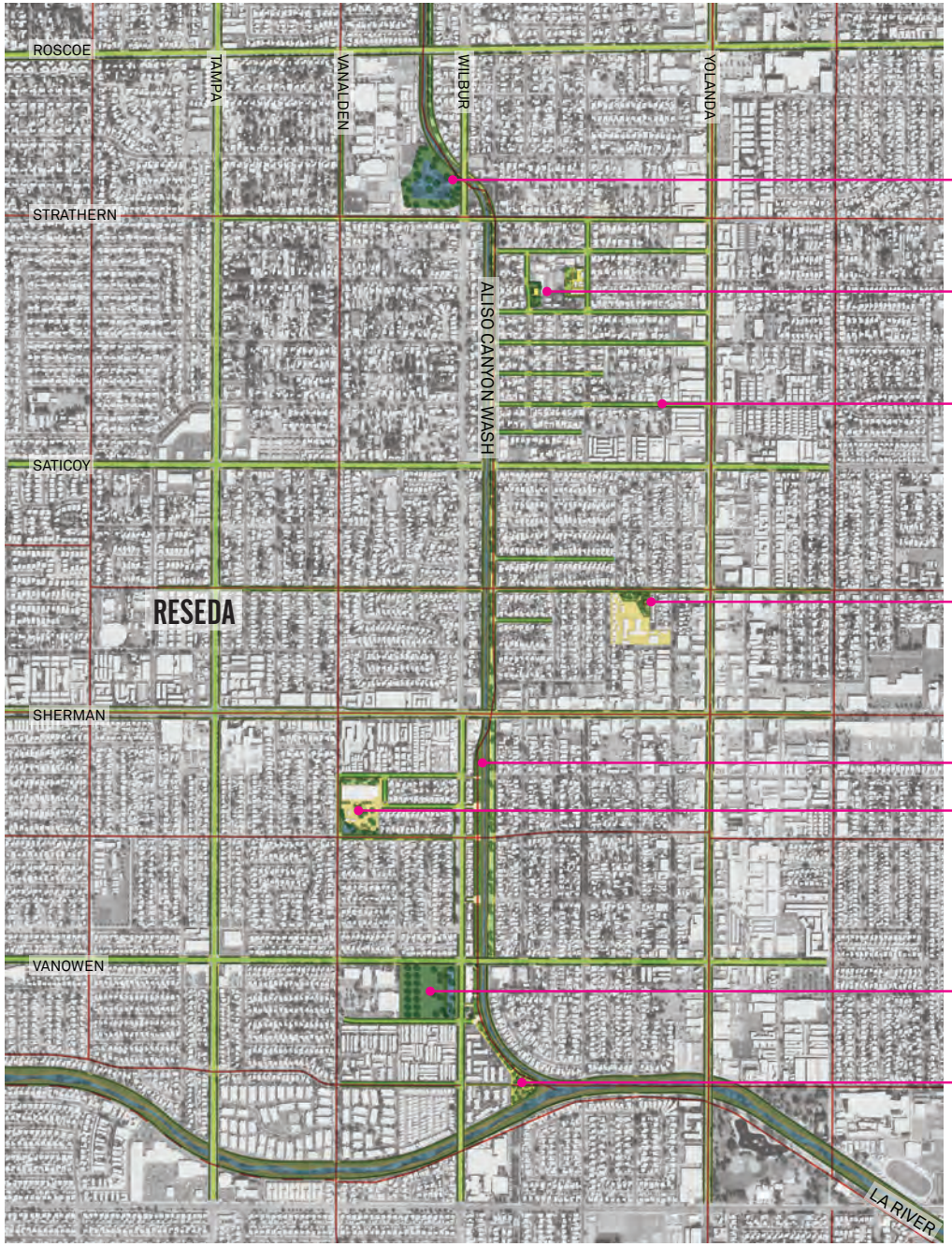
The design includes **14 acres** *of new and enhanced open space and* **26 miles** *of new or enhanced community connections*

18.4 miles
Green Streets

5.2 miles
Multi-modal paths

2.6 miles
Trails

Aliso Design Areas// Southern Aliso Green Network



CLEVELAND HIGH SCHOOL FLOODABLE FIELD JOINT USE OPPORTUNITY

BLYTHE ELEMENTARY STORMWATER BMP ENHANCEMENTS

GREEN STREET

RESEDA ELEMENTARY STORMWATER BMP ENHANCEMENTS

ALISO PATH

DIANE S. LEICHMAN CAREER PREPARATORY AND TRANSITION CENTER STORMWATER BMP ENHANCEMENTS

RANDAL D SIMMONS PARK STORMWATER BMP ENHANCEMENTS

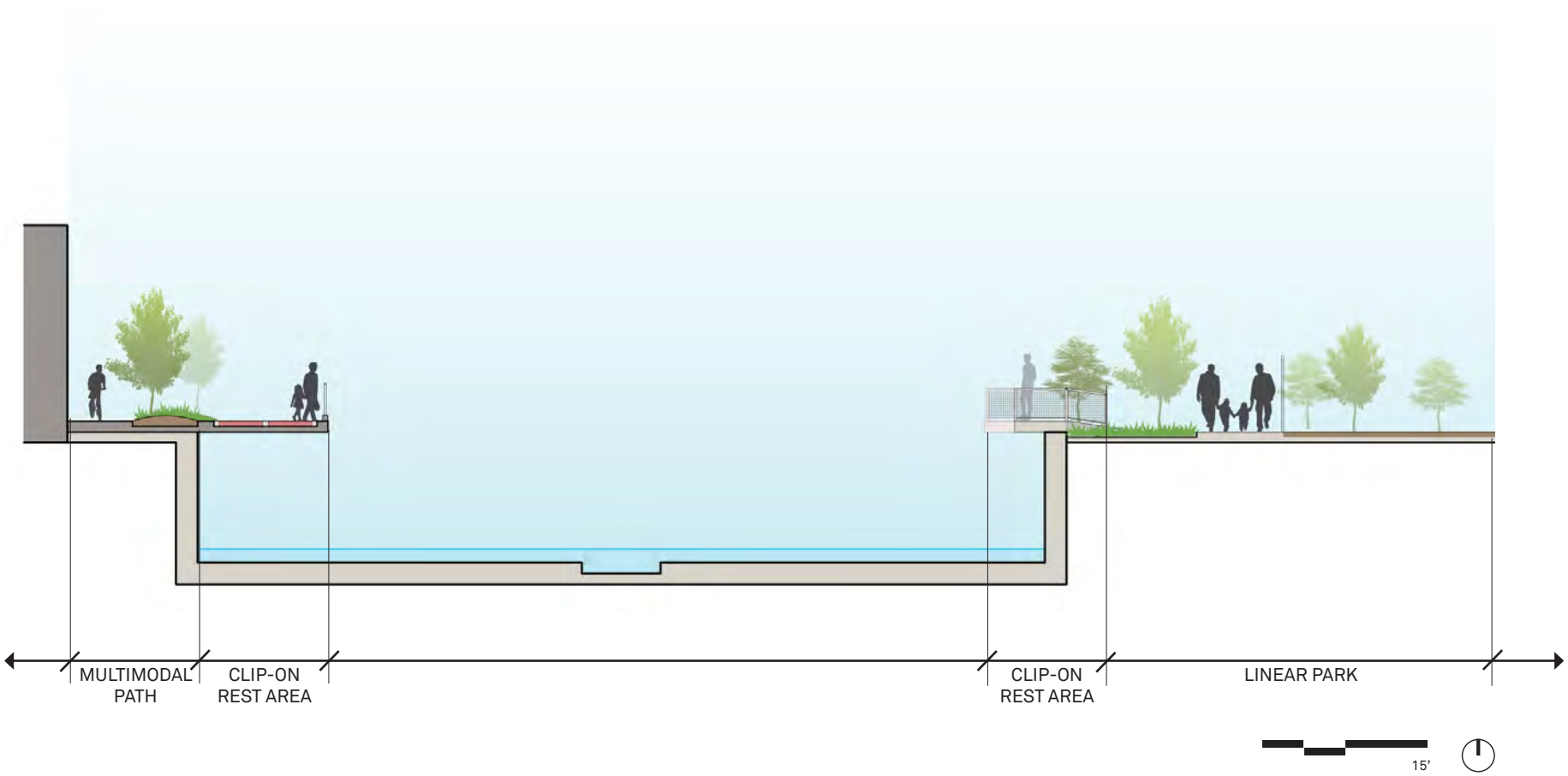
LOS ANGELES RIVER & ALISO CREEK CONFLUENCE PARK

1000' 2000'

SOUTHERN ALISO GREEN NETWORK

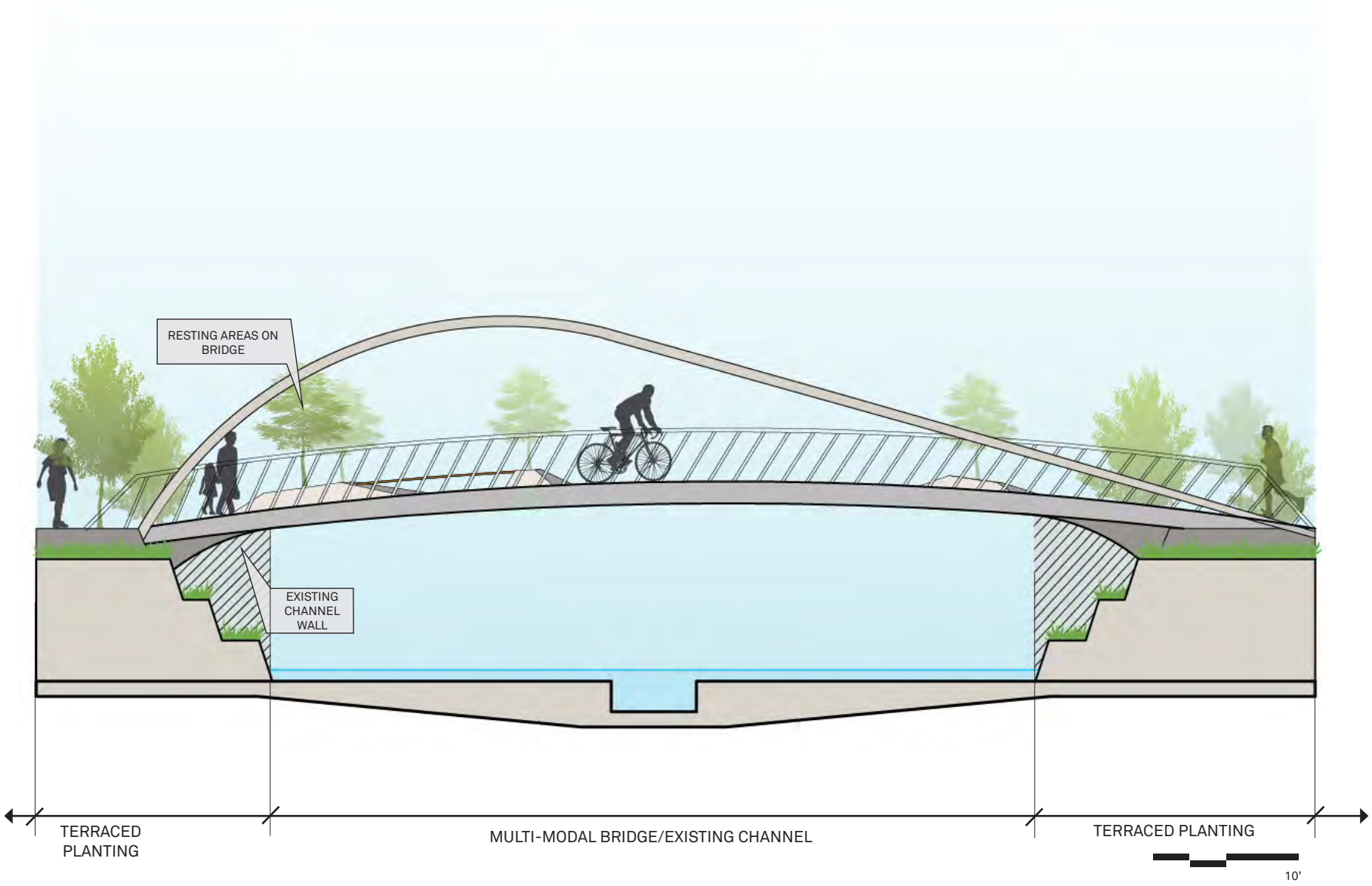
The Southern Aliso Green Network design concept seeks to create a diversified river-side experience that will link the schools, the rivers, and the tributaries. Opportunities include redefining the right-of-way into a biking/jogging promenade providing open views to the river, bridges connecting communities, terraces that simultaneously clean stormwater runoff and provide a place for neighbors to sit and watch the river. Not only will the city be more vibrant and resilient, it will be closely linked to the ebb and flow of the seasonal rhythms of this ever-unfolding river.

The Upper Los Angeles River and Tributary plan prioritizes mechanisms that increase public safety. Unobtrusive yet strong fencing, and bold signage will prevent people from entering the channel. ADA-accessible gates that can be locked as needed, will provide access to the greenbelt. Bright, consistent lighting and motion activated lights along paths will create an inviting atmosphere at night. Safe traffic crossing will link pedestrian and bike paths with equestrian trails.



Section of Southern Aliso Greenway Connector showing Clip-on-Paths. Clip-on-Paths can provide a separated space to rest, catch one's breath and enjoy the waterway.

Aliso Design Areas// Southern Aliso Green Network

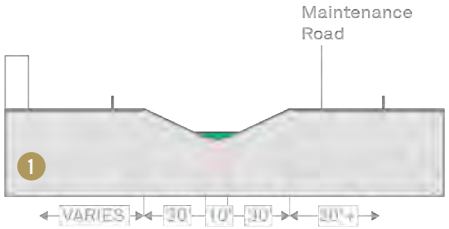


Pedestrian Bridge Section of Cleveland High School. Bridges along the Aliso Southern Connector will provide east-west connections between the neighborhoods on either side of the waterway.

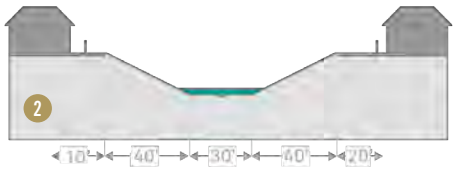
NEXT STEPS

Additional required analyses and next steps for the Southern Aliso Green Network design area include:

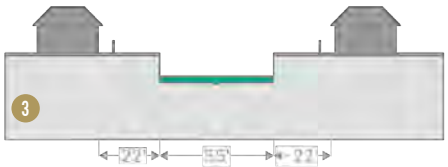
- Coordination with local jurisdiction, stakeholders, and relevant agencies should be undertaken
- A preliminary engineering and design report that includes additional design, analyses, percolation rates, and cost estimation should be performed
- LADWP transmission corridor allowable uses and restrictions should be researched and they should be contacted as a project partner early on in the project
- Collection capacity (available land surface area and depth) for stormwater capture should be determined
- Geotechnical evaluation and recommended requirements for green infrastructure, recreational areas, greenways, and multi-use paths should be performed
- The expected flows during wet and dry weather should be assessed to determine stormwater collection feasibility
- Soil remediation analyses to determine extent of possible existing contamination
- Structural analysis of proposed green infrastructure projects should be conducted for final design
- The appropriate water rights for river diversions should be obtained,
- The effects of increased water demand from vegetation and wildlife should be assessed
- Where applicable, requirements for utility easement use agreements should be assessed
- A thorough investigation of land records identifying easement holders, including the assessment of land rights, identify easement fees, and obtain approval from identified easements should be conducted
- An Environmental Impact Report/ Statement (EIR/EIS) may need to be completed to assess any potential environmental impacts
- A thorough Water Quality report—including pollutant settling and oxygen demand—should be performed
- Air Quality Assessment should be performed
- Key studies to assess the potential for environmental and habitat restoration should be performed. Local and native vegetation should be planted to support the native habitat and restore the natural and historical ecosystem wherever possible
- Ongoing coordination with Los Angeles Unified School District(LAUSD) to discuss needs for outdoor classrooms and ways to connect programming to the wash all steps of the process
- Additional analysis to consider climate change and updated storm return intervals to help understand and prioritize opportunities and improvements



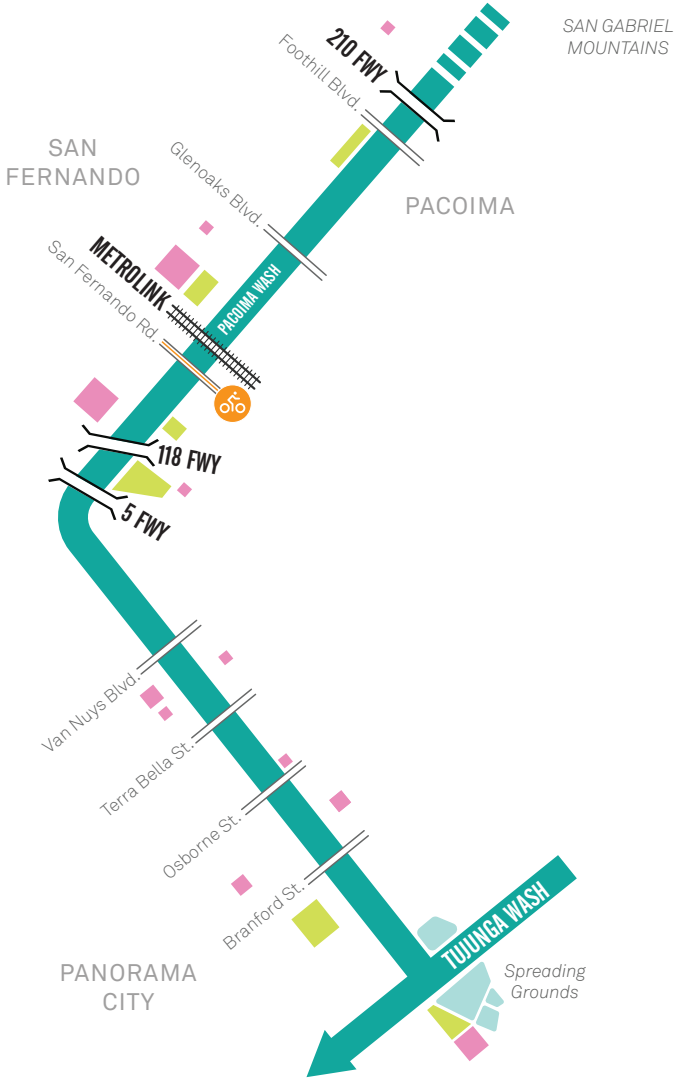
Segment 1.
This segment runs 2.74 miles through San Fernando and Pacoima. It passes I-210, I-118, Glenoaks Blvd, and Foothill Blvd. In this segment, Pacoima is a channelized, trapezoidal tributary. The width of the maintenance roads on each side varies.



Segment 2.
This segment runs 2.73 miles through residential neighborhood in Arleta and Panorama City. In this segment, Pacoima is a channelized, trapezoidal tributary with 10-20'maintenance roads on each side.



Segment 3.
This segment runs 0.82 miles through residential neighborhoods Sun Valley and Panorama City. In this segment, Pacoima is a channelized, trapezoidal tributary with 22' maintenance roads on each side.



PACOIMA WASH

Pacoima Wash is an **engineered channel** that begins immediately downstream of Lopez Dam, and flows through San Fernando, Pacoima, and Panorama City, before going underground and flowing through a covered channel to join Tujunga Wash in Van Nuys. The wash flows as a relatively shallow, gently sloping, trapezoidal channel throughout its length.

The **Pacoima - San Fernando - Sylmar path** is currently being planned. At present, there are no bike paths or multi-use trails along Pacoima Wash. The channel is fenced throughout its length. Pacoima Wash flows adjacent to Sepulveda Recreational Center in Panorama City and Paxton Park in Pacoima where it is visually accessible.

POPULATION WITHIN 0.5 MILES

- Density[2]: 18 people/acre (LA County Avg: 13)
- Household Income[2]: $46K (LA County Avg: $54K)
- Community Burden[3]: Most Burdened 26% of State

KEY ADJACENCIES INCLUDE

- Sepulveda Recreational Center
- Paxton Wash Natural Park
- Devonshire Arleta Park
- Commercial zone on Arroyo Street

40 SCHOOLS WITHIN 0.5 MILES

PARK SPACE

- Park Provision[5]: 1.45 acres per 1,000 people (LA County Avg: 3.3 acres per 1,000 people)
- Mainly local parks and natural areas

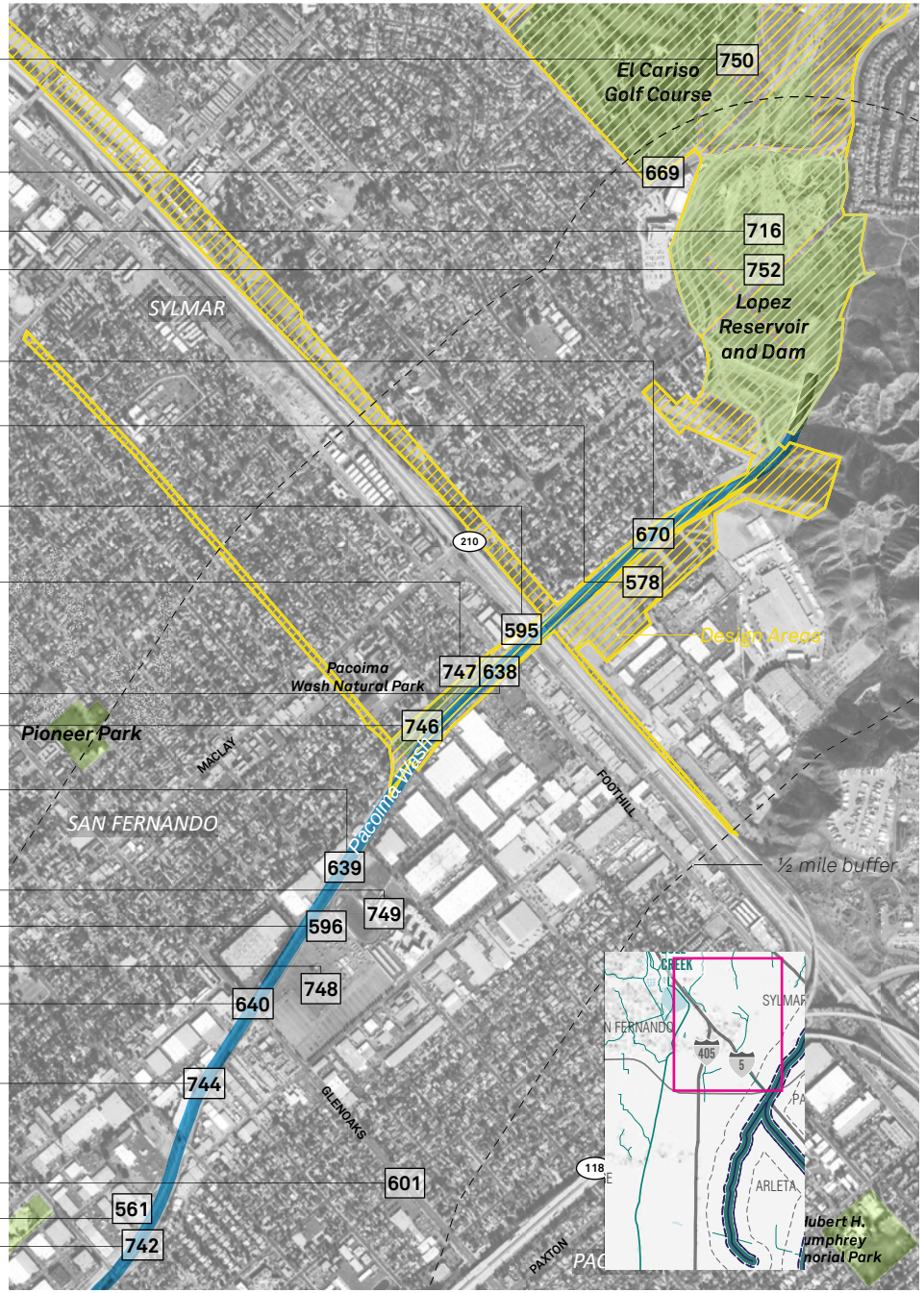
SOME PREVIOUS PLANNING EFFORTS

- The Tujunga Pacoima Watershed Plan includes proposed continuous separate bicycle and pedestrian paths along the wash, as well as adjacent parks and greenways to increase access.
- The Pacoima Wash Vision Plan developed by Pacoima Beautiful (a non-profit organization) echoes the goals of the management plan – proposing a series of parks, bike paths, and multi-use trails along the Wash.

[2] 2010 Census
[3] State of California, CES 3.0
[5] 2010 Census/LA County Park Assessment

OPPORTUNITY AREAS ON PACOIMA WASH - LOPEZ RESERVOIR TO BRADLEY AVENUE

- OA 750 Sylmar Greenway
- OA 669 Pacoima Wash Expanded Bike Path and Community Connectivity-1
- OA 716 Lopez Debris Basin Conceptual Plan
- OA 752 Tujunga Tataviam Village Parks
- OA 670 Pacoima Wash Expanded Multi-Use Trails
- OA 578 Pacoima Wash Enhanced Open Space and Passive Recreation-1
- OA 595 Pacoima Wash Bike Path Enhancement-1
- OA 747 Swap Meet Run - Foothill Community Garden
- OA 638 Pacoima Wash Community Bridge Connection-1
- OA 746 Swap Meet Run - 8th St Recreation Park
- OA 639 Pacoima Wash Community Bridge Connection-2
- OA 749 Swap Meet Run - LAUSD Academy High School
- OA 596 Pacoima Wash Bike Path Enhancement-2
- OA 748 Swap Meet Run - Glenoaks Retail Development
- OA 640 Pacoima Wash Community Bridge Connection-3
- OA 744 San Fernando Run - Main Greenway Trail
- OA 601 Tujunga Wash Stormwater Capture and Infiltration-3
- OA 561 Pacoima Wash Stormwater Capture and Infiltration
- OA 742 San Fernando Run - Bradley Street Park

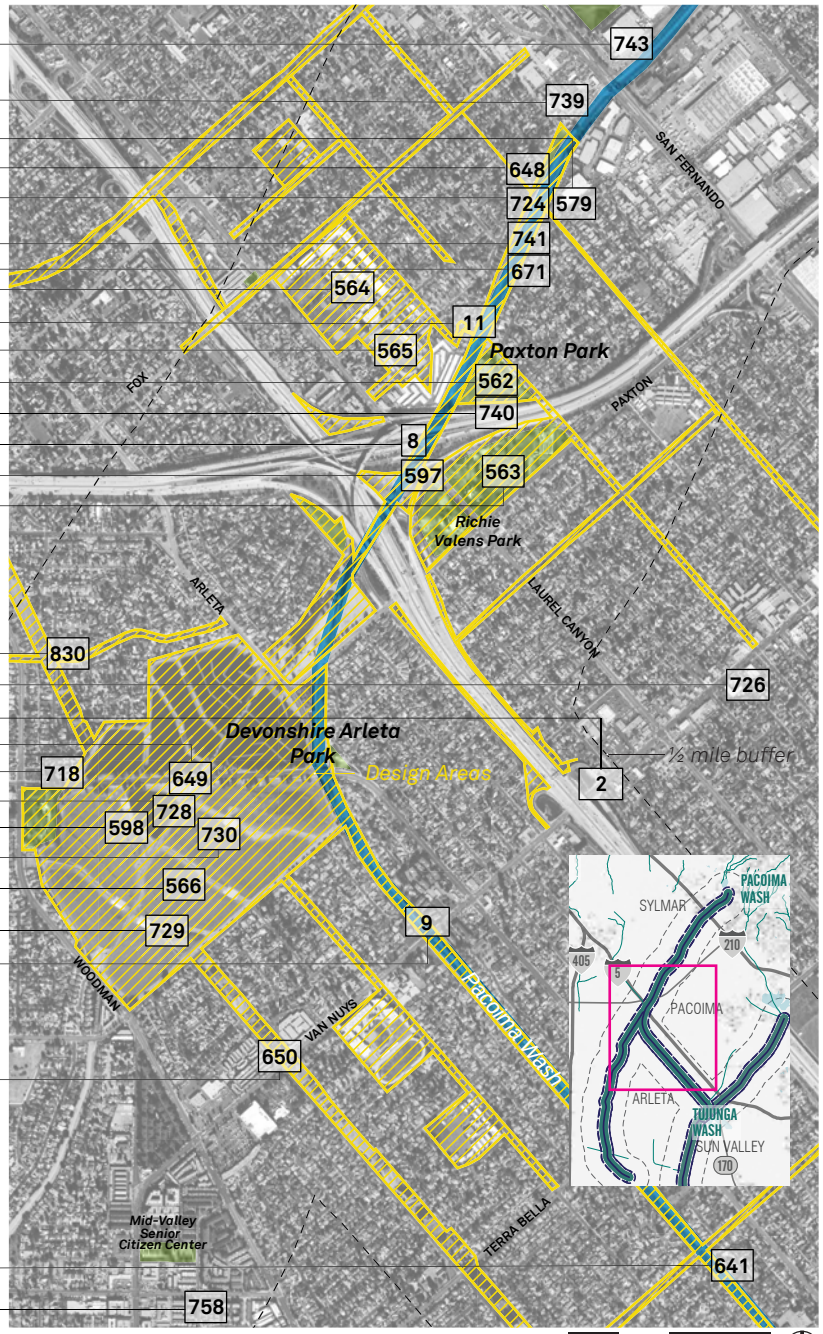


COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

OPPORTUNITY AREAS ON PACOIMA WASH - BRADLEY AVENUE TO KAGEL CANYON STREET

- OA 743 San Fernando Run - Gateway Park and Youth Rec Park
- OA 739 Ritchie Valens Run - El Dorado Park
- OA 579 Pacoima Wash Phase 2 - El Dorado Park Improvement
- OA 648 Pacoima Wash Community Bridge Connection-4
- OA 724 Pacoima Greenway
- OA 671 Pacoima Wash Improved Crossing
- OA 741 Ritchie Valens Run - Telfair Botanical Garden
- OA 564 Pacoima Wash Stormwater Capture and Flooding Reduction-2
- OA 11 Pacoima Wash Highway Underpass Enhancement
- OA 565 Pacoima Wash Stormwater Capture and Flooding Reduction-3
- OA 562 Pacoima Wash Stormwater Capture and Surface Retention
- OA 740 Ritchie Valens Run - Ritchie Valens Park Improvements
- OA 8 Pacoima Wash Expanded Bike Path and Community Connectivity-2
- OA 597 Pacoima Wash Art Exhibit and Mural Opportunity
- OA 563 Pacoima Wash Stormwater Capture and Flooding Reduction-1
- OA 830 San Jose and Cedros Community/Rain Garden
- OA 725 Pacoima Water Infiltration Median and Trail
- OA 2 Tujunga Wash Expanded Community Connectivity-13
- OA 649 Pacoima Wash Green Street
- OA 718 Mission HIlls Greenbelt
- OA 728 Pacoima Spreading Grounds Conceptual Plan
- OA 598 Pacoima Wash Enhanced Open Space and Passive Recreation-2
- OA 730 Pacoima Wash Recreation Trail
- OA 566 Pacoima Wash Open Space and Community Connectivity
- OA 729 Pacoima Spreading Grounds Enhancements
- OA 9 Tujunga Wash Stormwater Capture and Infiltration-5
- OA 650 Tujunga Wash Improved Community Connectivity, Expanded linear Stormwater
- OA 641 Tujunga Wash Trail Extension
- OA 758 Van Nuys Boulevard Pocket Parks



COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

Northern Pacoima Typical Condition

Los Angeles Mission College

Lopez Spreading Grounds

LOPEZ DAM

Enhancing and Connecting Ecosystems

Existing plans to improving the existing intake and storage capacity at the Lopez Spreading Grounds could free up space for ecological and community uses. There is the potential to create a critical collection of watershed management and ecological habitat on the northern side of Pacoima Wash.

This could include

- **Enhancements to the area's existing rich ecological habitat.** This includes passerine species such as Brewer's blackbird (*Euphagus cyanocephalus*) and California towhee (*Melozone crissalis*)
- **Shaded multi-use paths** that connect Pacoima Wash Natural Park, Mission College, the railroad tracks, and the Pacoima Bike Path (currently in development)
- **Tree allee and green streets** to improve connectivity, improve air quality, and capture stormwater
- **Improvements at existing schools** to capture stormwater, reduce flood risk, and provide active recreation opportunities

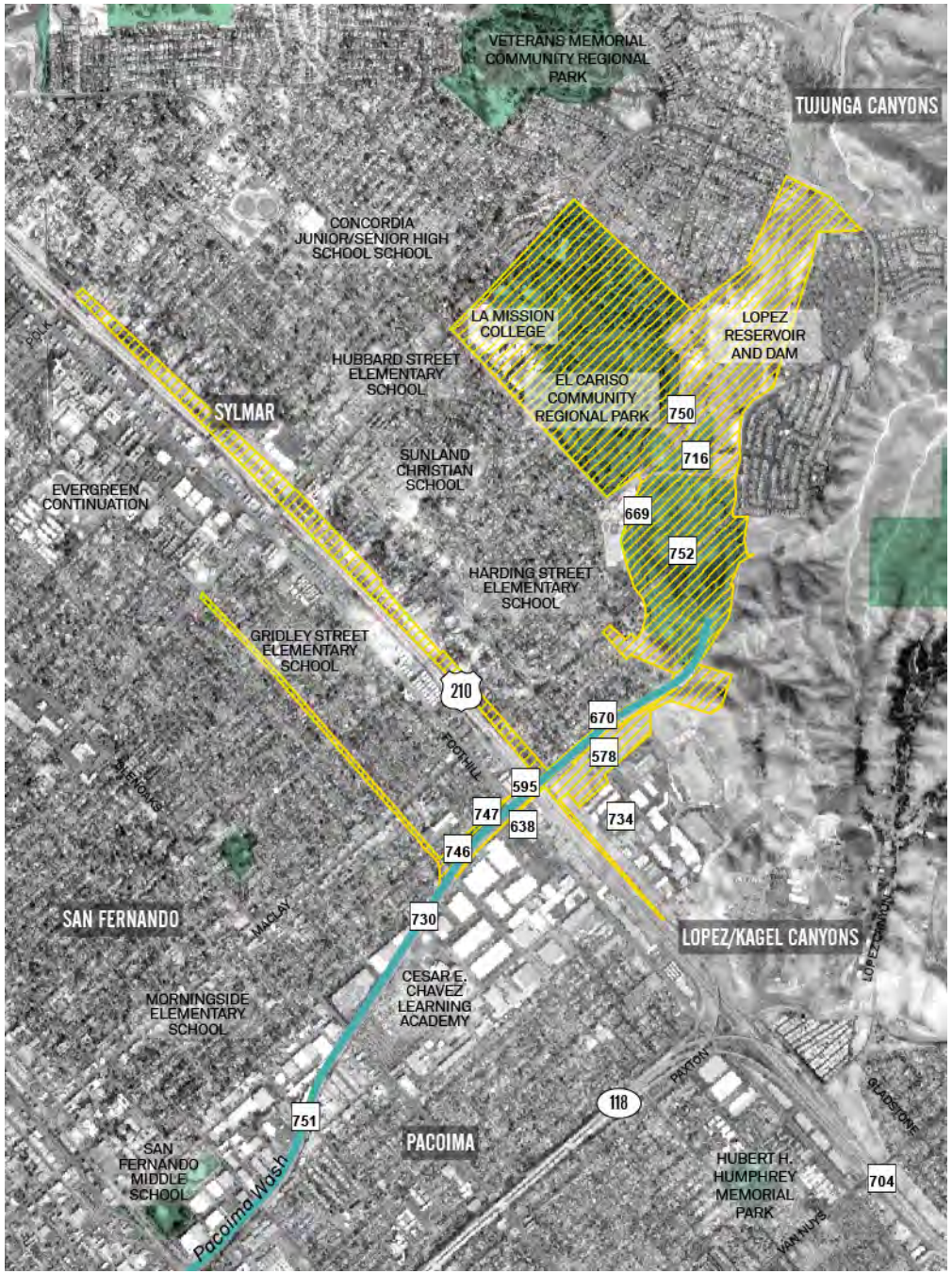
LAND OPPORTUNITIES

- Right-of-way along the wash
- Lopez spreading ground
- Pacoima Bike Path
- Railroad Easement

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Reduces pollution impact
- Increases access to open space
- Reduced local flooding
- Create safe connections
- Enhances habitat

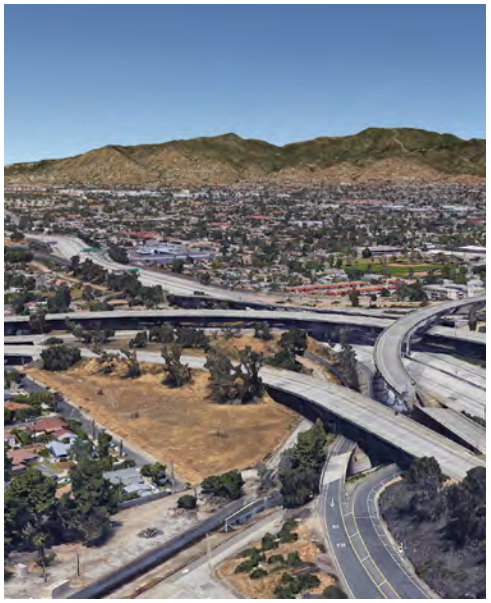
Pacoima Wash Design Areas// Lopez Park



LOPEZ DAM DESIGN AREA

OPPORTUNITY AREAS IN THIS DESIGN AREA

578	Pacoima Wash Enhanced Open Space and Passive Recreation-1
595	Pacoima Wash Bike Path Enhancement-1
638	Pacoima Wash Community Bridge Connection-1
669	Pacoima Wash Expanded Bike Path and Community Connectivity-1
670	Pacoima Wash Expanded Multi-Use Trails
704	Hansen Dam Link
716	Lopez Debris Basin Conceptual Plan
730	Pacoima Wash Recreation Trail
734	Power Line Easement Recharge Project
746	Swap Meet Run - 8th St Recreation Park
747	Swap Meet Run - Foothill Community Garden
750	Sylmar Greenway
751	Tujunga and Pacoima Wash Bridge Retrofit and Channel Expansion
752	Tujunga Tataviam Village Parks



Pacoima Wash

Pacoima Spreading Grounds

San Fernando High School

SAN FERNANDO HIGH SCHOOL + SPREADING GROUNDS

Creating a Resilient Community Hub

San Fernando High School and the nearby Ritchie Valens and Paxton Park have been neglected for years. New policies and legislation will bring much needed attention to these areas. The ULART plan has the potential to ensure that these improvements are sustainable, symbiotic, and support the creation of a sustainable community hub.

This could include

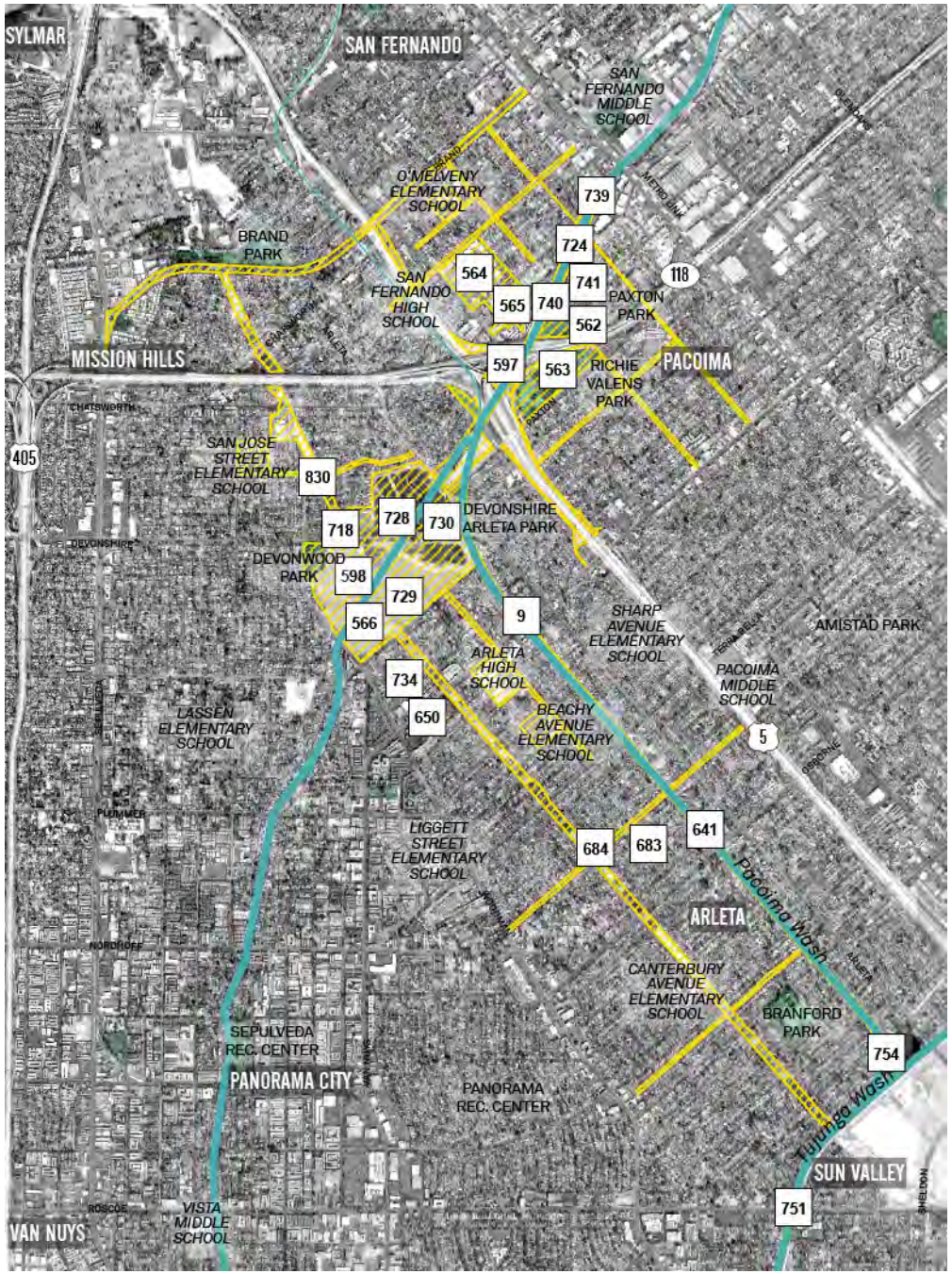
- **Enhance the ecological habitat and passive open space** at Pacoima Spreading Grounds, Paxton and Ritchie Valens Park
- **Shaded multi-use paths** will make it easier and safer for people to get outside and stay active and move across the highway
- **Tree allee and green streets** to improve connectivity, improve air quality, and capture stormwater
- **Improvements at existing schools** to capture stormwater, reduce flood risk, and provide active recreation opportunities

LAND OPPORTUNITIES

- Right-of-way along the wash
- Pacoima spreading grounds
- Utility Easements
- Paxton Park
- Ritchie Valens Park
- Streets
- Schools

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Reduces pollution impact
- Increases access to open space
- Reduced local flooding
- Create safe connections
- Enhances habitat



SAN FERNANDO HIGH SCHOOL + SPREADING GROUNDS

OPPORTUNITY AREAS IN THIS DESIGN AREA

008	Pacoima Wash Expanded Bike Path & Community Connectivity-2	683	Arleta Greenbelt
009	Tujunga Wash Stormwater Capture and Infiltration-5	684	Arleta Neighborhood Retrofit
011	Pacoima Wash Highway Underpass Enhancement	718	Mission Hills Greenbelt
562	Pacoima Wash Stormwater Capture and Surface Retention	724	Pacoima Greenway
563	Pacoima Wash Stormwater Capture and Flooding Reduction-1	726	Pacoima Neighborhood Retrofit
564	Pacoima Wash Stormwater Capture and Flooding Reduction-2	728	Pacoima Spreading Grounds Conceptual Plan
565	Pacoima Wash Stormwater Capture and Flooding Reduction-3	729	Pacoima Spreading Grounds Enhancements
566	Pacoima Wash Open Space and Community Connectivity	730	Pacoima Wash Recreation Trail
597	Pacoima Wash Art Exhibit and Mural Opportunity	734	Power Line Easement Recharge Project
598	Pacoima Wash Enhanced Open Space and Passive Recreation-2	739	Ritchie Valens Run - El Dorado Park
641	Tujunga Wash Trail Extension	740	Ritchie Valens Run - Ritchie Valens Park Improvements
648	Pacoima Wash Community Bridge Connection-4	741	Ritchie Valens Run - Telfair Botanical Garden
649	Pacoima Wash Green Street	751	Tujunga and Pacoima Wash Bridge Retrofit and Channel Expansion
650	Tujunga Wash Improved Community Connectivity	754	Tujunga Wash Project Section 1135
671	Pacoima Wash Improved Crossing	830	San Jose and Cedros Community/ Rain Garden

4 mi 8 mi

Pacoima Wash Design Areas PACOIMA JUNCTION (518 ACRES)

IMAGINE!

Thursday at 3pm. The San Fernando High School track team is finishing laps around the Pacoima Spreading grounds, elementary school children are riding their bicycles home along the surrounding tree lined streets, a group of middle schoolers are trying their luck at catching frogs in the Pacoima Wetlands. Nearby, families are making their way to the outdoor movie screening on the Pacoima Gardens Lawn via Canterbury linear park. Along the way, they pass neighbors harvesting tomatoes from the community gardens and outdoor classrooms where local Pacoima Beautiful staffers are teaching people how to recognize birds.

CONTEXT

The 721 acre Pacoima Junction design area was chosen as the signature bundle for Pacoima Wash. This design area is centered around the spreading grounds, which span the border of the Pacoima and Mission Hills neighborhoods. The design area also includes San Fernando High School, Ritchie Valens Park, Paxton Park, and opportunities near the intersection of Interstate-5 and Highway 118. San Fernando High School was established in 1896 and is one of the oldest high schools in LAUSD. The school has 2,000 students; however, test scores are well below the state average. Recent legislation such as SB541 are requiring stormwater management at school campuses. Inclusion of nearby parks, enhancements to the high school grounds, outdoor learning opportunities, and a general increased pride In the community will provide better opportunities for increasing the academic standing of the school as well as greater community well-being.

