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# CITY OF LOS ANGELES

CALIFORNIA



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**OFFICE OF THE  
BOARD OF PUBLIC WORKS**

**DR. FERNANDO CAMPOS**  
EXECUTIVE OFFICER

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May 19, 2023

**BPW-2023-0289**

The Honorable City Council  
Room No. 395  
City Hall

## **MEMORANDUM OF UNDERSTANDING (MOU) – CITY OF LOS ANGELES AND LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY – LOS ANGELES RIVER VALLEY BIKE PATH PROJECT**

As recommended in the accompanying report of the City Engineer, which this Board has adopted, the Board of Public Works recommends that the City Council:

1. AUTHORIZE the President or two members of the Board of Public Works to execute the MOU between the City and the Los Angeles County Metropolitan Transportation Authority (Metro), for an amount of \$60,000,000, plus additional future inflation adjustments for the design and construction of the Los Angeles River Valley Bike Path Project;
2. AUTHORIZE the City to accept reimbursements of \$60,000,000, plus additional future inflation adjustments from Metro, for the design and construction of the project;
3. AUTHORIZE the City Controller to deposit the funds set forth above to the Engineering Special Services Fund, and to appropriate therein to the Los Angeles River Valley Bike Path, Appropriation Unit No. to be determined; and
4. AUTHORIZE the City's Bureau of Engineering to make any technical corrections or clarifications to the above actions.

(W.O. E190752B)



Fiscal Impact:

The Metro will provide reimbursement funding for design and construction for the Project, which will be front funded from the City through various sources TBD.

Sincerely,



DR. FERNANDO CAMPOS,  
Executive Officer, Board of Public Works

FC:lc





**\*Amend recommendation #1 and #2**

Department of Public Works  
Bureau of Engineering  
Report No. 1

May 19, 2023  
CD Nos. 2, 3, 4, and 6

BPW-2023-0289  
ADOPTED BY THE BOARD  
PUBLIC WORKS OF THE CITY  
of Los Angeles California

**MAY 19 2023**  
**AND REFERRED TO THE CITY COUNCIL**

  
Executive Officer  
Board of Public Works

**REQUEST FOR AUTHORITY TO EXECUTE A MEMORANDUM OF UNDERSTANDING BETWEEN THE CITY OF LOS ANGELES AND THE LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY FOR THE DESIGN AND CONSTRUCTION OF THE LOS ANGELES RIVER VALLEY BIKE PATH PROJECT WORK ORDER NO. E190752B AND TO BE DETERMINED**

**RECOMMENDING THE BOARD OF PUBLIC WORKS (BOARD):**

ADOPT and FORWARD this Board report and transmittals to the City of Los Angeles (City) Council with the following recommendations:

1. AUTHORIZE the **\*President or two members of the Board of Public Works City Engineer** to execute the Memorandum of Understanding (MOU) between the City and the Los Angeles County Metropolitan Transportation Authority (Metro), for an amount **\*\*of not to exceed \$60,000,000; \*plus additional future inflation adjustments** for the design and construction of the Los Angeles River Valley Bike Path Project (Project).
2. AUTHORIZE the City to accept **\* a not to exceed amount of reimbursements of up to \$60,000,000 \*plus additional future inflation adjustments** from Metro, for the design and construction of the Project.
3. AUTHORIZE the City Controller to deposit the funds set forth above to the Engineering Special Services Fund, and to appropriate therein to the Los Angeles River (LA River) Valley Bike Path, Appropriation Unit No. to be determined (TBD).
4. AUTHORIZE the City's Bureau of Engineering (BOE) to make any technical corrections or clarifications to the above actions.

**TRANSMITTALS**

1. LA River Valley Bikeway and Greenway Design Completion Project Feasibility Study Report, dated November 2017.
2. Copy of the draft MOU between the City and Metro, for the design and construction of the Project.

**FISCAL IMPACT STATEMENT**

The Metro will provide reimbursement funding for design and construction for the Project, which will be front funded from the City through various sources TBD.

**DISCUSSION**

***Background***

The Project scope includes the development of approximately thirteen miles of new bikeway and greenway along the LA River in the San Fernando Valley that fill in gaps in the Valley River bikeway, between Vanalden Avenue to the west and Forest Lawn Drive/Zoo Drive to the east, which spans across Council District Nos. 2, 3, 4, and 6. The improvements will also include pedestrian walking paths, decorative fencing and gates, roadway crossings,

pet waste stations, drinking fountains, lighting, operational and wayfinding signage, site furnishings, educational interpretive elements, Best Management Practices for stormwater runoff, landscaping and irrigation.

The minimum 12-foot-wide asphalt bicycle paths will be designed per the California Department of Transportation Highway Design Manual “Class I” standards (which allow for two-way, off-street bicycle use). The overall project design will be in accordance with Directive No. 7 (the 2015 Sustainable City pLAN), the 2007 LA River Revitalization Master Plan, the City’s 2010 Bicycle Plan, and the 2014 Los Angeles Department of Transportation (LADOT) Great Streets Strategic Plan. The County of Los Angeles (County) has also prioritized the LA River trail system in its 2022 LA River Master Plan (including its Landscaping Guidelines and Plant Palettes) and the 2012 Bicycle Master Plan. The City’s Community Planning Areas encourage LA River access and open space opportunities. Furthermore, the Community Plan Areas fully endorse the implementation of the City’s Bicycle Plan, which designates a bikeway along the LA River. The completion of the LA River trail system will improve regional livability by providing expanded active transportation options with new access to transit, homes, schools, jobs, nature, recreation and other community-serving amenities.

In November 2017, the BOE completed the LA River Valley Bikeway and Greenway Feasibility Study Design Report (Transmittal No. 1), which is also referred to as the LA River Valley Bikeway and Greenway Master Plan. This MOU provides partial funding to implement the proposed bike path alignment as shown in this Master Plan.

To aid the Project implementation, the approximately 13-mile bikeway is divided into nine segments as designated in the table below:

<b>Segments</b>	<b>Description</b>	<b>Council Districts</b>	<b>Distance</b>
1	Between Vanalden Avenue and White Oak Avenue	3, 5	1.90 Miles
2	Between White Oak Avenue and Balboa Boulevard	6	1.07 Miles
3	Between Balboa Boulevard and Burbank Boulevard	6	1.55 Miles
4	Between Burbank Boulevard and Sepulveda Boulevard	6	0.86 Miles
5	Between Kester Avenue and Hazeltine Avenue	4	1.11 Miles
6	Between Hazeltine Avenue and Woodman Avenue	4	0.52 Miles
7	Between Woodman Avenue and Coldwater Canyon Avenue	2, 4	1.11 Miles
8	Between Whitsett Avenue and Lankershim Boulevard	2	2.26 Miles
9	Between Barham Boulevard and Forest Lawn/Zoo Drive	4	1.94 Miles

In December 2022, the Metro provided the City a draft MOU, also known as a Funding Agreement, for Design and Construction of the Project, which stipulates the general terms of the agreement, scope of work, project costs, project schedule, funding schedule, as well as other requirements. (Transmittal No. 2). The Metro will provide \$60,000,000 of Measure M - Major Project funding for design and construction funding as matching funds to complete approximately 13 miles of bike path gaps in the San Fernando Valley. Other match funds will be secured through City funds, as well as Federal and State grant funds through grant applications.

May 19, 2023  
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At the time the conceptual level project costs in the draft MOU were prepared, the overall project cost was estimated at \$170,000,000. However, due to recent construction cost escalation trends, as well as requests for additional required scope from various grantors or jurisdictional oversight agencies, as design progresses the total costs may be upwards of \$200,000,000. Therefore, the attachments in the MOU related to cost will be revised prior to final execution. The City would be responsible for providing the remaining amount of funding to complete the project which could potentially be \$140,000,000.

For this project, the City has secured funding, and/or will be provided funding through grant and funding agreements, in the amount of approximately \$125,850,000, including this Measure M - Major Project funding. The funding sources include \$60,000,000 Metro Measure M - Major Project funds, \$3,000,000 County funds, \$52,995,000 of Active Transportation Program funds, \$6,790,000 of Measure M - Local Return funds, and \$3,060,000 of various City funds. The City would need to fund the shortfall in the amount of approximately \$74,150,000. The funding shortfall will be addressed in the future through City funds, and other Federal and State grant funds.

The current schedule in the MOU dictates that the design and construction funding will be eligible for allocation between the Fiscal Years 2023 through 2029.

Segments 1 and 2, located between Vanalden Avenue and Balboa Boulevard are currently at the 95 percent Construction Document Phase, and is awaiting execution of a few outstanding permits and Land Use Agreements. Construction for this segment is anticipated to begin early 2024. For Segments 1 and 2, no design funding is being requested and only construction funding is being requested. For Segments 3 through 9, both design and construction funding are being requested.

### ***City Engineer's Recommendation***

The draft MOU stipulates that the City is eligible to begin receiving funding in Fiscal Year 2023, therefore having this MOU for design and construction in place will allow the project to move forward.

### **STATUS OF FUNDING**

Funding for this MOU will be front funded from various sources, but not limited to Transportation Grant Funds and City Capital and Technology Improvement Expenditure Program funds, which will be reimbursed from the Metro funds.

Report No. 1

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( MK RMK DW )

Report reviewed by:

BOE (ADM)

Report prepared by:

Architectural Division

Steven Fierce, AIA  
Principal Architect  
Phone No. (213) 485-4282

SF/NM/03-2023-0045.ARC.lk

Questions regarding this  
report may be referred to:  
Nur Malhis, PE  
Phone No. (213) 485-4737  
E-mail: nur.malhis@lacity.org

Respectfully submitted,

A handwritten signature in blue ink, appearing to read 'Ted Allen', is written over a faint, semi-transparent red rectangular stamp. The stamp contains the word 'ENGINEERING' at the top, followed by 'Electronically signed by Ted Allen', and a date and time '2023.09.27 9:27:31 AM'.

Ted Allen, PE  
City Engineer





**CITY OF LOS ANGELES BUREAU OF ENGINEERING**

# LOS ANGELES VALLEY RIVER BIKEWAYS AND GREENWAYS

**DESIGN COMPLETION PROJECT**

NOVEMBER 29, 2017

**FEASIBILITY STUDY DESIGN REPORT**

**TRANSMITTAL 1**

**CITY OF LOS ANGELES BUREAU OF ENGINEERING**

# **LOS ANGELES RIVER VALLEY BIKEWAYS AND GREENWAYS**

**DESIGN COMPLETION PROJECT**

NOVEMBER 29, 2017

## **FEASIBILITY STUDY DESIGN REPORT**

[illegible]

## Acknowledgements

### MAYOR'S OFFICE

Eric Garcetti, Mayor  
Barbara Romero, Deputy Mayor, Office of City Services  
Heather Repenning, Vice President, Board of Public Works  
Carol Armstrong, Executive Officer, Mayor's Office of City Services  
Michael Affeldt, Director, LA RiverWorks, Mayor's Office of City Services  
Analia Merino, LA RiverWorks, Mayor's Office of City Services  
Christopher Piña, LA RiverWorks, Mayor's Office of City Services  
Marcelino Ascencio\*, LA RiverWorks, Mayor's Office of City Services  
\*Presently with BOE

### LOS ANGELES COUNCIL DISTRICTS

Council District 2: Office of Councilmember Paul Krekorian, Karo Torossian  
Council District 3: Office of Councilmember Bob Blumenfeld, Jeff Jacobberger  
Council District 4: Office of Councilmember David Ryu, Julia Duncan, Alice Roth  
Council District 5: Office of Councilmember Paul Koretz, Gurmet Khara Council  
District 6: Office of Councilmember Nury Martinez, Arcelia Arce

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Daniel Lafferty, PE, Division Head  
Richard Gomez, PE, Engineer  
Ernesto Rivera, PE, Engineer  
Kevin Kim, PE, Engineer  
Sarah Ahmed, PE, Engineer  
Agnes Nguyen, PE, Engineer

### LARB DESIGN TEAM

Gruen Associates, Prime Consultant/Landscape Architect I  
Oyler Wu Collaborative, Design Architect  
Studio-MLA, Landscape Architect II  
PSOMAS, Civil Engineering/Structural Engineering/Envision  
KOA Corporation Traffic/Electrical  
VCA Engineers, Inc., Utilities/As-Builts/Small Structural Engineering  
CWE, Stormwater BMP Engineering  
The Robert Group, Community Outreach  
Leland Saylor Associates, Cost Estimating & Quantity Survey  
Epic Land Solutions, Right-of-Way Consulting  
Land Econ Group, Economic Consultant  
TAHA, Environmental Consulting

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Nur Malhis, PE, Project Manager/Civil Engineer

### *Surveying Division*

*Environmental Management Division*  
*Geotechnical Engineering Division*  
*Street and Storm Drain Division*

### LARB TECHNICAL ADVISORY COMMITTEE (TAC)

Bureau of Sanitation  
California Department of Transportation  
City of Glendale  
City of Burbank  
Department of Recreation and Parks  
Department of Water and Power  
Friends of the LA River  
Los Angeles County Bike Coalition  
Los Angeles River Works  
Los Angeles County Public Works  
Los Angeles Department of Transportation  
Los Angeles County Metropolitan Transportation Authority  
Los Angeles Regional Water Quality Control Board  
Mountains Recreation and Conservation Authority  
National Park Service  
Police and Fire Department  
River LA  
Southern California Association of Governments  
Trust for Public Land  
Urban Waters Federal Partnership  
United States Army Corps of Engineers

### LARB ADVISORY STAKEHOLDER COMMITTEE (ASC)

Council District 2 Appointee: Barry Johnson  
Council District 3 Appointee: Ken Ronney  
Council District 4 Appointee: Carolyn Casavan, Jeffery Kalban  
Council District 5 Appointee: Joe Phillips  
Council District 6 Appointee: Yvette Lopez  
Mayor's Office Appointee: Juana Torres, Ronald Meyer  
Sherman Oaks Neighborhood Council  
LA County Supervisory District 5 Appointee: Lynn Brown  
Valley Village Homeowners Association



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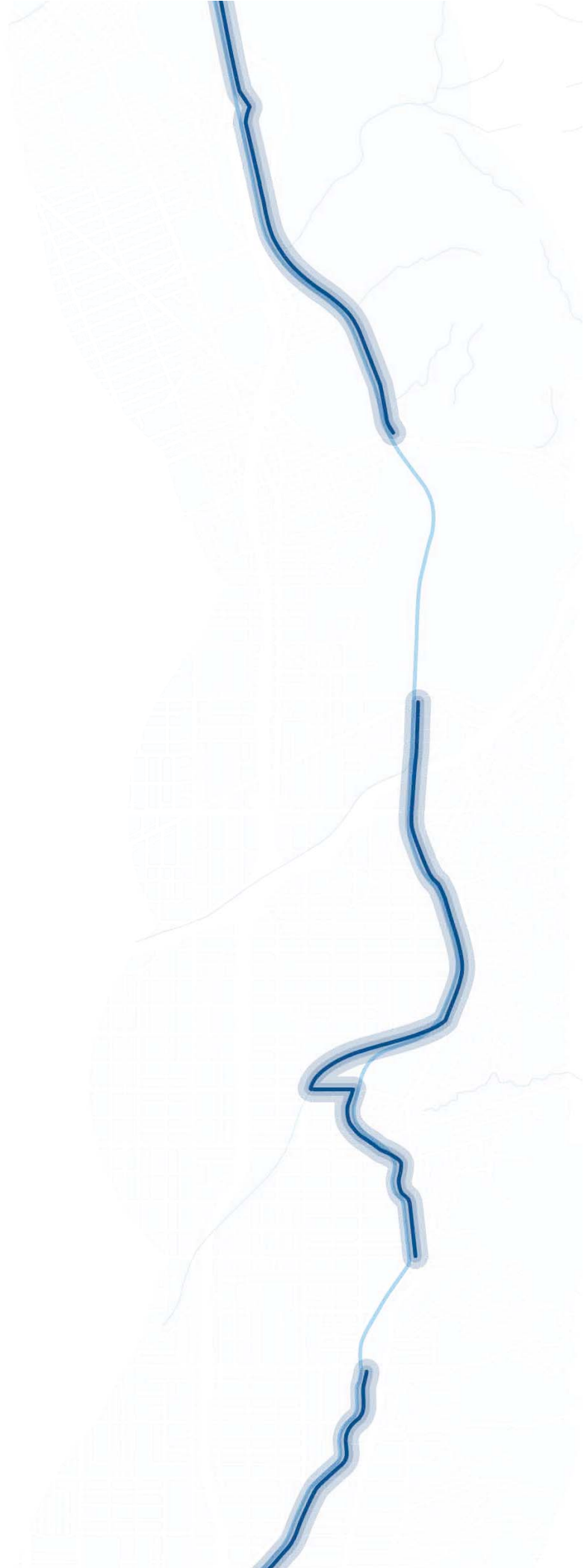
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## EXECUTIVE SUMMARY



## EXECUTIVE SUMMARY

**The Los Angeles River Valley Bikeway and Greenway Design Completion Project is one part in the multifaceted public planning process transforming the LA River Flood Control Channel into a multi-purpose public space that represents the sustainable mobility future for the City of Los Angeles.**

The Los Angeles River Valley Bikeway and Greenway Design Completion Project Feasibility Study Report (FSR) identifies and studies the ability of a bikeway, pedestrian path, greenway landscape and park areas to be constructed along the LA River to support the overall vision of the LA River, as a continuous greenway. Prior planning work led the City of Los Angeles to develop a continuous bikeway alignment described in the Task Order Solicitation (TOS). The FSR synthesizes the overall vision for the LA River by referencing the prior planning work and re-evaluating existing conditions to produce a blueprint for implementation of the bikeway. The FSR responds to the identified opportunities and constraints by presenting a modified alignment which is slightly different from the proposed alignment described in the TOS. The conceptual design of the FSR includes key infrastructure elements, and phasing scenarios that designs with the surrounding built and natural environments; embracing the vision of the LA River to become the backbone of the City's transportation system and active culture.



Proposed development of a bikeway, pedestrian path, and public parks would provide public access and mobility along the LA River, while landscape areas, bioswales, and public parks would provide animal habitat, water management, and other sustainable elements that improve natural ecosystems.

### Project Background

Channelization of the LA River was completed in a different time to solve a different set of problems. While it was successful in achieving its goals, it also harmed or removed many of the natural ecosystems along the LA River, facilitates stormwater and runoff pollution, limits retention of water resources, and disconnects citizens from the LA River; resulting in mis-utilization of a public amenity. Today, the City of LA faces a different set of issues including sustainability, environmental justice, affordable housing, and a balanced transportation system. There has been momentum to return the LA River Flood Control Channel to a natural setting to repair past mistakes and contribute to solutions to the issues faced today, which will provide amenities contributing to human quality-of-life through design that promotes an environmentally sustainable future. This process began with development of the LA River Master Plan; it continues today through multiple concurrent initiatives along the LA River, including this FSR.

### Naming and Identity

The LA River is approximately 51 miles from its headwaters in the San Fernando Valley to its terminus in the port of Long Beach, shown in Figure ES.1. Currently there are a variety of projects in planning, design and construction phases throughout the 51 miles of the LA River all with separate naming and identities. While it is desirable for each area to have its own character and identity, there is a desire for a unifying experience that can be implemented throughout. The Mayor's office has adopted the working name of "LA Riverway" that can be applied to all the bikeway/greenway projects along the LA River. Furthermore, the name LA Riverway indicates the special significance that this corridor will be to all the communities that this Riverway has the potential to connect by elevating the importance of this corridor as a local and regional transportation route.

### Project Boundary and Alignment

This FSR studies feasibility of a bikeway along a portion of the LA River through the Eastern San Fernando Valley.

The western boundary of the project begins at Vanalden Avenue, where it will connect to the existing West Valley Bike Path. The eastern boundary of the project terminates at Forest Lawn Drive / Zoo Drive, where it will connect with the LA River Bike Path under current development.

Within the project boundary there are three sections that are not part of the scope of study:

- Sepulveda Boulevard to Kester Avenue, which has an existing bicycle path;
- Coldwater Canyon Avenue to Whitsett Avenue, currently under construction; and
- Lankershim Boulevard to Barham Boulevard; which is currently being designed by LA County Public Works.

A proposed alignment within the project boundary was developed by the City of Los Angeles as part of the scope of this FSR. The project scope base alignment from the Task Order Solicitation (TOS), shown in Figure ES.2 and described in Table ES.1, was separated into nine individual segments based on major street intersections, and within three gap segments based on sections of the LA River Bikeway not included within the scope. The TOS was used as the base alignment from which potential alternative alignments were studied.

### Purpose of Feasibility Study

This FSR is only the first development stage; it will be followed by schematic design, final design, and construction of the future bikeway. Thus, the primary goals of the FSR, at this stage of the development, are:

- Provide local agencies, business, and the public an opportunity to provide input at the beginning of the project;
- Identify opportunities and constraints that enable or limit construction of the bikeway and greenway
- Evaluate multiple alignments and designs that consider connectivity, access, safety, and other elements;
- Seek to understand potential users and user patterns;
- Develop accurate cost estimates.

TABLE ES.1: TOS ALIGNMENT LOCATION RELATIVE TO THE LA RIVER BY SEGMENT

SEGMENT	~LENGTH (MI)	NEIGHBORHOOD COUNCIL	COUNCIL DISTRICT	NORTH/SOUTH OF LA RIVER
01 Vanalden Avenue to White Oak Avenue	1.90	Reseda NC Encino NC	3, 5	South
02 White Oak Avenue to Balboa Boulevard	1.07	N/A	6	North
03 Balboa Boulevard to Burbank Boulevard	1.55	N/A	6	South
04 Burbank Boulevard to Sepulveda Boulevard	0.86	Encino NC Sherman Oaks NC	6	North
05 Kester Avenue to Hazeltine Avenue	1.11	Sherman Oaks NC	4	South
06 Hazeltine Avenue to Woodman Avenue	0.52	Sherman Oaks NC	4	South
07 Woodman Avenue to Coldwater Canyon Avenue	1.11	Sherman Oaks NC Studio City NC	2, 4	South
08 Whitsett Avenue to Lankershim Boulevard	2.26	Studio City NC	2	North
09 Barham Boulevard to Zoo Drive	1.94	Hollywood Hills West NC	4	South

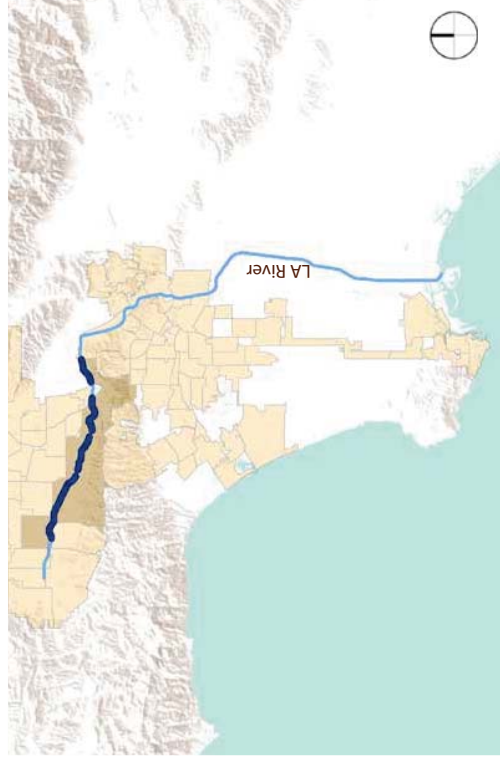


Figure ES.1 LA River Valley Bikeway and Greenway Project Location

## Gap Segments

- WESTERN REACH Vanalden Avenue to Kester Avenue
- CENTRAL REACH Kester Avenue to Coldwater Canyon
- EASTERN REACH Whitsett Avenue to Zoo Drive

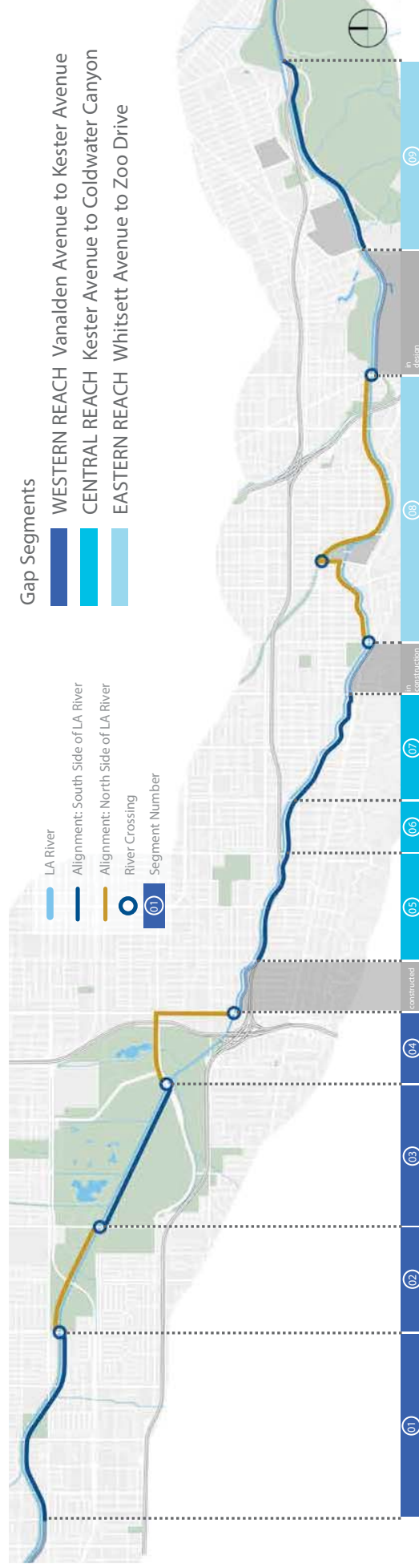


Figure ES.2 LA River Valley Bikeway and Greenway TOS Alignment by Project Segments



## EXECUTIVE SUMMARY | SITE ANALYSIS

**Existing conditions provide opportunities for the LA River to increase quality-of-life for adjacent communities and the entire region.**

The feasibility analysis began with inventory and analysis of existing physical conditions. Most noticeably, there is a diverse collection of existing conditions among the project segments that each provided unique challenges and opportunities.

### Caltrans Bikeway Standards

The site analysis was completed with the understanding that design of the bikeway, pedestrian path, and landscape areas would satisfy California Department of Transportation (Caltrans) standards. The project team worked with LA City staff to review Caltrans standards for Class I bicycle path and developed three conditions: a Class I bike path, a Class I bike path with a separate pedestrian path, and a Class I bike path with separate pedestrian path and landscape area. Minimum dimensions for each condition are shown in Figure ES.3. A Class I bike path with a buffered pedestrian walkway and landscaped bioswale is the modified bikeway and greenway design standard, and requires at least 22 feet in width.

### Site Analysis Key Findings

- **River Access and Neighborhood Context:** Access to the LA River is dependent on adjacent neighborhood character. Generally, neighborhood context can be characterized as: medium-dense residential of majority single-family homes with some multi-family and commercial uses; natural areas comprised of large areas of open space; and commercial areas that vary from older, pedestrian-oriented streets to car-oriented big box retail. Generally, residential areas laid out by a frequent street grid provide frequent access to the LA River from both residential streets and collector streets. Natural areas provide limited access points due to limited routes through open space areas. Access to the LA River along

commercial areas is usually limited to access from major streets, but there are some access points from parking lots or side streets.

- **Bicycle and Transit Access:** There are multiple streets with existing bicycle lanes that intersect with the future bikeway including: Reseda Boulevard, White Oak Avenue, Orange Line Bikeway, Riverside Drive, Woodman Avenue, Colfax Avenue, Tujunga Avenue, and Vineland Avenue. However, only the Orange Line Bikeway provides protection from moving vehicle traffic. Other streets with bicycle lanes are major vehicle corridors, which limits the attractiveness for many bicycle users. The future bikeway is within 1/4 mile of a local bus stop along all the intersecting local bus routes, and a rapid bus stop on Reseda Boulevard, Sepulveda Boulevard, Van Nuys Boulevard, and Ventura Boulevard. Additionally, the future bikeway is within 1/2 mile to the Metro Orange Line BRT and Red Line, which connect the bikeway to Metro's car-free regional public transit network.

- **Schools, Cultural Resources, and Open Space:** There are either schools, cultural resources, or open space located within walking and biking distance of the LA River for each segment. For most segments, all three types of facilities are represented, including multiple instances for each type of facility. The proximity of the LA River to multiple facilities is largely due to the path of the LA River through the middle of many neighborhoods. Segments with large open spaces (segments 02, 03, 04 and 09) have the lowest amount of schools and cultural resources.

- **Landscape Character and Soil Profile:** The landscape character is also influenced by the surrounding neighborhood context. Natural areas provide a diverse species of plants and surviving natural ecosystems. Residential and commercial areas are typically absent of natural landscape along the river channel, but there are existing canopy trees and brush along the slope as one moves away from the channel edge. The soil profile along the project is supportive of development of the bikeway and bioswales used for water capture and cleaning.

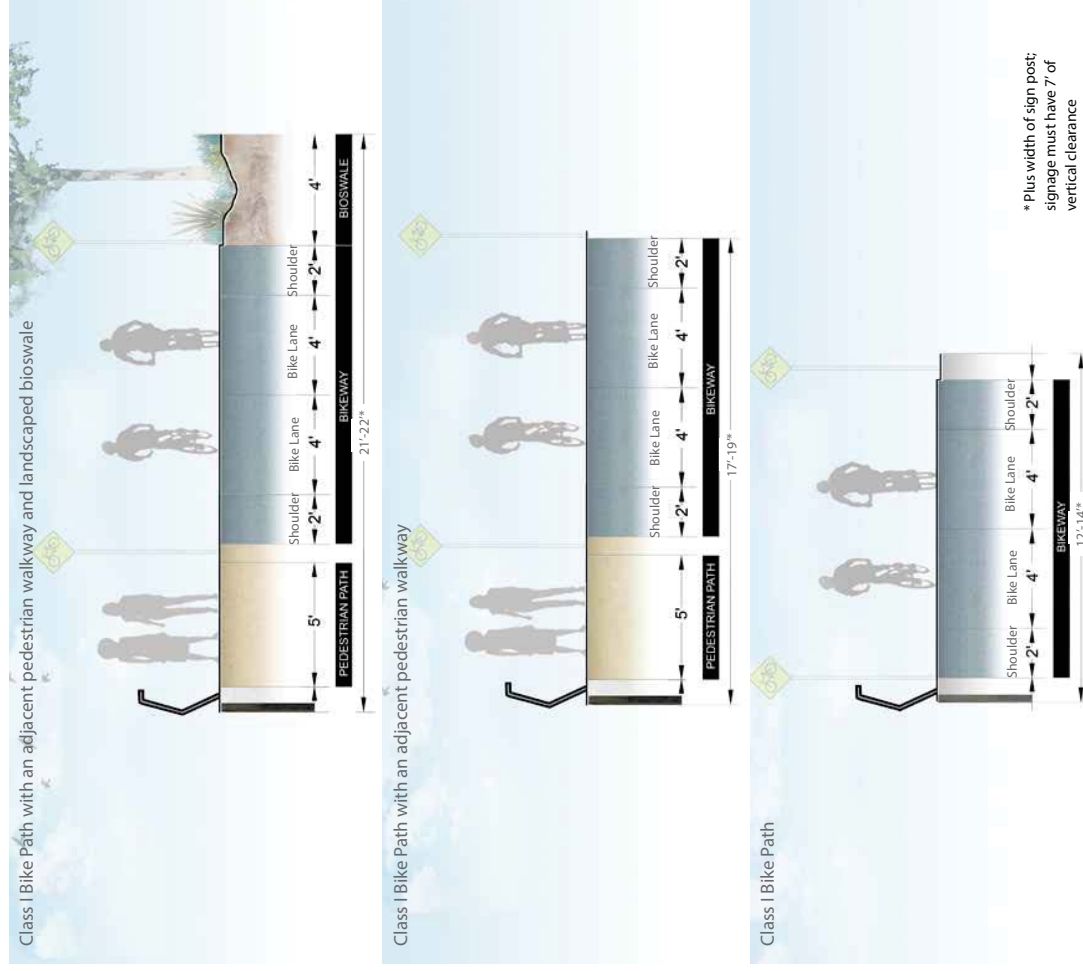


Figure ES.3 Typical Bikeway and Greenway Cross Sections

## EXECUTIVE SUMMARY | ALIGNMENT + ALTERNATIVES

**Site conditions and project costs impact the modified alignment for the bikeway and greenway.**

### Alternative Alignments

Site analysis presented in Chapter 2 helped inform the location of the modified alignment for the future bikeway. Alternative alignments to the TOS were studied because conditions such as: limited or narrow public ROW, land ownership conflicts, location of existing LA River trails/parks, connection to adjacent bikeway segments, number of access points, number of opportunities for street-end parks, stakeholder input, cost constraints, and providing maximum connectivity along a continuous bikeway. Potential alternatives were reduced to final alternatives, shown in Figure ES.4, based on the performance of alternative alignments against those factors.

### Changes from Task Order Solicitation (TOS)

The final modified alignment deviates from the TOS in segments 03, 04, 08, and 09 shown in Figure ES.5. Segment 03 is modified to be on the north side of the LA River because of easier connections to segment 04 also on the north side of the LA River, continuity with segment 02, and better access to larger number of park uses. The original alignment in segment 04 at-grade along Burbank Boulevard and Sepulveda Boulevard was not feasible due to traffic and safety impacts. The long-term option is to create a path through the Sepulveda Basin, around the Sepulveda Dam, and bridge over I-405 and Sepulveda Boulevard. Due to the significant costs and coordination required for this option, a short-term option utilizing the Orange Line bikeway and on-street bicycle facilities along Noble Avenue is recommended. In segment 08, the alignment creates a Class IV bidirectional cycle track along Radford Avenue to get on the north side of the Tujunga Wash to bypass CBS Studios. At Colfax Avenue the bikeway would cross to the south side of the LA River and remain on there until joining to a bike path adjacent to Universal City that is in design. Segment 09 has ROW constraints at Barham Blvd and I-134. The short-term option would be to create on-street bike lanes on Barham Blvd to Forest Lawn Drive and converting

the existing bike lanes on Forest Lawn Drive to Class IV buffered bike lanes for additional safety. The bike lanes would then follow the street to travel under the I-134 and join up to the bikeway that is in construction at the the end of Forest Lawn Drive and the river.

### River and Street Crossings

Figure ES.6 shows the recommended treatment for each street and river crossing. Undercrossings or overcrossings are physically feasible at every street crossing, except for the crossing at Hazeltine Avenue, which requires an at-grade option due to US-101. Undercrossings are the modified, and most numerous, street crossing due to costs and available space under existing bridges. Overcrossings were recommended where undercrossing were not feasible. Construction of undercrossings or overcrossings may require physical alterations to existing curbs, street bridges, or utilities.

The most significant challenge that led to the use of at-grade crossings instead of overcrossings is cost. It is probable that most overcrossings will require short-term at-grade crossings due to financial costs required for overcrossings. At-grade options can be accomplished with modification to existing street intersections (e.g. new bicycle lanes, restriping, and other traffic calming measures) and installation of new traffic signals at all crossings except for at Orange Line Busway in segment 02 (requires an undercrossing due to bus conflicts) and at Van Nuys Boulevard in segment 05 (requires a street bridge due to traffic conflicts).

### Access

Access for both bicycles and pedestrians can be provided from all of the streets crossing the LA River; as well as from Valleyheart Drive, parallel to the LA River. Access is also provided from the following streets proposed with street-end parks: Vanalden Avenue, Yolanda Avenue, Amigo Avenue, Etiwanda Avenue, Zelzah Avenue, Rye Street.

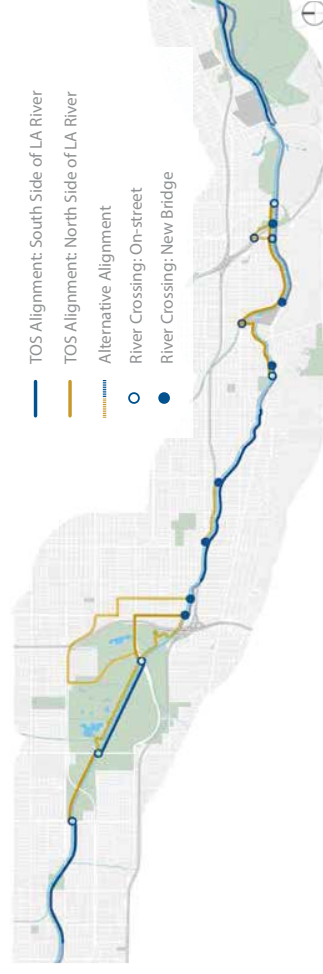


Figure ES.4 Base TOS Alignment and Final Alternatives Studied

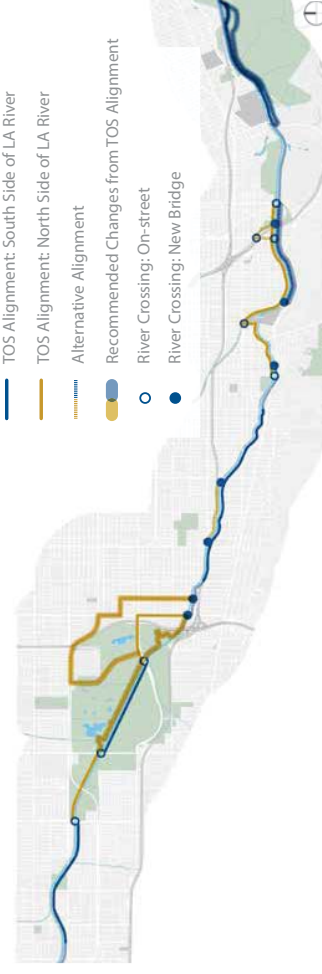


Figure ES.5 Recommended Changes from Base TOS Alignment

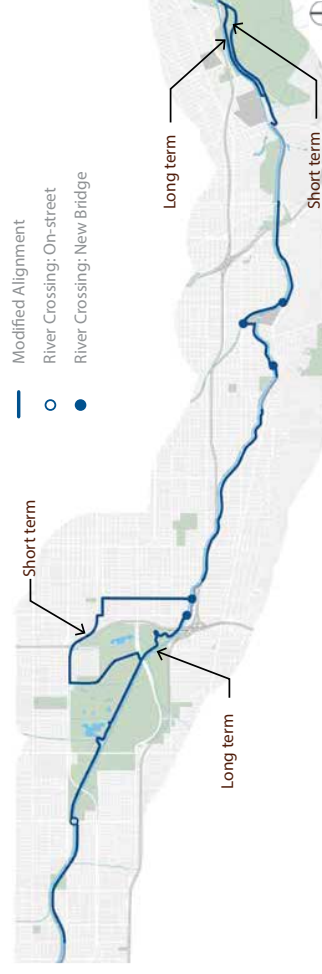


Figure ES.6 Modified Alignment and River Crossings

## EXECUTIVE SUMMARY | RIGHT-OF-WAY (ROW) ASSESSMENT

**Unique property ownership and infrastructure conditions along the LA River create some challenges for implementing the modified alignment, but also opportunities for partnerships.**

### Public vs Private Ownership

Concurrent to analysis of physical conditions and other factors informing the alignment, property ownership within 1/8<sup>th</sup> mile of the LA River was analyzed to document available ROW and any conflicts for implementation, shown in Figure ES.7. ROW refers to the width that would make up the future bikeway and greenway. A majority of the alignment is publicly-owned and is primarily made up of three entities: the City of LA, LA County Flood Control District (LACFCD), and United States Army Corps of Engineers (USACE). The LACFCD is the most common owner of required ROW along the alignment. As owner of the Sepulveda Basin, the USACE owns the land along Segments 02, 03, and 04. The City of LA owns adjacent property to the modified alignment in multiple segments within the departments of Recreation and Parks, Public Works, and Water and Power. Currently, a truck maintenance path along the LA River channel edge makes up the proposed ROW through these publicly-owned lands. While all three public owners have expressed support for the development of the bikeway and greenway along the maintenance path ROW, it will still require interagency coordination between the three levels of government.

Private ownership along the LA River is made of individual homeowners, businesses, as well as large landowners (e.g. movie and TV studios). While a majority of the alignment is publicly-owned, most parcels adjacent to the alignment are privately-owned.

### ROW Conflicts

While a majority of the alignment is publicly-owned there are a few sections where ROW of preferred alignment directly along the LA River is privately-owned, shown in Figure ES.8:

- Segment 08 between Radford Avenue and the Tujunga Wash is owned by CBS Studios
- Segment 09 between Barham Boulevard and Warner Bros. Studio Gate 7 is owned by Warner Brothers Studio and other private businesses.

The alignment is proposed to utilize Radford Avenue and the Tujunga Wash to avoid conflicts with CBS Studio in segment 08. It will be necessary to acquire ROW in segment 09 for development of a continuous bikeway along the LA River. Due to anticipated cost limitations in implementing the first phase of the future bikeway, alternative alignments are proposed where property acquisition would be required for a continuous bikeway along the LA River, which include potentially utilizing on-street bicycle facilities.

### Public ROW Available

Under current ROW conditions, it is feasible to construct the bikeway and greenway along a majority of the alignment, including all of segments 05, 06, 07, and 08; except where the bikeway was required to travel on-street at Hazeltine Avenue, Moorpark Street, Radford Avenue, and Vineland Avenue. Some of the areas with a constrained ROW (Segment 01 adjacent to Reseda Park and along Caballero Creek, Segment 02, Segment 03, and Segment 04) are adjacent to publicly-owned land, which should provide an opportunity to expand the ROW for the bikeway design condition, shown in Figure ES.9. The only sections with remaining constrained ROW (less than 22 feet width) are: segment 01 between Wilbur Avenue and Yolanda Avenue and Victory Boulevard and Caballero Creek. For the bikeway and greenway, it is only possible to achieve a separate bikeway and pedestrian path through these sections utilizing a clip-on/cantilever structure or through ROW acquisition. Businesses and large land owners provide a better opportunity to form partnerships for ROW acquisition than single-family home owners. Because only a small ROW is needed to implement the alignment adjacent to private owners, as well as the long process for acquisition, it is not recommended to pursue acquisition from individual homeowners.

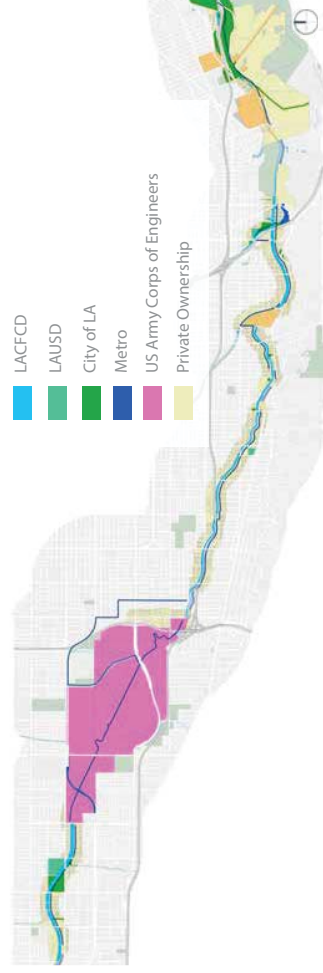


Figure ES.7 Public vs. Private Ownership

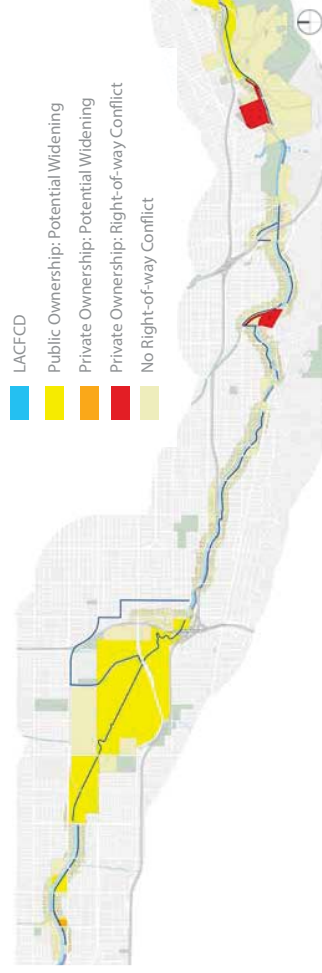


Figure ES.8 Right-of-way Conflicts with Private Ownership

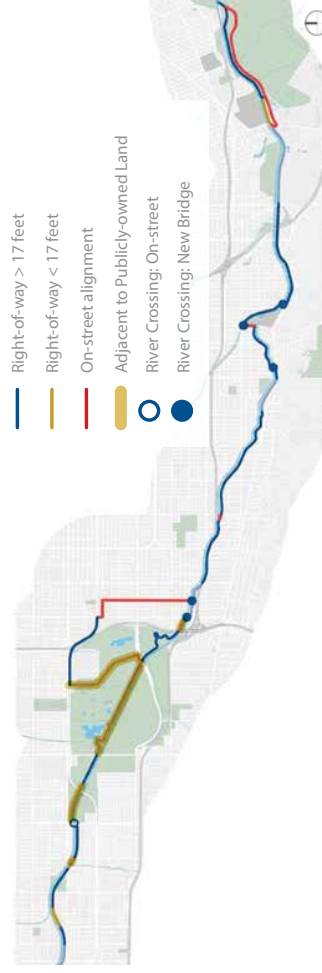


Figure ES.9 Feasibility of Modified Alignment Based on Available Right-of-way



## EXECUTIVE SUMMARY I CONCEPTUAL DESIGN

**The conceptual design focuses on building a consistent, attractive language for infrastructure and landscape along the LA River.**

Out of an understanding of existing physical conditions, access points, bikeway and pedestrian design standards, a modified alignment, and a vision for the LA River, a conceptual design of the bikeway, pedestrian path and landscape areas as well as street-end and river parks was developed. Conceptual designs were used to develop planning level cost estimates, introduce design expectations, and provide a starting point for conversations between designers, the City, and the community.

### Design Vision

The vision used to guide the conceptual design of the bikeway and other features is comprised of a visual language of elements. This language draws heavily from the existing aesthetic character of the built and natural environments; the existing type, form and materials for infrastructure, plant species, types of open space, and building types. Using the existing visual landscape as a basis for new design elements allows the future bikeway to balance respect for the existing aesthetic character and community expectations, with the imperative to introduce design solutions that will improve the sustainability and function of infrastructure while encouraging utilization of the bikeway as a significant part of everyday life.

### Crossing Typologies

Street and LA River crossings provide access to the bikeway and are the most prominent visual elements. The crossings are designed to solve conflicts disrupting the continuity of a continuous bikeway (e.g. intersecting streets, limited ROW, land uses) while contributing to the unified vision for a greenway along the LA River. However, as they will also become a bridge between the bikeway and surrounding context, their design will also enable the LA River to become a primary public space and travel corridor. Crossing typologies include: tunnel, undercrossing ramp, occupying the channel, channel bridge, street bridge, and river deck.

### Amenities

While amenities along the bikeway provide important functions for bikeway users that complement utilization of the bikeway, they also contribute to the mood of users through their aesthetic design. Amenities are made up of features such as benches and water fountains to architectural elements that are located along the entire bikeway at strategic locations to support both functions. Architectural elements include: kiosks, restrooms, bird blinds, amphitheaters, overlooks, playgrounds canopies, and bicycle repair stations.

### Greenway

The greenway along bike path segments is designed to support three primary purposes: to act as a bioswale that will capture and clean runoff from the bicycle path, provide habitat for insects and small animals, and to help buffer bicyclists and pedestrians. If it is feasible and in the widest ROW segments, a landscaped bioswale at least 4' wide between the bikeway and decomposed granite pedestrian path will create an added buffer for pedestrians. This planter could also allow for planting of canopy trees and native, drought-tolerant plant species.

### Street-End Parks / River Parks

The project scope required identification of at least ten locations for street-end parks that would take advantage of underutilized space for stormwater capture off of adjacent street ends and create usable public space. Potential park locations were identified at streets that dead-end at the LA River ROW. Specific elements within the parks (i.e. seating, shaded areas, bioswales, etc.) were designed to support multiple functions:

- Connections to the regional bikeway system;
- Environmental and habitat value;
- Culture and educational opportunities;
- Scenic opportunities;
- Safety and visibility;
- Sports and recreation facilities; and
- Retail and commercial features



Figure ES.10 Rendering of Typical Street Bridge Concept



Figure ES.11 Bikeway Alignment and Forest Lawn River Park Conceptual Plan



## EXECUTIVE SUMMARY | ENVISION

The self-evaluation process helps to ensure the design and development of a sustainable project that enhances the built and natural ecosystems along the LA River.

The Envision rating system is a project assessment tool for evaluating and giving recognition to infrastructure projects that contribute to a sustainable future. It was adopted by the Los Angeles City Council in 2016 as a system for measuring sustainability, as well as for certification for Bureau of Engineering projects, like the LA River Valley Bikeway and Greenway. After completing analysis of existing conditions and working with City Staff, it was determined that the goal of the project is to strive to attain Platinum level, the highest level of achievement for the Envision System.

The Envision process covers all phases of a project, from design, to construction, and operation. It was utilized during development of the alignment and conceptual design to ensure both maximize the positive environmental benefits promoted by the Envision system.

For this FSR stage of the LA River Valley Bikeway and Greenway Project, a summary of the opportunities and constraints for achieving desired Platinum Envision level was created to document specific considerations taken. The result was the compilation of a draft Envision Self-Assessment Scorecard.

### Envision Self-Assessment Scorecard

The Self-Assessment Scorecard analyzes 60 total credits within five categories. Each credit provides an amount of points for the level of achievement reached (from lowest to highest): improved, enhanced, superior, conserving, and restorative. To achieve Platinum level, the LA River Valley Bikeway and Greenway was designed to reach the restorative level when possible (refer to Table ES.2). Some considerations of the various environmental impacts to sustainability of a project within each category include:

- Quality of Life:* encouraging outdoor activities which are associated with increased health benefits; enhancing the natural habitats; strengthening connections to nature that promote rejuvenating effects on people; creating new public space and access for recreation.

- Leadership:* prioritization of the project and ensuring commitment to the original program; early community, stakeholder, and local transportation agency involvement; embracing sustainability as a core goal.

- Resource Allocation:* minimize energy required to fabricate and transport materials; sustainable supply chains; use local suppliers, fabricators, and materials; protect fresh water through implementation of stormwater BMPs; utilize renewable energy sources.

- Natural World:* preserving habitat and greenfields by encouraging infill development; variety of new native landscape plants and trees to preserve biodiversity and control invasive species.

- Climate and Risk:* reduce GHG and air pollutant emissions; promote citywide shift to active transportation modes; and reduce urban heat island effect.

The final Self-Assessment Scorecard was completed to show an expected level of effort to obtain a Platinum award level. Table ES.3 shows a summary of all anticipated points for each category. Quality of Life, Natural World, and Climate and Risk were the strongest performing categories for the LA River Valley Bikeway.

### Next Steps

The Self-Assessment Scorecard will be used during later phases of the project as a way to ensure the desired level is achieved through design, construction, and operation. Other future efforts for Envision documentation will consist of updating and refining the Envision review documentation, coordinating the necessary calculations and exhibits related to construction, and presenting to the Institute of Sustainable Infrastructure compliance with Envision Guidelines.

DRAFT SELF-ASSESSMENT SCORECARD - CLIMATE AND RISK												
Possible Levels of Achievement												
Category	Credit Name	Description	Planning/Design/Construct	Drawing/Spec Sect	Improved	Enhanced	Superior	Conserving	Restorative	Pursuit Level	No. of Points	City of LA BOE DPW
CLIMATE	EMISSION	CR1.1 greenhouse gas emissions	P, D & C		4	7	13	18	25	Restorative	25	
		CR1.2 Reduce air pollutant emissions	P, D & C		2	6		12	15	Restorative	15	
		CR2.1 Assess climate threat	P					15		Conserving	15	
		CR2.2 Avoid traps and vulnerabilities	P & D		2	6	12	16	20	Improved	2	
	RESILIENCE	CR2.3 Prepare for long-term adaptability	P & D					16	20	Conserving	16	
		CR2.4 Prepare for short-term hazards	P & D		3		10	17	21	Conserving	17	
		CR2.5 Manage heat islands effects	P & D		1	2	4	6		Improved	1	
		<b>SUBTOTAL</b>			<b>12</b>	<b>21</b>	<b>39</b>	<b>100</b>	<b>101</b>		<b>91</b>	

Table ES.2 Envision Self-Assessment Scorecard - Climate and Risk

DRAFT SELF-ASSESSMENT SCORECARD - SUMMARY	
<b>Summary Assessment:</b>	
Maximum number of available points	809
Total number of points associated with N/A credits	15
Total number of point attempted	794
Total points (X)	430
Percentage of total points attempted (X/794)	54% Platinum (50% or more points achieved)

Table ES.3 Self-Assessment Scorecard Summary

## EXECUTIVE SUMMARY I SUPPLEMENTAL ANALYSIS

**Evidence-based analysis of policy and physical conditions was used to prioritize implementation of the LA River Bikeway and identify potential funding.**

The supplemental analyses provide an in-depth evaluation of specific topics, which were used to aid in the recommendation of the alignment and project scope decision-making. The methodologies used for the supplemental analyses are based on best practices incorporating qualitative and quantitative standards and drawn from a variety of sources, including research journals, Federal and State agencies and funding programs, and completed projects. These methodologies ensure that every scale of the project supports the goal of providing maximum positive impact for users and the surrounding context through design of the bikeway and greenway.

### Types of Analysis Completed

The following topics were studied individually for each gap segment as well as for the entire study area:

- Economic Cost/Benefit
- Water Quality and Infiltration Benefits
- Greenhouse Gas (GHG) Reduction
- Vehicle Miles Traveled (VMT) Reduction
- Disadvantaged Community Vicinity
- Commercial and Job Centers Proximity and Linkage, and Active Commuting Benefits
- Public Safety Benefits
- Public Health Benefits
- Public Transit Proximity and Linkages
- Safe Routes to School Linkages
- Open Space and Park Proximity
- Outdoor Recreation Economic Activity
- Arts, Culture, and Community Asset Linkages
- Usage Projection

Many of the listed conditions require analysis within a larger context than each gap section, which allowed common opportunities and constraints to be compared across multiple conditions that were analyzed.

### Key Findings

Analysis of individual conditions drew attention to the commonalities and interdependency between each topic. For example, a specific design feature that reduces GHG emissions also reduces VMT, increases projected usage and public safety benefits, while also providing water quality and infiltration benefits.

Another key finding, based on commonalities between the supplemental analyses, is there should be a strong partnership between the City of Los Angeles - developing the LA River Valley Bikeway - and adjacent public and private land uses. A strong partnership with adjacent and key landowners for design, construction, operation and financing of the bikeway would increase utilization of the bikeway by providing maximum synergies between the bikeway route and intended destinations and linkages.

Lastly, it is evident to achieve maximum benefits for each condition, the future bikeway and greenway needs to be part of a connected network of bicycle facilities protected from vehicle traffic (Class I bike path, Class II buffered bicycle lanes, and Class IV cycle tracks) that connect users directly to destinations.

### Future Funding Availability

Based on the project scope and present levels of investment for public infrastructure, there will need to be varied funding streams to complete design and construction of the future bikeway. The supplemental analyses provide a starting point for identifying potential funding from Federal, State, County, and Local sources including: Federal Land Access Program (FLAP), California Active Transportation Program (ATP), Vision Zero, Greenhouse Gas Reduction Fund (GGRF), Measure M, and others.

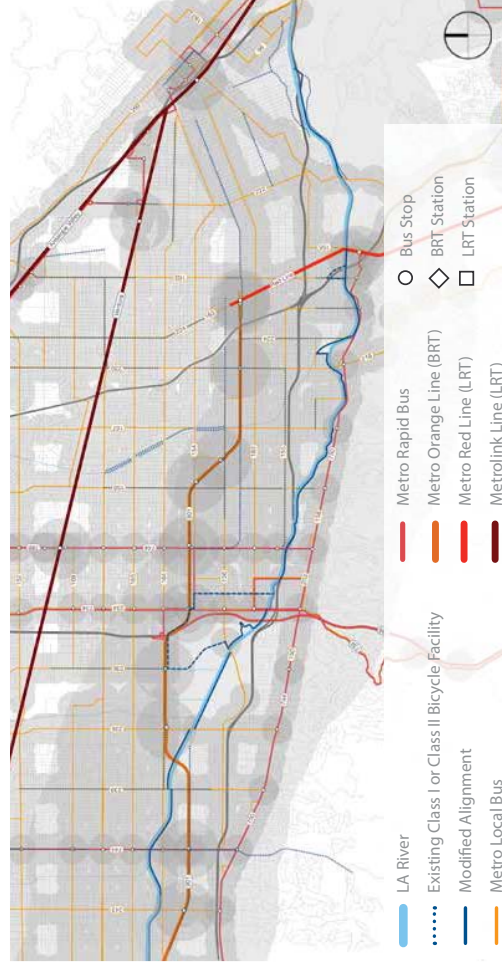


Figure ES.12 Public Transit Proximity and Linkages

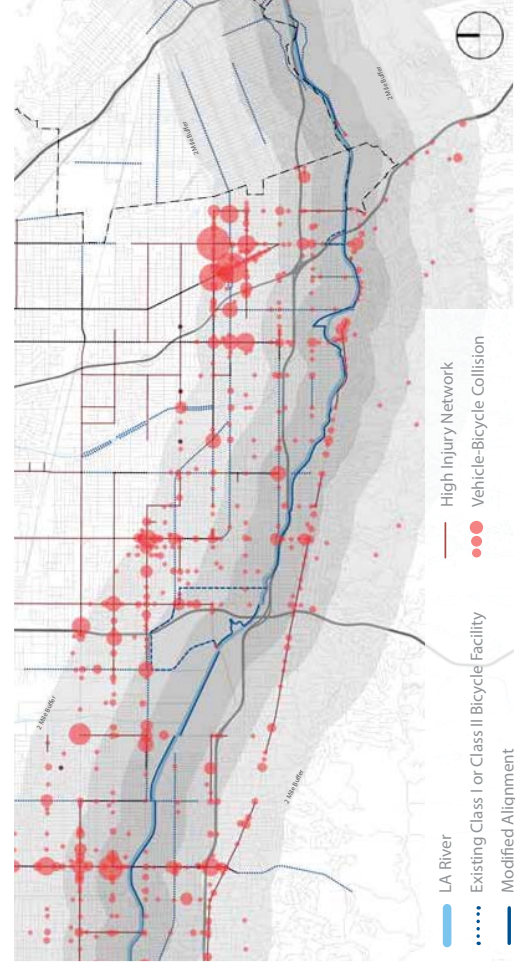


Figure ES.13 Vehicle-Bicycle Collisions within 2 miles of the LA River

## EXECUTIVE SUMMARY | PUBLIC OUTREACH

**The project team organized meaningful community events to solicit input from adjacent residents, businesses, and visitors.**

### Outreach Strategy

The foundation of public outreach for the FSR is that the City of Los Angeles and local communities are a partnership working to improve quality of life for all. Desire for development of the LA River Valley Bikeway and Greenway and how it should interact with each part of the community is a two-way street. Only with a thorough understanding of the objectives and concerns from all perspectives can the design of the bikeway and greenway be adapted to benefit everyone, allowing the bikeway and greenway to instill community pride and reach its full potential.

The outreach began with developing a comprehensive list of stakeholders tailored to this project including residents, neighborhood councils, business leaders, institutions, BIDS, community-based organizations and non-profits, schools and educational institutions, major employers and as well as additional special interest groups unique to the area, especially bike organizations within Los Angeles and the Project area. To satisfy the purpose of community meetings, meetings were setup in two parts, an initial presentation of findings and recommendations detailing all aspects of the project from its objectives to design trade-offs that were made, and a pin-up session where questions could be answered through one-on-one conversations.