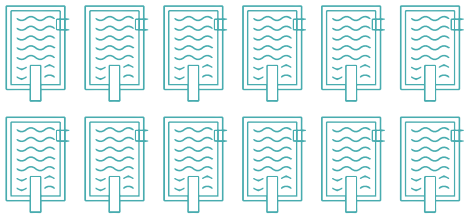
About 79,895 people live within ½ mile of the tributary in this area. The average CalEnviroScreen score for census tracts in the area is in the 80th percentile, making it one of the most environmentally burdened communities in the state.

RESILIENCY BENEFITS

Analyzing the Pacoima Junction design area concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **365 square miles** *of new or enhanced permeable cover*



x 2

STORMWATER CAPTURE

48.1 acre-feet

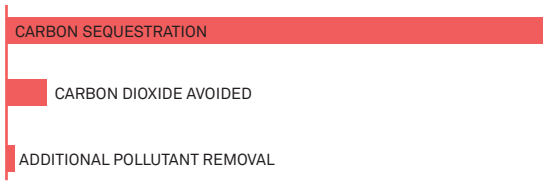
or **24** Olympic-sized swimming pools

WATER

AIR

AIR

The design includes **11,773 trees** *that sequester carbon, and remove pollutants from the air*



12,461 tons
Additional Carbon Sequestration

382 tons
Additional Carbon Dioxide Avoided

10 tons
Additional Pollutant Removal

HABITAT

The design includes **362 acres** *of new and enhanced ecological habitat and* **135 acres** *of additional tree canopy*

HABITAT CREATION

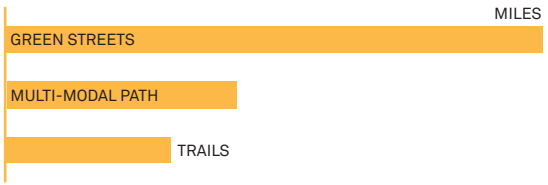
150%
the size of the 244-acre Verdugo Mountain Open Space Preserve

HABITAT

COMMUNITY

COMMUNITY

The design includes **207 acres** *of new and enhanced open space and* **27** *of new or enhanced community connections*



13.5 miles
Green Streets

8 miles
Multi-modal paths

5.5 miles
Trails

Pacoima Wash Design Areas// Pacoima Junction

View looking South at the seasonally wet Pacoima Wetlands and Spreading Grounds

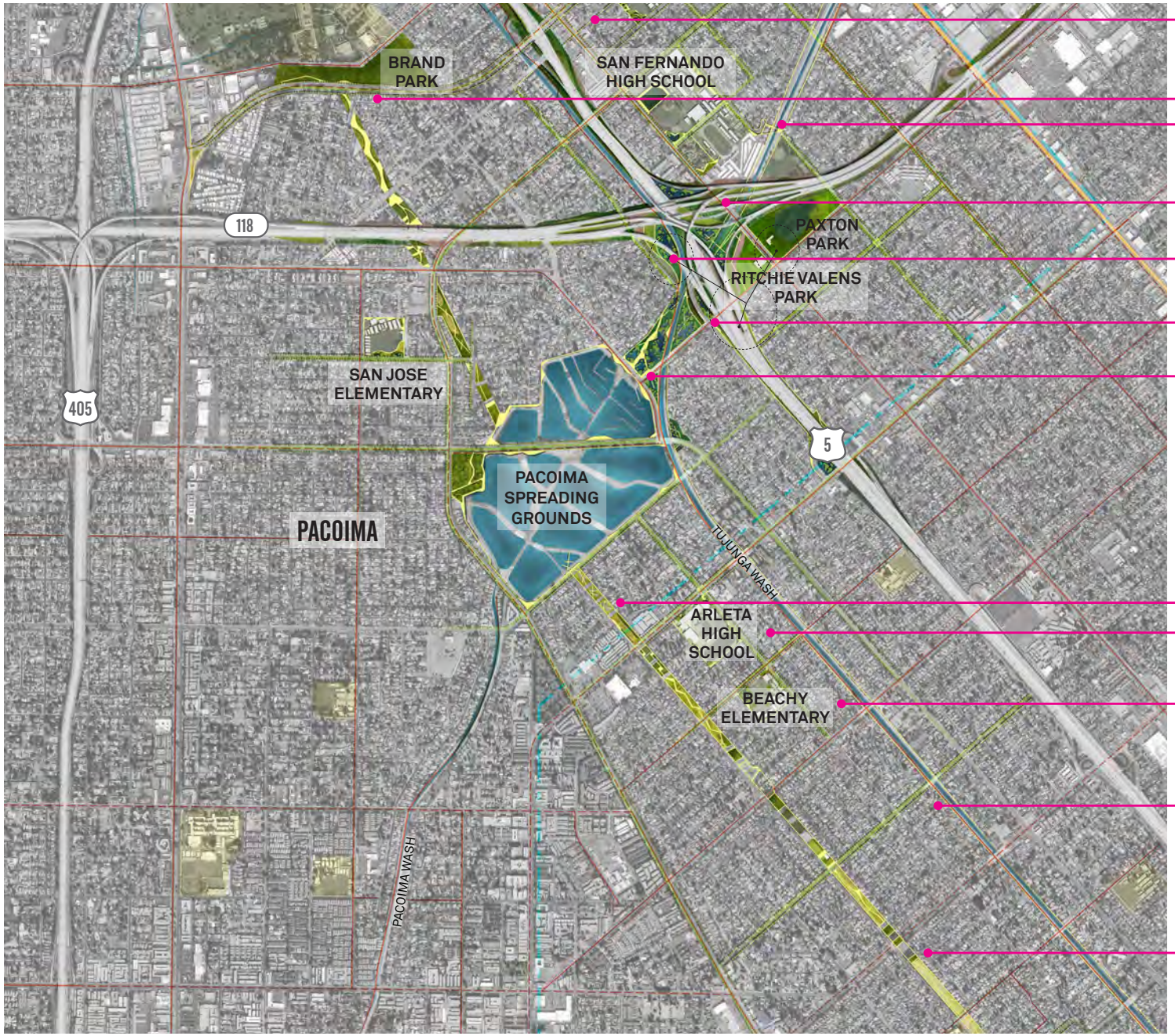
Pacoima Wash Design Areas// Pacoima Junction

Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details, are not part of this plan

View looking South at the seasonally wet Pacoima Wetlands and Spreading Grounds

Pacoima Wash Design Areas// Pacoima Junction

PACOIMA JUNCTION DESIGN AREA CONCEPT



Pacoima Wash Design Areas// Pacoima Junction

SAN FERNANDO HIGH SCHOOL (ENLARGEMENT)

The new design for San Fernando High School sought to identify and develop a series of multi-benefit gathering spaces for students, both on campus and in surrounding areas. This includes connections across the Pacoima Wash to Ritchie Valens and Paxton park and a link under the CA118- I5 interchange to the Pacoima Wetlands and Spreading Grounds

The high school campus would also become a showcase for the interconnectivity of systems, helping students acquire a deep appreciation for the natural world and recognizing the implications of their relationship with it. The design proposes highlighting stormwater management, waste-water recycling and solar-energy systems. Thus, allowing students to observe and understand their relationship with natural resources, the local habitat, and the built environment.

ELEMENTARY SCHOOL ENHANCEMENTS

CHILDREN'S NATIVE GARDEN / STORMWATER CAPTURE FIELD

FLOODABLE FIELDS

BIORETENTION GARDENS

OUTDOOR CLASSROOMS

CONNECTION BETWEEN SCHOOL AND PARKS

PACOIMA WASH BRIDGE

FILTER FOREST / GREEN LUNG

POLLUTION-MITIGATING PLANTING

UNDERPASS LINK

TUNNEL PASSAGES

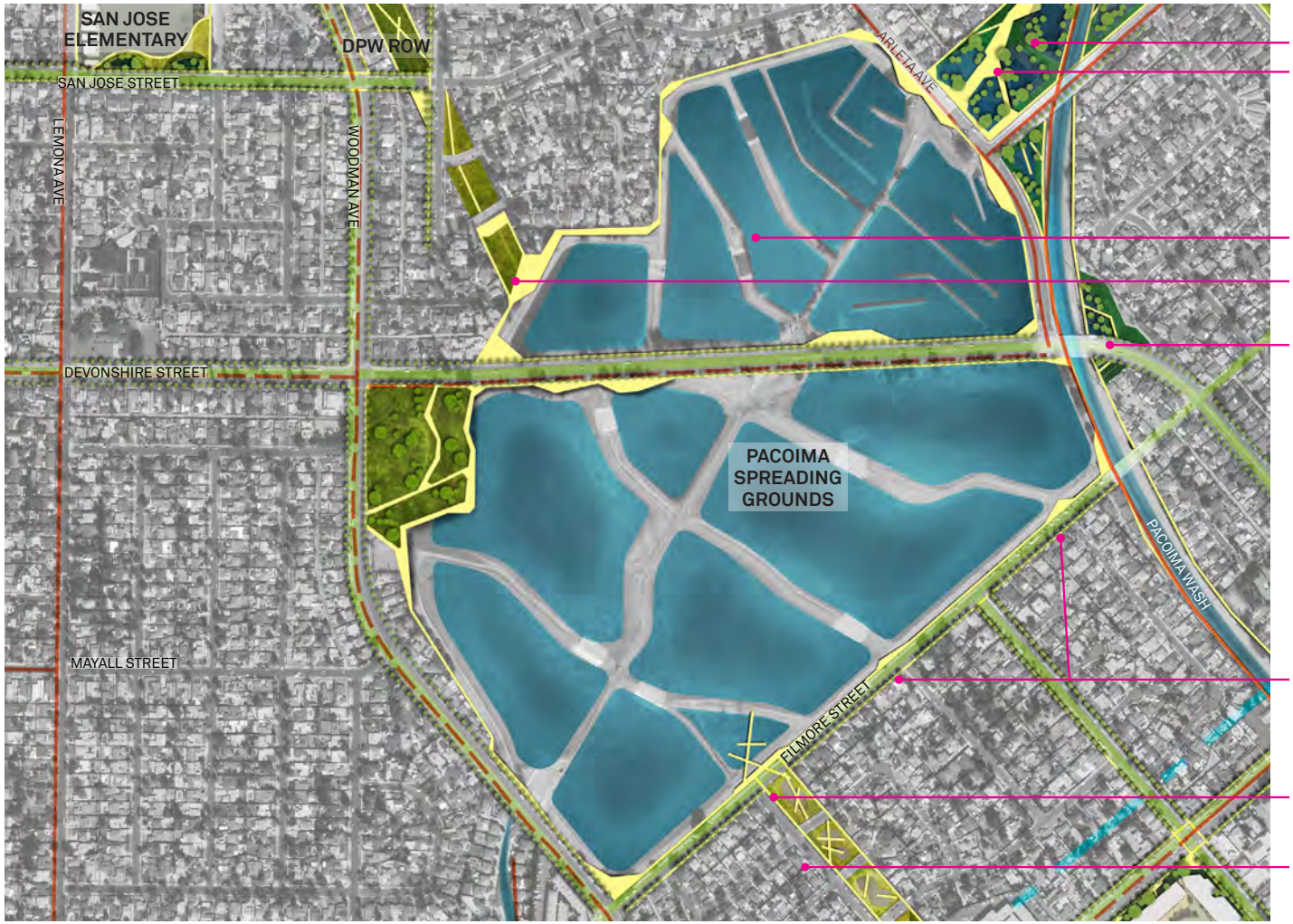
750'

Pacoima Wash Design Areas// Pacoima Junction

PACOIMA SPREADING GROUNDS (ENLARGEMENT)

Built on top of the County's existing de-silting basins and protected from the I-5 and California State Route 118 by a sloped berm and a ring of deciduous trees, the open space at the Pacoima Junction captures and treats urban stormwater runoff, provides riparian habitat and a variety of multi-use spaces for hanging out, enjoying views, and exploring. The design for the 169-acre Pacoima Spreading Grounds is an integration of infrastructure, ecology and recreation.

The design concept celebrates the spreading grounds. The approach conveys the value of the spreading grounds, using both spatial and interpretive elements, while delivering a beautiful, contemporary, and programmatically rich park. Overlooks, terraces and ramps create access to unique vantage points throughout the spreading grounds. There are places to sit and enjoy constantly changing views as one moves through the park. The entire site is crossed by shaded walking and cycling trail.



PACOIMA SPREADING GROUNDS (BLUE SKY ENLARGEMENT)

In the Upper Los Angeles River and Tributaries "Blue-Sky" vision, a park could built on top of the de-silting basin on the northern edge of the spreading grounds. The park will provide space for sunbathing, picnicking, and walking. Ongoing operations and maintenance could occur through elevating the deck on piers, thereby providing access for de-silting equipment. Wetlands along the southern end of the spreading grounds help capture and treat urban stormwater runoff through riparian and emergent marsh habitat.

Pacoima Wash Design Areas// Pacoima Junction

CANTERBURY EASEMENT

The Canterbury Easement running 2.5 miles south from the Pacoima Spreading Grounds to Tujunga Wash is the site's southern backbone. The 150' wide public space will become an armature of public space designed to complement adjacent spaces. Thus, outdoor classrooms are situated next to Beachy Elementary and community gardens are placed in residential neighborhoods. Such an amenity weaves and interconnects programs, providing an invaluable asset to the community..

HIGH SCHOOL ENHANCEMENTS
- BIOSWALES
- DEMONSTRATION GARDENS

ELEMENTARY SCHOOL ENHANCEMENTS
- IDEA GARDENS
- DETENTION PLAY

OUTDOOR LEARNING
- FREEPLAY MEADOW
- OUTDOOR CLASSROOMS

GREEN STREET
- SHADE TREES
- BIKE PATH
- SIDEWALK
- BIO-SWALES

CALIFORNIA GARDENS
- EVENT LAWN

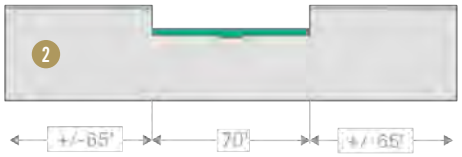
750'

NEXT STEPS

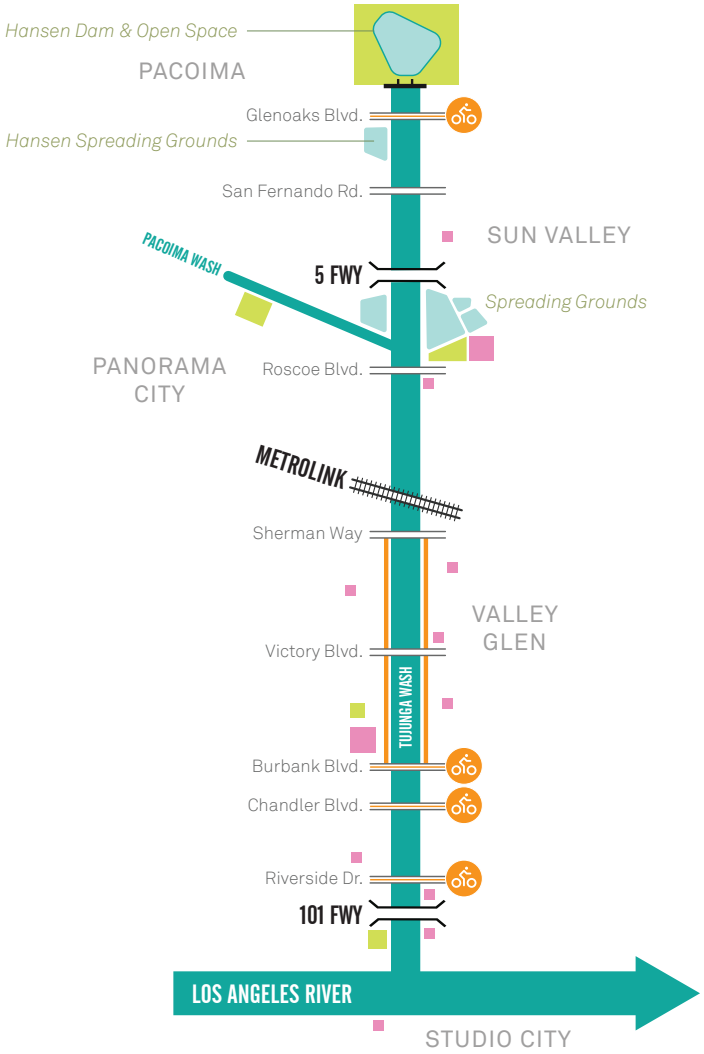
Additional required analyses and next steps for the Pacoima Junction design area include:

- Collaboration with Los Angeles County Department of Public Works should occur at all points of the process
- Analysis for collection capacity and storage for stormwater capture
- Discussion with LAUSD regarding joint use development and collaboration at all points of the process
- Geotechnical evaluation for increased infiltration at Pacoima Spreading Grounds
- Analysis of the expected flows during wet and dry weather and ability to support seasonal wetlands
- Geotechnical evaluation for potential placement of outdoor classrooms, overlooks, green infrastructure, and pedestrian and bicycle connectivity
- Soil remediation analyses to determine extent of existing contamination
- Structural analysis of proposed bridges, overlooks, and green infrastructure to be conducted for final design
- Identification and procurement of water rights for waterway diversions
- Analysis for updated storm return intervals

Segment 1.
This segment runs 2.7 miles from Hansen Dam to the confluence of Tujunga and Pacoima Wash. The region directly below Hansen Dam is well-known for heavy mining activities. This segment runs adjacent to the Sheldon Pit, the Hansen Spreading Grounds, and the Tujunga Spreading Grounds.



Segment 2.
This segment runs 7 miles from the confluence of Tujunga and Pacoima Wash to the confluence of Tujunga Wash and the LA River. The lower, urbanized portion of the watershed is dominated by residential use, although there are still some sizable parcels of open space. Industrial uses are clustered along San Fernando Road, adjacent to the Pacoima Wash, and along the Union Pacific Railroad corridor.



TUJUNGA WASH

Tujunga Wash is a major tributary in the Los Angeles River. The engineered section flows as a concrete-lined channel with vertical walls from its upstream end, below Hansen Dam, to its confluence with the Los Angeles River in the Studio City area of the City of Los Angeles.

The **Tujunga Wash Greenway** which includes a multi-use trail and a man-made stream run along both sides of Tujunga Wash for one-mile from Vanowen Street to Oxnard Street in the Valley Glen area of the City of Los Angeles. This provides visual access to the wash in this segment. However, the nature of the fencing prevents direct access to the wash. Also, just upstream of its confluence with the Los Angeles River, Tujunga Wash flows adjacent to Moorpark Park in Studio City, providing visual access.

POPULATION WITHIN 0.5 MILES

- Density[2]: 38 people/acre (LA County Avg: 13)
- Household Income[2]: $51K (LA County Avg: $54K)
- Community Burden[3]: Most Burdened 30% of State

KEY ADJACENCIES INCLUDE

- Hansen Dam
- Hansen Spreading Grounds
- Fulton Avenue Park
- Tujunga Greenbelt
- Monarch Stadium
- Moorpark Park
- Commercial zones on Victory Blvd and Coldwater Canyon Ave

25 SCHOOLS WITHIN 0.5 MILES

PARK SPACE

- Park Provision[5]: 1.65 acres per 1,000 people (LA County Avg: 3.3 acres per 1,000 people)
- Mainly local parks such as Valley Village and Woodbridge Park

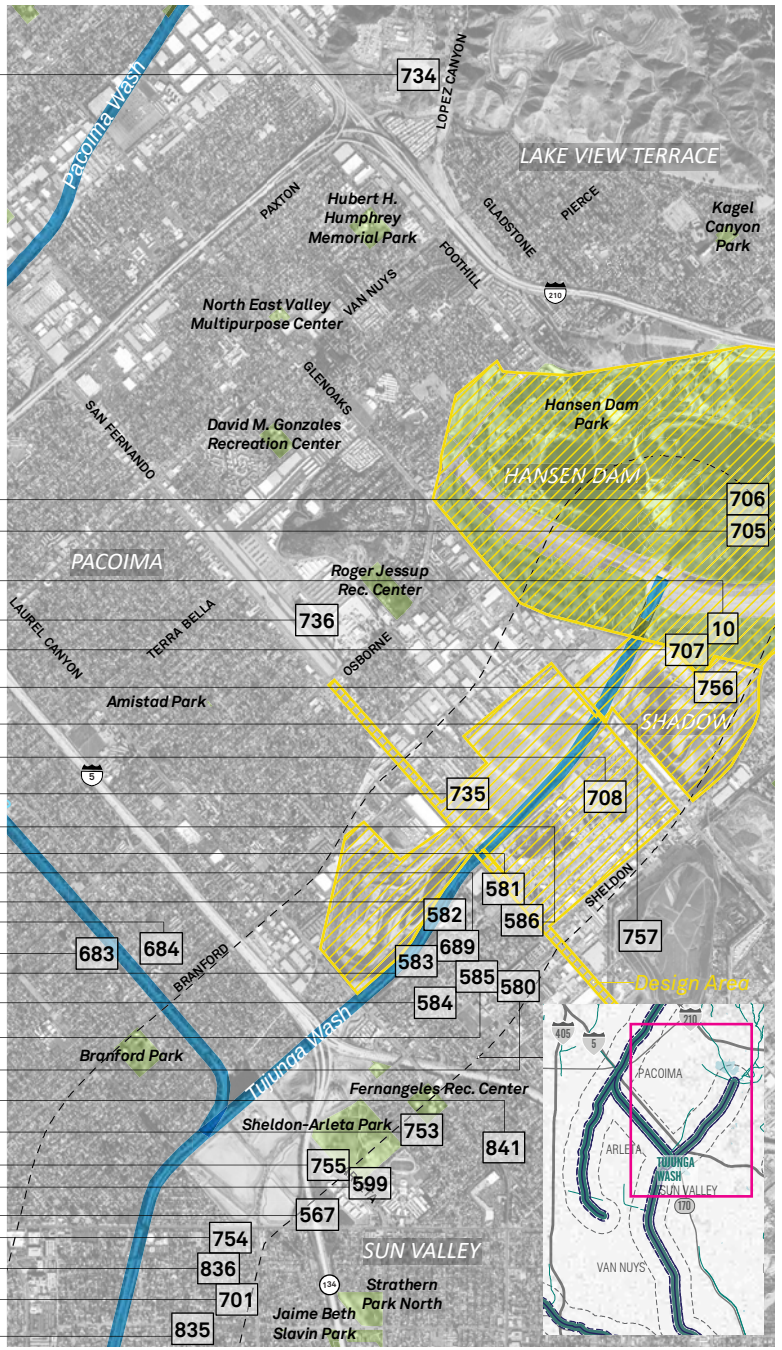
SOME PREVIOUS PLANNING EFFORTS

- The Tujunga Pacoima Watershed Plan was developed by The River Project, an environmental organization, in 2008
- Proposed projects within the plan include construction of continuous and separate bicycle and pedestrian paths along the wash, as well as adjacent parks and greenways to increase access
- The Los Angeles River Revitalization Master Plan (City of LA) identifies the confluence of Tujunga Wash and the Los Angeles River as an opportunity area for development of a river greenway and for constructed wetlands for regional water quality treatment.

[2] 2010 Census
[3] State of California, CES 3.0
[5] 2010 Census/LA County Park Assessment

OPPORTUNITY AREAS ON TUJUNGA WASH - HANSEN DAM TO STRATHERN STREET

- OA 734 Power Line Easement Recharge Project
- OA 706 Hansen Dam Wildlife Lake Improvement
- OA 705 Hansen Dam Water Conservation and Supply
- OA 10 Tujunga Wash Expanded Multi-Use Trail and Community Connectivity
- OA 736 Railroad ROW Improvement
- OA 707 Hansen Golf Course Water Recycling Project
- OA 756 Tujunga-Sun Valley Tujunga Wash Diversion Project
- OA 757 Valley Generating Station Storm Water Capture
- OA 708 Hansen Spreading Grounds Enhancement
- OA 735 Primary Street Improvement Project
- OA 586 Tujunga Wash Open Space, Connectivity, and Stormwater Capture-6
- OA 581 Tujunga Wash Open Space, Connectivity, and Stormwater Capture-1
- OA 689 Boulevard Pit Enhancement Project
- OA 582 Tujunga Wash Open Space, Connectivity, and Stormwater Capture-2
- OA 684 Arleta Neighborhood Retrofit
- OA 683 Arleta Greenbelt
- OA 583 Tujunga Wash Open Space, Connectivity, and Stormwater Capture-3
- OA 584 Tujunga Wash Open Space, Connectivity, and Stormwater Capture-4
- OA 585 Tujunga Wash Open Space, Connectivity, and Stormwater Capture-5
- OA 580 Tujunga Wash FEMA LOMR
- OA 841 Fernangeles Park
- OA 753 Tujunga Wash Outdoor Classroom
- OA 755 Tujunga Wells Ammoniation Station
- OA 599 Tujunga Wash Enhanced Open Space and Passive Recreation
- OA 567 Tujunga Spreading Grounds Community Activation
- OA 754 Tujunga Wash Project Section 1135
- OA 836 Tujunga Wash Parking Lot to Park Conversion
- OA 701 Grace Community Church of the Valley Parking Retrofit
- OA 835 Tujunga Wash Green Transit Corridor

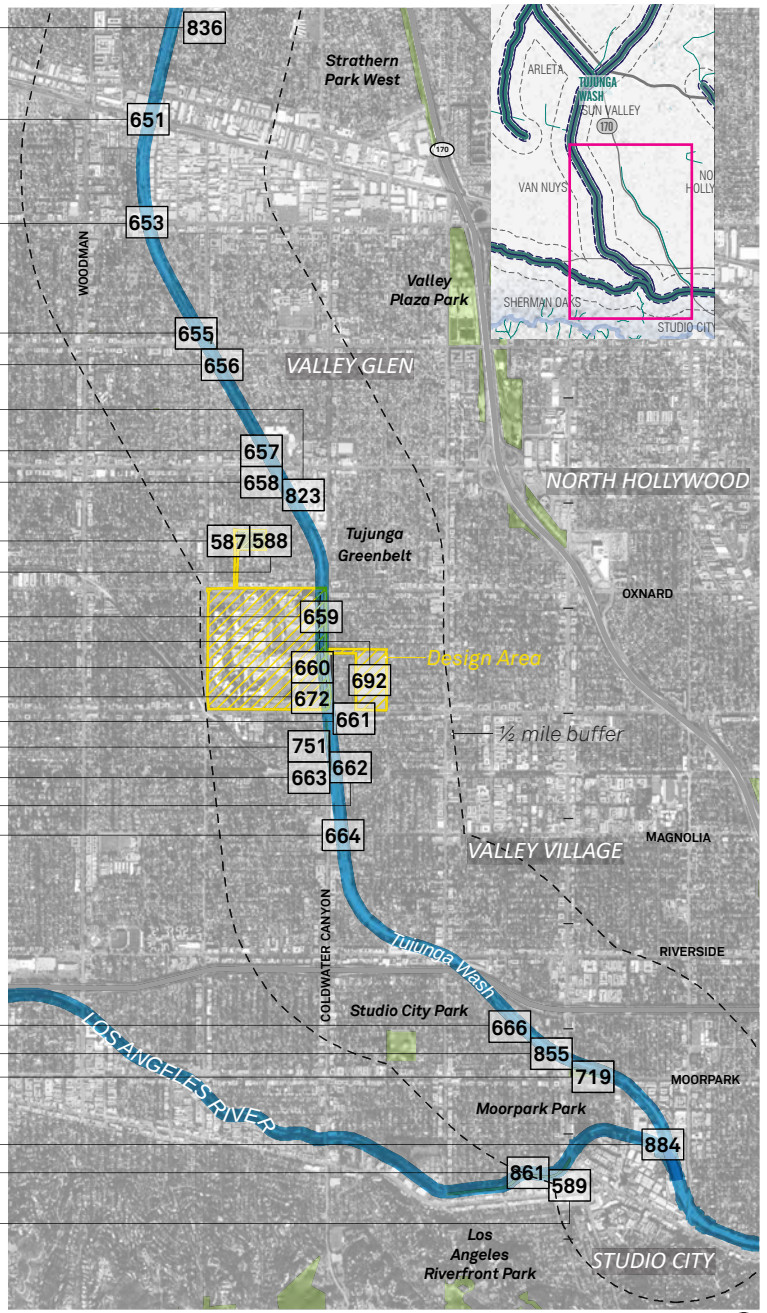


COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

OPPORTUNITY AREAS ON TUJUNGA WASH - STRATHERN STREET TO LA RIVER

- OA 836 Tujunga Wash Parking Lot to Park Conversion
- OA 651 Tujunga Wash Expanded Community Connectivity-1
- OA 653 Tujunga Wash Expanded Community Connectivity-2
- OA 655 Tujunga Wash Expanded Community Connectivity-3
- OA 656 Tujunga Wash Expanded Community Connectivity-4
- OA 823 Tujunga Wash Walkway Restoration
- OA 657 Tujunga Wash Expanded Community Connectivity-5
- OA 658 Tujunga Wash Expanded Community Connectivity-6
- OA 587 Tujunga Wash Stormwater Capture and Flooding Reduction-1
- OA 588 Tujunga Wash Stormwater Capture and Flooding reduction-2
- OA 659 Tujunga Wash New Community Connection-2
- OA 692 CBS-Viacom Radio Community Park
- OA 660 Tujunga Wash Expanded Community Connectivity-7
- OA 672 Tujunga Wash Expanded Community Connectivity-12
- OA 661 Tujunga Wash Expanded Community Connectivity-8
- OA 751 Tujunga and Pacoima Wash Bridge Retrofit and Channel Expansion
- OA 663 Tujunga Wash Expanded Community Connectivity-10
- OA 662 Tujunga Wash Expanded Community Connectivity-9
- OA 664 Tujunga Wash Expanded Community Connectivity-11
- OA 666 Tujunga Wash New Community Connection-3
- OA 855 Tujunga Wash Path
- OA 719 Moorpark Park Retrofit
- OA 884 Tujunga Wash Confluence Park
- OA 861 Upstream from Tujunga Confluence - Laurel Canyon
- OA 589 Tujunga Wash Stormwater Capture and Infiltration-1



COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

Hansen Dam Park

Holiday Lake Boat Race

Hansen Dam Equestrian Trails

HANSEN DAM LAKE REVITALIZATION

Community and Ecological Connector

Recreation amenities proposed in the 1991 Master Plan such as a 15-acre "Holiday lake" swimming area with associated amenities such as picnic areas and restaurant were never built. A 1.5-acre swim lake as part of the Aquatic Center was constructed instead. This design area studies how the "Holiday lake" could be integrated into the park.

This could include

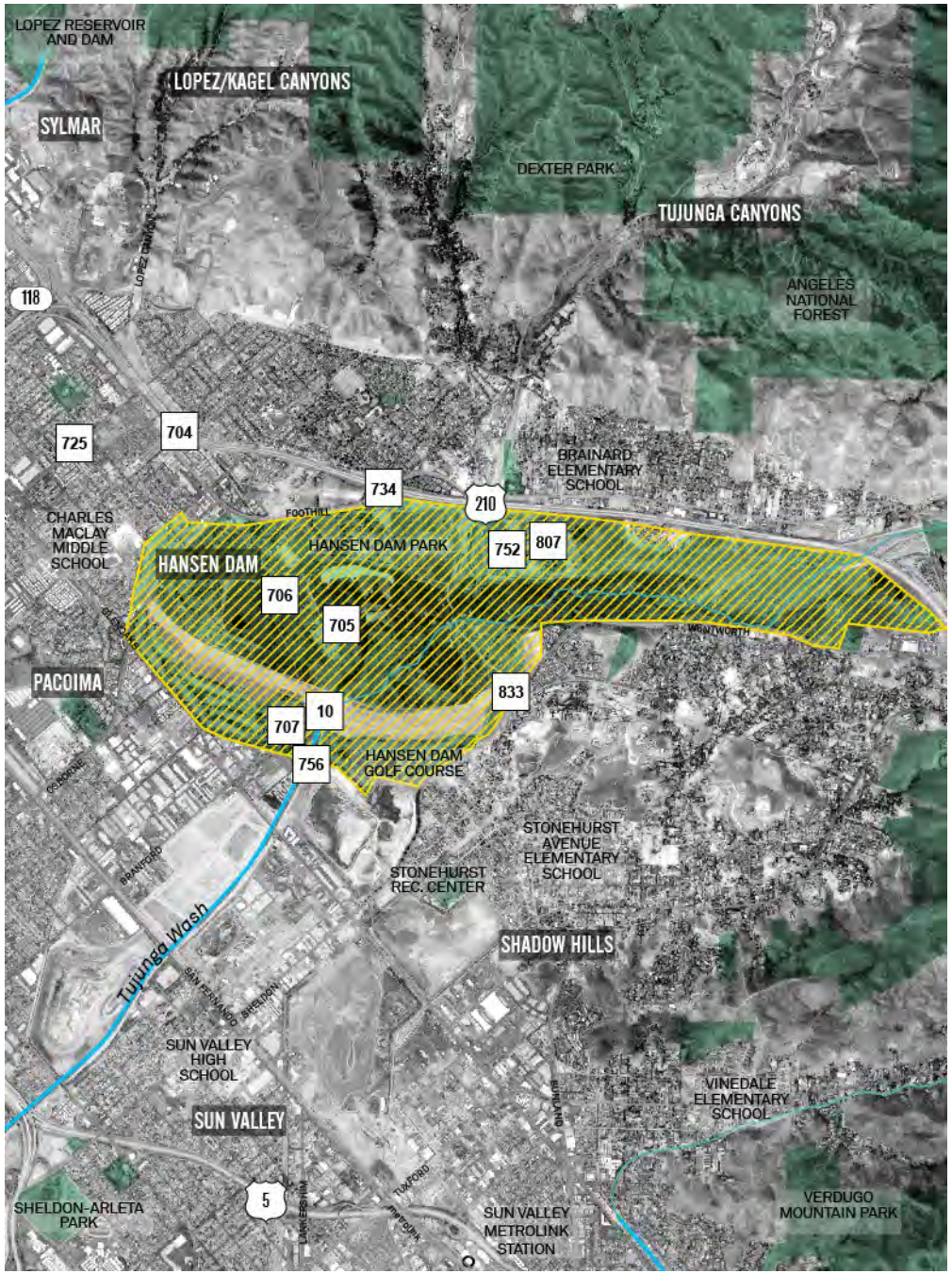
- **Habitat connectivity** for existing fish and wildlife populations. The Basin is located near the San Gabriel Mountains, an area of relatively high biological diversity and abundance
- Promote **preservation and protection of historic and cultural sites** within the Basin
- **Tree allee and green streets** to improve connectivity, improve air quality, and capture stormwater

LAND OPPORTUNITIES

- Hansen Dam Lake Park

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Reduces pollution impact
- Increases access to open space
- Reduced local flooding
- Create safe connections
- Enhances habitat



HANSEN DAM LAKE REVITALIZATION

OPPORTUNITY AREAS IN THIS DESIGN AREA

10	Tujunga Wash Expanded Multi-Use Trail and Community Connectivity
704	Hansen Dam Link
705	Hansen Dam Water Conservation and Supply
706	Hansen Dam Wildlife Lake Improvement
707	Hansen Golf Course Water Recycling Project
725	Pacoima Water Infiltration Median and Trail
734	Power Line Easement Recharge Project
752	Tujunga Tataviam Village Parks
756	Tujunga-Sun Valley Tujunga Wash Diversion Project
807	Orcas Park Improved Facilities and Community Education Opportunity
833	Hansen Dam Bike Path Wentworth Alternative Bikeway Access and Safety

Tujunga Wash Design Areas

HANSEN DAM LAKE (1,690 ACRES)

IMAGINE!

June 19th. After an early morning, birders are walking from the Wildlife Lake to the Tataviam Village to help their neighbors set up for Tataviam "People facing the Sun" day — a traditional gathering where tribal families enjoy a potluck, tell stories, play traditional games, and sing bird songs in celebration of the summer solstice. The event is being held at the Hansen Dam Tataviam Interpretive Village's haramokngna or gathering place. Over the day, people arrive on foot, bicycle, and horse. Some bring traditional dishes to share, others bring native plants used in traditional Tataviam celebrations that were grown at the Hansen Dam Green House.

CONTEXT

The 1,690-acre Hansen Dam Lake design area is actually only a small part of the Hansen Dam Flood Control Basin which consists of the Lake, a large recreation area, equestrian facilities, an aquatic center, and natural habitat areas. To the north of the Basin is the Angeles National Forest and the San Gabriel Mountains. Residential communities around the Basin include Shadow Hills, Lake View Terrace, and Pacoima.

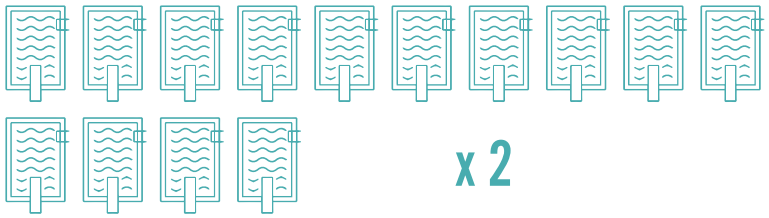
About 46,326 people live within the vicinity of Hansen Dam Lake with an average CalEnvironScreen score in the 85th percentile of the entire state.

RESILIENCY BENEFITS

Analyzing the Hansen Dam Lake design area concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **1,437 acres** *of new or enhanced permeable cover*



STORMWATER CAPTURE

55.8 acre-feet

or **28**

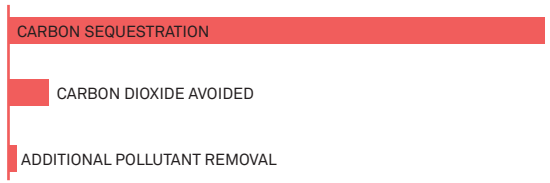
Olympic-sized swimming pools

WATER

AIR

AIR

The design includes **6,118 trees** *that sequester carbon, and remove pollutants from the air*



AIR POLLUTANT REMOVAL

6,477 tons
Additional Carbon Sequestration

159 tons
Additional Carbon Dioxide Avoided

5 tons
Additional Pollutant Removal

HABITAT

The design includes **1,676 acres** *of new and enhanced ecological habitat that contribute to the Rim of the Valley Corridor Preservation and* **70 acres** *of additional tree canopy*

HABITAT CREATION

687%
the size of the 244-acre Verdugo Mountain Open Space Preserve

HABITAT

COMMUNITY

COMMUNITY

The design includes **1,301 acres** *of new and enhanced open space and* **34 miles** *of new or enhanced community connections*

20.2 miles
Green Streets

5.0 miles
Multi-modal paths

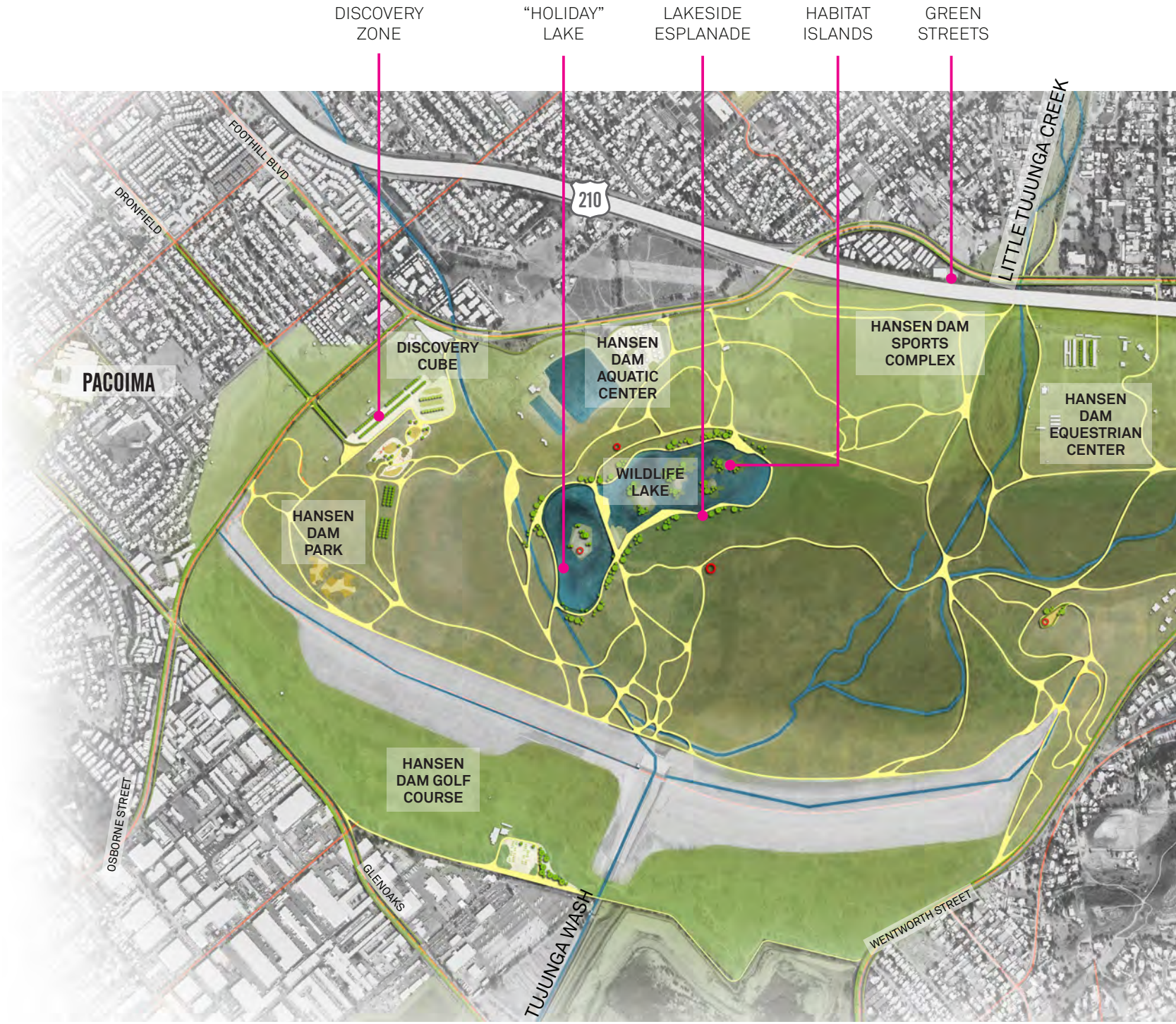
8.4 miles
Trails

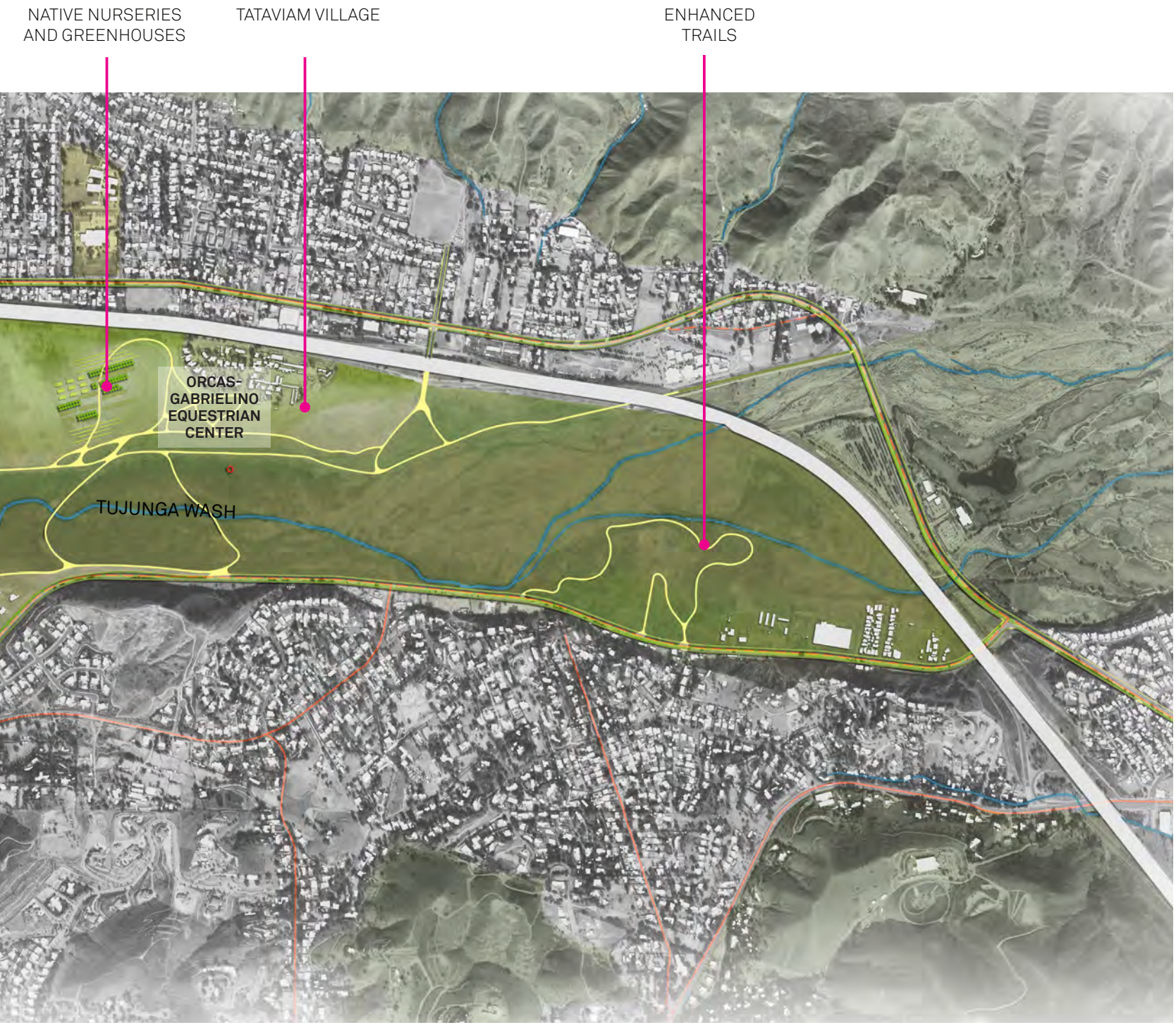
Tujunga Wash Design Areas// Hansen Dam Lake

Tujunga Wash Design Areas// Hansen Dam Lake

Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details, are not part of this plan

View looking north at Holiday Lake and the Habitat Islands

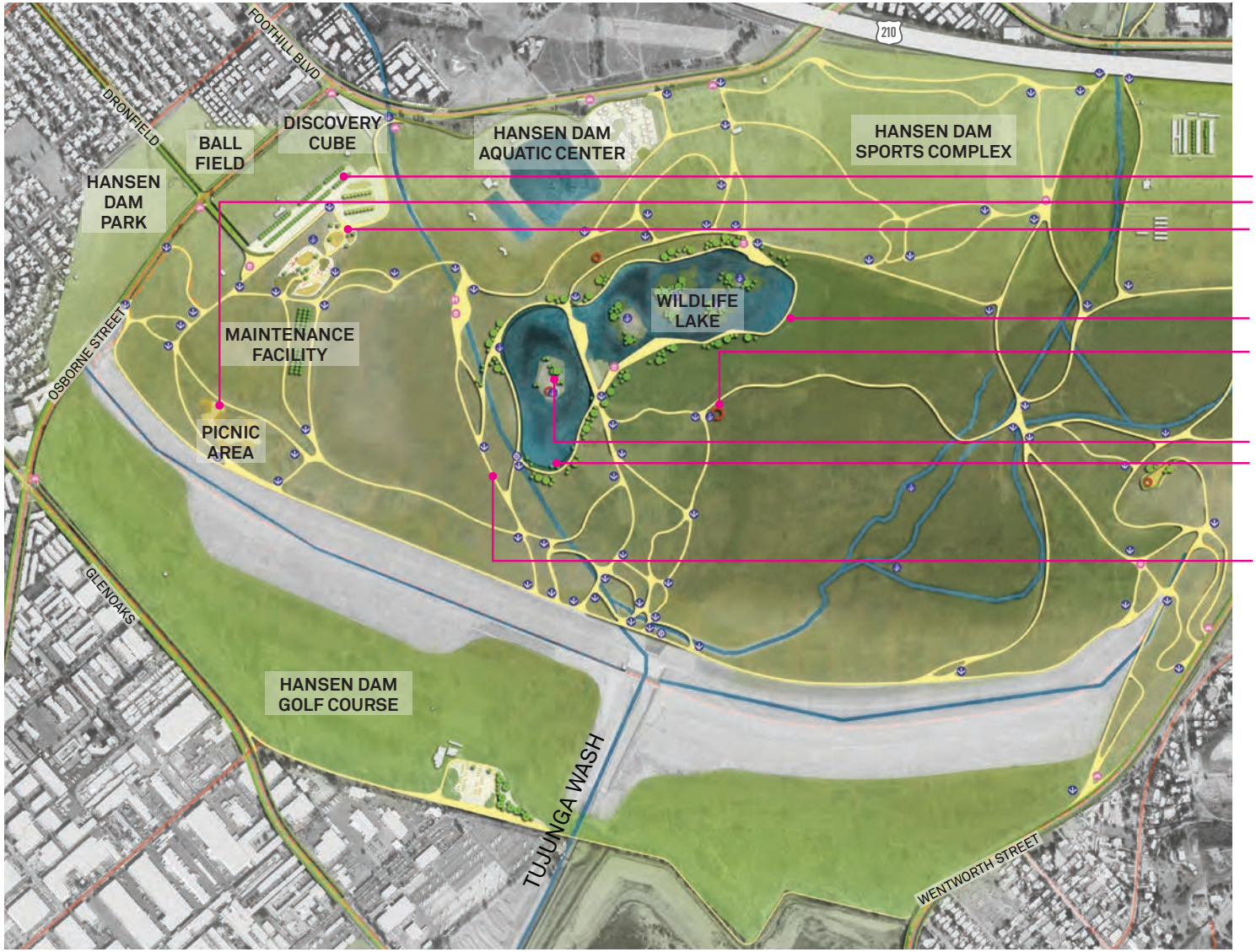

DISCOVERY ZONE
"HOLIDAY" LAKE
LAKESIDE ESPLANADE
HABITAT ISLANDS
GREEN STREETS
LITTLE TUJUNGA CREEK
210
FOOTHILL BLVD
DRONFIELD
PACOIMA
DISCOVERY CUBE
HANSEN DAM AQUATIC CENTER
HANSEN DAM SPORTS COMPLEX
HANSEN DAM EQUESTRIAN CENTER
WILDLIFE LAKE
HANSEN DAM PARK
HANSEN DAM GOLF COURSE
OSBORNE STREET
GLENOAKS
TUJUNGA WASH
WENTWORTH STREET


NATIVE NURSERIES AND GREENHOUSES
TATAVIAM VILLAGE
ENHANCED TRAILS
ORCAS-GABRIELINO EQUESTRIAN CENTER
TUJUNGA WASH
750'
1500'

Tujunga Wash Design Areas// Hansen Dam Lake

HOLIDAY LAKE (ENLARGEMENT)

In conversations with community members, many people noted that they didn't have a strong impression of Hansen Dam Park. At over 1,400 acres and 4.5 miles long, Hansen Dam Lake is a large regional park without a clear identity. One of the key decisions in the design concept area was Chairperson Monica's Rodriguez's suggestion to bring back Holiday Lake. The historic lake was a popular place for boat races, fishing, and swimming was closed in 1982 because of sediment accumulation. The design would recreate Holiday Lake on its original site, which is currently inaccessible, and open it for non-motorized boating. The community could also admire the lake while walking, sitting, or sipping tea along the lakeside esplanade. The lake will infuse the park with whimsy, interactivity and a connection to the community's history.