### Community Meetings

The first round of community meetings open to the general public were held on the December 6, 2016 at the Encino Community Center and December 13, 2016 at Los Angeles Valley College. The purpose of the community meetings was to give community stakeholders an

opportunity to learn more about the project and to provide input on preliminary design concepts. Public input received at these meetings will be incorporated into the next phase of the design process.

The second round of community meetings were held in October, 2017. The purpose of the second community meeting was to present the final recommendations and findings from the FSR.

### Advisory Stakeholder Meetings

The team conducted a total of four (4) Advisory Stakeholder Meetings (ASC). These were conducted to address the project as two separate areas consisting of the ASC-East and the ASC-West districts. The ASC-West district addressed segments 01-04. The ASC-East district addressed segments 05-09.

These meetings were comprised of decision-makers from the applicable Council Districts, Neighborhood Councils, and representative from the Mayor's office.

### Technical Advisory Committee Meetings

As an integral part of the Feasibility Study process, the team presented the project deliverables for review and comment by project stakeholders and participating agencies. A Technical Advisory Committee (TAC) was formed and was comprised of staff from the City of Los Angeles, County of Los Angeles, and other public agencies. A total of two (2) meetings were conducted during the Feasibility Study.



Advisory Stakeholder Meeting



Community Outreach Meeting



## EXECUTIVE SUMMARY | COST ESTIMATES

Planning level cost estimates will allow for prioritization of bikeway design elements and phasing of gap segments.

The total project cost is estimated at approximately \$588 million including all direct construction costs and indirect/soft costs is shown in Figure ES.17. Historical costs, information provided by contractors and suppliers, as well as judgemental evaluation by the cost estimator, design team, and City staff were used as the basis for pricing. As a result of the multiple sources of cost information, the project is still in the feasibility stage. A variety of assumptions were made in pricing tunnels, ramps, bridges, and other bikeway elements. However, the prices in the cost estimate are based on competitive bidding and based on prevailing wage rates and conditions currently applicable in Los Angeles.

### Direct Costs

Direct costs include construction of all of the physical elements needed to complete the LA River Bikeway. The following categories were used to group related costs:

- Existing Conditions: demolishing and/or clearing existing surfaces, structures, and brush
- Earthwork: preparing the alignment surface for construction of the bikeway and greenway
- Bikeway: construction of bikeway, pedestrian path, and structural elements supporting the bikeway
- Bridge and Undercrossing: street bridges, bridges over the LA River, undercrossing ramps, and tunnels
- Utilities: new utilities related to lighting the bikeway, as well as relocation of existing utilities
- Landscaping: greenway and bioswale along the bikeway alignment
- River and Street-end Parks: natural landscape, park amenities, and architectural elements
- Public Art: public art features within each segment

Direct costs are estimated at approximately \$226 million. As shown in Figure ES.14, street crossings (bridges, undercrossing, at-grade) create the highest costs, with river park costs providing the second highest

cost category. The Bikeway in Figure ES.14 includes all the elements required for construction of the bike path: costs for existing conditions, earthwork, utilities, and bikeway (minus pedestrian path).

### Indirect Costs

Allowances for indirect costs are estimated to cost \$362.6 million and are based on the direct cost subtotal. Indirect costs include:

- Design Contingency: construction budget to cover additional costs for needed design changes
- General Conditions: costs during construction including: field supervision, mobilization, and demobilization; costs of payment and performance bonds; costs for contractor overhead and profit.
- Escalation: 5% per year for three year construction
- Design Fees: architecture and engineering fees
- Project/Construction Management: Permits, testing, inspection, and taxes
- Project and Change Order Contingency: construction contingency costs that occur after the bid process.

Figure ES.17 shows the sequence of soft costs applied to total estimated direct costs for the LA River Bikeway project. The sequence and percentage for indirect costs was developed through conversations with City Staff to accurately reflect the costs applicable to projects within the City of Los Angeles. Figure ES.15 shows percentage of direct and indirect costs.

### Specific Exclusions

ROW acquisition and interim street intersection improvements were specifically excluded from the cost estimate presented.

### Available Funding

The City of LA has approximately \$60 million in funds from Metro available for design and development of the LA River Bikeway and Greenway. The sources of current funding and percentage of the project still unfunded is shown in Figure ES.16.

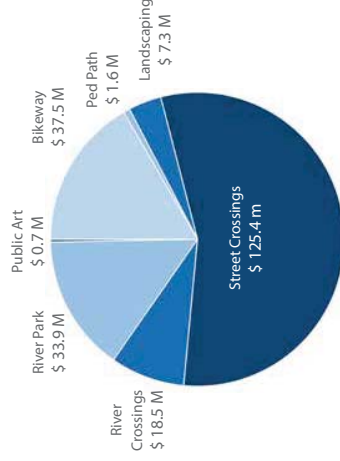


Figure ES.14 Percentage of Direct Costs

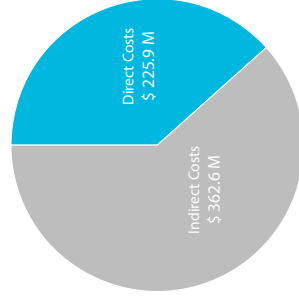


Figure ES.15 Direct Costs vs. Indirect Costs

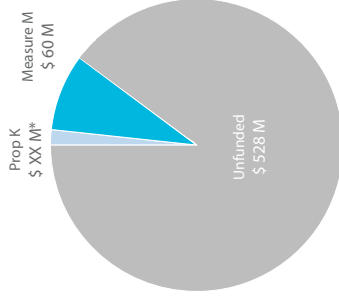
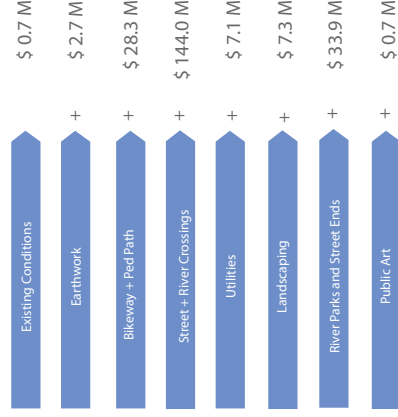


Figure ES.16 Funded vs. Unfunded



Total Direct Cost  
\$225.3 M



Total Project Cost \$588.8 M

Figure ES.17 LA River Valley Bikeway and Greenway Total Costs

## EXECUTIVE SUMMARY I PHASING STRATEGY

**Development of bikeway gap segments will follow a phasing schedule that will balance cost and bikeway usage considerations.**

The purpose of the future bikeway and greenway is to provide a continuous path along the LA River. However, as the City of LA currently has only \$70 million in funds dedicated for development of the LA River Valley Bikeway project, available funds do not fulfill complete build-out of the future bikeway and greenway through all nine segments. Development of the future bikeway will need to occur in phases as other funding is identified. The FSR considered multiple phasing strategies in order to develop a bikeway with maximum continuity across the study area during Phase I and setting up later development phases.

### Bikeway Continuity

A continuous pathway can vary depending upon the definition of continuity, as applied from different perspectives: the type of user (child versus experienced cyclist), type of facility (at-grade versus bridge street crossing), or geographic location (east Valley versus west Valley). Build-out of the bikeway and greenway in Phase I according to each definition of continuity requires trade-offs between physical elements. As a result, the physical condition of each definition of continuity could provide different levels of benefits for objectives like safety or number of users. For example, is it better to provide a bikeway in Phase I covering a larger area with street crossings at-grade, or a shorter bikeway segment but with street crossings separated from vehicle traffic? The FSR considered these questions of bikeway continuity with the goals of the project and the city by evaluating multiple phasing scenarios.

### Option 1 - Base Scenario

Option 1 presents a base scenario in order to compare what are the minimum facilities that can be constructed with the available \$70 million funds. Option 1 develops a new Class I bike path along the LA River in multiple

segments while utilizing existing bicycle facilities (Orange Line Bikeway) and creating new Class III sharrows along Noble Ave and Valleyheart Drive. It also proposes redesigning the Class II bike lanes on Forest Lawn Drive into protected Class IV as an interim option to create connectivity in this segment. All of the street crossings are at-grade, except for the trapezoidal ramp undercrossings in Segment 01, the Orange Line Busway undercrossing, the Van Nuys overcrossing and the US 101 undercrossing. Option 1 includes a limited bioswale along the alignment, but does not include any river or street-end parks. Even with the minimal bikeway facilities, total costs for Option 1 are estimated to be \$158 million.

### Option 2 - Added Investment Base Scenario

Option 2 builds on the baseline scenario by removing the Class III sharrows along Valleyheart Drive and including the bikeway adjacent to the LA River for safety and creation of a continuous path. Option 2 includes a bikeway and pedestrian path along most of the LA River, but continues to utilize the existing Orange Line Bikeway and Noble Ave as in interim route without a bridge over I-405. Option 2 also includes undercrossing ramps in Segments 01 and 02, but still does not include any greenway along the alignment, nor river and street-end parks. Option 2 is estimated to cost approximately \$197 million and is spread throughout every project segment, except Segment 03 through the Sepulveda Basin.

### Option 3 - Full Build-Out Scenario with Interim Options

Option 3 presents the full build-out scenario of the LA River Bikeway except for the proposed bridge over I-405 and tunnel through SR-134. It includes a separated bikeway and pedestrian path with landscaped bioswale along the bikeway alignment and development of most river parks. A majority of the street crossings in Option 3 are bridges or undercrossings to separate users from vehicle traffic. Option 3 is the most expensive option, approximately \$426 million.

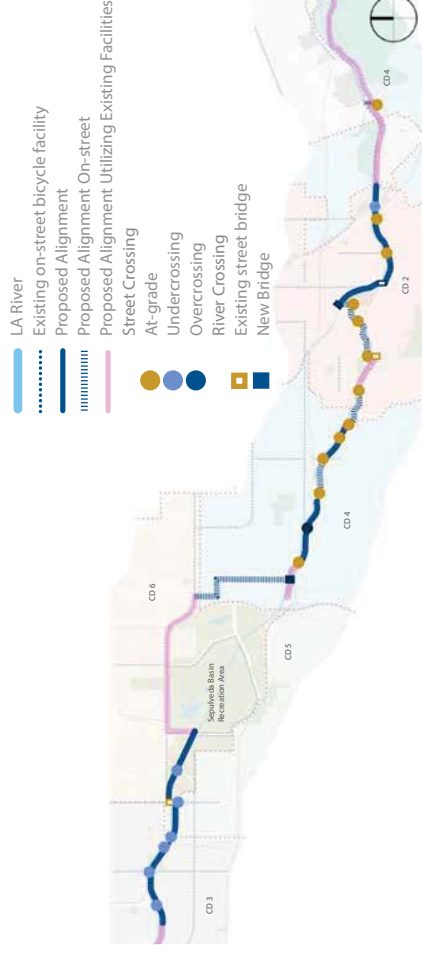


Figure ES.18 Option 1 - Base Scenario



Figure ES.19 Option 2 - Added Investment Base Scenario



Figure ES.20 Option 3 - Full Build-Out Scenario with Interim Options

## EXECUTIVE SUMMARY | ENVIRONMENTAL

**An effort is being made to ensure the project does not negatively impact existing communities or natural systems.**

The LA River Bikeway project will need to comply with both Federal and State environmental planning policies through the National Environmental Policy Act (NEPA) and California Environmental Quality Act (CEQA).

### 2007 Programmatic Environmental Impact Report/Statement (PEIR/PEIS)

In 2007, a Programmatic Environmental Impact Report/Programmatic Environmental Impact Statement (PEIR/PEIS) was prepared to evaluate the Los Angeles River Revitalization Master Plan (LARRMP). The Federal Lead Agency was the Army Corps of Engineers (ACOE) and the State Lead Agency was the City of Los Angeles, Department of Public Works, Bureau of Engineering (BOE). The LARRMP addressed near-term and long-term planning actions for one-half mile on each side of a 32-mile stretch of the Los Angeles River within the City of Los Angeles. As the LA River Bikeway project falls within the boundaries of the LARRMP, the 2007 PEIR/PEIS may potentially act as a Tier 1 document that allows for preparation of a variety of supplemental, subsequent or totally independent documents.

### NEPA Requirements

Based on initial environmental analysis and discussions with lead agencies, it is likely NEPA process will drive the future overall schedule. The ACOE has indicated that no part of the project can proceed without an ACOE permit (and associated environmental process). As a result, there is no benefit to completing the CEQA process substantially in advance of the NEPA process because doing so could result in conflicting analyses and mitigation measures between CEQA and NEPA documents, creating difficulties in implementing mitigation during construction.

Therefore, while CEQA Addendums are possible (no new significant impacts are anticipated compared to what was identified in the 2007 PEIR/PEIS), a more efficient CEQA process, given the anticipated NEPA process, is the preparation of one EIR not tiered from the 2007 PEIR/PEIS. This allows greater flexibility in tailoring specific mitigation measures much more appropriate to bike paths and greenways.

### CEQA Requirements

Given the anticipated NEPA process, it is anticipated that an EIR will be prepared. It is anticipated the EIR will be prepared in tandem with the NEPA document to keep analyses and mitigation measures consistent. This would likely involve temporarily putting the EIR on hold while the NEPA document is going through certain portions of the NEPA reviews.

### Potential Environmental Issues

The following issues have been identified during the FSR that may require further study under CEQA and NEPA:

- Biological Resources
- Cultural Resources (historic, archaeological, paleontological, and cultural tribal resources)
- Aesthetics
- Land Use
- Transportation/Traffic
- Air Quality (emissions, including criteria pollutant generated from construction and operation, greenhouse gases, and potential odors)
- Health Risk Analysis (as applicable based on air quality and water quality potential impacts)
- Noise
- Hazardous Materials
- Public Health and Safety
- Hydrology, Water Quality Analysis, and Sediment Analysis
- Public Services
- Population and Housing

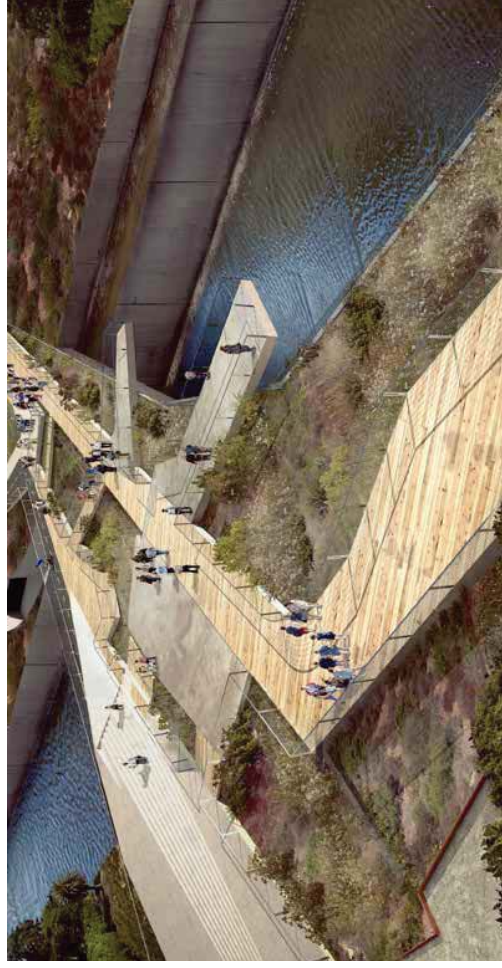


Figure ES.21 Rendering of Bridge and Habitat Deck

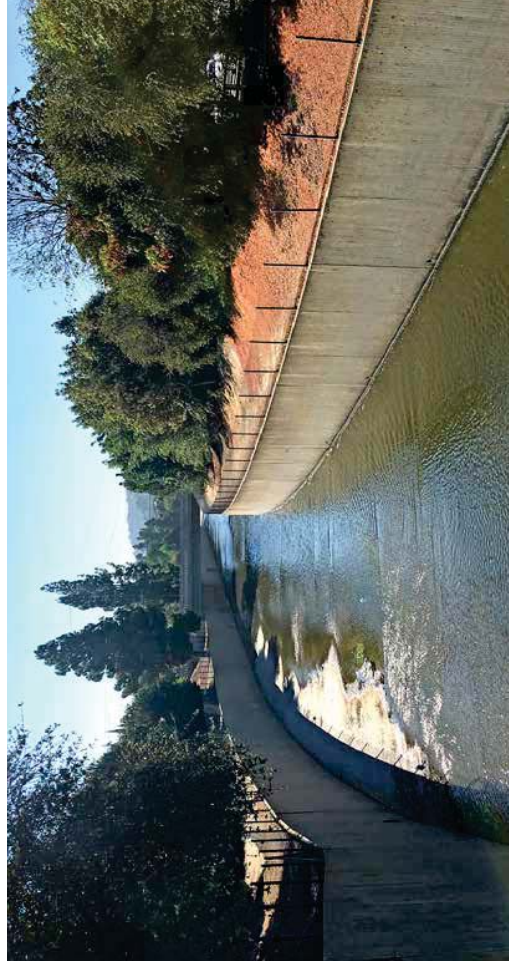
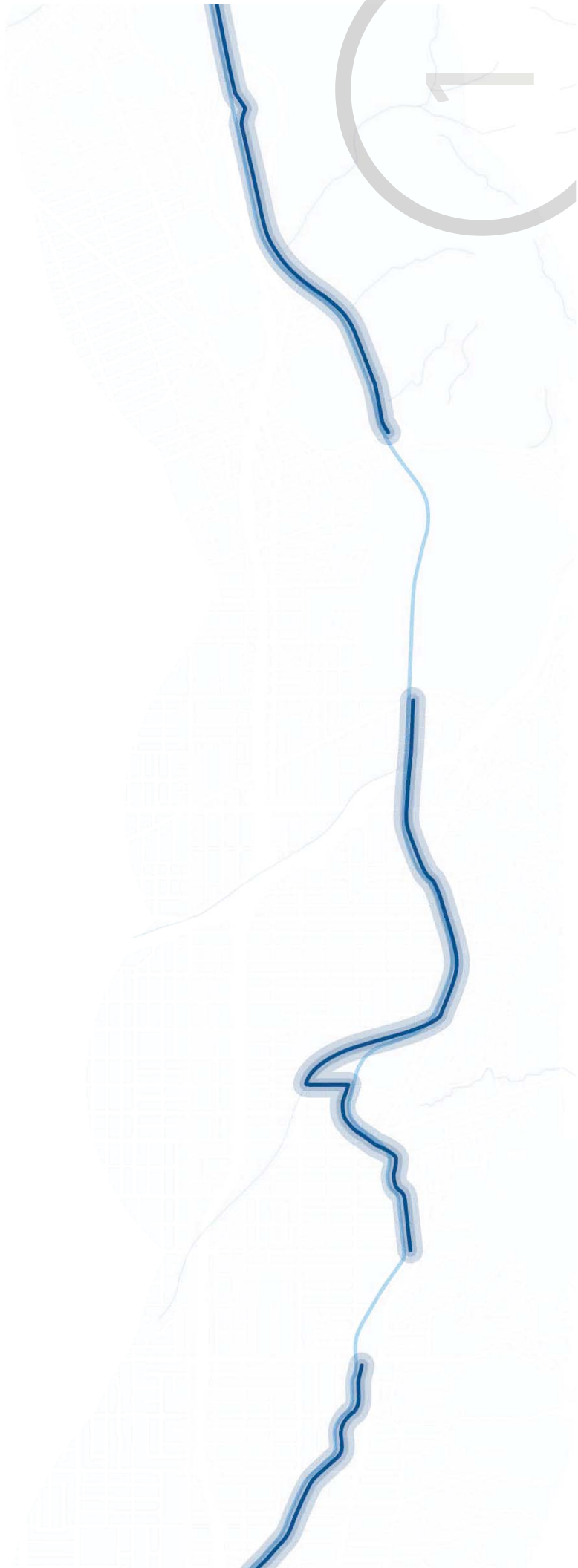


Figure ES.22 Existing LA River Channel at Moorpark Street Looking East









## OVERVIEW AND PURPOSE

The Los Angeles River Valley Bikeway and Greenway Design Completion Project will re-imagine and help complete the LA River trail system throughout the Valley. This new Bikeway/Greenway will improve regional livability by providing expanded active transportation options with new access to transit, homes, schools, jobs, nature, recreation and other community-serving amenities.

This Feasibility Study Report (FSR) includes conceptual design, feasibility analysis and environmental documentation strategies for multiple segments of a bicycle path and greenway along the LA River banks between Vanalden Avenue to the West and Forest Lawn Drive / Zoo Drive to the East. This design completion project will convert the existing maintenance road along the LA River into a greenway which includes a Class I Bicycle Path designed to Caltrans standards, plus a pedestrian path and landscaping guidelines guided by the County of Los Angeles LA River Master Plan.

The feasibility study is for a Class I Bicycle Path designed to Caltrans Highway Design Manual (HDM) standards along nine (9) separate segments, twenty nine (29) roadway intersections along the banks of the LA River, eleven (11) connections to existing or previously-designed Class I Bicycle Paths, and eleven (11) street-end pocket parks or river parks. The proposed bike path will complete approximately 11 to 12 miles of gaps in the San Fernando Valley. Segments 01-09 and in-design or constructed segments are shown on the next page. The current gaps within the San Fernando Valley that will be completed by the LA River Valley Bikeway and

Greenway will contribute to the continuous bikeway and greenway along the entire 51 mile length of the LA River.

Each segment will be consistent in design and character with previously-constructed bicycle path sections while providing new opportunities for signage, interpretive elements, landscaping, furnishings and unique architectural design. Landscape architectural design shall be consistent with the LA River Greenway typologies in the City of Los Angeles LA River Revitalization Master Plan Chapter 5 "Green the Neighborhoods." The design shall also comply with the US Army Corps of Engineers (USACE) and County of Los Angeles channel flow and capacity requirements. The overall conceptual design vision is to create a continuous bikeway and landscaping along the LA River, connecting a series of independent bikeway and greenway projects with the constructed or in design phase bikeway/greenway projects. It is generally desired that the bikeway shall be kept along the LA River unless it is deemed infeasible. On-street segments have only been considered when all other options have been exhausted or are financially infeasible.

Design improvements will also include modifications to eleven (11) street ends or river parks interfacing with the bicycle path and greenway for stormwater capture and treatment opportunities, including Best Management Practices (BMP) such as infiltration systems and high efficiency biofiltration / bioretention systems.

This Feasibility Study analyzes three (3) types of crossing options: under crossings, at grade crossings and over crossings for viability and cost effectiveness. Initially, bicycle path at-grade crossings at roadway intersections have been minimized for increased safety and to eliminate user conflicts.



The City of Los Angeles has prioritized the completion of the LA River Trail system in the following documents and/or announcements:

2004  
County of Los Angeles  
LA River Master Plan

2007  
LA River Revitalization  
Master Plan

2012  
County of Los Angeles  
Bicycle Master Plan

2015  
Mayor Eric Garcetti's  
announcement of investment  
of \$6M in completing  
12 miles of bikeway

2015  
The Sustainable  
City Plan



As an integral part of the Feasibility Study process, the consultant team presented project deliverables for review and comment by project stakeholders and community members. Public engagement activities for the Project covered a significant swath of the San Fernando Valley along the LA River, running from its far west reaches at Vanalden Avenue to Riverside Drive/Zoo Drive at Griffith Park as the LA River approaches the Los Angeles Basin. The Project area includes Council Districts- 2, 3, 4, 5 and 6.

The outreach began with developing a comprehensive list of stakeholders tailored to this project. Community Meetings were held in both the east and west valley to help solicit the community's preferences and input. Meetings with a Technical Advisory Committee (TAC) and the Advisory Stakeholder Committee (ASC) were held for a more focused and rigorous dialogue with civic leaders and special interest groups.

An environmental review and documentation for the proposed Los Angeles River Valley Bikeway and Greenway Design Completion Project (proposed project) will be conducted. BOE will be the Lead Agency for purposes of CEQA and that either the U.S. Army Corps of Engineers (due to the required permits) and/or the Federal Highway Administration (FHWA) (due to federal funding through Caltrans) will be Lead Agencies for purposes of NEPA.

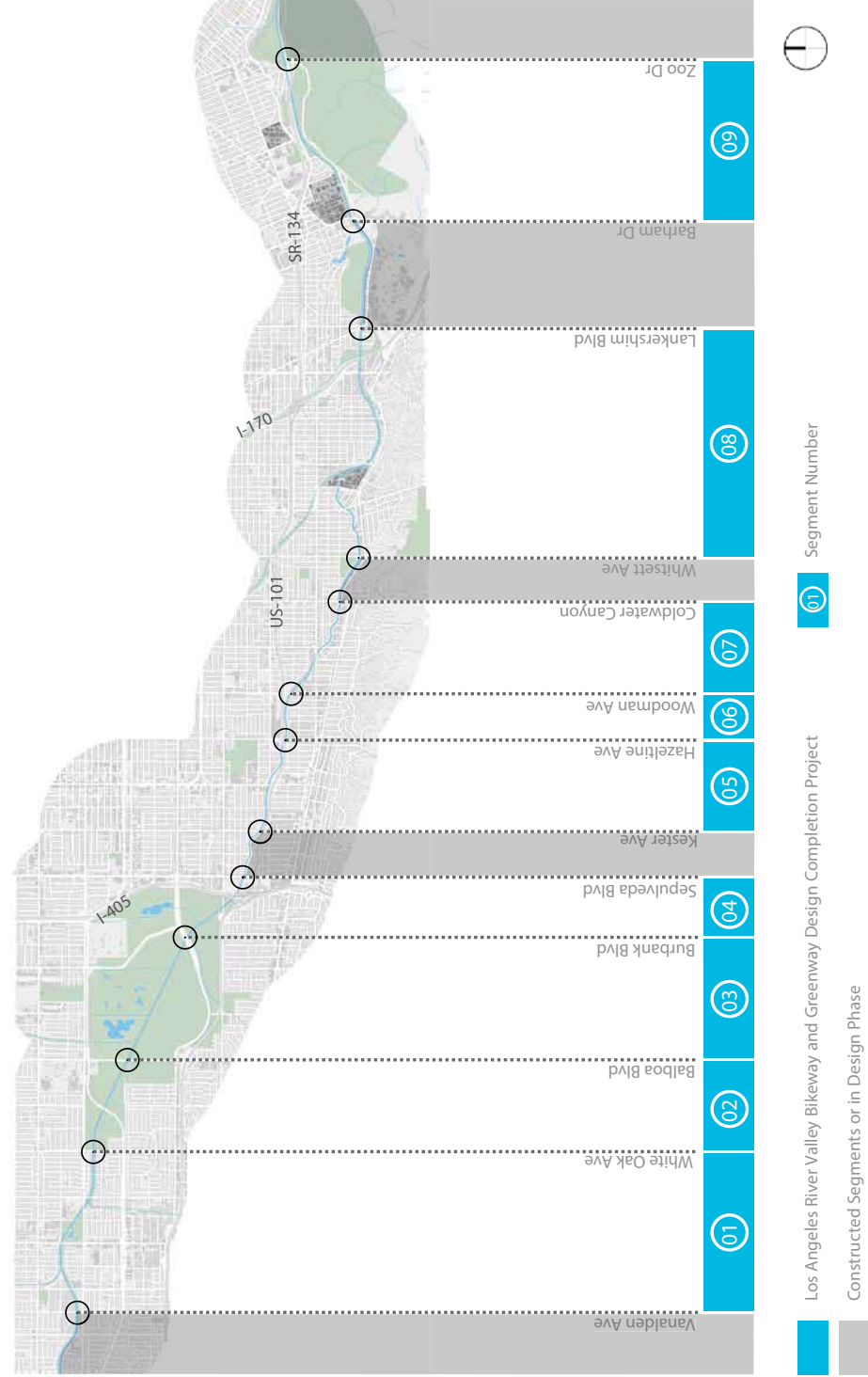


Figure 1.1 LA River Valley Bikeway and Greenway Project Segments

## GOALS AND OBJECTIVES

The broad project goals and objectives listed below have guided the programming and will help in creating a specific identity for the new bikeway/greenway segments. These have been developed using major themes and goals addressed within the Los Angeles River Revitalization Master Plan 2007 as well as the County of Los Angeles River Master Plan 2004.

**CONNECT**  
neighborhoods and communities

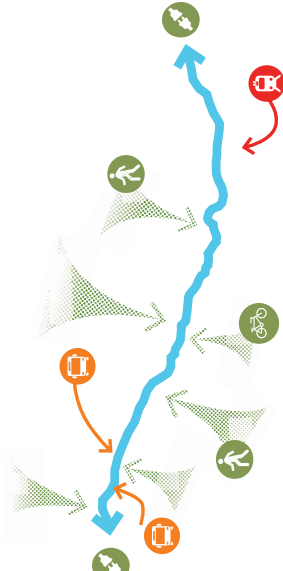


Figure 1.2 Objectives for Neighborhoods and Communities

- Design the bikeway network to accommodate a wide range of users including recreational bicyclists, commuters and pedestrians.
- Connect neighborhoods to the Los Angeles River and this underutilized open space.
- Integrate sustainable transportation with bike lanes and promenades.
- Support connections to city-wide transit networks.
- Create accessible neighborhood links throughout the network.
- Strengthen the link between communities and neighborhoods.

**CELEBRATE**  
the Los Angeles River

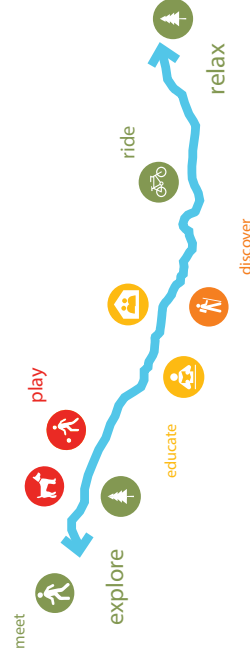


Figure 1.3 Objectives for Programming the LA River

- Celebrate the unique experience along the Los Angeles River.
- Incorporate design symbology that is unique to the LA River edge experience..
- Craft a River Identity with unique and iconic place-making infrastructure elements.
- Reference the California dry alluvial wash landscape.
- Create Instructional moments along the corridor for education and encourage stewardship.

**RESTORE**  
the ecological systems

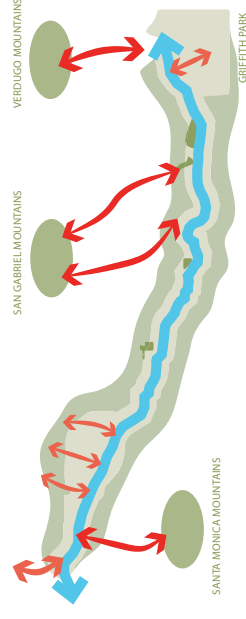


Figure 1.4 Objectives for Restoring Ecological Systems

- Re-establish habitat for native species of birds, insects and pollinators.
- Support local ecology by creating native landscapes.
- Increase opportunities to clean and filter water that runs into the LA River.
- Reinforce “green” technology and sustainable practice.
- Facilitate ecological restoration of the riverine edge with multi-benefit green spaces.

## RELATIONSHIP TO OTHER DOCUMENTS / PLANNING INITIATIVES

Since the mid 1980's, there has been renewed interest to transform the LA River into a community and environmental asset for the Los Angeles region. This process has been led, at different times, by the City of Los Angeles, advocacy groups as well as other government entities, businesses and citizens; each of which have contributed a small part to the overall transformation of the LA River from its current state as a flood control channel through studies and constructed infrastructure improvements.

During the subsequent years, the vision and planning for the LA River has evolved as more groups have been given a voice in the process, as the problems facing Los Angeles have evolved, and as our collective understanding of the consequences of development and public policy decisions has grown. Reasons put forth for transforming the LA River have ranged from the need for environmental restoration, water conservation, new public open space, becoming an active transportation corridor to a setting that can provide affordable housing and new sustainable development. The planning studies, documents, public policies and ideas developed for the restoration and revitalization of the LA River are as diverse as the reasons advocating for transformation of the LA River.

The FSR is one tile in the mosaic transforming the LA River. It will convert the varied visions and goals for the LA River into a roadmap for completion of the LA River Valley Bikeway and Greenway, in order to create a shared active transportation and natural ecosystem corridor that will shift LA from a car-reliant city to a well-connected multi-modal healthy city. A complete review and analysis of all existing documents demonstrated a common understanding that the LA River can no longer act as a single-purpose infrastructure entity if it is to reach its full potential to help improve perpetual, sustainable

high quality-of-life within the Los Angeles Region. Development of the LA River, and its positive impact on adjacent communities - which would integrate the diverse visions of the LA River - can provide the solutions for the economic, social and environmental problems facing the region today. To be a part of the holistic solution, individual elements of the redevelopment of the LA River, such as the bikeway, must support all those goals previously established through their design.

To embody a coherent vision from the varied planning history of the LA River within the future bikeway, the FSR began with a comprehensive review of existing documents. As the project team reviewed the existing materials, the planning studies, public policies and technical and supporting documents were grouped into two categories. The first group pertains exclusively to the LA River and provides guidelines, standards and requirements for development. The second group of documents provide planning that is related to development of bicycle infrastructure, landscape design and/or future development in the City of Los Angeles, and pertinent to development of the LA River Bikeway. The following summarizes key components from each document and how they were utilized by the FSR.

### LA River Documents

#### County of Los Angeles LA River Master Plan (1996)

The LA River Master Plan, created by the County of Los Angeles Departments of Public Works, Parks and Recreation and Regional Planning, was the first plan developed in response to the renewed interest in the revitalization of the LA River. As the first attempt to reflect the needs and ideas of diverse governments, local communities, groups and individuals with a vision of the future of the LA River, the Master Plan identifies existing conditions, recommendations, and changes in policy and

practices needed to support recommended goals, for six broad categories: Aesthetics, Economic Development, Environmental Quality, Flood Management and Water Conservation, Jurisdiction and Public Involvement, and Recreation. While developing a vision and goals for future planning and development of the LA River, this plan also identifies the framework that future planning for redevelopment of the LA River was predicted to work within.

This document mandates, for the first time since channelization of the LA River, a shift in public policy that redefined the function of the LA River from a single-use flood control channel to a multi-use waterway with substantial environmental, social, health and economic benefits. In doing so this document provided the foundation for all subsequent planning to build upon and improve, as the problems facing the LA River and technologies to solve those problems have changed. The plan acknowledges the need to be updated over time as it is only the first step in a planning process that would include various levels of government and span multiple decades. While some of the existing conditions, policies, and recommendations from this report are now largely outdated, it is still a resource to ensure current planning represents the applicable planning and vision created in the past.

#### County of Los Angeles LA River Master Plan - Landscaping Guidelines and Plant Palettes (2004)

The Landscaping Guidelines and Plant Palettes were developed by the County of Los Angeles Department of Public Works in 2004 to support the County of Los Angeles LA River Master Plan. It provides guidelines and procedures for projects to implement Best Management Practices (BMP) for watershed protection as well as accepted amenities and plant materials in the public Right-of-way (ROW), between the top of the LA River channel and ROW limits.



Source: Los Angeles River Master Plan Landscaping Guidelines and Plant Palettes, 2004



Source: Los Angeles River Revitalization Master Plan, 2007



## RELATIONSHIP TO OTHER DOCUMENTS / PLANNING INITIATIVES

The Guidelines support the development of the LA River as a new multi-purpose and natural amenity by incorporating concepts of sustainability, creative design and complementary ecology through its plant species and stormwater capture BMP. The document was developed to be used in coordination with other resources in preparing public open space along the LA River. This resource was consulted by the project team when developing the design of the greenway and parks with stormwater capture BMP and in listing proposed plants for the greenways and landscaping areas.

### LA River Revitalization Master Plan (2007)

The LA River Revitalization Master Plan was the first plan developed by the City of Los Angeles to guide the comprehensive restoration and redevelopment of the LA River. This master plan provides a 25-50 year guide for transforming the 32 miles of the LA River within the City of Los Angeles. The Master Plan builds off the County Master Plan and provides a comprehensive vision of the LA River as a network of parks, open space, walkways and bicycle paths that provide better connections to adjacent communities, protect wildlife, restore natural systems and promote ecological health of the LA River and encourage economic investment.

This plan was the result of a multi-year collaboration and outreach process that included: elected officials, multiple city departments, varied expert consultants, general population and environmental and recreation groups. In having to lay out such a comprehensive vision and cover a wide-range of topics, this plan generally focuses on big picture opportunities and constraints for development of the LA River. However, the Master Plan also proposes a number of practical, short-term steps that can be taken to enhance the LA River today.

The vision and goals developed by these groups

promote the idea that restoration of the LA River can lead the revival of the City of Los Angeles and improve quality of life for all its inhabitants through a sustainable environment. This plan was used by the FSR to develop a complementary vision for the bikeway and ensure individual design decisions embody and support the overall vision of the LA River.

### LA River Greenway: Ideas and Resources for Project Designers (2011)

The LA River Greenway Ideas and Resources for Project Designers was prepared by the Los Angeles River Greenway Working Group, which was part of the City of Los Angeles' effort to implement the LA River Revitalization Master Plan. The document consists of two parts: a compendium of standards and guidelines for specific elements related to development of a bikeway and greenway along the LA River (as of 2011), and examples of those elements that can be used as inspiration for future project designers. Specific design elements and facility recommendations for implementing a continuous greenway along the LA River include:

- Bicycle Path Design
- Signage and Wayfinding
- Bridges
- Fencing and Gates
- Lighting
- Drainage
- Trash
- Art and Cultural Amenities
- Accommodating Wildlife
- Adjacent Streets Connecting to the LA River
- Community Gardens and Agriculture
- Creating Additional Public Space
- Maintenance
- Agency Coordination

For each category, existing precedents, aspirational conditions, references to common design standards, and contact information for City, LADOT, and other entities are provided. Recommendations for each element share a common pursuit for sustainable and high-quality materials and designs that prioritize creating a positive bicycle and pedestrian environment while promoting restoration of a natural environment.

The information provided for each element was utilized by the project team for multiple reasons, depending upon the specific element. Some precedents, aspirational designs, or standards provided for certain elements were used as precedents and incorporated into conceptual designs for this report. Other materials were used as references when developing the bikeway and greenway, while some were not appropriate for specific designs based on analysis completed. Finally, contact information was used for including appropriate members for the multiple steering committees for the FSR.

### LA Greenway 2020 Pre-Design/Pre-Planning Supplementary Report (2013)

Greenway 2020 is a campaign by River LA (formerly the LA River Revitalization Corporation) to develop a continuous greenway along the entire 51-mile length of the LA River through public and private partnerships. The greenway endeavors to be bolder than just building new bicycle and pedestrian paths within existing gaps along the LA River by envisioning a LA River greenway that acts as the civic, recreation and mobility spine for the entire city. Greenway 2020 aims to accomplish that vision through five principles:

1. Connect: by creating a continuous pathway for bicycles and pedestrians along the south and west side of the LA River.
2. Capitalize: on opportunities where infrastructure

### THE LOS ANGELES RIVER GREENWAY: Ideas and Resources for Project Designers



Source: Los Angeles River Greenway: Ideas and Resources for Project Designers, 2011



Source: LA River Greenway 2020, 2013

## RELATIONSHIP TO OTHER DOCUMENTS / PLANNING INITIATIVES

improvements can be transformed into civic, art, and recreation spaces that create a continuous pathway.

3. Punctuate: access points to the LA River, where there are opportunities to support, remediate, or amplify local conditions.

4. Thicken: the public realm of the LA River to connect to nearby public parks, civic amenities, or other large land uses.

5. Expand: the car-free network of neighborhoods and destinations accessible to Angelenos through implementation of new bike lanes that connect to the LA River bikeway spine.

The Supplementary Report was developed in 2013 as an interim report to:

- Inventory existing bicycle paths and trails along the LA River;
- Define new greenway path segments needed to fill the gaps between existing trails/bike paths to complete a continuous 51-mile public path; and
- Identify opportunities and develop case studies for strategic design interventions along the LA River that support the Greenway 2020 vision.

The Supplementary Report provided a high-level analysis of the LA River and identified bikeway segment gaps within the Valley. For those segments, the Supplementary Report documents existing conditions such as adjacent civic amenities/institutions and intersecting street overpasses or underpasses as well as the length of LA River profile and edge conditions (e.g. Trapezoidal Channel, Concrete River Bottom, etc.). It also provides conceptual designs for street/bikeway cross sections and potential park locations along the LA River within the Valley. This information was incorporated into the site analysis, presented in Chapter 2.0.

**Bridging the Gaps: LA River Greenway Linkages Study (2014)**

Bridging the Gaps was a study completed by River LA (LA River Revitalization Corporation). It builds off River LA's LA Greenway 2020 Supplementary Report (2013) by addressing the opportunities and constraints facing projects that would attempt to develop a bicycle path within existing gaps along the LA River at the city-block scale. The document studies gaps specifically within the San Fernando Valley where there were no planned projects, in 2014. These gap segments include:

- Gap 1: Mason Avenue to Wilbur Avenue
- Gap 2: Reseda Boulevard to White Oak Avenue (North Side)
- Gap 3: Reseda Boulevard to Balboa Boulevard (South Side)
- Gap 4: Orange Line Busway to Balboa Boulevard (North Side)
- Gap 5: Burbank Boulevard to Kester Avenue
- Gap 6: Cedros Avenue to Fulton Avenue (North Side)
- Gap 7: Kester Avenue to Fulton Avenue (South Side)

For each gap segment, there is a general overview of opportunities and constraints, channel conditions, and context map with major adjacent land uses. Within each segment a further analysis of existing conditions was made at each street intersecting the LA River, and included: access opportunities; existing/planned bicycle infrastructure, potential alignment, existing roadway conditions (number of lanes and sidewalks), and potential crossing treatment (undercrossing, overcrossing, at-grade). This documentation of existing conditions supplemented the site analysis completed by the project team, which is presented in Chapter 2.0.

**Sepulveda Dam Basin Master Plan and Draft Environmental Assessment (2011)**

The 2011 Master Plan and Draft Environmental Assessment is an update to the 1981 Master Plan and Final Environmental Impact Report (FEIR) and 1995 Environmental Supplement to the 1981 Master Plan and FEIR. The Master Plan provides direction and guidance for appropriate land uses and future development within the Sepulveda Basin that is consistent with the regulations, laws, and policies of the USACE. The Draft Environmental Assessment documents potential impacts of the Master Plan on various existing conditions.

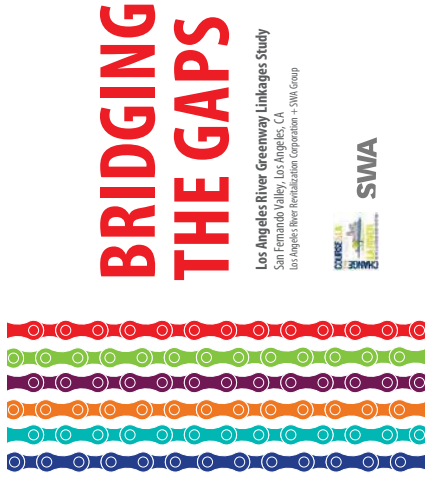
This document was utilized by the project team when understanding existing conditions within the Sepulveda Basin, as well as by the environmental consultant in determining the proper strategy for environmental documentation associated with this FSR.

### City/Statewide Planning Documents

All of the city/statewide documents that influenced or impacted the FSR share common principles; they seek to prioritize safety, equity, and environmental sustainability. While the tools for each plan vary depending on the purpose, recognition for the impact a multi-modal transportation system can contribute to those principles comprised a core element of each document.

#### LA Mobility Plan (2016)

The LA Mobility Plan is the update to the Transportation Element of the City of Los Angeles General Plan. The purpose of the Transportation Element is to guide to the development of a citywide transportation system that provides for the safe, sustainable, and efficient movement of people and goods. The updated plan



Source: Bridging the Gaps, 2014



Source: Mobility Plan 2035, 2016

## RELATIONSHIP TO OTHER DOCUMENTS / PLANNING INITIATIVES

adopted by the full LA City Council June 23rd, 2016 replaces the previous Transportation Plan from 1999. The Mobility Plan is a transformative shift from the 1999 Transportation Plan and prior transportation planning in LA; it provides the policy foundation to develop a multi-modal focused transportation system instead of a system traditionally prioritized for personal automobiles.

In order to provide for the efficient movement of people and goods, the Mobility Plan recognizes that movement of people and goods is dependent upon the issues plaguing the City and its transportation system, and are specific to present conditions. Today, the primary problems facing the LA transportation system identified by the Mobility Plan include: global climate change, local environmental constraints, public health issues, geographic social inequality, and traffic congestion. To address these issues required a new mindset to transportation planning from the auto-centric planning that contributed to those very problems; one that balances the needs of all users.

To support the implementation of a transportation system for all users, the Mobility Plan developed a guide for the development of infrastructure for each travel mode network:

- Transit Enhanced Network
- Neighborhood Enhanced Network
- Bicycle Enhanced Network
- Vehicle Enhanced Network
- Goods Movement

These networks represent the aspirational conditions of each network, and include specific infrastructure elements identified throughout the plan. These networks embody the five overall goals of the Mobility Plan:

1. Safety First
2. World Class Infrastructure
3. Access for All Angelenos
4. Collaboration, Communication and Informed Choices
5. Clean Environment and Healthy Communities

Development of the LA River Valley Bikeway, planned in the Bicycle Enhanced Network, represents the purpose of the Mobility Plan. The future bikeway is to act as a transportation corridor that, by acting as a safe and attractive alternative to driving, addressing the top issues identified in the Mobility Plan: provides greater access for Angelenos; reduces transportation costs for users; increases public health through physical activity; and reduces traffic congestion, which will improve regional air quality and reduce Los Angeles's climate impact. It is the purpose of this FSR to identify the strategies that maximize the potential positive impacts for the City's transportation system with the development of the future bikeway and greenway.

### Los Angeles Vision Zero (2015)

Vision Zero is an international movement with a simple principle that all traffic fatalities are unacceptable and preventable. Communities that have created or adopted Vision Zero initiatives have committed to the goal of reducing all traffic fatalities to zero. The City of Los Angeles adopted a Vision Zero Plan in August 2015, with the goal to eliminate traffic fatalities by 2025.

The Vision Zero Plan was adopted in response to the significant and persistent problem of traffic fatalities in Los Angeles. LA now experiences over 200 traffic fatalities per year; nearly half of which involve pedestrians and bicyclists. While traffic fatalities have been reduced during the past decade in peer cities across the US, the high rate of traffic fatalities, disproportionately affecting pedestrians and bicyclists, has remained consistent

during the past decade; identified by statistics presented within the Vision Plan to the right.

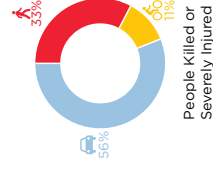
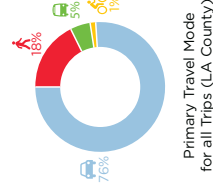
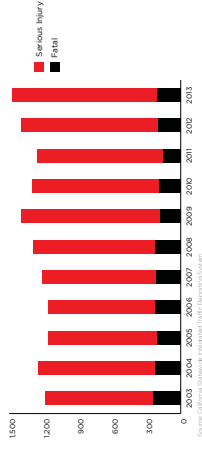
Vision Zero provides the framework for a multi-faceted approach to address the traffic fatalities within the city. This approach is centered on the five E's: Engineering (street design), Education, Enforcement, Evaluation and Equity. Additionally, in order to prioritize infrastructure investments, the Vision Zero plan identified areas with the highest rates of collisions involving pedestrians and bicyclists, referred to as the High Injury Network.

### Metro First-Last Mile Strategic Plan (2013)

The Metro First-Last Mile Strategic Plan is intended to develop infrastructure improvements that will increase access to the regional Metro system, and ridership. While transit may make up the majority of most trips (in time or distance), individuals must travel between destinations and transit stops by another mode, usually by walking or bicycle, making up the first and last 'mile' of the total trip. Thus, high-quality pedestrian and bicycle infrastructure that provides safe, convenient and attractive routes to transit stations will increase transit use as a viable travel option. The Metro First-Last Mile Strategic Plan recognizes this complementary role bicycle and pedestrian infrastructure and circulation have on the public transportation system, and vice versa; and plans to improve bicycle and pedestrian infrastructure surrounding stations.

In order to prioritize location of infrastructure investments that would result in greatest impact for increased transit ridership, Metro developed an access shed for each travel mode used to access station. The access shed is the reasonable time an average person is willing to spend traveling to a transit station, and how far a distance that time equals for each mode. For example, the following access sheds were developed that would prioritize infrastructure investments within distances to transit

Fatal and Severe Injury Collisions on our Streets



Yearly Collision Death Rate, per 100,000 People for all Trips (LA County)	
Los Angeles	6.27
Chicago	5.34
Portland	5.31
San Diego	5.23
San Jose	4.27
Seattle	4.26
Boston	3.61
San Francisco	3.51
New York	3.21

Source: National Highway Traffic Safety Administration, 2012 Calendar Year

Source: LA Vision Zero, 2015



## RELATIONSHIP TO OTHER DOCUMENTS / PLANNING INITIATIVES

stations: walking (0.5 mile), skateboard (1.3 miles), rollerblades (2.3 miles), and bicycle (3 miles).

Using the boundaries defined by access sheds, Metro developed a process to be used for evaluating existing conditions to create a network of access routes for any station. The evaluation process overlays various conditions such as points of interest, street grid, transit connections, land use, bicycle network, statistics of demographics and physical conditions, traffic conditions (vehicle speed, collisions), etc. To the access route network, a toolbox of elements can be applied to improve access routes. Toolbox items range from crossings and connections (curb extensions, raised crosswalks) to safety and comfort (lighting, street trees) to allocation of road space (bike lanes, widened sidewalks).

Not only does the First-Last Mile Plan include best practices for bicycle and pedestrian infrastructure that can be applied to any intersection, the future bikeway is within a .5 mile of multiple Metro Bus Rapid Transit (BRT) Stations (Orange Line) and Light Rail Transit (LRT) Stations (Red Line). This presented an opportunity to consult Metro's First-Last Mile Plan to ensure planning of the future bikeway would enhance the access route network to transit stations and encourage the complementary relationship between bicycles and transit.

### Burbank Bicycle Master Plan (2009)

The Burbank Bicycle Master Plan guides the development of the City of Burbank's bicycle network, and was adopted by the Burbank City Council December 15, 2009. As a portion of the study area, west of Barham Boulevard (segment 09), is located adjacent to the City of Burbank, understanding existing and planned conditions related to the bicycle network for site analysis and supplemental analysis required consulting the Burbank Bicycle Master Plan.

### The Sustainable City pLAn (2016)

Current environmental forces and development of Los Angeles during the 20th and early 21st Centuries have created a set of issues facing the city different than anytime in its past. While there are many specific problems facing the city today, all are related to the ability of Los Angeles to function as a sustainable, economically healthy city that treats everyone equally. The Sustainable City pLAn identifies and addresses those present challenges which impact the environment, economy, and equity of Los Angeles.

The pLAn identified 14 topic areas that will have transformative impact on the city over the next 20 years. Each topic has an ambitious vision that can be achieved through a set of near-term and long-term targeted outcomes. To achieve those outcomes, the plan identifies accomplishments by the City to date, as well as strategies and priority initiatives to be implemented. These strategies and initiatives rely on data metrics and best practices, which will facilitate development of annual progress reports and budget proposals.

The pLAn recognizes the interrelatedness of the topics. Strategies and priority initiatives for each topic have positive externalities for other topics. Policies that address LA's global climate impact can also promote development of a healthy economy and enhance social equity. Addressing the environment, economy, and equity together strengthens the improvement of each. The future bikeway represents the new thinking that infrastructure projects do not function in an isolated sphere; their consequences or benefits extend across disciplines. There has been careful design of the future bikeway and greenway to provide multiple benefits to the environment, economy, and equity in Los Angeles. The diagram on the following page presents how the FSR specifically aligns with the Sustainable City pLAn.

### Measure M: Los Angeles County Traffic Improvement Plan (2016)

Measure M the LA County ballot measure on the November 2016 National Election to raise a 1/2 cent sales tax in perpetuity to improve the transportation system and ease congestion, and approved by LA County residents. Measure M allocates percentages of revenues for specific categories under its Expenditure Plan. Two categories include Local Return, for projects and transit operations within individual cities, and specific list of projects. The Measure M Expenditure Plan provides \$60 million for completion of the LA River Bikeway for fiscal year 2023. Additionally, LA City Council has proposed the following allocation for local return dollars:

- 60% for Vision Zero
- 20% for curb-work including median island and curb extension improvements, including but not limited to bus bulbs, curb extensions, pedestrian refuge and median islands
- 10% for sidewalk repair and reconstruction on Vision Zero High Injury Network corridors
- 10% for upgrade and expansion of bicycle infrastructure

Funding provides one of the most difficult challenges for developing the future bikeway into a continuous grade-separated pathway. The LA River Bikeway project funding and local return provide expected and potential revenue, respectively, for completion of the LA River Valley Bikeway.

### Assembly Bill 32 (AB 32) California Global Warming Solutions Act (2006)

In 2006, the California Legislature passed AB 32, requiring the State of California to reduce Greenhouse Gas (GHG) emissions to 1990 levels by 2020. Implementation of AB 32 is completed through regulations adopted by

the California Air Resources Board (CARB), designated as the lead agency to implement the law, with the purpose to achieve the maximum technologically feasible and cost-effective GHG emission reductions. The full implementation of AB 32 will help mitigate risks associated with climate change, while improving energy efficiency, expanding the use of renewable energy resources, cleaner transportation, and reducing waste. The CARB ultimately created 70 separate market and regulatory measures used to cut greenhouse gas (GHG) emissions, including a state Carbon Cap-and-Trade Program. The programs and regulations adopted by the CARB provide funding for projects that further reduce the GHG emissions within the State of California.

### Senate Bill 32 (SB 32) California Global Warming Solutions Act of 2006 (2016)

SB 32 extends the state's targets for reducing greenhouse gases from 2020 to 2030. Under SB 32, the State of California will reduce its greenhouse gas emissions to 40 percent below 1990 levels by 2030.



## ALIGNMENT WITH THE SUSTAINABILITY CITY PLAN

## ENVIRONMENT



## EQUITY



## LIVABLE NEIGHBORHOODS

- Pedestrian/bike safety – implement Vision Zero
- Strengthen pedestrian and bike safety
  1. Incorporate safety for pedestrians into all street designs and redesigns
- Catalyze volunteer opportunities to improve neighborhoods
  1. Support programs and policies to help Angelinos be active
- Lead by Example
  1. Reduce municipal water use by 25%

## CARBON &amp; CLIMATE LEADERSHIP

- Reduce individual and citywide energy consumption through education
  1. Increase education on GHG
  2. Reduce imported water use

## SOLAR POWER

- Increase cumulative total megawatts of local solar photovoltaic power

## LOCAL WATER

- Improve beach water quality
- Increase stormwater capture
- Lead by example

## PREPAREDNESS &amp; RESILIENCY

- Urban Heat Island – Reduce urban/rural temperature
- Pilot installation of “cool slurry” pavement

## MOBILITY &amp; TRANSIT

- Reduce daily Vehicle Miles Traveled
  1. Bike Share
  - Mode Share
    1. Increase the percentage of trips made by walking/biking
- Improve Pedestrian & Bicycle Infrastructure
  1. Build out LA River Bike Path
  2. Build Bike Infrastructure
  3. Support implementation of Metro's First-Last Mile Strategic Plan

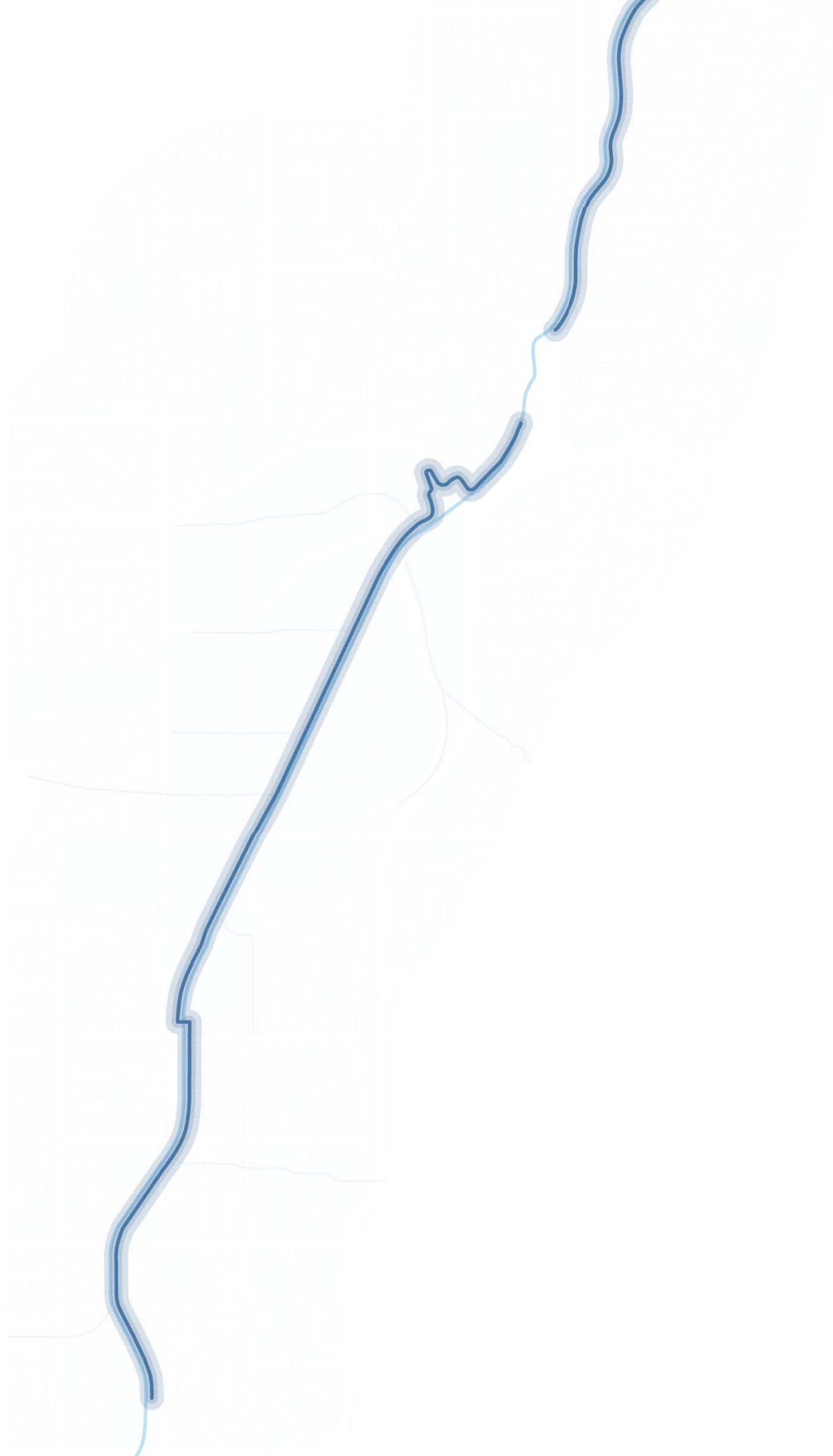
## URBAN ECOSYSTEM

- Complete 32 miles of Los Angeles River public access
  1. Increase access to parks
- Develop city biodiversity strategy
  1. Initiate tree canopy registry
- Create 5 additional miles of LA River public access
  1. Prioritize access infrastructure/LA River bikeway in River revitalization
- Expand number of green infrastructure sites and green streets (swales, infiltration cutouts, permeable paving, street trees)

## ENVIRONMENTAL JUSTICE

- Improve LA air quality
- Improve safety and physical environment of underserved areas
  1. Improve public health by ensuring safe routes and safe passage for all pedestrians

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## SITE ANALYSIS AND OPPORTUNITIES AND CONSTRAINTS | 2



## OVERVIEW

The Gruen Associates consultant team working under City Staff reviewed Caltrans standards for a Class I Bicycle Path and conducted an analysis of existing information and site analysis for the segments along the future bikeway. This chapter summarizes minimum bikeway standards in order to determine required right-of-way and summarizes an analysis and exploration by segment with more detailed technical information in the appendix. For each segment, an Opportunities and Constraints Diagram is provided to synthesize the information gathered during the site analysis phase. The future bikeway at the start of the project Task Order Scope (TOS) alignment is shown on the Opportunities and Constraints diagrams for context.

## BIKEWAY CROSS SECTIONS

The associated diagrams outline the minimum right of ways required for the Class I Bikeway and pedestrian path. These are as follows:

1. A Class I Bike Path with an adjacent pedestrian walkway and bioswale
2. A Class I Bike Path with an adjacent pedestrian walkway
3. A Class I Bike Path



The consultant team views the Segment 04 project area from the Sepulveda Dam

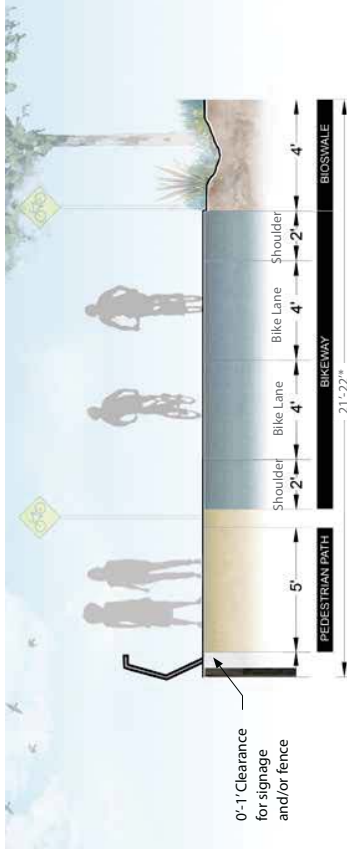


Figure 2.1 Class I Bike Path with Buffered Pedestrian Walkway

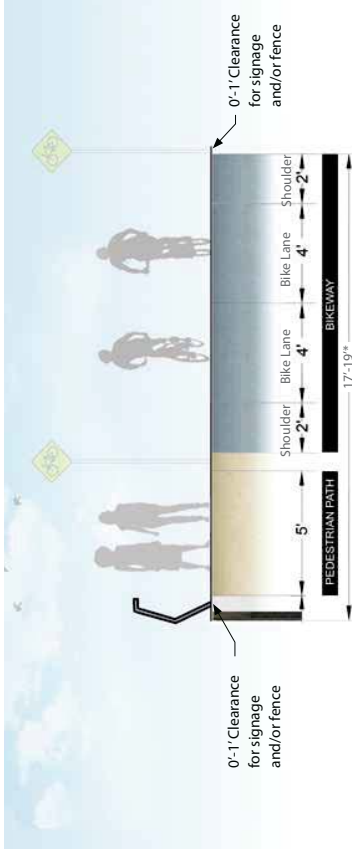
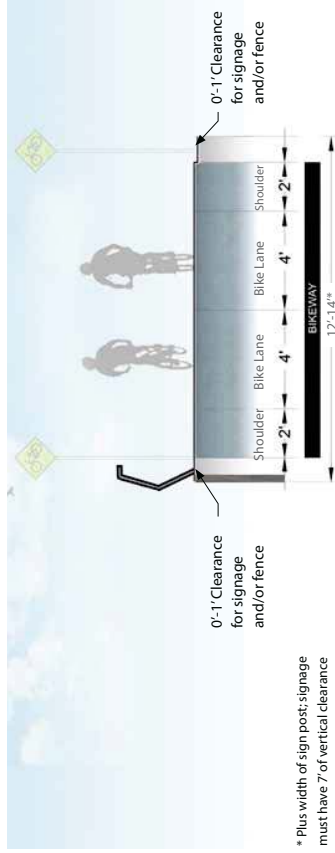


Figure 2.2 Class I Bike Path with Adjacent Pedestrian Walkway



\* Plus width of sign post; signage must have 7' of vertical clearance

Figure 2.3 Class I Bike Path

## RIVER ACCESS + NEIGHBORHOOD CONTEXT

Segment 01 of the future bikeway is primarily adjacent to residential land uses as it passes through neighborhoods of Reseda and Encino. The LA River is a trapezoidal concrete channel in Segment 01 with limited existing access to the LA River edge.

Five street end conditions have been identified in Segment 01 on the south side of the LA River with potential to provide direct access to the future bikeway. These street ends are Vanalden Avenue, Yolanda Avenue, Amigo Avenue, Etiwanda Avenue, and Zelzah Avenue.

Vanalden Avenue and Amigo Avenue have existing pedestrian bridges that connect the north and south neighborhoods. There is also a pedestrian bridge over the LA River near Etiwanda Avenue. There are four streets that cross the LA River and conflict with the vision of a continuous bikeway. These streets are Wilbur Avenue, Reseda Boulevard, Victory Boulevard, and Lindley Avenue. See Table 2.01.1 for street crossing opportunities and constraints.

## BIKE + TRANSIT ACCESS

Existing Class I West Valley Bikeway/Greenway ends at Vanalden Avenue. The future LA River Bikeway and Greenway will directly connect to existing Class I West Valley Bikeway/Greenway along the LA River traveling west. The existing Orange Line bike path is along Oxnard Street with an additional spur of the Orange Line bike path traveling along Victory Boulevard. The future bikeway will be directly adjacent to the Sepulveda Basin Off-Leash Dog Park. Class II Bike Lanes exist on Reseda Boulevard and White Oak Avenue. The existing bike lanes on Vanalden Avenue north of the LA River are



KEY



Figure 2.01.1 River Access and Neighborhood Context - Segment 01

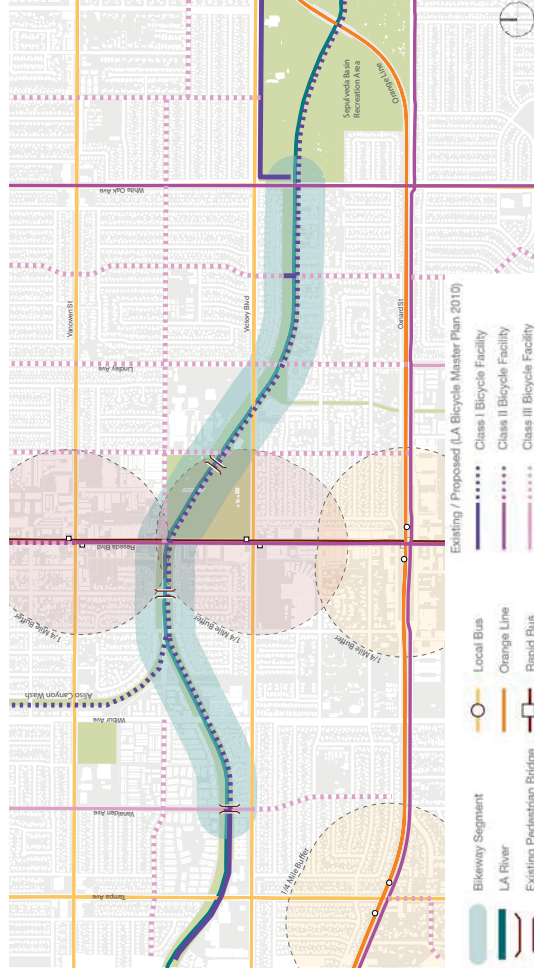


Figure 2.01.2 Bike and Transit Access - Segment 01



## SCHOOLS + CULTURAL RESOURCES + OPEN SPACE

Two public high schools are in close proximity to the bikeway in Segment 01. Reseda High School is located on the north side of the LA River with a pedestrian bridge that provides direct access to the future bikeway. The Sherman Oaks Center for Enriched Studies is located 1/4 mile walking distance from the future bikeway on Reseda Boulevard. Two public elementary schools are located within 1/2 mile walking distance with connections along Vanalden Avenue and Wilbur Avenue.

The map also shows how the future bikeway is situated in proximity to the surrounding open space. The most predominate open space resource in Segment 01 is Reseda Park. The future bikeway will have a district

connection to Reseda Park. The other open space resources within walking distance are the Randall D. Simmons Park on Wilbur Avenue north of the LA River and the Sepulveda Basin Off-Leash Dog Park on White Oak Avenue. The proposed Caballero Creek Confluence Park will be located at the intersection of the LA River and Caballero Creek between Victory Boulevard and Lindley Avenue. Caballero Creek Confluence Park program elements include wetland/bioswale areas, outdoor classroom spaces, shaded picnic areas, walking paths, and overlooks.

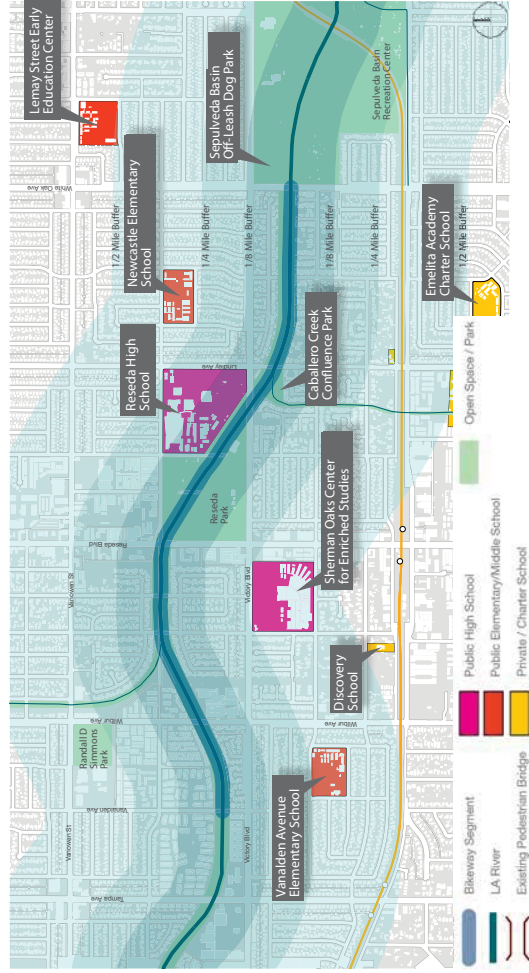


Figure 2.01.3 Schools, Cultural Resources, and Open Space - Segment 01

## LANDSCAPE CHARACTER + SOIL PROFILE

The existing vegetation in Segment 01 is limited and is primarily characterized by the existing mature tree canopy from the adjacent private properties that line the corridor.

Clay Loam soil profile exists along the LA River from Vanalden Avenue to Etiwanda Avenue. This is a well-draining soil profile with slow runoff in dry soil conditions

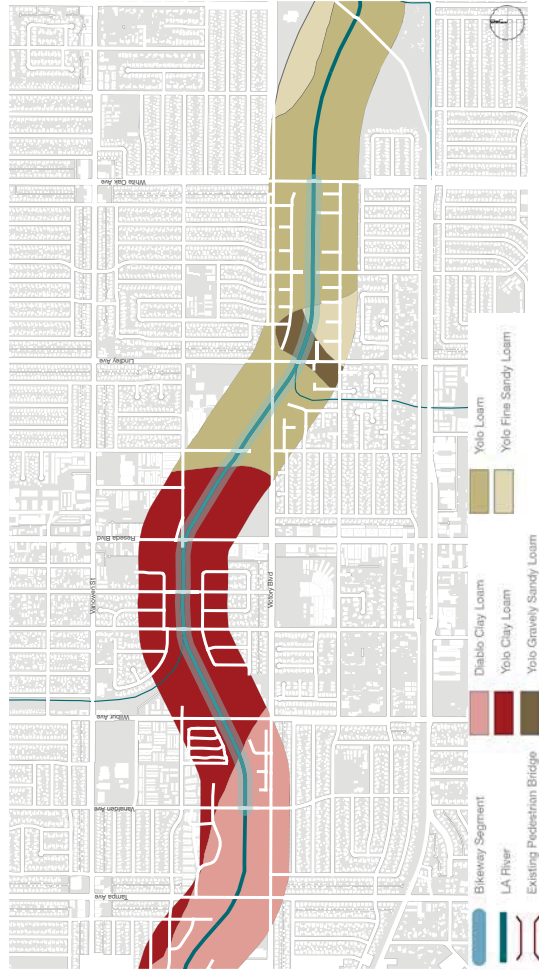


Figure 2.01.4 Landscape Character and Soil Profile - Segment 01



TABLE 2.01.1 SEGMENT 01 STREET CROSSING OPPORTUNITIES AND CONSTRAINTS

CROSSING	OPPORTUNITY	CONSTRAINT	PRELIMINARY RECOMMENDATION
Wilbur Avenue	There is room along the LA River channel to accommodate an undercrossing within the channel side. This is safest and most economical crossing solution. The existing channel slope will require a cut to create a surface for the future bikeway. The use of retaining structures that do not surcharge the channel wall will be utilized. The future bikeway connects to the Aliso Creek Confluence Project.	Bridge clearances on both south and north crossings along the channel require excavation and evaluation of LA River hydraulics. Retaining walls cannot surcharge channel walls and will need approval from USACE. Existing storm drain RC box modification must be designed into the future bikeway on the south side of the Wilbur Avenue bridge. Available future bikeway width on the south side of Wilbur Avenue is less than 17' wide. Overhead utilities conflict with bridge alignment.	Undercrossing
Reseda Boulevard	There is limited space along the LA River channel to accommodate an undercrossing within the channel side due to storm drain outfalls, but space can be accommodated using minimum headroom under the Reseda Boulevard Bridge. At-grade crossing too close to the adjacent signalized intersection at Kittridge Street, possibly use/convert existing Class II (Convert to Class IV). Constructing a bridge is feasible.	Under bridge clearances the channel wall requires excavation and evaluation of LA River hydraulics and would be in close proximity to storm drain outfalls. Retaining walls cannot surcharge and will require USACE approval. Overhead utilities conflict with bridge alignment.	Undercrossing
Victory Boulevard	There is room along the LA River channel to accommodate an undercrossing within the channel slope. A mid-block at-grade crossing may also be constructed and is lowest cost solution but does have safety implications. Undercrossing will require cut into existing channel slope paving to create a surface for the future bikeway. Use of retaining structures that do not surcharge channel (piles) should be considered. Transition to north side of channel can be accomplished by cycle track along NB White Oak Avenue, or new bridge easterly of White Oak Avenue. A new bridge between White Oak Avenue and the Orange Line would also require at-grade or undercrossing at White Oak Avenue, making it the most expensive option overall.	Under bridge clearance requires excavation, 6' retaining walls, and evaluation of LA River hydraulics. Retaining walls cannot surcharge and will need approval from USACE. Bridge option would have to clear Victory Boulevard and Caballero Creek at a minimum. At-grade crossing requires mid-block signalized crossing of high volume roadway.	Undercrossing
Lindley Avenue	There is room along the LA River channel to accommodate an undercrossing within the channel slope, with max. grade climb to clear storm drain outfall, but will require a bridge over Caballero Creek. Mid-block at-grade crossing may also be constructed. This would be the lowest cost solution but it does have safety implications. Undercrossing will require cut into existing channel slope paving to create a surface for the future bikeway. Use of retaining structures that do not surcharge channel (piles) walls are recommended.	Under bridge clearances along the channel require excavation, 6' retaining walls, and evaluation of LA River hydraulics. Retaining walls cannot surcharge and will require approval from USACE. Overhead utilities conflict with bridge alignment.	Undercrossing

## SEGMENT 01 SITE PHOTOS



Varalden Avenue to Wilbur Avenue - Eastbound



Arriago Avenue Pedestrian Bridge



Reseda Avenue Bridge - Eastbound



Reseda Park Lake



Reseda Park Pedestrian Bridge



Zelzah Street End



## OPPORTUNITIES + CONSTRAINTS

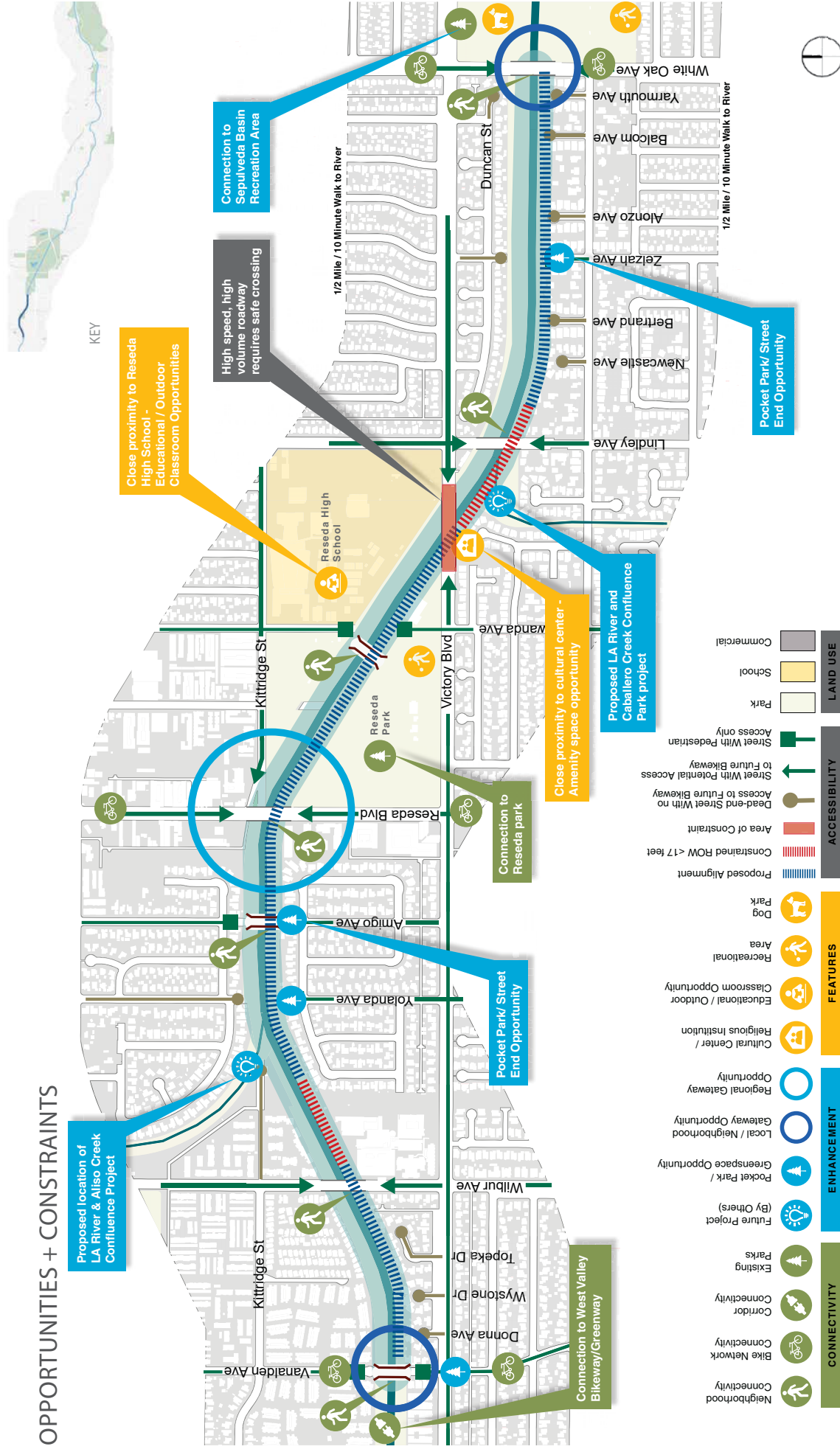


Figure 2.01.5 Opportunities and Constraints - Segment 01

## RIVER ACCESS + NEIGHBORHOOD CONTEXT

Segments 02 and 03 of the LA River Bikeway and Greenway are directly adjacent to open space and recreational uses throughout the Sepulveda Basin Recreation Area. Segments 02 and 03 travel adjacent to the nearby communities of Encino and Lake Balboa providing opportunities for neighborhood connectivity.

There is an opportunity to provide access points to the LA River Bikeway and Greenway in Segments 02 and 03 through the existing large park area and recreational uses within the Sepulveda Basin. White Oak Avenue and Balboa Boulevard cross the LA River and provide access but also conflict with the vision of a continuous future bikeway. There is no access to the future bikeway from the

Orange Line Busway. See table 2.02-03.1 for LA River access and neighborhood context.

Additionally, there is direct vehicular access to the LA River through the Sepulveda Basin Off-Leash Dog Park parking lot and Encino Farmer's Market parking lot on the north side of the LA River between White Oak Avenue and the Orange Line Busway.

There are multiple existing shared pedestrian and bicycle pathways along both the north and south side of the LA River between the Orange Line Busway and Burbank Boulevard that have potential access to the future bikeway.

## BIKE + TRANSIT ACCESS

There is an existing network of shared pedestrian and bicycle paths within the Sepulveda Basin on the north and south sides of the LA River. These existing pathways have the potential to provide direct connections to the future bikeway. These pathways also connect to the surrounding bicycle network.

The existing Orange Line Class I Bike Path parallels Victory Boulevard to the north of the LA River along Segments 02 and 03 until it turns south at White Oak Boulevard, providing potential connectivity to the future LA River Bikeway and Greenway.



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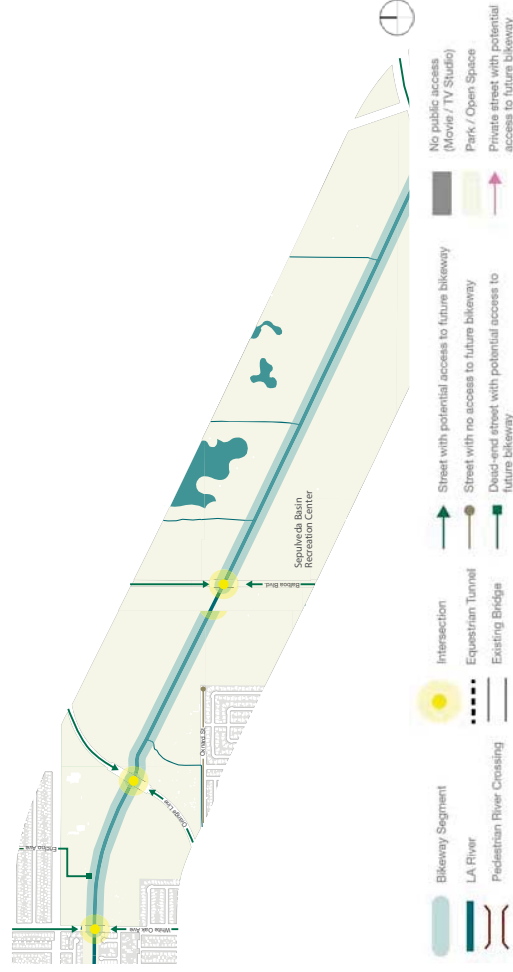


Figure 2.02-03.1 River Access and Neighborhood Context - Segments 02 and 03

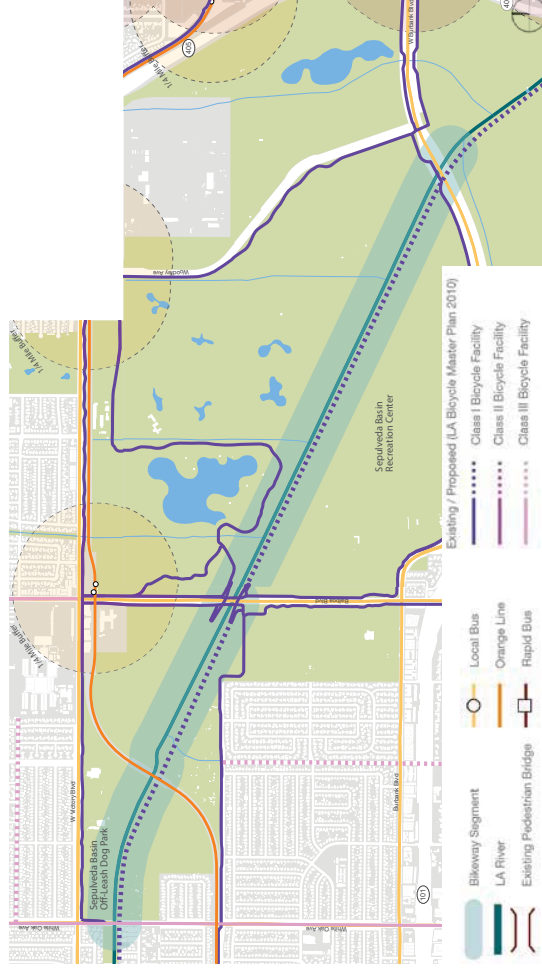


Figure 2.02-03.2 Bike and Transit Access Map - Segments 02 and 03

## SCHOOLS + CULTURAL RESOURCES + OPEN SPACE

The Sepulveda Basin is a major regional open space area and cultural resource that is bisected by the LA River and the future bikeway. The Sepulveda Basin provides multiple recreation facilities including:

- Shared pedestrian/bicycle paths
- Golf Courses
- Baseball, soccer and Cricket Fields
- Off-leash dog park
- Velodrome
- Balboa Tennis Center
- Woodley Park
- Skate park

There are numerous schools located a 1/2 mile north of the LA River that encompass the entire area between Victory Boulevard, Vanowen Street, Balboa Boulevard, and Adele Avenue. The schools include:

- Independence High School
- Daniel Pearl Magnet High School
- Mulholland Middle School
- Birmingham Community Charter School

Schools located south of the LA River include a special education school and magnet elementary school.

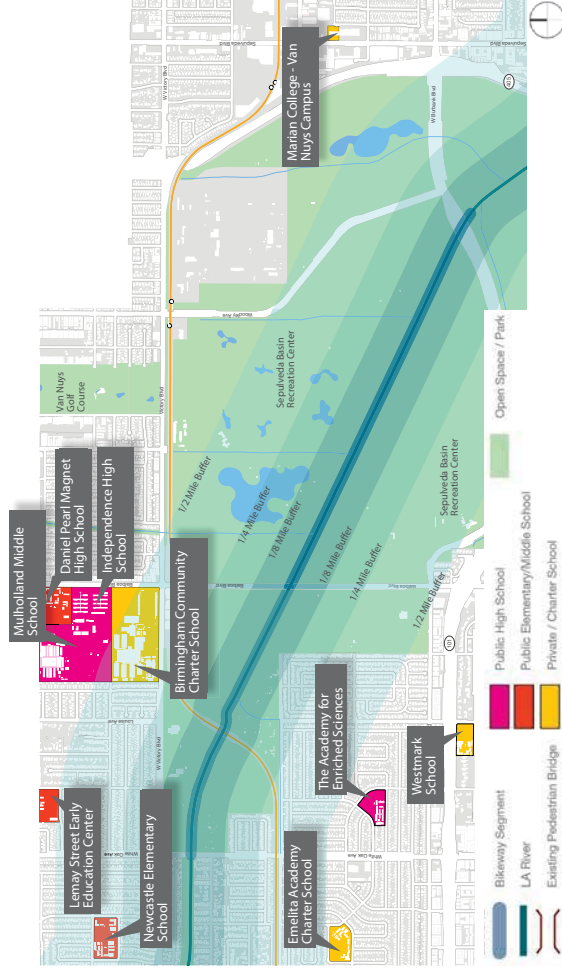


Figure 2.02+03.3 Schools, Cultural Resources, and Open Space - Segments 02 and 03

## LANDSCAPE CHARACTER + SOIL PROFILE

The existing landscape character of Segments 02 and 03 is primarily natural as it is surrounded by the open space of the Sepulveda Basin Recreation Area. The existing landscape is adjacent to the Lake Balboa/Anthony C. Beilenson Park and Woodley Golf Course with existing mature trees adjacent to the existing multi-use path on the north side of the LA River. The un-channelized nature of these segments create a varied riparian landscape

at the channel bottom in Segment 02 and the channel bottom and slopes in Segment 03.

Yolo Loam soil profile exists along the entirety of the LA River within Segments 02 and 03. Yolo Loam is a well-draining soil profile that has slow to medium runoff and moderate rates of permeability.

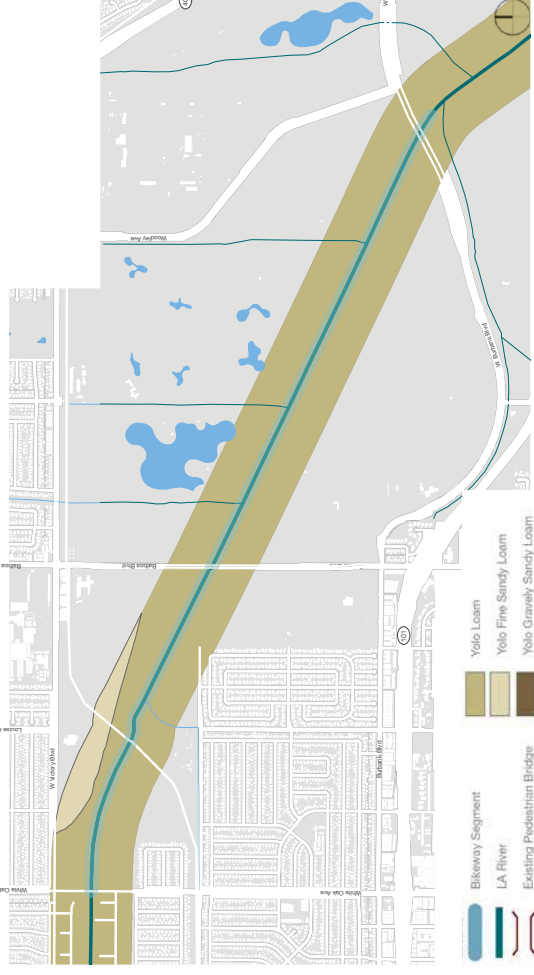


Figure 2.02+03.4 Landscape Character and Soil Profile - Segments 02 and 03





TABLE 2.0203.2 SEGMENT 02+03 STREET CROSSING OPPORTUNITIES AND CONSTRAINTS

SEGMENT	OPPORTUNITY	CONSTRAINT	RECOMMENDATION
White Oak Avenue	There is room along the LA River channel to accommodate an undercrossing within the channel slope. A mid-block at-grade crossing may also be constructed; this is lowest cost solution but has safety implications. Undercrossing will require cut into existing channel slope paving to create a surface for the future bikeway. Use retaining structures that do not surcharge channel (piles). Transition to the north side of the channel by cycle track traveling northbound along White Oak Avenue, or a new bridge easterly of White Oak Avenue. New bridge between White Oak Avenue and Orange Line Busway would also require at-grade or undercrossing at White Oak Avenue; overall the most expensive option.	Under bridge clearances on both south and north crossing along the channel require excavation and evaluation of LA River hydraulics. Retaining walls cannot surcharge and will require USACE approval. Median removal is required to accommodate at-grade crossing. Downstream crossing at the Orange Line Busway will be on north-side. Two-way cycle track on White Oak Avenue could serve as access, and would require a mid-block at-grade crossing. Overhead utilities conflict with bridge alignment.	Undercrossing on south side of LA River, use of existing street bridge to provide access to north side of the LA River.
Orange Line Busway	There is room adjacent to northerly abutment for at-grade (relative to channel embankment) tunnel under the Orange Line.	Several existing storm drain inlets conflict with potential undercrossing. A tunnel is possible with at-grade crossing, passing under the Orange Line. This would require a deck over existing storm drain inlets. A bridge crossing would be long, as the Orange Line Busway is elevated over the LA River embankment.	Undercrossing
Balboa Boulevard	There is an existing undercrossing at Balboa Boulevard and room on SB Balboa Boulevard to accommodate a cycle track with transitional future bikeway from north to south side of the LA River river.	Under bridge clearance on south crossing along the channel requires confirmation of adequate headroom. Overhead utilities conflict with bridge alignment.	Undercrossing on north side of LA River, existing street bridge to access south side of LA River.

## SEGMENT 02+03 SITE PHOTOS



Adjacent to Sepulveda Basin Off-Leash Dog Park - Looking East



Approach to Orange Line Busway - Looking East



Orange Line Busway Overpass - Looking East



Orange Line Busway to Balboa Boulevard - Looking East



Balboa Boulevard Existing Underpass - Looking East



Balboa Boulevard Existing Multi-Use Path - Looking South



Balboa Boulevard to Burbank Boulevard Jogging Path Entrance - Looking East



Balboa Boulevard to Burbank Boulevard Jogging Path - Looking East



Balboa Boulevard to Burbank Boulevard Jogging Path - Looking East



Balboa Boulevard to Burbank Boulevard River View



Balboa Boulevard to Burbank Boulevard Jogging Path - Looking East



Approach to Burbank Boulevard - Looking East

## 02 | SEGMENT

### OPPORTUNITIES + CONSTRAINTS



Figure 202.5 Landscape Character and Soil Profile - Segments 02 and 03



03 | SEGMENT

OPPORTUNITIES + CONSTRAINTS

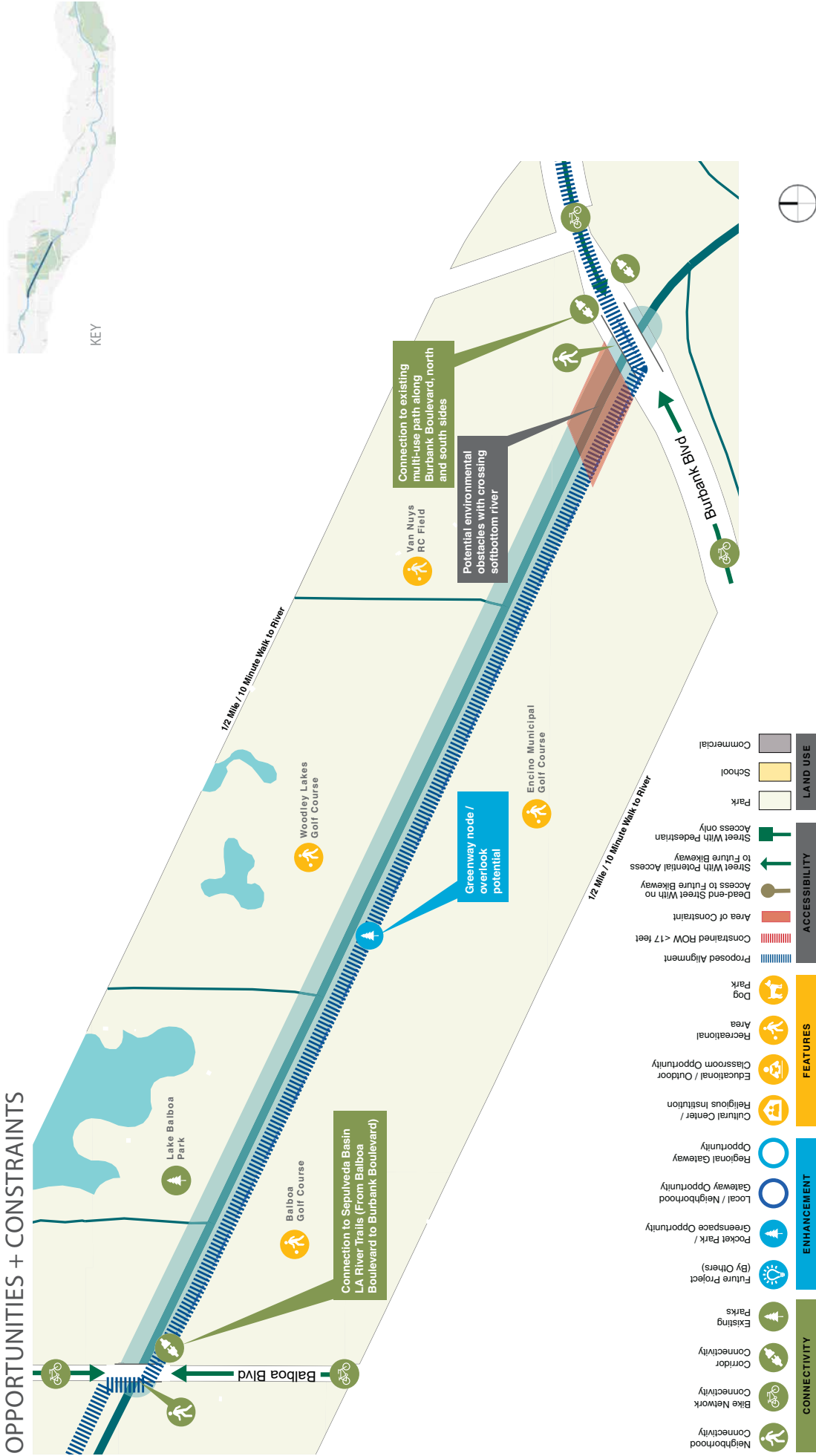


Figure 2.03.5 - Landscape Character and Soil Profile - Segments 02 and 03

## RIVER ACCESS + NEIGHBORHOOD CONTEXT

Segment 04 of the future bikeway is directly adjacent to open space as it passes through the Sepulveda Basin Recreation Area. This segment passes through the most natural areas of the future bikeway with hiking trails and less structured recreational uses than the other segments.

Segment 04 has very limited direct access points to the LA River due to close proximity of I-405 and US-101. Within Segment 04 I-405 intersects US-101 just south of the LA River and west of Sepulveda Boulevard. These freeways cutoff the LA River from surrounding land uses and from local street network to the east and south.

From the LA River/Burbank Boulevard intersection, the future bikeway travels east and crosses over I-405 and intersects with Sepulveda Boulevard to the east. Sepulveda Boulevard travels in a north-south direction and parallels I-405 through Segment 04 crossing the LA River just north of I-101. Sepulveda Boulevard intersects with multiple local streets between Balboa Boulevard and the LA River providing multiple access points to the residential and commercial areas to the east of Sepulveda Boulevard.

## BIKE + TRANSIT ACCESS

There is an existing Class I Bicycle Path along the south side of the LA River located at the eastern end of Segment 04 between Sepulveda Boulevard and Kester Avenue which will connect to and become incorporated into the WestValley Bikeway/Greenway.

Within the Sepulveda Basin between Burbank Boulevard, the LA River, and I-405 there are existing shared pedestrian and bicycle paths that closely follow Burbank Boulevard which could provide connections to the future bikeway. This shared pathway continues west along the



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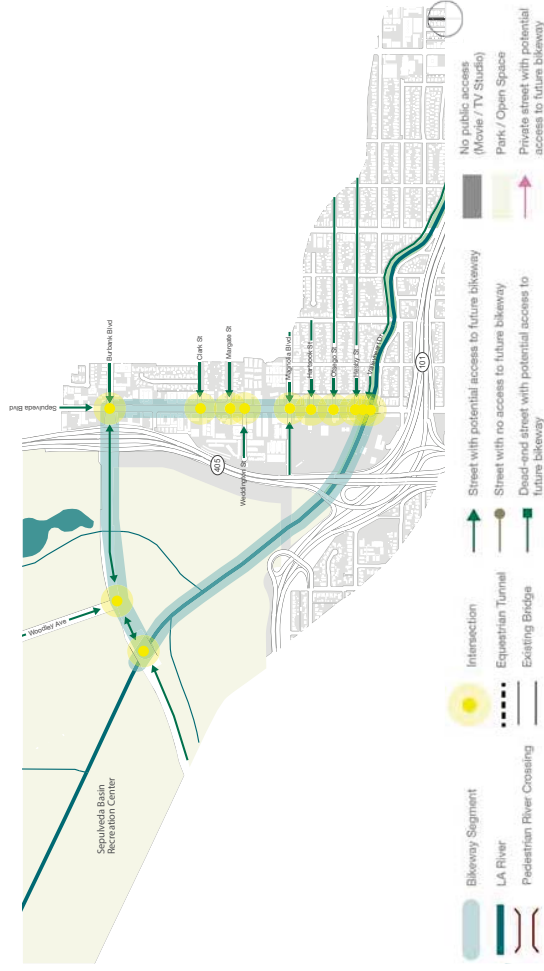


Figure 2.04.1 Landscape Character and Soil Profile - Segment 04

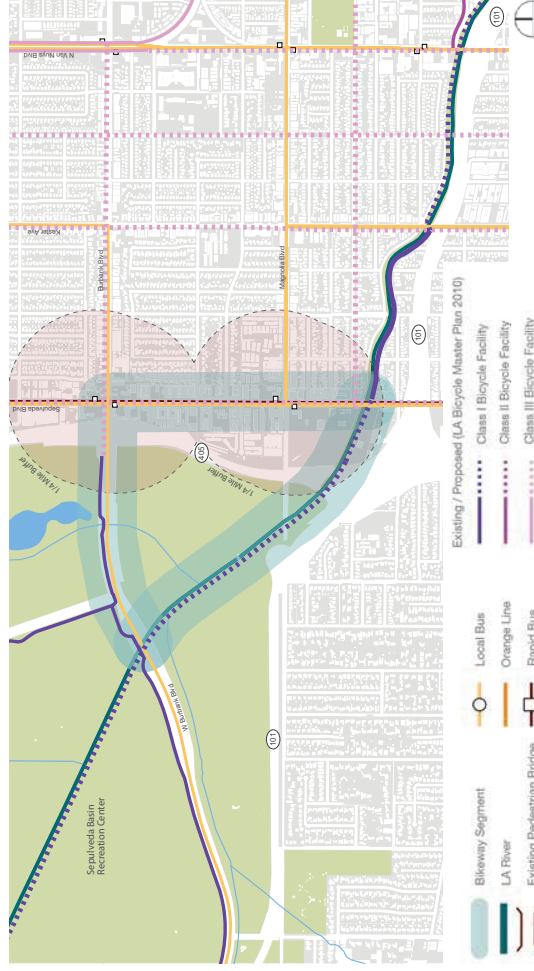


Figure 2.04.2 Bike and Transit Access - Segment 04

north side of Burbank Boulevard and ultimately connects with Balboa Boulevard.

There are local bus lines that run in an east-west direction along Burbank Boulevard (154) and Magnolia Boulevard (183) and north-south along Sepulveda Boulevard (234). There is also a rapid bus line along Sepulveda Boulevard (734) with stops at Burbank Boulevard and Magnolia Boulevard.

## SCHOOLS + CULTURAL RESOURCES + OPEN SPACE

While Segment 04 is located within the Sepulveda Basin (in addition to Segments 02 and 03), there are fewer recreational amenities in the Sepulveda Basin adjacent to Segment 04 east of Burbank Boulevard. Recreational amenities in the Sepulveda Basin Recreation Area south and east of Burbank Boulevard include:

- Equestrian trails
- Hjelte Sports Center
- Hiking/walking trails

There are a few schools located within a 1/2 mile distance from Segment 04, but each school has some connectivity issues with the future bikeway. Hesby Oaks Elementary School is located within a 1/4 mile of the LA River but is located south of US-101 and has no direct connections between the school and LA River. Emek Hebrew Academy, located at the western end of Magnolia Boulevard adjacent to I-405, and Kester Avenue Elementary School is located about a 1/2 mile east of Sepulveda Boulevard. Both schools have to utilize or cross Sepulveda Boulevard to connect to the LA River Bikeway and Greenway.

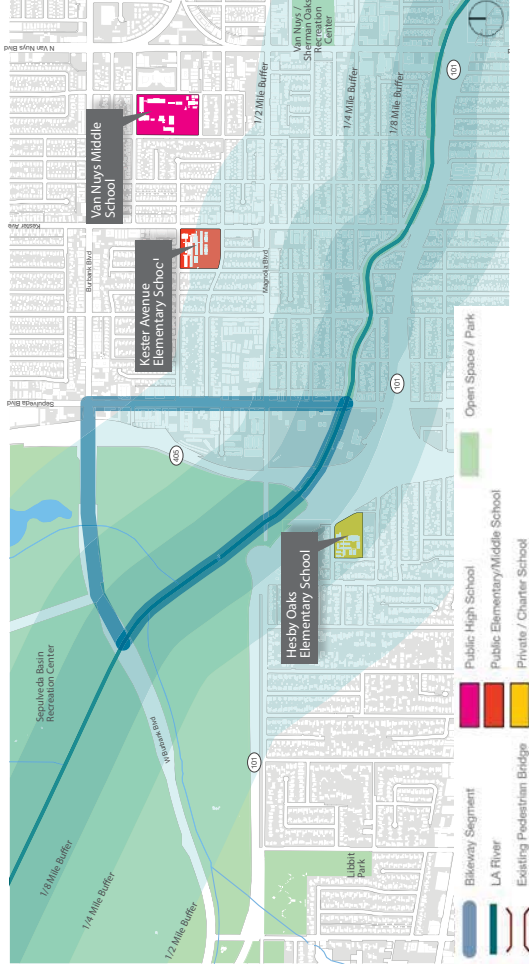


Figure 2.04.3 Cultural Resources, and Open Space - Segment 04

## LANDSCAPE CHARACTER + SOIL PROFILE

The existing landscape character of Segment 04 is very natural as it is surrounded by the flood basin located directly behind the Sepulveda dam. The un-channelized nature of this segment create a varied riparian landscape at the LA River channel bottom and slopes. Mature trees exist in this flood basin and will need to be protected to preserve the natural character and wildlife habitat of this segment.

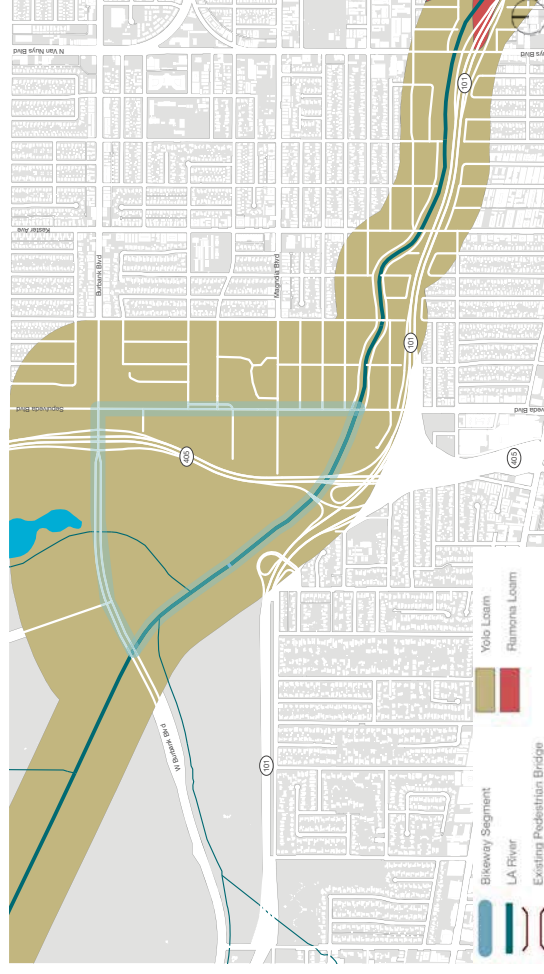


Figure 2.04.4 Landscape Character and Soil Profile - Segment 04



KEY



## 04 | SEGMENT

TABLE 2.04.3 SEGMENT 04 STREET CROSSING OPPORTUNITIES AND CONSTRAINTS

SEGMENT	OPPORTUNITY	CONSTRAINT	PRELIMINARY RECOMMENDATION
Burbank Boulevard	There is an existing multi-purpose trail on the west side of Burbank Boulevard with potential connections to the future bikeway.	Under bridge pathway requires paving. At-grade connection to the existing multi-use pathway can be accomplished at minimal cost.	Existing street bridge for interim solution, undercrossing for long term solution. See Chapter 3.
I-405	There is a wide, flat area downstream of the Sepulveda Dam that could serve as an embankment location for a structure over the I-405. Easterly of the I-405 Freeway the bridge would touch down adjacent to the fire training facility on the north side of the LA River just west of Sepulveda Boulevard.	Overcrossing will require a very long bridge to span I-405. No room currently exists in the I-405 median for a bent, and it is difficult to create space for one.	Overcrossing (long-term solution)
Sepulveda Boulevard	At-grade cycle track along south bound Sepulveda Boulevard to signalized crossing at Valleyheart Drive South, or bridge.	Constraints include MWD Water transmission line, overhead utilities, tight space for bridge abutments, and long bridge requirement.	Overcrossing

## SEGMENT 04 SITE PHOTOS



Burbank Boulevard Bridge - Looking Northwest



Sepulveda Basin Recreation Area - Looking Southeast to Sepulveda Dam



Burbank Boulevard and Woodley Avenue Intersection



Sepulveda Basin Wildlife Area



Sepulveda Basin - Looking Northwest from Sepulveda Dam



Sepulveda Basin - Looking South from Sepulveda Dam



Sepulveda Dam - Looking Towards Burbank Boulevard Bridge



Sepulveda Basin Typical Trail



Sepulveda Basin Equestrian Trail Tunnel Below Burbank Boulevard



Sepulveda Basin Typical Trail



Sepulveda Boulevard Bridge Over LA River - Looking West



LA River Bikeway - Sepulveda Boulevard Entrance

# OPPORTUNITIES + CONSTRAINTS

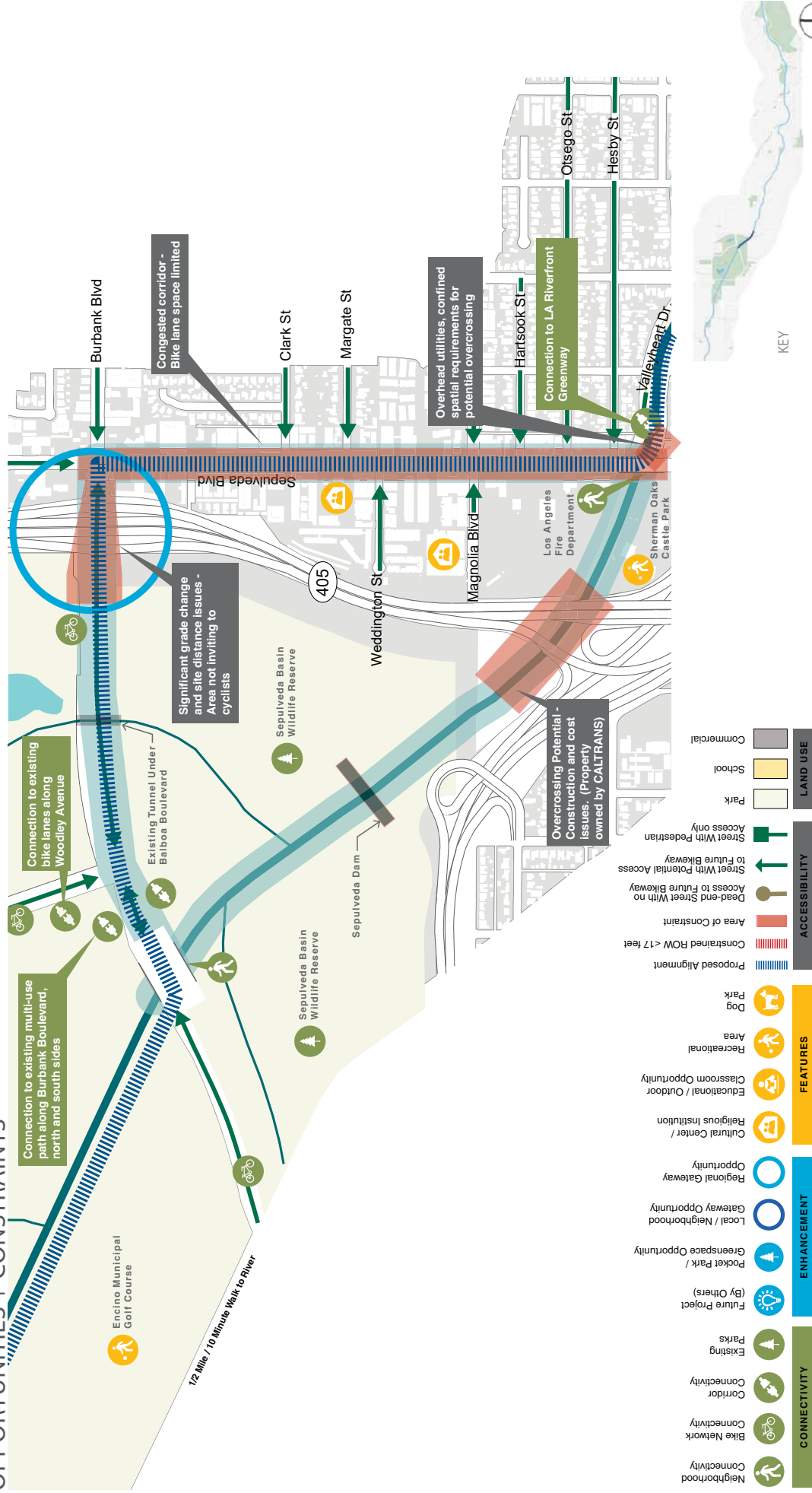


Figure 204.5 Opportunities and Constraints - Segment 04



## RIVER ACCESS + NEIGHBORHOOD CONTEXT

Segments 05 and 06 of the LA River Bikeway and Greenway are directly adjacent to residential and commercial uses as the LA River passes through Sherman Oaks and Studio City. These segments connect directly to the built Los Angeles Riverfront Greenway at Kester Avenue. The majority of the segments are directly adjacent to single family residential with some multi-family residential as well. As the future bikeway moves farther east at Hazeltine Avenue it is adjacent to the Westfield Fashion Square shopping mall on the north and multi-family residential on the south.

Segments 05 and 06 have access points to the LA River at all major intersections including Kester Avenue, Van Nuys Boulevard, Hazeltine Avenue and Woodman Avenue. Valleyheart Drive and Riverside Drive run parallel to the LA River along the northern edge providing locations for frequent access. Also on the north side of the LA River, Tyrone Avenue dead-ends offering an opportunity for street end stormwater capture and access to the LA River. Just west of Hazeltine Avenue the LA River passes under US-101 and moves to the southern side of US-101. From Hazeltine Avenue to Woodman Avenue, Valleyheart Drive continues to run along the LA River providing opportunities for access points.

## BIKE + TRANSIT ACCESS

There is an existing Class II Bike Lane on Riverside Drive heading east from Van Nuys Boulevard that extends through Segments 05 and 06 and continues past Segment 07. Another existing Class II Bike Lane occurs on Woodman Avenue connecting to Ventura Boulevard.

Class II facilities are also proposed on Kester Avenue, Van Nuys Boulevard and Hazeltine Avenue which would connect riders directly to Segments 05 and 06. Local bus routes occur along Riverside Drive as well as Woodman Avenue. Metro Bus 183 travels North and Southbound on Kester Avenue; from Sherman Oaks to Glendale.



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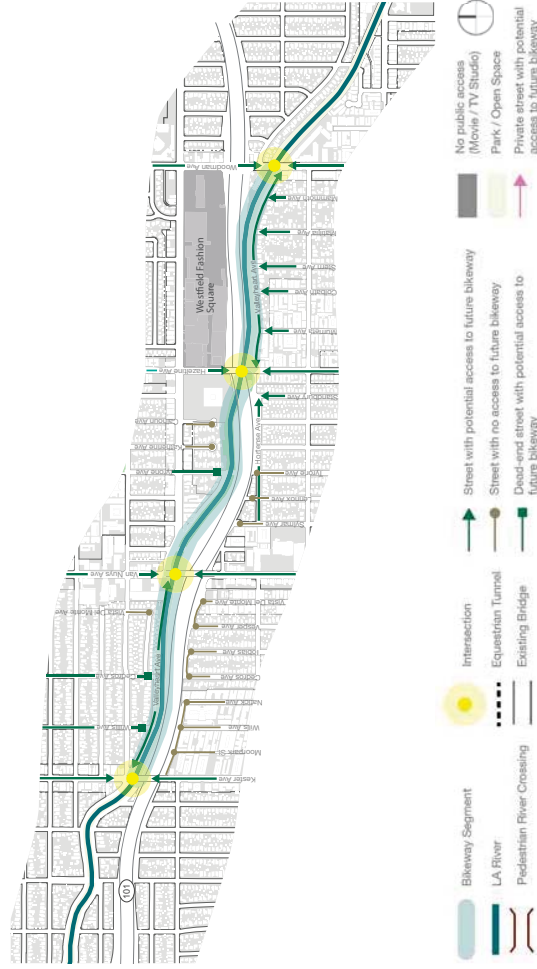


Figure 2.05-06.1 River Access and Neighborhood Context - Segments 05 and 06

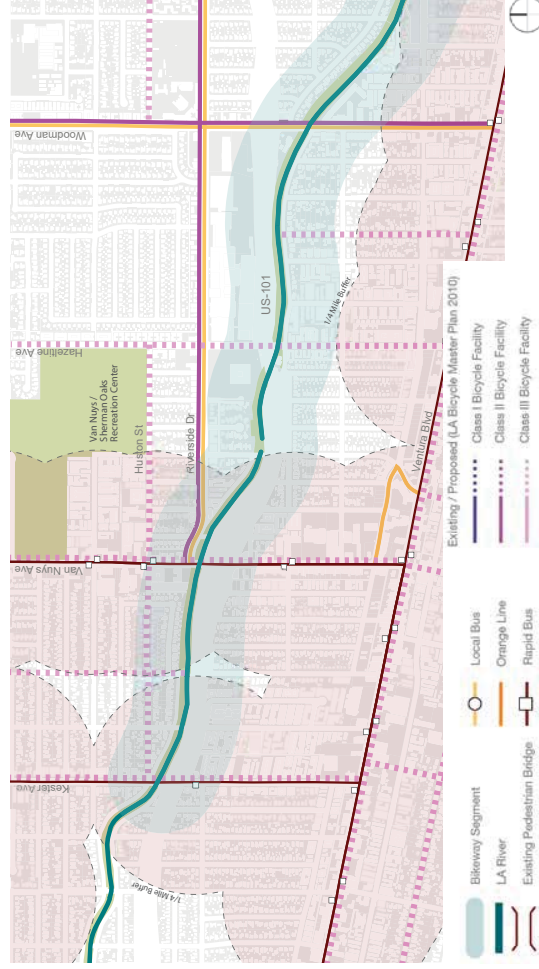


Figure 2.05-06.2 Bike and Transit Access - Segments 05 and 06

## SCHOOLS + CULTURAL RESOURCES + OPEN SPACE

Segments 05 and 06 are located in relatively busy commercial and residential areas with significant cultural resources in both segments. The Van Nuys – Sherman Oaks War Memorial Park, Van Nuys Sherman Oaks Recreational Center, and Van Nuys Sherman Oaks Tennis Courts are located within 1/4 mile of the LA River. Hazeltine Park is located within 1/4 mile of the LA River.

Schools within 1/2 mile of the LA River include Notre Dame High School, Riverside Drive Elementary School, St Francis de Sales Elementary, and Dixie Canyon Avenue Elementary School. Other schools in close proximity to the future bikeway include Robert A. Milikan Middle School and Sherman Oaks Elementary School.