HABITAT ISLANDS

One hundred years ago, the San Fernando Valley was a wide open plain, dotted with farms and crisscrossed by the Los Angeles River and its tributary creeks. The Valley's wetlands and riparian corridors provided a haven for millions of birds traveling between breeding grounds in Mexico and Central America. The massive development of the area has made space like Hansen Dam Lake a critical habitat. The Hansen Dam Recreational Area provides several habitat types that support a variety of wildlife including open water, riparian, grassland, and scrub/shrub communities. It is also a key part of the wildlife connection via the Tujunga Wash to large areas of habitat located within the Verdugo Mountains and continuing to the San Gabriel Mountains. The area has been designated a Significant Ecological Area (SEA), known as the Tujunga Canyon/Hansen Dam SEA, by the County of Los Angeles.

The design concept strongly supports enhancing wildlife corridors with the appropriate vegetation and calls for the protection of native wildlife nursery sites and established native resident/migratory wildlife corridors.

Tujunga Wash Design Areas// Hansen Dam Lake

TATVIAM VILLAGE

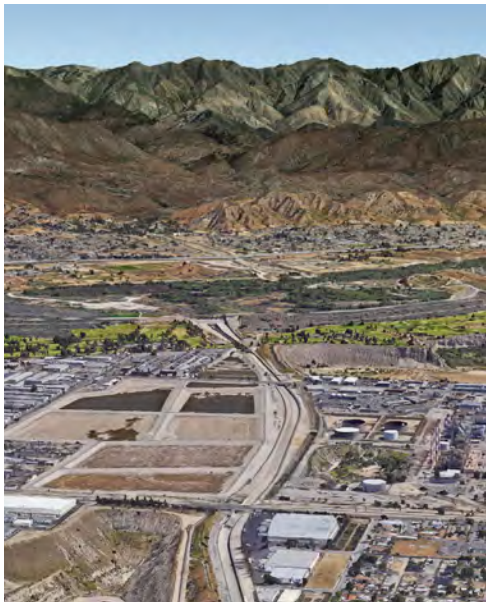
The area was first inhabited by the Fernandeño-Tataviam people, a California Indian Tribe, historically known as Tataviam Band of Mission Indians. Mission San Fernando was established on September 8, 1797 and enslaved their ancestors from the traditional villages in the geographically surrounding area.

The design concept proposed partnering with the Fernandeño Tataviam Band of Mission Indians and their allies to create a richer shared human experience through a more informed understanding of Native peoples. This includes the development of a Tataviam Interpretive Village features a kitc, or traditional dwelling; a hoyatsu, or traditional sweat house; a haramokngna, or gathering place; and native plants that are used culturally. In addition, the design will provide access and ceremonial rights, culturally-competent signage, and history.

NEXT STEPS

Additional required analyses and next steps for the Hansen Dam Lake design area include:

- Collaboration with Army Corps of Engineers should occur at all points of the process
- A preliminary engineering report that includes feasibility-level analyses, cost estimates, and coordination
- Analysis of annual and seasonal water and sediment inflow conditions to identify the lake's water balance and its sustainability
- Geotechnical evaluation for soil infiltration and groundwater levels should be performed to determine if water control features may be necessary to stabilize lake levels
- Study to assess the potential for planting native vegetation to restore historical habitat wherever possible
- Biological studies for wildlife needs for habitat restoration and preservation areas
- An Environmental Impact Report/ Statement (EIR/EIS) may need to be completed to assess any potential environmental impacts
- Water quality analysis—including pollutant settling and oxygen demand
- Air quality assessment
- Study to assess whether native vegetation need be planted, or whether the existing wetlands should be allowed to expand naturally



Tujunga Wash

Hansen Spreading Grounds

Boulevard Pit

HANSEN SPREADING GROUNDS

Enhancing Flood Control

Instances of flooding have been noted in this areas. FEMA issued a letter of map revision regarding the local flooding in this area. Community members and the public have also noted local flooding in the area. This design area would examine how the spreading grounds, stormwater capture station, and boulevard pit could be enhanced to increase the spreading grounds' storage capacity and percolation rate and potentially open to public as park land.

This could include

- Study the opportunity to optimize and combine the basins **to increase percolation and simplify operations**
- Opportunity to **create ecological areas** in the spreading grounds
- Help **create access** along the Tujunga Wash to the Hansen Dam Recreation Area
- **Integration of passive space** into the spreading ground enhancement

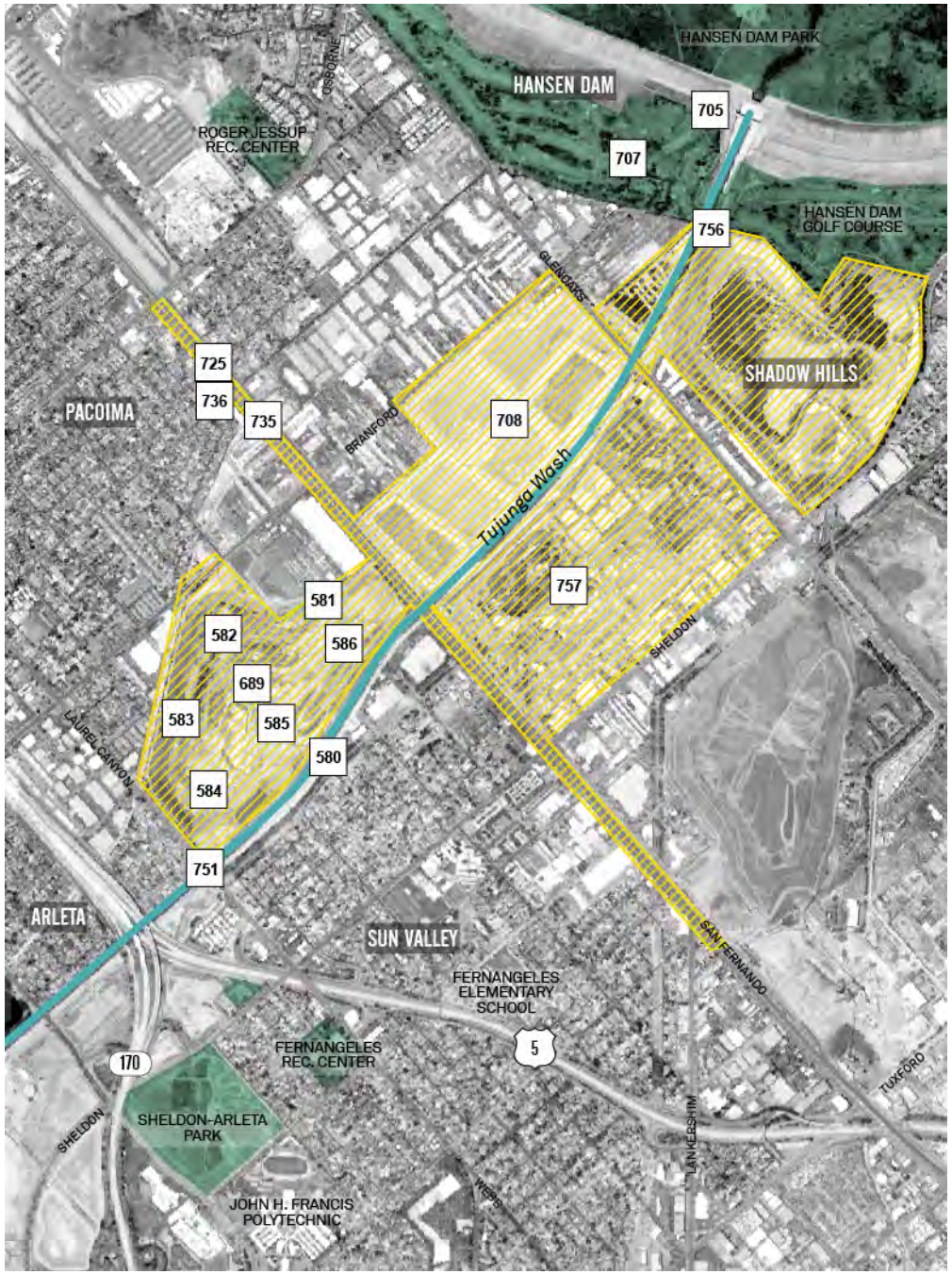
LAND OPPORTUNITIES

- Hansen Spreading Grounds
- Right-of-way along the wash
- Boulevard Pit
- Streets
- Schools

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Create a regional destination
- Increases access to open space
- Enhances habitat

Tujunga Wash Design Areas// Hansen Spreading Grounds



HANSEN DAM SPREADING GROUNDS

OPPORTUNITY AREAS IN THIS DESIGN AREA

580	Tujunga Wash FEMA LOMR
581	Tujunga Wash Open Space, Connectivity, and Stormwater Capture-1
582	Tujunga Wash Open Space, Connectivity, and Stormwater Capture-2
583	Tujunga Wash Open Space, Connectivity, and Stormwater Capture-3
584	Tujunga Wash Open Space, Connectivity, and Stormwater Capture-4
585	Tujunga Wash Open Space, Connectivity, and Stormwater Capture-5
586	Tujunga Wash Open Space, Connectivity, and Stormwater Capture-6
689	Boulevard Pit Enhancement Project
705	Hansen Dam Water Conservation and Supply
707	Hansen Golf Course Water Recycling Project
708	Hansen Spreading Grounds Enhancement
725	Pacoima Water Infiltration Median and Trail
735	Primary Street Improvement Project
736	Railroad ROW Improvement
751	Tujunga and Pacoima Wash Bridge Retrofit and Channel Expansion
756	Tujunga-Sun Valley Tujunga Wash Diversion Project
757	Valley Generating Station Storm Water Capture

2.5 mi 5 mi

Tujunga Wash Design Areas HANSEN DAM SPREADING GROUNDS (723 ACRES)

IMAGINE!

Friday at 7 pm. Students from Robert H Lewis are one of a dozen groups that are camping out at the infiltration basin. Earlier in the day they saw a nighthawk, western fence lizards, and an American bullfrog. The sun is setting, and their teacher is showing them how to use a telescope and spot nocturnal animals. In the morning, they will hike on the trails made of reclaimed materials and explore the various habitats at the infiltration parks, the spreading grounds, and the habitat reserve.

CONTEXT

The 723-acre Hansen Dam Spreading Grounds sit at the base of Hansen Dam in the Sun Valley and Pacoima neighborhoods. The design area includes the spreading grounds as well as a landfill and two gravel pits. The area is boxed in by Interstate-5 to the south, Hansen Dam to the north, the Verdugo Mountains to the east, and the Whiteman Airport to the west. Opportunities for green infrastructure connections were included along San Fernando Road and the adjacent railway.

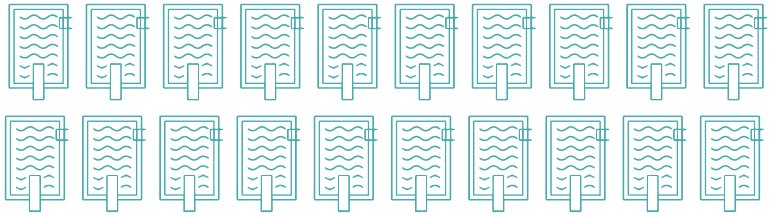
About 14,252 people live within ½ mile of the tributary in this area with an average CalEnviroScreen score in the state's 87th percentile; an extremely environmentally burdened population.

RESILIENCY BENEFITS

Analyzing the Hansen Dam Spreading Grounds concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **578 acres** *of new or enhanced permeable cover*



x 150

STORMWATER CAPTURE

6,068 acre-feet

or **3,034**

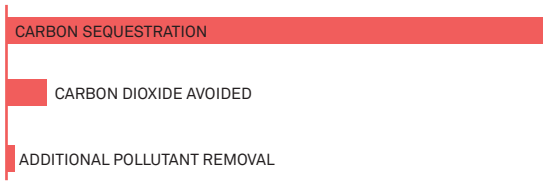
Olympic-sized swimming pools

WATER

AIR

AIR

The design includes **8,265 trees** *that sequester carbon, and remove pollutants from the air*



AIR POLLUTANT REMOVAL

8,479 tons
Additional Carbon Sequestration

190 tons
Additional Carbon Dioxide Avoided

7 tons
Additional Pollutant Removal

HABITAT

The design includes **520 acres** *of new and enhanced ecological habitat.* **302 acres** *contribute to the Rim of the Valley Corridor Preservation and* **95 acres** *of additional tree canopy*

HABITAT CREATION

687%

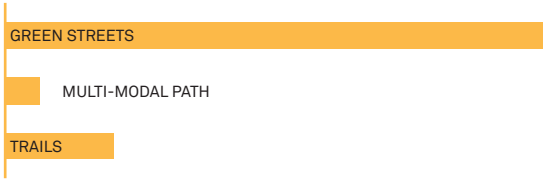
the size of the 244-acre Verdugo Mountain Open Space Preserve

HABITAT

COMMUNITY

COMMUNITY

The design includes **542 acres** *of new and enhanced open space and* **23 miles** *of new or enhanced community connections*



14 miles
Green Streets

3 miles
Multi-modal paths

6 miles
Trails

Tujunga Wash Design Areas// Hansen Dam Spreading Grounds

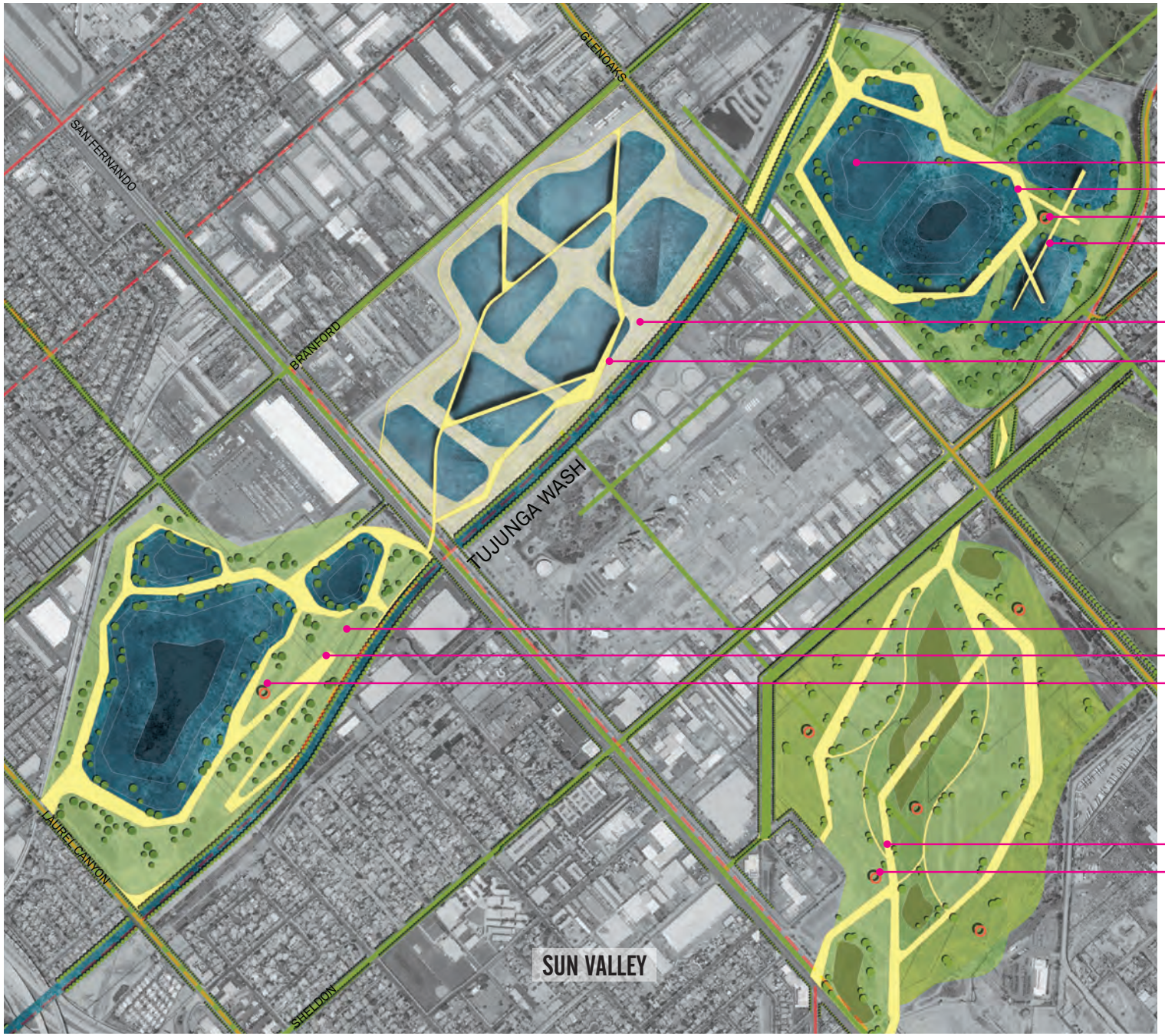
View looking North just South of Laurel Canyon Blvd

Tujunga Wash Design Areas// Hansen Dam Spreading Grounds

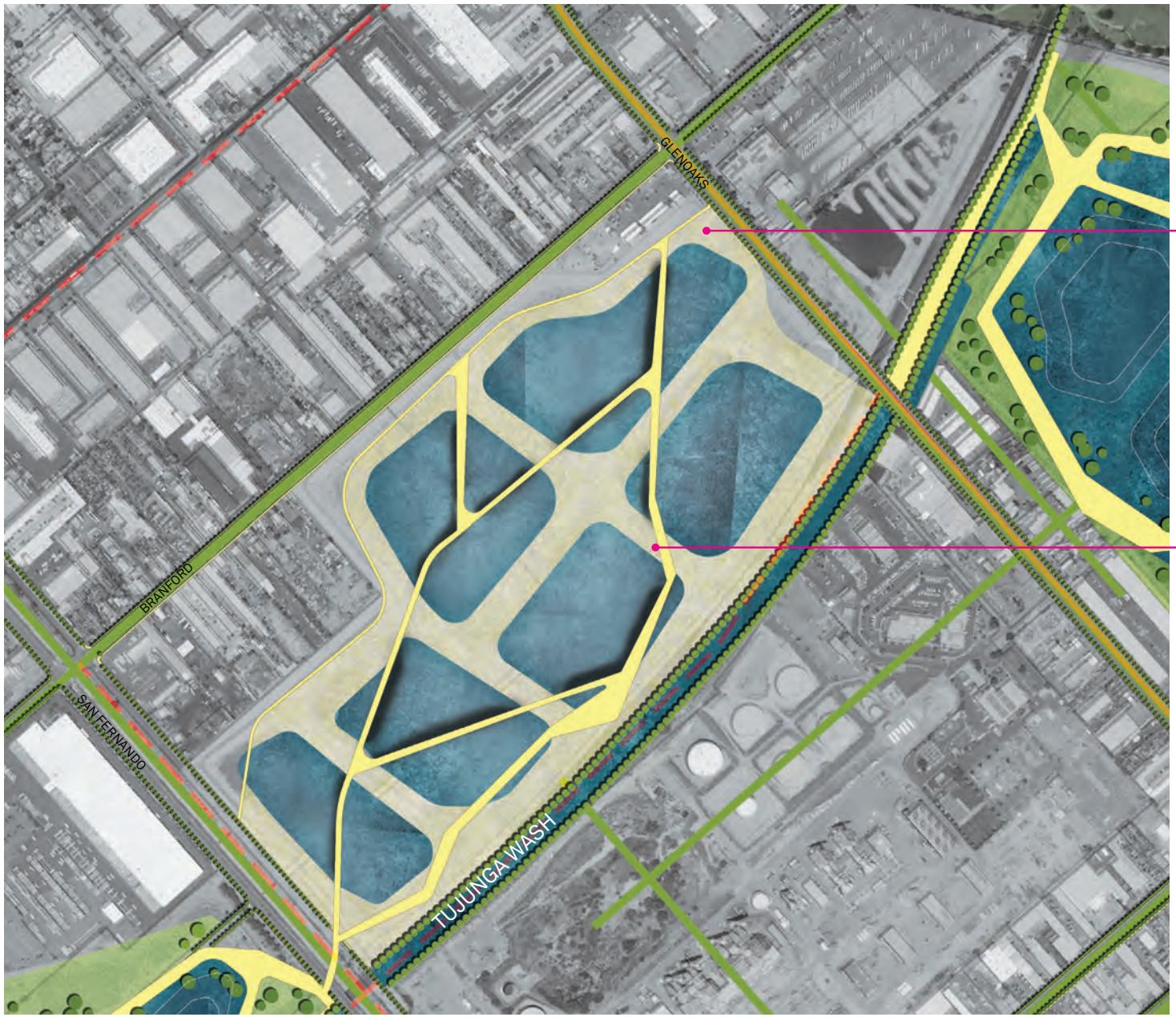
Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details, are not part of this plan

View looking North just South of Laurel Canyon Blvd

Tujunga Wash Design Areas// Hansen Dam Spreading Grounds



HANSEN DAM SPREADING GROUNDS (ENLARGEMENT)

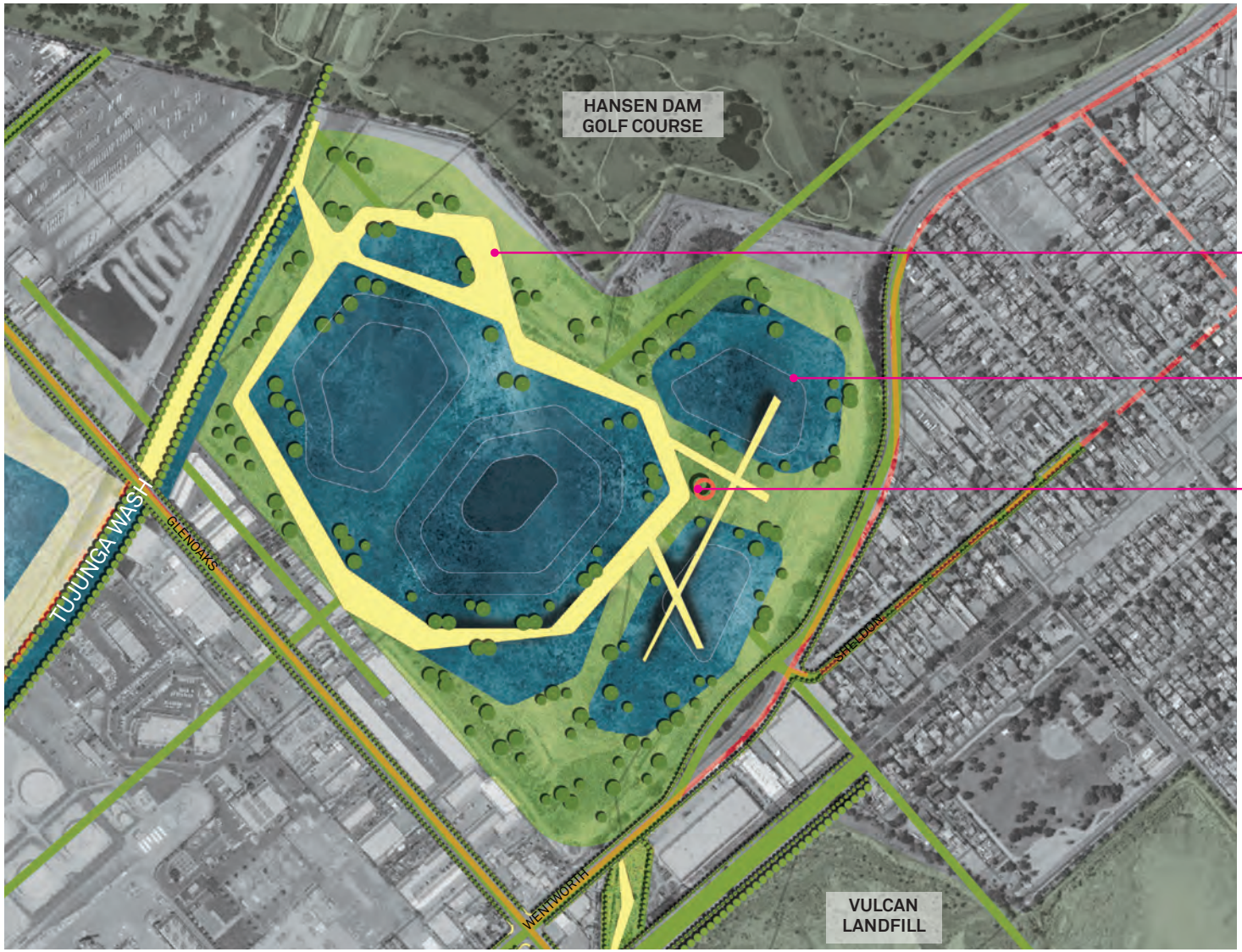


Tujunga Wash Design Areas// Hansen Dam Spreading Grounds

INFILTRATION PARK #1 (ENLARGEMENT)

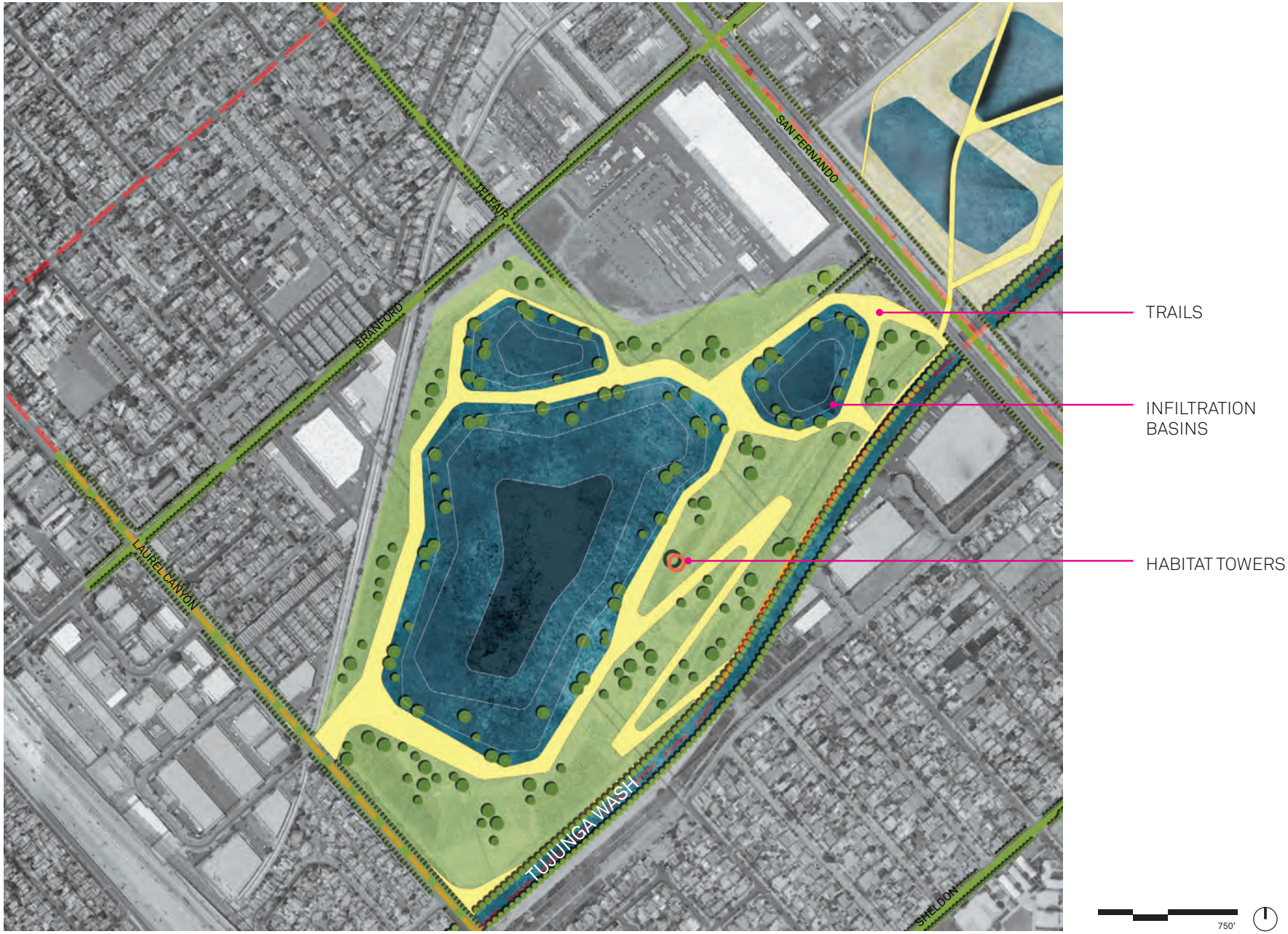
Transformed from old quarries, the infiltration parks manage rainfall onsite through bioswales, wetland cells, and a retention pond while providing a unique experience for the experience. Modern overlook provides dramatic view of the exposed historic quarry walls. Each infiltration park provides several native ecosystems, including walnut woodland communities, simulated wetlands, and a pond.

All stormwater on site is directed into the basin instead of the community's overtaxed sewers. The water flows through tiered educational wetlands that connect the community with nature and allows wildlife, children and adults to walk amidst native plantings.



Tujunga Wash Design Areas// Hansen Dam Spreading Grounds

INFILTRATION PARK #2 (ENLARGEMENT)



Tujunga Wash Design Areas// Hansen Dam Spreading Grounds

CAP PARK / WILDLIFE RESERVE (ENLARGEMENT)

What was once a landfill, is slowly transforming into a wildlife park. The design concept will enclose the municipal waste in clay, cover it with excavated soil, and plant it with soil. Shaped into a soft, hilly topography, the former landfill will provide a home to hundreds of species of plants and animals and create a critical connection between the Verdugo Mountains and the Angeles National Forest.

NEXT STEPS

Additional required analyses and next steps for the Hansen Dam Spreading Grounds design area include:

- A preliminary engineering report that includes feasibility-level analyses, cost estimates, and coordination should be performed
- Annual and seasonal water inflow conditions should be determined to identify the lake's water balance and its sustainability
- Geotechnical evaluation for soil infiltration and groundwater levels should be performed to determine if water control features may be necessary to stabilize lake levels
- Assessment of the potential for planting native vegetation to restore historical habitat wherever possible
- Biological studies for wildlife needs for habitat restoration and preservation areas should be conducted
- An Environmental Impact Report/ Statement (EIR/EIS) may need to be completed to assess any potential environmental impacts
- Water quality analysis—including pollutant settling and oxygen demand—should be performed
- Air quality assessment
- Assessment of benefits of allowing the existing wetlands should be allowed to expand naturally
- Coordination with all authorities having jurisdiction, such as but not limited to the US Army Corps of Engineers, LA County Rec and Parks
- Additional analysis to consider climate change and updated storm return intervals to help understand and prioritize opportunities and improvements

Tujunga Wash

The Great Wall

Potential Opportunity for a Park

TUJUNGA CULTURAL CENTER

A Cultural Destination On The Wash

This design area groups Valley College, Grant High School, the Tujunga Green Belt, the Great Wall Mural, and a vacant lot on Burbank Boulevard into a showcase space on the Tujunga Wash. This design area could leverage the value created through the Great Wall and the Tujunga Green Belt to create a high quality and distinguished experience that is authentic to the community and brings activity to the waterfront and connecting neighborhoods.

This could include

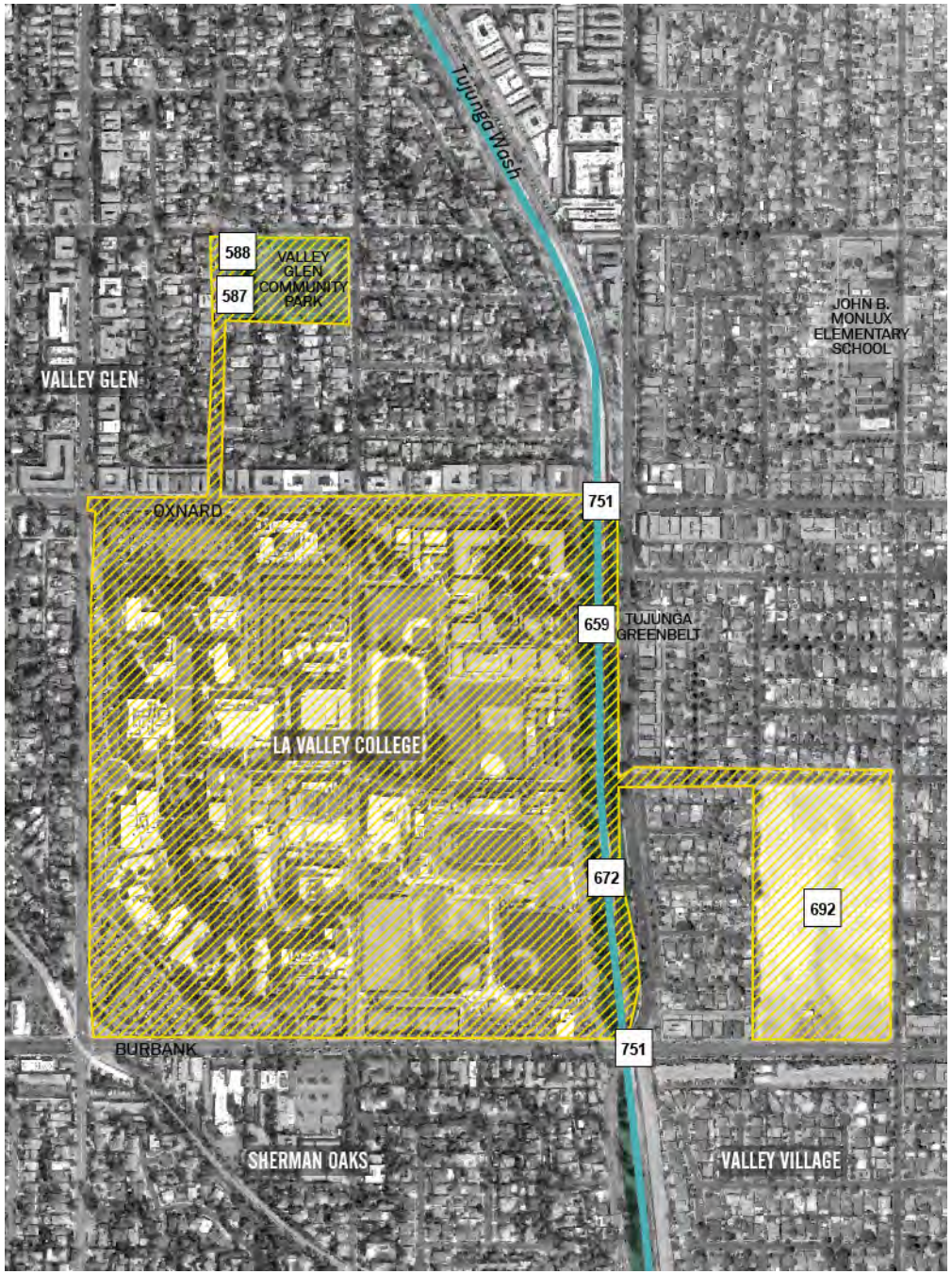
- Existing open lot on Burbank Boulevard is feasible for **ancillary park development**
- Development of bioswales, infiltration basins, and native vegetation at the schools and the Burbank Boulevard lot to **encourage infiltration and cleanse pollutants and contaminants from stormwater runoff**
- **A multi-use path** that connects the area to the public transit and other parts of the community

LAND OPPORTUNITIES

- Hansen Spreading Grounds
- Right-of-way along the wash
- Boulevard Pit
- Streets
- Schools

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Potential to develop passive recreational facilities in park poor area, increase native habitat, and provide opportunities to capture and infiltrate stormwater
- Opportunity to create temporary and permanent active destinations/amenities to draw people to Tujunga Wash



TUJUNGA CULTURAL CENTER

OPPORTUNITY AREAS IN THIS DESIGN AREA

587	Tujunga Wash Stormwater Capture and Flooding Reduction-1
588	Tujunga Wash Stormwater Capture and Flooding reduction-2
659	Tujunga Wash New Community Connection-2
660	Tujunga Wash Expanded Community Connectivity-7
672	Tujunga Wash Expanded Community Connectivity-12
692	CBS-Viacom Radio Community Park
751	Tujunga and Pacoima Wash Bridge Retrofit and Channel Expansion

1 mi 2 mi

TUJUNGA WASH GREENWAY EXTENSION (85 ACRES)

IMAGINE!

The Tujunga Greenway is a dynamic surface that engages the waterfront edge by stepping down to meet the water, creating amphitheater-like forms, stepping up to create picnicking areas, peeling off to form over-looks, and splitting apart to allow for art installations the engage the water. The promenade is up to 100' wide, allows for a highly programmed edge that engages directly with the waterfront conditions and the surrounding context. The greenway helps to extend adjacent building uses — knitting the waterways into the neighborhoods and creating a new rhythm and sequence in the city

CONTEXT

The 85-acre Tujunga Wash Green Extension site runs 2.75 miles from Laurel Canyon Avenue to Sherman Way. It will connect the Tujunga Wash Spreading grounds to the existing Tujunga Wash Greenway. For its vast majority, the expansion will mainly run through residential neighborhoods.

The area is very dense with about 75,147 people living within ½ mile of the tributary in this area. The burden in the area is high with the average CalEnviroScreen score being in the 90th percentile.

RESILIENCY BENEFITS

Analyzing the Tujunga Wash Greenway Extension design area concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **15.5 acres** *of new or enhanced permeable cover*

STORMWATER CAPTURE

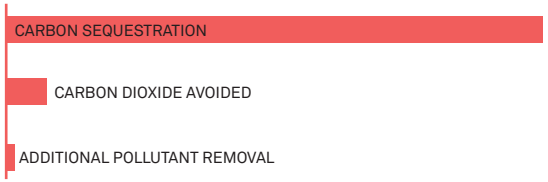
2.1 acre-feet

or **1**

Olympic-sized swimming pools

AIR

The design includes **1,708 trees** *that sequester carbon, and remove pollutants from the air*



AIR POLLUTANT REMOVAL

1,808 tons
Additional Carbon Sequestration

68 tons
Additional Carbon Dioxide Avoided

1.5 tons
Additional Pollutant Removal

HABITAT

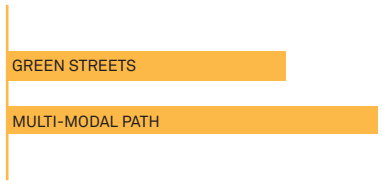
The design includes **34 acres** *of new and enhanced ecological habitat and* **20 acres** *of additional tree canopy*

HABITAT CREATION

15%
the size of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

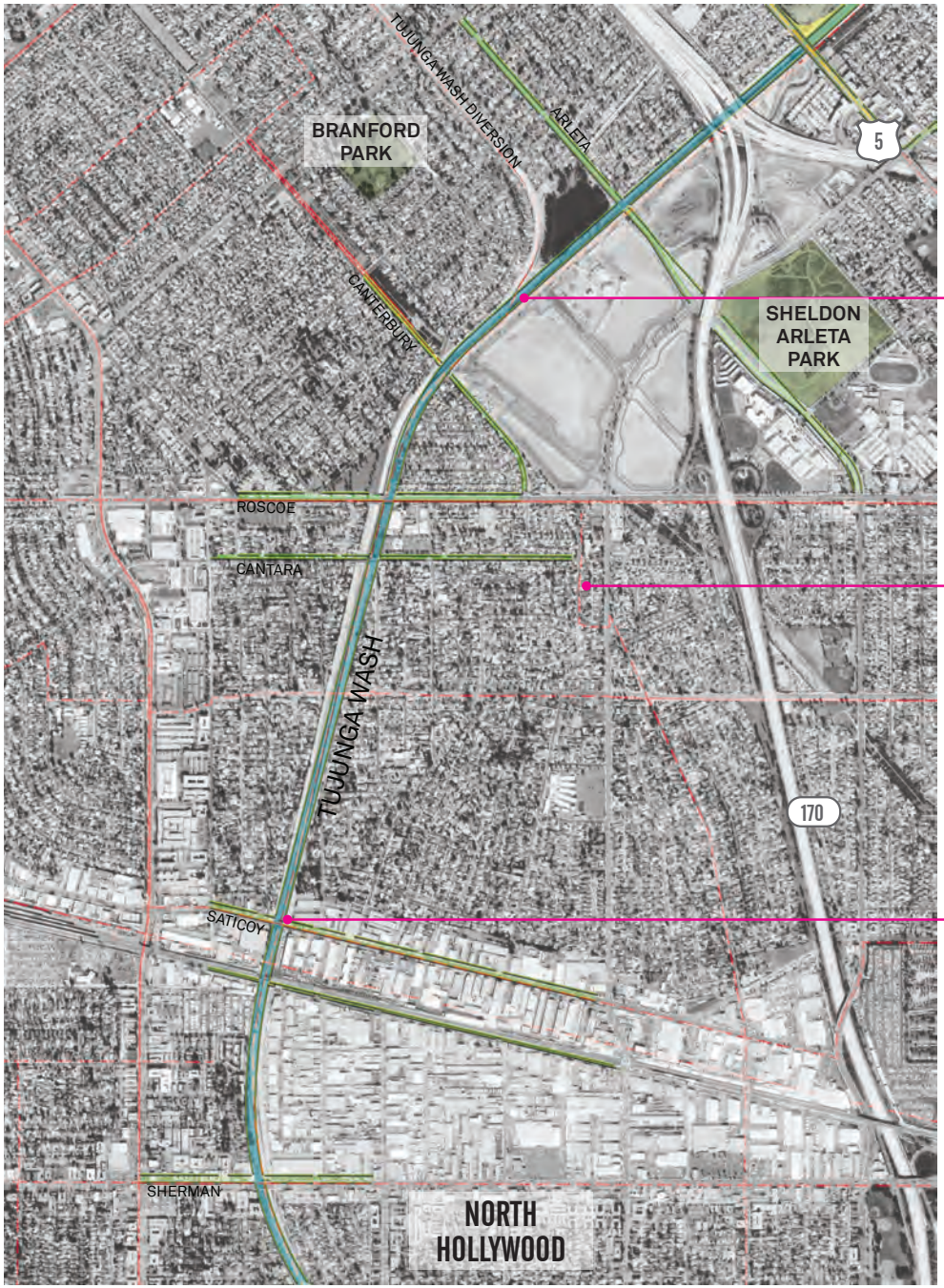
The design includes **10 acres** *of new and enhanced open space and* **11.3 miles** *of new or enhanced community connections*



5 miles
Green Streets

6.3 miles
Multi-modal paths

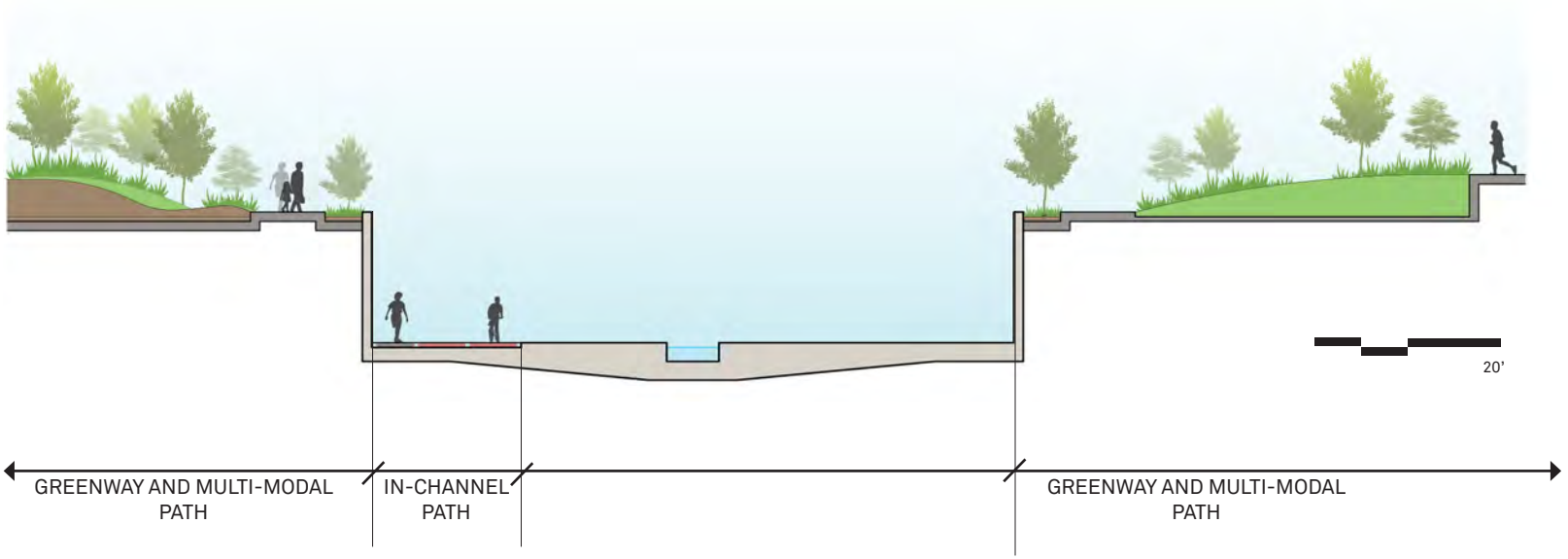
Tujunga Wash Design Areas// Tujunga Wash Greenway Extension



TUJUNGA WASH GREENWAY

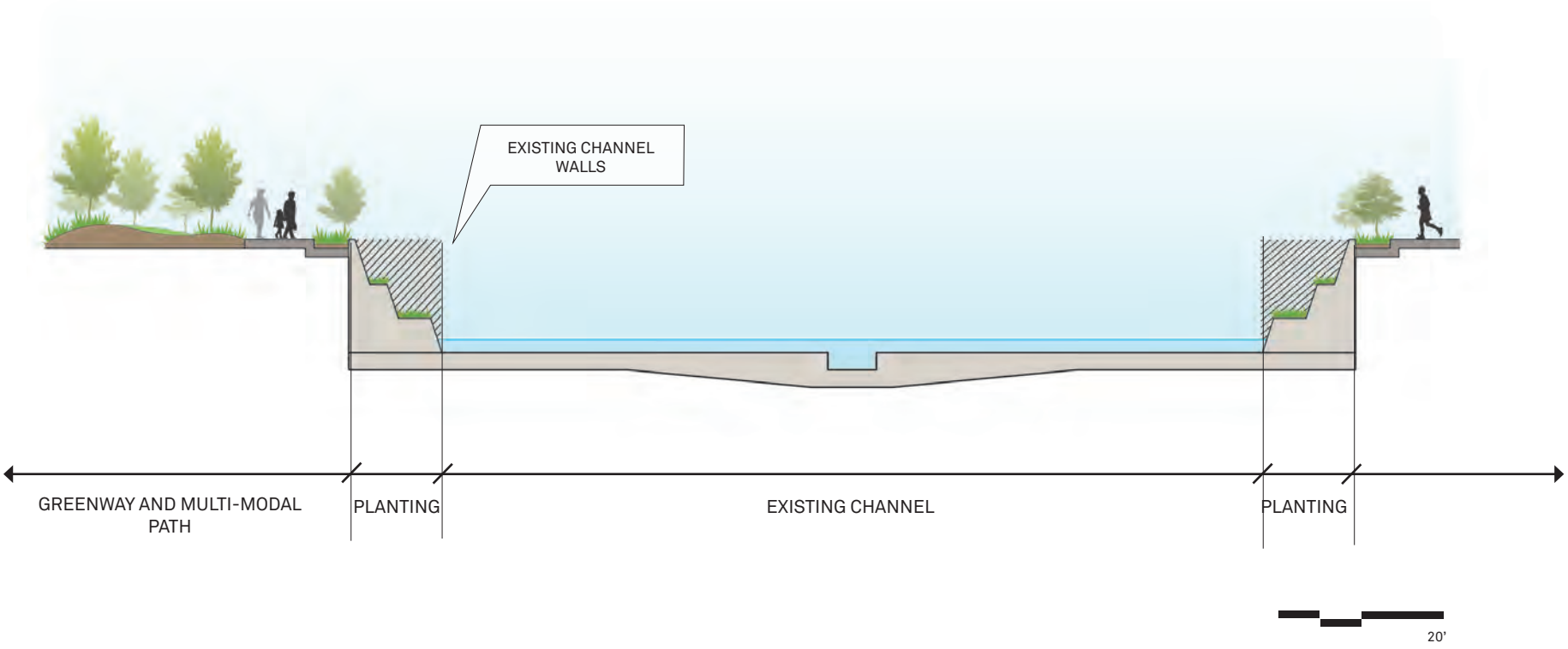
Connecting the mountains to the LA River, the Tujunga Greenway Extension will create continuity along the Tujunga, linking the Hansen Dam Spreading Grounds to LA Valley College and Grant High School. This will help activate the waterway year-round by providing new ecological, community, and recreational opportunities. The goal of the project is to provide a continuous public esplanade for bicycles and pedestrians, improve connections to the adjoining neighborhoods and provide needed open space amenities. Programmatic features include in-channel paths, overlooks, terraces to the water, rest areas, and community use pavilions. Environmental features could include extensive plantings and terraced step areas.

A lighting scheme will to ensure that dark nooks, dark areas, and other areas without clear sightlines will be sufficiently illuminated. Controls will also be implemented to dampen impacts form vehicular headlights surrounding streets and parking.



Section of Tujunga Greenway Extension showing Path In Channel. The Tujunga Greenway Extension crosses many large streets such as Victory Boulevard and Sherman Way. There is an opportunity to create In-Channel Paths that would bypass these major streets and create continuous circulation for bicyclists, pedestrians, and other modalities.

Tujunga Wash Design Areas// Tujunga Wash Greenway Extension



Section of Tujunga Greenway Extension showing Greenway Terracing. Cutting back from the existing channel walls and creating planted terracing can help clean stormwater runoff before it enters the Tujunga Wash.

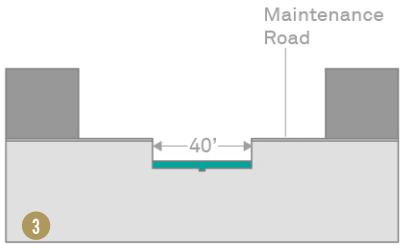
NEXT STEPS

Additional required analyses and next steps for the Tujunga Wash Cultural Center design area include:

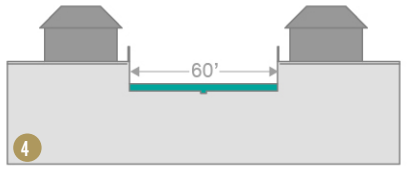
- Preliminary engineering report that includes feasibility-level analyses, cost estimates, and coordination
- Analysis for collection capacity and storage for stormwater capture
- Geotechnical evaluation for stormwater infiltration, multi-use paths, park space, and recreational facilities
- Analysis of the expected flows during wet and dry weather
- Soil remediation analyses to determine extent of possible existing contamination
- Structural analysis of proposed green infrastructure, multi-use paths, and recreational facilities should be conducted for final design
- Identification and procurement of the appropriate water rights for river diversions
- Analysis of the effects of increased water demand from vegetation and wildlife
- An Environmental Impact Report/ Statement (EIR/EIS) may need to be completed to assess any potential environmental impacts
- Investigation of land records identifying property ownership should be conducted, with subsequent acquisition options if necessary
- Water quality analysis—including pollutant settling and oxygen demand
- Air quality assessment
- Study to assess the potential for planting native vegetation to restore historical habitat wherever possible
- Coordination with all authorities having jurisdiction, such as but not limited to the US Army Corps of Engineers, LA County Rec and Parks
- Additional analysis to consider climate change and updated storm return intervals to help understand and prioritize opportunities and improvements

Segment 1.
This segment runs 3 miles, from its headwaters at the confluence of Hansen Heights Channel and the La Tuna Lateral to Jackson Street where its capped. It runs adjacent to the Santa Ana (5) Freeway for a significant portion. For almost half of this length (1.3 miles), its runs between the I-5 and N. Glenoaks Blvd.

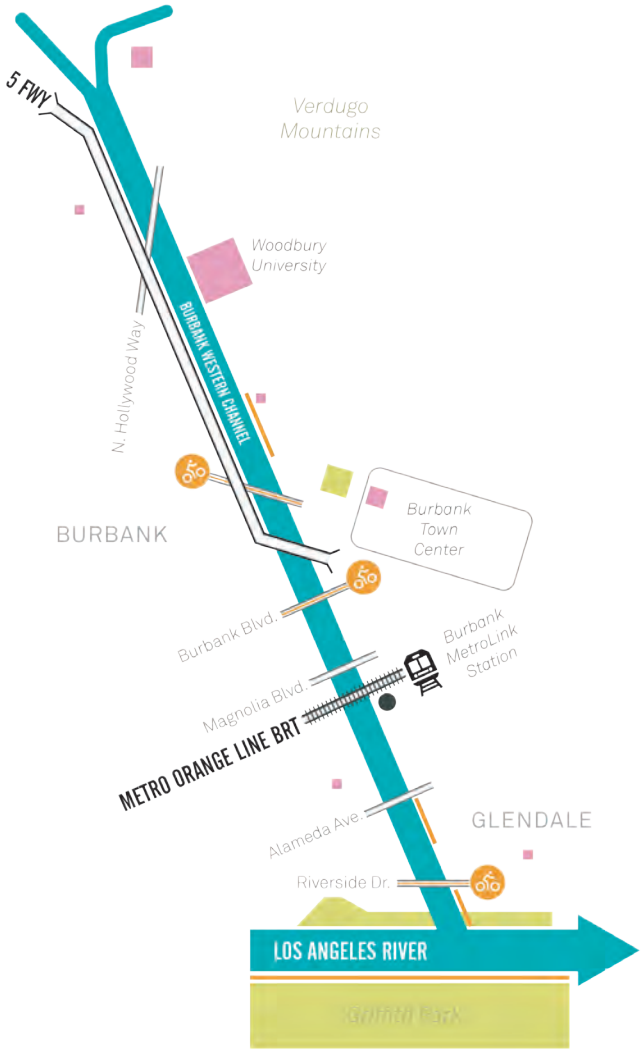
Segment 2.
This segment runs 0.85 miles, from Jackson Street to Burbank Blvd. The tributary is capped as it crosses the Santa Ana Freeway and the MetroLink tracks.



Segment 3.
This segment runs 1.7 miles, from Burbank Blvd to Victory Blvd. This segment runs through industrial and residential neighborhoods.



Segment 4.
This segment runs 0.7miles from Victory Blvd to her confluence with the Los Angeles River. 0.4 mi of this segment is alongside the Los Angeles Equestrian Center.



BURBANK WESTERN CHANNEL

The Burbank Western Channel is an **engineered channel** with its upstream end in the Sun Valley area of the City of Los Angeles, and the majority of its 6-mile length flowing through the City of Burbank. It eventually meets the Los Angeles River in the City of Los Angeles, just south of the borders of the cities of Burbank and Glendale.

The Burbank Western Channel **runs adjacent to the Santa Ana (5) Freeway for a significant portion** of its length. The entire channel is **concrete-lined with vertical walls.** Burbank Western Channel runs through the south-eastern corner of the Los Angeles Equestrian Center at its confluence with the Los Angeles River and an **equestrian trail** runs adjacent to the channel for about a quarter of a mile in this segment. There are also **segmented bike paths** along the channel, which is fenced on both sides, providing only visual access to it. There is a small pocket park — Compass Park at Lake Street in Burbank which abuts the channel.

POPULATION WITHIN 0.5 MILES

- Density[2]: 26 people/acre (LA County Avg: 13)
- Household Income[2]: $51K (LA County Avg: $54K)
- Community Burden[3]: Most Burdened 31% of State

KEY ADJACENCIES INCLUDE

- Metro Link Station
- Metro Orange Line BRT station
- De Garmo Park
- Woodbury University
- Burbank Town Center
- George Washington Elementary School
- Commercial areas on Victory, San Fernando

17 SCHOOLS WITHIN 0.5 MILES

PARK SPACE

- Park Provision[5]: 3.76 acres per 1,000 people (LA County Avg: 3.3 acres per 1,000 people)
- Mixture of local parks, regional open spaces, and natural areas

SOME PREVIOUS PLANNING EFFORTS

In October 2009, Burbank reached an agreement on the 12-mile San Fernando Valley Bike way, a new bicycle path along San Fernando Boulevard from Sylmar to Burbank. This would include a portion next to the channel that connects to the Downtown Burbank MetroLink Station.

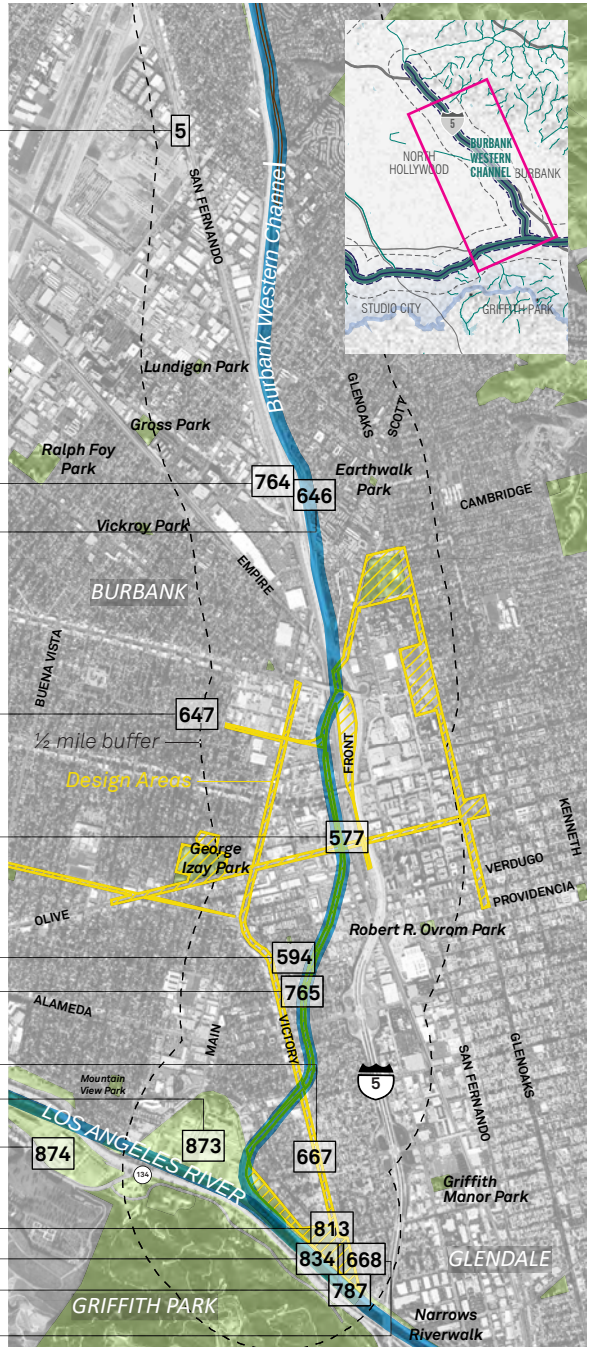
The Los Angeles River Revitalization Master Plan (City of Los Angeles) proposes a non-motorized bridge linking this path to a proposed Los Angeles River path in this segment

[2] 2010 Census
[3] State of California, CES 3.0
[5] 2010 Census/LA County Park Assessment

LA River near Burbank Western Channel

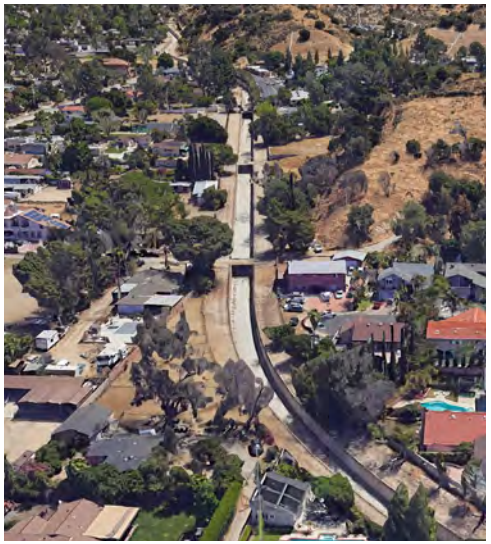
OPPORTUNITY AREAS ON BURBANK WASH - VERDUGO MOUNTAIN PARK TO LOS ANGELES RIVER

- OA 5 Burbank Western Expanded Public Transit Connectivity-1
- OA 764 San Fernando Urban Greenway Path
- OA 646 Burbank Western commmunity access to channel greewnway
- OA 647 Burbank Western Expanded Bike Path and Connectivity-1
- OA 577 Burbank Western Expanded Public Transit Connectivity-2
- OA 594 Compass Tree EDUC Park Pocket Enhancement and Community Connectivity
- OA 765 Burbank Channel Urban Greenway Path
- OA 667 Burbank Western Expanded Bike Path and Connectivity-3
- OA 873 Headworks Connector
- OA 874 Headworks Park
- OA 813 Intersection Crosswalk Timer Improvement
- OA 834 Bette Davis Park Horse Park
- OA 787 Glendale Riverwalk Multi-Use Path
- OA 668 Burbank Western Expanded Greenway Connector



COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team



Burbank Western Channel (in this area)

Potential access to Verdugo Mountains

Flood-prone community

ACCESS TO VERDUGO MOUNTAINS

Open Space Access

The semi-rural communities of Sun Valley, Sunland and Shadow Hills are located at the base of the Verdugo Mountains and the northern edge of the Burbank Western Channel. These communities have high-park need (DPR Park Need Assessment), are vulnerable to flash floods, and are considered to be disadvantaged (CES 3.0). Despite living in the shadows of the Verdugo Mountains, residents would have to drive 20 minutes to access point this area.

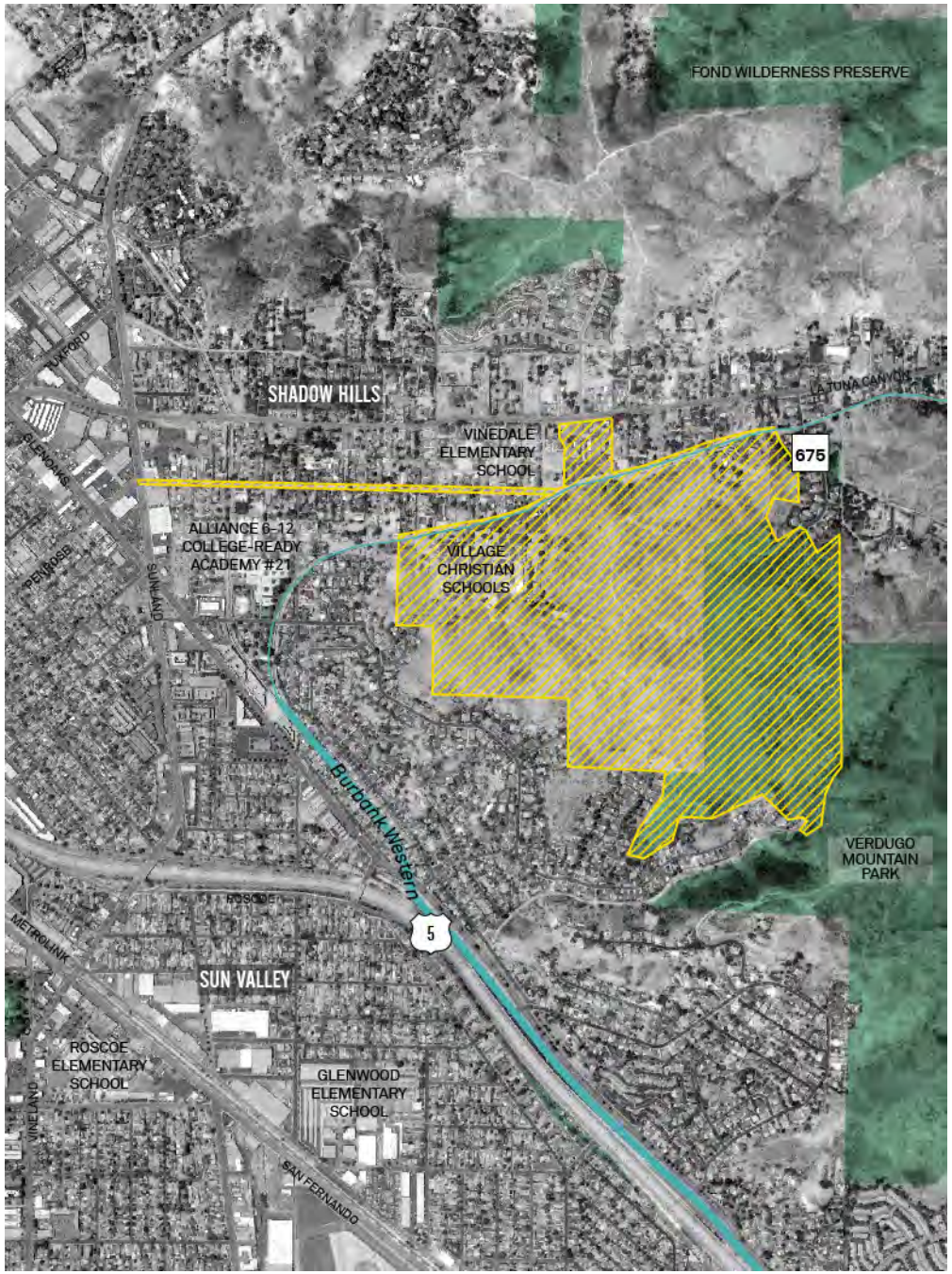
Opportunities in this area could include

- **Open Space + Access.** If this design area is chosen, we would recommend studying the opportunity to create access to the Verdugo Mountains trails along Buckboard Lane. This would allow these park poor communities to readily access the open space in their backyard
- **Local flooding + Nature Based Solutions.** To mitigate the occurrence of flash floods, we recommend native plants, increasing existing soil permeability, creating nature-based solutions for water filtration, and installing underground tanks to collect stormwater

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Meets existing needs for air quality improvement and park space

Burbank Western Design Areas// Access to Verdugo Mountains

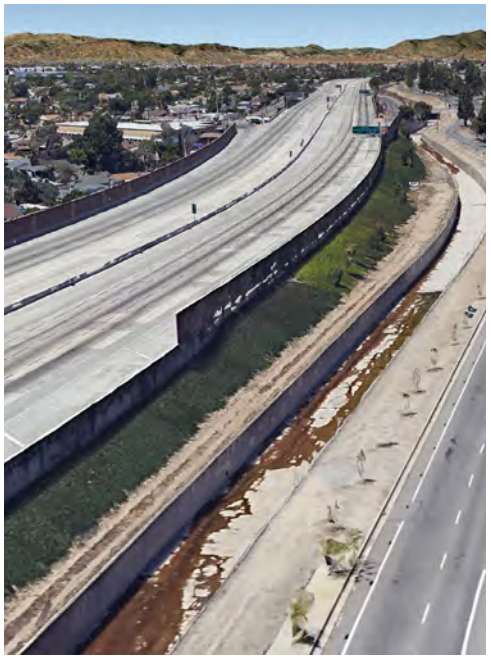


ACCESS TO VERDUGO MOUNTAINS DESIGN AREA

OPPORTUNITY AREAS IN THIS DESIGN AREA

675 Burbank Western Expanded Wildlife Corridor and Connectivity

2 mi 4 mi



Burbank Western Channel (in this area)

Green Lung Opportunity

GREEN LUNGS

Reduce Pollution Impact from the I-5

Traffic pollution has been linked to asthma attacks, impaired lung function, cardiovascular diseases and cardiovascular morbidity. For most of its length, Burbank Western is adjacent to the I-5 and could be developed into a green lung to filter pollutants from the highway. Ideally, this solution would extend the length of the tributary. We recommend starting the green lung in Sun Valley which is one of the top 10% most disadvantaged communities in the state.

This could include

- **Trees along urban roadways** to reduce the presence of fine particulate matter in the atmosphere
- **Permeable paving and bioswales** will help clean and infiltrate stormwater before it enter the channel
- **Extending** the existing Burbank bike path to Sun Valley
- **Extending the green lung to schools and cultural institutions** in the area

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Meets existing needs for air quality improvement and park space

GREEN LUNGS

OPPORTUNITY AREAS IN THIS DESIGN AREA

646 Burbank Western community access to channel greenway

1.5 mi 3 mi

Burbank Western Channel (in this area)

Chandler Bike Path

MULTI-USE GREEN SYSTEM & BETTE DAVIS PARK

Pollution Mitigation + Active Transit Link

In 2004 the City of Burbank converted a railroad track along Chandler Boulevard into the Chandler Bike Path. This design area looks at the opportunity to extend this path to the Bette Davis Park.

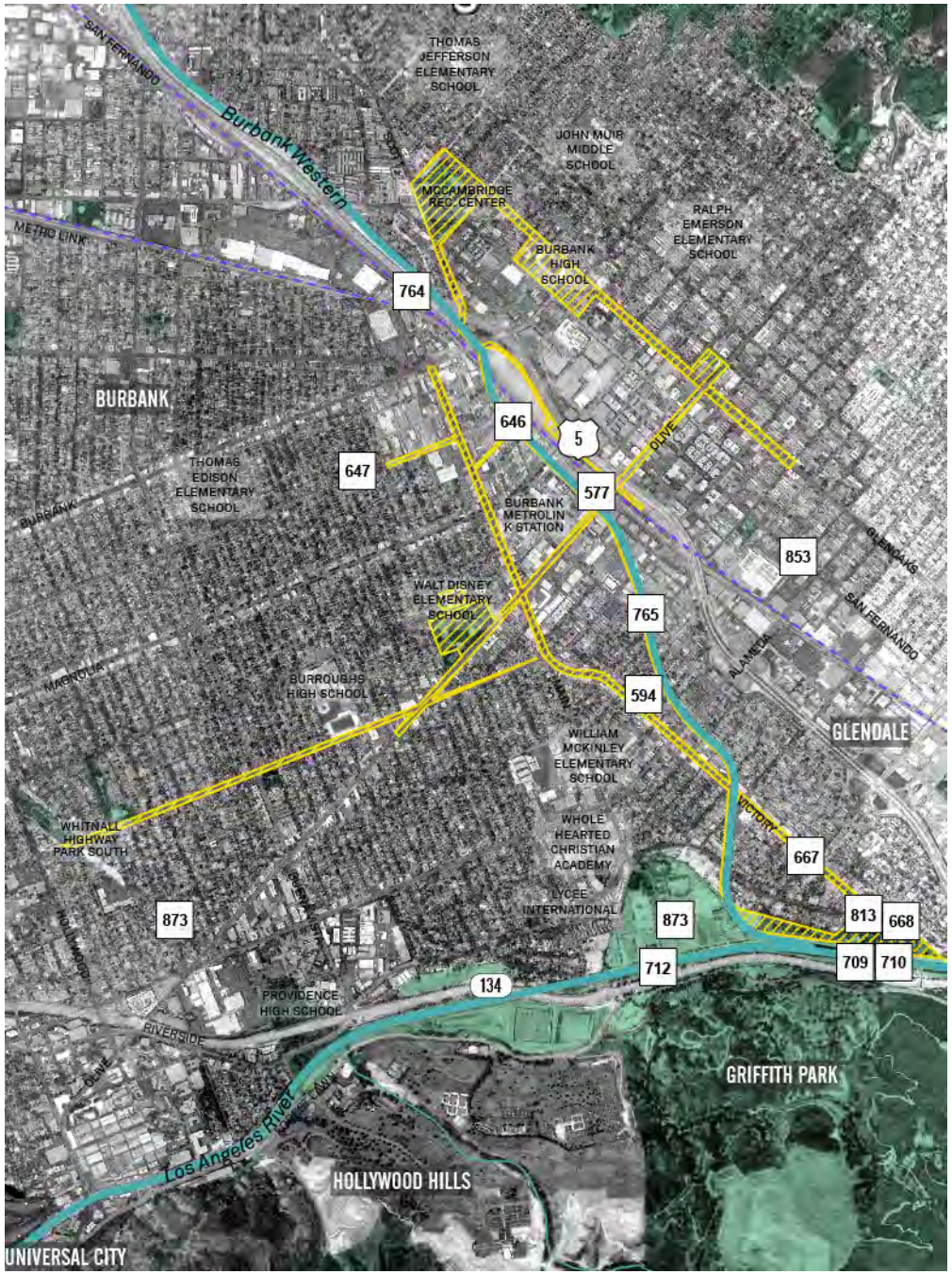
This could include

- **Connect** the existing Chandler Bikeway and other bike paths through the City
- **Connect** the Burbank Western Channel, downtown Burbank, Griffith Park and the LA River

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Meets existing needs for connection, stormwater management and reduction of pollution impact

Burbank Western Design Areas// Multi-Use Green System and Bette Davis Park



MULTI-USE GREEN SYSTEM & BETTE DAVIS PARK

OPPORTUNITY AREAS IN THIS DESIGN AREA

577	Burbank Western Expanded Public Transit Connectivity-2
594	Compass Tree EDUC Park Pocket Enhancement & Community Connectivity
646	Burbank Western community access to channel greenway
647	Burbank Western Expanded Bike Path and Connectivity-1
667	Burbank Western Expanded Bike Path and Connectivity-3
668	Burbank Western Expanded Greenway Connector
709	In Channel Habitat Enhancement Projects with Active Planting/Seeding
710	In Channel Habitat Enhancement Projects w/ Passive Recruitment
712	LA River Ecosystem Restoration IFR (p. 105)
764	San Fernando Urban Greenway Path
765	Burbank Channel Urban Greenway Path
787	Glendale Riverwalk Multi-Use Path
813	Intersection Crosswalk Timer Improvement
834	Bette Davis Park Horse Park
853	San Fernando Path
873	Headworks Connector

3.5 mi 7 mi

Burbank Western Design Areas

MULTI-USE GREEN SYSTEM AND BETTE DAVIS PARK (55.4 ACRES)

IMAGINE!

9.30am on Wednesday. Half-an-inch of rain fell on Burbank last night. During the night, the rainwater flowed over the city streets and into the bioswales along the Burbank Western Path and Green Streets. A teacher from Robert Louis Stevenson Elementary is showing her 3rd garden class how last night's rain is being slowed down by the plants, rocks and dirt in the bioswale. Along the Burbank Western Path, neighbors from all over Burbank greet each other, comment on last night's rain, and make plans to stop for coffee.

CONTEXT

This 55.4-acre area is within the heavily urbanized core of Burbank. Consisting of the Wash and major arterials in the area, the design connects schools and neighborhoods to the Los Angeles River to the south and across Interstate-5 to the east. South of the design area is Griffith Park, and to the north is the San Gabriel Mountains and Angeles National Forest.

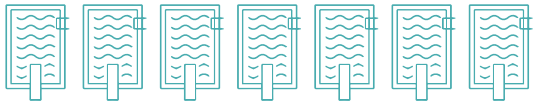
About 31,262 people live within ½ mile of the tributary in this area, with an average CalEnviroScreen score in the 76th percentile.

RESILIENCY BENEFITS

Analyzing the Multi-Use Green System and Bette Davis Park design area concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **33 acres** *of new or enhanced permeable cover*



STORMWATER CAPTURE

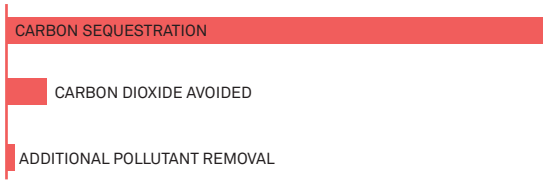
13.4 acre-feet

or **7**

Olympic-sized swimming pools

AIR

The design includes **8,438 trees** *that sequester carbon, and remove pollutants from the air*



AIR POLLUTANT REMOVAL

8,931 tons
Additional Carbon Sequestration

338 tons
Additional Carbon Dioxide Avoided

7.4 tons
Additional Pollutant Removal

HABITAT

The design includes **31 acres** *of new and enhanced ecological habitat and* **96 acres** *of additional tree canopy*

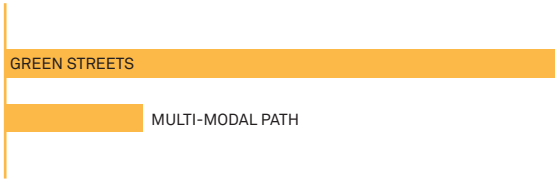
HABITAT CREATION

15%

the size of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

The design includes **15 acres** *of new and enhanced open space and* **22 miles** *of new or enhanced community connections*



19 miles
Green Streets

3 miles
Multi-modal paths

Burbank Western Design Areas// Multi-Use Green System and Bette Davis Park

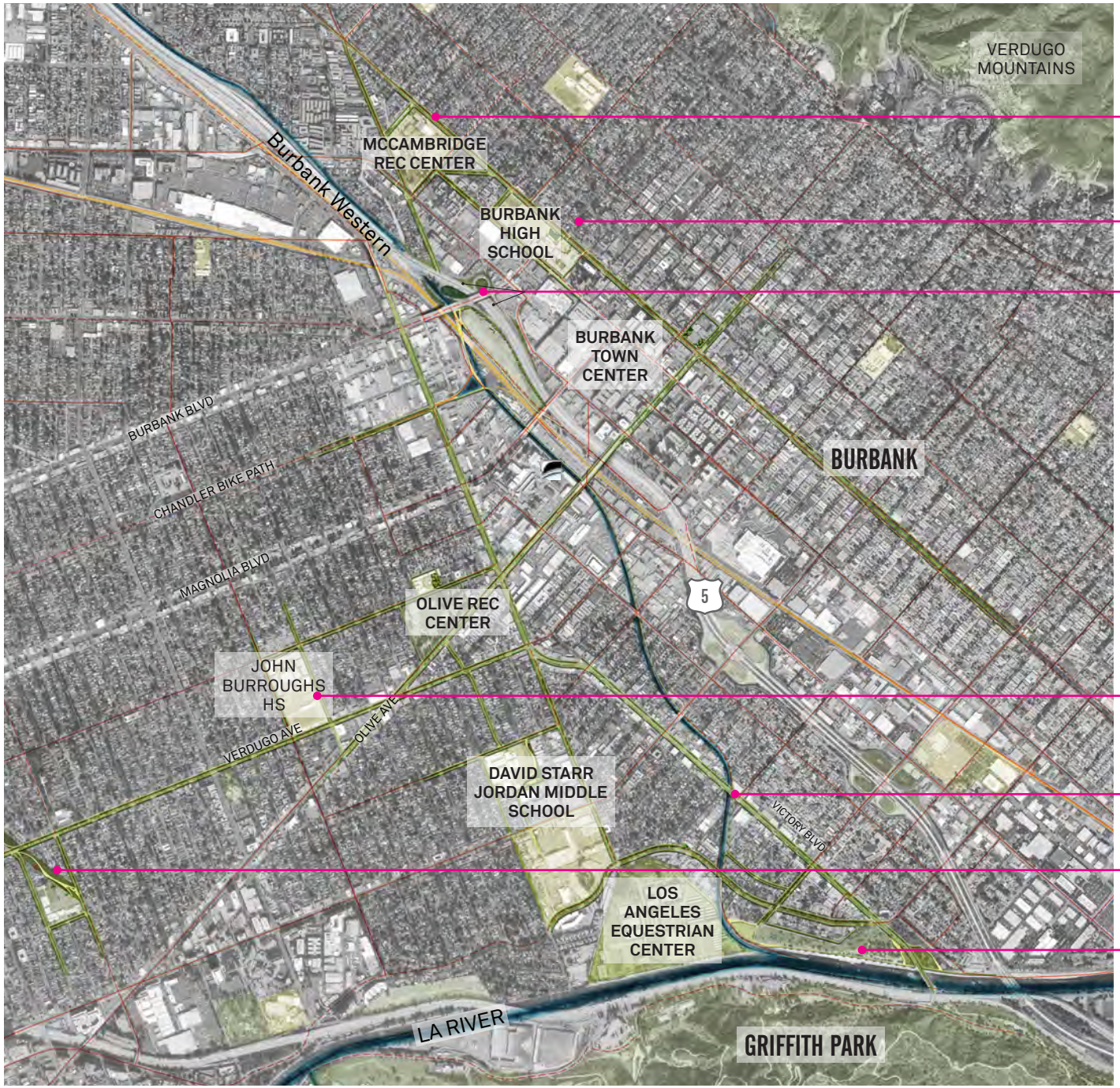
View looking South at Burbank Western Channel and South Lake Street

Burbank Western Design Areas// Multi-Use Green System and Bette Davis Park

Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details, are not part of this plan

View looking South at Burbank Western Channel and South Lake Street

Burbank Western Design Areas// Multi-Use Green System and Bette Davis Park



MULTI-USE GREEN SYSTEM AND BETTE DAVIS PARK DESIGN AREA CONCEPT

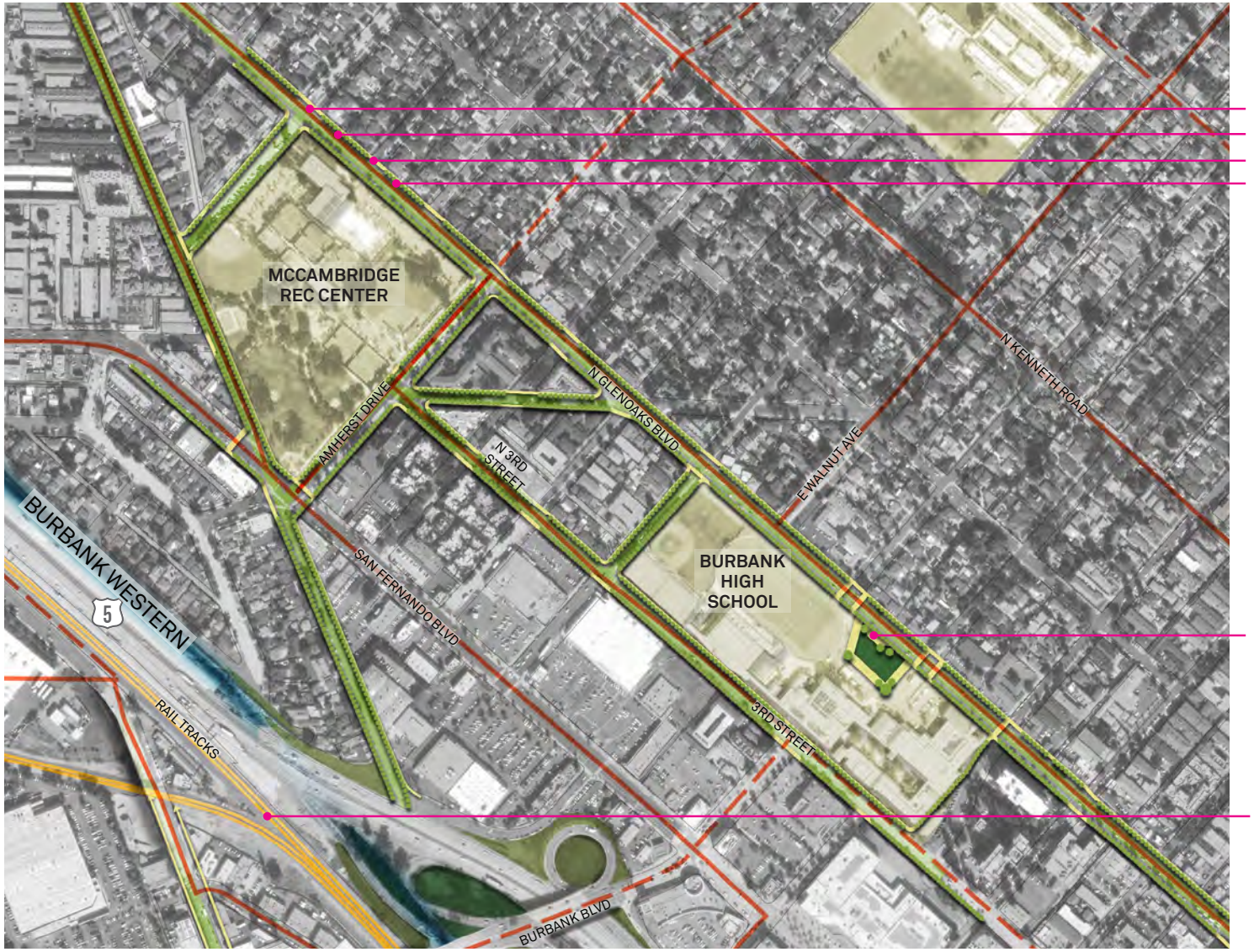
- GREEN STREET
- ENHANCEMENT TO HIGH SCHOOL
- FILTER FOREST / GREEN LUNG
- ENHANCEMENT TO HIGH SCHOOL
- GREEN STREET
- ENHANCEMENT TO ELEMENTARY SCHOOL
- RIVER OVERLOOK

1200' 2400'

Burbank Western Design Areas// Multi-Use Green System and Bette Davis Park

BURBANK WESTERN PATH (ENLARGEMENT)

Running over 2 miles along the Burbank Western Channel, Burbank Western Path is a multi-modal passage that runs from Burbank Boulevard to the confluence with the LA River. The walking/biking/skating path connects a heterogeneity of spaces including industrial parcels, apartment buildings, single-family homes, movie studios, and car repair shops. Consciously designed as a journey and experience rather than merely a physical path, the path constantly references the cultural, social, and historical aspect of the surrounding neighborhood through artwork, wayfinding, and material choices. The path works within the tight constraints of the waterway's right-of-way, expanding to includes benches, artwork, trees, and places to relax, wherever possible.



Burbank Western Design Areas// Multi-Use Green System and Bette Davis Park

GREEN STREETS (ENLARGEMENT)

The design concept includes a network of green street that extend for 1.5 miles along each side of the waterway. These green streets would essentially disconnect the street's rainwater runoff from the City's MS4 storm drain system and manages it on-site using a landscape approach. Stormwater runoff will flow into the landscaped bioswales through curb cuts where it would be absorbed by plants and soil. Excess stormwater exits the bioswale and flows into the channel through a perforated pipe, cleaner than when it entered. In addition to the stormwater management benefits, green streets will be planted with shade trees that reduce air pollution, sequester carbon, and improve the experience for everyone using the street.