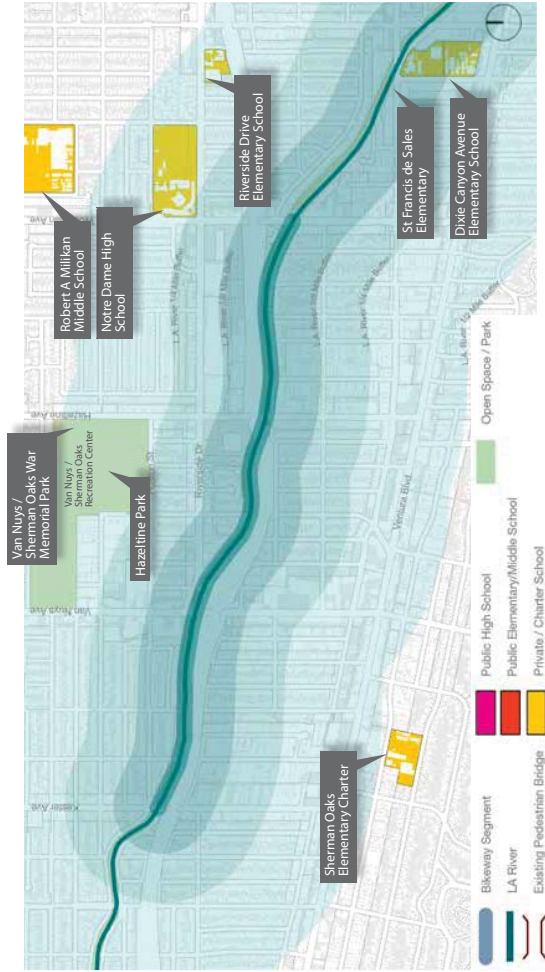


Figure 2.05-06.3 Cultural Resources, and Open Space Map - Segments 05 and 06

## LANDSCAPE CHARACTER + SOIL PROFILE

The existing landscape character of Segments 05 and 06 is more urban as it is a box channel within a residential and commercial area. The existing vegetation occurs on the banks of the right-of-way between the LA River and adjacent properties. Ramona Loam occurs along the western end of these segments with the majority of the soils being Hanford Silt Loam and Yolo Loam. Yolo loam is a well-draining soil profile that has slow to medium runoff and moderate rates of permeability.

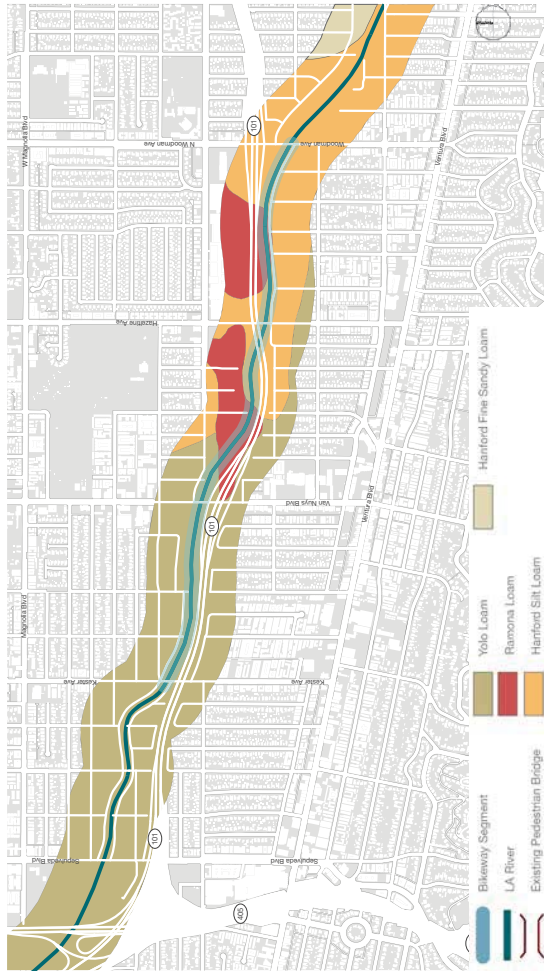


Figure 2.05-06.4 Landscape Character and Soil Profile - Segments 05 and 06 Schools,





TABLE 2.0506.4 SEGMENT 05+06 STREET CROSSING OPPORTUNITIES AND CONSTRAINTS

SEGMENT	OPPORTUNITY	CONSTRAINT	PRELIMINARY RECOMMENDATION
Kester Avenue	The existing bikeway is currently at-grade and terminates at the Valleyheart Drive and Kester Avenue intersection.	Overhead and storm drain systems, conflicts with existing Ernie's Walk pedestrian river walk.	Overcrossing
Van Nuys Boulevard	At-grade crossing is existing at the signalized intersection at the on/off ramps. Overcrossing is possible through abutment coordination with the existing large diameter pipes.	Caltrans coordination needed to add a crosswalk to the existing intersection. Large diameter storm drains and outlets exist in the future bikeway alignment.	Overcrossing
Hazeltine Avenue	At-grade path passing under the US-101, and connecting to the south side of the future bikeway.	New trail crossing signal is needed. Possible obstructions under US-101.	At-grade crossing
Woodman Avenue	At-Grade or overcrossing is possible at this location.	Additional traffic, utility, and structure evaluation needed.	Undercrossing

## SEGMENT 05+06 SITE PHOTOS



Kester Avenue - Looking East



Ernie's Walk (North Side) Kester Avenue to Van Nuys Boulevard - Looking East



Van Nuys Boulevard Bridge - Looking East



LA River Below US-101 Overpass - Looking West



River Maintenance Access at US-101 Overpass



Below US-101 Overpass - Looking West



US-101 Overpass - Looking West



LA River North Bank Under US-101 Overpass



LA River North Bank Under US-101 Overpass



Hazeltine Avenue Bridge - Looking East



Approach to Woodman Avenue - Looking West

# OPPORTUNITIES + CONSTRAINTS

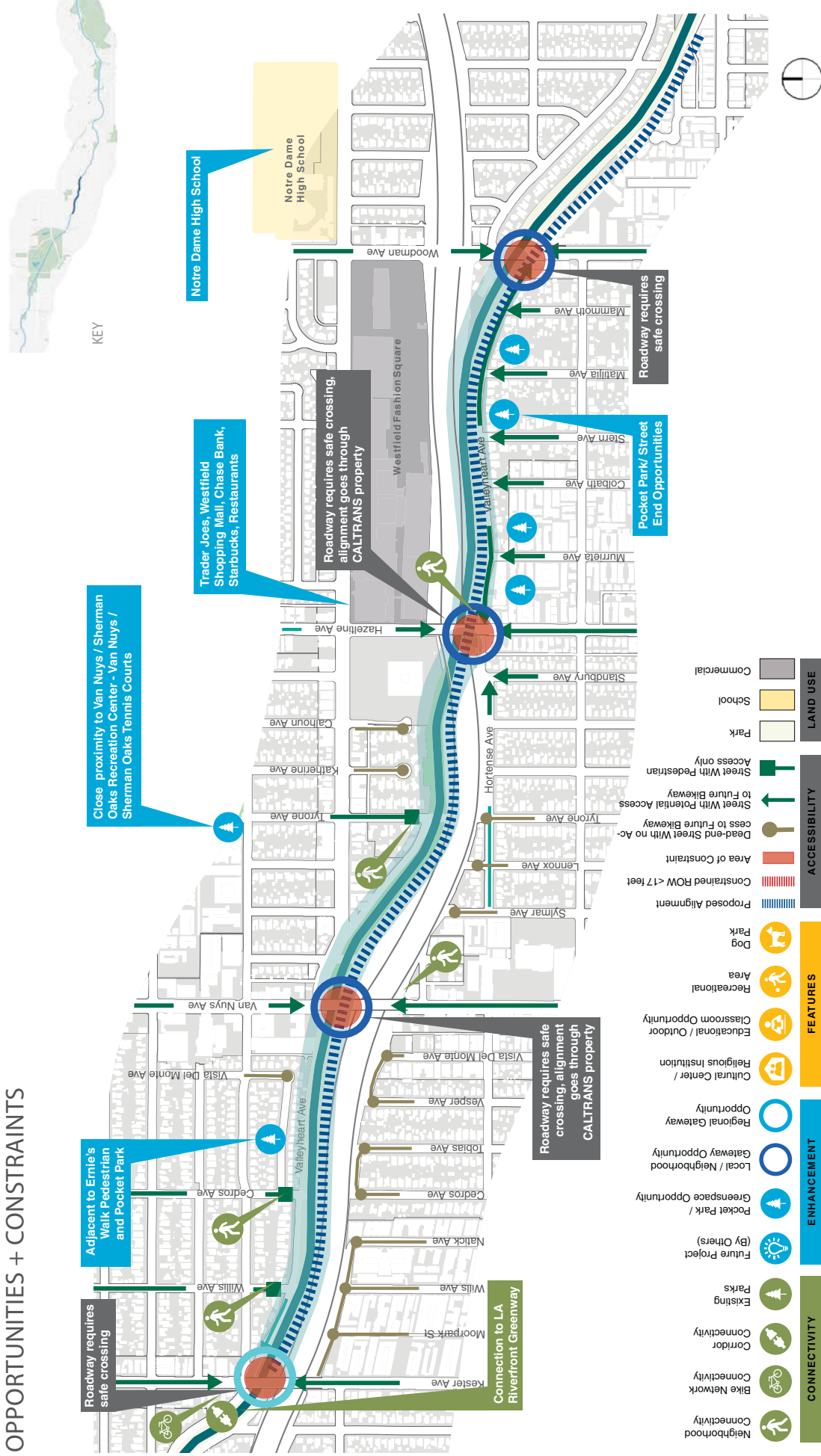


Figure 2.05-06.5 Opportunities and Constraints Map - Segments 05 and 06

## RIVER ACCESS + NEIGHBORHOOD CONTEXT

Segment 07 of the future bikeway is directly adjacent to single family residential on the north side and commercial uses on the south side of the LA River. Segment 07 connects to the Los Angeles Riverfront Park Phase II at Coldwater Canyon Avenue.

Segment 07 has access points to the LA River at Woodman Avenue, Sunnyslope Avenue, Dixie Canyon Avenue, Fulton Avenue, Ethel Avenue and Coldwater Canyon Avenue. An existing pedestrian bridge crosses

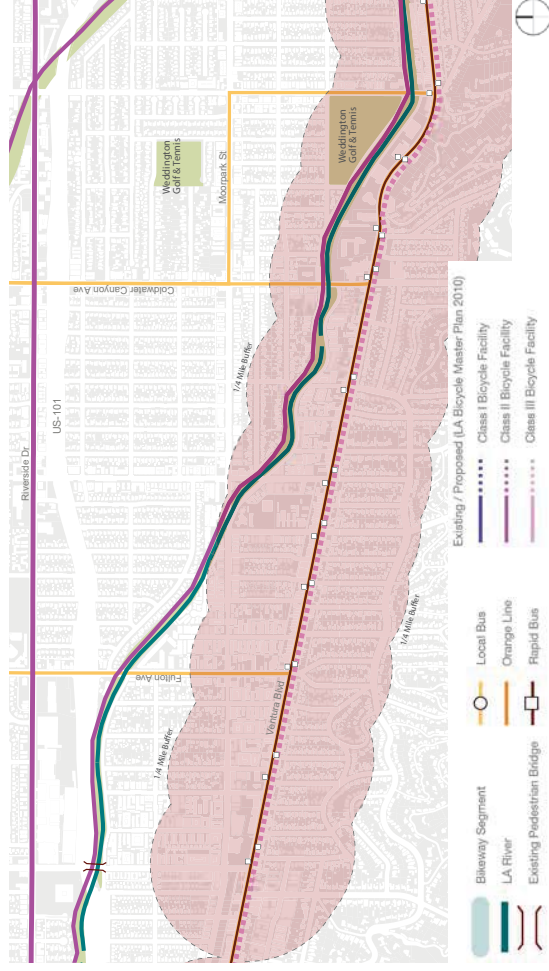
over the LA River at Sunnyslope Avenue connecting the residential neighborhood with the commercial area. The Richard Lillard Outdoor Classroom on the south side of the LA River between Fulton Avenue and Coldwater Canyon Avenue provides a shaded passive park space including interpretive displays, a trail, and native plantings.

## BIKE + TRANSIT ACCESS

There is an existing Class II Bike Lane on Valleyheart Drive and Riverside Drive heading east from Woodman Avenue continuing beyond Coldwater Canyon Avenue into Segment 08. Future Class II Bicycle Lanes are proposed for Ventura Boulevard in this segment.

The Rapid bus route 750 occurs along Ventura Boulevard. Local bus routes occur along Riverside Drive and Woodman Avenue. Local bus lines are located on Fulton Avenue and Coldwater Canyon Avenue connecting Ventura Boulevard to Riverside Drive. Metro Bus 158

takes passengers from Sherman Oaks to Burbank making stops Northbound and Southbound along Woodman Avenue. The Van Nuys/ Studio City DASH Bus makes stops Northbound and Southbound on Moorpark Avenue. Metro Bus 167 traveling from Chatsworth to Studio City makes stops Northbound and Southbound along Coldwater Canyon Avenue. Metro Bus 150/240 (Canoga Park to Studio City) makes stops Eastbound and Westbound along Ventura Boulevard.





## SCHOOLS + CULTURAL RESOURCES + OPEN SPACE

Segment 07 is located in a predominately residential area with a rich collection of schools and cultural resources within close proximity of the future bikeway. Riverside Drive Elementary School is located within a 1/2 mile of the LA River. Dixie Canyon Avenue Elementary School, St. Francis de Sales Elementary School, and St. Francis De Sales Church are all located one block from the LA River. The Richard Lillard Outdoor Classroom is located along the LA River between Fulton Avenue and

Longridge Avenue. North Valleyheart Riverwalk, located along the LA River between Ethel Avenue and Coldwater Canyon Avenue, and Weddington Golf and Tennis are located directly off the north bank of the LA River. Studio City Recreational Center is located within 1/4 mile from the LA River. Church of Scientology Mission of Sherman Oaks and The Little Brown Church – The Valley are both located within 1/8th of a mile from the LA River.

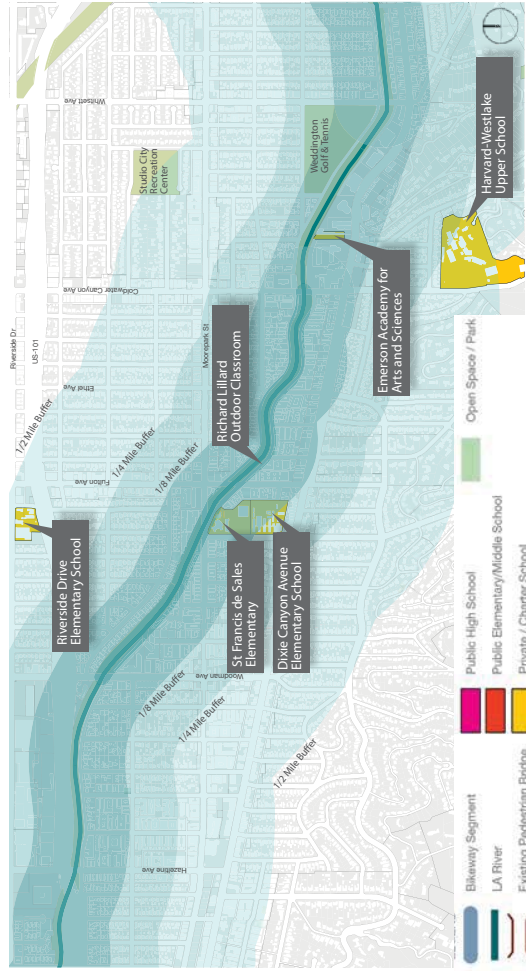


Figure 2.07.3 Schools, Cultural Resources, and Open Space - Segment 07

## LANDSCAPE CHARACTER + SOIL PROFILE

The existing landscape character of Segment 07 is urban as it is a box channel with residential and commercial areas directly adjacent. The existing vegetation occurs on the banks of the right of way between the LA River and adjacent properties. Yolo Loam occurs along the western end of Segment 07 with the majority of the soils being Altamont Clay loam. Yolo loam is a well-draining soil profile that has slow to medium runoff and moderate rates of permeability. Altamont Clay Loam Soil is a deep, well-drained soil formed in weathered fine-grained sandstone and shale. The Altamont Clay Loam Soil can be found from gentle slopes to steep uplands with 35 to 60 percent clay.

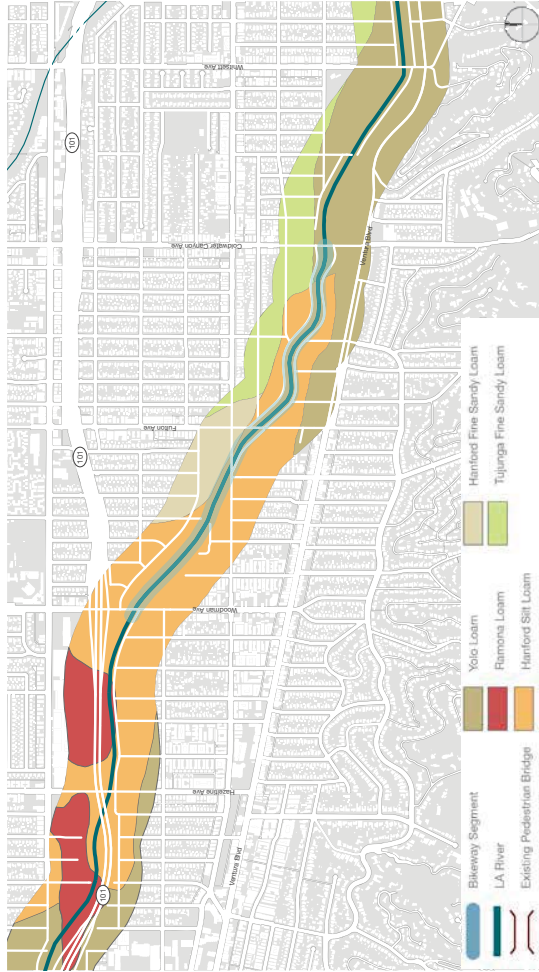


Figure 2.07.4 Landscape Character and Soil Profile - Segment 07



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TABLE 2.07.5 SEGMENT 07 STREET CROSSING OPPORTUNITIES AND CONSTRAINTS

SEGMENT	OPPORTUNITY	CONSTRAINT	PRELIMINARY RECOMMENDATION
Moorpark Street	At-grade or overcrossing is possible.	Traffic issue related to new signalized crosswalk at intersection and road right of way space is needed for on-street multi-use bikeway and greenway.	Overcrossing
Fulton Avenue	All three options (undercrossing, overcrossing, at-grade) may be possible, however further evaluation needed.	Overhead utilities, minor storm drain outlets, and bridge abutment structures existing in project vicinity.	Undercrossing
Coldwater Canyon Avenue	At-grade or overcrossing possible.	Storm drain outlet conflict with undercrossing and possibly overcrossing footing.	Overcrossing

## SEGMENT 07 SITE PHOTOS



Dixie Canyon Avenue Pocket Park Opportunity Site - View of LA River Looking East



Dixie Canyon Avenue Pocket Park Opportunity Site



Valleyheart Drive Southeast of Moorpark Street Intersection - Looking East



LA River from Valleyheart Drive - Looking North



LA River from Valleyheart Drive - Looking East



Valleyheart Drive - Looking East



View of LA River and Fulton Avenue Bridge - Looking East



View of LA River From the South Bank - Looking West



Fulton Avenue Bridge



Street stairs at Fulton Avenue Bridge



Fulton Avenue Bridge - Looking West



View from Fulton Avenue Bridge - Looking West Towards Earnie's Walk

# OPPORTUNITIES AND CONSTRAINTS

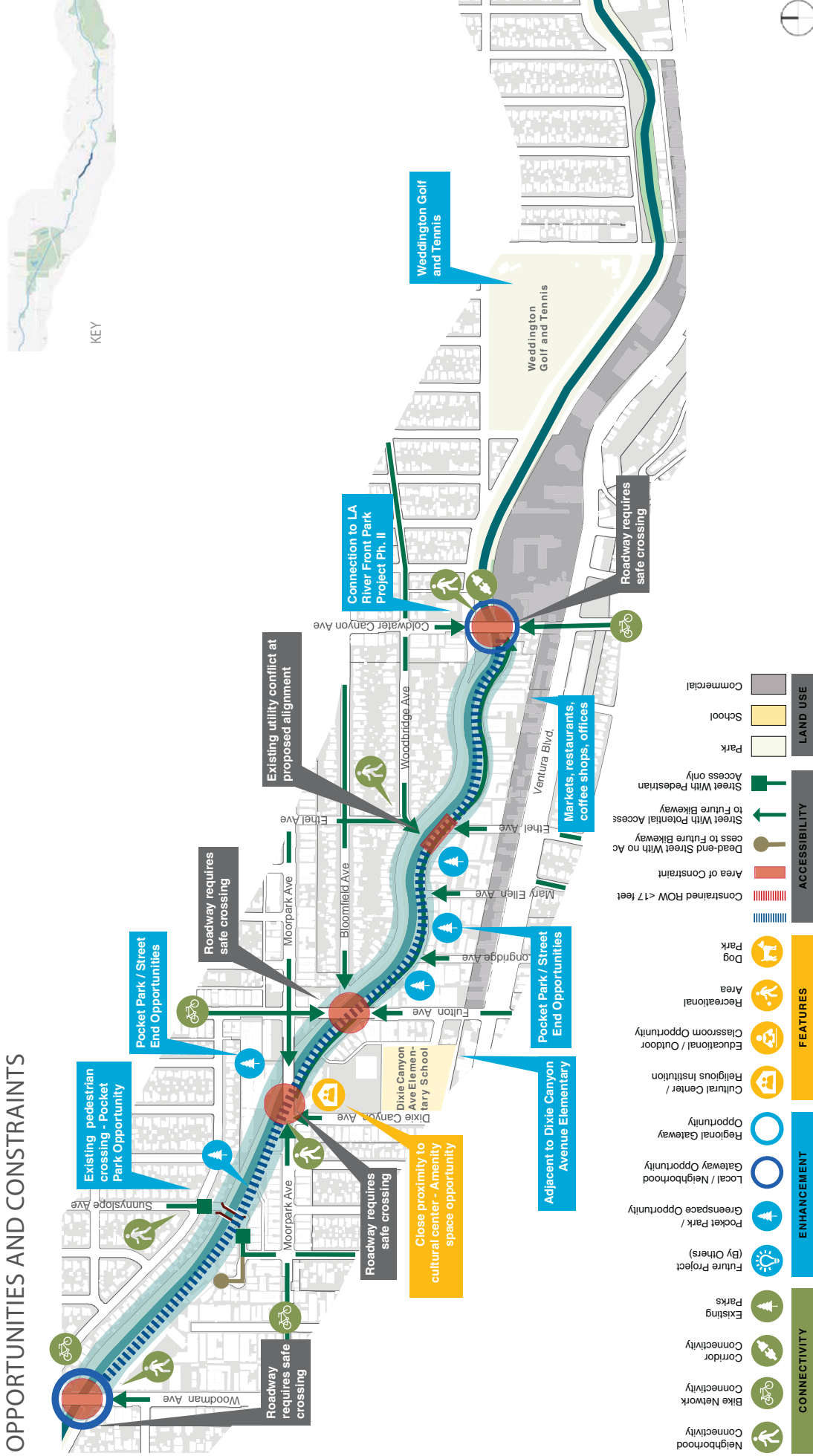


Figure 2.07/5 Opportunities and Constraints - Segment 07



## RIVER ACCESS + NEIGHBORHOOD CONTEXT

Segments 08A and 08B are directly adjacent to single family residential homes on the north side of the LA River and busy commercial uses to the south. This stretch of the project is the closest to the Ventura Boulevard commercial corridor with restaurants, retail, cafes, and offices. The middle portion of Segments 08A and 08B are intersected by the CBS Radford Studio between Radford Avenue and Colfax Avenue. Land use patterns continue to be primarily residential on the north side and commercial on the south side until Lankershim Avenue where the future bikeway connects to the LA County bike lanes (designed by others) adjacent to Universal Studios.

Segments 08A and 08B have main bridge crossings and access points to the LA River from Whitsett Avenue, Laurel

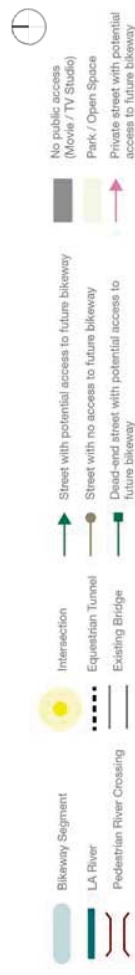
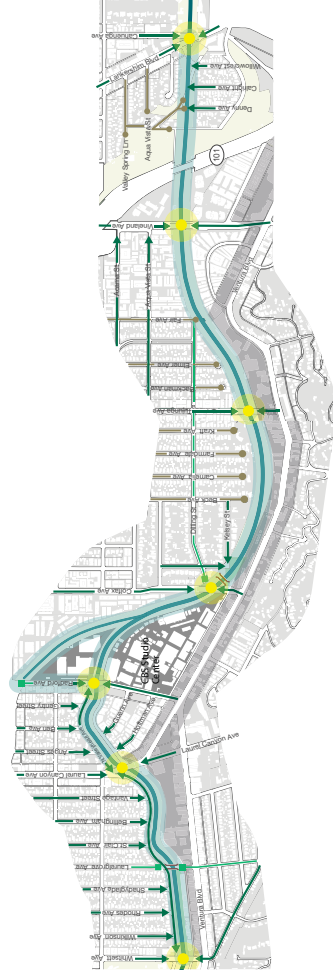


Figure 2.08A-08B.1 River Access and Neighborhood Context - Segments 08a and 08b

## BIKE + TRANSIT ACCESS

There is an existing Class II Bike Lane on Colfax Avenue. Proposed Class II Bike Lanes are proposed for Ventura Boulevard, Laurel Canyon Boulevard, and Lankershim Boulevard in this Segment.

There are a number of Metro bus lines located on Ventura Boulevard including 150, 155, 240, and 750. Rapid bus 750 terminates at the Universal City Red Line Station. Local bus lines are located on Whitsett Avenue, Laurel Canyon Boulevard, Tujunga Avenue, Vineland Avenue, and Lankershim Boulevard connecting Ventura Boulevard to Moorpark Street. The Van Nuys/Studio City DASH Bus makes stops northbound and

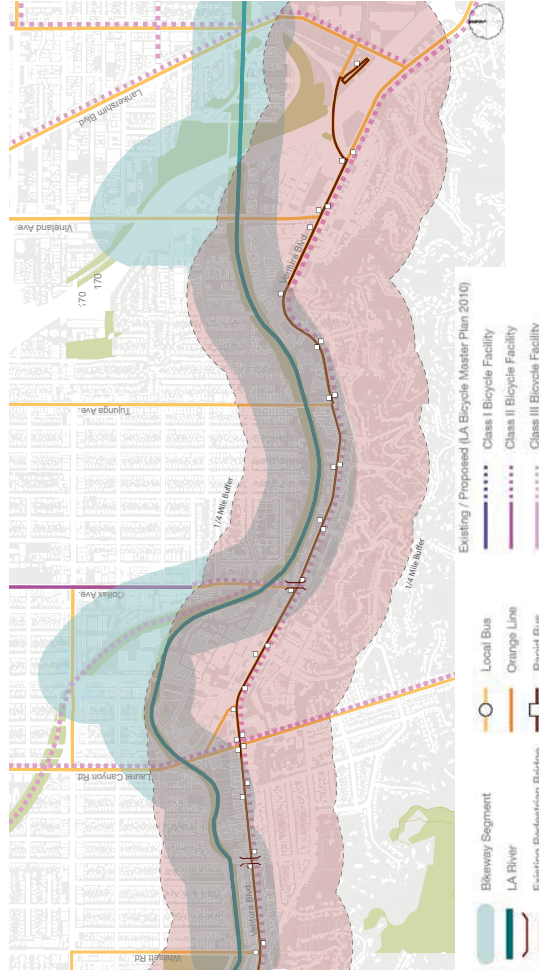


Figure 2.08A-08B.2 Bike and Transit Access - Segments 08a and 08b





## SCHOOLS + CULTURAL RESOURCES + OPEN SPACE

Segment 08 is located in a residential and commercial area with many schools and cultural resources within proximity of the future bikeway. Campbell Hall School, Walter Reed Middle School, Oakwood Elementary School, and Rio Vista Elementary School are all located within 1/4 mile to the LA River. Christian Science Church and Legacy City Church religious centers are located within 1/4 mile of the LA River.

Moorpark Park is located directly adjacent to the Tujunga Wash. Woodbridge Park is located under 1/2 mile away from the LA River. North and South Weddington Parks are currently bisected by the LA River. Existing linear parks include the Los Angeles River Greenway Park and Valleyheart Greenway. Both of these linear parks travel along the LA River and provide a shaded decomposed granite walking path with seating.

## LANDSCAPE CHARACTER + SOIL PROFILE

The existing landscape character of Segments 08A and 08B is a box channel within a residential and commercial area. The existing vegetation occurs on the north bank of the right of way between the LA River whereas the south bank is more developed in comparison. Yolo Loam occurs along the western end of the segment from Segment 07 to the west with the majority of the soils being Tujunga Fine Sandy Loam extending into Segment



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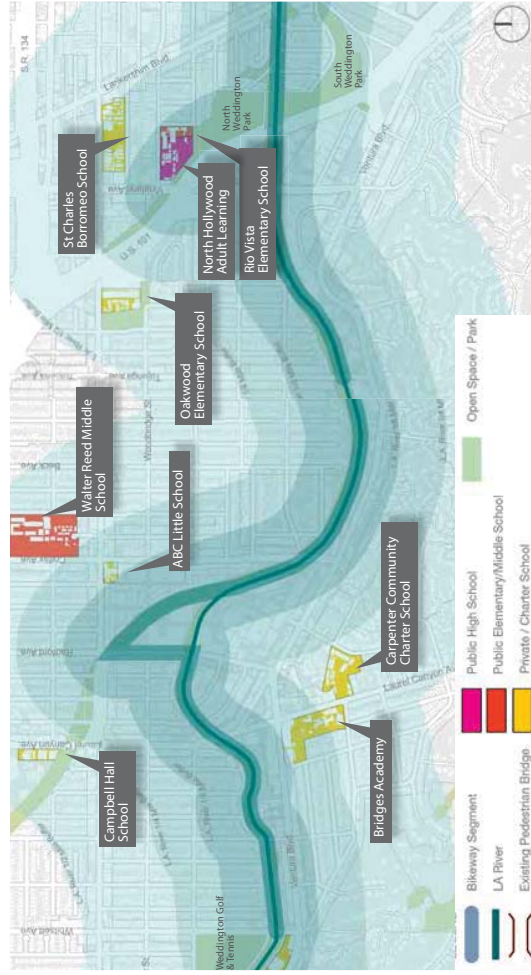


Figure 2.08A-08B.3 Schools, Cultural Resources, and Open Space - Segments 08a and 08b

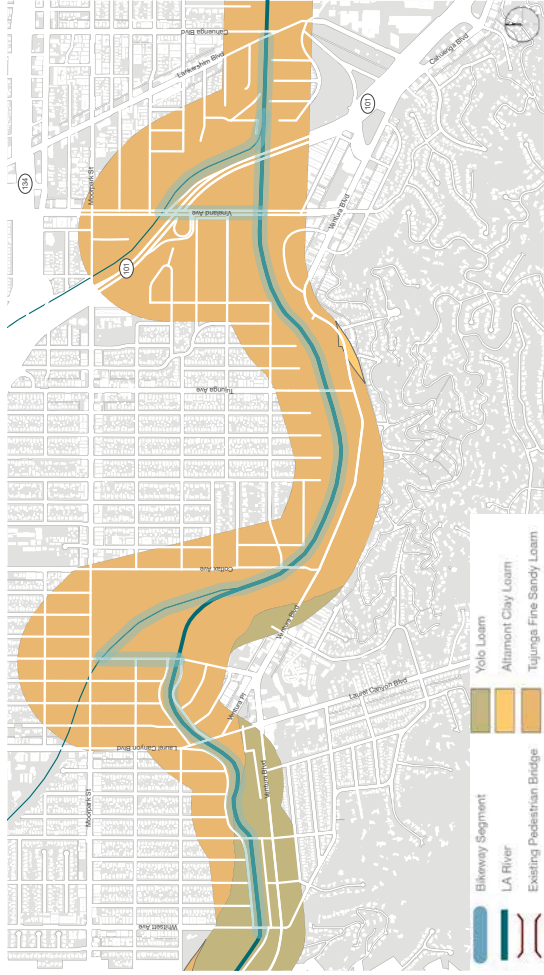


Figure 2.08A-08B.4 Landscape Character and Soil Profile - Segments 08a and 08b

## 08A+08B | SEGMENT

TABLE 2.08.6 SEGMENT 08A+08B STREET CROSSING OPPORTUNITIES AND CONSTRAINTS

CROSSING	OPPORTUNITY	CONSTRAINT	RECOMMENDATION
Whitsett Avenue	Existing ramp on east side of Whitsett Avenue does not conflict with undercrossing possibility.	Overhead power lines and 30" storm drain approximately 15' below existing grade may conflict with undercrossing and overcrossing.	Undercrossing
Laurel Canyon Boulevard	Some vertical separation between Laurel Canyon Drive and existing grade at north side, in close proximity to Valleyheart Drive.	Undercrossing needs to be outside of channel section (U-section), overhead power lines need to be relocated for bridge, and existing high traffic volumes on Laurel Canyon Drive.	Undercrossing
Radford Avenue	Multi-use path along Radford Avenue can include the Radford Avenue Artwalk adjacent to the CBS facility. Minor grading is needed since existing grade matches the roadway.	The future bikeway cannot continue along the LA River on the downstream side of Radford Avenue.	At-grade
Radford Avenue / Tujunga Wash	Bike path will be at-grade on both ends of bridge crossing. Approach ramps are not required.	Bridge crossing needs to be located away from existing utility (pipe) crossing over Tujunga Wash.	New Bridge
Colfax Avenue	Existing facility, improvements to allow connectivity to bike paths on Colfax Avenue.	No known constraints.	Undercrossing
Tujunga Avenue	Vertical separation between Tujunga Avenue and future bikeway.	Existing stairway on upstream side of Tujunga Avenue will need to be relocated. No bike lanes on Tujunga Avenue for connectivity.	Undercrossing
Vineland Avenue	There is a wide, flat area along the LA River on each side of the crossing. Vineland Avenue is on an embankment that is approximately 10' higher than this flat area.	Undercrossing will have to be deep to get under 36" water line.	Undercrossing/Existing street bridges. See Chapter 4.
US-101	There is a wide, flat area along the LA River to the west of the crossing. The US-101 alignment is on an embankment that is approximately 15' higher than this flat area. The flat area continues to the east of US-101.	Overcrossing will require an embankment as the path would begin approximately 15' below the US-101 embankment. Tunneling would be needed under US-101; Cut and cover undercrossing is not an option due to traffic sequencing.	Overcrossing

## SEGMENT 08A+08B SITE PHOTOS



Approach to Laurel Canyon Boulevard - Looking East



Laurel Canyon Boulevard to Radford Avenue - Looking West



CBS Studios on Radford Street, LA River Adjacent



Radford Avenue Artwalk



Tujunga Wash and Radford Avenue at Location of Proposed River Crossing



Moorpark Street Overcrossing Tujunga Wash



Colfax Bridge LA River Crossing



Vineland Avenue Buffered Bikelanes



Moorpark Street Overcrossing Tujunga Wash



Confluence of Central Branch Wash and LA River



US-101 to Lankershim Boulevard - Looking Northeast



Approach to Lankershim Boulevard



# OPPORTUNITIES + CONSTRAINTS

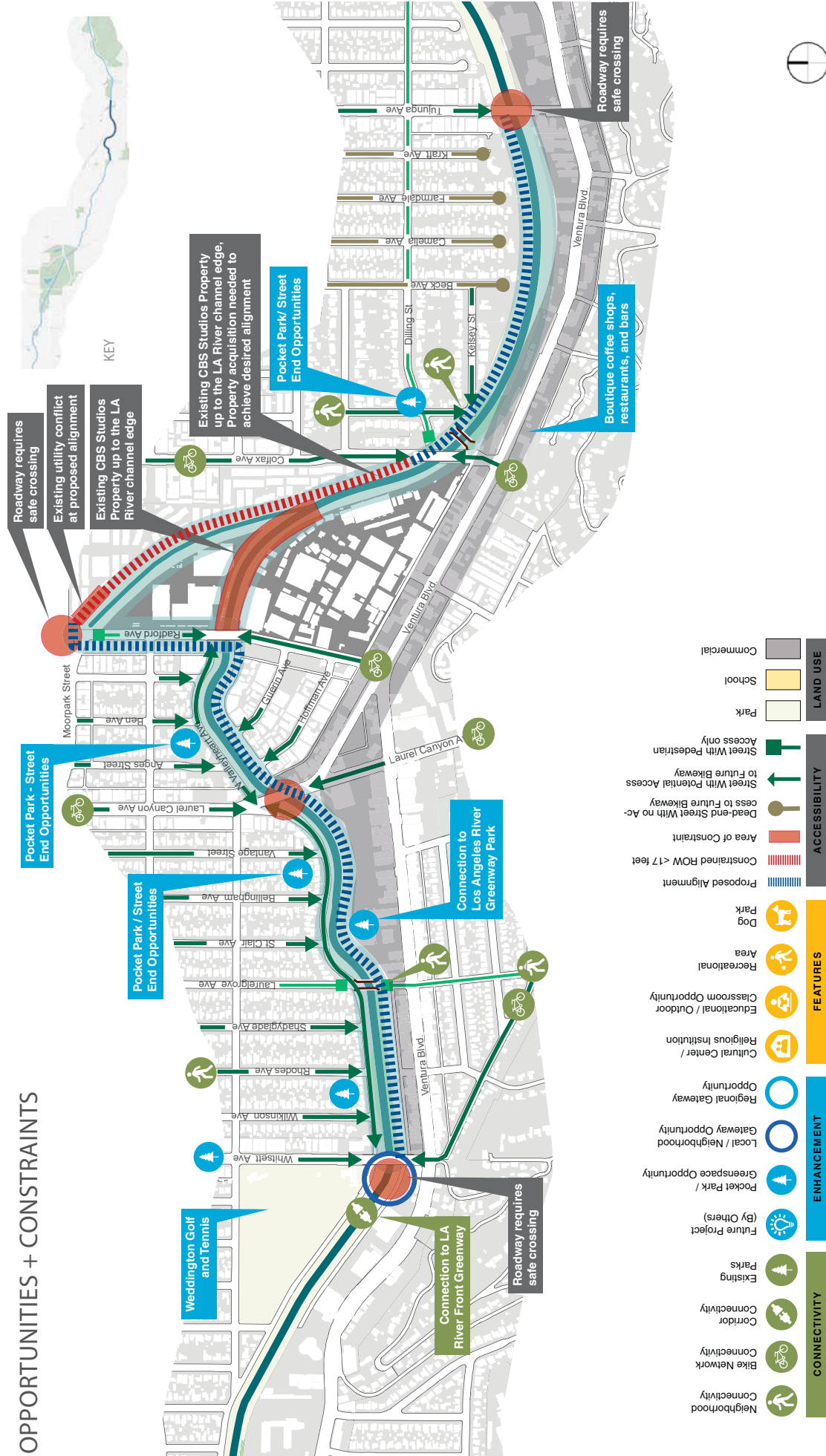


Figure 208A.5 Landscape Character and Soil Profile - Segment 08a

## OPPORTUNITIES + CONSTRAINTS

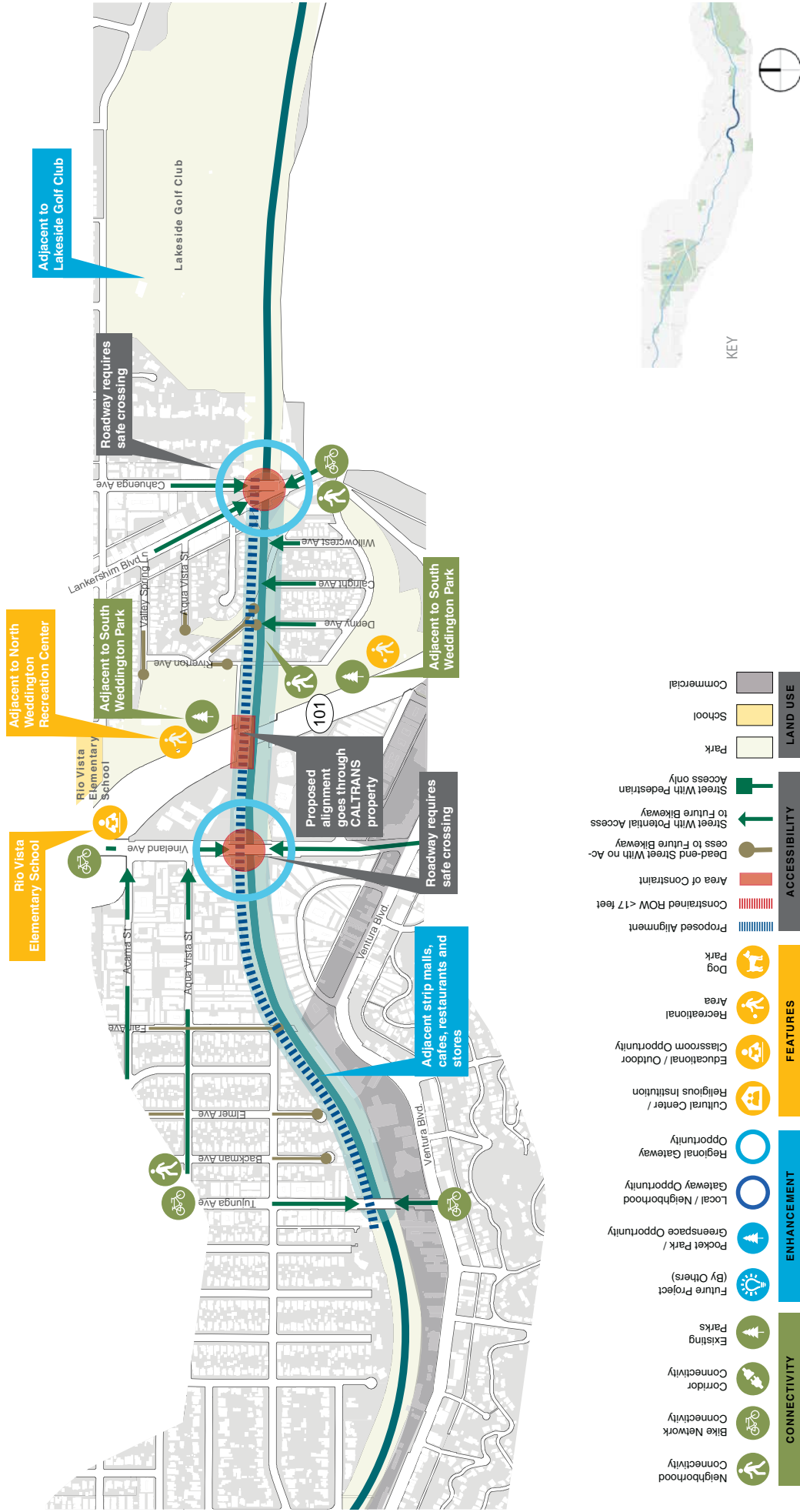


Figure 208B.5 Landscape Character and Soil Profile - Segment 08b



## RIVER ACCESS + NEIGHBORHOOD CONTEXT

Segment 09 is surrounded by land uses that limit access to the LA River from the surrounding context. These land uses include:

- Warner Brothers Studio
- Walt Disney Studio
- State Route 134
- Memorial Park Cemetery
- Griffith Park

On the north-side of the LA River, there are at least four street end conditions that have the potential connections to the LA River, which include:

- Bob Hope Drive
- Mariposa Street
- Fairview Street
- Niagara Street

The Barham Boulevard/Olive Avenue and Warner Brothers Studio Gate 7 bridge cross the LA River in this segment. Barham Boulevard/Olive Avenue has the potential for bicycle and pedestrian access to the LA River, while the Warner Brothers Studio Gate 7 bridge is a private road without potential to provide pedestrian and bicycle access to the future bikeway.

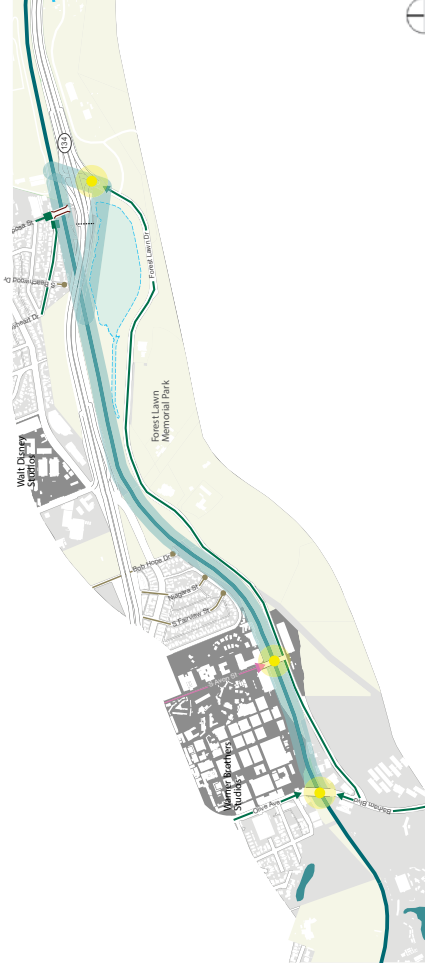


Figure 2.09.1 River Access and Neighborhood Context - Segment 09

## BIKE + TRANSIT ACCESS

There are existing Class II Bicycle Lanes that parallel the LA River on both the north and south sides in Segment 09, which include along:

- Forest Lawn Drive between Barham Boulevard and Zoo Drive
- Riverside Drive east of Bob Hope Drive

The existing bicycle lanes along Forest Lawn Drive connect to existing Class II Bicycle Facilities on Zoo

Drive, which provide access to multiple Class II and Class III Bicycle Facilities throughout Griffith Park.

The local transit line (222) has a stop at Barham Boulevard/ Forest Lawn Drive that is within 1/4 mile distance to the future bikeway.

Two Burbank local buses (Green Line and Pink Line) operate north of the LA River and provide multiple stops within 1/2 mile of the LA River.

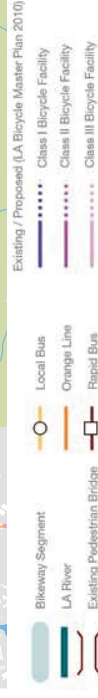
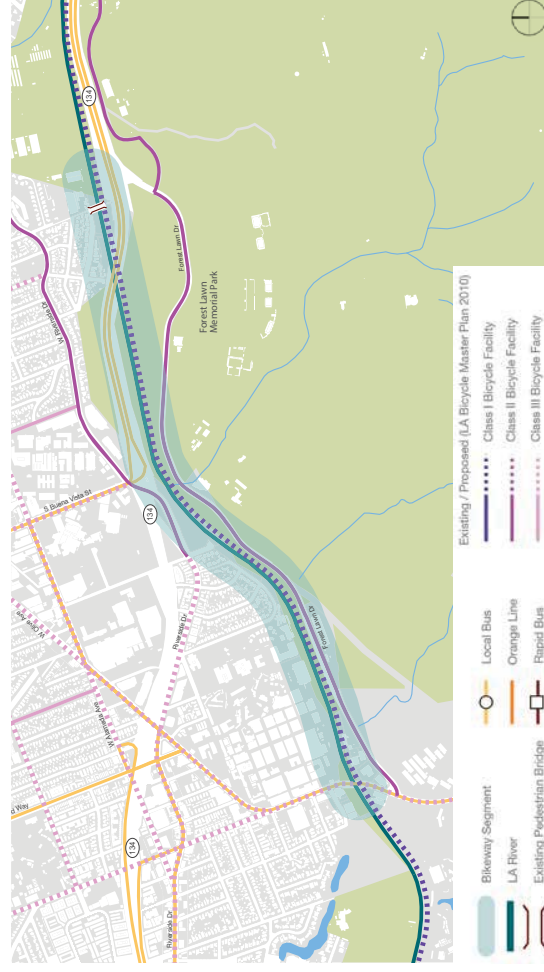


Figure 2.09.2 Bike and Transit Access - Segment 09



KEY

## SCHOOLS + CULTURAL RESOURCES + OPEN SPACE

Griffith Park is one of the most significant open space areas in the Los Angeles region and includes numerous natural and recreational features. Griffith Park is located at the eastern end of Segment 09 and is separated from the LA River by Forest Lawn Drive and State Route 134, both of which parallel the LA River along Segment 09. Access between the LA River and Griffith Park is provided via Zoo Drive, which connects Griffith Park and Forest Lawn Drive.

Forest Lawn Memorial Park Cemetery is also located within 1/4 mile distance of the LA River within Segment 09.

The only school located within the vicinity of Segment 09 is Providence High School, a Catholic private college preparatory high school. Providence High School is located north of the LA River and State Route 134 along Buena Vista Street.

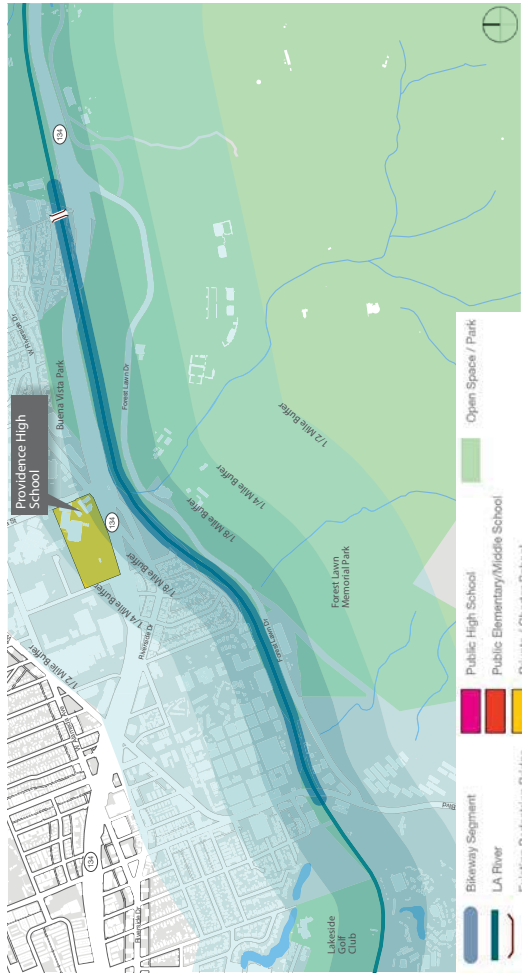


Figure 2.09.3 Schools, Cultural Resources, and Open Space - Segment 09

## LANDSCAPE CHARACTER + SOIL PROFILE

The existing landscape character of Segment 09 is comprised of flat areas free of most vegetation with sand and gravel areas free from significant character and mature trees. Large transmission towers dominate the landscape in this segment juxtaposed next to unobstructed views of the Verdugo Mountains in the distance to the north and Griffith Park directly adjacent.

While there are a mix of soil profiles surrounding the LA River through Segment 09, there is only one soil profile immediately adjacent to the LA River, Tujunga Fine

Sandy Loam. Tujunga Fine Sandy Loam is somewhat excessively drained, negligible to low runoff, and has a high saturated hydraulic conductivity. Other soil profiles south of the LA River include:

- Altamont Clay Loam
- Yolo Clay Loam
- Yolo Loam

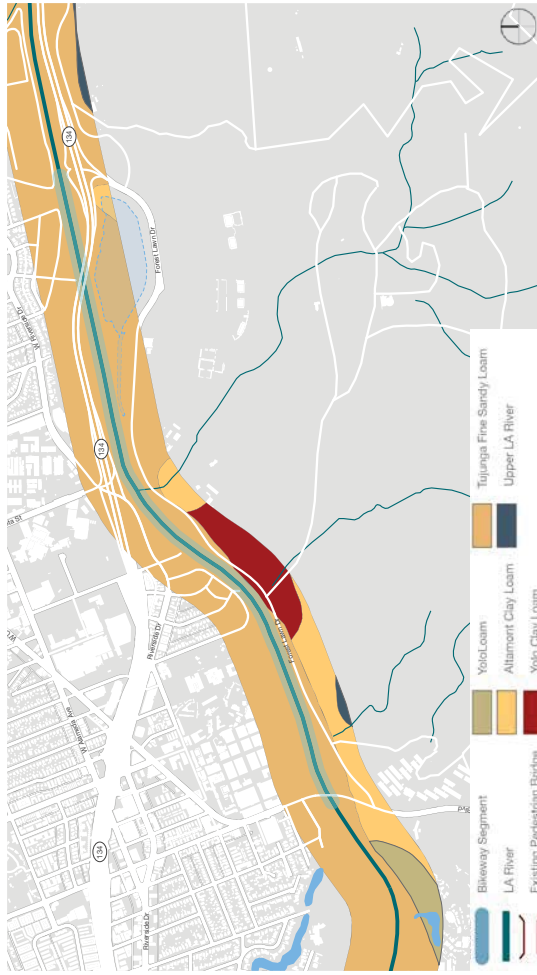


Figure 2.09.4 Landscape Character and Soil Profile - Segment 09



TABLE 2.09.7 SEGMENT 09 STREET CROSSING OPPORTUNITIES AND CONSTRAINTS

CROSSING	OPPORTUNITY	CONSTRAINT	RECOMMENDATION
Barham Boulevard	Open area on downstream side (south of LA River), adequate vertical separation for undercrossing.	Underground utilities (storm drain and Sanitary sewer), no bike lanes on Barham for connectivity, sight distance for at-grade crossing (on curve).	Undercrossing
Warner Brothers Gate	Possibility for at-grade crossing around Warner Brothers gate at existing crosswalk.	Bridge abutment at-grade, undercrossing is not feasible at this location.	At-grade
134 Freeway	At-grade facility or tunnel possibility	Conflicts with Equestrian Trail at south end of equestrian tunnel.	Undercrossing and at-grade solutions. See Chapter 3.

## SEGMENT 09 SITE PHOTOS



Narrow Right-of-Way Conditions - Viewed from Barham Boulevard Bridge Looking East



Warner Brothers Studios - Gate 7



Future Headworks Site



Future Headworks Site



Headworks Site Path - Approaching Forest Lawn Drive



View to Forest Lawn Drive and Griffith Park



Equestrian Tunnel Under the 134 Freeway.



Utility Towers along South Side of LA River



Mariposa Equestrian Bridge



Existing Utility Infrastructure Crossing LA River at the 134 Freeway.



View from Mariposa Equestrian Bridge Looking East



134 Freeway Overpass



# OPPORTUNITIES + CONSTRAINTS

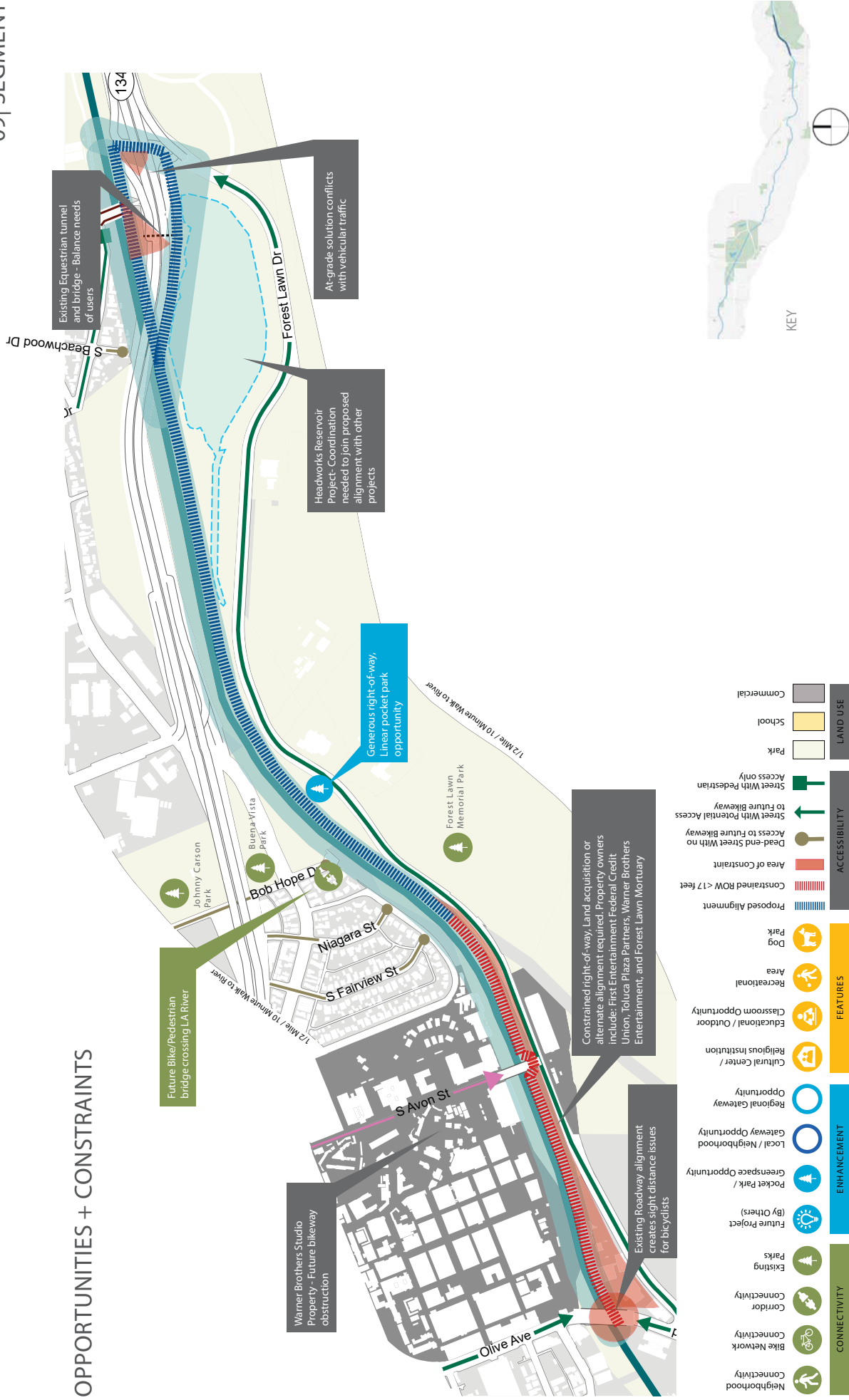
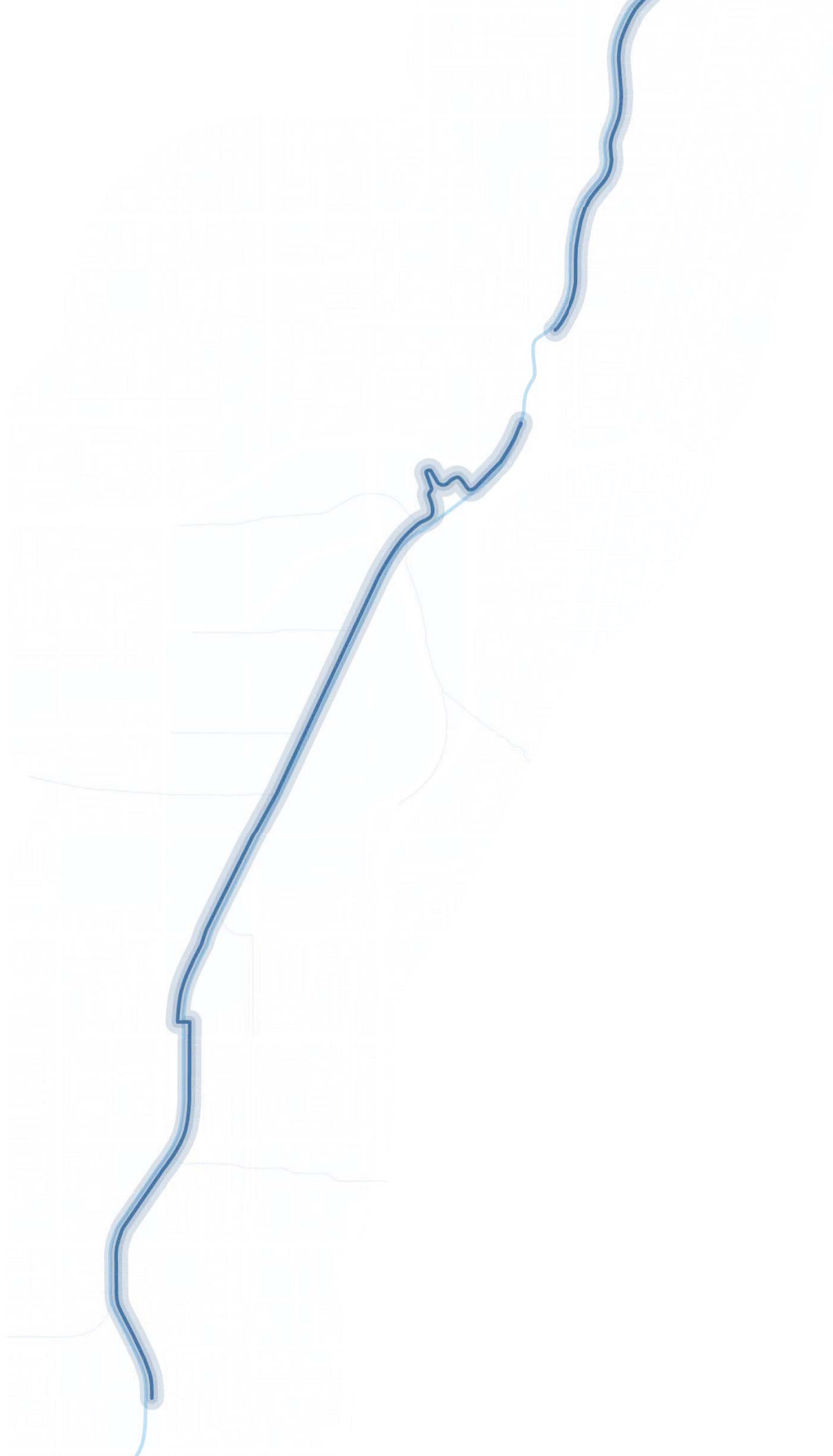


Figure 2.09.5 Opportunities and Constraints - Segment 09



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## STUDY ALIGNMENT + ALTERNATIVES | 3



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## OVERVIEW OF ALIGNMENTS AND ALTERNATIVES

Based on the opportunities and constraints analysis in Chapter 2, right-of-way (ROW) analysis in Chapter 4, technical analyses in the Appendix, and input from the community meetings, the initial study alignment outlined in the project scope (TOS) has been refined as shown on the accompanying alignment diagrams.