GREEN STREET

- SHADE TREES
- BIKE PATH
- SIDEWALK
- BIO-SWALES

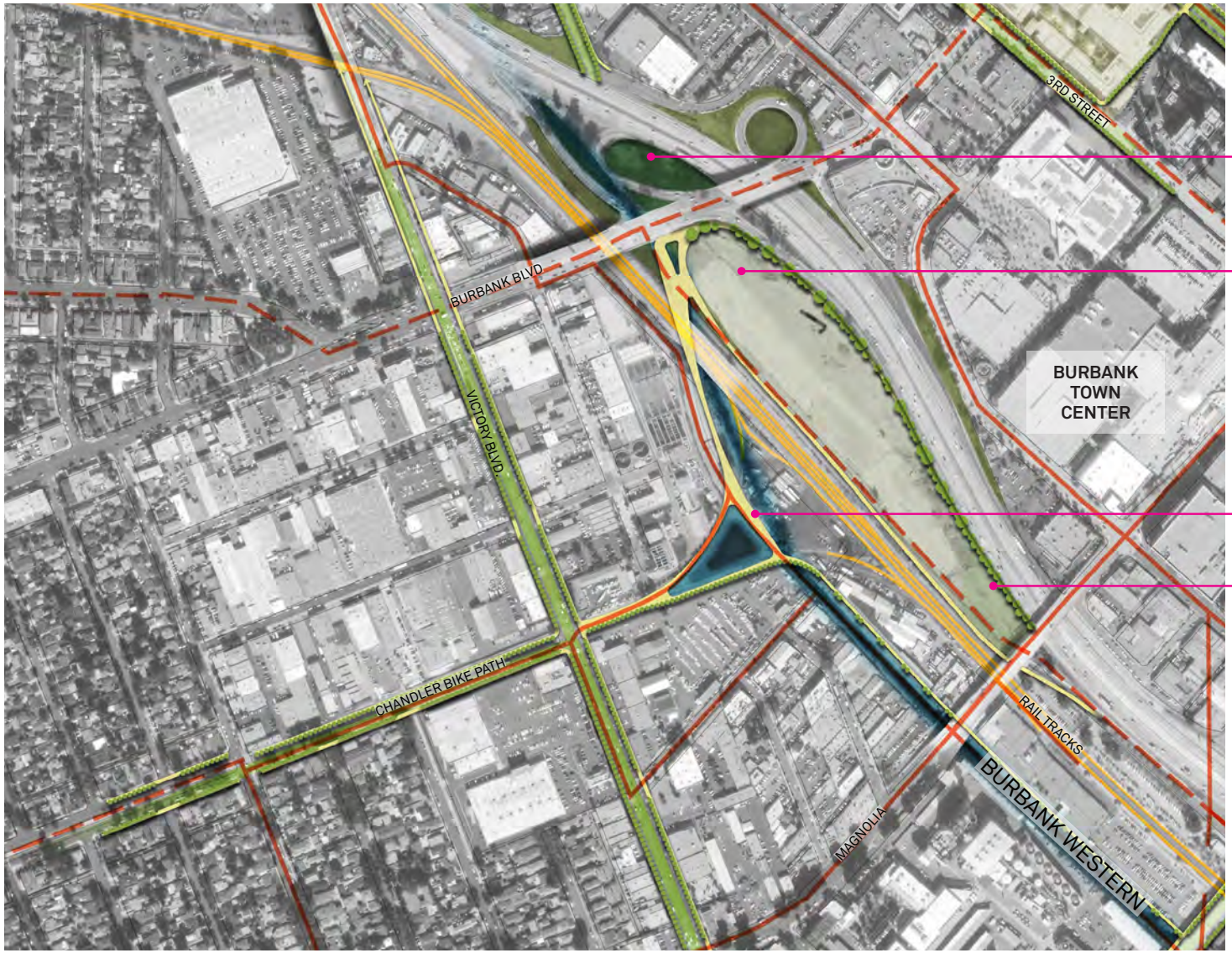
ENHANCEMENT TO MIDDLE SCHOOL

- DEMONSTRATION GARDENS + DETENTION BASIN

150' 600'

FILTER FORESTS (ENLARGEMENT)

Burbank Western Channel runs along the I-5 for most of its length. The design concept proposes a highway filter forest that will help mitigate the pollutants directly emitted from cars, trucks, and other motor vehicles. The 20' deep forest of conifers along the highway will reduce particle concentrations by acting as a physical barrier between roadways and the community, or by filtering particles as they pass through and accumulate on leaf surfaces.



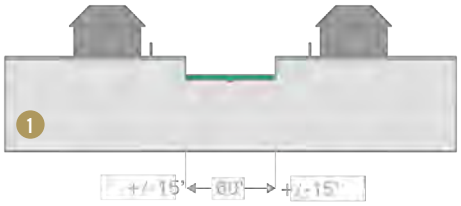
Burbank Western Design Areas// Multi-Use Green System and Bette Davis Park

Bette Davis Park

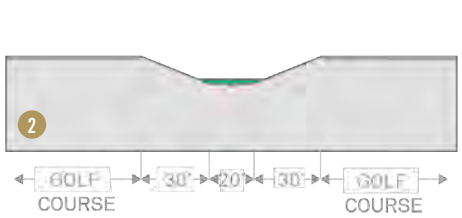
NEXT STEPS

Additional required analyses and next steps for the Chandler Bike Path and Bette Davis Park Confluence design area include:

- Preliminary engineering report that includes feasibility-level analyses, cost estimates, and coordination
- Analysis Collection capacity and storage for stormwater capture
- Analysis of the expected flows during wet and dry weather should be assessed
- Geotechnical evaluation for potential placement of green streets, ecological restoration, and outdoor classrooms
- Structural analysis for overlooks
- Soil remediation analyses to determine extent of possible existing contamination
- Identification and procurement of the appropriate water rights for river diversions
- Hydrologic and hydraulic modeling to determine potential for channel naturalization
- Analysis of the effects of increased water demand from vegetation and wildlife
- Determination of priority species (plant and wildlife) for the habitat and wetland areas
- An Environmental Impact-Report/ Statement (EIR/EIS) may need to be completed to assess any potential environmental impacts
- Water quality analysis—including pollutant settling and oxygen demand
- Air quality assessment should be performed
- Study to assess the potential for planting native vegetation to restore the historic habitat and ecological function of the tributary wherever possible while still maintaining its primary function for reducing the flood risk to adjacent communities
- Additional analysis to consider climate change and updated storm return intervals to help understand and prioritize opportunities and improvements

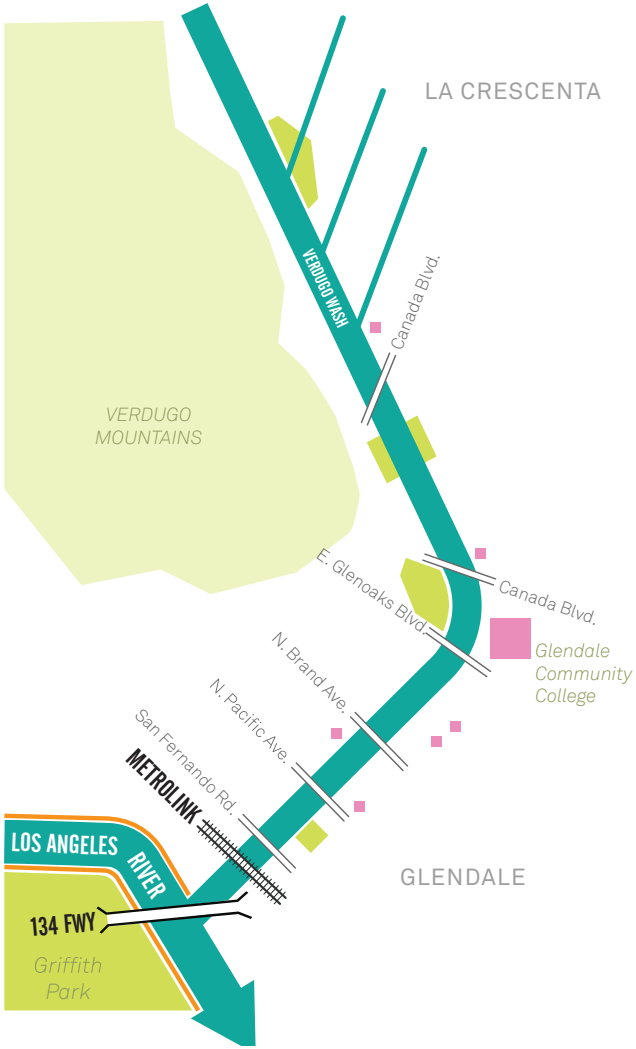


Segment 1.
This segment runs 2.16 miles through residential and park land uses.



Segment 2.
This segment runs 1.37 miles.

Segment 3.
This segment runs 4.47 miles through commerical, residential and park spaces.



VERDUGO WASH

Most of Verdugo Wash's course is within the City of Glendale - from the uppermost engineered section just upstream of Dunsmore Avenue and Honolulu Avenue in Crescenta Valley to its confluence with the Los Angeles River. The entire wash is **concrete-lined with vertical walls.**

There are **no bike paths or multi-use trail**s along Verdugo Wash. **The channel is fenced throughout its length**. It flows along the edge of the Crescenta Valley County Park, and through the Oakmont Country Club and Glorietta Park, providing visual access to the wash.

POPULATION WITHIN 0.5 MILES

- Density[2]: 29 people/acre (LA County Avg: 13)
- Household Income[2]: $55K (LA County Avg: $54K)
- Community Burden[6]: Most Burdened 49% of State

KEY ADJACENCIES INCLUDE

- Verdugo Park
- Glendale Community College
- Fremont Park
- Glorieta Park
- Crescenta Valley Park
- Oakmont Country Club
- Glendale Civic Auditorium
- Commercial zones on Glen Oaks and Foothill Boulevard

13 SCHOOLS WITHIN 0.5 MILES

PARK SPACE

- Park Provision[5]: 5.24 acres per 1,000 people (LA County Avg: 3.3 acres per 1,000 people)
- Mixture of small neighborhood parks, natural areas, and sport fields
- Key parks within 0.5 miles include: Griffith Park, Verdugo Mountains Open Space, Verdugo Park, Crescenta Valley Park

SOME PREVIOUS PLANNING EFFORTS

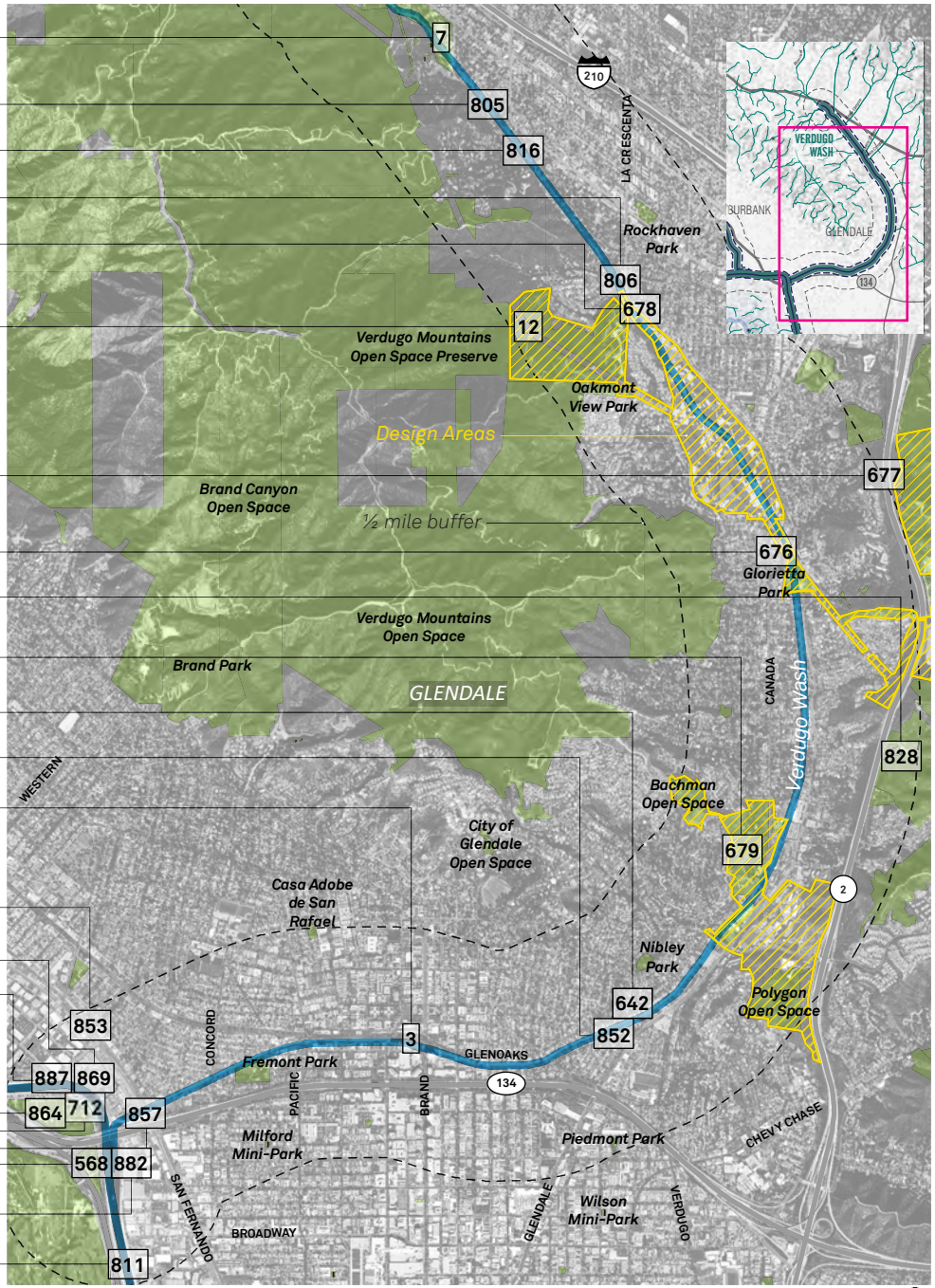
- Confluence with the Los Angeles River has been recognized as an "Opportunity Area" for potential development of recreational opportunities in the City of Los Angeles' Los Angeles River Revitalization Master Plan (LARRMP)
- Restoration of this confluence area also features as part of the Los Angeles River Ecosystem Restoration Integrated Feasibility Report, Alternative 20.

[2] 2010 Census
[3] State of California, CES 3.0
[5] 2010 Census/LA County Park Assessment

Verdugo Debris Basin

VERDUGO WASH – INTERSTATE 210 TO LA RIVER

- OA 7 Verdugo Wash Community, Environment, and Habitat Educational facility
- OA 805 Verdugo Wash Trail Connector, Fence Removal, and Access
- OA 816 Crescenta Valley/Griffith Park Multi-Use Path Connector
- OA 806 Crescenta Valley Trail Connector, Fence Removal, and Access
- OA 678 Verdugo Wash Enhanced Wildlife Corridor and Habitat-3
- OA 12 Verdugo Wash Multi-Use Ecological Connector
- OA 677 Verdugo Wash Enhanced Wildlife Corridor and Habitat-2
- OA 676 Verdugo Wash Enhanced Wildlife Corridor and Habitat-1
- OA 828 San Rafael Off-Road Bike Skills Park
- OA 679 Verdugo Wash Enhanced Wildlife Corridor and Habitat-4
- OA 642 Verdugo Wash Connectivity, Recreation, and Open Space Project
- OA 852 Verdugo Wash
- OA 3 Verdugo Wash Expanded Community Connectivity
- OA 853 San Fernando Path
- OA 869 Glendale Narrows Riverwalk
- OA 887 Glendale Riverwalk Non-Motorized Bridge
- OA 864 Ferraro Fields Side Channel
- OA 712 LA River Ecosystem Restoration IFR
- OA 857 San Fernando Railroad
- OA 568 Verdugo Wash Ecological District
- OA 882 River Glen Wetlands
- OA 811 West Glendale LAR River Fence Removal and Access



COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

Verdugo Wash (in this area)

Oakmont Country Club

Existing Tunnel under the CA-2

VERDUGO - SAN RAFAEL ECOLOGICAL CONNECTION

Wildlife Corridor

This design area is connected the Verdugo Mountains on the west and the San Rafael Hills on the east. It is a key pinch point between two significant ecological habitats that could improve connectivity and benefit all species. To enhance this ecological connection, we recommend day lighting the numerous waterways in this area.

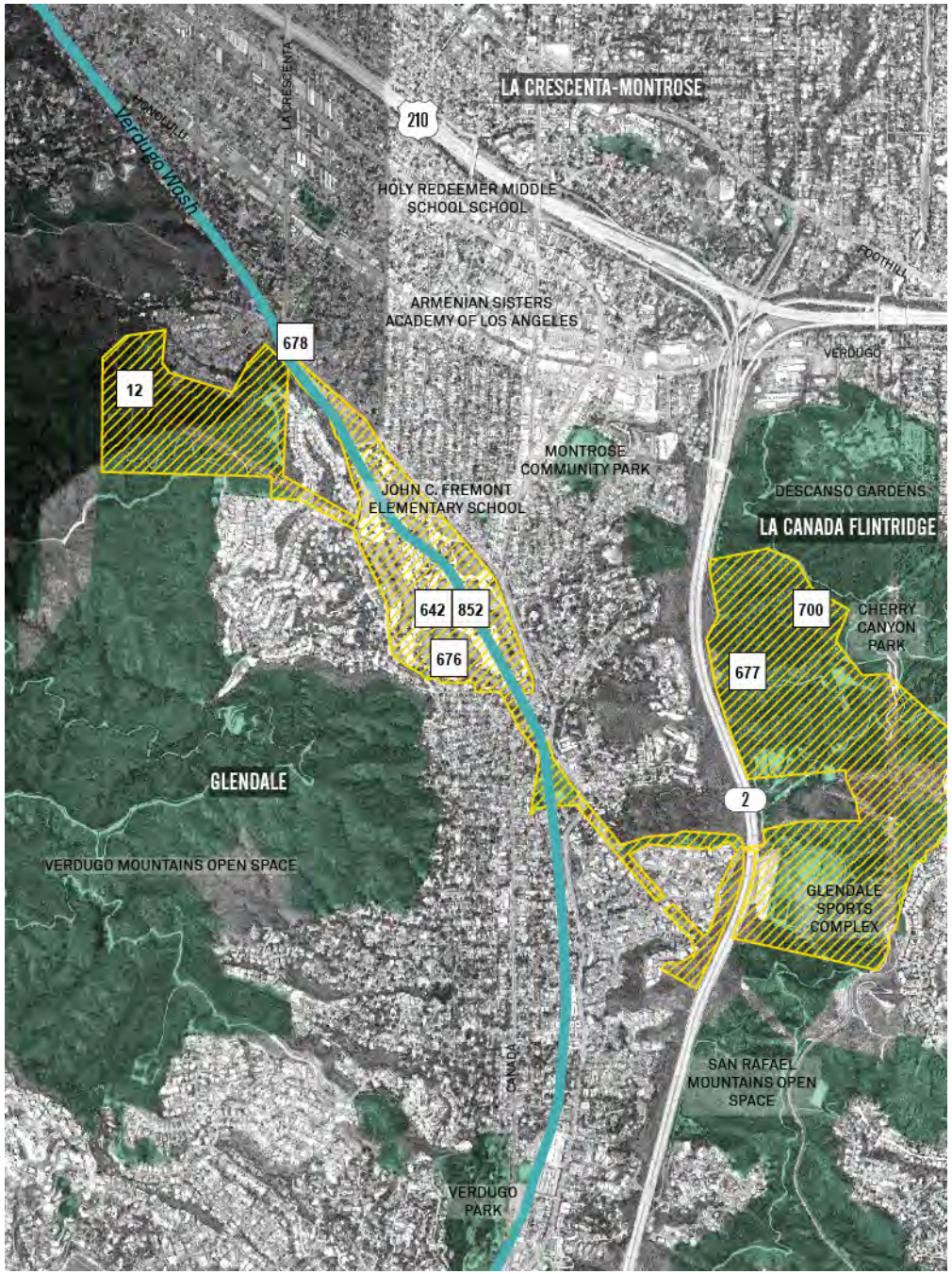
This could include

- Native planting to **support the wildlife that passes between the Verdugo and the San Rafael Hills.** Using a greater mix of native plants and trees in the golf course's landscaping would make the area more conducive to the passage and presence of wildlife
- A tunnel to provide **safe passage** across the 2 highway
- **Additional access points** to the Verdugo Mountains

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Meets existing needs for habitat, ecology, stormwater management, connection, and reduced pollution impact

Verdugo Wash Design Areas// San Rafael Ecological Connection



VERDUGO - SAN RAFAEL CONNECTION DESIGN AREA

OPPORTUNITY AREAS IN THIS DESIGN AREA

12	Verdugo Wash Multi-Use Ecological Connector
642	Verdugo Wash Connectivity, Recreation, and Open Space Project
676	Verdugo Wash Enhanced Wildlife Corridor and Habitat-1
677	Verdugo Wash Enhanced Wildlife Corridor and Habitat-2
678	Verdugo Wash Enhanced Wildlife Corridor and Habitat-3
700	Arroyo Seco Foothill Communities
852	Verdugo Wash

Verdugo Wash Design Areas SAN RAFAEL ECOLOGICAL CONNECTION (580 ACRES)

IMAGINE!

Monday, 6pm. Belle, the bob cat, is just waking up. Belle is a nocturnal creature and enjoys sleeping in the day. At dusk, she hunts rabbits and mice amongst the big leaf maples in Verdugo Mountains Open Space Preserve. After dinner, she may stroll down to the Verdugo Gardens to see if any new animals have moved in. Recently, a wildlife tunnel has been created across the CA-2 highway to the San Rafael Hills. So, Belle has been exploring the mixed evergreen forest of the San Rafael Hills.

CONTEXT

The 580-acre San Rafael Ecological Connection design area sits near the 2 freeway between Glendale and La Cañada Flintridge.

About 17,042 people live within ½ mile of the tributary in this area. The average total CalEnviroScreen score is in the 34th percentile for the state, which is lower than some of the other design areas. However, this area does face a significant Housing Burden related to high housing costs versus household income. The average Housing Burden score in the area is in the 72nd percentile for the state.

RESILIENCY BENEFITS

Analyzing the San Rafael Ecological Connection design area concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **406 acres** *of new or enhanced permeable cover*

STORMWATER CAPTURE

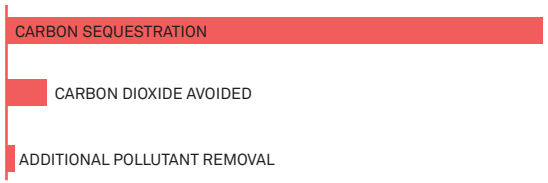
13.5 acre-feet

or **7**

Olympic-sized swimming pools

AIR

The design includes **6,798 trees** *that sequester carbon, and remove pollutants from the air*



AIR POLLUTANT REMOVAL

7,195 tons
Additional Carbon Sequestration

272 tons
Additional Carbon Dioxide Avoided

6 tons
Additional Pollutant Removal

HABITAT

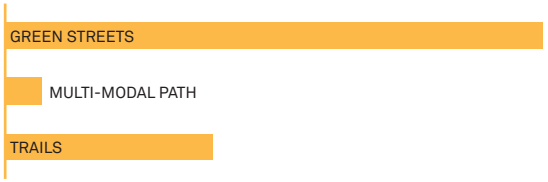
The design includes **488 acres** *of new and enhanced ecological habitat that all contribute to the Rim of the Valley Corridor Preservation and* **78 acres** *of additional tree canopy*

HABITAT CREATION

200%
the size of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

The design includes **116 acres** *of new and enhanced open space and* **17 miles** *of new or enhanced community connections*



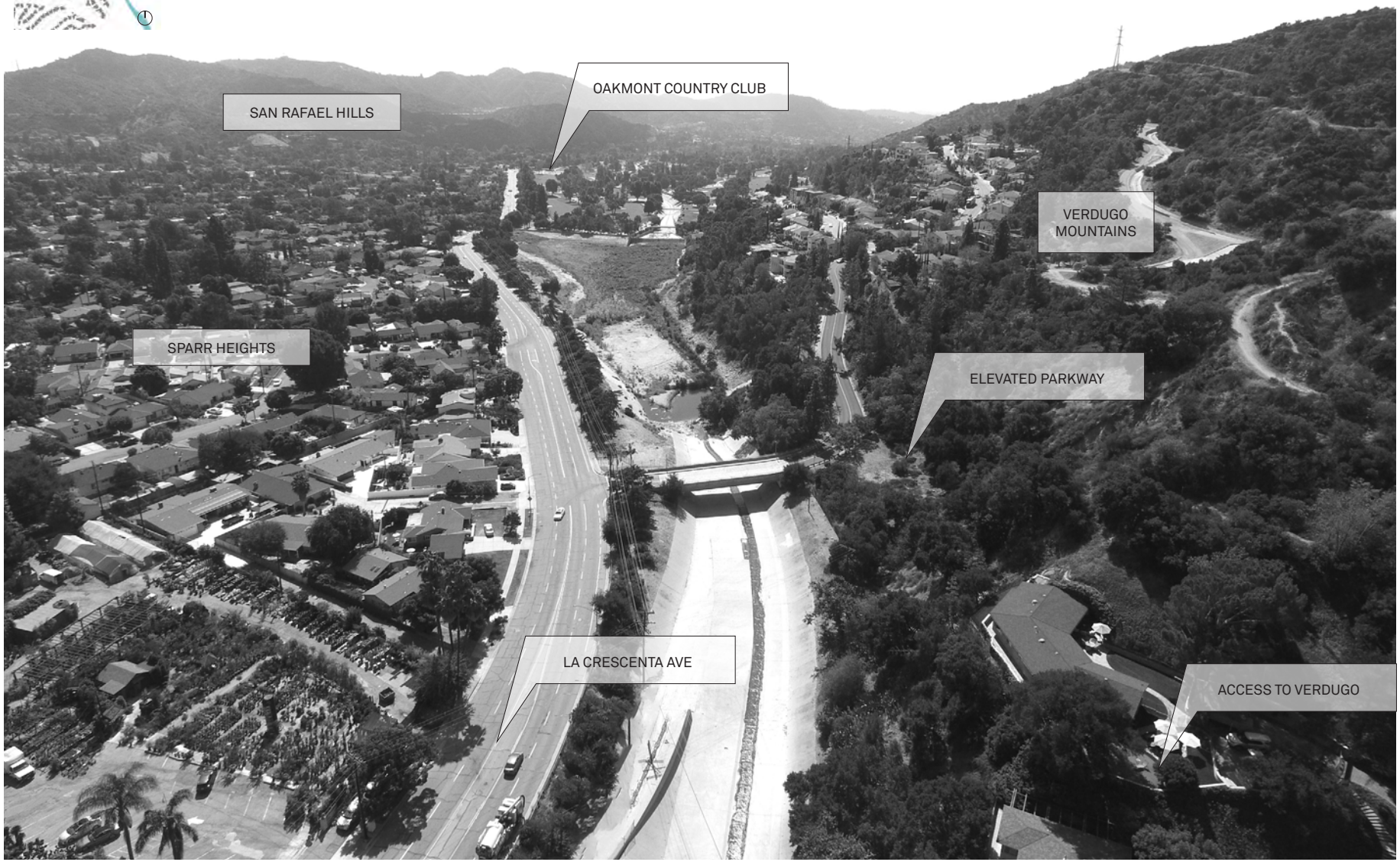
9.2 miles
Green Streets

1.7 miles
Multi-modal paths

5.8 miles
Trails

Verdugo Wash Design Areas// San Rafael Ecological Connection

Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details, are not part of this plan



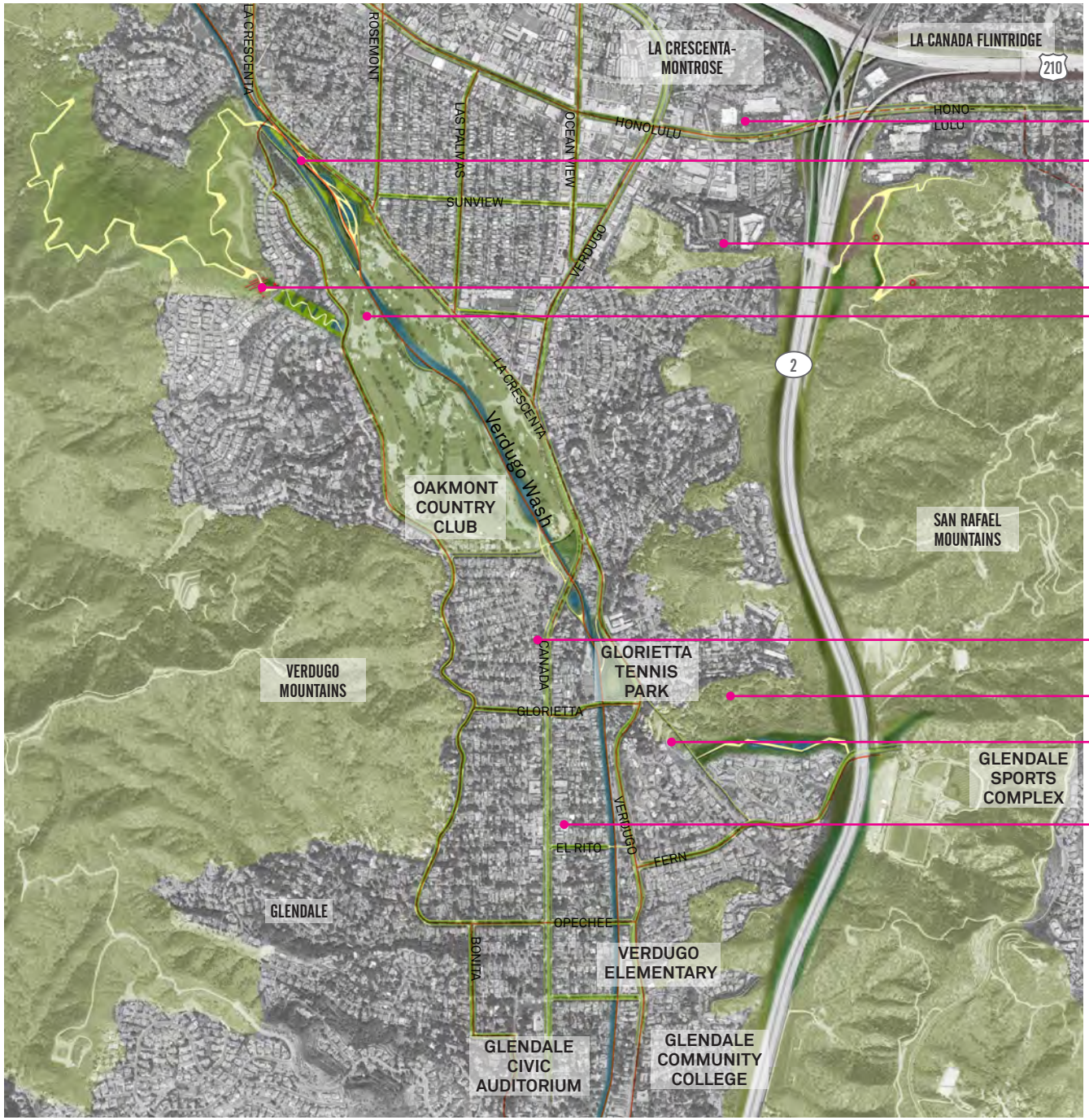
View looking South at Verdugo Wash and Invale Drive

Verdugo Wash Design Areas// San Rafael Ecological Connection

Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details, are not part of this plan

View looking South at Verdugo Wash and Invale Drive

Verdugo Wash Design Areas// San Rafael Ecological Connection



SAN RAFAEL ECOLOGICAL CONNECTION DESIGN AREA CONCEPT

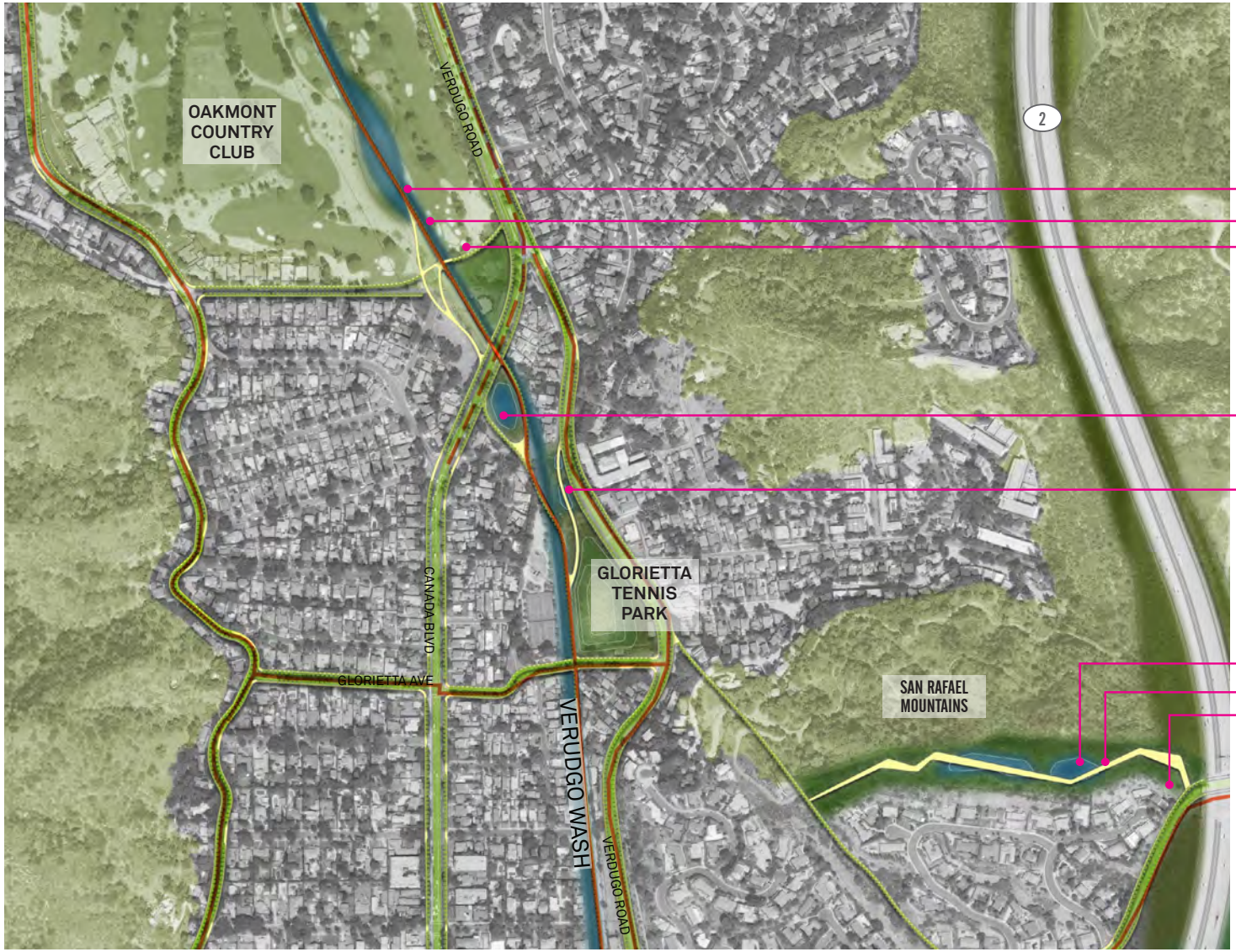
- FILTER FOREST / GREEN LUNG
- VERDUGO GARDENS
- NORTHERN WILDLIFE CROSSING
- VERDUGO PRESERVE EASTERN ACCESS
- VERDUGO PROMENADE
- EXISTING PARK ENHANCEMENTS
- FILTER FOREST / GREEN LUNG
- SOUTHERN WILDLIFE CROSSING
- GREEN STREETS

1,750'

Verdugo Wash Design Areas// San Rafael Ecological Connection

CROSSING THE STATE ROUTE 2 (ENLARGEMENT)

The Verdugo Mountain / San Rafael Hills passage is a known wildlife route that has been obstructed by California State Route 2. This design area will enhance this key wildlife passage through appropriate planting along the route; as well as developing two wildlife passages across State Route 2. The northern crossing at Stancrest Frontage Lane would take advantage of existing trails, habitat and the water source at Descanso Gardens. The southern crossing at Fern Lane has been noted by the Arroyo Foothills Conservancy for its ready access to San Rafaels and the substantial evidence of animals already using this ideal ridgeline. The design of the wildlife passages includes improved vegetation and ecology on both sides of the tunnel, fences to focus and guide animals away from the road, and a light and noise barrier.



Verdugo Wash (in this area)

Glendale Civic Auditorium

Glendale Community College

URBAN TRAIL ACCESS

Improving Access to Verdugo and San Rafael Hills

The only fully developed trail head for the Verdugos is found in Brand Park. Other trail heads have been established but these only provide for parking facilities. Access to the open space areas in the San Rafael Hills is still limited to the ridge motor way which provides access to the Cerro Negro lookout tower and along the La Cana-da-Flintridge border to Cherry Canyon north of Descanso Gardens.

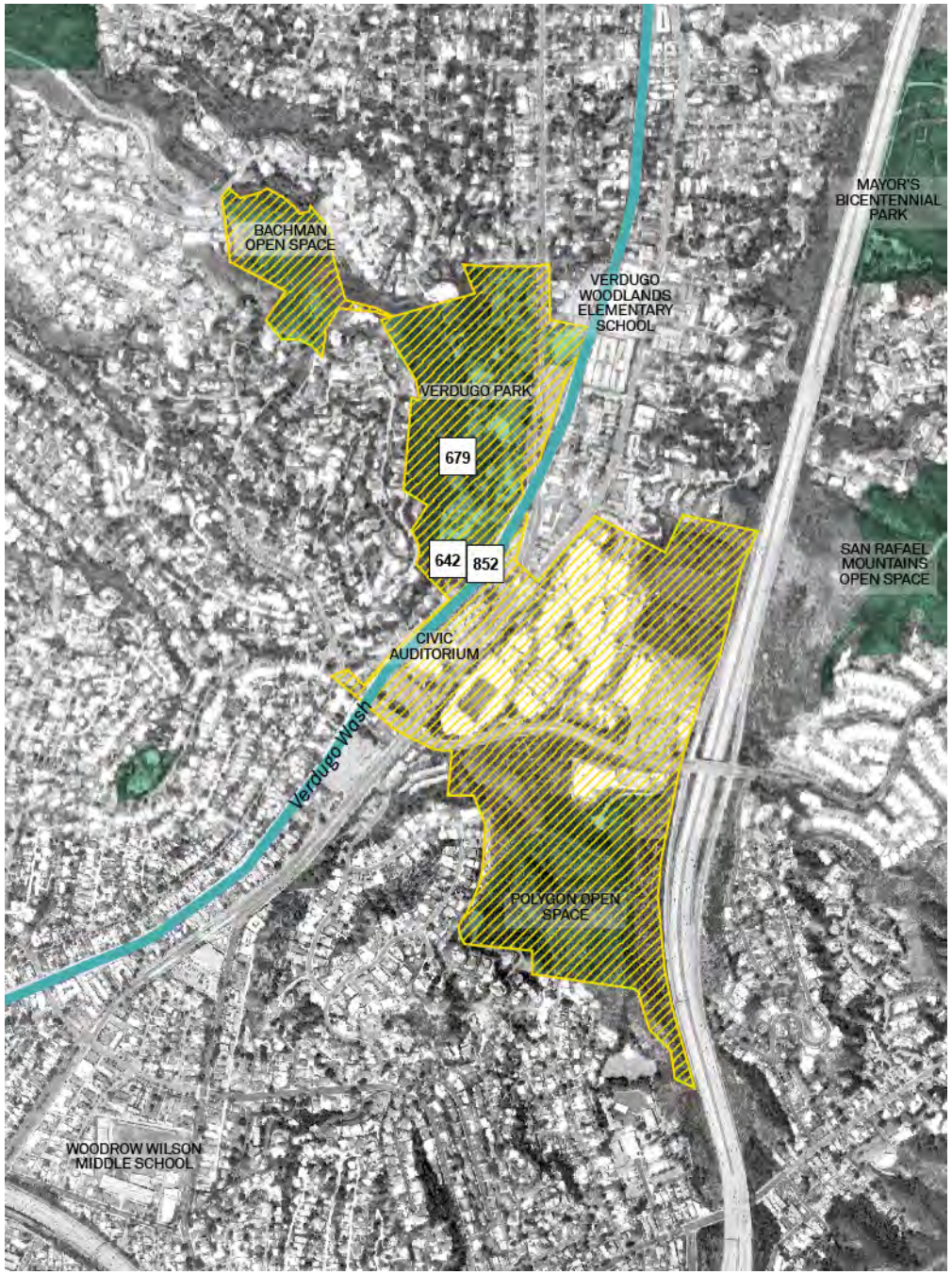
This could include

- **Additional community and ecological access to the Verdugo trail** systems from the Glendale Community College, the Civic Auditorium, and public transit along Verdugo Road
- **Increase habitat connectivity** between the habitat patches and nearby significant ecological zones

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Meets existing needs for connection, open space access, and habitat

Verdugo Wash Design Areas// Urban Trail Access



URBAN TRAIL ACCESS DESIGN AREA

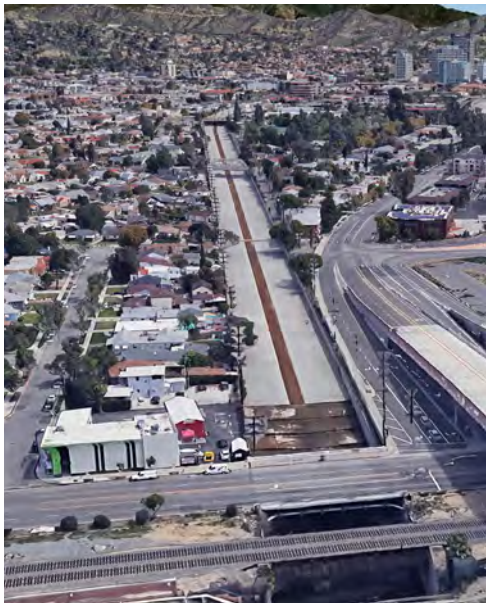
OPPORTUNITY AREAS IN THIS DESIGN AREA

642 Verdugo Wash Connectivity, Recreation, and Open Space Project

679 Verdugo Wash Enhanced Wildlife Corridor and Habitat-4

852 Verdugo Wash

1.5 mi 3 mi



Verdugo Wash (in this area)

Verdugo Wash + LA River Confluence

THE CONFLUENCE

Restoring the Verdugo | LA River Confluence

In this design area, the LA riverbed transitions from soft-bottomed to concrete-lined and makes an approximately 90-degree curve to the south around Griffith Park and transitions back to soft-bottom around Brazil Street. State Route (SR)134 (Ventura Freeway) also crosses the River at the Verdugo Wash confluence in this area.

There is an opportunity to restore Valley Foothill Riparian Strand and Freshwater Marsh Habitat, increase habitat connectivity, and increase passive recreation by widening the Verdugo channel mouth, sloping the Verdugo Wash's south bank and restoring a riparian fringe at the confluence of the LA River. Alternative 20 proposed similar ideas.

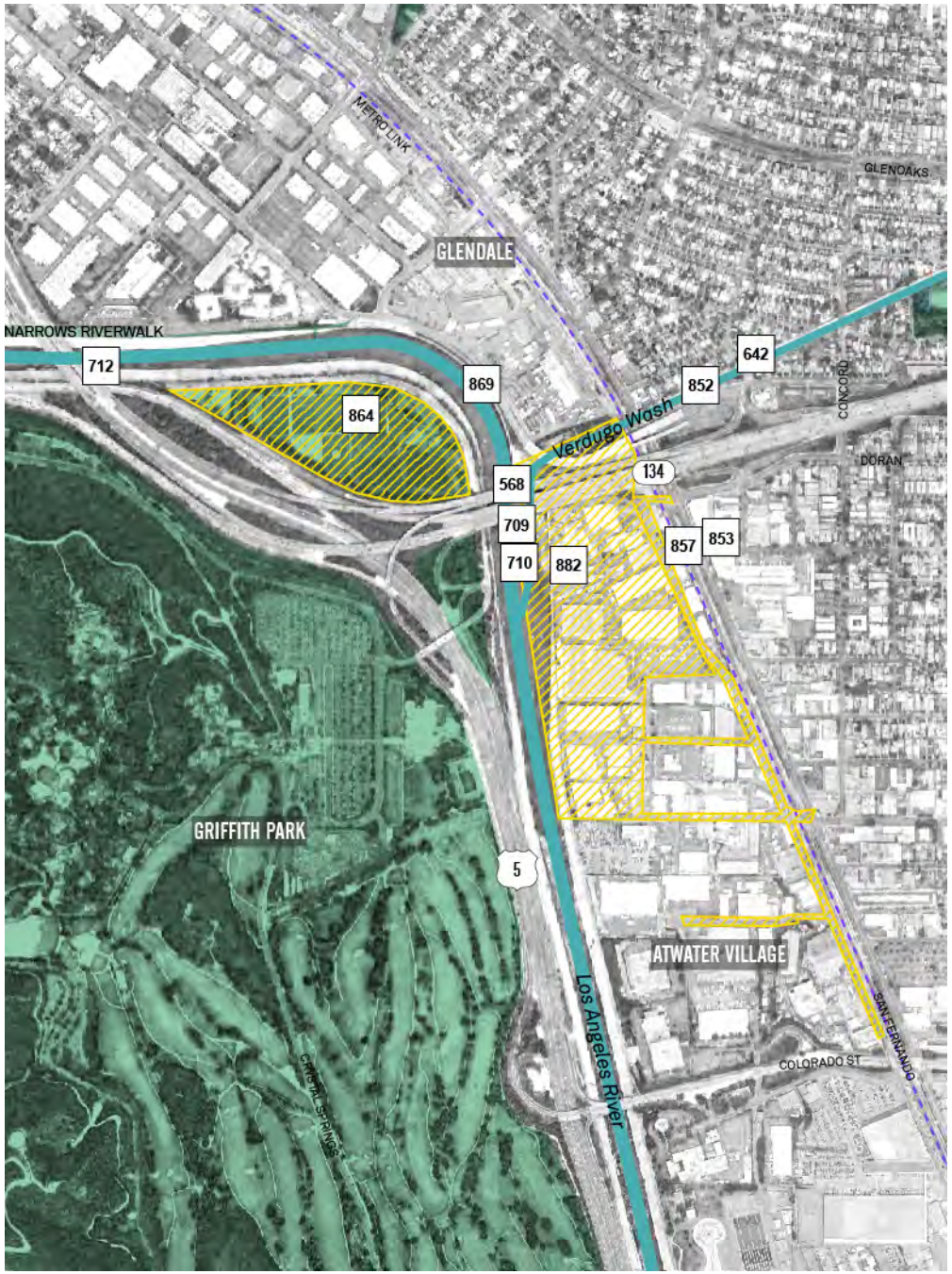
This could include

- **Reduce impact of pollution.** The design area's location by two major freeways, a freight train railway, and the high volume of heavy duty trucks moving within the area, all diminish air quality and induce urban heat island effect
- **Stormwater Management.** The area is also almost entirely covered with hard surfaces and poor drainage that can lead to further contamination of groundwater and surrounding water bodies
- **Reduce Heat Island Effect**. This concept would also study air quality improvements including cool roof and cool pavements, and increased tree canopy in large parking lots AND on-site water treatments such as bioswales and rain gardens

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Meets existing needs for habitat, reduction of pollution impact, heat island effect, and stormwater management

Verdugo Wash Design Areas// The Confluence

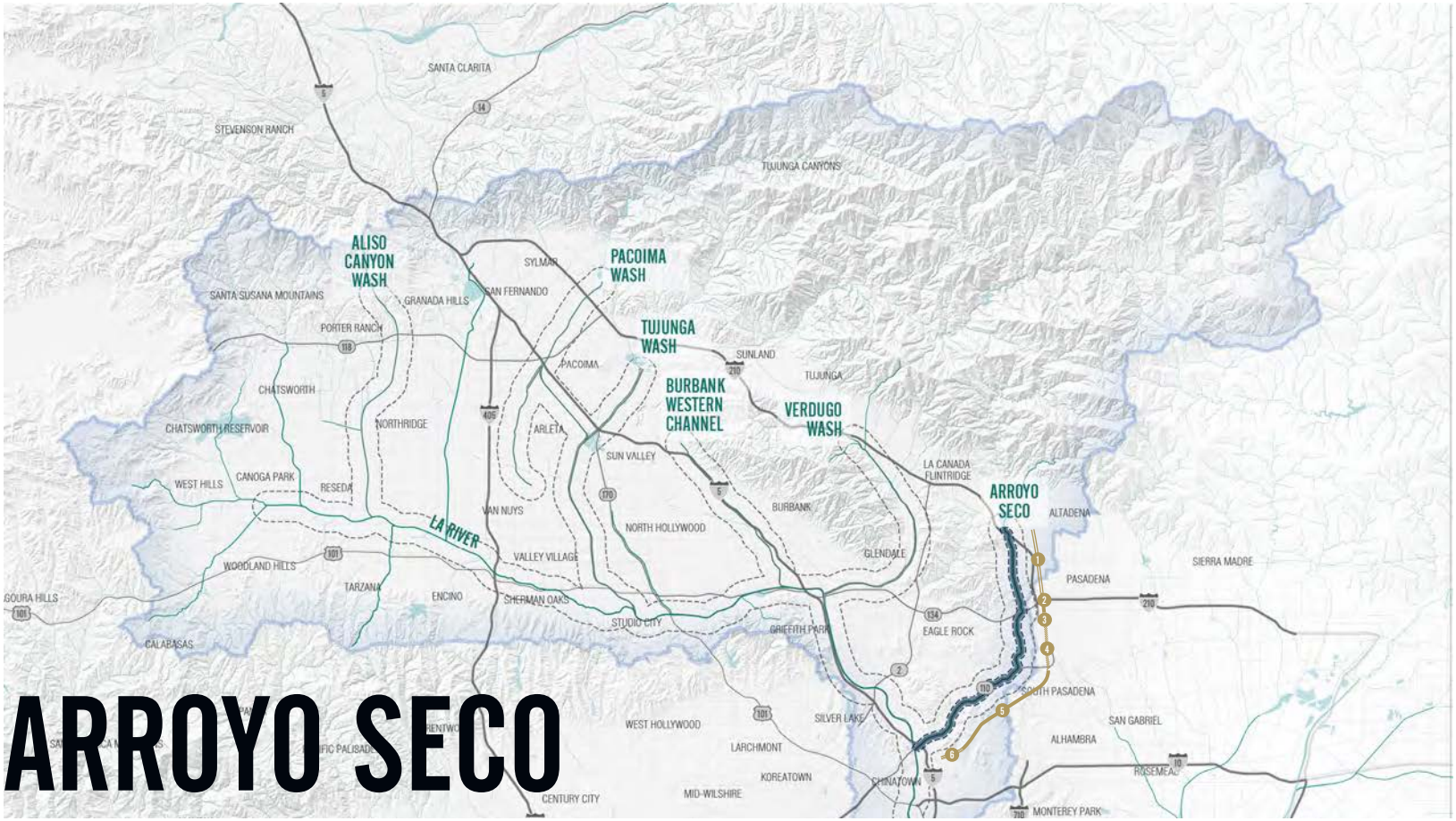


THE CONFLUENCE DESIGN AREA

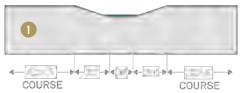
OPPORTUNITY AREAS IN THIS DESIGN AREA

568	Verdugo Wash Ecological District
642	Verdugo Wash Connectivity, Recreation, and Open Space Project
709	In Channel Habitat Enhancement Projects with Active Planting/Seeding
710	In Channel Habitat Enhancement Projects with Passive Recruitment
712	LA River Ecosystem Restoration IFR (p. 105)
852	Verdugo Wash
853	San Fernando Path
857	San Fernando Railroad
864	Ferraro Fields Side Channel
869	Glendale Narrows Riverwalk
882	River Glen Wetlands

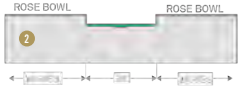
1.5 mi 3 mi



ARROYO SECO

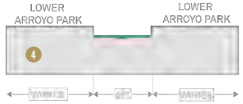


Segment 1.
The Arroyo Seco flows in a natural state above Devils Gate Dam and is concrete lined the entire length below the dam.

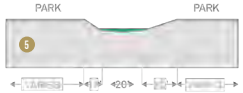


Segment 2.
Segment 1 and 2 have the most developed park land and the greatest active recreational use. They also have the largest amount of paved parking and the greatest amount of turf due to the Brookside Golf Course. As it flows through the Brookside Golf Course no fencing is present and direct access to the creek is possible. In this segment, it runs through parks and residential.

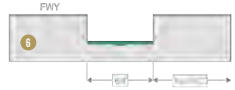
Segment 3
Underneath the SR-134, the tributary is naturalized.



Segment 4.
The Lower Arroyo is the most confined area for competing uses. This area has culturally significant structures and walls that need preservation and residential neighborhoods in close proximity to natural preservation areas. In this segment, it runs through parks and residential.



Segment 5.
The Arroyo Seco bike path runs adjacent to the creek for about 2-miles starting at East Avenue 43. A major portion of this path descends into the creek bed and runs adjacent to the low-flow channel allowing direct access to the creek. In this segment, it runs through parks and residential.



Segment 6.
The concrete walls of the engineered section have a trapezoidal configuration just upstream of the confluence with the Los Angeles River for about 3 miles.

ARROYO SECO

The Arroyo Seco flows from its headwaters in the San Gabriel Mountains through the cities of La Canada Flintridge, Pasadena, and South Pasadena, to its confluence with the Los Angeles River near downtown Los Angeles. The upper half of the Arroyo Seco flows within the Angeles National Forest. Devils Gate Dam is located where the Arroyo Seco exits the forest.

The Arroyo Seco flows in a natural state above Devils Gate Dam and **is concrete lined the entire length below the dam**. The concrete walls of the engineered section have a trapezoidal configuration just upstream of the confluence with the Los Angeles River for about 3 miles then transitions to a vertical configuration where the 110 Freeway intersects Pasadena Avenue. It continues in this form until the Rose Bowl where it transitions back to a trapezoidal channel. **For most of its length, the creek flows through and adjacent to parks.**

The **Arroyo Seco bike path** runs adjacent to the creek for about 2-miles starting at East Avenue 43 . A major portion of this path descends into the creek bed and runs adjacent to the low-flow channel– allowing direct access to the creek. An **unpaved multi-use trai**l runs adjacent to the creek for about two miles through Lower Arroyo Park. However, as it flows through the Brookside Golf Course no fencing is present and direct access to the creek is possible. A **new path section in South Pasadena** opened from York to Arroyo Seco Parkway.

POPULATION

- Density[2]: 23 people/acre (LA County Avg: 13)
- Household Income[2]: $46K (LA County Avg: $54K)
- Community Burden[3]: Most Burdened 38% of State

KEY ADJACENCIES INCLUDE

- Brookside Golf & Country Club
- Arroyo Park
- Arroyo Seco Golf Course
- Debs Regional Park
- Heritage Square Museum
- Sycamore Grove Park

31 SCHOOLS WITHIN 0.5 MILES

PARK SPACE

- Park Provision[5]: 9.36 acres per 1,000 people (LA County Avg: 3.3 acres per 1,000 people)
- Most of Arroyo Seco flows through and adjacent to parks

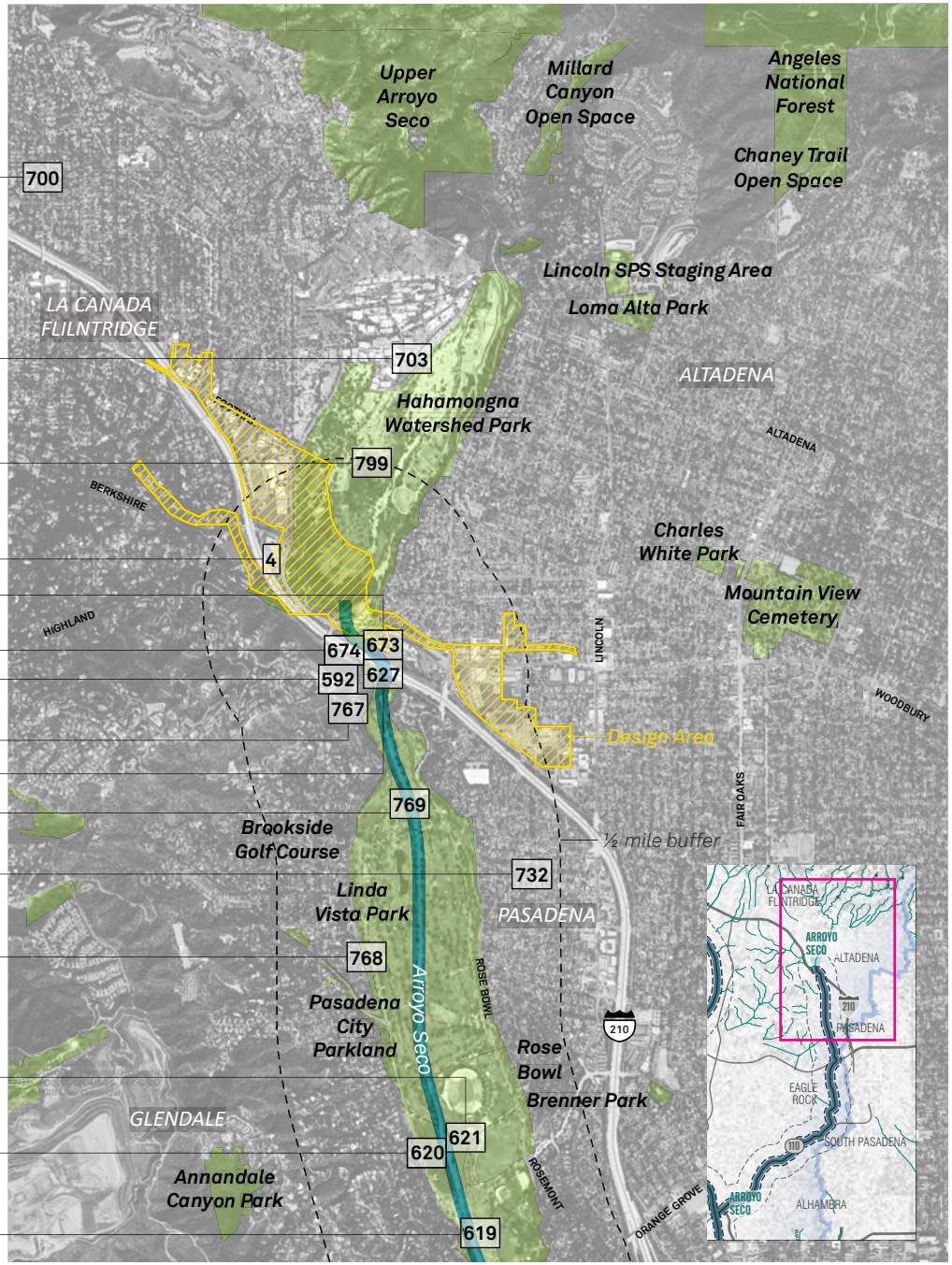
SOME PREVIOUS PLANNING EFFORTS

- One Arroyo Plan (2018)
- Arroyo Seco Watershed Assessment (2010)
- The Arroyo Seco Watershed Management and Restoration Plan (2006)
- The Los Angeles River Revitalization Master Plan (City of Los Angeles) identifies the Arroyo Seco's confluence with the Los Angeles River as an "opportunity area"

[2] 2010 Census
[3] State of California, CES 3.0
[5] 2010 Census/LA County Park Assessment

OPPORTUNITY AREAS ON ARROYO SECO - INTERSTATE 210 TO BROOKSIDE PARK

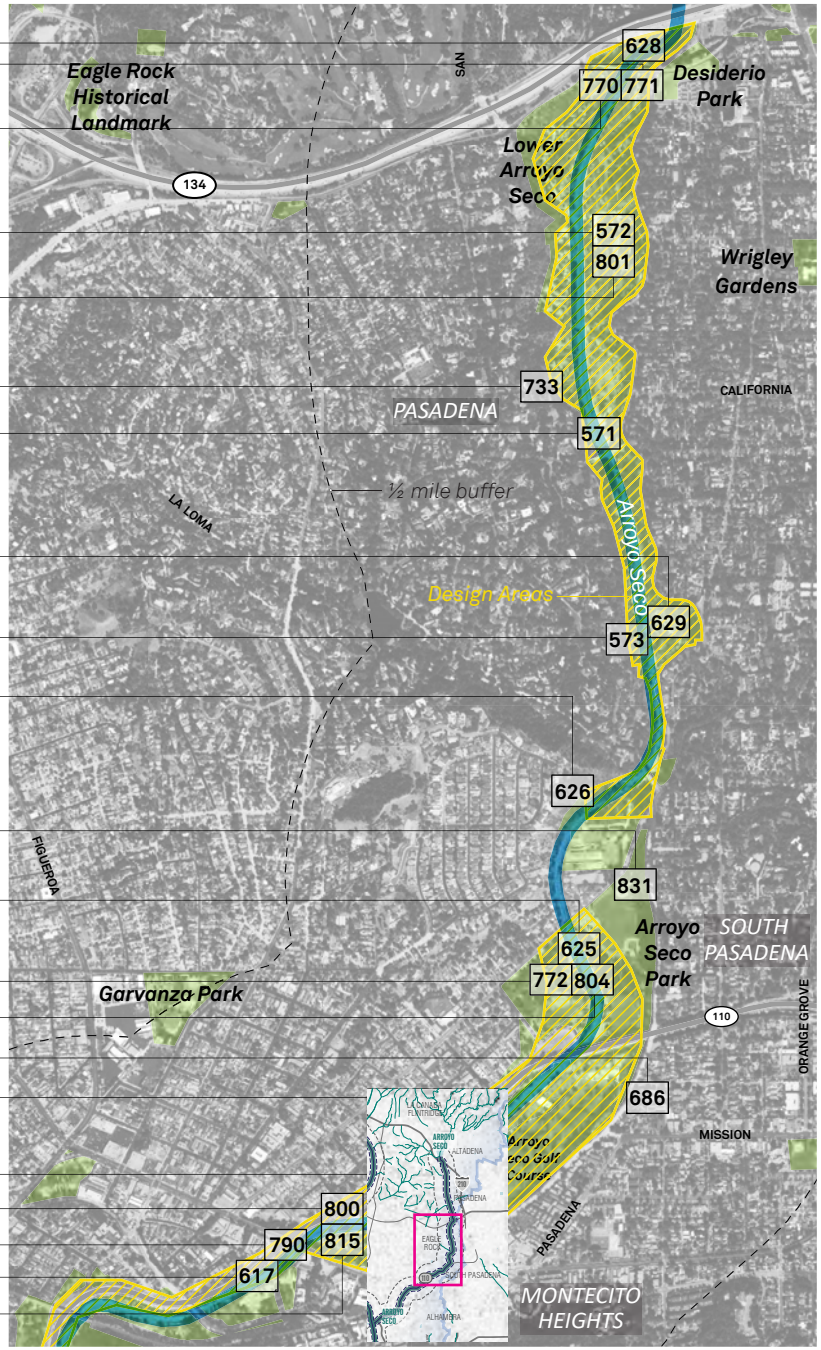
- OA 700 Arroyo Seco Foothill Communities
- OA 703 Hahamongna Watershed Park
- OA 799 Oak Grove Park Trail Restoration and Wayfinding
- OA 4 Arroyo Seco Enhanced Community Connectivity
- OA 673 Arroyo Seco Enhanced Habitat Connectivity-5
- OA 674 Arroyo Seco Enhanced Habitat Connectivity-6
- OA 592 Arroyo Seco Open Space, Education, and Watershed Demonstration Park-1
- OA 767 Flint Wash Enhancements
- OA 627 Arroyo Seco Enhanced Habitat Connectivity-5
- OA 769 Brookside Golf Course - Channel Naturalization
- OA 732 Pasadena's Central Arroyo
- OA 768 Brookside Golf Course - Alternative Stream
- OA 621 Arroyo Seco Stormwater Capture-3
- OA 620 Arroyo Seco Stormwater Capture-2
- OA 619 Arroyo Seco Stormwater Capture-1



COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

- OA 628 Arroyo Seco Enhanced Habitat Connectivity-6
- OA 771 Lower Arroyo Park - Low Flow Improvement
- OA 770 Lower Arroyo Park - Channel Naturalization
- OA 572 Arroyo Seco Channel Restoration and Habitat Improvement-2
- OA 801 Lower Arroyo Park Casting Pond Stormwater Capture
- OA 733 Pasadena's Lower Arroyo
- OA 571 Arroyo Seco Channel Restoration and Habitat Improvement-1
- OA 629 Arroyo Seco Enhanced Habitat Connectivity-7
- OA 573 Arroyo Seco Channel Restoration and Habitat Improvement-3
- OA 626 Arroyo Seco Enhanced Habitat Connectivity-4
- OA 831 Arroyo Seco Riparian/Wetland Corridor and Wilderness Park
- OA 625 Arroyo Seco Green Lung-14
- OA 772 Stoney Drive
- OA 804 Pascual Park Native Garden and Wildlife Refuge
- OA 686 Arroyo through South Pasadena
- OA 618 Arroyo Seco Green Lung-16
- OA 817 South Pasadena Arroyo Seco Multi-Use Path
- OA 800 Arroyo Seco Pkwy Bikeway Connector
- OA 790 Clean and Repair Broken Bike Path
- OA 617 Arroyo Seco Green Lung-15
- OA 815 Arroyo Bike Path Restoration

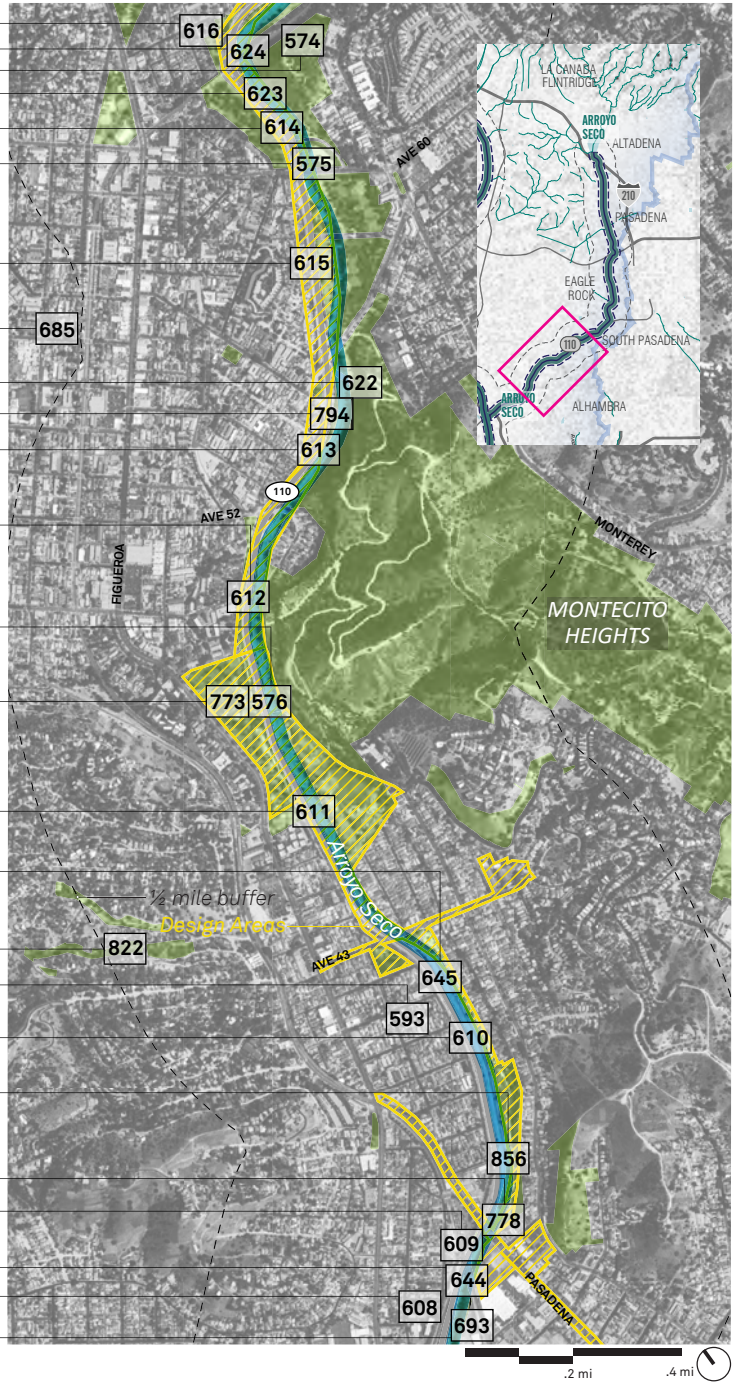


COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

OPPORTUNITY AREAS ON ARROYO SECO - HERMON PARK TO PASADENA AVE

- OA 616 Arroyo Seco Green Lung-14
- OA 624 Arroyo Seco Enhanced Habitat Connectivity-3
- OA 574 Arroyo Seco Adjacent Inundation and Restoration
- OA 623 Arroyo Seco Enhanced Habitat Connectivity-2
- OA 614 Arroyo Seco Green Lung-12
- OA 575 Arroyo Seco Wet Weather Capture -1
- OA 615 Arroyo Seco Green Lung-13
- OA 685 Arroyo through Los Angeles
- OA 622 Arroyo Seco Enhanced Habitat Connectivity-1
- OA 794 Arroyo Homeless Opportunity
- OA 613 Arroyo Seco Green Lung-11
- OA 612 Arroyo Seco Green Lung-10
- OA 576 Arroyo Seco Wet Weather Capture-2
- OA 773 Sycamore Grove Park Restoration
- OA 611 Arroyo Seco Green Lung-9
- OA 645 Arroyo Seco Area Bike Lane Project
- OA 822 Mt Washington Canyon Rain Gardens and Graywater Systems
- OA 593 Arroyo Seco Open Space, Education, and Watershed Demonstration Park-2
- OA 610 Arroyo Seco Green Lung-8
- OA 856 Arroyo Seco Greenway
- OA 778 Heritage Square to Sycamore Grove Park Bikeway and Demonstration
- OA 609 Arroyo Seco Green Lung-7
- OA 644 Arroyo Seco Area Bike Path Connection
- OA 608 Arroyo Seco Green Lung-6
- OA 693 Arroyo Seco Confluence with Los Angeles River

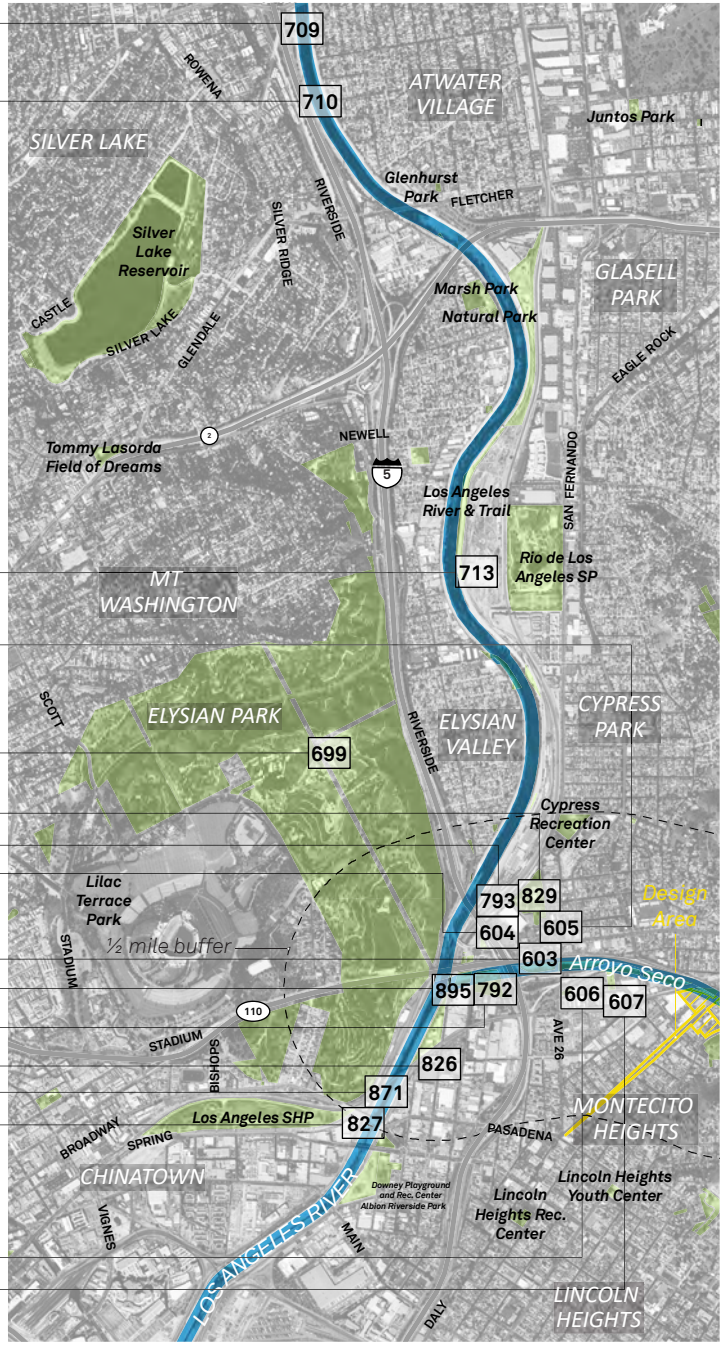


COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

OPPORTUNITY AREAS ON ARROYO SECO - PASADENA AVE TO LOS ANGELES RIVER

- OA 709 In Channel Habitat Enhancement Projects with Active Planting/Seeding
- OA 710 Opportunity for In Channel Habitat Enhancement Projects with Passive Recruitment
- OA 713 LA River Ecosystem Restoration IFR
- OA 605 Arroyo Seco Green Lung-3
- OA 699 Elysian Park Native Habitat
- OA 829 Indigenous People Native Garden and Art Installation
- OA 793 Frog Town Foot Bridge 2
- OA 604 Arroyo Seco Green Lung-2
- OA 603 Arroyo Seco Green Lung-1
- OA 895 Arroyo Seco Confluence
- OA 792 Arroyo Bikeway
- OA 826 Humboldt to Ed Reyes Greenway Crosswalk
- OA 871 Bending the River Back into the City
- OA 827 LAR by Buena Vista Hill Elysian Park Bikeway
- OA 606 Arroyo Seco Green Lung-4
- OA 607 Arroyo Seco Green Lung-5



COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

Arroyo Seco (in this area)

Hahamonga Park

Flint Canyon Wash

FLINT CANYON CONFLUENCE

Wildlife Corridor

This design area is one of the most important habitat areas in the Arroyo Seco corridor. To improve this habitat, the "Arroyo Seco Watershed Management and Restoration Plan" proposed numerous projects. If chosen, we would recommend studying how these plans could be linked to create a unique ecological system for habitat and passive recreation.

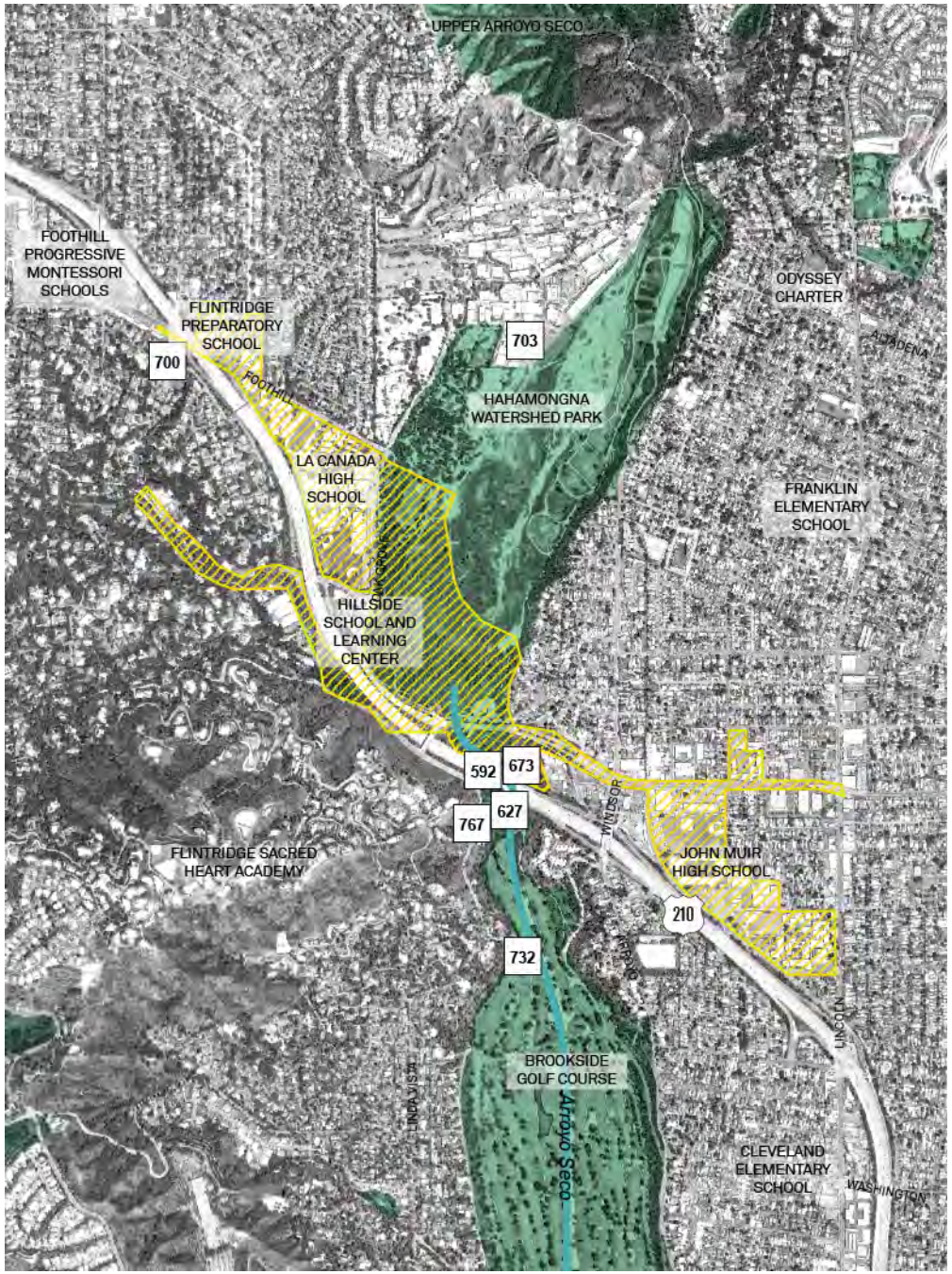
This could include

- **Naturalization of Flint Canyon Wash.** The wash is unlined for over ½ mile before it ends at the Arroyo Seco, making it a critical habitat link between Hahamongna, the San Rafael Hills, and San Gabriel Mountains. Although unlined, the channel has been heavily modified from its natural profile and there is an opportunity to modify it and further strengthen its ecological role
- **Infiltration and water treatment of storm drains discharge.** Several large storm drains discharge directly into the Hahamongna critical habitat. Tests from DPW have shown high levels of bacterial contamination in this discharge (DPW). To protect and enhance existing habitat, infiltration and water treatment should be installed
- **Connection to schools.** There are half a dozen schools within walking distance of this design area. Green streets, bike paths and multi-use trails could simultaneously create additional ecological connections and help bring students to this unique area

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Meets existing needs for habitat, ecology, access, education, stormwater management and reduction of pollution impact

Arroyo Seco Design Areas// Flint Canyon Confluence

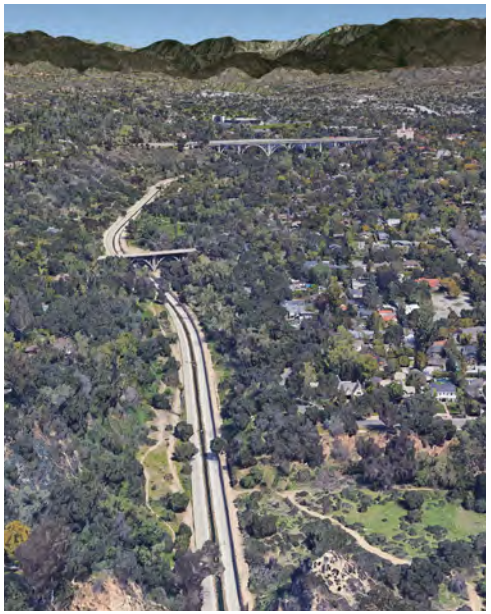


FLINT CANYON CONFLUENCE

OPPORTUNITY AREAS IN THIS DESIGN AREA

592	Arroyo Seco Open Space, Education, and Watershed Demonstration Park-1
627	Arroyo Seco Enhanced Habitat Connectivity-5
673	Arroyo Seco Enhanced Habitat Connectivity-5
700	Arroyo Seco Foothill Communities
703	Hahamongna Watershed Park
732	Pasadena's Central Arroyo
767	Flint Wash Enhancements

2.5 mi 5 mi



Arroyo Seco (in this area)

Pasadena Casting Club

LOWER ARROYO PARK NATURALIZATION

Restoring the Natural Stream

This design area presently contains some of the best remaining native habitat in the Arroyo Seco south of Devil's Gate Dam. This is also the most feasible place to remove the Arroyo's concrete lining and restore a natural stream channel.

As a long-term goal, the tributary's ecological and hydrological functioning can be restored through re-creation of a continuous riparian habitat corridor within the waterway.

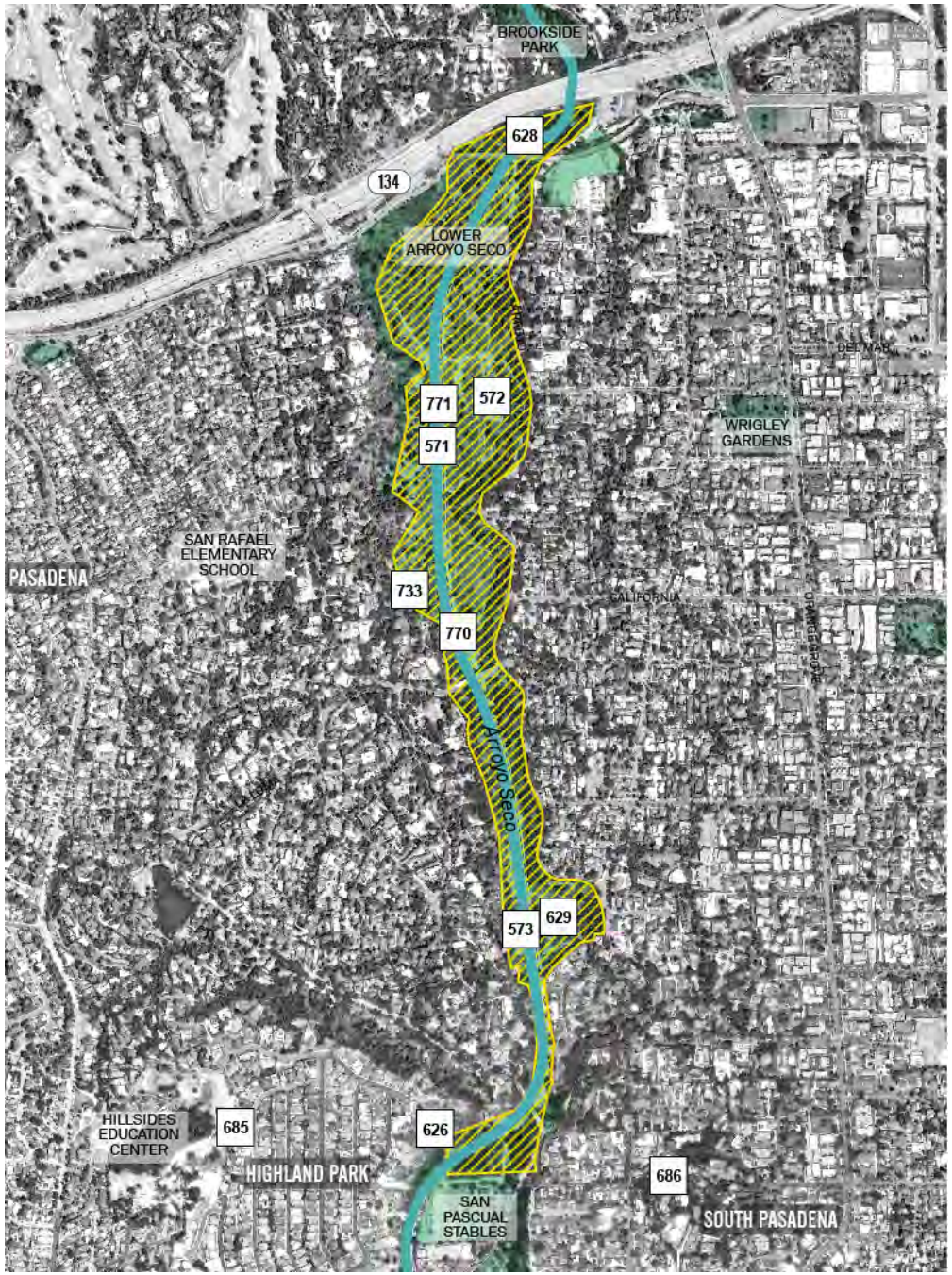
This could include

- **Stormwater infiltration.** The the ample open space, coupled with possible Arroyo naturalization, offer the opportunity to infiltrate large volumes of urban runoff generated upstream
- **Develop "treatment terraces"** within the channel to treat stormwater flows that "daylight" or surface in the River
- **Public Space.** The existing Arroyo Seco Park might be modified to create small terraced pocket parks and native landscaped areas that would allow people to access the waterway

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Meets existing needs for access, stormwater management and habitat

Arroyo Seco Design Areas// Lower Arroyo Park Naturalization



LOWER ARROYO PARK

OPPORTUNITY AREAS IN THIS DESIGN AREA

571	Arroyo Seco Channel Restoration and Habitat Improvement-1
572	Arroyo Seco Channel Restoration and Habitat Improvement-2
573	Arroyo Seco Channel Restoration and Habitat Improvement-3
626	Arroyo Seco Enhanced Habitat Connectivity-4
628	Arroyo Seco Enhanced Habitat Connectivity-6
629	Arroyo Seco Enhanced Habitat Connectivity-7
685	Arroyo through Los Angeles
686	Arroyo through South Pasadena
733	Pasadena's Lower Arroyo
770	Lower Arroyo Park - Channel Naturalization
771	Lower Arroyo Park - Low Flow Improvement
801	Lower Arroyo Park Casting Pond Storm-water Capture

Arroyo Seco Design Areas LOWER ARROYO PARK NATURALIZATION (199 ACRES)

IMAGINE!

South of the Ventura Freeway, the Arroyo Seco mimics the original varied riparian landscape that Charles Fletcher Lummis wandered. The naturalized waterways allow surface water to collect and infiltrate in depressed water infiltration gardens, recharging the first flush of storm events and cleaning stormwater that is eventually released into the waterways.

CONTEXT

The 199-acre Lower Arroyo Park design area is in the southern part of Pasadena. The area follows the Arroyo Seco from Highway 134 to about Highway 110. The design area is an existing park.

Around 11,801 people live within ½ mile of the tributary in this area. The average total CalEnviroScreen score is in the 31st percentile for the state, which is lower than some of the other design areas.

RESILIENCY BENEFITS

Analyzing the Lower Arroyo Park Naturalization design area concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **121 acres** *of new or enhanced permeable cover*

STORMWATER CAPTURE

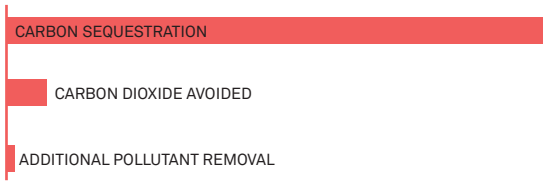
10 acre-feet

or **5**

Olympic-sized swimming pools

AIR

The design includes **6,839 trees** *that sequester carbon, and remove pollutants from the air*



AIR POLLUTANT REMOVAL

7,239 tons
Additional Carbon Sequestration

205 tons
Additional Carbon Dioxide Avoided

6 tons
Additional Pollutant Removal

HABITAT

The design includes **159 acres** *of new and enhanced ecological habitat that contribute to the Rim of the Valley Corridor Preservation and* **78 acres** *of additional tree canopy*

HABITAT CREATION

65%
the size of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

The design includes **179 acres** *of new and enhanced open space and* **15 miles** *of new or enhanced community connections*

9.5 miles
Green Streets

1.2 miles
Multi-modal paths

4.5 miles
Trails

Arroyo Seco Design Areas// Lower Arroyo Park Naturalization

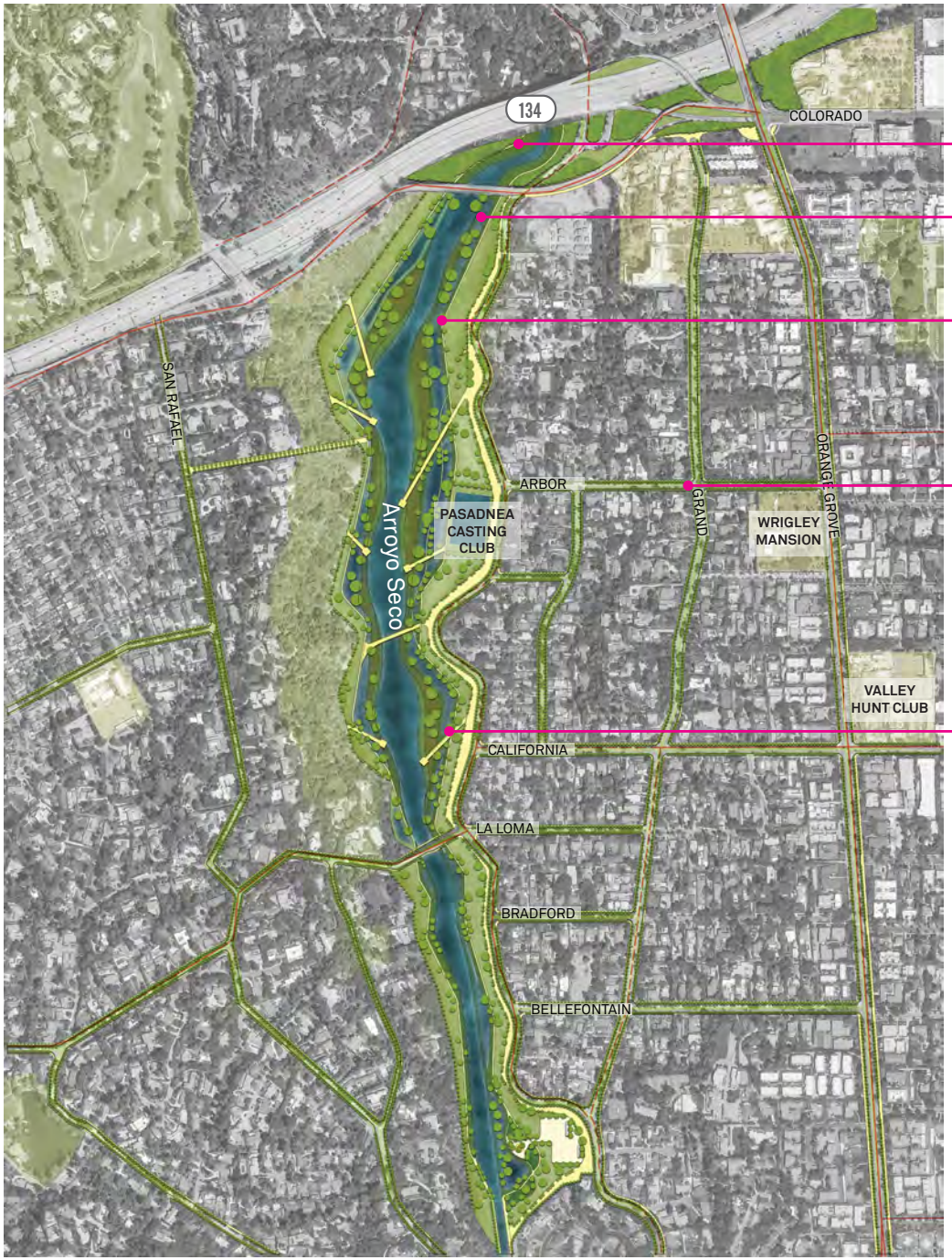
Existing Conditions looking North from Bradford Street

Arroyo Seco Design Areas// Lower Arroyo Park Naturalization

Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details, are not part of this plan

Proposed Design looking North from Bradford Street

Arroyo Seco Design Areas// Lower Arroyo Park Naturalization



LOWER ARROYO PARK NATURALIZATION DESIGN AREA CONCEPT

- NATURALIZED ARROYO SECO
- REMOVAL OF CHANNEL WALLS
- TERRACED VEGETATION
- GREEN STREETS
- OVERLOOKS

2000'

Arroyo Seco Design Areas// Lower Arroyo Park Naturalization

LOWER ARROYO SECO (ENLARGEMENT)

To allow for stream naturalization, this concept was designed to withstand temporary flooding by enabling stormwater and debris to quickly recede. Techniques include slope stabilization, the use of fast-draining soils, appropriate vegetation, and durable finishes. A gradient of texture surfaces: from gabions, step gabions, smoother stone terraces also help control the flow of water.