Table 3.1 summarizes the relationship of the future bikeway to the LA River by segment for both the original base TOS alignment and the alternative alignment. The Overall Project Map on the following page displays the base TOS alignment and the alternative alignment to the LA River; see the Appendix for conceptual engineering drawings of the proposed alignments.

On the overall alignment diagrams within this chapter the TOS alignment and alternatives are shown by a dark blue line with an indication of the type of bike facility potentially feasible considering the available right of way. Potential future bikeway alternatives or interim concepts under study are illustrated as well as potential bikeway crossing typologies across perpendicular streets.

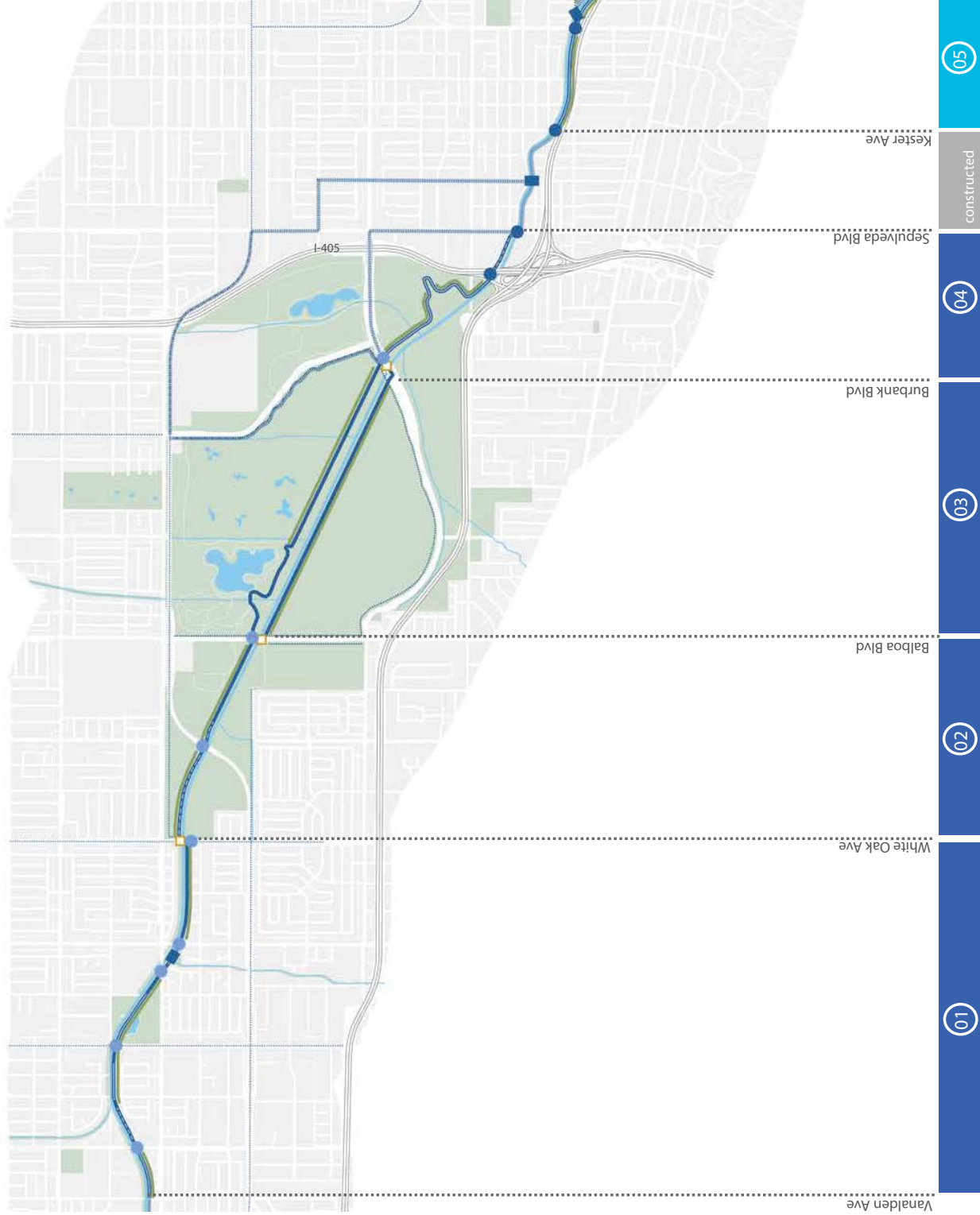
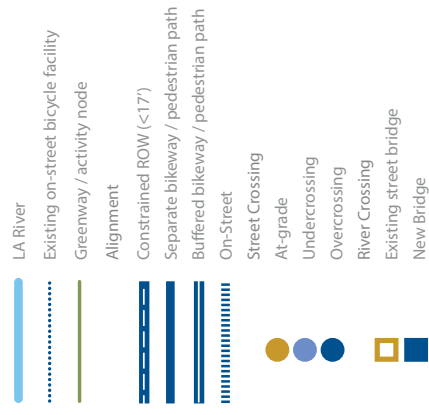
TABLE 3.1 ALIGNMENT LOCATION RELATIVE TO THE LA RIVER BY SEGMENT			ALTERNATIVE ALIGNMENTS STUDIED IN RELATIONSHIP TO LA RIVER
SEGMENT	BASE TOS IN RELATIONSHIP TO LA RIVER		
01 Vanalden Avenue to White Oak Avenue	South side		
02 White Oak Avenue to Balboa Boulevard	North side		
03 Balboa Boulevard to Burbank Boulevard	South side		North side
04 Burbank Boulevard to Sepulveda Boulevard	North side (bridge over I-405) At-grade on Burbank Boulevard to Sepulveda Boulevard*		At-grade on Burbank Boulevard to Woodley Avenue/ Noble Avenue interim alignment
05 Kester Avenue to Hazeltine Avenue	South side		North side from Van Nuys Boulevard to Hazeltine Avenue
06 Hazeltine Avenue to Woodman Avenue	South side		North side from Hazeltine Avenue to Woodman Avenue
07 Woodman Avenue to Coldwater Canyon Avenue	South side		
08 Whitsett Avenue to Lankershim Boulevard	South side Whitsett Avenue to Laurelgrove Avenue North side Laurelgrove Avenue to Radford Avenue At-grade on Radford Avenue to Tujunga Wash North side of Tujunga Wash to Colfax Avenue North side Colfax Avenue to Vineland Avenue North side US-101 to Lankershim Boulevard		At-grade crossing at Whitsett Avenue to north alignment to Laurel Canyon Blvd. At-grade on Vineland Avenue interim alignment; North side of Central Branch Wash to LA River South side of river from Colfax Avenue to US-101; Bridge over US-101
09 Barham Boulevard to Zoo Drive	South side		At-grade on Barham Boulevard interim alignment; At-grade on Forest Lawn Drive; North side of Central Branch Wash to LA River
*Alternative provided in TOS alignment due to Sepulveda Dam obstruction			

## ALIGNMENT | SEGMENTS

### WESTERN REACH

#### Vanalden Avenue to Kester Avenue

Segments 01-04 are considered the western reach of the future bikeway and are approximately 8.11 miles long. The western reach begins at Vanalden Avenue and ends at a proposed Noble Avenue river bridge. This reach travels through the neighborhoods of Reseda, Encino, Lake Balboa, Van Nuys and Sherman Oaks. This reach is also defined by travelling through the ecologically significant Sepulveda Basin area and the soft bottomed, naturalized portions of the LA River.



## CENTRAL REACH

### Kester Avenue to Coldwater Canyon

Segments 05-07 are considered the central reach of the future bikeway and are approximately 2.74 miles long. The central reach begins at Kester Avenue and ends at Coldwater Canyon Avenue. This will complete the LA Riverfront Park that has been constructed between Sepulveda Boulevard and Kester Avenue and between Coldwater Canyon Avenue and Whitsett Avenue that is currently in construction.

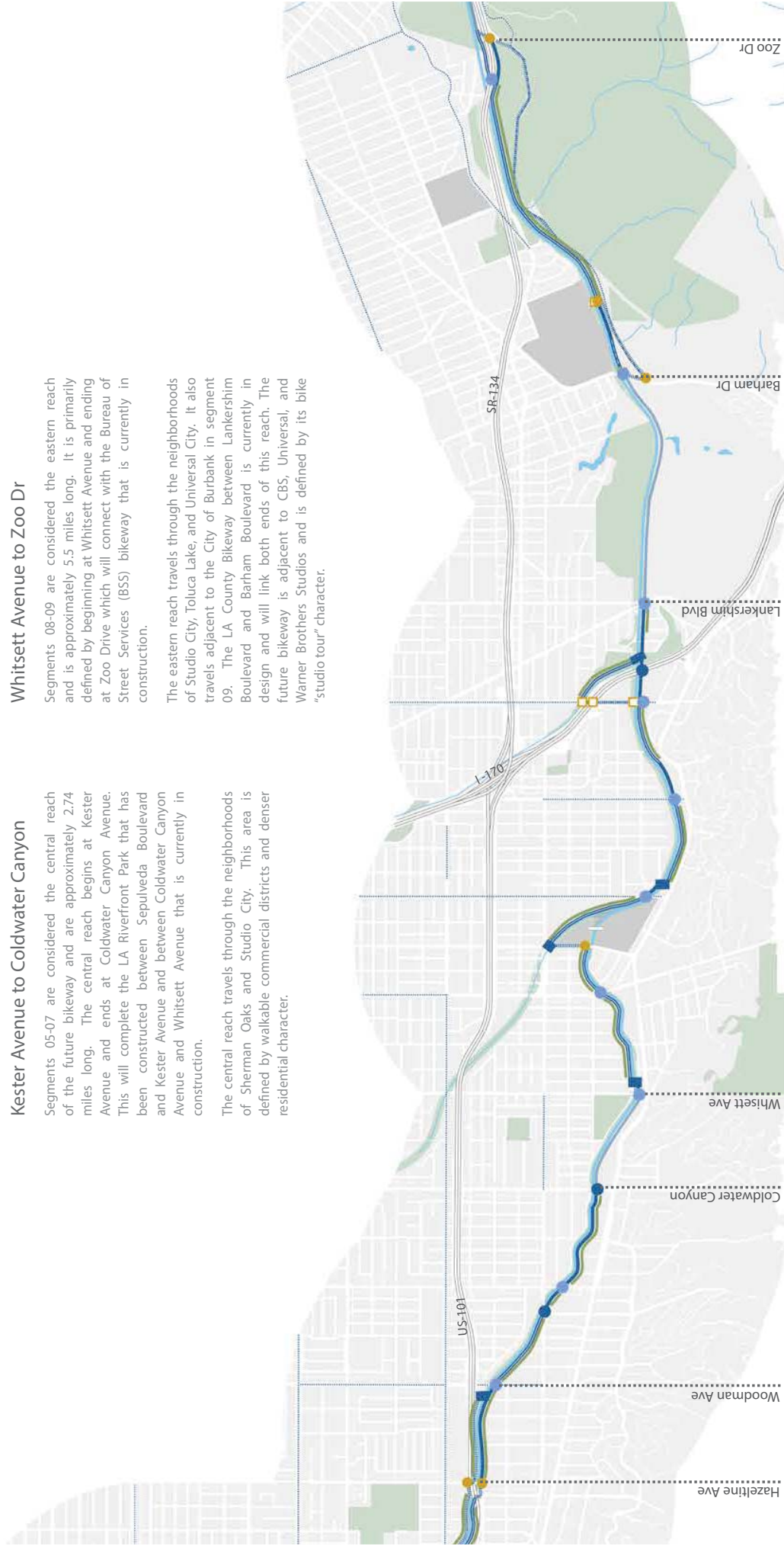
The central reach travels through the neighborhoods of Sherman Oaks and Studio City. This area is defined by walkable commercial districts and denser residential character.

## EASTERN REACH

### Whitsett Avenue to Zoo Dr

Segments 08-09 are considered the eastern reach and is approximately 5.5 miles long. It is primarily defined by beginning at Whitsett Avenue and ending at Zoo Drive which will connect with the Bureau of Street Services (BSS) bikeway that is currently in construction.

The eastern reach travels through the neighborhoods of Studio City, Toluca Lake, and Universal City. It also travels adjacent to the City of Burbank in segment 09. The LA County Bikeway between Lankershim Boulevard and Barham Boulevard is currently in design and will link both ends of this reach. The future bikeway is adjacent to CBS, Universal, and Warner Brothers Studios and is defined by its bike "studio tour" character.



05

06

07

in construction

08

in design

09

## ALIGNMENT | SEGMENT 01

### Vanalden Avenue to White Oak Avenue

Segment 01 is a 1.6 mile long reach on the south side of the LA River and begins at Vanalden Avenue and ends at White Oak Avenue. The LA River in this segment is characterized by a concrete lined trapezoidal channel. The surrounding context is primarily residential single family homes directly adjacent to the alignment with private fencing and walls to provide screening and security.

#### Alignment

##### Vanalden Avenue - Wilbur Avenue

The 0.26 mile maintenance path right of way in this reach varies between 21'-24' wide. The right of way slopes between 3'-4' from the top of the trapezoidal channel to edge of the property line, which will require a small retaining wall to maximize space. The future bikeway design will be a Class I Bike Path with a separate 5' decomposed granite pedestrian path. The remaining area varying between 3'-6' will be planting and/or bioswale along the property boundary.

##### Wilbur Avenue - Yolanda Avenue

The 0.27 mile maintenance path right-of-way in this reach is varies between 13'-20' wide. The narrow area is located in the center of this stretch with the wider sections located at Wilbur Avenue and Yolanda Avenue. The right of way is relatively flat in the narrow area as this has an existing retaining wall. The wider path area approaching Yolanda Avenue has approximately 5' of grade change and will require a small retaining wall. The future bikeway design will be a Class I Bike Path with a separate 5' decomposed granite pedestrian path in a limited area. A cantilever is feasible in the narrow section that would allow a continuous separate pedestrian path along the entire stretch. In the wider sections the remaining 1'-3' width will be planting and/or bioswale.

##### Yolanda Avenue - Reseda Avenue

The 0.25 mile maintenance path right of way in this reach is approximately 21' wide. The path has approximately 4' of grade change and will need a small retaining wall to maximize space and utility. An existing pedestrian

##### Victory Boulevard - Lindley Avenue

The 0.17 mile maintenance path right of way in this reach is approximately 10'-15' wide. As this stretch is approximately 800' in length, the future bikeway will remain notched into channel as it needs to ramp under Lindley Avenue. There is a planned park in this area at Caballero Creek and future bikeway connections should be integrated. The alignment will cross over Caballero Creek.

##### Lindley Avenue - White Oak Avenue

The 0.51 mile maintenance path right-of-way in this reach is approximately 17'-18' wide and has no significant grade change. The future bikeway design will be a Class I Bike Path with a separate 5' decomposed granite pedestrian path. A cantilever for a full or partial pedestrian path is feasible in this section, which would allow up to a 5' wide area to be planting and/or a bioswale.

#### Bridge/Street Crossings

The future bikeway seems likely to traverse under street crossings in this segment with channel cuts as is done in similar street crossings within the existing bikeway west of Vanalden Avenue. These will be Wilbur Avenue, Reseda Avenue, Victory Boulevard, Lindley Avenue and White Oak Avenue.

There will need to be a new bridge structure constructed as the bikeway and pedestrian path cross over Caballero Creek. As the short segment between Victory Boulevard and Lindley Avenue results in the bikeway and pedestrian path to remain notched into the channel as it passes

Caballero Creek, further study is needed for the design of the bridge structure.

#### Access

The West Valley Bikeway/Greenway connects to the future bikeway at Vanalden Avenue.

Three pedestrian bridges exist within this segment and are located at Vanalden Avenue, Amigo Avenue and Etiwanda Avenue. These bridges provide essential local neighborhood links along the corridor. Etiwanda Avenue pedestrian bridge is especially important to connect the Reseda High School with Reseda Park and the future bikeway.

Vanalden Avenue, Yolanda Avenue, Amigo Avenue, Etiwanda Avenue, and Zelzah Avenue streets end at the proposed alignment of the bikeway and can be new locations for small localized pocket parks and neighborhood access points to the future bikeway as well.

White Oak Avenue and Reseda Avenue have existing bike facilities and will provide bike access points for a majority of bicyclists. Reseda Avenue also has the most transit stops within walking distance.

#### Greenway

The greenway width varies from 0' to 17' in this segment with street end micro-park conditions occurring at Vanalden Avenue, Yolanda Avenue, Amigo Avenue, Etiwanda Avenue, and Zelzah Avenue. See chapter 5 for more details on future bikeway landscape improvements.



# ALIGNMENT | SEGMENT 01

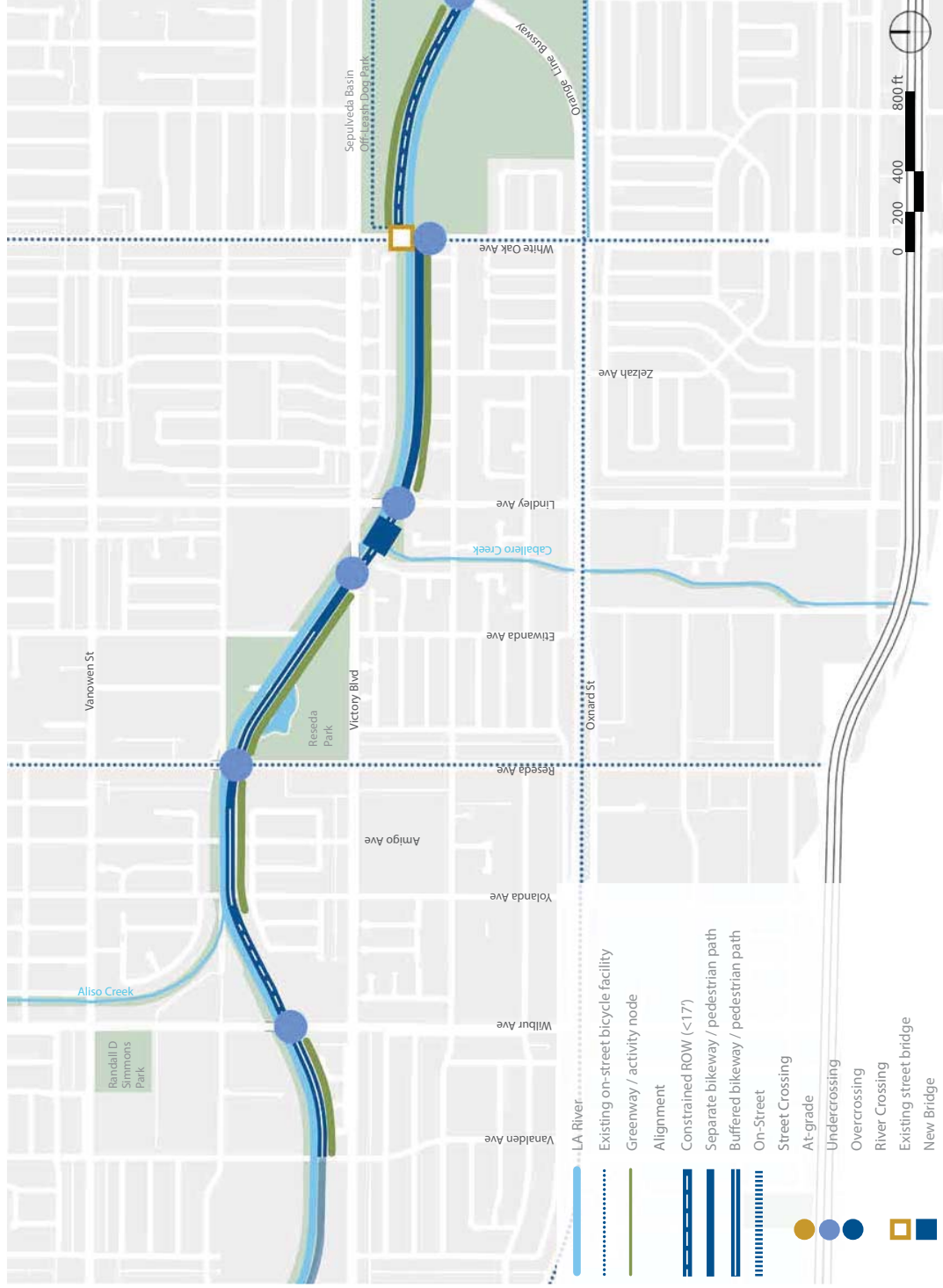


Figure 03.01.1 Vanalden Avenue to White Oak Avenue - Segment 01

## ALIGNMENT | SEGMENT 01

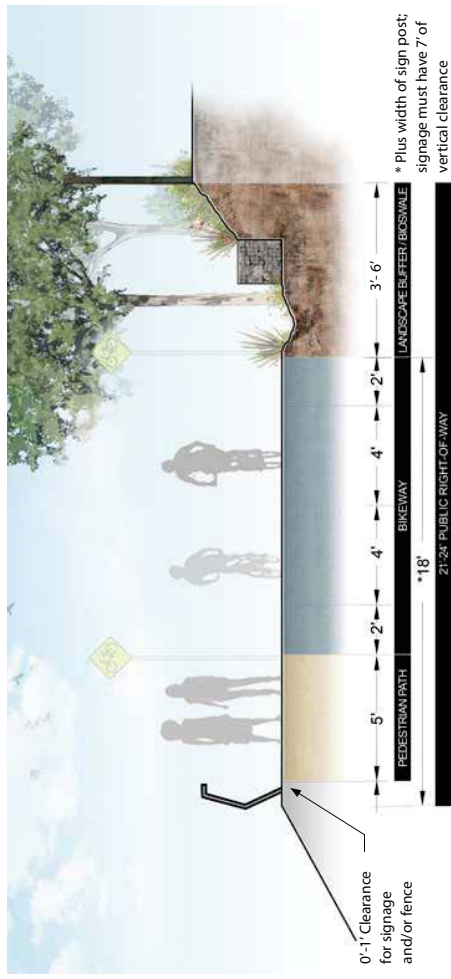


Figure 3.01.2 Vanalden Avenue - Typical Cross Section

## ALIGNMENT | SEGMENT 01

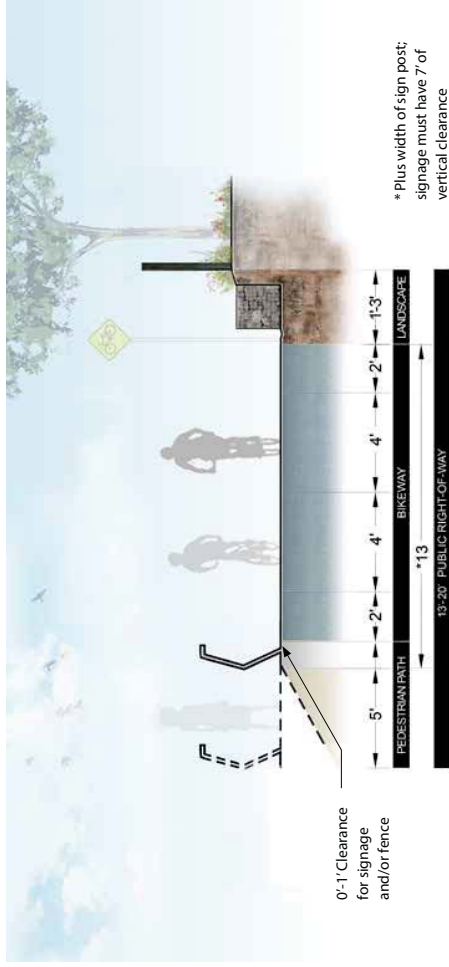


Figure 3.01.3 Wilbur Avenue to Yolanda Avenue - Typical Cross Section

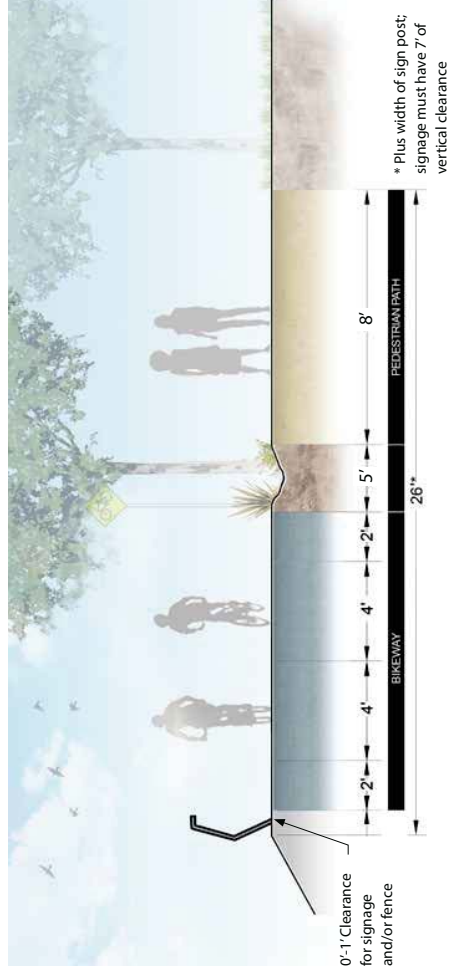


Figure 3.01.4 Reseda Boulevard to Etiwanda Avenue - Typical Cross Section

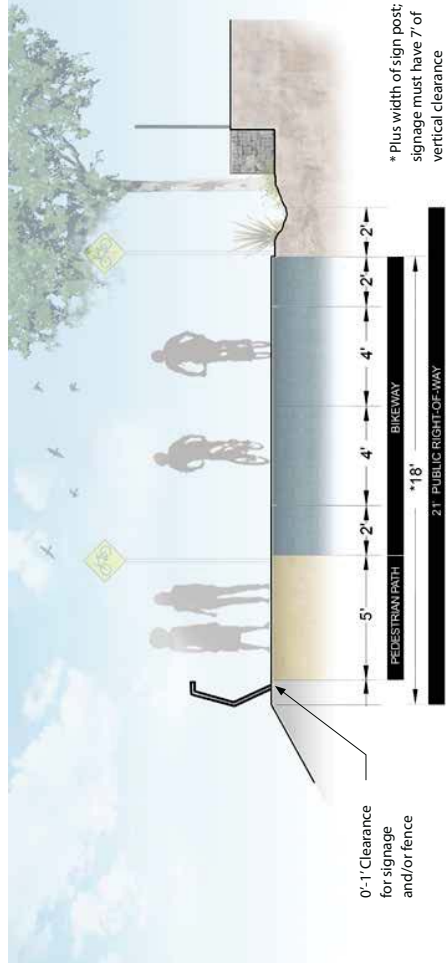


Figure 3.01.5 Yolanda Avenue to Reseda Boulevard - Typical Cross Section

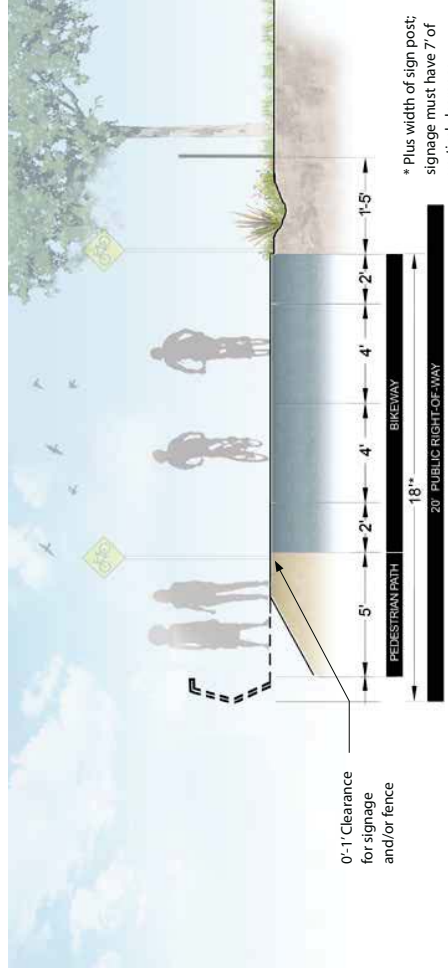


Figure 3.01.6 Lindley Avenue to White Oak Avenue - Typical Cross Section

## ALIGNMENT | SEGMENT 02

### White Oak Avenue to Balboa Boulevard

Segment 02 is a 1.06 mile long reach on the north side of the river that begins at White Oak Avenue and ends at Balboa Boulevard. The LA River is characterized by a concrete lined trapezoidal channel until the Metro Orange Line Busway overcrossing where it transitions to a soft-bottomed, concrete sided trapezoidal channel. The surrounding context is open space federally owned land that is part of the Sepulveda Basin.

#### Alignment

##### White Oak Avenue - Orange Line Busway

The 0.48 mile maintenance path right-of-way in this reach is approximately 15' wide and is relatively level throughout. A fence separates the future bikeway from the Sepulveda Basin Off-Leash Dog Park. The current right of way would allow for a shared 15' wide share pedestrian and bicycle path. Consideration should be given to using part of the adjacent parcel to achieve the preferred separate pedestrian path and greenway.

##### Orange Line Busway - Balboa Boulevard

The 0.58 mile maintenance path right of way in this reach is approximately 14' wide for the first 850' east of the Orange Line Busway and widens to 17'-19' at Balboa Boulevard. Under current conditions, the future bikeway design will be a Class I Bike Path with a separate 5' decomposed granite pedestrian path and a shared 14' pedestrian/bicycle path in the narrow section. The entire length is relatively flat and is next to an undeveloped lot that is publicly owned by the Army Corps of Engineers. Consideration should be given to using part of the adjacent parcel to achieve the preferred separate pedestrian path and greenway along the entire length.

#### Bridge/Street Crossings

The bikeway will cross the LA River at White Oak Avenue. There is an opportunity to utilize the White Oak Avenue bridge to achieve this. Minor modification to the bridge railing, street striping and median island removal/relocation can help create a new multi-use path north bound on White Oak to traverse to the north side of the LA River. See figure 3.02.1 for current design solution.

There are major conflicts at the Orange Line busway crossing that may require the bikeway to utilize a tunnel to cross the BRT busway.

Balboa Boulevard has existing undercrossings that can be utilized with minor modifications. Balboa Boulevard has an existing multi-use path and the Balboa Boulevard bridge can be utilized to cross the LA River on the south side.

#### Access

There are limited access points within this segment as the Orange Line Busway does not provide a connection to the future bikeway. White Oak Avenue and Balboa Boulevard have existing bike facilities and will provide bike access points in this segment. Both White Oak Avenue and Balboa Boulevard provide access to the Orange Line bikeway that is located north along Victory Boulevard.

The future bikeway is directly adjacent to the Sepulveda Basin Off-Leash Dog Park and will provide a direct connection for its users. Other sites that have potential access to the bikeway/greenway are the Mark Taper Intergenerational Center, Encino Farmer's Market, Pedlow Field Skate Park and the Sepulveda Basin Sports Complex.

#### Greenway

The greenway width varies from 0' to 5' in this segment. See chapter 5 for more details on future bikeway landscape improvements.

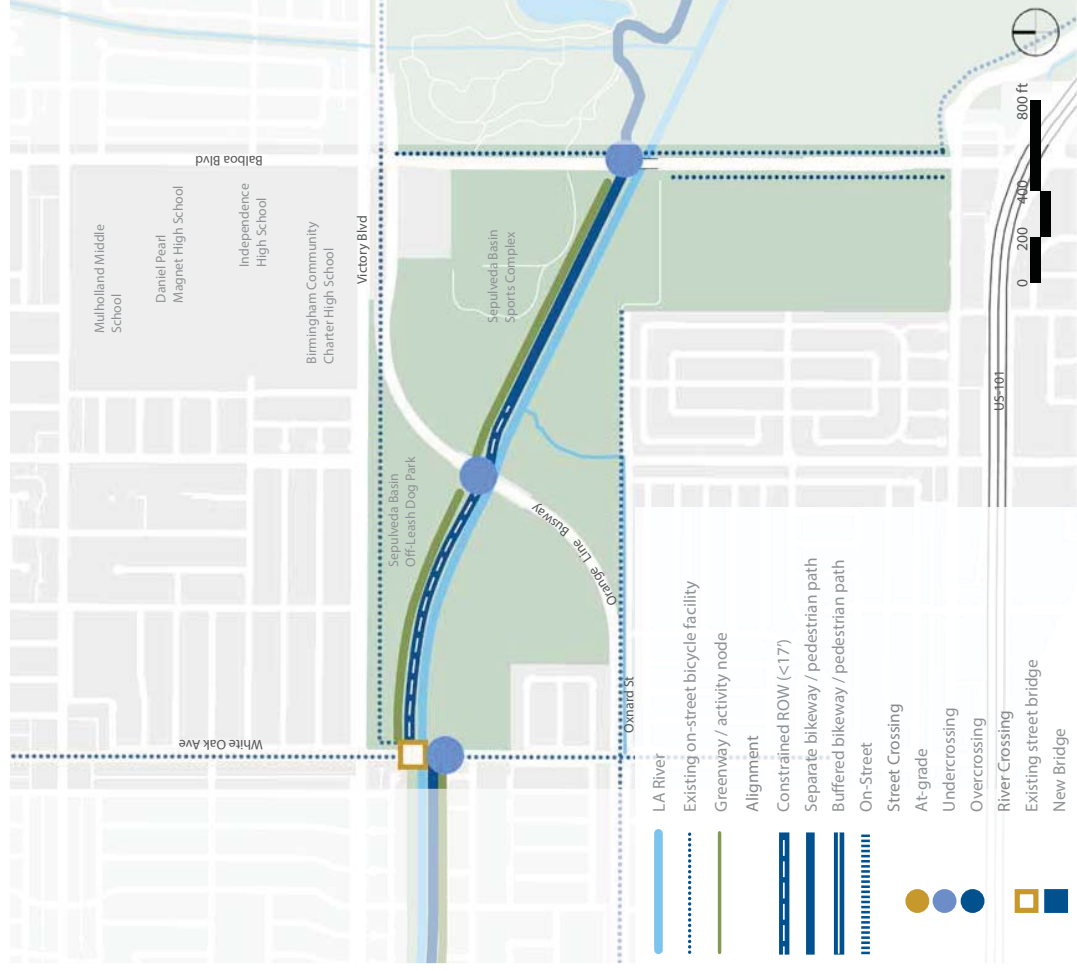


Figure 3.02.1 White Oak Avenue to Balboa Boulevard - Segment 02 Concept Alignment



## ALIGNMENT | SEGMENT 02

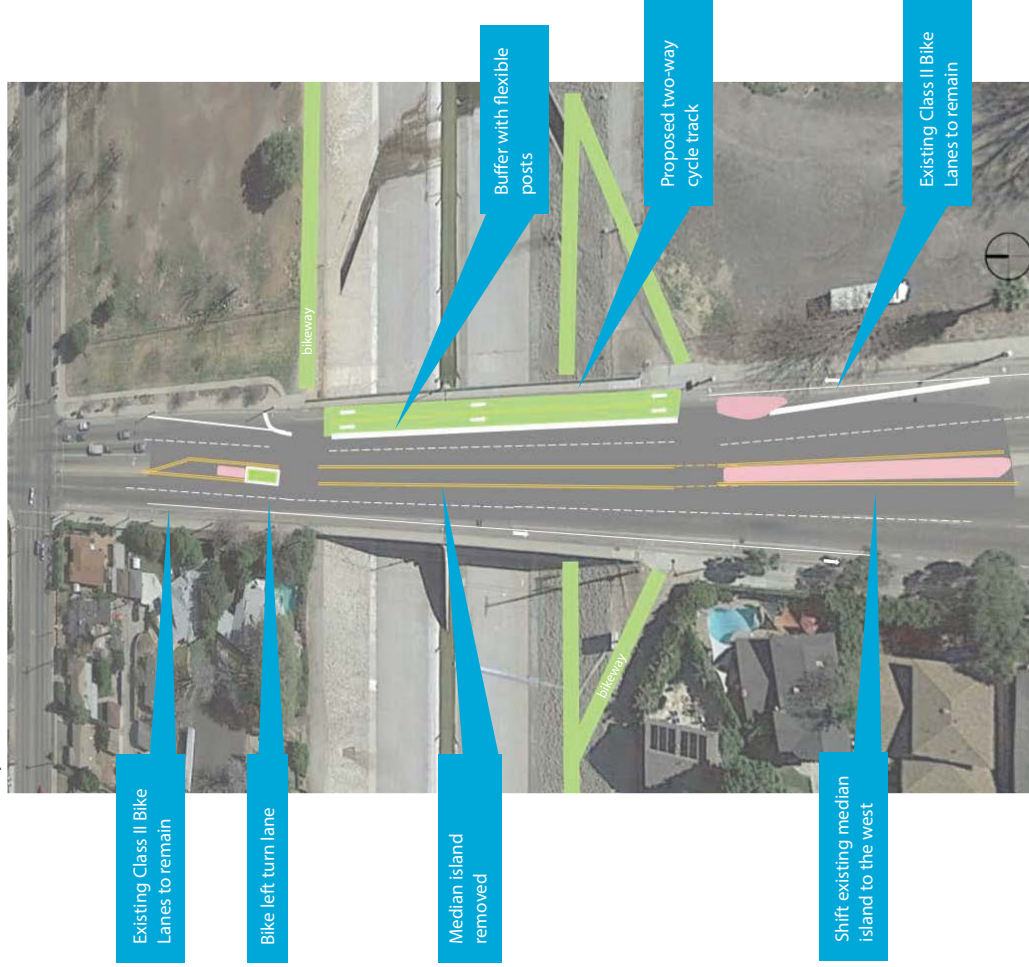


Fig 3.02.2 At-Grade Concept Plan for LA River Crossing at White Oak Avenue

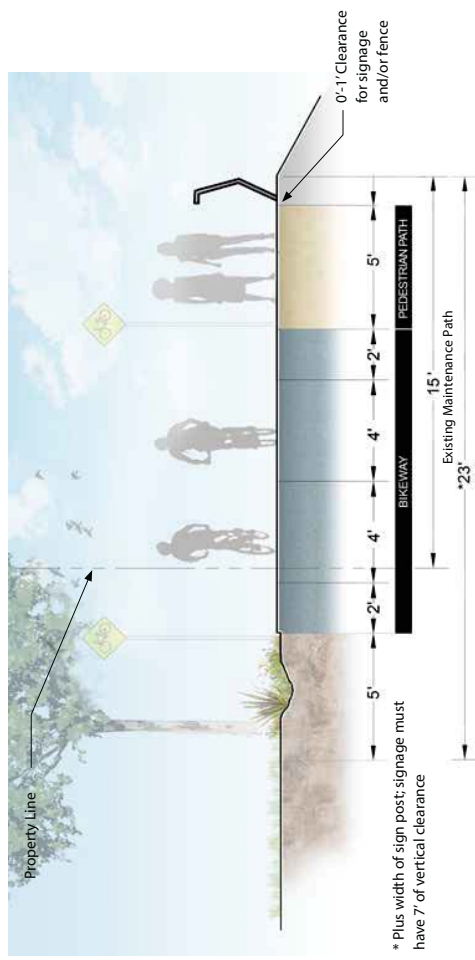


Figure 3.02.3 White Oak Avenue to Metro Orange Line Busway - Typical Cross Section

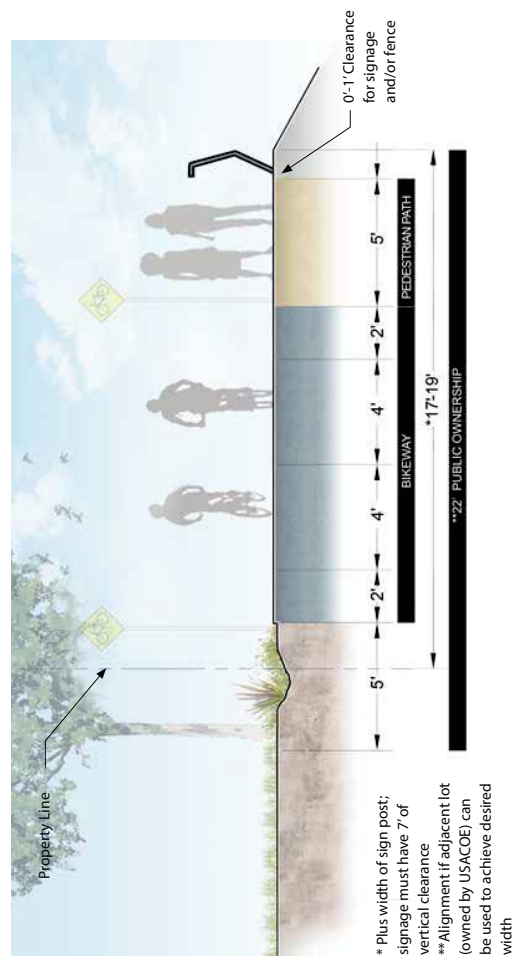


Figure 3.02.4 Metro Orange Line Busway to Balboa Boulevard - Typical Cross Section

## ALIGNMENT | SEGMENT 03

### Balboa Boulevard to Burbank Boulevard

Segment 03 is a 1.45 mile long reach on the south side of the LA River and begins at Balboa Boulevard and ends at Burbank Boulevard. The LA River is characterized by a soft-bottomed, and naturalized sided trapezoidal channel. The surrounding context is primarily a golf course directly adjacent to the future bikeway on the south side.

#### Alignment

##### Balboa Boulevard –Burbank Boulevard

The 1.45 mile maintenance path right-of-way in this reach comprised of two parts: a dirt maintenance path currently open to public for use as a hiking/jogging path, and a dense underbrush between the dirt path and top of river edge slope. The dirt path is approximately 15'-19' wide and narrows to 12' in a few short segments. As the sides of the LA River in this segment are soft, the edge condition is variable, but the dense brush area combined with the dirt path creates a right-of-way between 24'-30'. The future bikeway design will be a Class I Bike Path with a separate pedestrian path utilizing portions of the dense brush when needed. Alternatively, a golf cart path adjacent to the future bikeway location may be an opportunity to increase the space for a bikeway and landscape buffered pedestrian path. Fencing may be required to separate the golf course from the future bikeway.

The storm water level in the Los Angeles River channel will occasionally rise above the river banks and onto the bike path during large storm events, especially in alignment Segments 3 and 4. However, with the bioswale between the roads and the bikeway, the impacts should be minimized. In the event the water raises above the bank, design elements will be in place to minimize scour and erosion. Additionally, maintenance procedures should be in place to restore the safe functionality of the bike trail.

Design elements to minimize scour and erosion during a large storm event, may include designing the bike

#### Access

Balboa Boulevard and Burbank Boulevard have existing bike facilities and will provide bike access points in this segment. The future bikeway is directly adjacent to the Balboa Golf Course and will provide a direct connection for the jogging/hiking loop that circles this site. This path would need to be modified to accommodate all users. There are no additional connections between Balboa Boulevard and Burbank Boulevard.

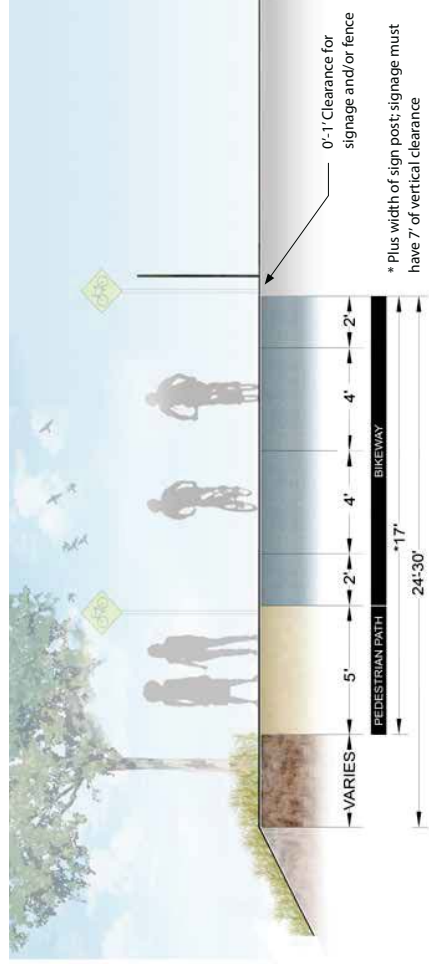


Figure 3.03.1 Balboa Boulevard to Burbank Boulevard (South Side) - Typical Cross Section

#### Bridge/Street Crossings

The future bikeway can traverse under Balboa Boulevard using the existing undercrossing. The future bikeway will cross the LA River at Burbank Boulevard to get to the north side to connect to Segment 04, which can be achieved utilizing the Burbank Boulevard bridge. Modification to the bridge, street striping and median removal/relocation can help widen the existing multi-use path on the south bound side of Burbank Boulevard to traverse to the north side of the LA River and connect with the existing multi-use path on Burbank Boulevard.

# ALIGNMENT | SEGMENT 03



Figure 3.03.2 Balboa Boulevard to Burbank Boulevard - Concept Alignment Segment 03

## ALIGNMENT | SEGMENT 03

### Alternative Alignment: Balboa Boulevard to Burbank Boulevard

A potential alternative alignment on the north side of the LA River was also studied. According to input at a community meeting, the narrow right-of-way on the south side of the LA River and the historical use of the path on the south side for pedestrians and jogging may make this alignment undesirable for the public due to perceived conflicts. Additionally, as Segments 02 and 04 are on the north side of the LA River, a bikeway and pedestrian path on the north side through Segment 03 provides greater continuity for users and would provide connection to the existing multi-use path on Burbank Boulevard. This would also provide better access to the park uses on the north side of the river in the Sepulveda Basin such as Lake Balboa/Anthony C. Beilenson Park.

There is an existing 12' wide multi-use concrete path on the south end of Lake Balboa/Anthony C. Beilenson Park between Balboa Avenue and Woodley Lakes Golf Course with natural grass/landscaping along both edges. This existing path could be modified to allow for a separate Class I Bike Path and 5' pedestrian path. Between the western edge of the Woodley Lakes Golf Course and Burbank Boulevard is a dirt path that varies between 10'-15' in width and dense underbrush between the dirt path and LA River. There has been no survey conducted of the north side of the river at this time; so the width between the dirt path and top of the river slope is unknown. The future bikeway design will be a Class I Bike Path with a separate pedestrian path utilizing portions of the dense brush when needed. Alternatively, a golf cart path adjacent to the path location may be an opportunity to increase the space for a bikeway and landscape buffered pedestrian path. Fencing may be required to separate golf course and Van Nuys RC Field from the future bikeway.

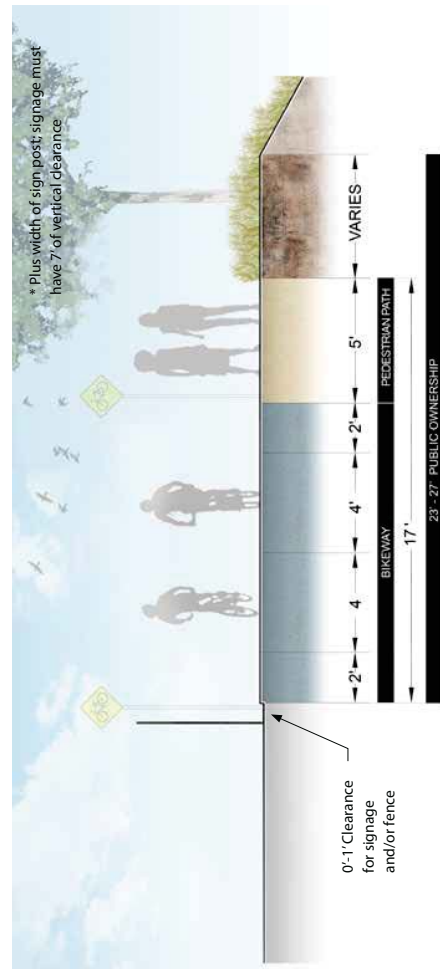


Figure 3.03.3 Balboa Boulevard to Burbank Boulevard (North Side) - Alternative Alignment Typical Cross Section

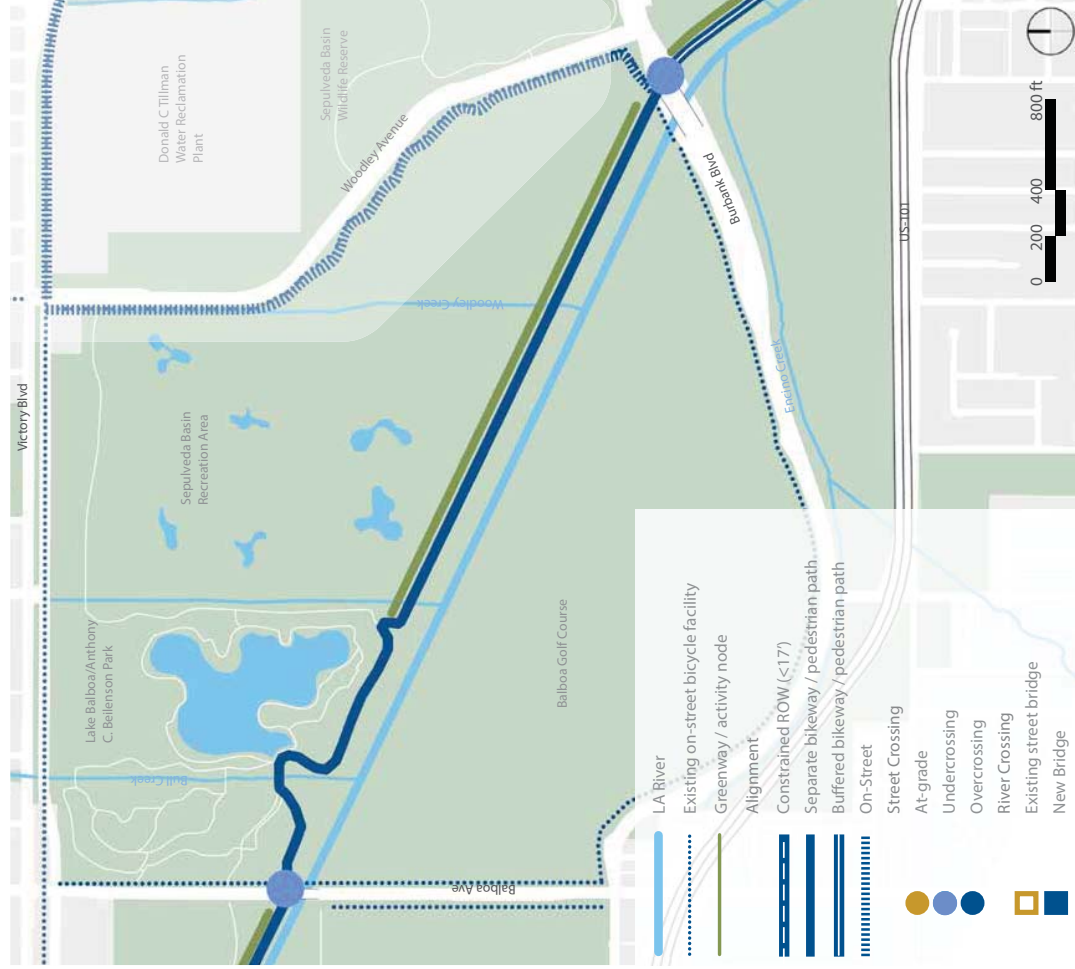


Figure 3.03.4 Balboa Boulevard to Burbank Boulevard - Segment 03 Concept Alignment Alternative



# ALIGNMENT | SEGMENT 04

## Burbank Boulevard to Sepulveda Boulevard

### Alignment

A potential alignment that would maintain the bikeway adjacent to the LA River would require significant coordination and cooperation between USACE, Caltrans and the City. This alignment would navigate over the Sepulveda Dam area and the I-405 via a pedestrian/bike bridge.

This alignment would create an undercrossing at Burbank Boulevard and travel along the LA River upstream of the Sepulveda Dam structure. The future bikeway would utilize the existing maintenance path to climb to the top of the dam and over to the downstream side and adjacent to the spillway. A pedestrian/bike bridge would traverse I-405 on the north side and utilize space next to the existing Fire Department to cross to Sepulveda Boulevard. This would complete the connection to the existing bikeway that extends from Kester Avenue to Sepulveda Boulevard. There is sufficient space along this stretch for a Class I Bike Path and decomposed granite pedestrian path separated by a landscape and/or bioswale buffer.

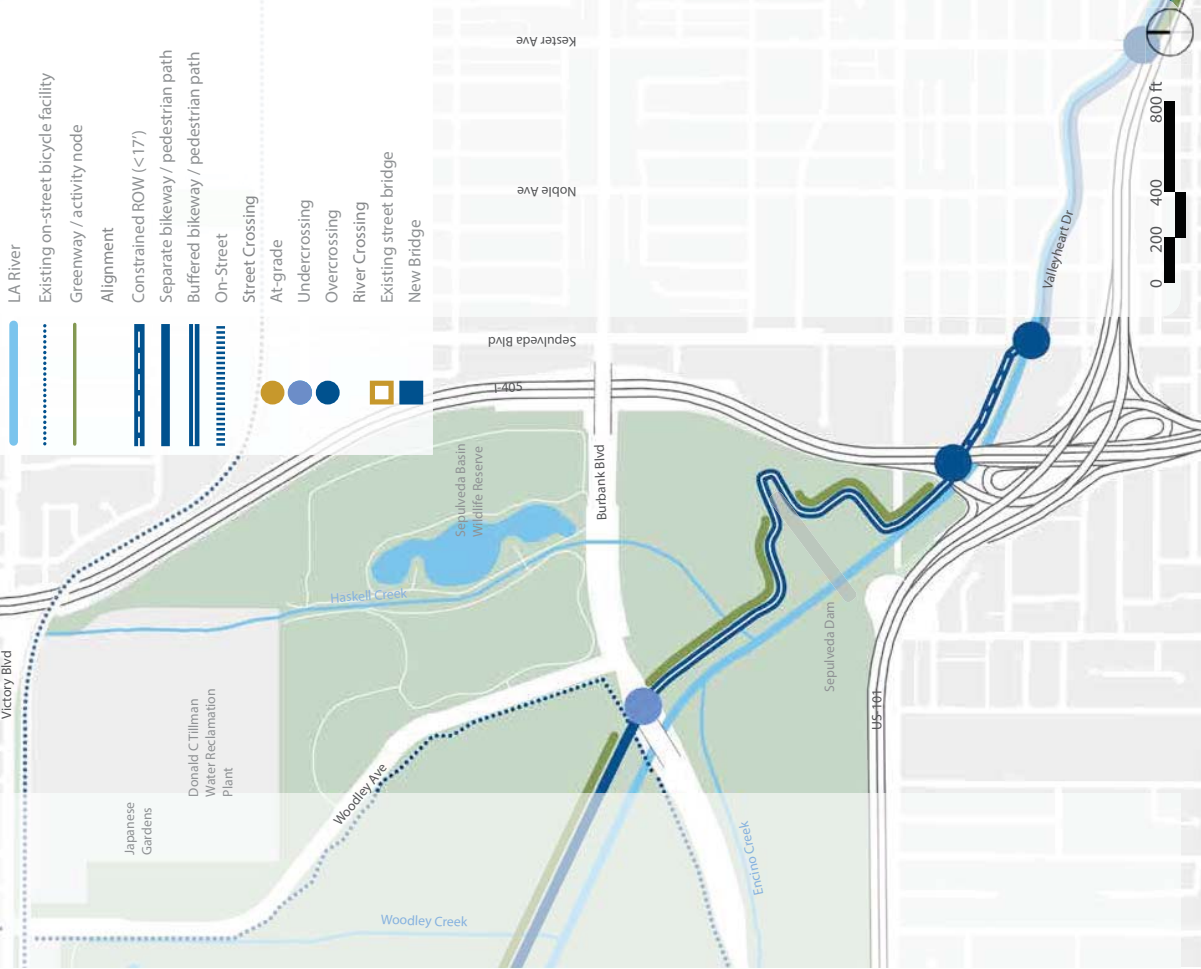
### Bridge/Street Crossings

A pedestrian/bike bridge would cross the I-405 and would be approximately 1200' long including ramps. There is no possibility of center columns in the constrained I-405 median, therefore a very long span is required of approximately 170' which requires a bridge depth of 7'. This would require a vertical elevation change of approximately 25' which requires approximately 500' ramps on each side.

A Metropolitan Water District Sepulveda feeder water line makes an undercrossing infeasible at Sepulveda Boulevard. An at-grade mid-block crossing at Valleyheart Drive South is feasible. Signalization may be an option for this at-grade crossing. An overcrossing at Sepulveda Boulevard/Valleyheart Drive has conflicts but is feasible with modification to overhead utility lines.

### Access

The existing LA Riverfront bikeway from Sepulveda Boulevard to Kester Avenue creates bike and pedestrian connectivity to this segment.



Concept Alignment for segment 04; Burbank Boulevard to Sepulveda Boulevard

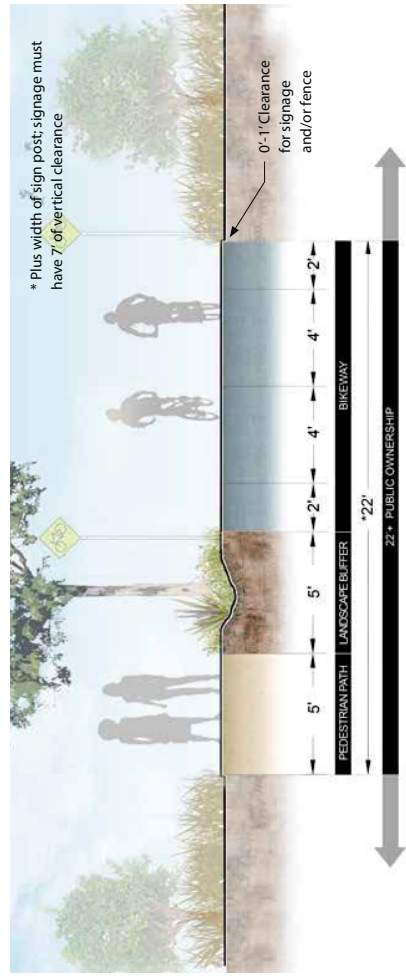


Figure 3.04.1 Burbank Boulevard Sepulveda Basin) - Typical Cross Section

## ALIGNMENT | SEGMENT 04

### Alternative Alignment: Burbank Boulevard to Sepulveda Boulevard (At-grade Burbank Boulevard interim)

Segment 04 is a 4.0 mile long stretch that must join the western reach to the central reach. The difficulty and cost of constructing over the I-405 and the feasibility of remaining aligned with the LA River at this point requires a short term interim option. An alternative alignment that was addressed in the original base alignment for Segment 04 is an at-grade solution to travel along new Class II Bike Lanes on Burbank Boulevard to new Class II Bike Lanes on Sepulveda Boulevard. These bike lanes would eliminate travel lanes on Burbank Boulevard and parking lanes on Sepulveda Boulevard. This interim option could have a major effect to the traffic flow in this area. The grade change from Sepulveda Boulevard to the Burbank Boulevard freeway overpass is not within bicycle facility design guidelines. Safety concerns, grade issues and significant effects to the traffic flow make this interim option non-feasible.

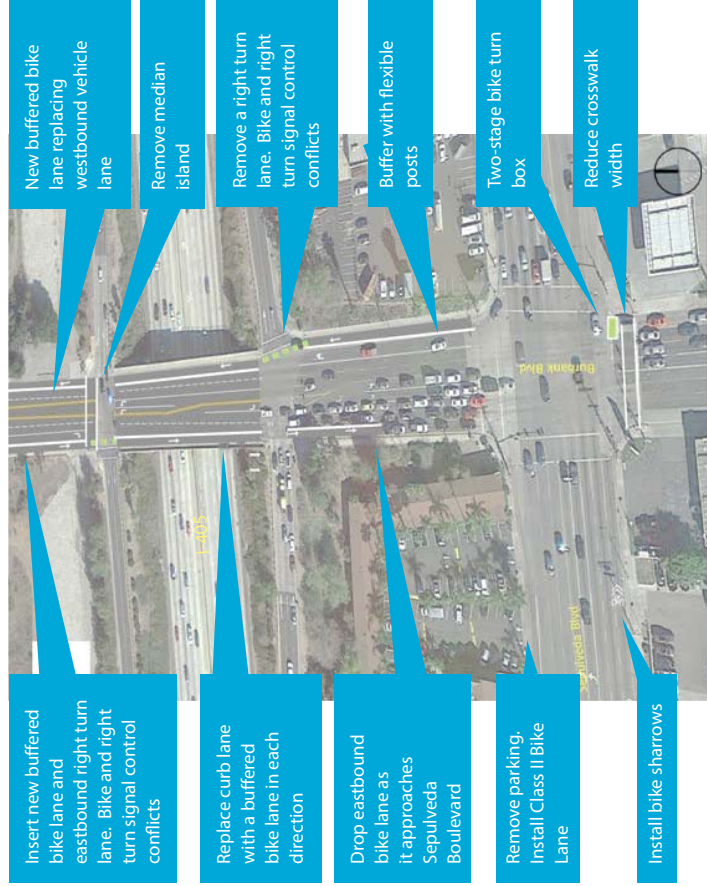


Figure 3.04.3 At-Grade Alternative Concept Plan for Burbank Boulevard to Sepulveda Boulevard

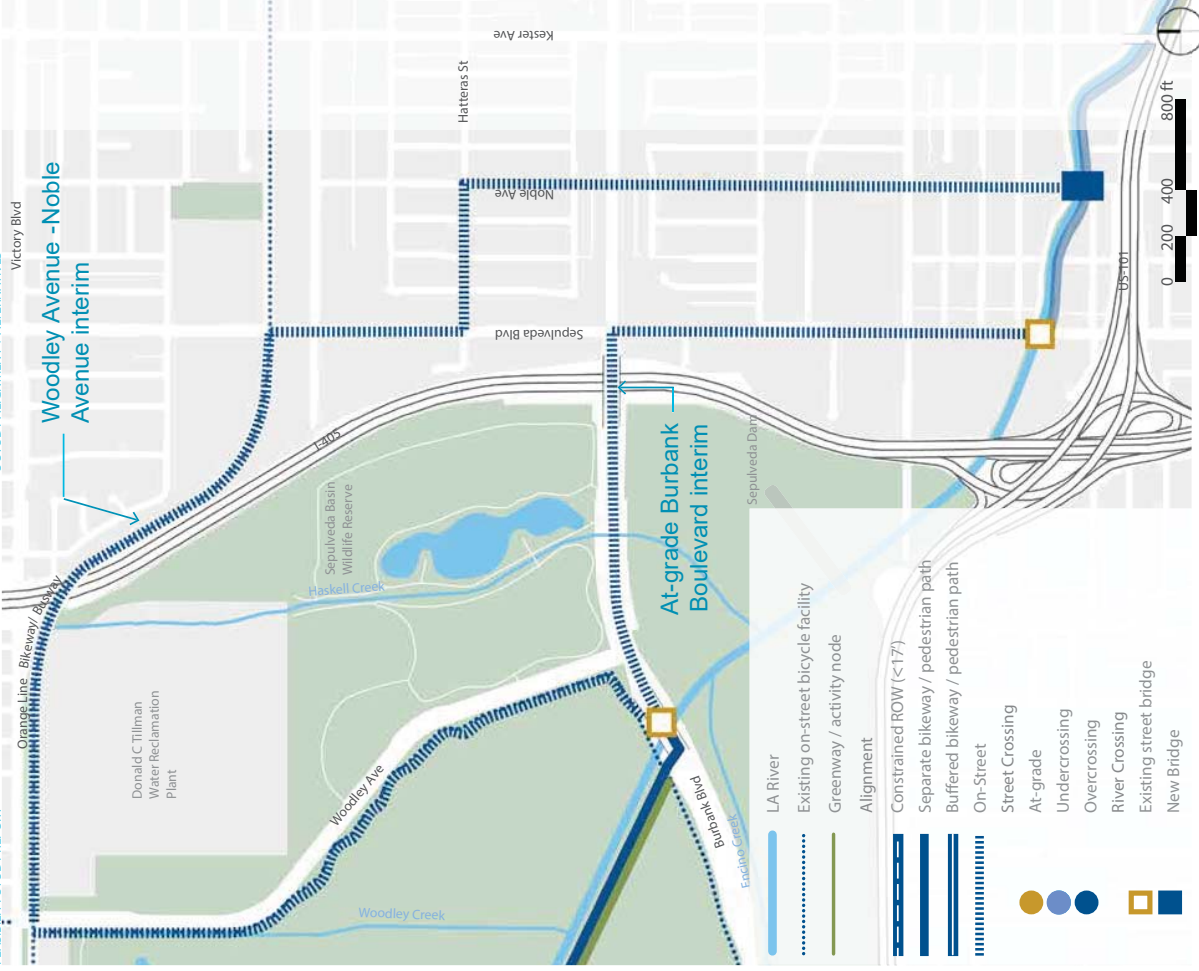


Figure 3.04.4 Burbank Boulevard to Sepulveda Boulevard (Noble Avenue) - Segment 04 Concept Alternative Alignment



## ALIGNMENT | SEGMENT 04

### Alternative Alignment: Burbank Boulevard to Sepulveda Boulevard (Woodley Avenue-Noble Avenue interim)

As the original interim option provided in the TOS has considerable conflicts to implementation, an alternate interim option has been studied below. The interim option would require using the existing multi-use path on Woodley Avenue and the Metro Orange Line Bikeway as well as creating a bike boulevard on Noble Avenue. This option does require a detour of approximately two miles in each direction, but is considered an achievable alternative that can be implemented to join the western reach with the eastern reach within the project goals. Many more experienced riders or commuters may choose to use shorter alternate paths on Burbank Blvd to connect to the bikeway at Burbank Boulevard but this option anticipates the eventual long term goal of the connection with the future bikeway traversing over the Sepulveda Dam and the I-405.

#### Alignment

##### Burbank Boulevard - Metro Orange Line Bikeway

This reach is an existing multi-use path that goes from Burbank Boulevard and the LA River intersection to Woodley Avenue. The existing multi-use path travels north on Woodley Avenue for 1.26 miles to the Metro Orange Line Bikeway. The existing multi-use path could be modified to create a separate Class I Bike Path and pedestrian path.

##### Metro Orange Line Bikeway - Noble Avenue

This reach is the existing Metro Orange Line Bikeway that travels from Woodley Avenue under the I-405 to Sepulveda Boulevard. Class II Bike Lanes on Sepulveda Boulevard to Hatteras Street would be needed to connect the Orange Line Bikeway to the streetlight at the intersection of Hatteras Street and Sepulveda Boulevard. Hatteras Street would be modified with signage, striping and traffic calming treatments. No changes would be made to the existing Orange Line Bikeway. This section would be approximately 1.47 miles.

##### Noble Avenue - Los Angeles River

Travelling east on Hatteras Street would lead to Noble Avenue and an opportunity to create a north/south connection to the LA River. Noble Avenue would be modified with signage, striping, traffic calming treatments such as traffic circles, bulb-outs and

chicanes to create a bike boulevard between Hatteras Street and the LA River bike path that is existing between Sepulveda Boulevard and Kester Avenue. This section is 1.36 miles between Hatteras Street and the LA River.

#### Access

Burbank Boulevard and Woodley Avenue have existing bike facilities and will provide bike access points in this segment. Balboa Boulevard and Woodley Avenue transect the Basin from north to south. Pedestrian and bicycle access points include each of these roadways, as well as numerous paved and unpaved trails throughout the Sepulveda Basin. Noble Ave is a residential street with existing streetlights at Burbank Boulevard and Magnolia Avenue.

#### Greenway

Not Applicable; This segment is utilizing existing multi-use paths and new bike boulevard. Potential landscaping along the new bike boulevard may be desired to address sufficient safety concerns. See chapter 5 for more details on landscape improvements along the future bikeway.

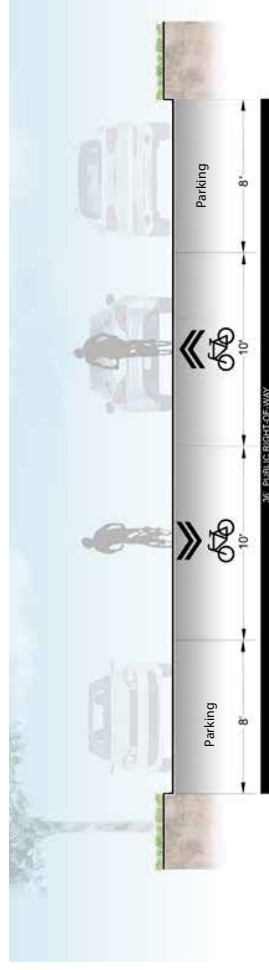


Figure 3.04.5 Noble Avenue Bike Boulevard - Alternative Alignment Typical Cross Section



Figure 3.04.6 At-Grade Alternative Concept Plan for Woodley Avenue - Noble Street Interim Option

## ALIGNMENT | SEGMENT 05

### Kester Avenue to Hazeltine Avenue

Segment 05 is a 1.05 mile long stretch that is the starting point of the central reach and connects to the existing LA River bike path to the west of Kester Avenue. The surrounding context of Segment 05 consists primarily of single family homes on the north and south side of the LA River with apartments and commercial activity concentrated on Kester Avenue, Van Nuys Boulevard, and Hazeltine Avenue. The commercial district along Ventura Boulevard is located 0.4 miles south of the future bikeway. The river in segment 05 is characterized by concrete lined box channel with chain link fence along the river perimeter.

#### Alignment

##### Kester Avenue - Van Nuys Boulevard

The 0.5 mile right-of-way is directly adjacent to the elevated US-101. The distance from the edge of the top of the river channel and US-101 structure varies between 21'-46' wide. There is sufficient space within this reach to allow for a Class I Bike Path with a 5' decomposed granite pedestrian path separated by a landscape buffer and/or bioswale. The sections with a wider right-of-way allow for preservation of existing landscaping along US-101 and/or additional landscape area. While there is a flat area approximately 10'-14' from the channel edge, the right of way slopes a total of 6'-10' from the channel edge to US-101, which will require a small retaining wall in the narrower sections of the right-of-way and minor regrading in wider sections.

##### Van Nuys Boulevard - Hazeltine Avenue

This section of approximately 0.55 miles consists of public right-of-way along the LA River channel edge and on-street section east of Stansbury Avenue when US-101 Freeway crosses the LA River. West of US-101/ LA River crossing, the public right-of-way is separated from US-101 by a chain link fence that marks Caltrans owned land. The public right-of-way is between 24'-31' wide with a 42' wide section at Tyrone Avenue directly adjacent to US-101. The public right-of-way is relatively flat with some areas with approximately 4' of slope that would require a small retaining wall. There is sufficient space within this reach to allow for a Class I Bike Path and 5' decomposed granite pedestrian path separated

by a landscape buffer and/or bioswale with additional greenway/landscape along the Caltrans property edge/ US-101. There is sufficient space underneath US-101 for a Class I bikeway, separate pedestrian path and park space. Sharrows will be utilized on Stansbury Avenue and Valleyheart Drive connecting to Hazeltine Avenue.

#### Bridge/Street Crossings

The future bikeway will cross Kester Avenue, Van Nuys Boulevard, US-101, and Hazeltine Avenue. The preferred crossing type at Kester Avenue and Van Nuys Boulevard would be overcrossings to avoid heavily trafficked corridors and utility conflicts. The future bikeway at the US-101 will be an undercrossing that is existing currently. The Hazeltine Avenue crossing would need to be at-grade as overcrossing and/or undercrossings are infeasible. Street striping modification and signalization of the intersection will provide safe and efficient crossings.

#### Access

Pedestrian and bicycle access points to the future bikeway in Segment 05 include Kester Avenue, Van Nuys Boulevard, and Hazeltine Avenue.

#### Greenway

Ernie's Walk is an existing linear greenway approximately 1/4 mile in length running along the north side of the LA River from Kester Avenue to Cedros Avenue. Potential landscaping along the future bikeway on the south side of the LA River will be desired to provide a buffer to the US-101.

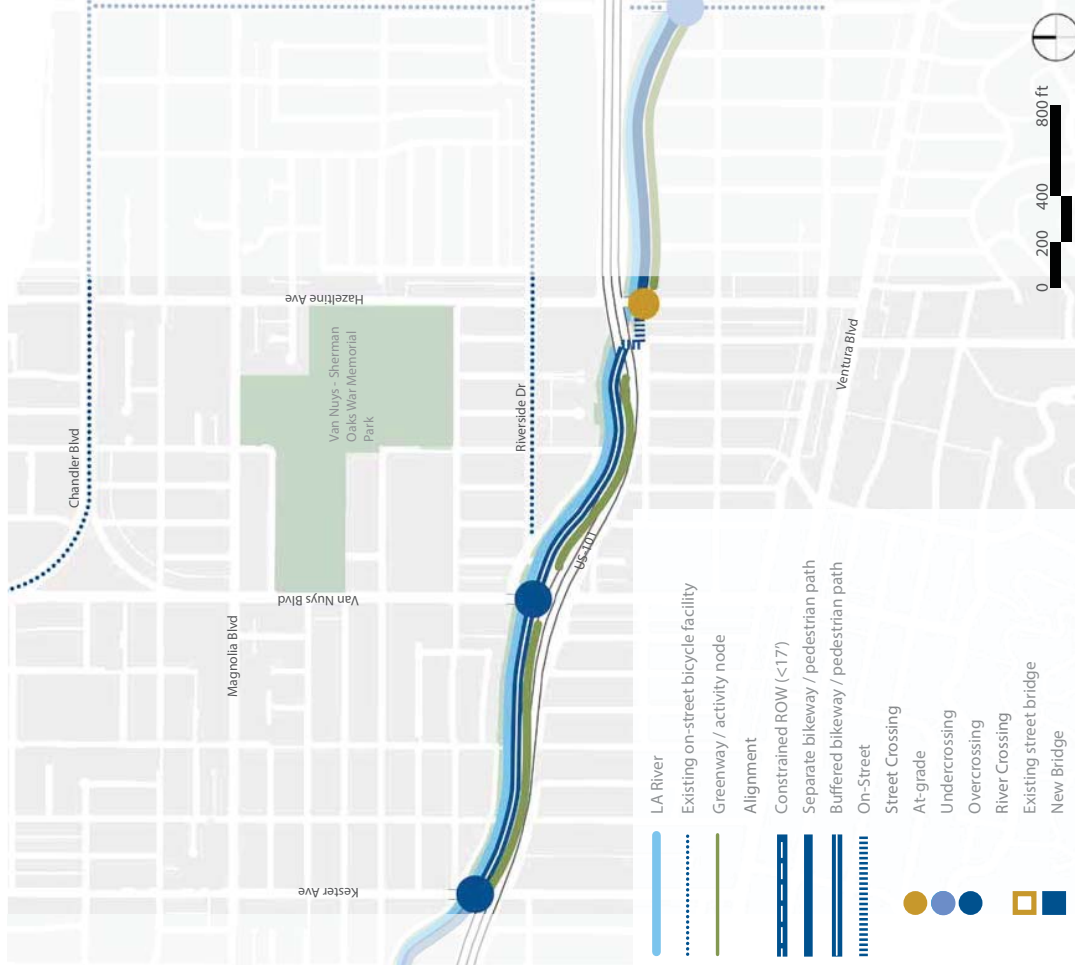


Figure 3.05.1 Kester Avenue to Hazeltine Avenue - Segment 05 Concept Alignment



## ALIGNMENT | SEGMENT 05



Figure 3.05.2 At-Grade Concept Plan for US-101 and Hazeltime Avenue Crossing

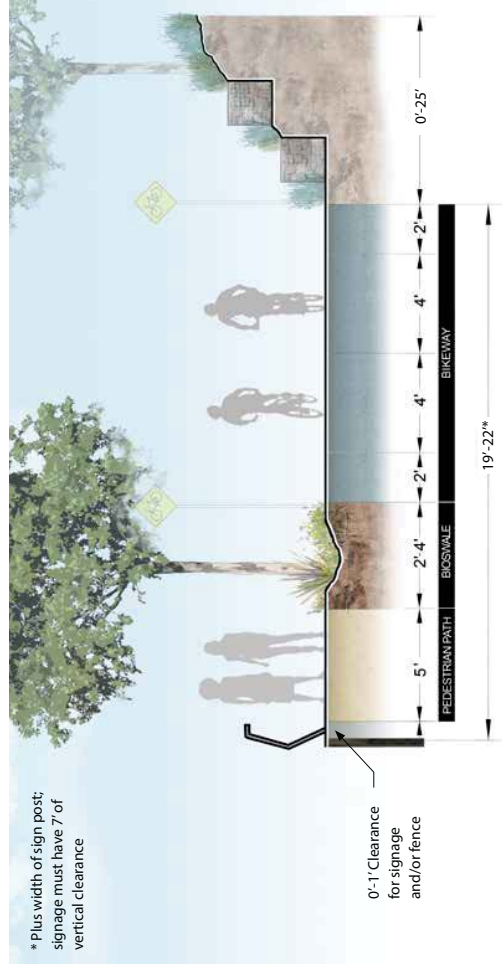


Figure 3.05.3 Kester Avenue to Van Nuys Boulevard - Typical Cross Section

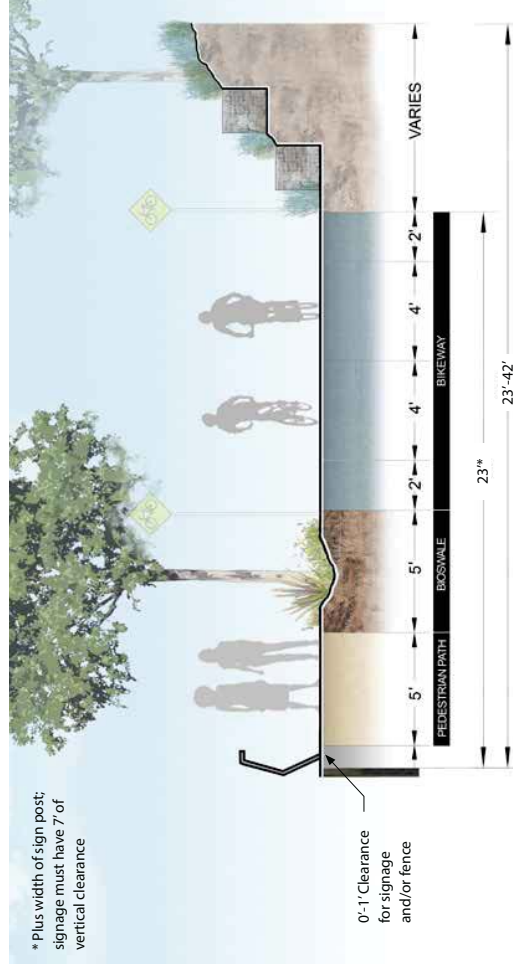


Figure 3.05.4 Van Nuys Boulevard to Hazeltime Avenue - Typical Cross Section

## ALIGNMENT | SEGMENT 05

### Alternative Alignment: Kester Avenue to Hazeltine Avenue

The Segment 05 Alternative Alignment is a 1.07 mile long stretch that is the starting point of the central reach and connects to the existing LA River bike path to the west of Kester Avenue. From Kester Avenue to Van Nuys Boulevard the alignment runs along the south side of the LA River. As part of the Alternative Alignment an overcrossing to the east of the Van Nuys Boulevard undercrossing brings the alignment to the north side of the LA River. The Alternative Alignment provides connections to destinations on the north side of the LA River in Segment 06. The river in this segment is characterized by a concrete-lined box channel with chain link fence along the LA River perimeter.

#### Alignment

##### Kester Avenue - Van Nuys Boulevard

This alignment would follow the same alignment of the original TOS alignment between Kester Avenue and Van Nuys Boulevard on the south side of the LA River.

##### Van Nuys Boulevard - Hazeltine Avenue

In this alternative alignment, Van Nuys Boulevard is the point at which the future bikeway moves from the south to the north side of the LA River as part of the Segment 05 Alternative Alignment. Along the north side of the river there is sufficient space for a Class I Bike Path and a 5' decomposed granite pedestrian path separated by a landscape buffer or bioswale.

#### Bridge/Street Crossings

The future bikeway will cross Kester Avenue, Van Nuys Boulevard, US-101, and Hazeltine Avenue. The preferred crossing type at Kester Avenue and Van Nuys Boulevard would be overcrossings to avoid heavily trafficked corridors and utility conflicts. The US-101 will be an undercrossing that is existing currently. The Hazeltine Avenue crossing would need to be at-grade as an overcrossing and/or undercrossing is infeasible. It will be possible to utilize the existing signal at Hazeltine and Fashion Square Lane, however this may require modification of signals to achieve bike crossing at this intersection.

A LA River overcrossing to the east of the Van Nuys Boulevard overcrossing will bring the alignment to the north side of the LA River.

#### Access

Access to the future Bikeway from Kester Avenue, Van Nuys Boulevard, and Hazeltine Avenue remains the same as Segment 05.

In the Alternative Alignment, Tyrone Avenue provides the surrounding neighborhoods and Van Nuys/Sherman Oaks Recreation Center pedestrian and bicycle access to the future bikeway from the north side of the LA River. To the west of the Hazeltine Avenue intersection there is an opportunity to connect and provide access to the future ICON Sherman Oaks; a mixed-use development project at the site of the former Sunkist headquarters.

#### Greenway

Potential landscape improvements along the future bikeway on the south side of the LA River from Kester Avenue to Van Nuys Boulevard may be desired to buffer the US-101. Potential landscaping along the new bike boulevard may be desired to screen adjacent residences on the north side of the river from Van Nuys Boulevard to Kester Boulevard.

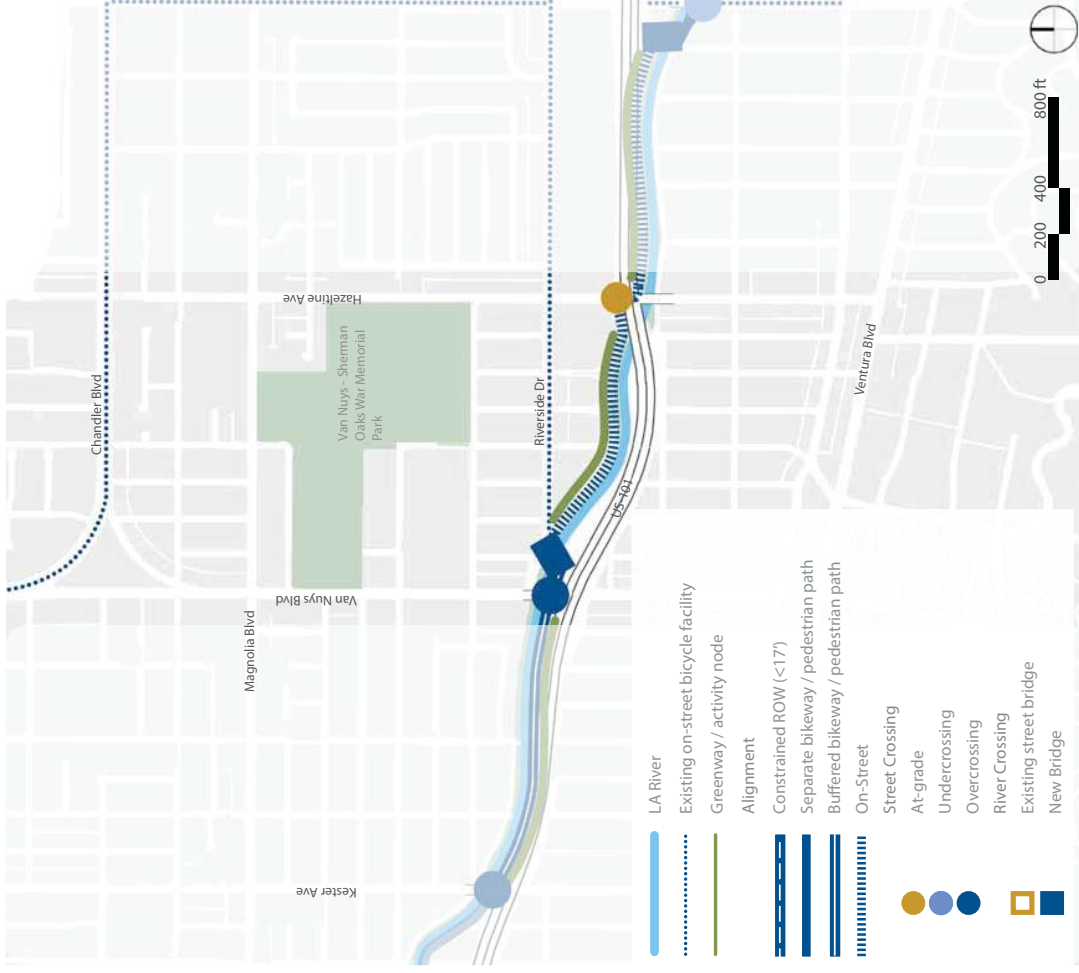


Figure 3.05.5 Kester Avenue to Hazeltine Avenue - Segment 05 Concept Alignment

## ALIGNMENT | SEGMENT 05

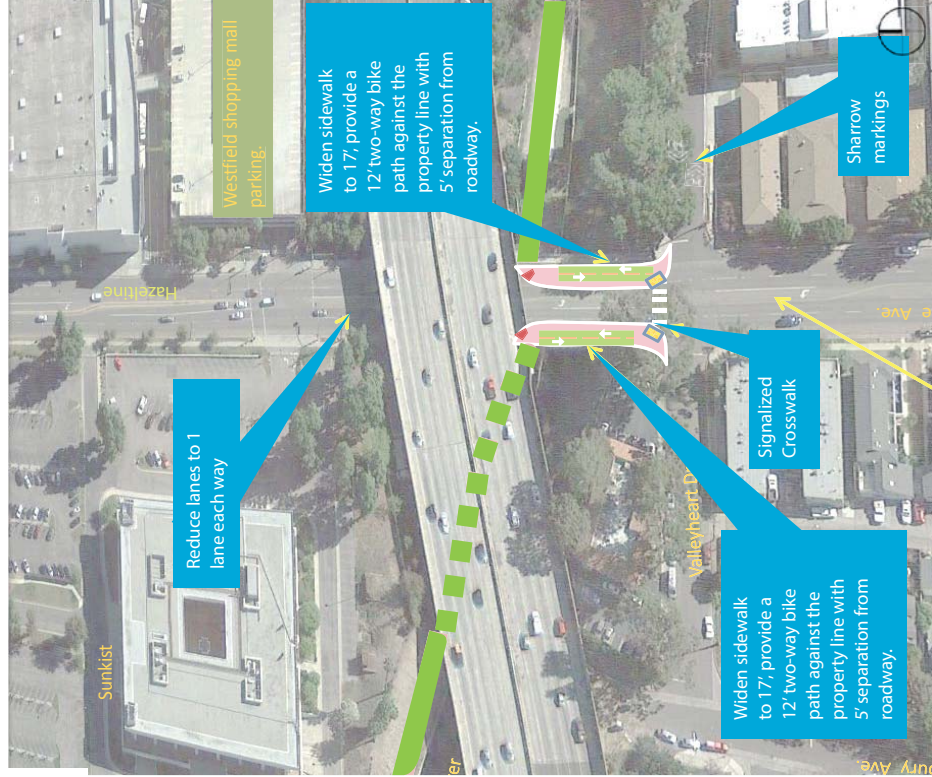


Figure 3.05.6 At-Grade Alternative Concept Plan for US-101 and Hazeltine Avenue crossing (north side of LA river)

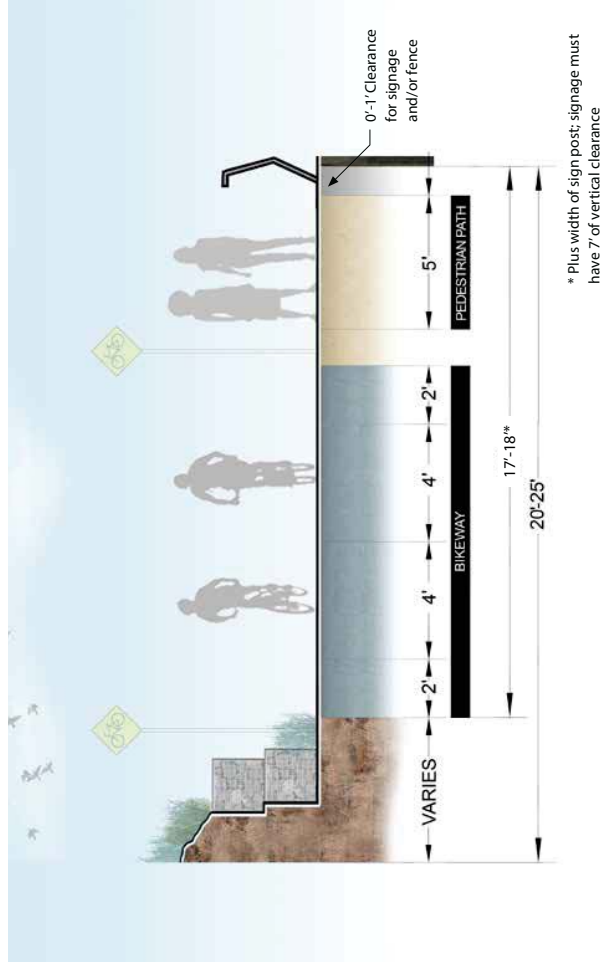


Figure 3.05.7 Van Nuys Boulevard to Hazeltine Avenue - Alternative Alignment Typical Cross Section



## ALIGNMENT | SEGMENT 06

### Hazeltine Avenue to Woodman Avenue

Segment 06 is a 0.5 mile long stretch within the central reach. Segment 06 is located in Sherman Oaks beginning at Hazeltine Avenue and ending at Woodman Avenue. This future bikeway runs through existing greenspace along the south side of the river. The US-101 and Westfield Shopping Mall are directly north of the LA River. The surrounding context is primarily residential with single family homes and apartment buildings in the vicinity. The LA River in this segment is characterized by a concrete-lined box channel with chain link fence along the LA River perimeter.

#### Alignment

##### Hazeltine Avenue - Woodman Avenue

The base TOS alignment is along the south side of the LA River with a public right of way that varies between 20'-28' wide, and a 44' wide section at Murietta Avenue. There is an approximate 5' slope between the channel edge and adjacent sidewalk along Valleyheart Drive, which will require a retaining wall. There is sufficient space within the right-of-way to accommodate a Class I Bike Path and separate 5' wide decomposed granite pedestrian path.

#### Bridge/Street Crossings

The street crossing at Hazeltine Avenue will be an at-grade crossing. The preferred crossing at Woodman Avenue would be an undercrossing.

#### Access

Hazeltine Avenue and Woodman Avenue provide access to the future bikeway from the western and eastern extents of the segment. Valleyheart Drive runs parallel to the LA River and provides local pedestrian and bicyclist entrance opportunities. The future bikeway would provide a connection to existing bike lanes along Woodman Avenue.

#### Greenway

The existing greenway along Segment 06 is valued and well used by the surrounding community. Enhancements to the existing greenway as space allows will include vegetated bioswales, habitat restoration, and tree planting to establish shade cover. Care shall be given to preserve existing mature trees along this stretch of the alignment. See Chapter 5 for more information on greenway design elements.

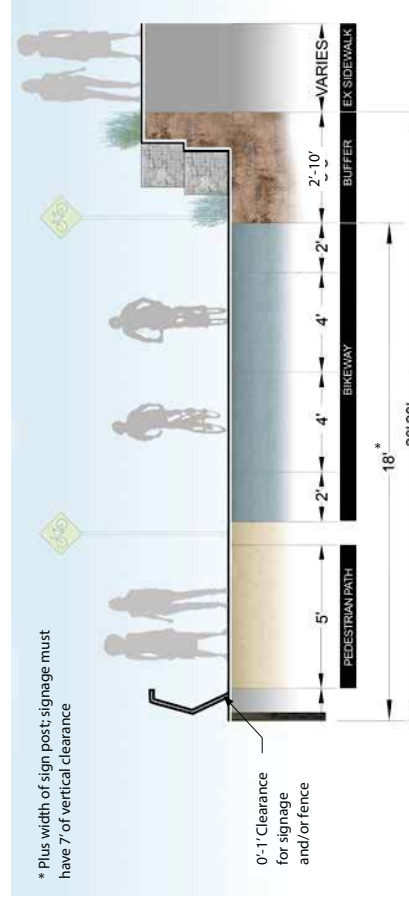


Figure 3.06.1 Hazeltine Avenue to Woodman Avenue - Typical Cross Section

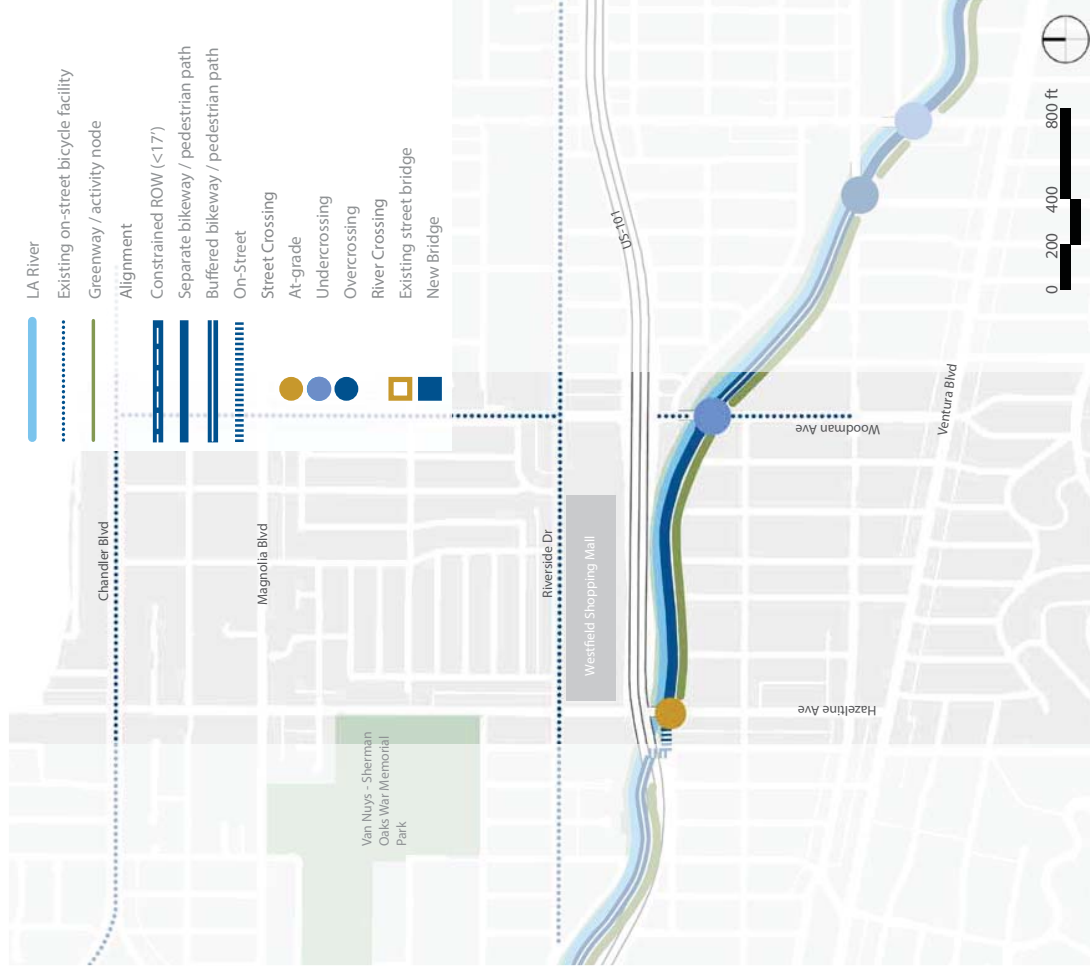


Figure 3.06.2 Hazeltine Avenue to Woodman Avenue - Segment 06 Concept Alignment



## ALIGNMENT | SEGMENT 07

### Woodman Boulevard to Coldwater Canyon Avenue

Segment 07 is a 1.15 mile long stretch within the Central Reach. Coldwater Canyon Avenue is the eastern boundary of the Central Reach and will connect to the LA River greenway trail project currently under construction. The alignment remains on the south side of the LA River throughout the segment. The north side of the LA River is defined by single family homes with apartments and businesses concentrated along Moorpark Street. The south side of the LA River is in close proximity to the Ventura Boulevard commercial area. Additionally, there are various schools, religious institutions, and apartment buildings in the vicinity on the south side of the LA River. The LA River is characterized by a concrete lined box channel with chainlink fence along the LA River perimeter in this segment.

#### Alignment

##### Woodman Avenue - Moorpark Street

This section on the south side of the LA River would be approximately 0.45 miles and is approximately 24'-28' wide. The future bikeway design will be a Class I Bike Path with a 5' wide decomposed granite pedestrian pathway separated by a bioswale for storm water infiltration and habitat value. This section is relatively flat, but some areas slope approximately 2' that will require a small retaining wall or regrading.

##### Moorpark Street - Fulton Avenue

This section includes multiple options depending on the type of crossing used for Moorpark Street. The public right of way along the entire LA River channel edge is between 25'-32' wide and slopes approximately 7'-9' from the LA River channel edge to Valleyheart Drive. The existing slope creates a buffer with large canopy trees. The existing slope between the LA River and Valleyheart Drive will need to be modified to provide adequate width for a Class I Bike Path and separate pedestrian path. Where adequate regrading is not possible, a retaining wall will be used, which could also provide a terraced landscape area for preservation of existing canopy trees or replacement.

If an at-grade crossing is used in the interim, or if an overcrossing is proved infeasible, Moorpark Street would be modified with signage, striping, and signals to create a bike boulevard at the location where the

alignment crosses onto Valleyheart Drive. This section is approximately 700 feet between Moorpark Street and Fulton Avenue. At this stretch, pedestrians can choose to stay above the bikeway by staying on the sidewalk on Valleyheart Drive.

##### Fulton Avenue - Cold Water Canyon Avenue

This section is 0.55 miles and has a 30'-45' wide right of way adjacent to Valleyheart Drive. There is an area just east of Ethel Avenue that expands to 65' wide. There is an existing slope of approximately 4'-8' between the top of the LA River channel and the Valleyheart Drive curb. The existing slope between the river and Valleyheart Drive may need to be regraded or reinforced with a small retaining wall to provide adequate width along the channel edge. The future bikeway design will be a Class I Bike Path with a separate pedestrian path with landscaping and/or bioswale between the future bikeway and Valleyheart Drive. Currently there is no sidewalk along the northern side of Valleyheart Drive. The width of this sections provides the opportunity to install a sidewalk with street trees along Valleyheart Drive, but would result in the loss of existing vegetation and canopy trees.

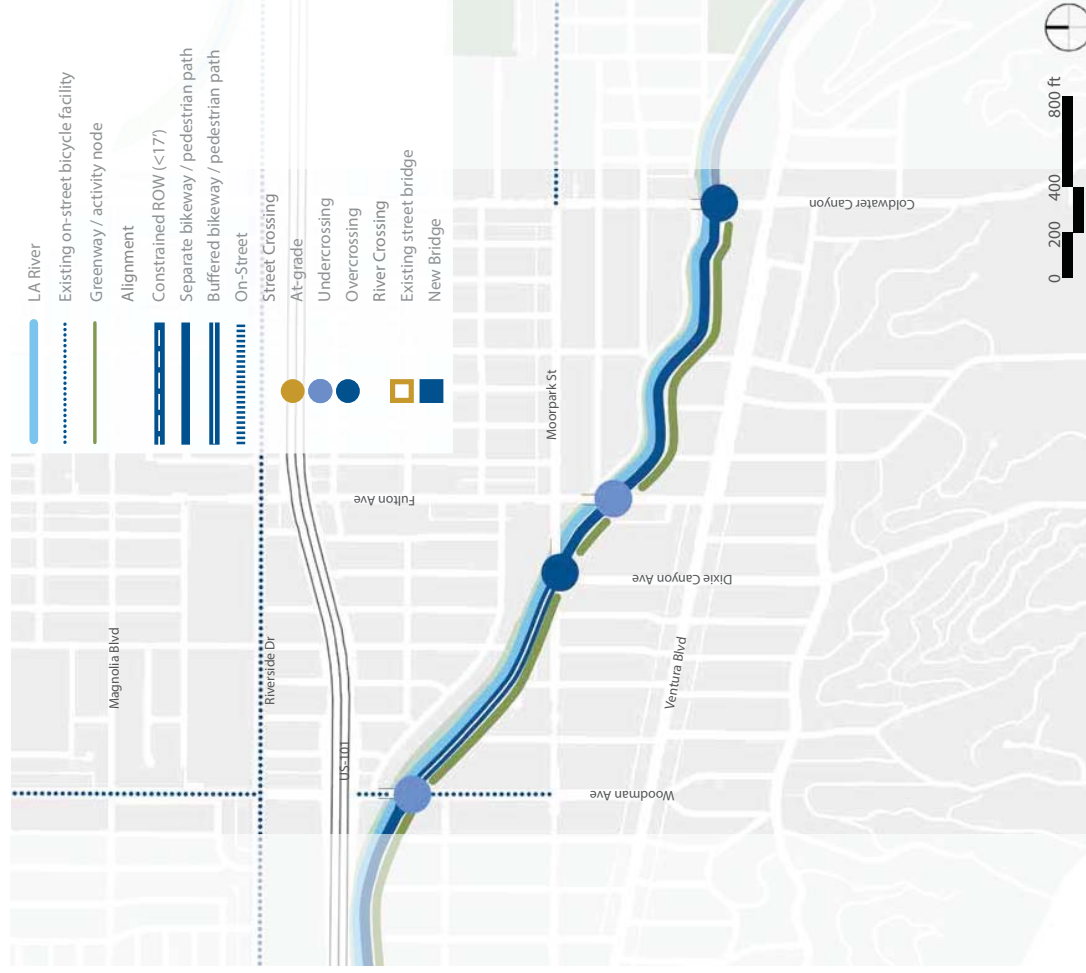


Figure 3.07.1 Woodman Avenue to Coldwater Canyon Avenue - Segment 07 Concept Alignment

## ALIGNMENT | SEGMENT 07

### Bridge/Street Crossings

The preferred crossing at Woodman Avenue and Fulton Avenue would be undercrossings. The preferred crossing at Moorpark Street/ Dixie Canyon Avenue and Coldwater Canyon Avenue intersections would be overcrossings. An existing crosswalk at Moorpark Street and Dixie Canyon Avenue could make this a safe alternative for an at-grade crossing as a bridge at this crossing would be extremely long. Minor modification to street striping and signals may be required. At the Coldwater Canyon Avenue intersection, the future bikeway will connect to the LA River greenway trail project currently under construction.

### Access

Woodman Avenue, Fulton Avenue, and Coldwater Canyon Avenue transect the segment from north to south. Valleyheart Drive runs parallel to the LA River in the eastern half of this segment. Pedestrian and bicycle access points include each of these roadways, in addition to the existing pedestrian bridge connecting Sunny Slope Avenue and Rye Street.

### Greenway

A micro-sized pocket park condition will occur at the Moorpark Street and Valleyheart Drive intersection. See Chapter 5 for more details on landscape improvements along the alignment.

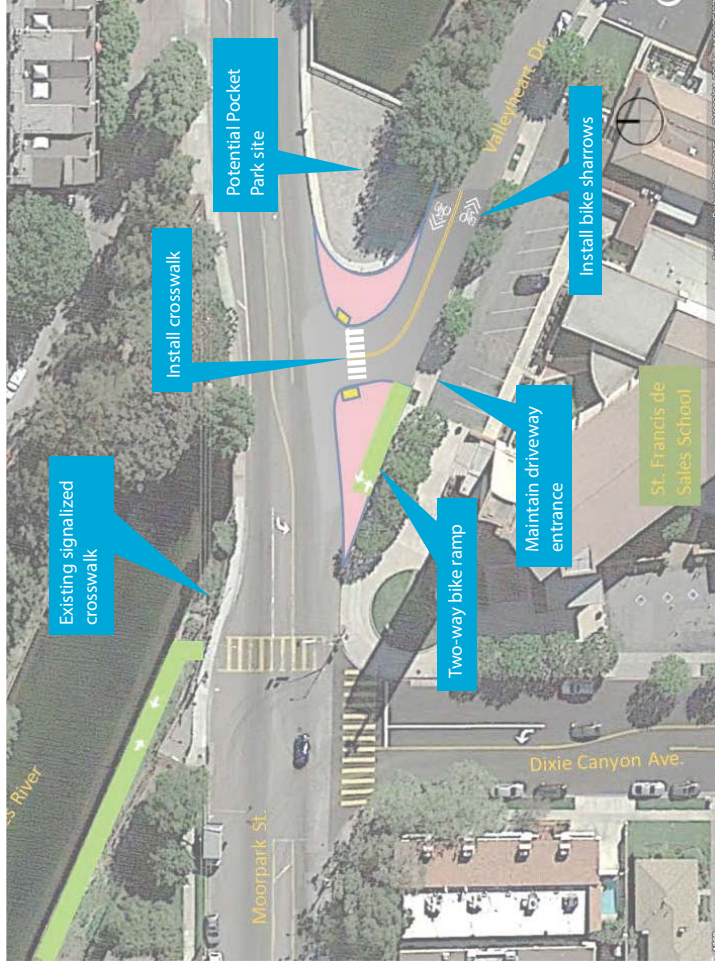


Figure 3.07.2 At-Grade Concept Plan for Dixie Canyon Avenue and Moorpark Street (if overcrossing becomes infeasible)

## ALIGNMENT | SEGMENT 07

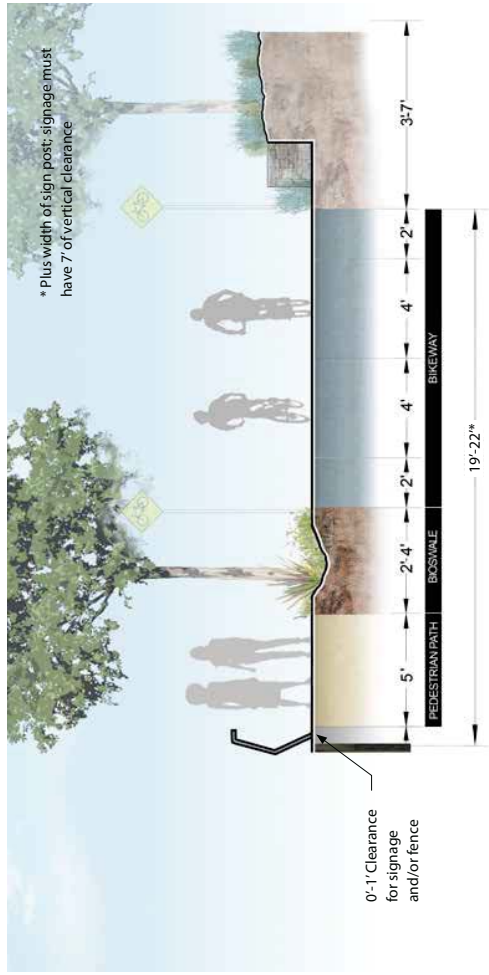


Figure 3.07.3 Moorpark Avenue to Woodman Avenue - Typical Cross Section

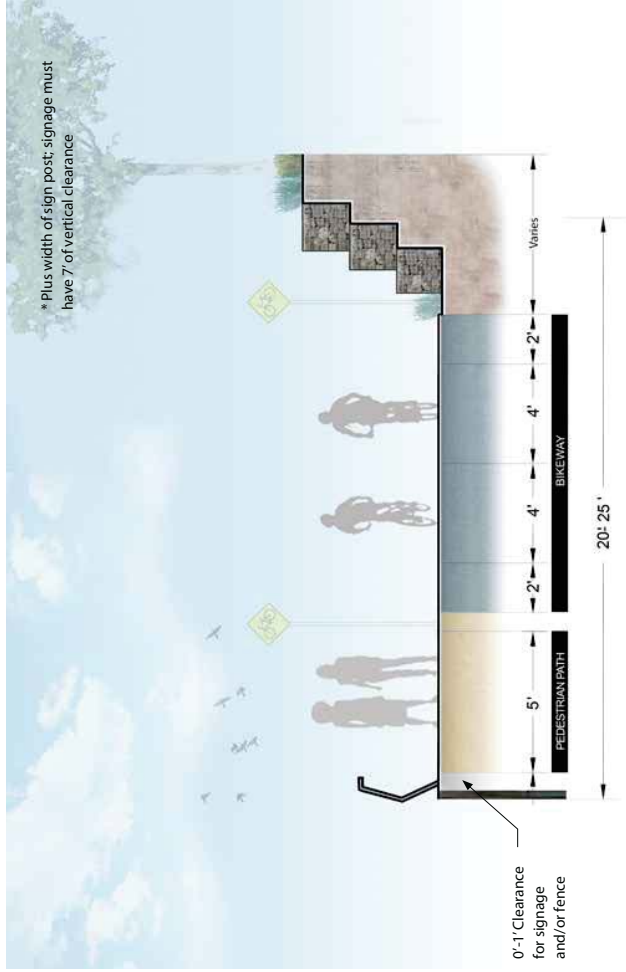


Figure 3.07.4 Moorpark Street to Fulton Avenue - Typical Cross Section

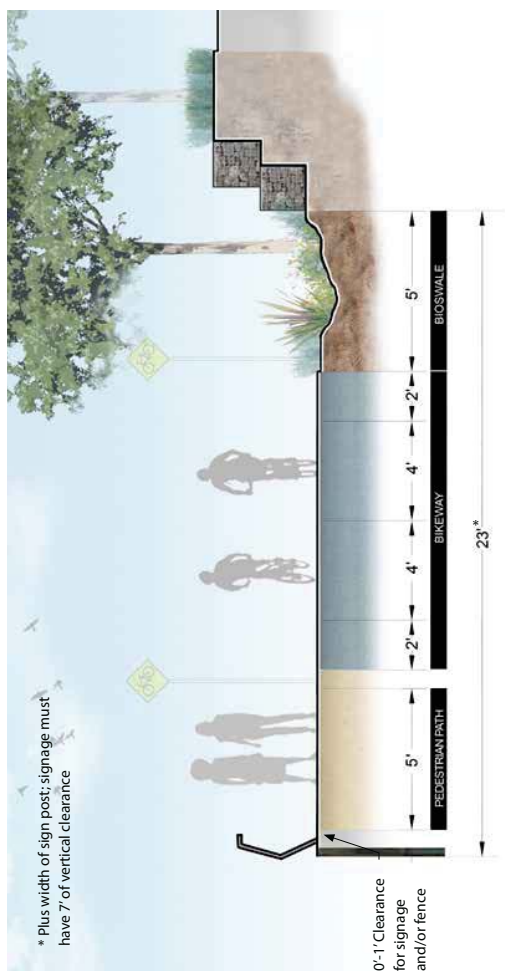


Figure 3.07.5 Fulton Avenue to Coldwater Canyon - Typical Cross Section

## ALIGNMENT | SEGMENT 08

### Whitsett Avenue to Lankershim Boulevard

Segment 08 is a 3.24 mile long reach that begins at Whitsett Avenue and ends at Lankershim Boulevard. The alignment begins on the south side of the LA River before crossing to the north just before Laurel Canyon Boulevard in order to bypass CBS Studios. The alignment follows the Tujunga Wash from Radford Avenue to the LA River/Tujunga Wash confluence where it crosses back to the south side just east of Colfax Avenue. The alignment remains on the south side of the LA River to connect to the planned tunnel at the Lankershim Boulevard crossing. The LA River is characterized by a concrete-lined box channel. The surrounding context is mixed with single and multi-family residential and walkable commercial.

### Alignment

#### Whitsett Avenue - Laurel Canyon Boulevard

The 0.57 mile path right-of-way approximately 40' wide on the south side of the river is comprised of two distinct conditions: a flat area along the channel edge that is approximately 15'-17' wide used as a pedestrian path, and a sloped landscaped area with existing canopy trees. The future bikeway crosses the river before Laurel Canyon Boulevard to an alignment on the north side of the LA River with an available right-of-way between 30'-50'. On the south side, the future bikeway design will be a Class I Bike Path with a separated pedestrian path, which may require some regrading or small retaining wall within the existing landscape area. On the north side, the future bikeway design will be a Class I Bike Path with a separated meandering pedestrian path; integrated with a linear Laurel Grove River Park. Based on the street-end location, bioswales can be implemented to filter storm water before it enters the LA River. Moreover in wider sections the park can be programmed to accommodate bicycle fix stations, mobile coffee and food carts, as well as gathering spaces such as an outdoor classroom amphitheater.

#### Laurel Canyon Boulevard - Radford Avenue

The 0.27 mile path right-of-way in this reach is on the north side of the LA River and is approximately 25' wide with areas up to 60' wide with a minimal slope between the channel edge and Valleyheart Drive. The f

future bikeway design will be a Class I Bike Lanes with a separate decomposed granite pedestrian path. This stretch can also accommodate bioswales and pocket parks at the wider areas for storm water filtration and habitat value.

#### Radford Avenue - Colfax Avenue

CBS Studio occupies both banks of the LA River between Radford Avenue and the LA River and Tujunga Wash confluence, which makes it infeasible to continue the bikeway along the LA River. The 0.75 mile reach travels at-grade north on Radford Avenue to a new crossing at the Tujunga Wash. This will require a modified striping to create a two-way cycle track adjacent to Radford Art Walk. After crossing to the north side of Tujunga Wash, the alignment will travel back down to the Tujunga Wash and LA River confluence. The right-of-way in this section is approximately 27' and minimal slope. The future bikeway design will be a Class I Bike Path with a separate decomposed granite pedestrian path. This section can accommodate planting buffers that could also serve as bioswales for storm water filtration.

#### Colfax Avenue - Tujunga Avenue

The 0.55 mile right-of-way path in this reach is approximately 22'-46' wide. In some areas there is a substantial grade difference of 6'-15' that will require regrading or a retaining wall to maximize space and preserve the many existing trees that are located at

the top of the slope. The future bikeway design will be a Class I bikeway with a separate decomposed granite pedestrian path. In the wider areas the available with can accommodate a linear buffer with shade trees between the future bikeway and the decomposed granite pedestrian path.

#### Tujunga Avenue - Vineland Avenue

The 0.53 mile reach travels along the right-of-way that is approximately 17'-40' wide on the south side of the LA River until crossing at Vineland Avenue. The narrower sections occur with the first approximately 1,100' east of Tujunga Avenue due to an existing parking lot and commercial building. The right-of-way has a minimal slope through the narrow section and a slope of up to approximately 10' in the wider sections with existing canopy trees and vegetation along the top of the slope. The available width will allow for stretch be used to filter storm water through bioswales and planting areas.

#### Vineland Avenue - Lankershim Boulevard

The future bikeway would continue on the south side with approximate right-of-way 24' wide to a bridge over the US-101. This pedestrian/bike bridge would be approximately 1200' long including ramps. There is no possibility of center columns in this type of construction, therefore a very long span is required of approximately 170' which requires a bridge depth of 7'. This would require a vertical elevation change of approximately

35' which requires approximately 700' ramps on each side. Additionally, the public right-of-way is adjacent to property owned by SoCal Edison, which could be used to provide additional landscape/bioswale area. This future bikeway would stay on the south side to Lankershim Boulevard to join to the County Bikeway from Lankershim Boulevard to Barham Boulevard currently in-design.

### Bridge/Street Crossings

The future bikeway will cross the LA River between Whitsett Avenue and Laurel Canyon Boulevard. to avoid major utility conflicts on the south side of the Laurel Canyon Boulevard street crossing. An existing pedestrian bridge at Laurelgrove Ave can be used as an interim crossing to mitigate costs or a new bridge that would be wide enough to accommodate cyclists and pedestrians could be constructed to allow unimpeded bike movement in this section. A new river crossing bridge will exist at the end of Radford Avenue to cross the Tujunga Wash to eventually arrive on the north side of the LA River. Another existing river crossing bridge is at Colfax Avenue to navigate to the south side of the river. This is a pedestrian bridge and would need to be modified or rebuilt to allow bikes to cross without dismounting and walking. A proposed tunnel is being designed and built by others at the Lankershim Boulevard crossing.

The preferred crossing at Whitsett Avenue, Laurel Canyon Boulevard, Tujunga Boulevard, Vineland Avenue, and the US-101 are tunnel undercrossings. Colfax Avenue has



## ALIGNMENT | SEGMENT 08

an existing undercrossing that can be utilized with minor modifications.