The site's design and programming are linked to the spaces ability to withstand the strong forces of water and treat urban runoff from the surrounding catchment zone before is enters the waterways. The focus on habitat creation and the desire to treat water biologically promoted the use of more woodlands and wetlands, frog ponds, meadows, and grassy swales. Overlaid onto this new topography are traditional park amenities and activities: seating, lighting, picnic benches paths for strolling and biking, and bridge from which to watch birds.

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NEXT STEPS

Additional required analyses and next steps for the Lower Arroyo Park Naturalization design area include:

- A preliminary engineering report that includes feasibility-level analyses, cost estimates, and coordination
- Geotechnical evaluation for wetlands should be performed,
- Analysis of the expected flows during wet and dry weather
- Soil remediation analyses to determine extent of possible existing contamination
- Identification of the appropriate water rights for river diversions
- Analysis of the effects of increased water demand from vegetation and wildlife
- Biological studies for wildlife needs for habitat restoration and preservation areas
- Hydrologic and hydraulic modeling to determine potential for channel naturalization
- An Environmental Impact Report/ Statement (EIR/EIS) may need to be completed to assess any potential environmental impacts
- Water quality analysis—including pollutant settling and oxygen demand
- Air quality assessment should be performed
- Study to assess the potential for planting native vegetation to restore the historic habitat and ecological function of the tributary wherever possible while not reducing its ability to manage the flood risk to adjacent communities
- Additional analysis to consider climate change and updated storm return intervals to help understand and prioritize opportunities and improvements

Arroyo Seco (in this area)

Welch Site

Heritage Square Museum

HERITAGE SQUARE

An Urban Community and Ecological Connector

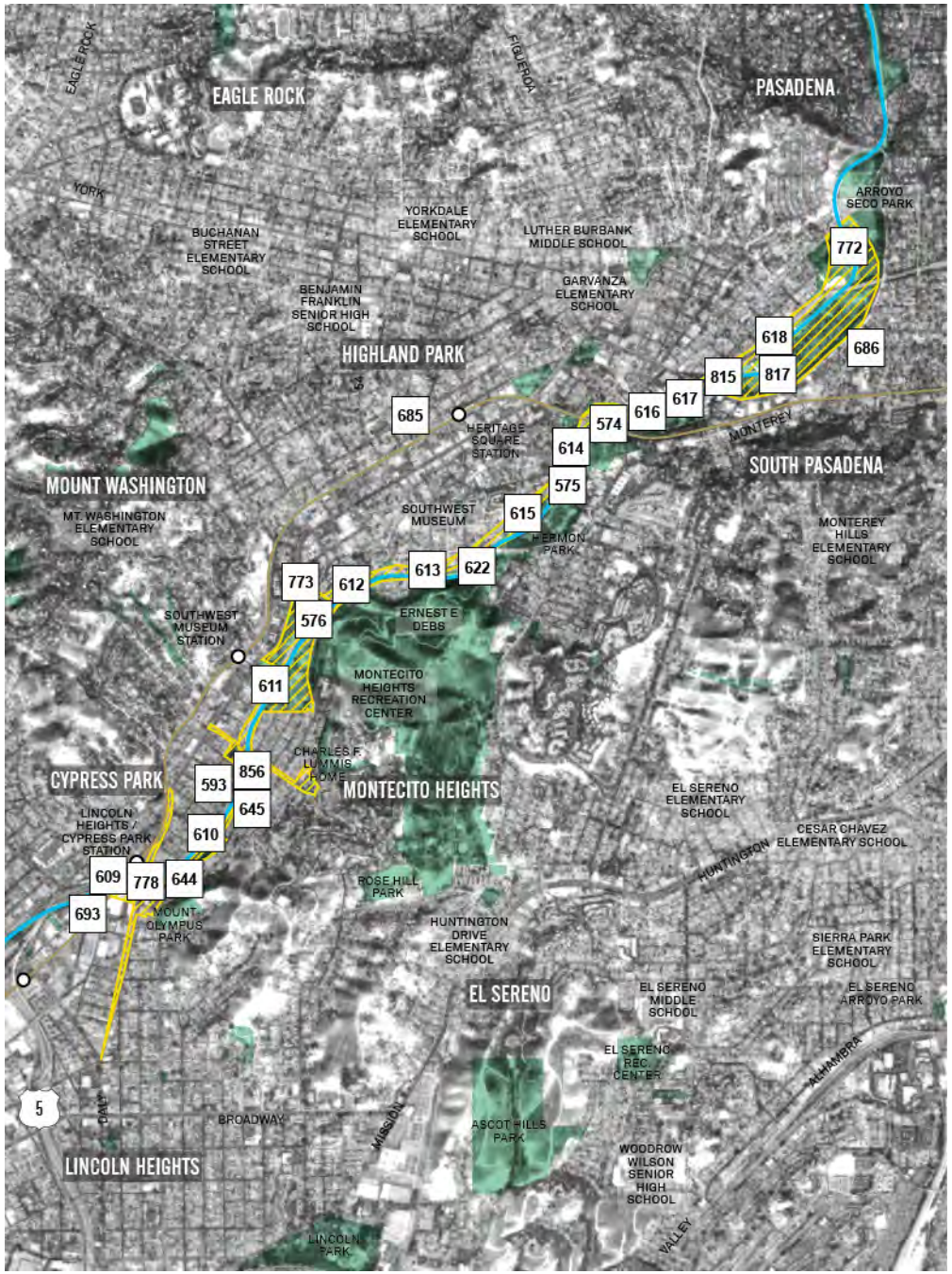
In the park-poor areas at the southern end of the Arroyo Seco, there is an opportunity to create an ecological and cultural destination by connecting the vacant Welch Site and the Sycamore Grove Park, with community institutions such as the Heritage Museum, the Metro Station, the Lummis House, and numerous schools.

This could include

- **Daylighting and restoring** an underground stream at Sycamore Grove Park
- **Habitat Restoration** at the Welch Site link Ernest E. Debs Park and Elysian Park via the Confluence. Restoration with native plants would provide both forage and cover for resident and transient animals alike
- **Stormwater gardens** could be installed on the Welch Site treat runoff from an industrial/commercial area of the Arroyo Seco

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- Meets existing needs for connection, habitat, access, culture, education, stormwater management and reduction of pollution impact



HERITAGE SQUARE

OPPORTUNITY AREAS IN THIS DESIGN AREA

- 574 Arroyo Seco Adjacent Inundation and Restoration
- 575 Arroyo Seco Wet Weather Capture -1
- 576 Arroyo Seco Wet Weather Capture-2
- 593 Arroyo Seco Open Space, Education, & Watershed Demonstration Park-2
- 609 Arroyo Seco Green Lung-7
- 610 Arroyo Seco Green Lung-8
- 611 Arroyo Seco Green Lung-9
- 612 Arroyo Seco Green Lung-10
- 613 Arroyo Seco Green Lung-11
- 614 Arroyo Seco Green Lung-12
- 615 Arroyo Seco Green Lung-13
- 616 Arroyo Seco Green Lung-14
- 617 Arroyo Seco Green Lung-15
- 618 Arroyo Seco Green Lung-16
- 622 Arroyo Seco Enhanced Habitat Connectivity-1
- 625 Arroyo Seco Green Lung-14
- 644 Arroyo Seco Area Bike Path Connection
- 645 Arroyo Seco Area Bike Lane Project
- 685 Arroyo through Los Angeles
- 686 Arroyo through South Pasadena
- 693 Arroyo Seco Confluence with Los Angeles River
- 772 Stoney Drive
- 773 Sycamore Grove Park Restoration
- 778 Heritage Square to Sycamore Grove Park Bikeway and Demonstration
- 790 Clean and Repair Broken Bike Path
- 800 Arroyo Seco Pkwy Bikeway Connector
- 804 Pascual Park Native Garden and Wildlife Refuge
- 815 Arroyo Bike Path Restoration
- 817 South Pasadena Arroyo Seco Multi-Use Path
- 856 Arroyo Seco Greenway

4 mi 8 mi

Arroyo Seco Design Areas HERITAGE SQUARE (385 ACRES)

IMAGINE!

Sunday, 11am. The Arroyo Seco Heritage Square area is already filled with friends, families, and visitors from all over the country that are setting up picnics at Sycamore Grove and Artesian Park, the riding bikes down the Arroyo Allee, and walking to the latest exhibit at the Southwestern Museum/ The area has become known as the best place to experience what Los Angeles was like when she was a young, growing city grounded in an "arroyo culture" and an arts and crafts sensibilities.

CONTEXT

The 385-acre Heritage Square design area follows the Arroyo Seco through neighborhoods in Northeast Los Angeles including Montecito Heights, Mount Washington, Lincoln Heights, and Cypress Park. The design area is flanked by the Arroyo Seco Parkway (110) and Pasadena Avenue. The northerly portion of the design area includes Sycamore Grove Park and the Montecito Heights Recreation Center.

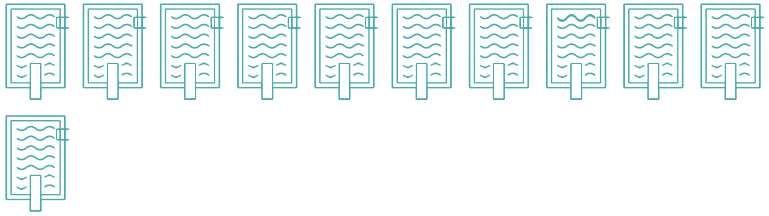
The area is dense with about 34,048 people living within ½ mile of the tributary in this area. The pollution burden in the area is high with the average CalEnviroScreen score being in the 82nd percentile. Pollution comes from the freeways and industrial uses in the area.

RESILIENCY BENEFITS

Analyzing the Heritage Square design area concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **81.3 acres** *of new or enhanced permeable cover*



STORMWATER CAPTURE

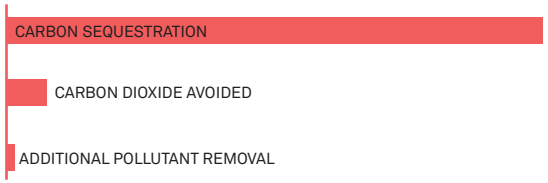
21.7 acre-feet

or **11**

Olympic-sized swimming pools

AIR

The design includes **8,354 trees** *that sequester carbon, and remove pollutants from the air*



AIR POLLUTANT REMOVAL

8,843 tons
Additional Carbon Sequestration

293 tons
Additional Carbon Dioxide Avoided

7 tons
Additional Pollutant Removal

HABITAT

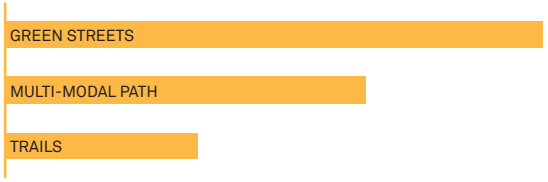
The design includes **365 acres** *of new and enhanced ecological habitat that contribute to the Rim of the Valley Corridor Preservation and* **95 acres** *of additional tree canopy*

HABITAT CREATION

150%
the size of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

The design includes **153 acres** *of new and enhanced open space and* **20 miles** *of new or enhanced community connections*

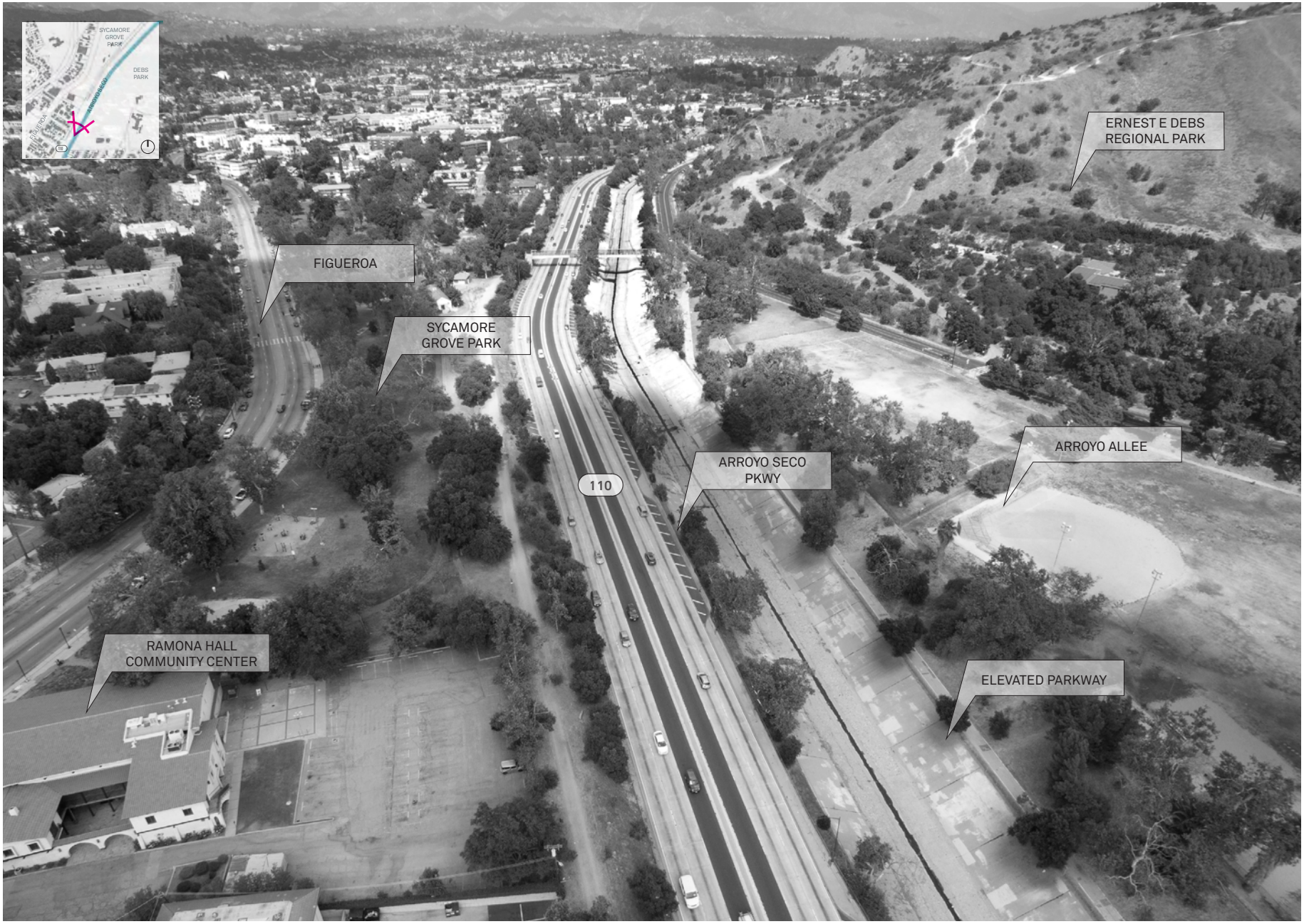


10 miles
Green Streets

6 miles
Multi-modal paths

4 miles
Trails

Arroyo Seco Design Areas// Heritage Square



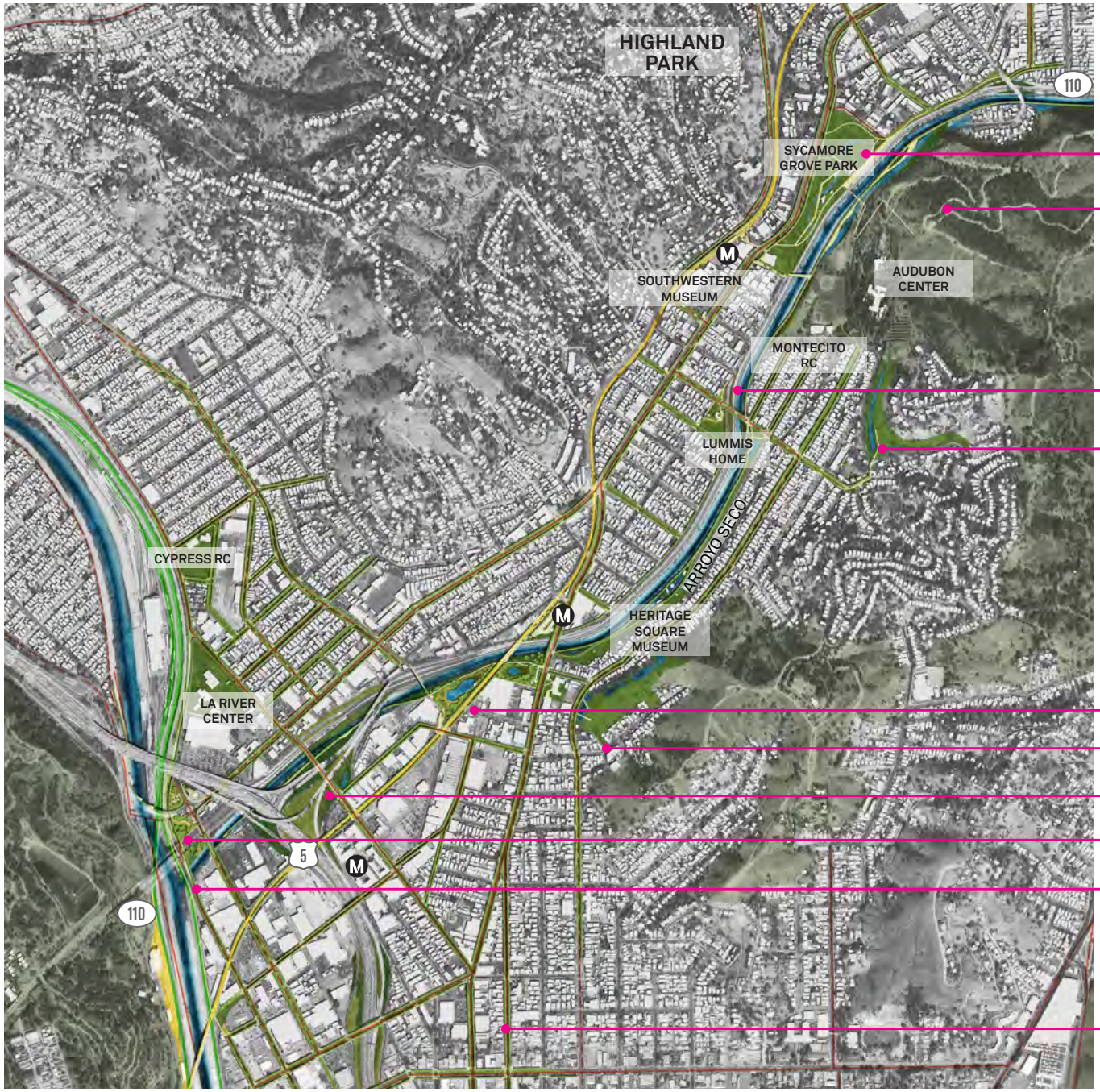
View looking North at the Arroyo Seco near the Montecito Recreation Center

Arroyo Seco Design Areas// Heritage Square

Comprehensive feasibility studies, required jurisdictional coordination, environmental impacts, and other engineering design details, are not part of this plan

View looking North at the Arroyo Seco near the Montecito Recreation Center

Arroyo Seco Design Areas// Heritage Square



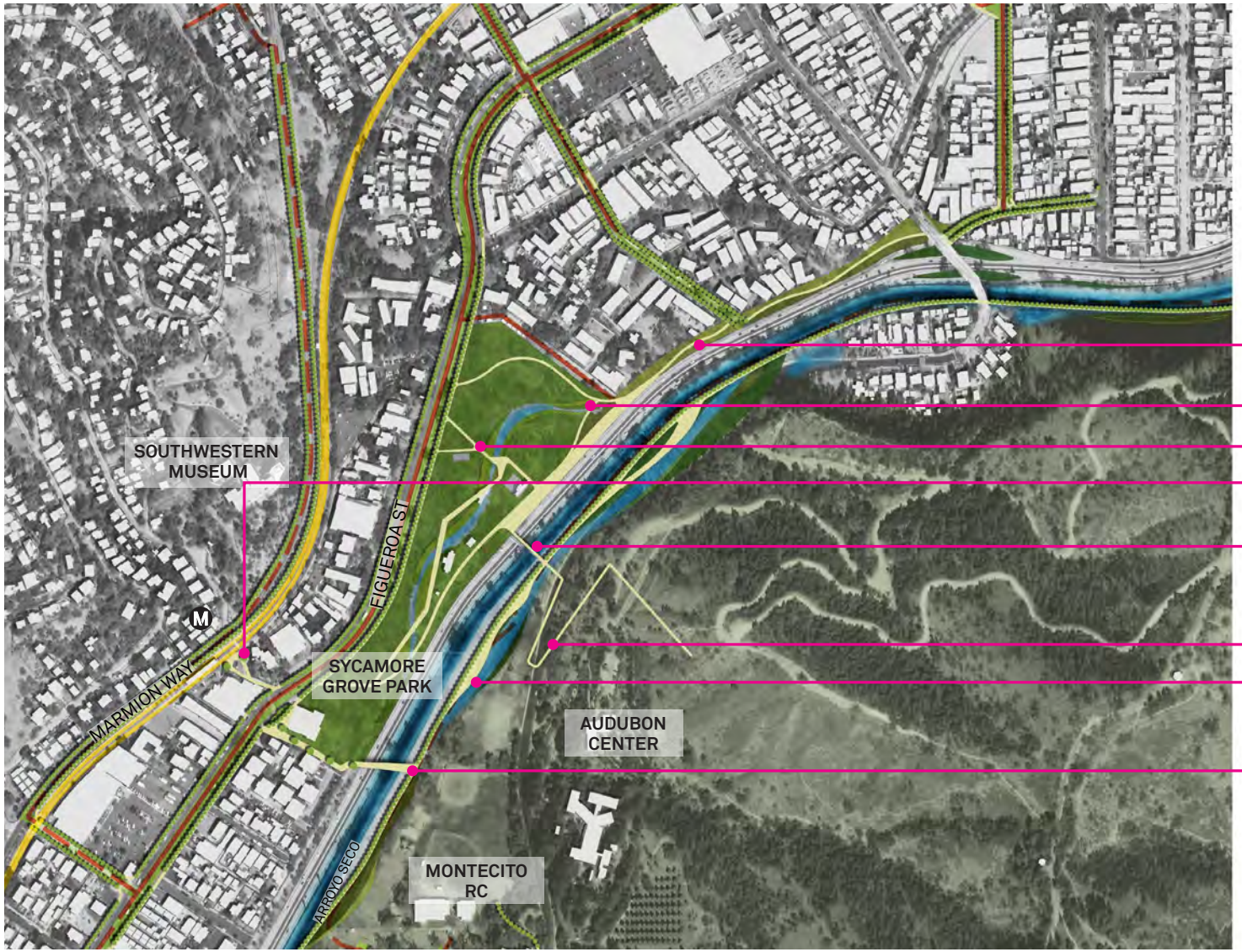
HERITAGE SQUARE DESIGN AREA CONCEPT

- SYCAMORE GROVE PARK ENHANCEMENTS
- DEBS PARK ENHANCEMENTS
- ARROYO ALLEE
- FOOTHILL DETENTION BASIN
- ARTESIAN PARK
- FOOTHILL DETENTION BASIN
- FILTRATION FOREST
- CONFLUENCE PLAZA
- ARROYO BIKE PATH CONNECTION TO THE METRO RIVER PATH
- GREEN STREETS

1,500'

SYCAMORE GROVE PARK (ENLARGEMENT)

From its history as a red-light district at the turn of the 20th century, Sycamore Grove Park is now one of the oldest parks in Los Angeles and signals our new relationship to the area's waterways. This design concept is a response to Northeast Trees and others who advocated to daylight the North Branch Creek in this location. Once the Arroyo Seco's largest tributary, the North Branch has become buried within one of the largest and most contaminated storm drains in the watershed. Sycamore Grove Park's design seeks to create an experientially rich experience from its connection to the Southern Western Museum and Debs Park on the east and west side down to the waterway's edge which is deliberately wild in its native plantings.



Arroyo Seco Design Areas// Heritage Square

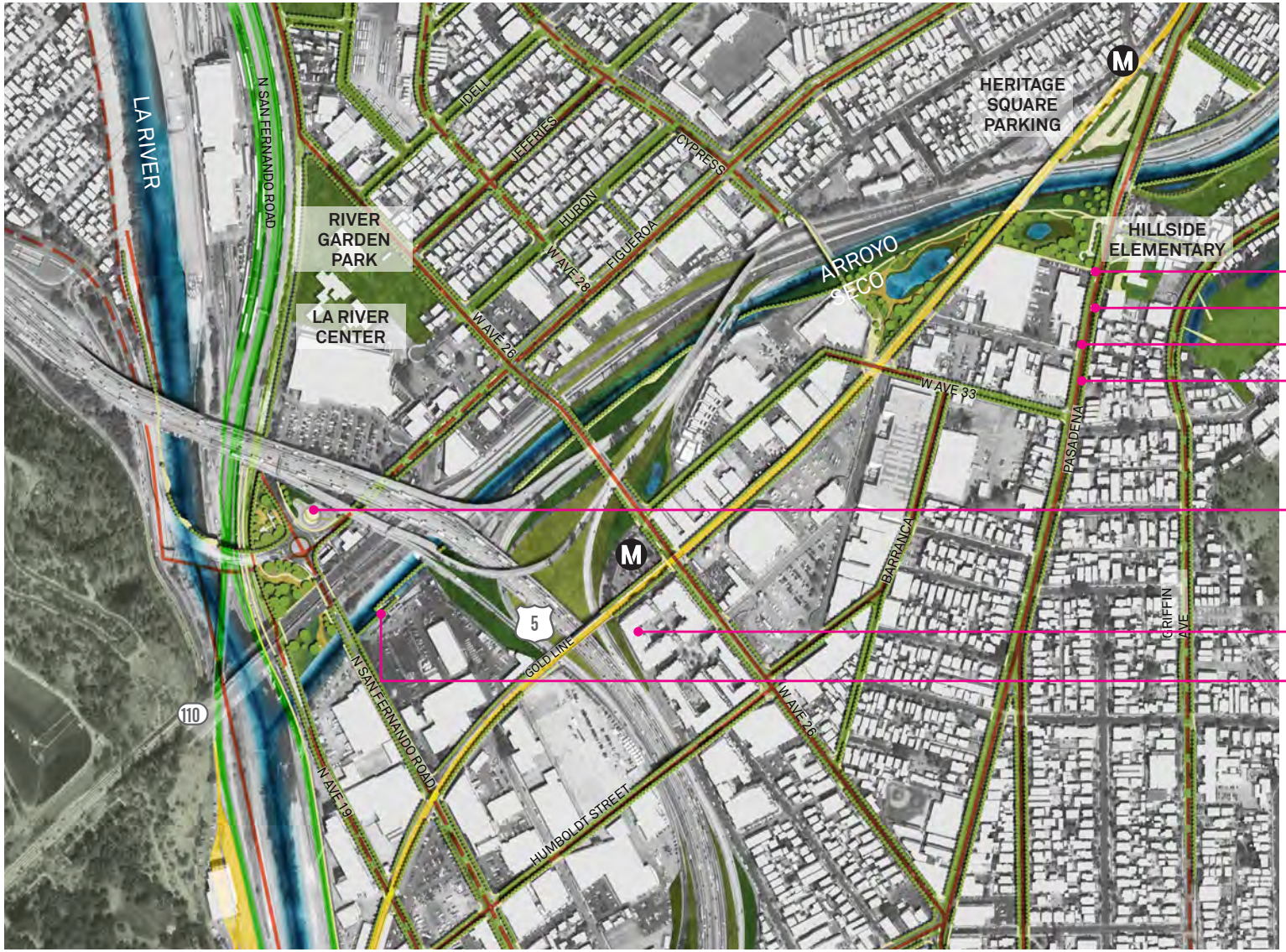
THE ARROYO ALLEE (ENLARGEMENT)

The Arroyo Allee is a linear park along the Southern Arroyo Seco that is designed to engage people with the life and history of the city. Linking the waterway, public transit, and iconic institutions including the Lummis House and Heritage Square, the park uses materials, textures, and planting to create of variety of spaces and texture to engage the mind and the senses. Seating, tall trees, planted borders, play space, public art, and interpretive signage will make the park a comfortable, welcoming, and heterogeneous destination.

The park will also include a series of green and grey infrastructure improvements, such as bio-retention basins, swales, and permeable surfaces intended to slow down and capture stormwater.

THE CONFLUENCE (ENLARGEMENT)

This design area concept includes a network of green streets, parks, and bike paths that connect the tributary environmentally and physically to the Los Angele River. The proposed design will extend the Arroyo Bike Path from Avenue 43 to San Fernando Road where it can connect with the Los Angeles River Path (funded by Metro). It is a resilient, multi-modal, cultural network that grounds the space, increasing the sense that the area is a transportive refuge from the rest of the City.

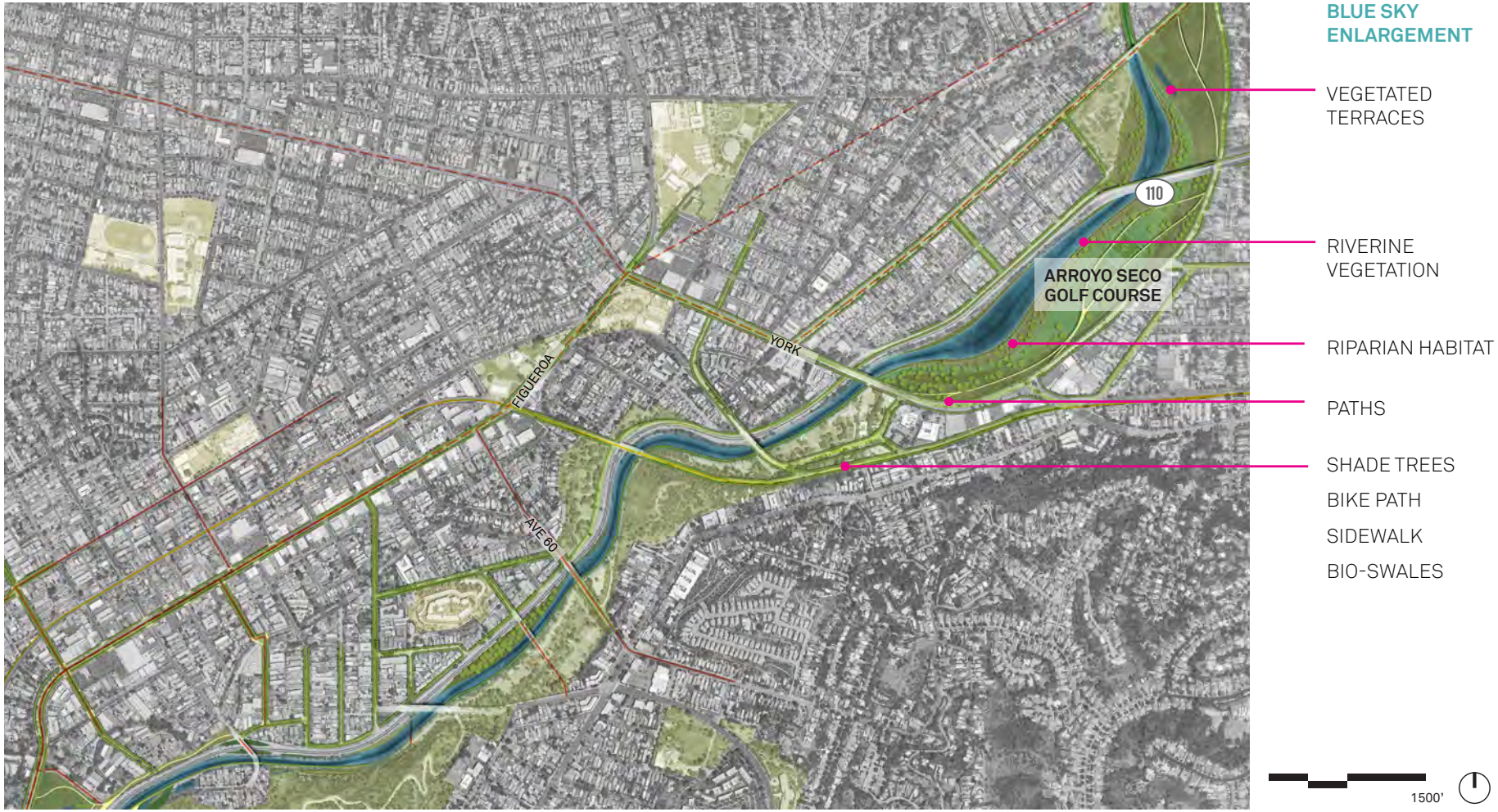


Arroyo Seco Design Areas// Heritage Square

BLUE SKY (ENLARGEMENT)

Between the 110 parkway and York Boulevard, there is space to widen the Arroyo Seco with rougher planted surfaces and greater area for infiltration. That adjacent golf course acts as both a recreation space and a high-volume plane for the waterway. This design concept gives the Arroyo Seco room to unfurl, widening with "softer" engineered banks, a low-flow channel, and riverine vegetation that will cultivate animal habitat. The system of landscape and pathways helps inundate and disperse the water flow.

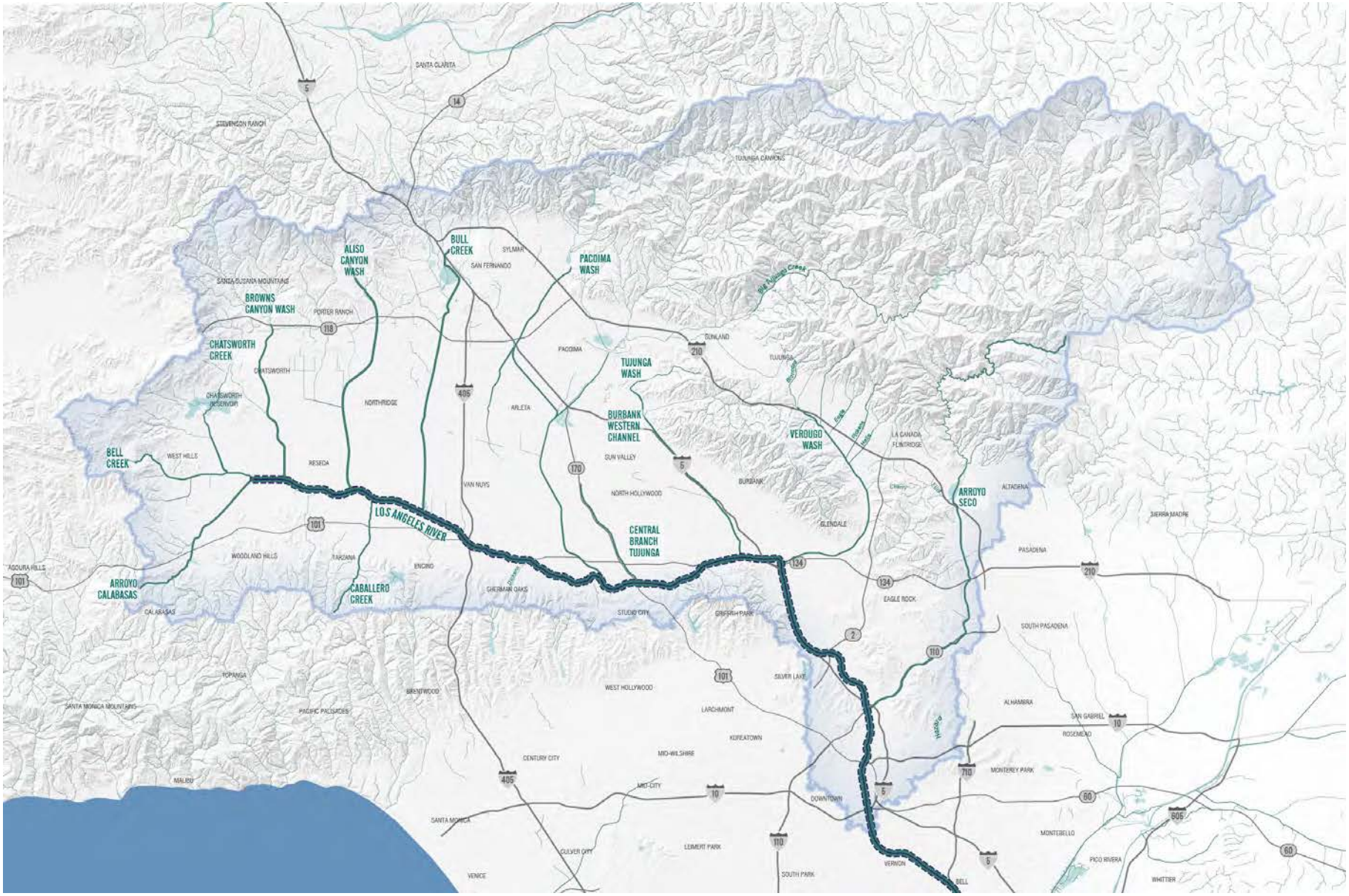
The combination of natural water and engineered edges work together to restore bird habitat to the corridor and create a shaded environment for fish spawning. The riparian plant species can withstand periodic inundation associated with storm events. These overlapping systems form a designed ecology for the river, which allow for the co-existence of recreation, flood control, and habitat.



NEXT STEPS

Additional required analyses and next steps for the Heritage Square design area include:

- A preliminary engineering report that includes feasibility-level analyses, cost estimates, and coordination
- Geotechnical evaluation for wetlands should be performed
- Analysis of the expected flows during wet and dry weather
- Soil remediation analyses to determine extent of possible existing contamination,
- Identification of the appropriate water rights for river diversions
- Analysis of the effects of increased water demand from vegetation and wildlife
- Biological studies for wildlife needs for habitat restoration and preservation areas
- Hydrologic and hydraulic modeling to determine potential for channel naturalization
- An Environmental Impact Report/ Statement (EIR/EIS) may need to be completed to assess any potential environmental impacts
- Water quality analysis—including pollutant settling and oxygen demand
- Air quality assessment should be performed
- Study to assess the potential for planting native vegetation to restore the historic habitat and ecological function of the waterway wherever possible while still maintaining its primary function for reducing the flood risk to adjacent communities



LOS ANGELES RIVER

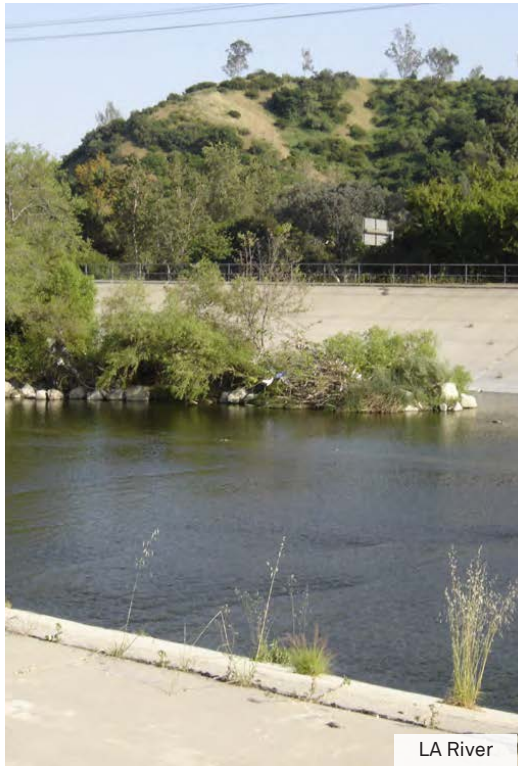
Heritage Square

Glorietta Park

Arroyo Seco

Hansen Dam Lake Bike Path

Hansen Dam Lake



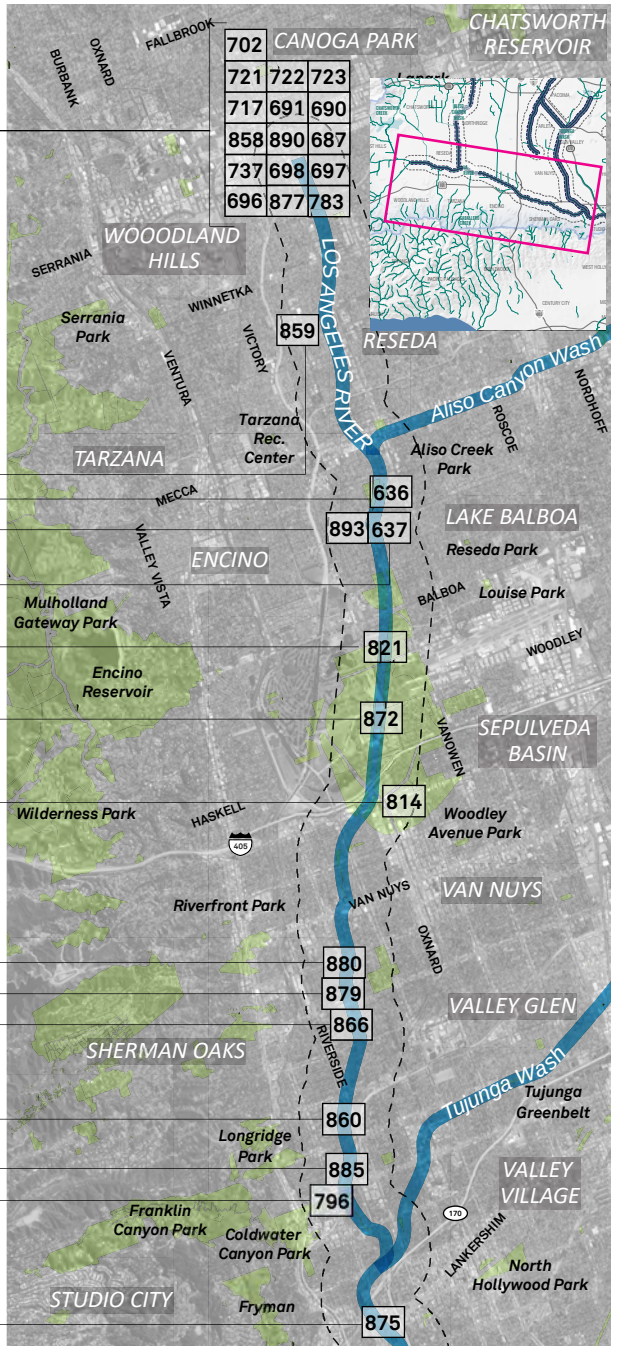
LA River

Nordoff Easement near Aliso Canyon Wash

Downtown Burbank

OPPORTUNITY AREAS ON UPPER LA RIVER - DE SOTO AVENUE TO LANKERSHIM BLVD

- OA 702 Habitat and Stormwater Detention Area
- OA 691 Canoga Park High School Cooperative Habitat and Detention Area
- OA 890 River Origin Park
- OA 690 Canoga Magnet School Riparian Nursery
- OA 722 Owensmouth Healthy River Walk
- OA 698 Demonstration Housing Retrofit
- OA 858 Canoga High School
- OA 696 Demonstration Commercial Retrofit (project 10)
- OA 877 Canoga Park River Park
- OA 687 Basset Swale
- OA 737 Rain Gardens and River Access Points
- OA 723 Owensmouth High School Cooperative Habitat and Detention Area
- OA 697 Demonstration Commercial Retrofit (project 8)
- OA 721 Neighborhood Nature Park
- OA 717 Los Angeles River Walk
- OA 783 Canoga Park Restoration
- OA 859 Pierce College Connector
- OA 636 LA River Pedestrian Bridge Crossing
- OA 893 Caballero Creek Confluence Park
- OA 637 LA River Bike Path Connection to Public Transit
- OA 821 LAR Basin Greening and Recreation
- OA 872 Sepulveda Basin
- OA 814 Sepulveda Basin Wildlife Area Habitat Expanision and Public Access
- OA 880 Hazeltine River Edge Park
- OA 879 Hazeltine Avenue
- OA 866 Van Nuys Blvd
- OA 860 West of Coldwater
- OA 885 LA River Natural Park
- OA 796 Homeless Resource Opportunity
- OA 875 101 Freeway Crossing

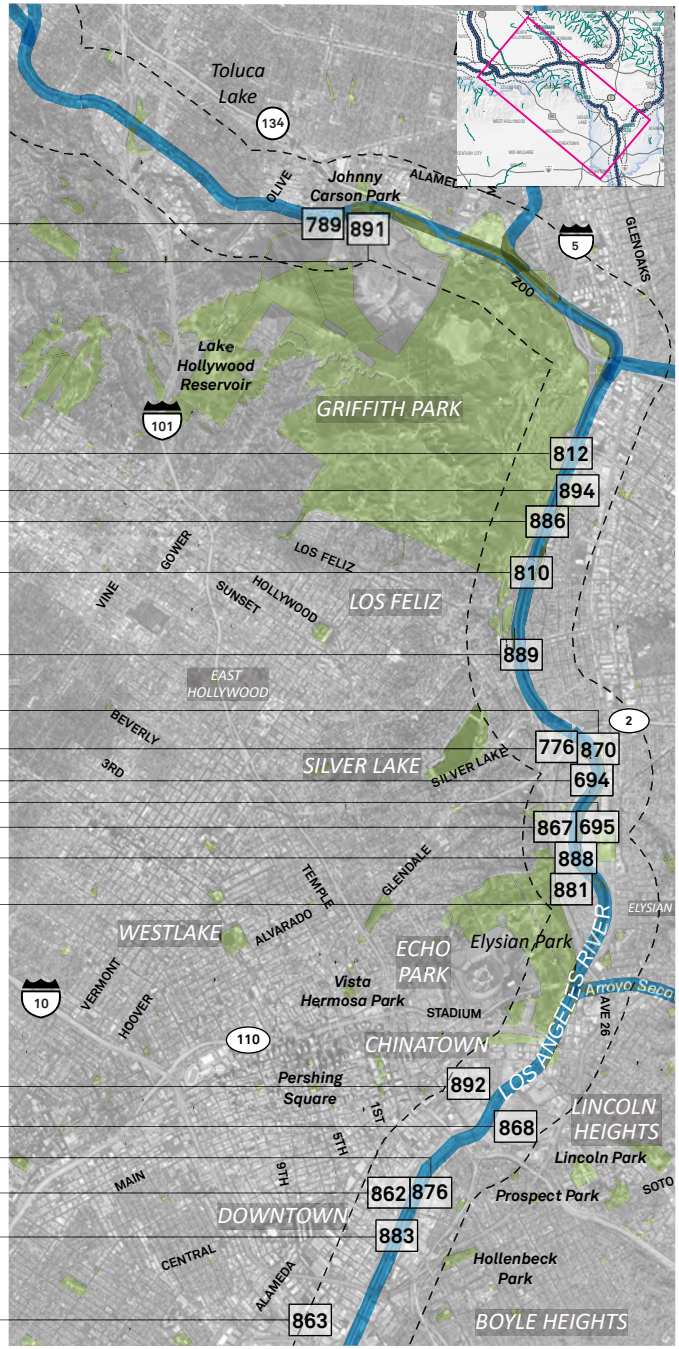


COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

OPPORTUNITY AREAS ON UPPER LA RIVER - GRIFFITH PARK TO OLYMPIC BLVD

- OA 789 Forest Law Multi-Use Equestrian Trail Connector and Green Space
- OA 891 Sennett Creek
- OA 812 East River Path Repaving
- OA 886 North Atwater Crossing
- OA 894 Central Service Yard
- OA 810 Los Feliz Golf Course Nutrient Water Nutrient Containment
- OA 889 Red Car Bridge
- OA 870 G1 Bowtie
- OA 776 Frog Town Foot Bridge
- OA 694 Bow-Tie Parcel River-Adjacent Floodplain Habitat in the State Park Bowtie Parcel
- OA 695 Taylor Yard G2 Parcel River-Adjacent Floodplain Habitat
- OA 867 G2 Taylor Yard
- OA_888 Taylor Yard Non-Motorized Bridge
- OA 881 Dorris Place Sanitation Yard
- OA 892 Main Street Terrace
- OA 868 Piggyback Yard
- OA 876 First Street to Sixth Street River Loop
- OA 862 Downtown Train Yard
- OA 883 6th Street Viaduct
- OA 863 East Washington Blvd

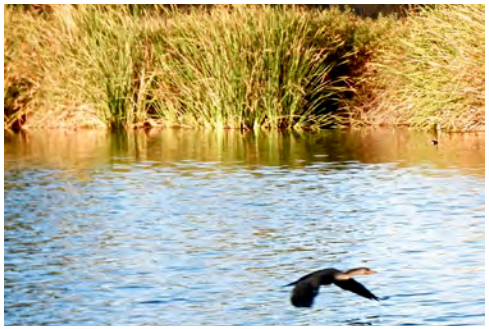


COMMENT SOURCE

People and Recreation (Committee) · People and Recreation (Public) · Public Comment · Existing & Planned Projects · Water and Environment (Public) · Water and Environment (Committee) · Planning Team

Los Angeles River at the Sepulveda Basin

Kayaking at the Sepulveda Basin



Sepulveda Basin Wildlife Reserve

SEPULVEDA BASIN

Human and Wildlife Habitat

The Sepulveda Basin is host to an interesting mix of uses; from the Tillman Water Reclamation Plant, to wildlife and recreation areas, to golf courses. However, the true potential of this area is yet to be realized. Many areas remain undeveloped, or are under-used remnants of a bygone era. In 2011 the Army Corp of Engineers produced the Sepulveda Dam Basin Master Plan which focused on flood risk management and recreation.