### Access

This segment will close the gap and join to the existing LA Riverfront Park project on the western end at Whitsett Avenue and the County Bike path that is in design phase on the eastern end at Lankershim Boulevard. Two pedestrian bridges exist within this segment located at Laurelgrove Avenue and Colfax Avenue. Both of which provide an essential local neighborhood link to the Ventura Boulevard commercial corridor.

Existing bike lanes on Colfax Avenue, Tujunga Avenue, and Vineland Avenue will provide access points to connect cyclists to the new bikeway from surface streets.

A rapid bus line on Ventura Boulevard has a significant number of stops in this corridor with all the other major crossing streets providing local bus options.

### Greenway

See Chapter 5 for more details on landscaping along the alignment.

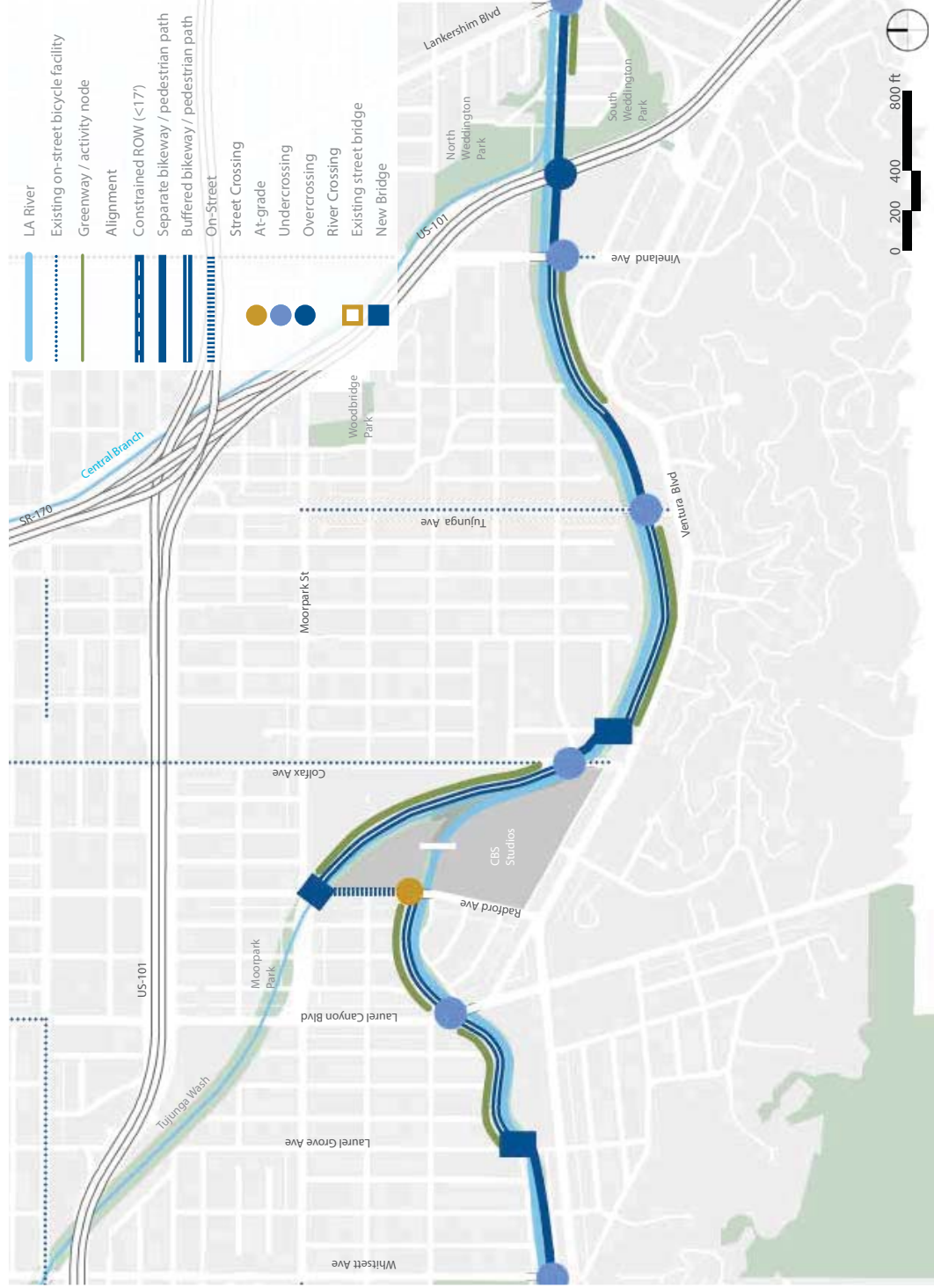


Figure 3.08.1 Whitsett Avenue to Lankershim Boulevard – Segment 07 Concept Alignment

## ALIGNMENT | SEGMENT 08

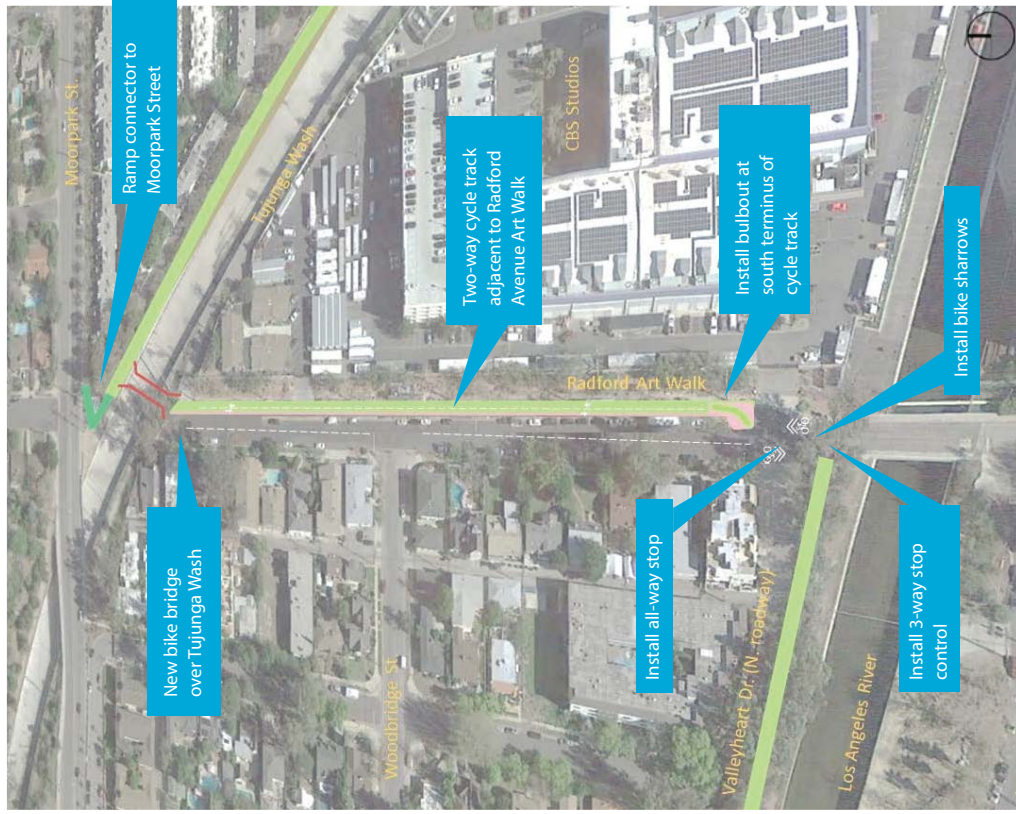


Figure 3.08.2 At-Grade Concept Plan for Radford Avenue

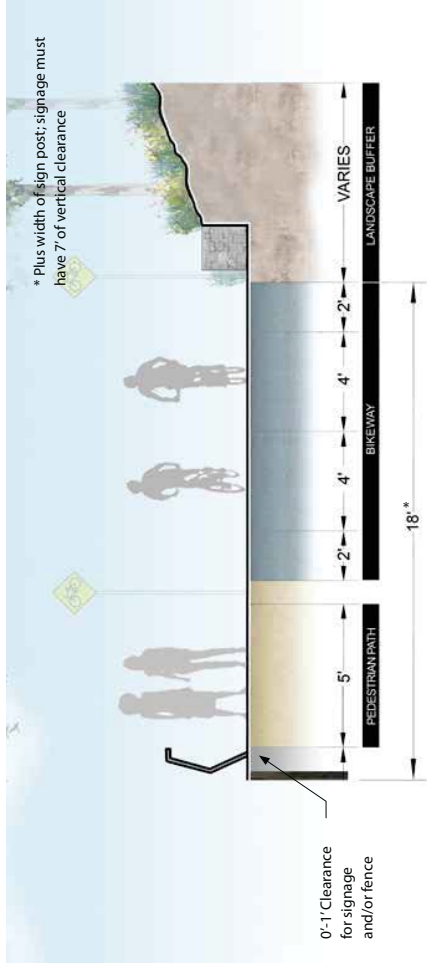


Figure 3.08.3 Whitsett Avenue to Laurel Canyon Boulevard-Typical Cross Section

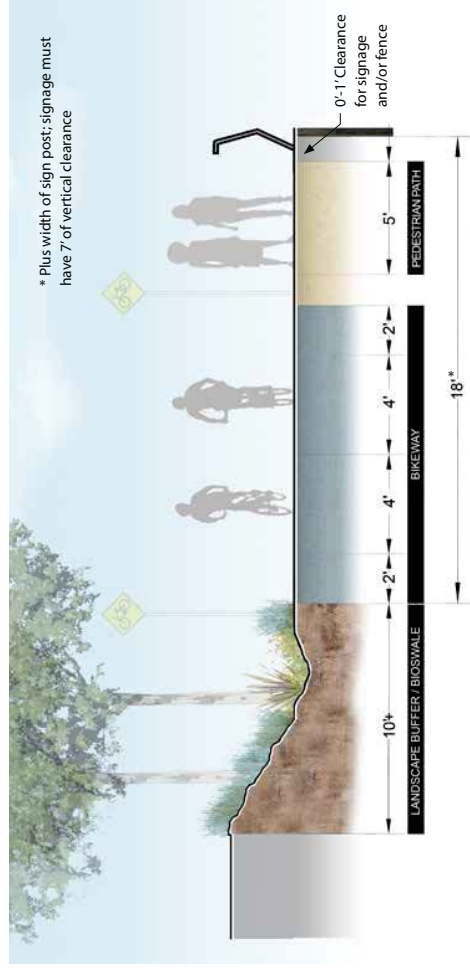


Figure 3.08.4 Laurel Canyon Boulevard to Radford Avenue - Typical Cross Section

## ALIGNMENT | SEGMENT 08

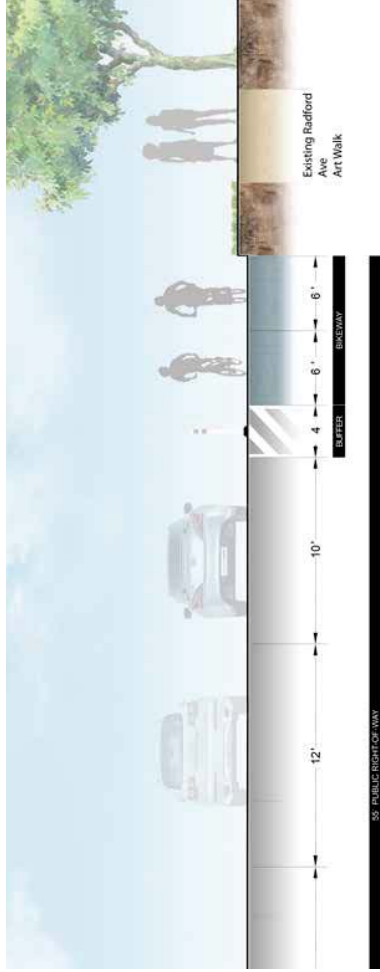
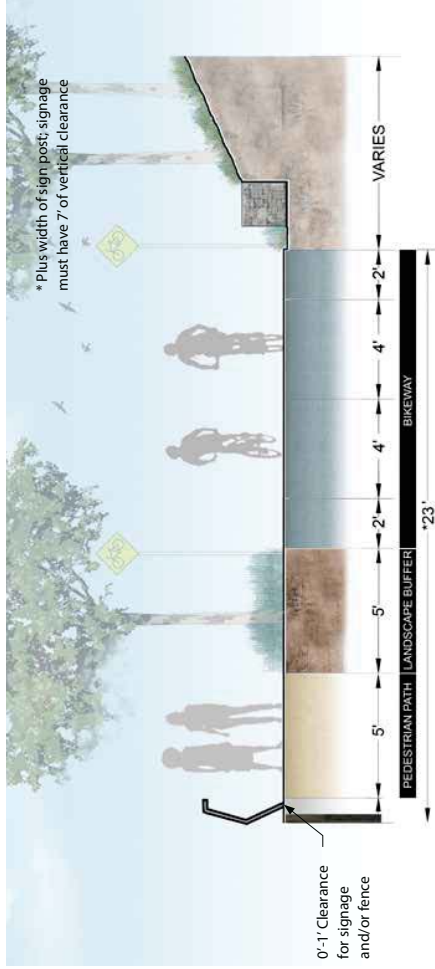


Figure 3.08.5 Radford Avenue Cycle Track - Typical Cross Section



3.08.7 Collfax Avenue to Vineland Avenue - Typical Cross Section

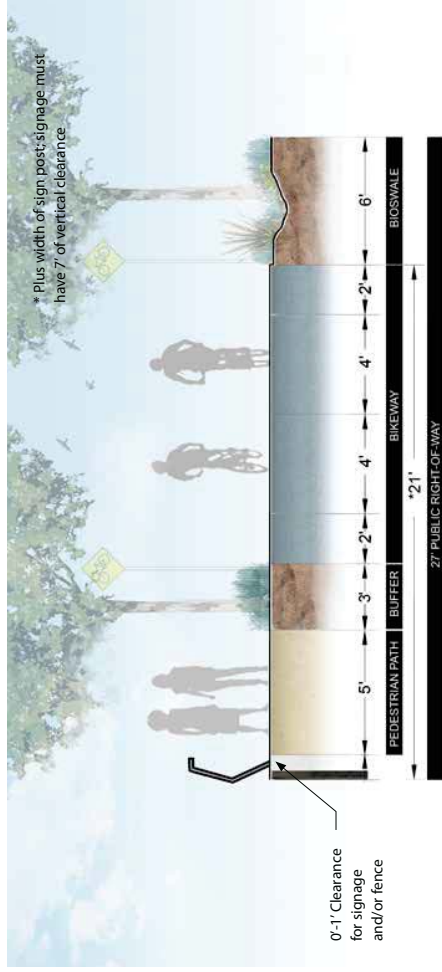


Figure 3.08.6 Radford Avenue to Collfax Avenue - Typical Cross Section

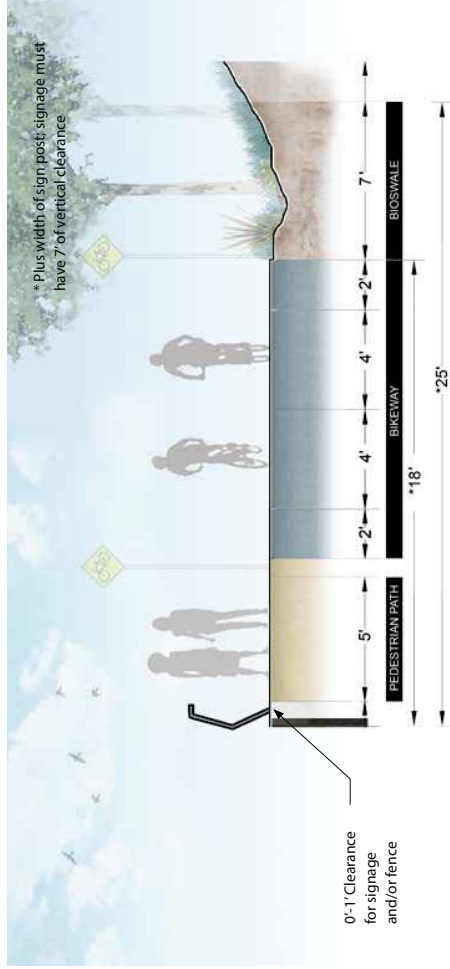


Figure 3.08.8 Weddington Park to Lankershim Boulevard - Typical Cross Section



## ALIGNMENT | SEGMENT 08

### Alternative Alignment: Whitsett Ave to Laurel Canyon Boulevard

This alternative alignment proposes to remain on the south side of the river and cross at-grade at Whitsett Ave to continue on the north side of the river. This would eliminate the need for a new river bridge and undercrossing at Whitsett Ave and could be an interim option to be considered. A pedestrian bridge exists at Laurelgrove Ave. to allow for users to access the commercial district on the south side of the river.

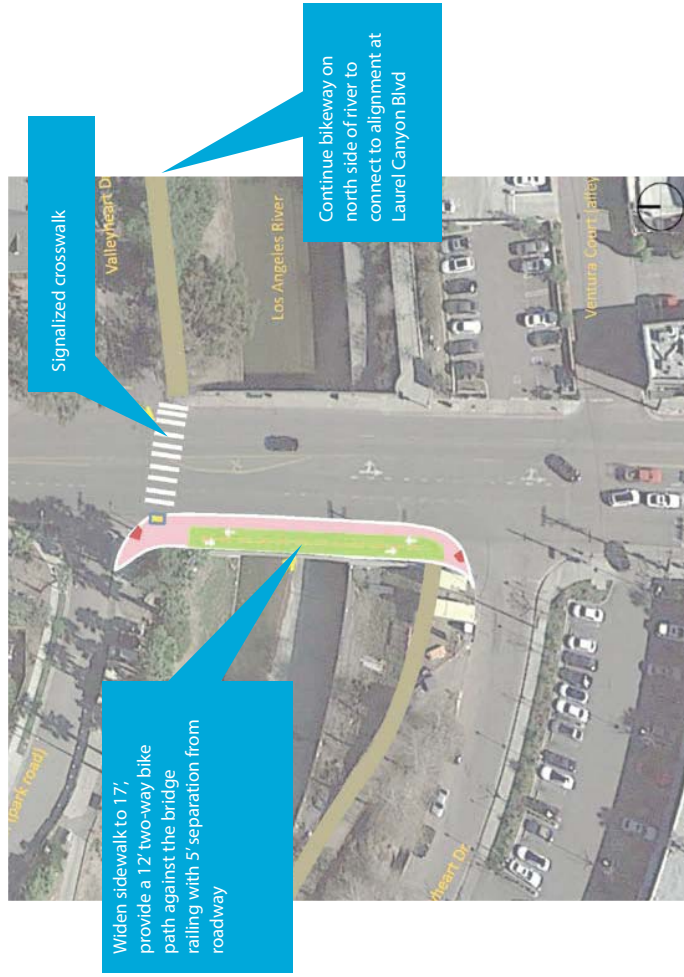


Figure 3.08.9 At-Grade Concept Plan for Whitsett Ave

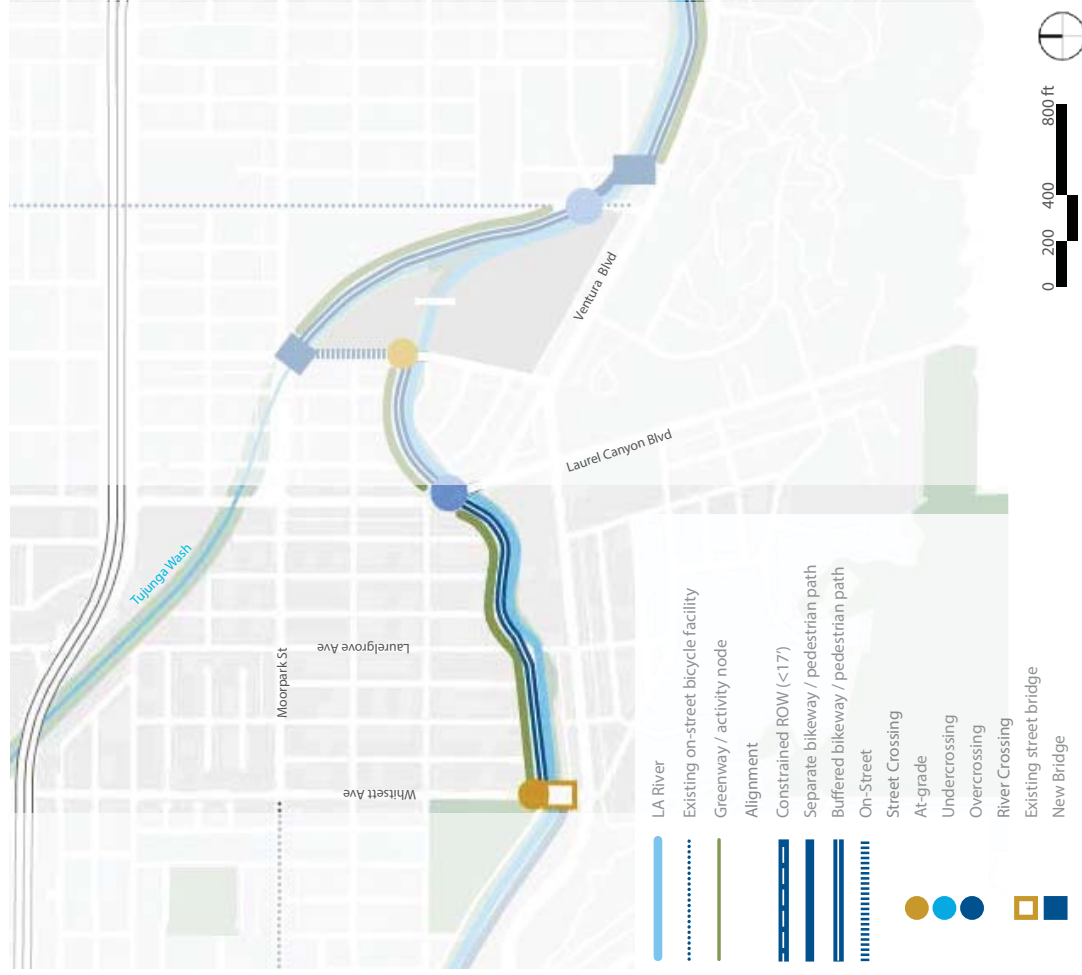


Figure 3.08.10 Concept Alternative Alignment for segment 08: Whitsett Ave to Laurel Canyon Blvd



## ALIGNMENT | SEGMENT 08

### Alternative Alignment: Vineland Avenue to Lankershim Boulevard

This alternative alignment proposes to by-pass the US-101 conflict and use the existing buffered bike lanes on Vineland Avenue as an interim option.

The alternative alignment moves from the undercrossing at Vineland Avenue to travel at-grade north on Vineland Avenue and use the Central Branch Wash to link back to the LA River. There are existing bike lanes on Vineland Avenue that will assist the alignment in crossing under the US-101. A crosswalk on north leg of existing signalized intersection will allow users to travel to the north side of the Central Branch Wash. The alignment will then travel south on the Central Branch Wash adjacent to North Weddington Park to join back to the LA River. A river crossing at North Weddington Park to the south side of the river will join to the South Weddington Park. The right-of-way along the Central Branch is approximately 20' relatively flat with a slope a small slope up towards North Weddington Park. The future bikeway design will be a Class I Bike Path with a separate pedestrian path.

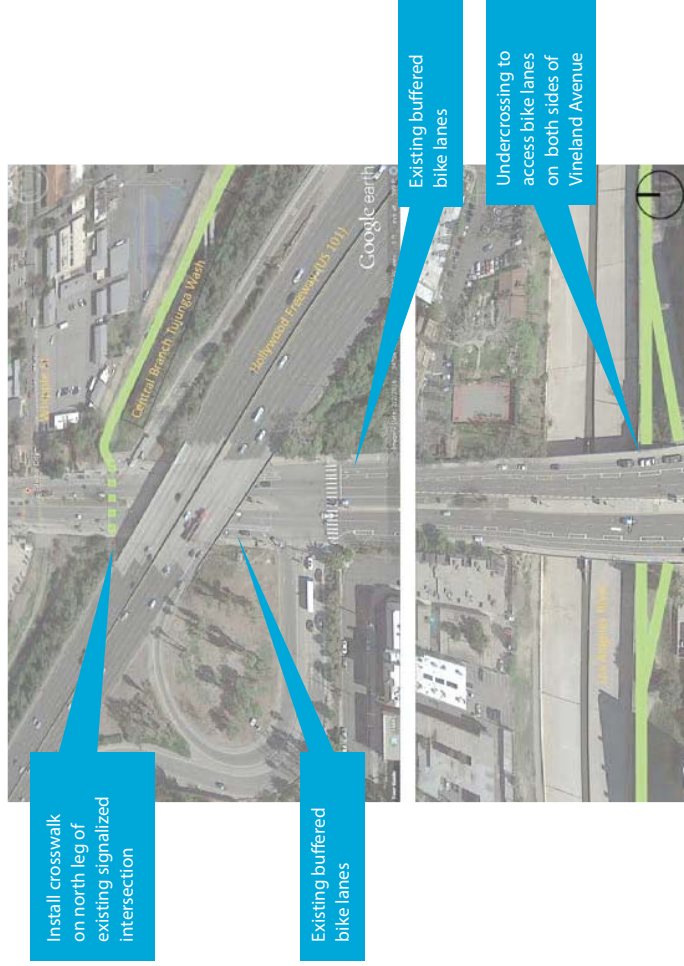


Figure 3.08.11 At-Grade Concept Plan for Vineland Avenue

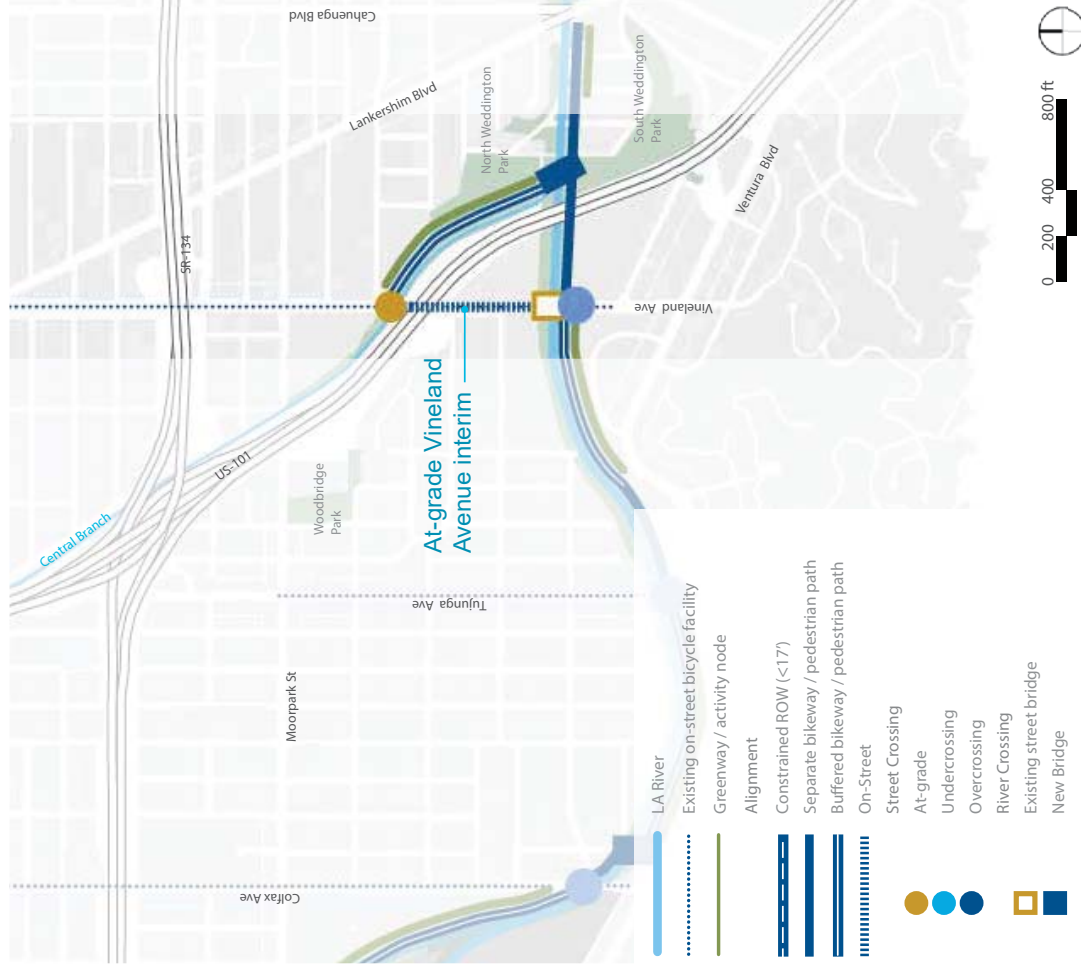


Figure 3.08.12 Concept Alternative Alignment for segment 08: Vineland Avenue to Lankershim Boulevard

## ALIGNMENT | SEGMENT 09

### Barham Boulevard to Zoo Drive

Segment 09 is a 2.0 mile long stretch within the eastern reach that connects the LA County bike lanes ending at Barham Boulevard to the project terminus at Zoo Drive. The project terminus at Zoo Drive is the connection point to future bikeway improvements to the east; however, State Route -134 is a substantial barrier that creates challenges to connecting Segment 09 to the planned bikeway to the east. Due to costs, engineering, and environmental/permitting requirements, interim and final alignments are likely needed. The infrastructure improvement responsibilities at the eastern end of Segment 09 vary depending upon interim and final alignment scenarios. For the interim solution, improvements needed along Forest Lawn Drive between Zoo Drive and State Route -134 to connect Segment 09 to the future bikeway will be completed as part of other bikeway projects. For the final solution, a proposed tunnel under State Route -134 at Headworks Reservoir would be completed by this project.

The LA River throughout Segment 09 is a wide concrete-lined box channel with chain link fence along the LA River perimeter. Surrounding land use is characterized by the Forest Lawn Hollywood Hills Cemetery to the south of the LA River and various studios, single family residences, and equestrian activities on the north side of the LA River. Additionally, commercial uses south of the LA River east of Barham Boulevard provide some right-of-way constraints. A significant challenge of Segment 09 is to effectively meet the needs of pedestrian, bicycle, equestrian, and vehicular users in the area, during both interim and final design phases.

## Alignment

### Barham Boulevard - Warner Brothers Studio Gate 7

This section is approximately 0.32 miles. The alignment within this section has a constrained right-of-way due to existing private property ownership, which does not currently provide any public right-of-way along the river channel edge on the south side. Land acquisition or a cantilevered structure is required to provide any bikeway facility through this section. If land acquisition or easement can be obtained, there potentially is enough right of way between the channel edge and existing structures to provide a Class I Bike Path and separate pedestrian path. There is sufficient right of way on the Warner Brothers Studios owned property for a Class I Bike Path and separate decomposed granite pedestrian path with landscape buffer. However, a survey will need to be conducted to confirm available right of way and topography.

### Warner Brothers Studio Gate 7 - Headworks Reservoir

The alignment between Warner Brothers Studio Gate 7 and Headworks Reservoir has a large right-of-way of at least 50' width and some areas as wide as 250', which is sufficient space for a Class I Bike Path, 5' decomposed granite path, landscape buffer and/or bioswale, and amenity areas. This section would be approximately 0.84 miles in length.

### Headworks Reservoir -Zoo Dr.

The Headworks Reservoir project has proposed a bikeway directly adjacent to the project that would travel from the eastern edge of the Headworks project to the intersection of Forest Lawn Drive and Zoo Drive. The alignment at Zoo Drive is the point of connection to future LA River bikeway improvements to the east. This section would be approximately 0.73 miles in length.

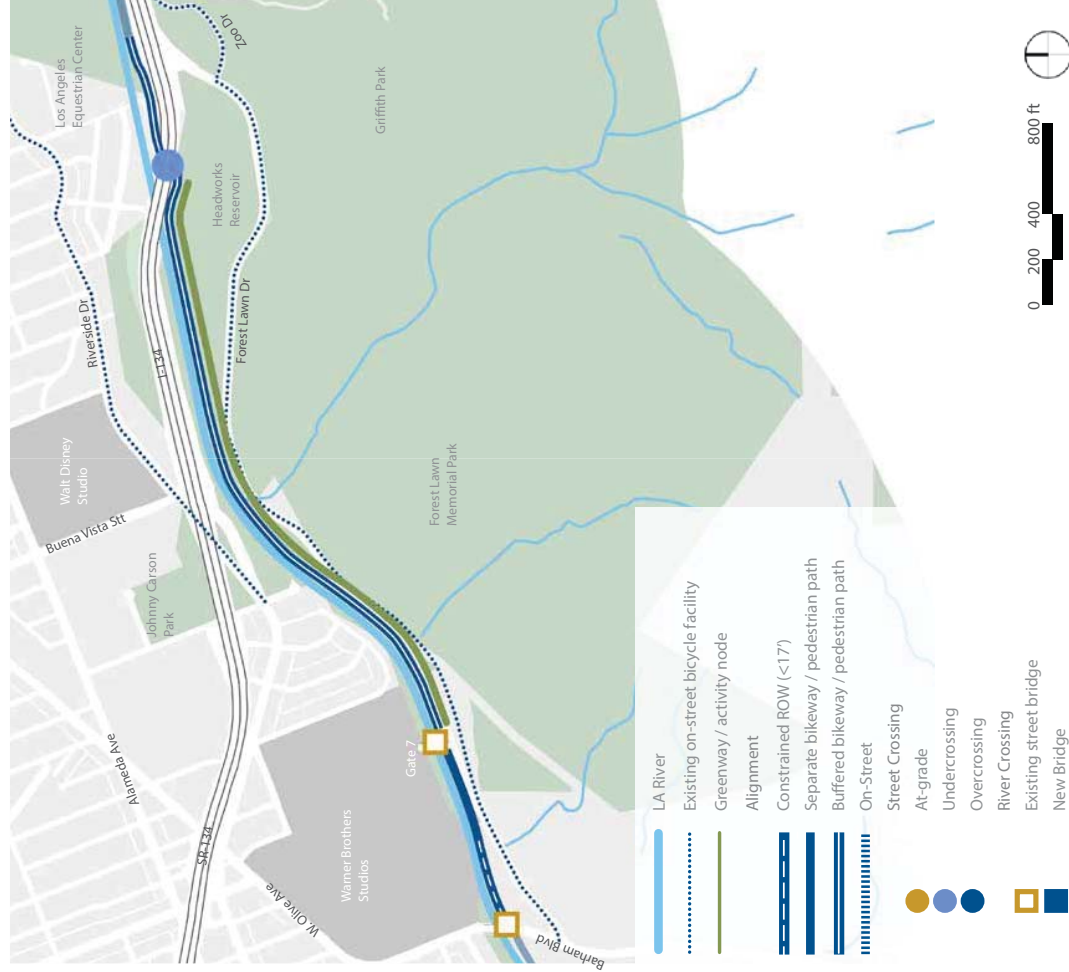


Figure 3.09.1 Barham Boulevard to Zoo Drive - Segment 09 Concept Alignment

## ALIGNMENT | SEGMENT 09

### Bridge/Street Crossing

The preferred crossing at Barham Boulevard would be an undercrossing to provide a connection to the LA County bike lane project to the west of Barham Boulevard. The alignment will cross the Warner Brothers Studios Gate 7 at-grade on the south side of the LA River. Minor modification to bridge railing and studio entrance features will be required.

The preferred crossings at the State Route 134 would be an in-channel option or a tunnel option. The tunnel could be constructed directly adjacent to the existing equestrian tunnel under the I-134. The existing Mariposa Equestrian Bridge crossing over the LA River will remain.

### Access

Segment 09 will bridge the gap between the bikeway in design by the LA County PWD adjacent to Universal City and the bikeway in construction that will terminate at the east end of Forest Lawn Drive and the LA River. The Segment 09 alignment will be accessible through bicycle entry points connecting to the existing dedicated bike lanes along Forest Lawn Drive.

Pedestrian access in Segment 09 will be enhanced by the construction of the future non-motorized bridge connecting Bob Hope Drive and Forest Lawn Drive. The bridge will be constructed by the City of Burbank and will provide neighborhoods and studios on the north side of the river access to the future bikeway.

### Greenway

There is sufficient space within the existing right-of-way from the Warner Brothers Studio Gate 7 to Zoo Drive to create a riverfront greenway. Possible landscape improvements include planted areas for habitat restoration, vegetated bioswale buffers, and tree

planting to establish shade cover. Obstacles relating to landscape improvements in this reach include existing concrete swales requiring modification and utilities both overhead and crossing the river. See Chapter 5 for more details on landscape improvements along the future bikeway.

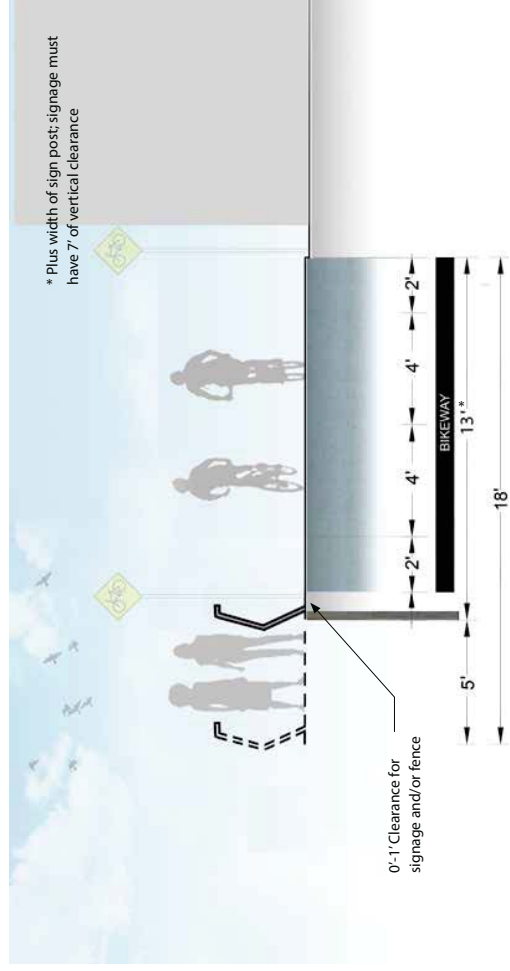


Figure 3.09.2 Barham Boulevard to Warner Brothers Studio Gate 7 - Typical Cross Section

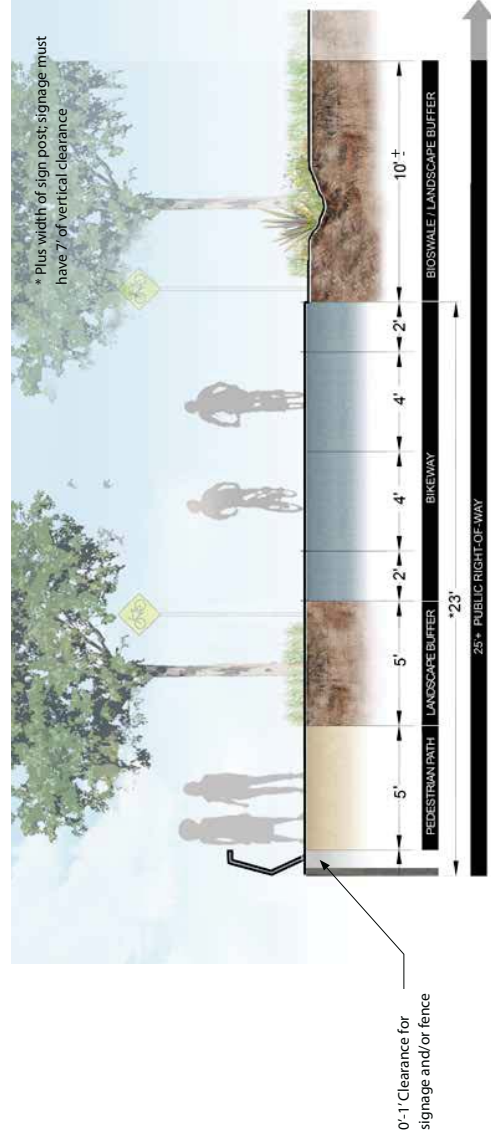


Figure 3.09.3 Warner Brothers Studio Gate 7 to Headworks Reservoir - Typical Cross Section



## ALIGNMENT | SEGMENT 09

### Alternative Alignment: Barham Boulevard to Warner Brothers Studio Gate 7

This alternative alignment proposes to by-pass right-of-way conflicts that will require property acquisition along the LA River between Barham Boulevard and Warner Brothers Studio Gate 7 by utilizing existing Class II Bike Lanes on Forest Lawn Drive and installing new bicycle infrastructure on Barham Boulevard and the Forest Lawn Drive/Barham Boulevard intersection as an interim option. The alternative alignment moves from Barham Boulevard to Barham Boulevard/Forest Lawn Drive reconfigured intersection with dedicated space and signal timing for bicycles. This would connect to existing Class II Bicycle Lanes on Forest Lawn Drive that will be extended to Barham Boulevard. The current right-of-way width of Forest Lawn Drive could accommodate modifying the existing Class II Bicycle Lanes to Class IV protected bicycle lanes to increase safety concerns on this busy thoroughfare. At Warner Brothers Gate 7 bicyclists turn onto future bikeway along LA River.

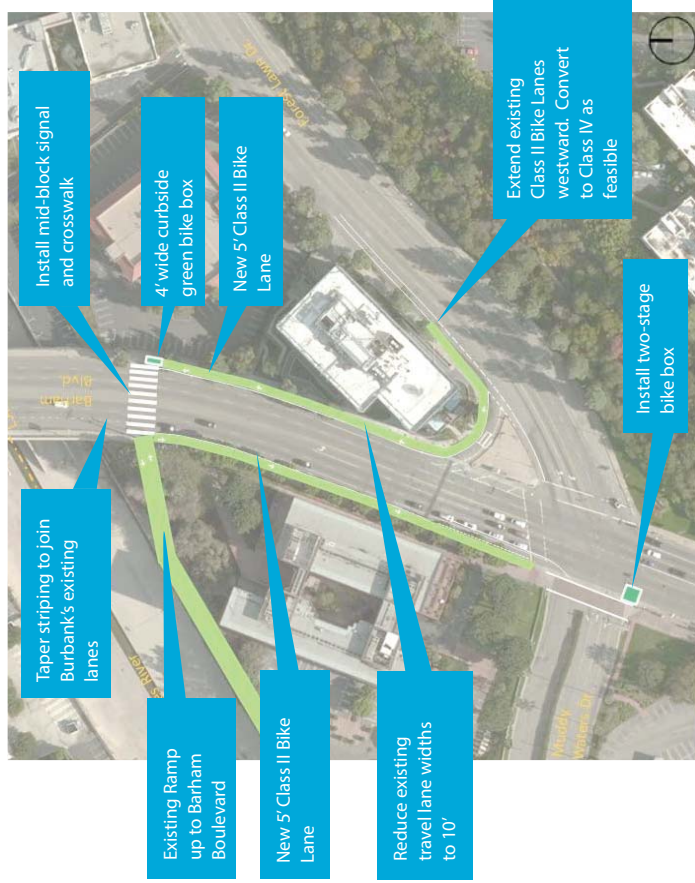


Figure 3.09.4 At-Grade Alternative Concept Plan for Barham Boulevard and Forest Lawn Drive



Figure 3.09.5 Barham Boulevard to Zoo Drive - Segment 09 Concept Alignment



ALIGNMENT | SEGMENT 09



Figure 3.09.6 At-Grade Alternative Concept Plan for Forest Lawn Drive at L-134

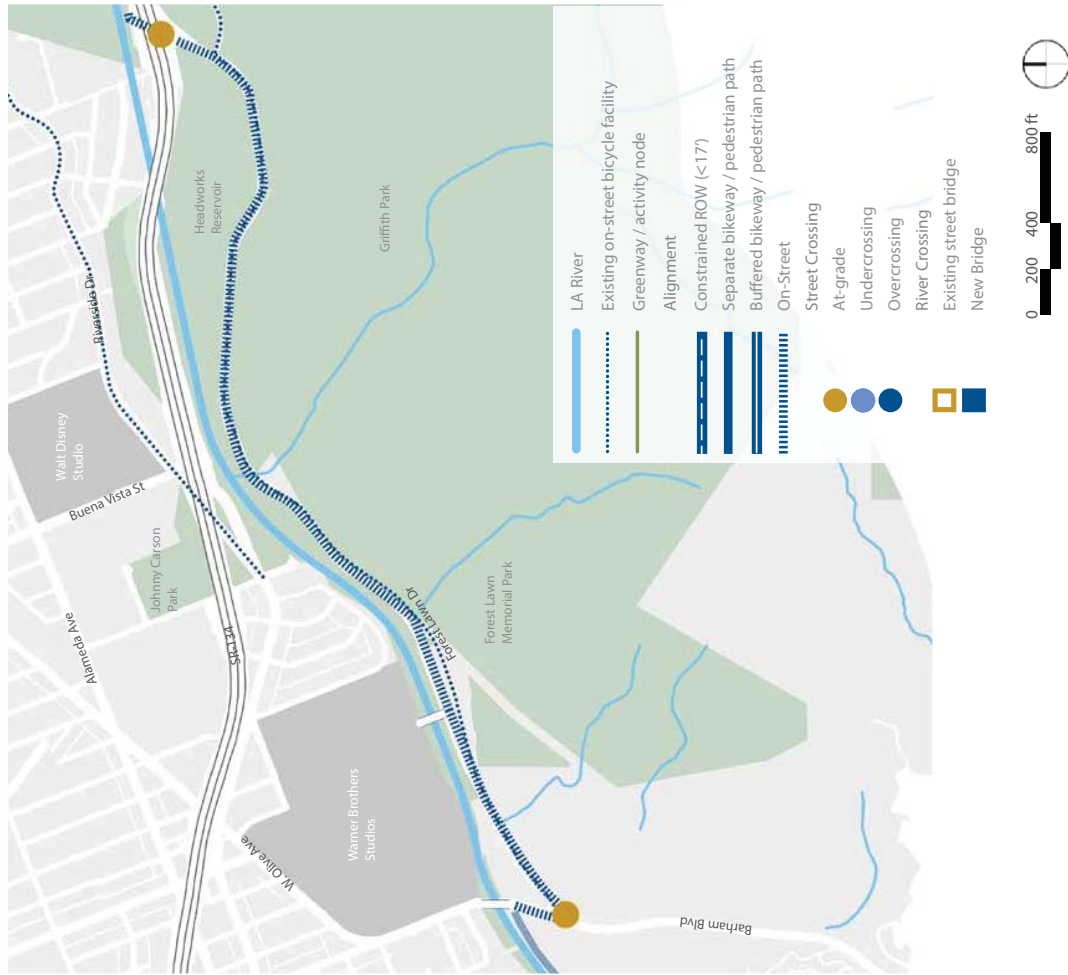


Figure 3.09.7 Barham Boulevard to Zoo Drive - Segment 09 Concept Alignment

## ALIGNMENT | SEGMENT 09

### Alternative Alignment: Headworks Reservoir to Zoo Drive

This alternative alignment proposes to cross State Route 134 freeway by utilizing the existing vehicle underpass on Forest Lawn Drive as an interim option. Most physical improvements to Forest Lawn Drive and State Route 134 on- and off-ramps will be completed as part of a separate bikeway project. As a requirement of this project, the alternative alignment moves from the Headworks Reservoir alignment to the Zoo Drive intersection. New physical improvements (bicycle boxes) and signal timing at Forest Lawn Drive / Zoo Drive will be installed.

East of the intersection, the future bikeway would split to bike lanes on both sides of Forest Lawn drive to travel at-grade north to travel under State Route 134. Improvements east of this intersection will be the responsibility of other bikeway projects. See fig on previous page and below for the possible at-grade solution.

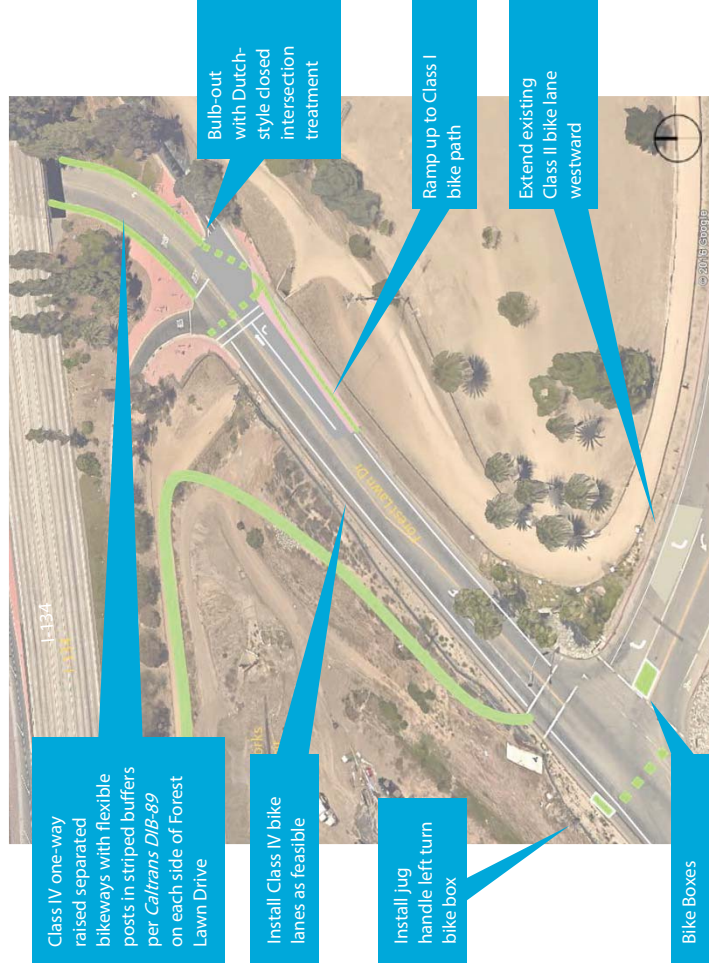


Figure 3.09.8 At-Grade Alternative Concept Plan for State Route 134 and Forest Lawn Drive

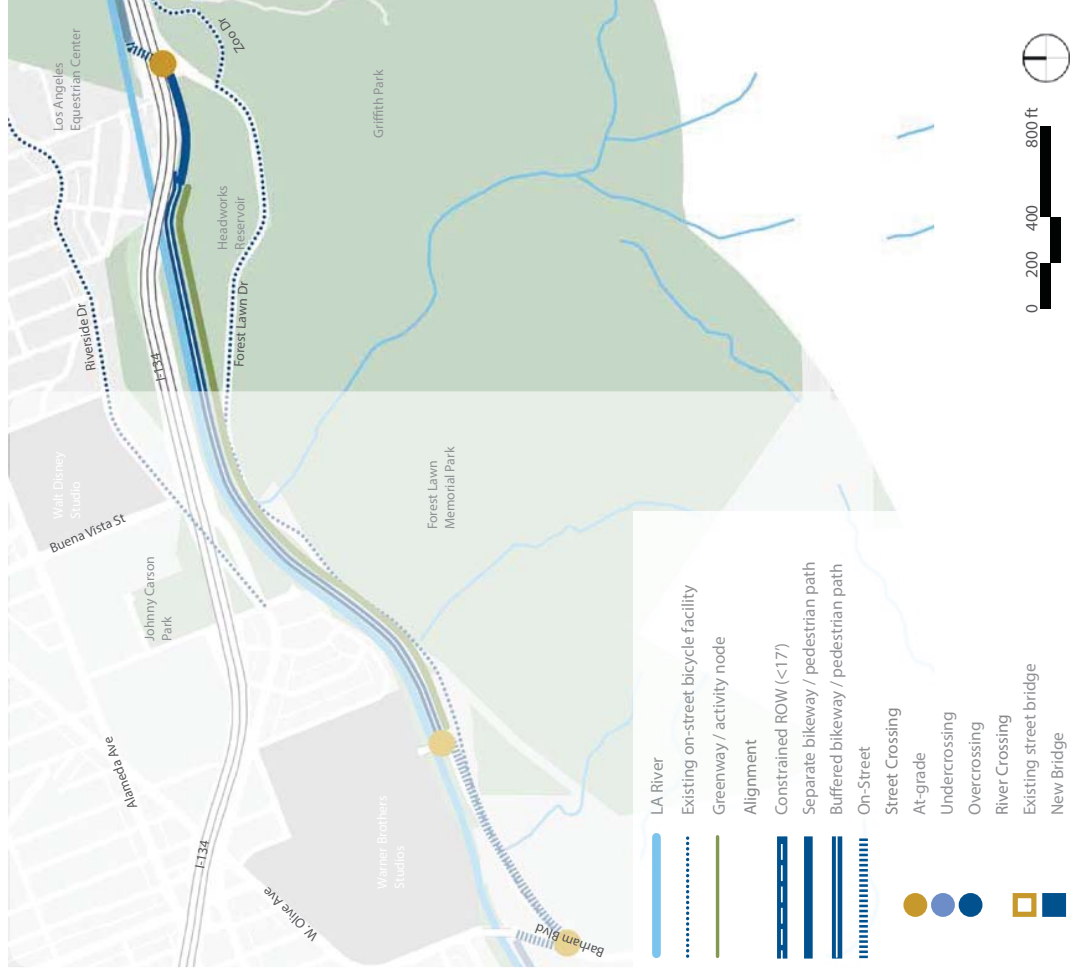
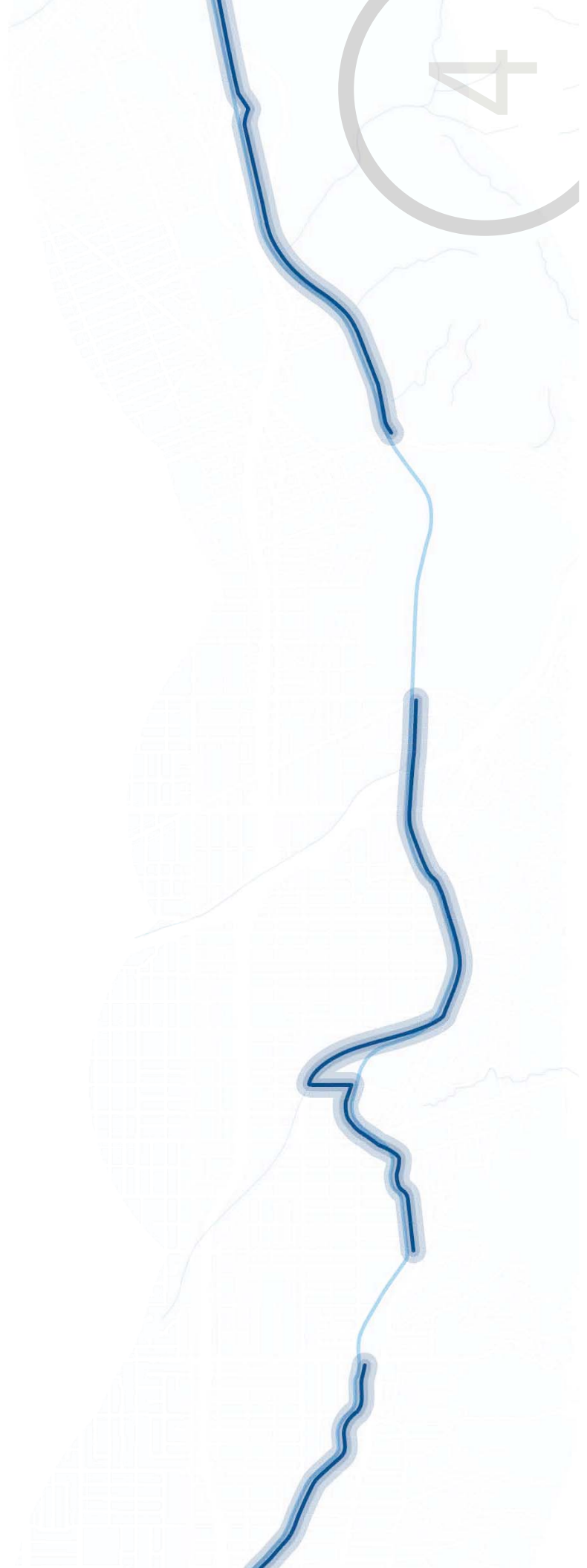


Figure 3.09.9 Barham Boulevard to Zoo Drive - Segment 09 Concept Alignment









## OVERVIEW OF RIGHT-OF-WAY (ROW) ASSESSMENT

Chapter 2 analysed the opportunities and constraints for development of the LA River Valley Bikeway and Greenway created by existing physical conditions. Chapter 3 proposed an modified alignment for the future bikeway, pedestrian path, and greenway based on technical analyses (in Chapter 2 and the Appendix), input from the community meetings, and initial alignment from the project scope (TOS). Based on those factors, Chapter 4 will analyse the ROW available for development of the preferred bikeway design (Class I bikeway with buffered pedestrian path from Bikeway Cross Sections in Chapter 2) along the proposed alignment based on existing property boundaries and property ownership.

For each segment, diagrams showing public or private ownership within 1/8<sup>th</sup> mile of the LA River as well as ownership of properties that create ROW conflicts for the future bikeway are provided.

## DESIGN IMPACTS

The alignment was selected to minimize impact to private properties. Alternative alignments are generally at-grade within public street ROWs and therefore should avoid ROW impacts. In cases where a narrow river shoulder ROW exists, portions of the proposed bike trail may be cantilevered over the LA River to avoid impacts to private property. This is especially true at public street crossings where bicycle trail ramps need to connect with streets.

The City has undertaken some initial coordination with several property owners to discuss the alignment. Agencies with jurisdiction along the LA River, such as the County of Los Angeles and the Army Corps of Engineers have been especially receptive to this project and have stated that bikeway access will be provided within their facilities.

It is important to note that not all property lines have been mapped at this time and therefore not all potential impacts have been identified.

Portions of the LA River between Colfax Avenue and Forest Lawn Drive hold easements from private property owners and access rights or fee ownership may need to be obtained. These properties have been identified with (TBD) shading in the Potential ROW Impact Exhibits below.

The parcels expected to be impacted with approximate areas are provided with the following information:

<u>Property Address</u>
123 xx Street
<u>Assessor Parcel Number</u>
532-xxx-xxx
<u>Approximate Area of Impact (Acres)</u>
x.x



Available Right-of-way along south side of LA River between Moorpark Street and Coldwater Canyon Avenue

## PUBLIC OWNERSHIP

There are multiple public entities that own and/or control land along the LA River, which represent multiple levels of government from local to federal. These public entities have varied goals and missions that may or may not relate to the development of a bikeway. However, due to their public ownership, there is an opportunity to coordinate with these entities that would allow for the development of the future bikeway that may not be feasible under other conditions.

### Los Angeles County Flood Control District

The Los Angeles County Flood Control Act was adopted by the State Legislature in 1915 and established the Los Angeles County Flood Control District (LACFCD). Legislation empowered the LACFCD to provide flood protection, water conservation, recreation and aesthetic enhancement within its boundaries. The Flood Control District is governed, as a separate entity, by the County of Los Angeles Board of Supervisors.

In 1984, the Flood Control District entered into an operational agreement with the Los Angeles County Department of Public Works transferring planning and operational activities to the Department of Public Works. In 2000, the Watershed Management Division was established to address the flood risk management, water quality, water conservation, open space, and recreational needs of the Los Angeles County Flood Control District and is the planning and policy arm of the Flood Control District. Public Works Flood Maintenance and Water Resources Divisions oversee its maintenance and operational efforts.

LACFCD owns a majority of the project ROW and is supportive of the LA River Master Plan and LA River Valley Bikeway and Greenway. In fact, the Watershed Management Division is working on the Tujunga Wash Greenway and River Restoration Project, a joint project between the Los Angeles County Flood Control District and Santa Monica Mountains Conservancy with similar scope. The project envisions new pathways and

meandering streambed that will introduce plant and animal habitat, water quality enhancement, groundwater replenishment, and passive recreation to a one mile reach of the Tujunga Wash. Due to the shared vision and coordination between the LA City BOE and LACFCD for the LA River Valley Bikeway and Greenway, LACFCD ownership is minimally referenced.