As a long-term goal, the basin could be restored to support greater habitat, while the under-utilized areas to the north that are less susceptible to flooding could support many different types of development.

This could include

- **Los Angeles River Naturalization.** The goal of increasing wildlife habitat within the upper reach of the basin could occur through the replacement of concrete banks with stabilizing woody vegetation wherever feasible
- **Housing Development.** There are many underutilized areas in the basin, most notably the former Nike Missile site. These areas could be used to develop much needed housing for County residents. In addition, housing at this site would lend itself to a connection with nature and recreation, as well as green infrastructure opportunities.

HOW DOES IT ALIGN WITH COMMUNITY NEEDS?

- The Basin is uniquely positioned to meet many pressing community needs. There is an unprecedented housing shortage in the County and developing affordable housing at this site could relieve market pressure in the surrounding area. In addition, the green areas in the basin, including the golf courses, have rich potential to serve wildlife habitat needs, as well as responsibly manage stormwater.

SEPULVEDA BASIN

OPPORTUNITY AREAS IN THIS DESIGN AREA

814	Sepulveda Basin Wildlife Area Habitat Expansion and Public Access
821	LAR Basin Greening and Recreation
851	LA River Valley Bikeways and Greenway
872	Overall Sepulveda Basin

3.5 mi 7 mi

Upper LA River SEPULVEDA BASIN (29 ACRES)

IMAGINE!

A series of terraced ponds, lush with wetland plants and interspersed with large granite boulders, are interconnected through the former Nike Missile Site — the location of a new mixed-used housing development/community center. These ponds are a visual amenity and a significant public open space for residents and visitors; but they also assist with on-site stormwater storage and act as a strip of wildlife habitat. Most paved surfaces are permeable to infiltrate stormwater, and most flat roof surfaces are vegetated, to slow rain runoff and help insulate buildings.

CONTEXT

This 29.27-acre Nike Missile Site is located in Van Nuys. It's just to the north of the Sepulveda Basin Wildlife area, to the east of the Woodley and the Van Nuys Golf Course. It is located directly to the west of the 405 freeway and adjacent to the Orange Line Busway.

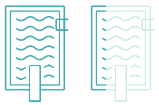
The area is dense with about 29,701 people living within ½ mile of the tributary in this area. The burden in the area is high with the average CalEnviroScreen score being in the 78th percentile.

RESILIENCY BENEFITS

Analyzing the Nike Missile Site design area concept through the i-Tree suite of tools, ArcMap 10.7.1, and AutoCAD yielded the following benefits. Please see Appendix F for a full description of the methodology.

WATER

The design includes **20.5 acres** *of new or enhanced permeable cover*



STORMWATER CAPTURE

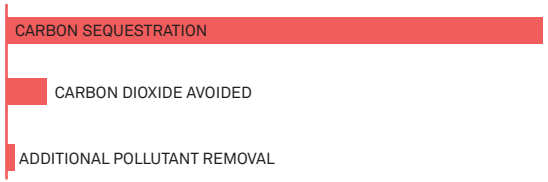
2.8 acre-feet

or **1.4**

Olympic-sized swimming pools

AIR

The design includes **2,095 trees** *that sequester carbon, and remove pollutants from the air*



AIR POLLUTANT REMOVAL

2,217 tons
Additional Carbon Sequestration

63 tons
Additional Carbon Dioxide Avoided

1.8 tons
Additional Pollutant Removal

HABITAT

The design includes **11 acres** *of new and enhanced ecological habitat and* **24 acres** *of additional tree canopy*

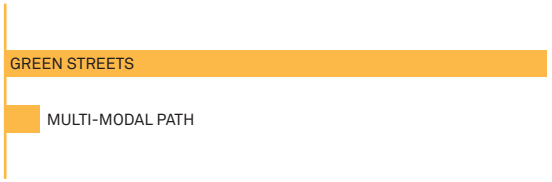
HABITAT CREATION

5%

the size of the 244-acre Verdugo Mountain Open Space Preserve

COMMUNITY

The design includes **8 acres** *of new and enhanced open space and* **24 miles** *of new or enhanced community connections*



22 miles
Green Streets

2 miles
Multi-modal paths

Upper LA River// Sepulveda Basin

RIVER RESTORATION WITHIN SEPULVEDA BASIN

The 2,000-acre Sepulveda Basin serves as a significant flood management area, detaining and infiltrating stormwater that would otherwise flood downstream communities. It provides many uses and amenities, including active recreational parks, a water treatment plant, open space habitat with trails and creeks, and a River Recreation Zone (RRZ). The mainstem of the Los Angeles River within the basin is a semi-natural stream, with three distinct segments, including a concrete channel, a natural channel bottom with concrete upper banks, and a natural channel bottom with rip rap banks. In the natural channel reaches, the channel exhibits limited geomorphic functionality with riparian habitat appropriate to that level of functionality. Within the concrete channel, there is no geomorphic functionality. There is an opportunity for the upper reaches of the River within Sepulveda Basin to be restored to create a healthier and more functional ecosystem. This could include removing concrete and other modifications, increasing wetland and riparian habitat functions, restoration of geomorphic and ecosystem functionality to the River and riparian corridor within the Sepulveda Basin, increasing potential for groundwater recharge, and improving the recreational interface to enhance access and expand the existing RRZ further upstream.

Upper LA River// Sepulveda Basin

RIVER RESTORATION WITHIN SEPULVEDA BASIN

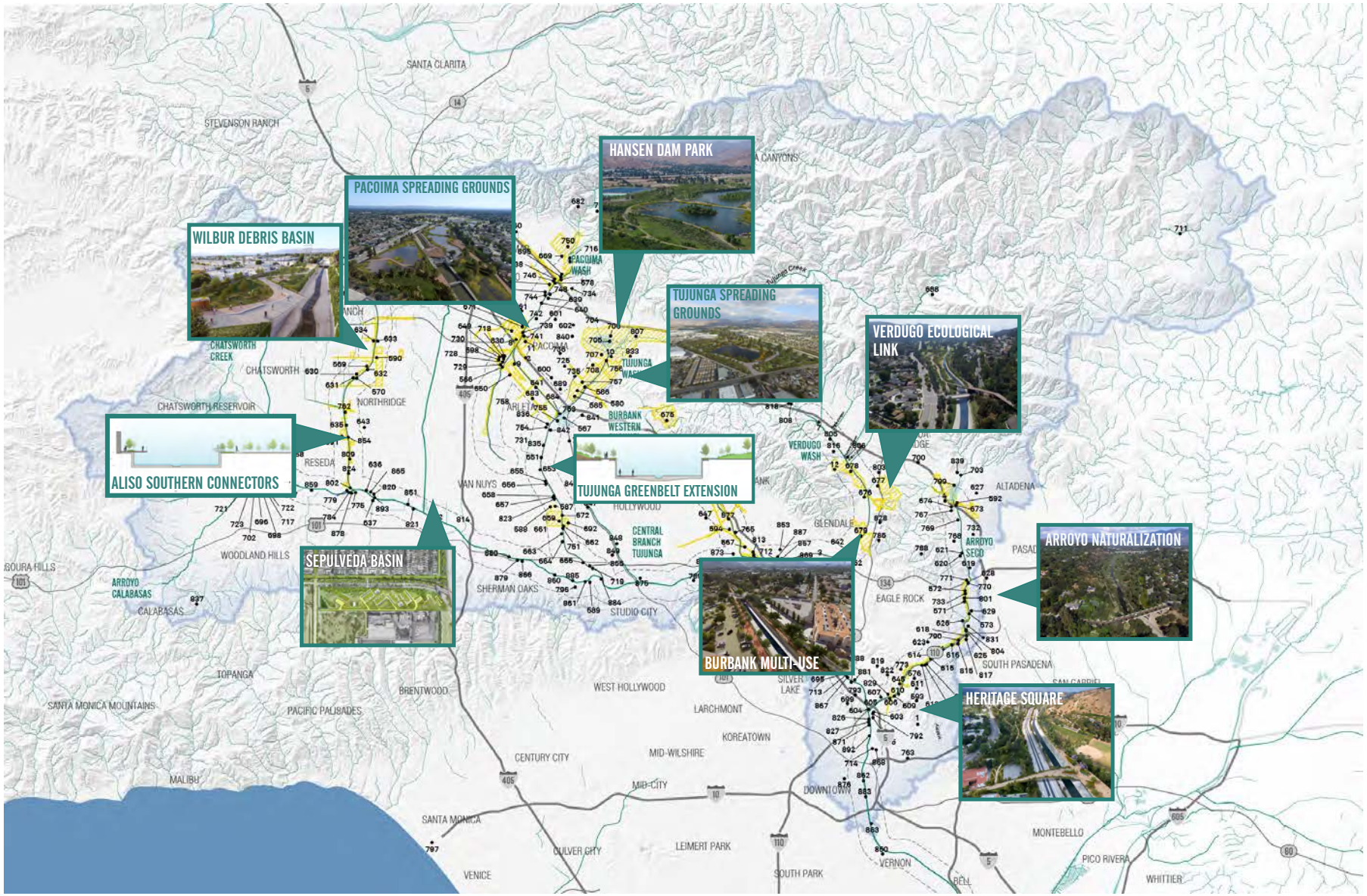
During the Cold War, many missile defense sites were housed in urban or suburban locations. At the intersection of Woodley Avenue and Victory Boulevard, Nike missiles—named after the Greek goddess of victory—were housed in silos until 1974. The site is still used by the Air National Guard and is now a giant concrete pad fenced from public access. It sits across the street from the Woodley Lakes golf course and behind Donald C. Tillman Water Reclamation Plant's Japanese garden. Other missile sites, such as LA-43L, located in Long Beach, have become public parks. There is an opportunity for the Nike Missile Site to become a mixed-use development that blends community needs, housing, habitat and storm-water management. This could include floodable infrastructure, an onsite wastewater greywater recycling system, a greenway, waterways, and trails connecting the site to Sepulveda Basin, a recreation center, playgrounds, solar panels, and space for community uses such as art installations, classes, and gatherings.

NEXT STEPS

Additional required analyses and next steps for the Sepulveda Basin design area include:

- A preliminary engineering report that includes feasibility-level analyses, cost estimates, and coordination should be performed, including multi-benefit solutions that reduce flood damage within the basin, while re-armoring the sideslopes with woody vegetation
- Annual and seasonal water inflow conditions should be determined to identify the lake's water balance and its sustainability
- Geotechnical evaluation for soil infiltration and groundwater levels should be performed to determine if water control features may be necessary to stabilize lake levels
- Assessment of the potential for planting native vegetation to restore historical habitat wherever possible
- Biological studies for wildlife needs for habitat restoration and preservation areas should be conducted
- An Environmental Impact Report/ Statement (EIR/EIS) may need to be completed to assess any potential environmental impacts
- Water quality analysis — including pollutant settling and oxygen demand — should be performed
- Air quality assessment
- Assessment of benefits of allowing the existing wetlands should be allowed to expand naturally
- Coordination with all authorities having jurisdiction, such as but not limited to the US Army Corps of Engineers, LA County Rec and Parks
- Additional analysis to consider climate change and updated storm return intervals to help understand and prioritize opportunities and improvements
- If these analyses prove the concept to be practical, it is noteworthy that this could be the first location on the mainstem of the Los Angeles River where concrete could be removed

CONCLUSION



- Opportunity Area

Design Area Bundles

These design area concepts build upon the mission of the Upper Los Angeles River and Tributaries plan to develop "prioritized opportunities" that focus on "nature-based watershed management", reduction and management of existing flood risk, open space, safe access, culture, arts and education and community needs.

Through the ULART planning process described on page 36, **6 design area concepts, 5 blue sky areas, and 376 opportunity areas were identified** (please see map on page 33).

624,000 people live within walking distance (half mile) of the design area concepts.

256,641 people live in areas that are considered disadvantaged (CES 3.0).

1.53 million people are in walking distance, or within a half mile of the 376 opportunity areas.

626,004 of these people live in areas that are considered disadvantaged (CES 3.0)

DESIGNING FOR RESILIENCE

Resiliency is a core component of our vision for the Upper Los Angeles River and Tributaries Plan. By designing the project to exist in harmony with the natural environment, there is an incredible opportunity for the study area to become a living space that balances environmental and community needs. To begin to understand the impact, our team utilized a suite of databases to assess how the study areas could contribute to larger resiliency goals. Please find the methodology for calculating resiliency in Volume 2, Chapter F.

WATER

The ULART approach integrates water resources, conservation, quality, and recreation. It seeks to redefine the waterways as places to enhance ecosystem function, watershed health, water supply, and water quality (see AB466 Goals and Objectives). Design area concepts at Pacoima Junction (page 114) and Wilbur Debris Basin (page 86) celebrate the waterways while protecting and enhancing the areas through structural BMPs and other landscape features.

Our resiliency analysis of all the opportunities areas suggests the following:

- 8,696 acre-feet of additional stormwater capture
- 9.6 square miles of new or enhanced permeable paving

AIR

One of the ULART strategies for reducing air pollution is planting trees, shrubs, and understory in key locations. The Multi-Use Green System and Bette Davis Park on Burbank Western (page 168) uses planting to remove particulate matter and takes up a variety of air pollutants, including both ozone and nitrogen oxide. In addition, the planting will remove carbon — a major cause of global warming — and turn it into foliage, branches, and roots.

Our resiliency analysis of all the opportunities areas suggests the following:

- 314,0000 tons of carbon sequestration through planting
- 8,500 tons of carbon avoided because or reduced heating and cooling needs
- 170 tons of additional pollutant removal (CO, NO2, O3, PM10, PM2.5, SO2)

CONNECTION

Extending the network of safe routes to and around the waterways is one of the key components of the ULART mission statement and a frequent request in community meetings. The Southern Aliso Green Network (page 98) and the Tujunga Wash Greenway Extension (page 154) will create access along the majority of Aliso Creek and Tujunga Wash, respectively. Similarly, the Heritage Square Design Concept along the Arroyo Seco will link the waterway with public transit, parks, and local institutions.

Our analysis of all the opportunities areas suggest over 1,000 miles of new connection.

HABITAT

Due its location between the mountains and the Los Angeles River, the tributary corridors in this Plan include outstanding examples of high biodiversity, including outstanding examples of native grasslands, coastal sage scrub, chaparral, dry coniferous forests, and alluvial fan sage scrub. The design concepts for Hansen Dam Spreading Grounds (page 142), the San Rafael Ecological Connection (page 184) and the Lower Arroyo Park Naturalization (page 206) include new critical habitat, wildlife crossings and appropriate planting that can support wildlife populations and create space for nature. Our analysis of all opportunity areas suggests that this will add 3.7 square miles of critical regional connection and 7.5 square miles of enhanced urban habitat.

Industrial Uses at the Confluence of the Los Angeles River and Verdugo Wash

Arroyo Seco Heritage Square

CHAPTER 4: IMPLEMENTATION AND NEXT STEPS

INTRODUCTION AND PURPOSE OF CHAPTER 4

The following key topics are discussed in this chapter:

- Coordination among *the Plan's* partners, stewards, technical experts, various agencies, and organizations
- Integrating overall programs with proposed projects and regional/ local priorities
- How best to advocate for implementation of *the Plan*
- Phasing of implementation
- Funding and financing opportunities
- Next steps including management of project implementation, development of funding sources, scheduling of phasing, environmental compliance and feasibility, as well as future collaboration

COORDINATION AND ADVOCACY

Coordination of *the Plan*, including both ongoing efforts during creation of *the Plan* as well as after *the Plan* is adopted, is of paramount importance to implement the projects that are identified by *the Plan*. Maintaining this coordination is especially important in obtaining input from the public in an open and accessible venue for discussion of proposed projects/programs. The public along with other stakeholders, organizations, and agencies will continue to have a voice in Plan implementation. A robust advocacy process will help ensure that *the Plan's* recommended programs, projects, and processes are integrated with regional and local priorities.

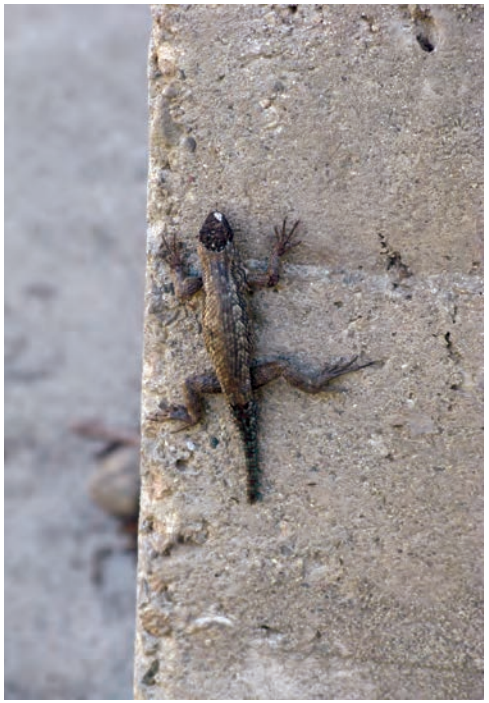
Advocacy is recommended through two main integrated paths:

- An overall management organization for implementation of Upper LA River and Tributary revitalization projects. Part of *the Plan's* "next steps" include deciding whether it is an advisory or legal body, and developing its purpose and responsibilities.
- Implementation of a stewardship program based on regions (for example, for each tributary). This is recommended as part of continual involvement of grass-roots efforts that is integral to building advocacy on the local level as well as establishing open venues for public discussion. These localized groups would also focus on portions of *the Plan* or specific sites to bring projects to the attention of funding sources such as the Conservancy and other organizations and agencies that would then fund feasibility studies, construction, and maintenance that may be required. It is recommended that the management organization empowers and supports local communities with pathways for meaningful and ongoing participation.

Social media is a great resource for each of these paths as well as easy integration with other ongoing community efforts.

A recommended option for advocacy is seeking complimentary activities and content among other similar, regional efforts and documents. This would help to infuse the spirit of the ULART Revitalization Plan into regional master plans, land use plans, and project dialogues. This could be accomplished by applying a *multi-purpose lens* to other ongoing efforts as well as those just coming into focus to achieve a holistic, integrated, and regional approach. Leveraging related activities

A stewardship program is vital to advocating support for *the Plan's* projects, and is recommended for each tributary. It could be similar to "Friends of..." organizations that are established nationwide for rivers as well as other grass-roots support.



Arroyo Seco

and plans in this way will help solidify a concentrated approach to funding opportunities, public and stakeholder support, regulatory actions, and political support—and thereby promote project implementation efforts with the following benefits:

- Promotion of equitable investment among river communities
- Co-existence of housing and parks including application of anti-displacement policies and best practices
- Ongoing participation from partners, stewards, NGOs, and technical experts involved in developing and moving projects forward, including the use of social media
- Establishment of united activities benefiting overall river revitalization
- Holistic approach with the combined effectiveness of urban greening, climate resiliency, and environmental benefits being greater than the sum of the amount of their individual effectiveness
- Facilitation of multi-jurisdiction collaboration
- Incorporation of sustainable stewardship of operation and maintenance practices
- An engaged public and community-driven process that embraces implementation of multi-participant projects

PHASING

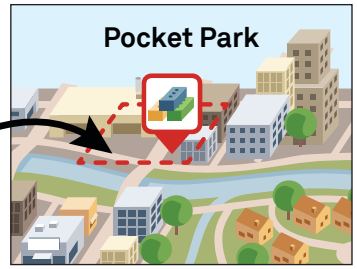
Opportunity and Design Areas of the type recommended in this Plan typically go through phases that help define the appropriate level of detail being accomplished as well as the time it takes to accomplish each phase. Phasing covers the general, expected life cycle of the post-Plan activities including the steps identified below that lead to design, construction, and operations and maintenance.

All Opportunity Areas start with an *idea* or *concept*. Just as one may decide one day to work in one's garden, an idea of what is to take place precedes action. For more complicated projects, project phases typically follow the following steps known as a project's *life cycle*:

- **Idea** – a concept of what the end goal is and the purpose it will accomplish; this conceptual phase is the current phase of the Revitalization Plan
- **Partner Identification** – an idea cannot take life until there is support from one or more partners, that typically also serve as funding sources and/or advisory committees; for revitalization-type projects, partners are typically municipal/state/federal agencies, conservation authorities, NGOs, and/or philanthropists
- **Goals/Objectives Assignment** – this phase identifies the issues, problems, challenges, and positive outcomes in the context of goals and objectives of the project
- **Project Evaluation** – also known as the feasibility phase, this is where an evaluation of the benefits, costs, environmental impacts, and overall value of a project takes place, and may include disciplines such as geotechnical, hydraulic, environmental, soil/water contamination remediation, real estate, social and economic analysis, and other feasibility-level studies
- **Review of Funding Opportunities** – this step can of course occur at any time but it usually requires a degree of confidence in a project's outcomes and benefits before money is readily provided for additional design and construction
- **Design** – this phase actually begins with the previous feasibility phase in finalizing the project's layout, land requirements, permit requirements, acquisition actions, and detailed costs; it typically results in design plans, cost estimates, specifications, rights-of-way documents, and construction permits
- **Implementation** – this can take anywhere from a few months to several years depending on the size of the project; it is anticipated that the projects recommended in this Plan can take 6-18 months to implement
- **Operations and Maintenance** – following construction, a project's life cycle requirements move into stewardship, operation, and maintenance activities accomplished by the project's owner

These phases can be accomplished by multiple coordinated agencies, organizations, stakeholders, special interest groups, and single members of the public. When a community or stewardship group decides to advocate for implementation of a project, a typical "road map" would follow the general steps shown in the figure on the next page.

ROAD MAP FOR MOVING PROJECTS FORWARD IN YOUR COMMUNITY



1 IDEA

Have an idea for a project that will revitalize a tributary area? *The Plan* can help!

Review Volume 1, Chapter 2 to ensure your idea meets the goals and objectives of the plan.

2 PARTNERING

Others may be interested in your idea! Partners can improve your idea by sharing it with the community and helping you incorporate their thoughts and needs.

Idea sharing could occur, for example, through the development of stewardship programs that can help advocate and find partners for project implementation.

3 GOALS/OBJECTIVES

Will your idea improve the community in an equitable way — helping to meet all of the objectives developed by the Working Group? The Working Group crafted the objectives of *the Plan* to try and improve the environment and quality of life for all people living and working in your community.

Use the process described in Volume 1, Chapter 2 to ensure that your idea addresses all appropriate objectives for the area you've selected. If your idea falls short, think about how your idea can be improved to maximize multiple benefits. This will increase the positive impacts of your idea and also improve your ability to find funding.

MULTIPLE BENEFITS

Multi-Benefit Idea

4 IMPLEMENTATION ORGANIZATION/AGENCY

Discuss with organizations or agencies that are able to implement your idea to help identify where in your community it works best, and to determine what permits and permissions are required.

The maps in Volume 1, Chapter 3 can help you find places where you can implement your idea and maybe inspire you to expand your idea to include additional benefits.

5 FUND

Where will the money come from for your idea? The funding will likely come from different places. Talk with your partners and look for additional local and state government advocates to learn about a variety of funding sources. Sometimes a slight change in your idea could open up a new source of funding. *Important:* Be sure to think about funding for long term maintenance of your project now too!

Volume 1, Chapter 4 includes information about partners and funding opportunities.

6 IMPLEMENT

Now it's time for your idea to become a reality! Determine your partners' strengths and utilize each to get your idea designed and implemented. Be open to changes during this process in order to meet the needs of the community.

As your idea becomes a project refer back to Step 3 to make sure it is going to provide multiple benefits.

7 MAINTAIN

Congratulations! Your idea is now a reality! It is emjoyed by many people and supported by the community. Remember to ensure that there is a plan and funding to keep the project functioning as a community asset in the future.

Be sure to verify maintenance commitments are in place for your project so that people can continue to enjoy it for years to come!

FUNDING AND FINANCING

A critical element for successful project implementation along the Upper Los Angeles River and tributaries in *the Plan* is to maximize potential funding for projects. Funding will be an ongoing challenge that can be approached broadly and creatively. There are opportunities to leverage existing funding sources in a number of ways including public/private partnerships, asset acquisition, and revenue-generating programs. Certain monies such as the State Revolving Fund can be borrowed against and be subsequently used to qualify for additional funds. A ULART-driven funding structure—perhaps authorized by state legislators—would be an ideal source of funds solely dedicated to *the Plan's* projects.

In developing potential funding sources, the following priority strategies are recommended to help encourage post-Plan implementation:

- Identification of projects that may be associated with a range of funding sources including grants, captial improvement programs, and agency missions
- Sustainable and feasible capital projects
- Realistic range of project sizes and scales for each funding source or combination or sources
- Integrated programs that can leverage economies of scale
- Coordinated public/private partnerships

The matrix on the next page, "Funding Opportunities for the Upper LA River and Tributaries," presents potential funding sources to assist in selecting funding that is associated with the following categories of project types:

- River Modifications
- Water Supply
- Bridges and Trails
- Parks and Open Space
- Water Quality
- Urban Revitalization
- Operation and Maintenance

Importantly, a hybrid of funding sources associated with the above project types would ideally be leveraged for the several projects that are inherently multi-benefit and multi-purpose in character.

Bridge over Aliso Canyon

Near Lummis Home State Historical Monument

The Arroyo Seco near the Southwest Museum

FUNDING OPPORTUNITIES FOR THE UPPER LOS ANGELES RIVER AND TRIBUTARIES REVITALIZATION PLAN	RIVER MODIFICATIONS	WATER SUPPLY	BRIDGES & TRAILS	PARKS & OPEN SPACE	WATER QUALITY	URBAN REVITALIZATION	OPERATION & MAINTENANCE
Measure W - LA County Safe Clean Water Program	✓	✓		✓	✓	✓	✓
Proposition 1 State Water Quality, Supply, and Infrastructure Improvement	✓	✓		✓	✓	✓	✓
Proposition 68 - State Parks and Water Bond	✓	✓		✓	✓	✓	✓
Measure A - LA County Parks and Open Space Parcel Tax			✓	✓	✓		✓
ULART-driven funding structure (propositions, grants, conservation funds, philanthropy)	✓	✓	✓	✓	✓	✓	✓
Caltrans Stormwater Management Plan Grants			✓		✓		
Caltrans Bridges/Trails Grants			✓	✓			
Metro			✓	✓			
Urban Greening Grant Program - State GG Reduction Fund	✓	✓		✓	✓	✓	✓
Recreational Trails Program (RTP) - State and Federal			✓	✓			
Urban and Community Forestry Program (CALFIRE)	✓	✓		✓	✓	✓	
The Land and Water Conservation Fund (LWCF)	✓	✓		✓	✓	✓	
State Environmental Enhancement and Mitigation Program	✓	✓		✓	✓	✓	
Measure R - Regional and Local Transportation			✓				✓
Federal Funding (USACE, EPA)	✓			✓	✓	✓	✓
Capital Improvement Programs/General Funds	✓	✓	✓	✓	✓	✓	✓
Joint Funding with Watershed Groups	✓	✓	✓	✓	✓	✓	✓
Disadvantaged Community Involvement Program		✓	✓	✓	✓	✓	
Creation of EIFDs	✓	✓	✓	✓	✓	✓	

POST-PLAN NEXT STEPS

The following next steps relate to how *the Plan* will be carried into and expanded in the years following release, including options for management and operations of an implementation or advisory organization.

While it is beyond the scope of this *Plan* to identify entities to lead implementation of specific opportunities, it is recommended that the structures, funding sources, and next steps outlined herein will encourage the appropriate agencies and organizations to pursue *Plan* implementation.

- Ensure proposed projects/programs are consistent with the goals, objectives, and priorities of the ULART Plan
- Develop a "ULART-derived funding source" or structure as an outgrowth of *the Plan*—such as a follow-on to Proposition 68—that would consider consistency with *the Plan's* objectives, scoring analysis, and project components in prioritizing project funding
- Provide an open and accessible public venue for discussion of proposed projects/programs related to the ULART recommendations and ensure that stakeholders continue to have a voice in plan implementation; establishing a stewardship program as discussed previously in this chapter to support continual involvement of grass-roots efforts is integral to maintaining community involvement
- Identify an organizational entity to manage implementation of tributary revitalization projects and define its purpose, responsibilities, and whether it functions in an advisory or authoritative capacity
- Develop a schedule for future expansion of *the Plan* based on budget availability
  - Additional studies to include 7 other tributaries not initially evaluated
  - Additional evaluation of tributaries that are already included in *the Plan*
  - Feasibility analyses including technical evaluation (e.g., engineering, environmental, hazardous contamination evaluations); prioritizing flood risk mapping will help identify areas where project implementation may especially result in reducing potential damages while providing additional project benefits
- Encourage collaboration among supporters of related, regional projects that are already supported and implemented by communities, agencies, and organizations near the project area
- Develop and implement a science-based Watershed Education Program as part of both a periodic, public outreach program as well as a stand-alone program that can become part of a standard curriculum supported by entities such as project partners, NGOs, schools, and/or stewards, and that will help communities recognize the value and importance of protecting their watershed and waterway resources; education should include natural history and environmental processes (wildlife, habitat, rainfall, topography, ecological functions, water quality improvements, climate change, etc.) and the cultural environment (early habitation by Native American Tribes, Spanish settlers, urban growth, etc.)
- Advocate for the value of *the Plan* by helping its members and surrounding cities and communities understand and value *the Plan*; this can be accomplished through the stewardship program as well as organizational and local outreach
- Secure environmental compliance and permitting to ensure benefits are optimized and impacts are minimized or avoided

- Incorporate headwaters as part of the implementation of *the Plan* to ensure that these riparian areas are accessible and that they continue to serve as opportunities for interaction with healthy ecosystems
- Continue coordination with current and future planning efforts in the upper Los Angeles River watershed; including, but not limited to, the LA River Master Plan Update, the Lower LA River Revitalization Plan, and the Southern California Coastal Water Research Project (SCCWRP) LA River flow study
- Consider existing operation and maintenance practices and lessons learned to determined the typical issues within the channel, and help inform the types of projects that can be implemented. Short term and long term operation and maintenance practices will be identified where needed
- Expand the climate change and resiliency metrics presented in Chapter 3 and Volume 2, Chapter F as part of the feasibility study and implementation planning phase of each project to incorporate future climate conditions and projections as a design component of each project

▶ Incorporate Tribal sovereignty and representation through the following:

- Tribal Sovereignty and Government-to-Government Consultation—Incorporate the relevant state and federal laws that recognize the sovereign status of California Native American Tribes related to self-determination, sovereignty, and government-to-government consultation in future ULART planning and implementation, including AB 52, and SB 18
- Tribal Cultural & Ceremonial Use—Prioritize preferred places within ULART's boundaries for Tribal cultural and ceremonial use along the river and tributaries in all future projects through consultation with Native American Tribes.
- Prioritize Tribal Access—Consider, plan, and prioritize access through public transportation by Tribal community members, including Elders and differently-abled community members, to spaces and trails for gathering clean, safe, pesticide-free plant materials without fear of harassment from private security, local homeowners, or police
- Recognize the River as a Living Being—Incorporate local indigenous languages, theories, and practices when incorporating projects to carry out the true spirit of revitalization. Native American Tribes and Indigenous Peoples around the world have adopted similar stances regarding Rivers, Mountains and other land and water entities within their ancestral homelands. Most recently the Yurok Tribe in California adopted a resolution recognizing legal rights for the river[1]
- Consideration to amend composition of Working Group and future Governance and Advisory Bodies to include Tribal Representation for ULART implementation from all tribes within ULART boundaries
- Indigenous Stewardship & Co-Management—Incorporate Tribal goals and objectives gathered at community meetings for Tribally-led projects, specifically those that emphasize habitat restoration and community education forums
- Recognize local tribes as partners in ideas and programs, especially in stewardship programs

LA River in Glendale Narrows in Elysian Valley

[1] Anna V. Smith, The Klamath River now has the legal rights of a person: A Yurok Tribe resolution allows cases to be brought on behalf of the river as a person in tribal court, High Country News, September 24, 2019, available at https://www.hcn.org/issues/51.18/tribal-affairs-the-klamath-river-now-has-the-legal-rights-of-a-person

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GLOSSARY

100-yr floodplain
The projected land covered by a storm with a 1 in 100 chance of a storm being equaled or exceeded in any 1 year, and it has an average recurrence interval of 100 years.

— United States Geological Survey; https://pubs.usgs.gov/gip/106/

Arts
The expression or application of human creative skill and imagination, typically in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power.

— Dictionary.com

Biodiversity
The variety of life in the world or in a particular habitat or ecosystem.

— Dictionary.com

CalEnviroScreen 3.0 score (CES)
CalEnviroScreen is a science-based mapping tool that helps identify California communities that

are most affected by many sources of pollution, and that are often especially vulnerable to pollution's effects. CalEnviroScreen uses environmental, health, and socioeconomic information to produce a numerical score for each census tract in the state.

— California Office of Environmental Health Hazard Assessment; https://oehha.ca.gov/calenviroscreen/report/calenviroscreen-30

Climate resilience
Climate resilience is the ability to anticipate, prepare for, and respond to hazardous events, trends, or disturbances related to climate.

— Center for Climate and Energy Solutions; https://www.c2es.org/content/climate-resilience-overview/

Community engagement
The process by which organizations gather information from the community to aid in future planning efforts that will benefit of the community.

— Plan specific, as defined in the Community Engagement Plan in Volume 2, C.

Community need
Essential resources that are lacking as indicated by the local people of the area in question.

— Child Welfare Information Gateway; https://www.childwelfare.gov/topics/systemwide/assessment/community/

Connectivity
The state or extent of being connected or interconnected with respect to access throughout and between communities

— Plan specific

Corridor
A one-half mile offset on each side of the tributary. Used to represent the conditions of the people who live near or use the areas next to the tributaries. These areas are urbanized and largely impervious.

— ULART Term Definitions Handout; Plan specific

Cultural, arts, or education facility
Building or center that facilitates culture, arts, or education (ex. cultural and performing arts centers, museums, schools, etc.).

— Plan specific

Culture
The customs, arts, social institutions, and achievements of a particular nation, people, or other social group.

— Dictionary.com

Disadvantaged Community (DAC)
A Disadvantaged Community is defined by the State of California as a community with an annual median household income that is less than 80 percent of the Statewide annual median household income.

— Coachella Valley Water District; http://www.cvwd.org/365/Disadvantaged-Communities-Task-Force

Economic and workforce development
Development and supporting a manner that yields thriving businesses, and creates job training and career opportunities within the watershed.

— Plan specific

Ecosystem
A biological community of interacting organisms and their physical environment.

— Dictionary.com

Ecosystem enhancement
Ecosystem enhancement measures are those that actually improve the ecological condition of the development site after the development is complete. This means enhancement measures must be better than any avoidance, mitigation and compensation measures required to neutralize the impacts of the development on wildlife.

— Thomson Environmental Consultants; https://www.thomsonec.com/teh/mitigation-and-enhancement-biodiversity-enhancement/

Ecosystem health
A healthy ecosystem is one that is intact in its physical, chemical, and biological components and their interrelationships, such that it is resilient to withstand change and stressors. It is a system that is not experiencing the abnormal growth or decline of native species, the concentration of persistent contaminants, or drastic anthropogenic changes to its landscape or ecological processes.

— The Seadoc Society; https://www.seadocsociety.org/what-is-ecosystem-health

Education
The process of receiving or giving systematic instruction, especially at a school or university.

— Dictionary.com

Equitable access
Equal opportunity for access to the LA River and Tributaries regardless of disparity in income.

— Plan specific

Flood risk
The likelihood and adverse consequences of flooding.

— United States Army Corps of Civil Engineers; https://www.iwr.usace.army.mil/portals/70/docs/iwrreports/2014-r-02_appendixa.pdf

Flood risk reduction
Actions that are intended to reduce the likelihood or the potential adverse consequences of a future flood. They include actions to reduce the hazard, reduce exposure, and reduce vulnerability.

— United States Army Corps of Civil Engineers; https://www.iwr.usace.army.mil/portals/70/docs/iwrreports/2014-r-02_appendixa.pdf

Framework
The community-driven technical approach (or "methods") through which The Plan is developed and analyzed.

— ULART Term Definitions Handout; Plan specific

Funding
Money provided, especially by an organization or government, for a particular purpose.

— Dictionary.com

Habitat
The natural home or environment of an animal, plant, or other organism.

— Dictionary.com

Human access
Point that provides the ability for humans to enter the LA river or tributaries.

— Plan specific

Improvements
General types of actions that can be applied to enhance the space in alignment with the community desires, environmental needs, and the goals and objectives of The Plan.

— ULART Term Definitions Handout; Plan specific

Improved recreation element
An already existing recreational space that has been made better using new features such as enhanced playing fields, amenities, restrooms, or paths.

— Plan specific

Iteration
Repetition of the analysis with updates to the inputs based on feedback or additional data.

— ULART Term Definitions Handout

Local flood complaints
Flooding issues identified by members of the community.

— Plan specific

Mainstem
The 51 miles of the Los Angeles River from the headwaters in Canoga Park to its mouth in Long Beach.

— ULART Term Definitions Handout

Multi-benefit
Providing improvements to meet more than one need, often in different realms such as both environmental and community revitalization.

— ULART Term Definitions Handout

Multipurpose
One space that provides several functions or supports multiple activities.

— Dictionary.com

Nature based solutions
Nature-based solutions to societal challenges as solutions that are inspired and supported by nature, which are cost-effective, simultaneously provide environmental, social and economic benefits and help build resilience.

— European Commission; https://ec.europa.eu/research/environment/index.cfm?pg=nbs

Objectives
The intentions of the planning effort broken down into smaller pieces to help hone in on the ways to attain the goals of The Plan.

— ULART Term Definitions Handout; Plan specific

Open space
Land without buildings or a general descriptive term which places no restrictions on the use of the land. The definition of open space includes constructed open space (e.g. parks and plazas) and natural open space (essentially unimproved, with native habitat).

— City of Los Angeles Department of City Planning; http://www.cityofvernon.org/images/community-services/Planning/Vernon_General_Plan.pdf(Page 203)

Opportunity areas
Site-specific areas within ULART that have been identified for improvements by the Working Group, Committees, community, or as part of a gaps analysis.

— ULART Term Definitions Handout; Plan specific

Passive recreation element
Refers to activities that are generally low impact such as hiking, fishing, picnicking, bird watching, or non-motorized boating.

— Common Ground Plan

Phase
A distinct period or stage in a series of events or a process of change or development.

— Plan specific

Previous efforts
Any action taken to assess or alter a site for improvements previous to the ULART plan.

— Plan specific

Public transit access point
Location that links a form of public transportation (bus, metro, etc.) to a LA River access site.

— Plan specific

Recreation
Activity done for enjoyment when one is not working resulting in mental and physical health benefits.

— Plan specific

Safe access
Unobstructed point to enter a public place, river, or tributary suitable for all users.

— Plan specific

Scoring
The numeric value assigned to each opportunity area describing how well the site aligns with the goals and objectives of The Plan.

— ULART Term Definitions Handout; Plan specific

Spreading basin
Also known as groundwater recharge facilities, are areas with permeable underlying soils that are hydraulically connected to the underlying aquifer. These spreading grounds allow water to percolate into groundwater basins for later pumping for drinking water.

— Los Angeles County Public Works; https://dpw.lacounty.gov/wrd/SpreadingGround/

Stormwater
Water that originates during precipitation events and snow/ice melt. Stormwater can soak into the soil (infiltrate), be held on the surface and evaporate, or runoff and end up in nearby streams, rivers, or other water bodies (surface water).

— Town of Kingston, MA; https://www.kingstonmass.org/?SEC=98244A4B-6C67-49DB-8F75-2428CB6987B9

Structural BMP
Facilities that help to prevent pollutants in storm water runoff from leaving a developed property, entering our storm drains, and impacting our local waterways.

— County of San Diego; https://www.sandiegocounty.gov/content/dam/sdc/dpw/WATERSHED_PROTECTION_PROGRAM/watershedpdf/S-BMP/BMP_Program_Flyer.pdf

Tributary
A river or stream flowing into the Los Angeles River. There are 13 total identified in this plan and 6 selected for additional analysis.

— ULART Term Definitions Handout; Plan specific

Tributary Watershed
All the land area that drains to the tributary. Represents the conditions that impact habitat, ecology, and water pollution because the water that flows over the entire watershed impacts the in-stream conditions.

— ULART Term Definitions Handout; Plan specific

Typologies
Categories of land with common characteristics frequently dispersed throughout ULART that have been mentioned by the community, Working Group, or suggested by the project planning team.

— ULART Term Definitions Handout; Plan specific

Underserved community
The term "underserved population" means a population of individuals, including urban minorities, who have historically been outside the purview of arts and humanities programs due to factors such as a high incidence of income below the poverty line or to geographic isolation.

— Office of Management and Budget; Appendix, Budget of the U.S. Government, Fiscal Year 2014; https://definedterm.com/underserved_population

Unmet drainage need
Localized drainage issues can cause hazards, damage, or inconvenience to communities. These drainage issues could potentially be mitigated by new capital projects proposed in the Plan to help protect communities from flood impacts. Unmet drainage needs are quantified in units of linear miles requiring improvement.

— LLAR

Water conservation
Water resource management practices that reduce water use with the goal of improving overall water supply.

— Plan specific

Watershed
An area of land that drains all the streams and rainfall to a common outlet such as the mouth of a river or bay, the outflow of a reservoir, or a point along a channel.

— United States Geological Survey; https://www.usgs.gov/special-topic/water-science-school/science/watersheds-and-drainage-basins?qt-science_center_objects=0#qt-science_center_objects

Watershed Management
Drainage area approach to improving water quality by identifying water resource problems and developing solutions through the coordination of both point source and nonpoint source regulatory efforts.

— California Waterboards; https://www.waterboards.ca.gov/water_issues/programs/watershed/#wmi

Waterway
A river, canal, or other route for travel by water.

— Oxford English Dictionary

Wildlife access
Point that provides the ability for local wildlife to have entry to the LA river.

— Plan specific

Wildlife passage
Capability of an area of land to facilitate wildlife movement in and around it.

— Plan specific

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