### Army Corps of Engineers

The United States Army Corps of Engineers (USACE) is responsible for investigating, developing and maintaining the nation's water and related environmental resources. Land under control by the USACE is owned by the United States Federal Government. Similar to the LACFCD, the USACE has indicated their support for the bikeway improvements and is generally viewed as an advocate of the project, as seen through the USACE work for completing the Los Angeles River Ecosystem Restoration Integrated Feasibility Report.

### City of Los Angeles

The City of Los Angeles, through several departments and bureaus, owns land within 1/8<sup>th</sup> mile of the LA River. In addition to owning land property within the project area, these departments will be involved in the development, implementation and maintenance of the LA River Valley Bikeway and Greenway project. There will need to be coordination between various City departments to resolve ROW issues as well as design, construction, and maintenance of the LA River Valley Bikeway and Greenway.

- City of Los Angeles Department of Public Works (LA City DPW):** The Department of Public Works is responsible for the design, construction, renovation and operation of public facilities and infrastructure. In addition to owning land along the LA River, DPW will play a vital role in all phases of project development, including maintenance once construction is completed. The department includes the Bureau of Sanitation (BOS), Bureau of Street

Services (BSS), Bureau of Street Lighting (BSL) and Bureau of Engineering (BOE).

- City of Los Angeles Department of Recreation and Parks (LA City Parks):** The Department of Recreation and Parks owns land within 1/8<sup>th</sup> mile of the LA River that is both park land and vacant open space. Coordination with the Recreation and Parks Department is needed both for access of park land, but also to coordinate how the proposed street-end parks can supplement the existing park system and facilities.

- City of Los Angeles Department of Water and Power (LA City DWP):** The Department of Water and Power is responsible for supplying the City and its inhabitants with water and electric energy. This is accomplished by constructing, operating, and maintaining works extending throughout the City to import water and electric energy. Land owned by DWP along the project area may include infrastructure related to its responsibilities.

### Los Angeles County Metropolitan Transportation Authority (Metro)

Formed in 1993, Metro directly operates bus, light rail, heavy rail, and bus rapid transit services. It provides funding and directs planning for transportation project within Los Angeles County ranging from active transportation to freeway projects. In addition to its transportation portfolio, Metro is a significant landowner throughout the County between joint development projects and transportation maintenance facilities.

### Los Angeles Unified School District

Los Angeles Unified School District (LAUSD) is the second largest school district in the United States; enrolling more than 640,000 students in kindergarten through 12<sup>th</sup> grade, at over 900 schools, and 187 public charter schools. While schools have security concerns, there is potential opportunity to improve links to schools, including through programs like Safe Routes to School.

## PRIVATE OWNERSHIP

### Homeowners

A significant number of single family and multi-family residential properties neighbor the existing LA River channel. Some properties adjacent to the channel ROW, which prevent expanding the ROW in order to accommodate the preferred buffered pedestrian and bicycle paths.

### Business

There are a few locations along the alignment which a conflict in the ROW relates to a property owned by a commercial business. Some business owners may view this as an opportunity to increase consumer traffic into their business, while others may be reluctant to modify their current circulation to allow for an easement on their property.

### Large Landowners

Large landowner is a subjective term that can vary in definition based on the type of land use. Additionally, portions of large sites can be underutilized and land uses have been reorganized by landowners over time. There is an increased potential to negotiate with large landowners to provide an easement on their property or to purchase portion of their land for the development of the future bikeway along the LA River. Large landowners include:

- Movie/TV Studio:** Both CBS and Warner Brothers own large portions of land adjacent to the LA River and even portions of the river channel itself. It is highly unlikely these entities will want to allow public access due to security and confidentiality concerns.
- Commercial:** Westfield Fashion Square Mall owns a large section of property along the LA River ROW. The owner released a statement of their intent to expand in 2007. The economic recession of 2008 put expansion plans on hold, however, future expansion plans are still plausible.

## 01 | SEGMENT

## PUBLIC/PRIVATE PARCEL OWNERSHIP

The LA River is a concrete lined trapezoidal channel through the entirety of Segment 01. The channel within Segment 01 is controlled by the LA Flood Control District.

The City of Los Angeles owns multiple properties that are adjacent to the LA River through Segment 01, such as Reseda Park, and the LADWP corridor. On the north side of the LA River, adjacent to Reseda Park, the LAUSD owns a contiguous land area that forms the Reseda High School Campus, and other adult education facilities. The remainder of the segment ownership is designated as private residential.



Figure 4.01.1 Public vs. Private Ownership - Segment 01

## ALIGNMENT ROW CONFLICTS

Overall, the large percentage of City owned land in Segment 01 compared to privately owned land will likely result in minimal conflicts during implementation of the new bikeway. The ROW is constrained by private residences between Wilbur Avenue and Yolanda Avenue. However, it is more feasible to either reduce the preferred buffer zone in order to make room for the new bikeway and have pedestrians share the path through this short area rather than attempt to establish a new easement with the property owner.



Figure 4.01.2 Right-of-Way Constraints - Segment 01



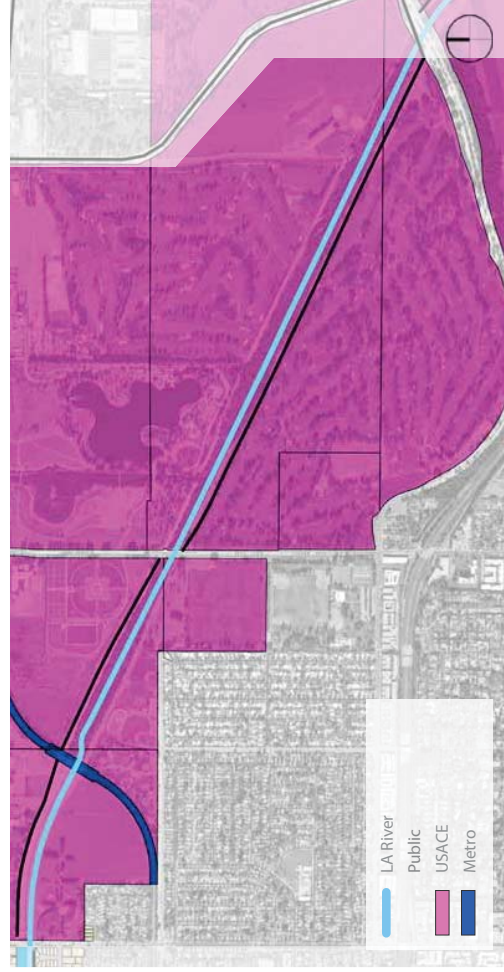
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4-6



## PUBLIC/PRIVATE PARCEL OWNERSHIP

Segment 02 and Segment 03 together make up the contiguous Sepulveda Basin bisected only by Balboa Boulevard and the Orange Line Busway. The Sepulveda Basin is currently designated open space, owned by the USACE. A narrow parcel that follows the Orange Line Busway is owned by Metro.



## ALIGNMENT ROW CONFLICTS

The ROW is constrained between White Oak Avenue and the Orange Line Busway. However, it is directly adjacent to the Sepulveda Basin Off-Leash Dog Park, which provides a high probability the additional width needed for the preferred buffered bikeway could be obtained. Apart from this, there appear to be no further conflicts indicated within the ROW for the new bike path.

Figure 4.02-03.1 Public vs. Private Ownership - Segment 02 and 03



Figure 4.02-03.2 Right-of-Way Constraints - Segment 02 and 03



KEY

04 | SEGMENT

PUBLIC/PRIVATE PARCEL OWNERSHIP

Segment 04 is similar to Segments 02 and 03 in that the majority of the land is open space owned by USACE. The extent of I-405 Fwy and US-101 in this area is substantial and falls under the jurisdiction of CalTrans. The proposed alternative bikeway routes would be on city owned busways and streets.

ALIGNMENT ROW CONFLICTS

The conflicts for the route around Sepulveda Dam and over I-405 Fwy is largely due to environmental and financial impacts, but also the significant coordination effort with CalTrans (refer to Chapter 11). As a result, alternative routes using the Orange Line Busway/Bikeway and city streets would be the safest and most feasible route to connect bikeway users through Segment 04. This could involve the removal of some on street parking and creation of a Class III bikeway on residential streets which could result in opposition from local residents.



KEY

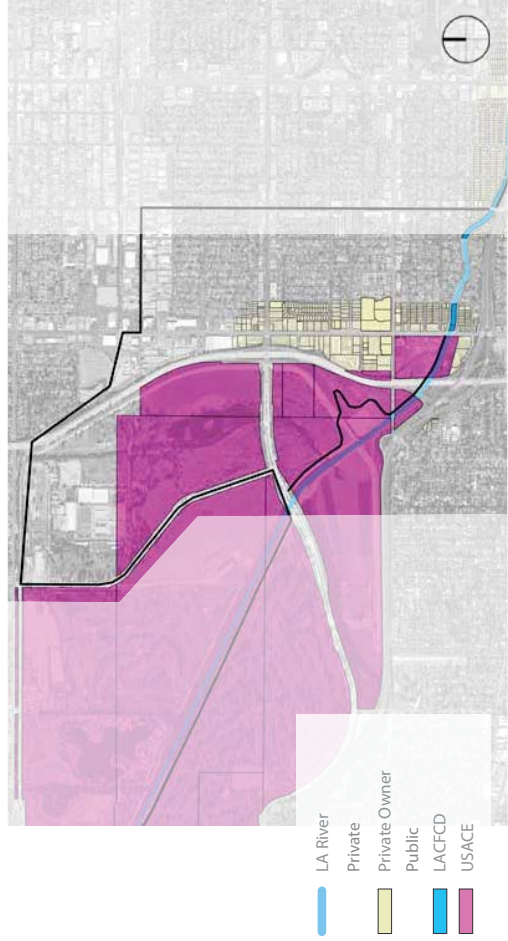


Figure 4.04.1 Public vs. Private Ownership - Segment 04

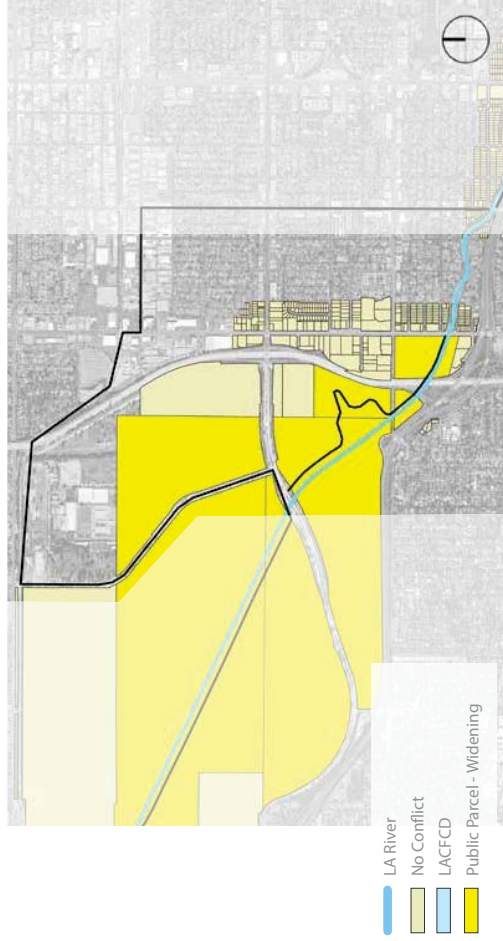


Figure 4.04.2 Right-of-Way Constraints - Segment 04

## PUBLIC/PRIVATE PARCEL OWNERSHIP

The property ownership through Segment 05 is predominantly private residential. Segment 06 is characterized by private commercial owners such as Westfield Fashion Square Mall and U-Haul on the north side, and private residential on the south side. The elevated US-101 Fwy is overseen by CalTrans and runs almost directly adjacent to the River channel.

## ALIGNMENT ROW CONFLICTS

There is substantial ROW adjacent to the River that provides opportunities for a fully landscaped and buffered bikeway and pedestrian path along the south side of the River. Some alternative routes intended to connect users to destinations on the north side of the River would involve coordination with private commercial owners, such as Westfield Fashion Square Mall which may have future plans to expand its facilities.



KEY



Figure 4.05-06.1 Public vs. Private Ownership - Segment 05 and 06



Figure 4.05-06.2 Right-of-Way Constraints - Segment 05 and 06



## PUBLIC/PRIVATE PARCEL OWNERSHIP

The north side of the River consists mainly of private residential properties with a few small commercial owners near Moorpark Street. The south side of the channel is also residential with a large variety of commercial vendors in close proximity along Ventura Boulevard. The City of Los Angeles Unified School District owns a large parcel along Dixie Canyon Avenue, but it is not adjacent to the proposed alignment.

## ALIGNMENT ROW CONFLICTS

The ROW from Woodman Avenue to Dixie Canyon Avenue has enough room to accommodate the preferred buffered bikeway / pedestrian path within the LA County Flood Control jurisdiction limits.



KEY  
4-10



Figure 4.07.1 Public vs. Private Ownership - Segment 07



Figure 4.07.2 Right-of-Way Constraints - Segment 07



# 08 | SEGMENT

## PUBLIC/PRIVATE PARCEL OWNERSHIP

The north side of Segment 08 is almost exclusively private residential properties. The few exceptions are the north tip of the privately owned CBS Studio property at Radford Avenue, The Garland Hotel at Vineland Avenue and the City owned North Weddington Recreation Park next to Tujunga Wash.

The south side of the River channel starting at Whitsett Avenue is mixed use of residential and commercial properties. The CBS Studios property owns the river channel between Radford Avenue and Colfax Avenue. Heading west from Colfax Avenue, the southern side is almost exclusively commercial properties until Vindland Avenue. Between Vineland Avenue and Lankershim Boulevard is residential and a small corner of South Weddington Park.

## ALIGNMENT ROW CONFLICTS

The bikeway route will cross to the north side of the River channel near Whitsett Avenue, and follow the ROW until Radford Avenue. Since the river channel is privately owned across the CBS property, the bike route will be routed to city streets and connect back to the River near Colfax Avenue. The route would then continue on the south side of the River channel until Lankershim Boulevard, with a tunnel at US-101. Until the tunnel can be constructed, an interim route on city streets and the City owned North Weddington Park is an alternate route.



KEY

Property Address
4200-4298 Radford Avenue, Los Angeles, CA 91604
Assessor Parcel Number
2368001030, 2368001028, 2368001029, 2368005011
Approximate Area of Impact (Acres)
52.71

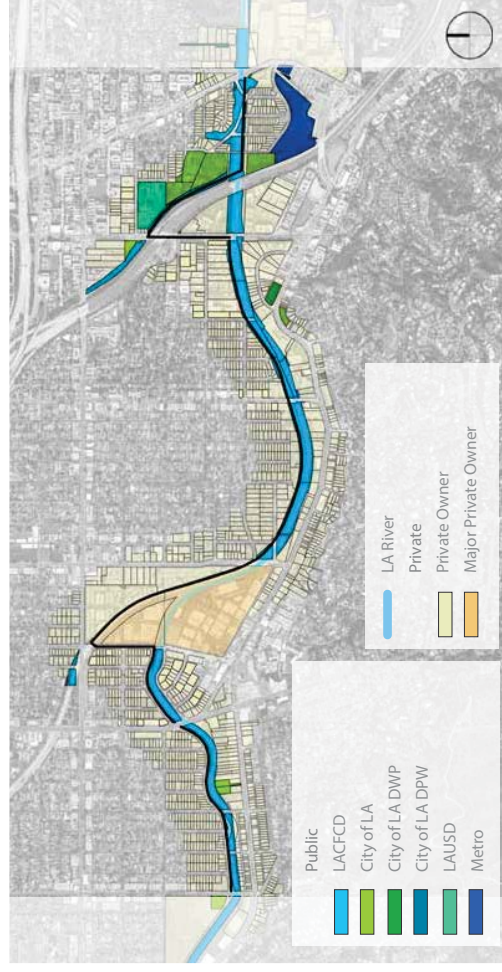


Figure 4.08.1 Public vs. Private Ownership - Segment 08



Figure 4.08.2 Right-of-Way Constraints - Segment 08

09 | SEGMENT

PUBLIC/PRIVATE PARCEL OWNERSHIP

Property ownership along Segment 09 is more diverse and complicated compared to the other segments. Several large private property owners such as: Warner Bros. Studios and Forest Lawn Mortuary actually own parts of the River channel. The City of LA/LADWP also owns several portions of the River in addition to the LA County Flood Control District. There are also several blocks of private residential properties on the north side.

ALIGNMENT ROW CONFLICTS

The route is along the south side of the River channel, with the tightest ROW constraint existing near Barham Boulevard. There are several private commercial driveways at this location that currently touch the concrete river channel on both sides. Private ownership of the ROW would require acquisition of property to allow the bikeway to align alongside the LA River in this location. An alternate route would circumvent the private properties on the south side via Forest Lawn Drive and meet up with the channel about 0.3mi down river.



KEY  
4-12

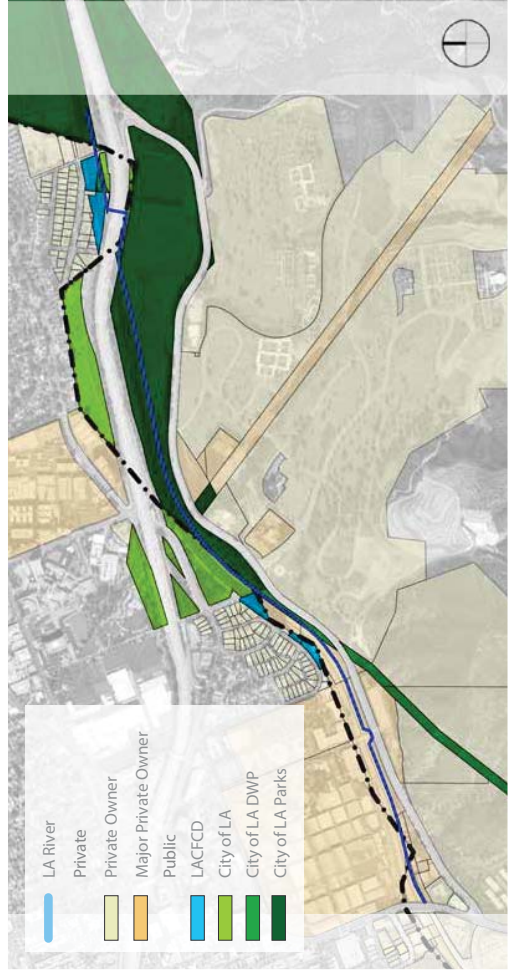


Figure 4.09.1 Public vs. Private Ownership - Segment 09

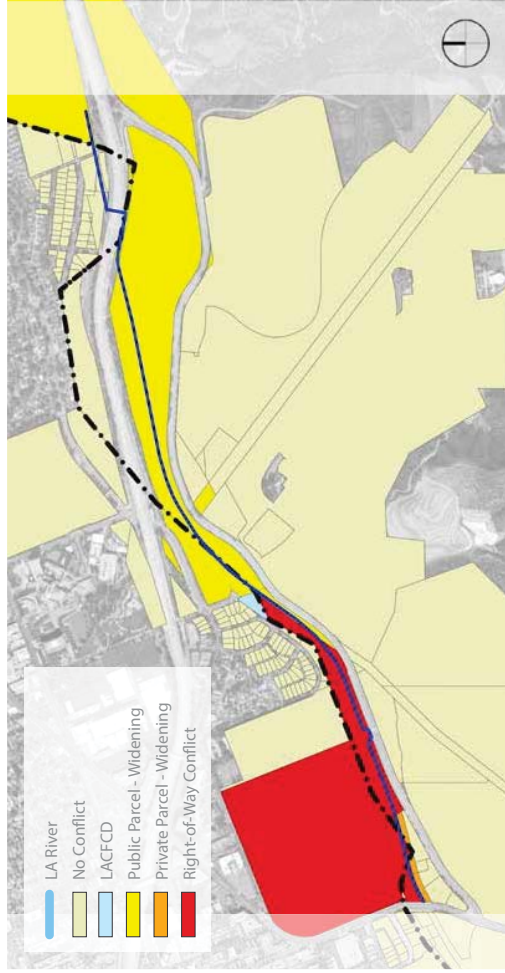


Figure 4.09.2 Right-of-Way Constraints - Segment 09

Property Address

4000 Warner Boulevard, Burbank, CA 91522

Assessor Parcel Number

2485021010, 5581004022, 5581004023

Approximate Area of Impact (Acres)

81.61

Assessor Parcel Number

5581004009, 2485022003, 5581004021

Approximate Area of Impact (Acres)

1.74

Property Address

6735 Forest Lawn Drive, Los Angeles, CA 90068

Assessor Parcel Number

5581004013, 5581028009

Approximate Area of Impact (Acres)

4.5

## COST IMPACTS

This report provides a preliminary estimate of costs to acquire the property rights necessary to construct the proposed bicycle path. This report evaluates the potential acquisition of private property only. Additional rights would be required from a number of public agencies along the alignment however it is assumed that these agencies would grant the necessary rights to the project at no cost. For additional information regarding agency owned parcels along the proposed alignment, see maps and summary of required right of way on previous pages.

### Methodology

In discussions with the City of Los Angeles (City), it was determined that acquisition of permanent easement rights necessary to construct, operate and maintain the proposed bike path facility would be sought from private owners. While there is evidence that agencies such as the Los Angeles County Flood Control District (LACFCD) currently have easements across much of the proposed acquisition area, it is not certain at this time whether the rights granted under these easements would be conveyable, or sufficient to allow construction and operation of the proposed bike path. A thorough review of the easement documents may help address these questions but for the purpose of this estimate, we have made the conservative assumption that the City would need to acquire all the necessary rights from private owners. In addition, this estimate does not account for administrative costs associated with securing rights from any agency which may already have an easement interest in the subject properties.

Acquisition areas were determined by overlaying the proposed project footprint on parcel boundary GIS data from the Los Angeles County Assessor. Square footage calculations were performed by Psomas and resulting areas were provided to Epic Land Solutions (Epic) for use in determining acquisition costs. Along with a review of existing easement documents, surveyed

property boundary data would be required to develop more accurate easement area calculations and is recommended for the next phase of this study.

A review of Google Earth aerial imagery in the area of each affected parcel indicates that proposed easement areas are largely vacant, and in most cases, within the existing LA River channel or associated maintenance road limits. Because these areas are devoid of buildings or other structures, estimates were based on a unit value approach. That is, the proposed easement areas (in sq. ft.) were multiplied by a dollar/sq. ft. value to determine the overall easement cost.

Unit values were based on market research of comparable land sales in the project area. Because few recorded sales of land in/adjacent to the river channel were available, the search was expanded to all vacant land sales within a mile of the channel. Most sales were vacant residential or commercial land that were part of existing developments or are otherwise developed (have street access, access to utilities, etc.) As a result, a typical sale price of \$100 per sq.ft. was discounted to reflect the lack of these amenities present in the subject property portions. Based on observations and experience valuing similar remnant properties with restricted access and use, a 90% discount was applied to the \$100 per sq. ft. figure to yield \$10 per sq. ft. This unit value figure was applied to the calculated easement area to yield total easement cost. No additional discount was applied to reflect the difference between acquiring a permanent easement and acquiring the property in fee because the proposed use of the easement area for the bike path would likely preclude the fee interest holder from any further use of the property. In this case, acquisition of a permanent easement with such restrictions is tantamount to a fee taking.

In one case, construction of the bike path would require an easement in an area currently utilized by the property owner for parking. In this case, the portion of the property from which an easement would be required is accessible from the street via a driveway and is currently improved

as a parking lot (asphalt, striping, etc.). As a result, the easement value was not discounted and is shown a \$100 per sq. ft. Estimates also attempt to account for damages that would be incurred by the owner/tenant for the loss of three striped parking spaces. Damages were estimated based on experience with similar acquisitions and assumptions about the loss of utility to the owner.

In addition to the cost of the easements and any damages, estimates account for various overhead costs the City is expected to incur in acquiring easement rights. These costs include appraisals, title reports, escrow fees, and right of way consultant fees. Many of these costs would be incurred per acquisition of each larger parcel (contiguous ownership) rather than each individual Assessor Parcel Number (APN). As such the detailed cost sheet shows these costs being accounted for by a single "representative" APN.

### Acquisition Summary

Based on a review of affected parcels described in the methodology above, easements would be required from a total of 7 owners (10 parcels). The affected owners include: Warner Brothers Entertainment Inc., First Entertainment Federal Credit Union, Toluca Plaza Partners, Universal Studios, LLC., Forest Lawn Mortuary, Mansoor Mashian and Radford Studio Center, Inc.

As shown in the attached exhibits, easements would be required across vacant portions of the subject properties that abut the existing LA River Channel. The exception among the subject parcels is that owned by First Entertainment Federal Credit Union (Map ID# 3) where the affected portion is currently paved and striped for parking. The proposed bike path could be on a cantilevered structure along the majority of this parcel missing the majority of parking spaces. However, it would impact 3 spaces striped longitudinally along the channel edge as the path returns to its alignment along the top of the channel wall approaching the Barham/

Olive street crossing. The parking lot for the credit union building is already small for the size of the business and a review of historical aerial imagery suggests it is heavily utilized. It is expected that the business would claim significant damages resulting from the loss of parking.

The following table shows the estimated total ROW cost for each owner affected by the proposed alignment and the total right of way acquisition cost including contingency. The attached cost breakdown provides additional cost detail.

OWNER NAME	IMPACTED AREA (SF)	ESTIMATED ROW COST
Warner Brothers Entertainment Inc.	50,450 SF	\$517,000
First Entertainment Federal Credit Union	4,550 SF	\$567,500
Toluca Plaza Partners	13,150 SF	\$144,000
Universal Studios, LLC	13,200 SF	\$144,500
Forest Lawn Mortuary	16,200 SF	\$174,500
Mansoor Mashian	4,250 SF	\$55,000
Radford Studio Center, Inc.	63800 SF	\$650,500
Sub-Total ROW Cost		\$2,253,000
30% Contingency		\$675,900
Grant Total Right of Way Cost		\$2,928,900

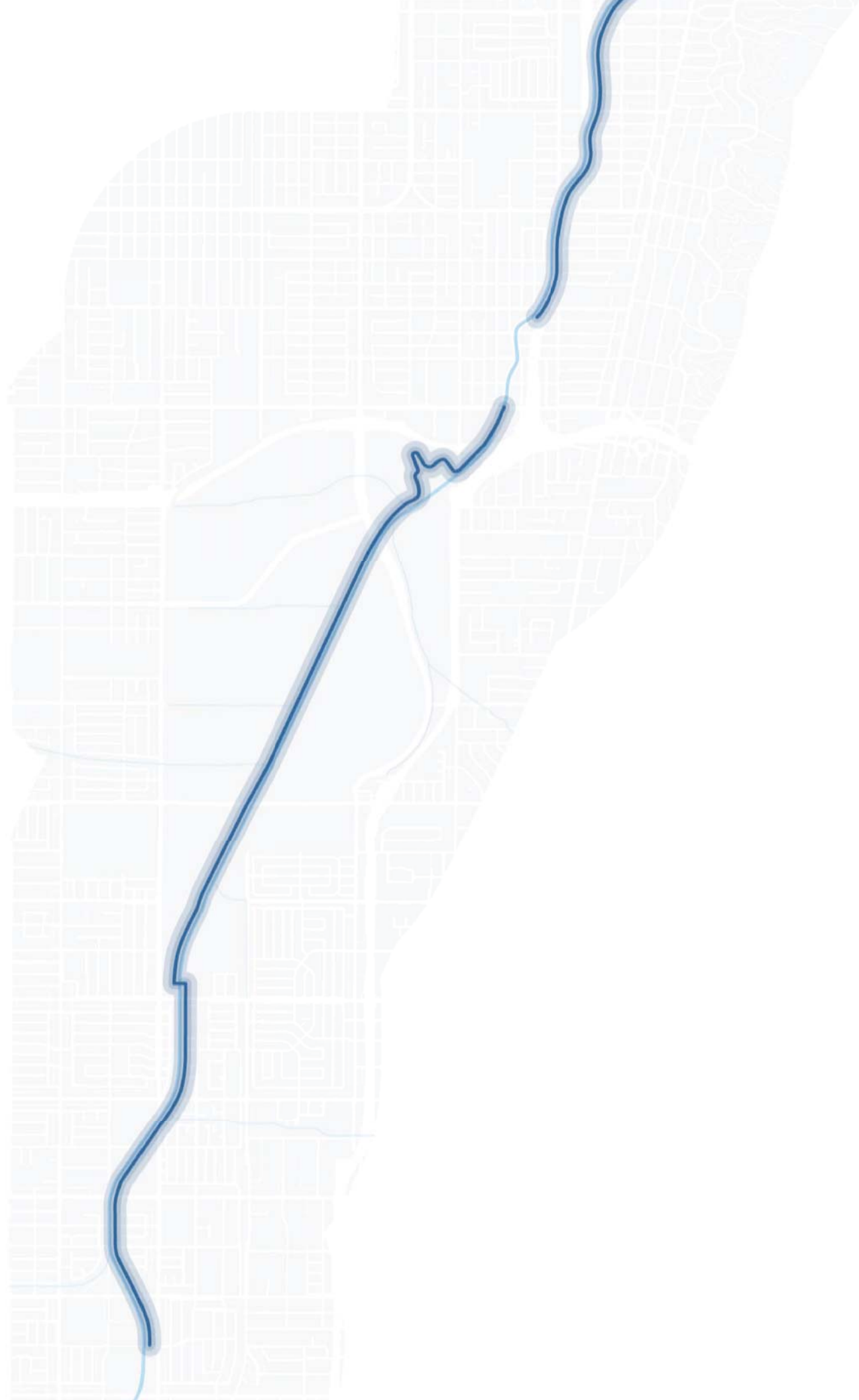
Source: Preliminary ROW Estimate, LA River Bikeway, Epic Land Solutions, Inc., 2017.

### NEXT STEPS

To develop a more refined estimate, title reports should be obtained for the impacted parcels to determine the rights held by each owner. Additional design refinement may also change the amount of easement area required for construction of the proposed facility. Once final acquisition areas have been determined, plat maps and legal descriptions can be prepared for each acquisition, appraisals can be performed, and initial offers can be prepared for each owner.







## CONCEPTUAL DESIGN | 5

CROSSING TYPOLOGIES |  
ARCHITECTURAL ELEMENTS |  
GREENWAY AND RIVER PARKS |



## BUILDING A VOCABULARY

A lexicon is the vocabulary of a language. In the context of the LA River and Feasibility Study Report (FSR) for the future bikeway, this language is the aesthetic character of the existing built environment. The existing vocabulary is comprised of elements such as the existing type, form and materials of infrastructure; plant species; building types; and types of public spaces. The future bikeway will build upon the existing vocabulary that comprises the comprehensive visual language along the LA River by creating a balance between respecting the existing aesthetic character and introducing design solutions that enhance the aesthetic environment, improve the sustainability and function of infrastructure, and encourage people to utilize the bikeway as a normal part of their lives.

In order to build a vocabulary of design solutions, locations along the planned route were scouted, to be used as test sites for a series of design investigations. Studying the various sites and conditions along the 12-mile stretch of the LA River, the reoccurring physical conditions and obstacles scattered along the project length are easily recognized. Additionally, these recurring conditions display a range of difficulty required to overcome each physical condition. The most challenging conditions are the major street and freeway crossings; as well as the river channel crossings, used to move between the north and south sides of the LA River.

While each condition was studied in depth, leading to discovery the unique circumstances for each individual condition, it was necessary to also find commonalities between each site and their physical conditions. In order to develop the greatest range of solutions to build a robust lexicon of design ideas, it became more appropriate to first consider the range of potential solutions that may be applicable for all conditions, rather than focusing on individual sites. Once a full lexicon was established, it was, and will be in later development phases, possible to provide specific variations as appropriate for each unique or challenging condition, which will still embody a common aesthetic language.

Of all the major challenges and conditions, possible solutions can generally be categorized into five primary solutions:

1. Bridges that Cross the River Channel
2. Tunnels
3. Bridges over Streets and Freeways
4. Occupying the Channel
5. At-Grade Crossing (As this is not an architectural solution, it has been excluded from the architecture study.)

The first part of this chapter documents the initial design process for each design solution, and includes a conceptual rendering of what that solution could look like. The design of each individual solution evolved as the overall lexicon was applied to specific sites, and varying conditions, where solutions may be applied. At the same time, the lexicon itself evolved as new design solutions were discovered and found appropriate for other solutions. Ultimately, different solutions were considered for each site, as the FSR identified the appropriate intervention based on site analysis.

Thus, many of the solutions will also consider possible hybrids and interchangeable parts (for example, a tunnel that immediately becomes a bridge across the river channel, or a bridge that becomes a shade canopy). These interchangeable design solutions provide an opportunity to build a catalog of smaller solutions, which can be spread across the full range of solutions, including fences, handrails, graphics, shade canopies and material considerations that will provide aesthetic consistency to the overall design strategy.



Existing Conditions: Balboa Boulevard - Segment 03



Existing Conditions: View of LA River from Moorpark Street and Dixie Canyon Avenue - Segment 07



## CROSSING TYPOLOGIES + ARCHITECTURAL ELEMENTS

### Visualizing Key Moments

Crossing typologies and architectural elements embody the form and objective of the design lexicon. These crossing typologies and elements act as iconic elements by highlighting the relationship between the future bikeway and other elements of the built environment. This relationship was explored for each crossing type through the following ideas:

- Profile
- Shape + Perception
- Lighting + Signage
- Entrance / Threshold
- Landscaping + Vegetation
- Issues of Path
- Enclosure

Each idea provides unique conditions for each crossing typology that impact its design. The crossing typologies and architectural elements that will be designed to solve bikeway continuity conflicts, while defining a unified vision for a greenway along the LA River, are represented by the icons to the right.

The map on following page identifies the preferred crossing type at each street intersection and LA River crossing based on the preferred alignment. The icons are organized on the map in a way that visualizes the frequency of a particular design element and the potential combinations of multiple features at the intended locations. The renderings for the crossing typologies are meant to illustrate the language and character of any given crossing type. Variations of these will be developed in the future as a more detailed design response is developed to the specific context of each intersection. The additional architectural elements are marked on the map at each proposed location to get a better sense of the quantity being considered.

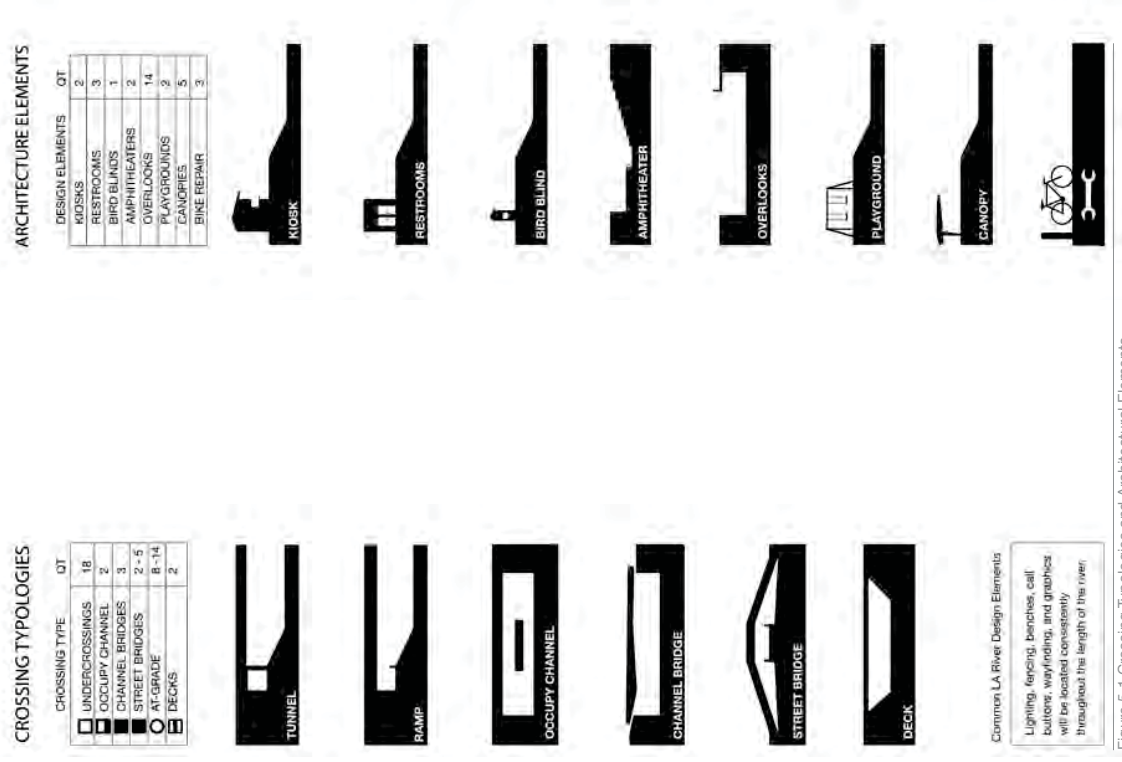
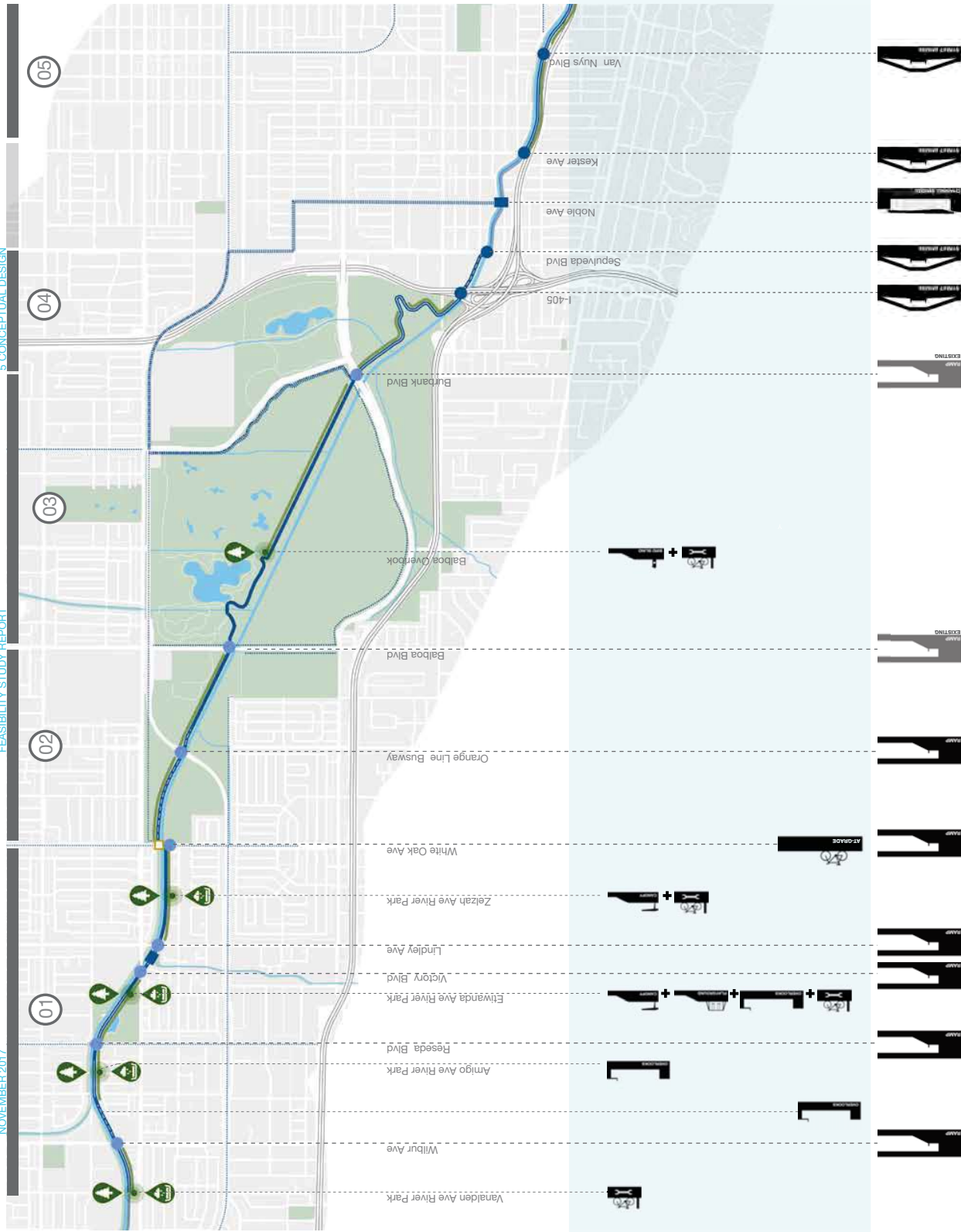


Figure 5.1 Crossing Typologies and Architectural Elements

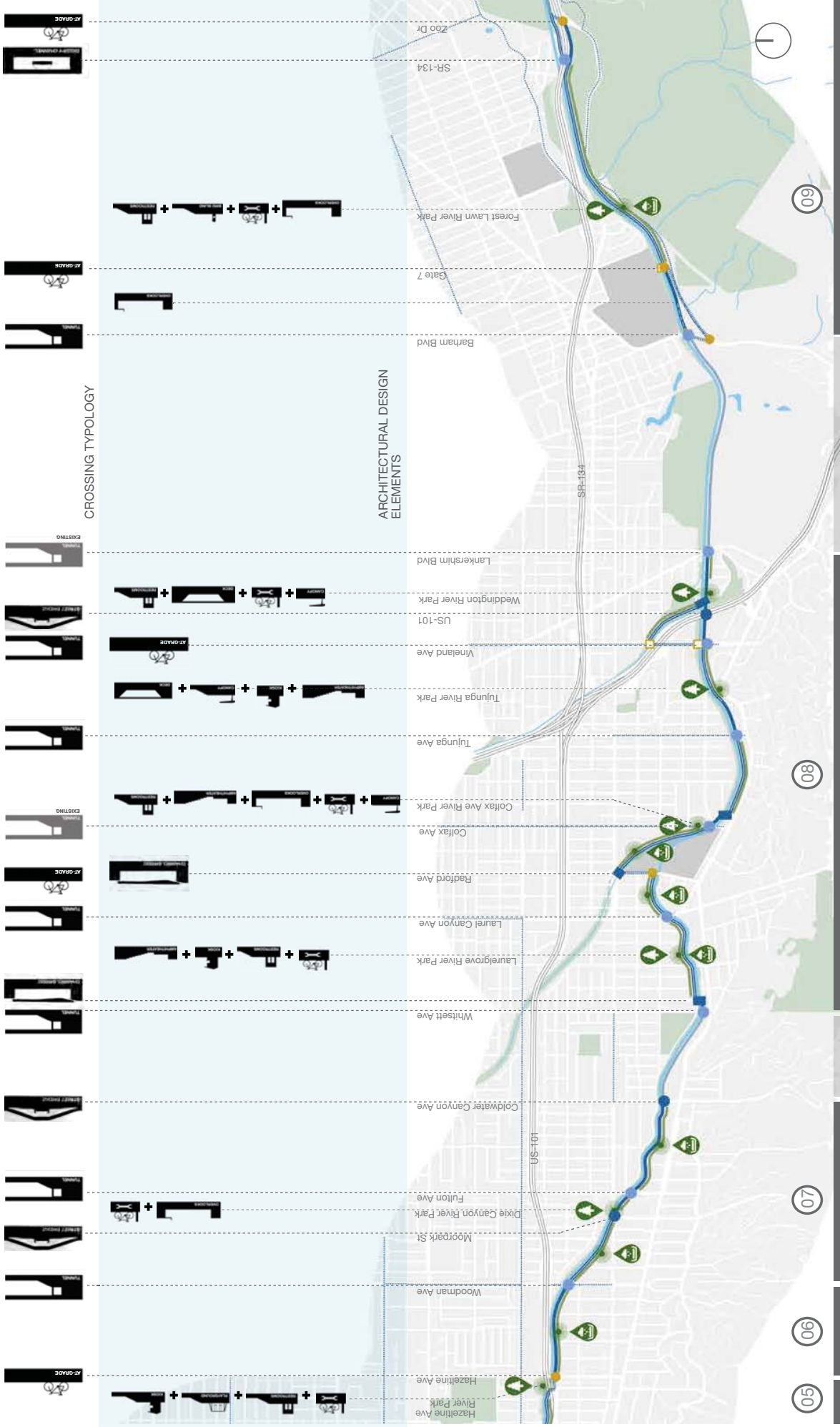
# CROSSING TYPOLOGIES + ARCHITECTURAL ELEMENTS

- LA River
- Existing on-street bicycle facility
- Greenway / activity node
- Segment Number
- River park / street-end park
- Stormwater BMP
- Alignment**
- Constrained ROW (<17')
- Separate bikeway / pedestrian path
- Buffered bikeway / pedestrian path
- On-Street
- Street Crossing**
- At-grade
- Undercrossing
- Overcrossing
- River Crossing**
- Existing street bridge
- New Bridge



## ARCHITECTURAL DESIGN ELEMENTS

## CROSSING TYPOLOGY



## CHANNEL BRIDGES

The alignment includes segments on both the north and south sides of the LA River, which presents a challenge to providing continuity along the length of the LA River as users will have to move across. Channel bridges are proposed to solve this continuity issue without utilizing existing street bridges. Acting as more than only crossings, channel bridges allow for an impactful moment in the project by situating people above the LA River itself.

### Standard Channel Bridge Profiles

Typical profile shapes (e.g. rectangle, cylinder) each provide pros and cons towards the perception and experience for users along a channel bridge. Understanding those impacts is the first step in developing a design solution that challenges generic bridge design solutions.

### Scale + Orientation

The scale of a bridge in relationship to the bikeway provides both subjective and objective challenges. In determining the correct scale, design ideas must contend with the size of the LA River channel and roadways, which respond to the scale of the city and represent typical infrastructural scales of heavy mass and concrete. On the other hand, there is a more intimate scale that must be addressed; it is scaled to the human body, the bicycle, and the tactile interaction of the individuals who will ultimately occupy the spaces along the future bikeway. The challenge is to design so that bridges address both of these scales.

Orientation also plays a key role in the movement and flow of the bridges. A straight bridge causes issues of slowing down and turning whereas angled bridges allow for a more continuous experience (especially while biking the trail).

### Shape + Perception

Site specific interventions may require modifications to the shape of a standard straight bridge. Changes in the basic geometric shape of a bridge plane alters how the bridge is approached, perceived, and experienced. These changes should be viewed as opportunities to enhance the user experience.

### Lighting + Signage

It is important for users to easily identify where they are and where they want to go next as they move between two separated spaces. Wayfinding, signage, and lighting elements will be integrated into the design of bridges to provide necessary guidance for users as they move from one side of the river to the other. Signage will include graphics on the bikeway pavement, stand alone pieces, or integrated designs. Electric lighting can be especially helpful for bridges during night hours and can produce exciting visual effects on the final bridge forms. Additionally, the consistent visual design of these elements will provide further continuity to the future bikeway.

## CROSSING TYPOLOGIES

### Entrance + Threshold

The entrance provides a major defining moment of a bridge. Different gateway types alter the perception of where a bridge begins, blurring the threshold between bridge and path. In addition to acting as gateways, elements such as canopies also define a new point of destination along the path.

### Landscape + Vegetation

One important approach to providing continuity along the length of the LA River is to incorporate vegetation and integrated landscapes into the design of bridges. Landscape improvements and vegetation that visually extends the future bikeway has the potential to further blur the threshold between bridge and path.

### Issues of Path

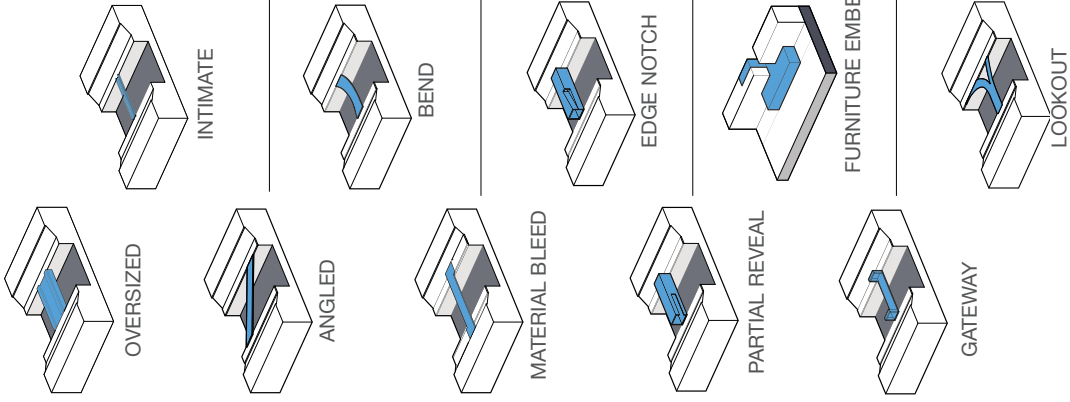
There is an issue of continuity along the entire LA River Bikeway and Greenway project. However, continuity does not have to be limited to a consistent pathway. The material breakup of the path, how the path touches the ground, and the relationship of path to structure can each be interpreted in multiple ways. Changing materials and textures of the path before crossing a bridge might further blur the threshold condition, while also bringing a less industrial character to the walking surface for pedestrians.

### Enclosure

Enclosure refers to simple geometric transformations to a standard bridge profile that either alter or break the mass. The physical elements that enclose the circulation space can be combined to encourage various conditions such as to allow light to permeate an enclosure while also providing shade and structure.



## CHANNEL BRIDGES



## CROSSING TYPOLOGIES

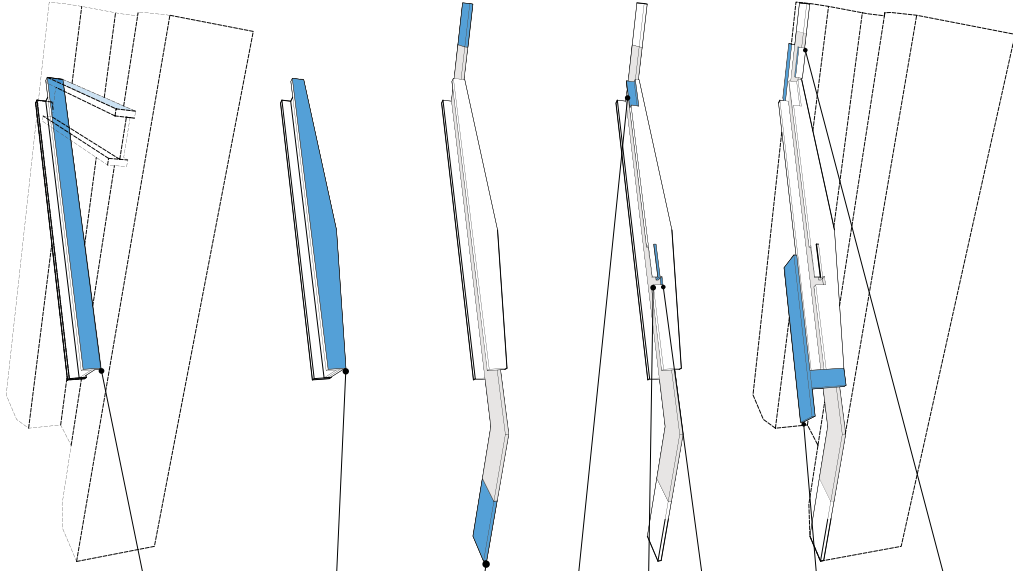


Figure 5.2 Channel Bridge Typologies

## CHANNEL BRIDGES



## CROSSING TYPOLOGIES

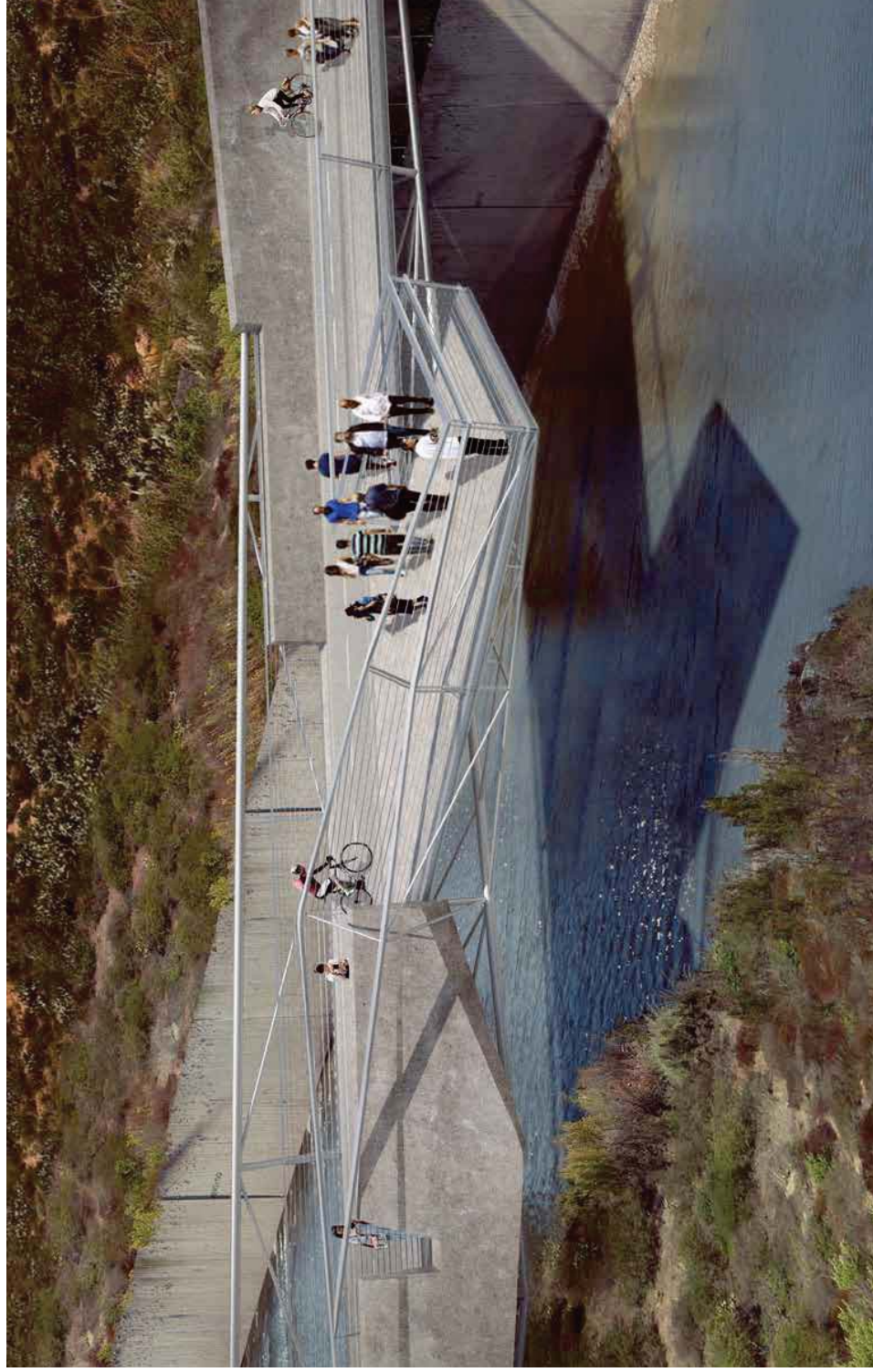


Figure 5.4 Typical Channel Bridge With Overlook

## CHANNEL BRIDGES



## CROSSING TYPOLOGIES

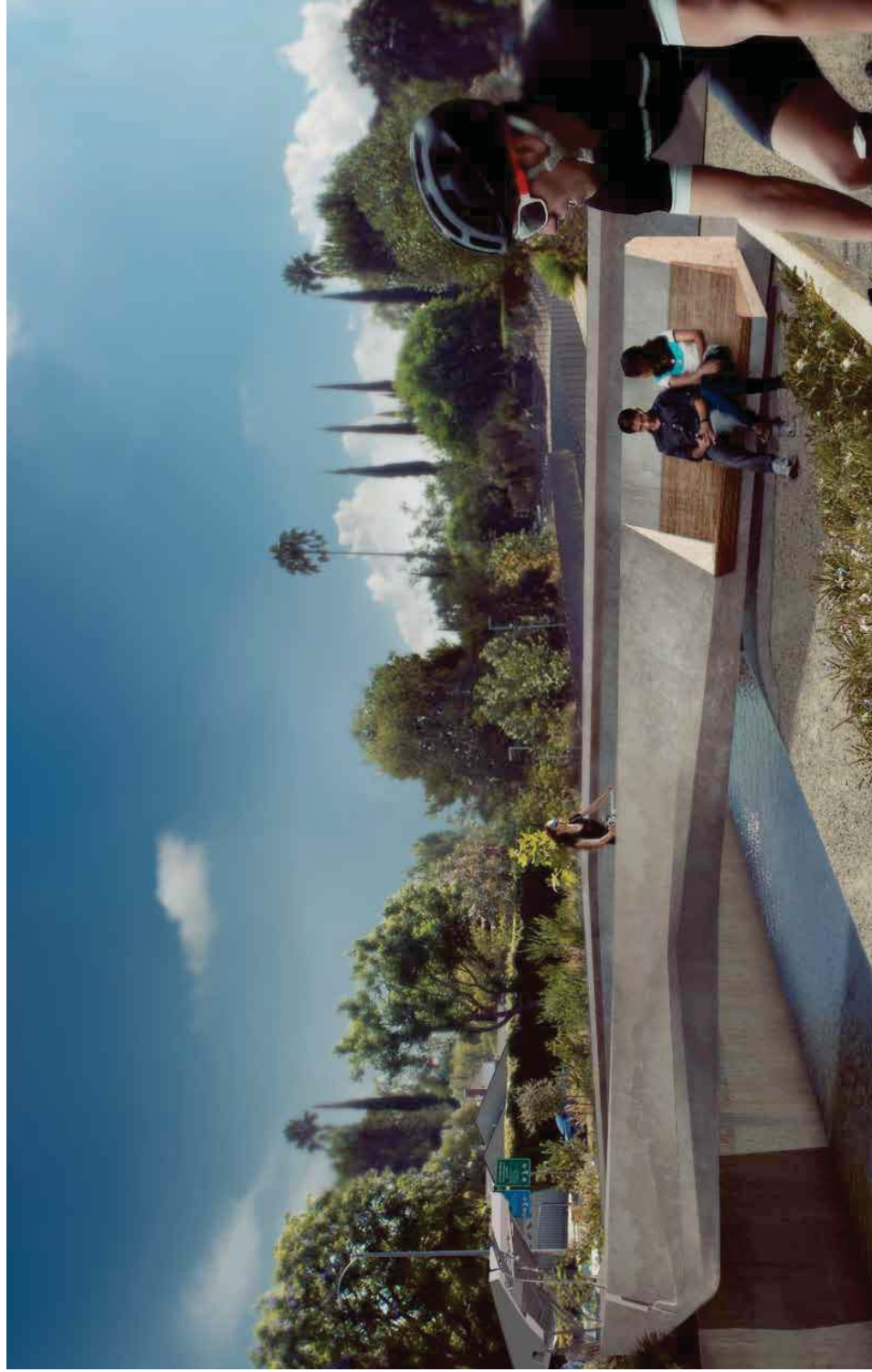


Figure 5.4 Typical Channel Bridge



## DECK [OVER LA RIVER CHANNEL]



## CROSSING TYPOLOGIES

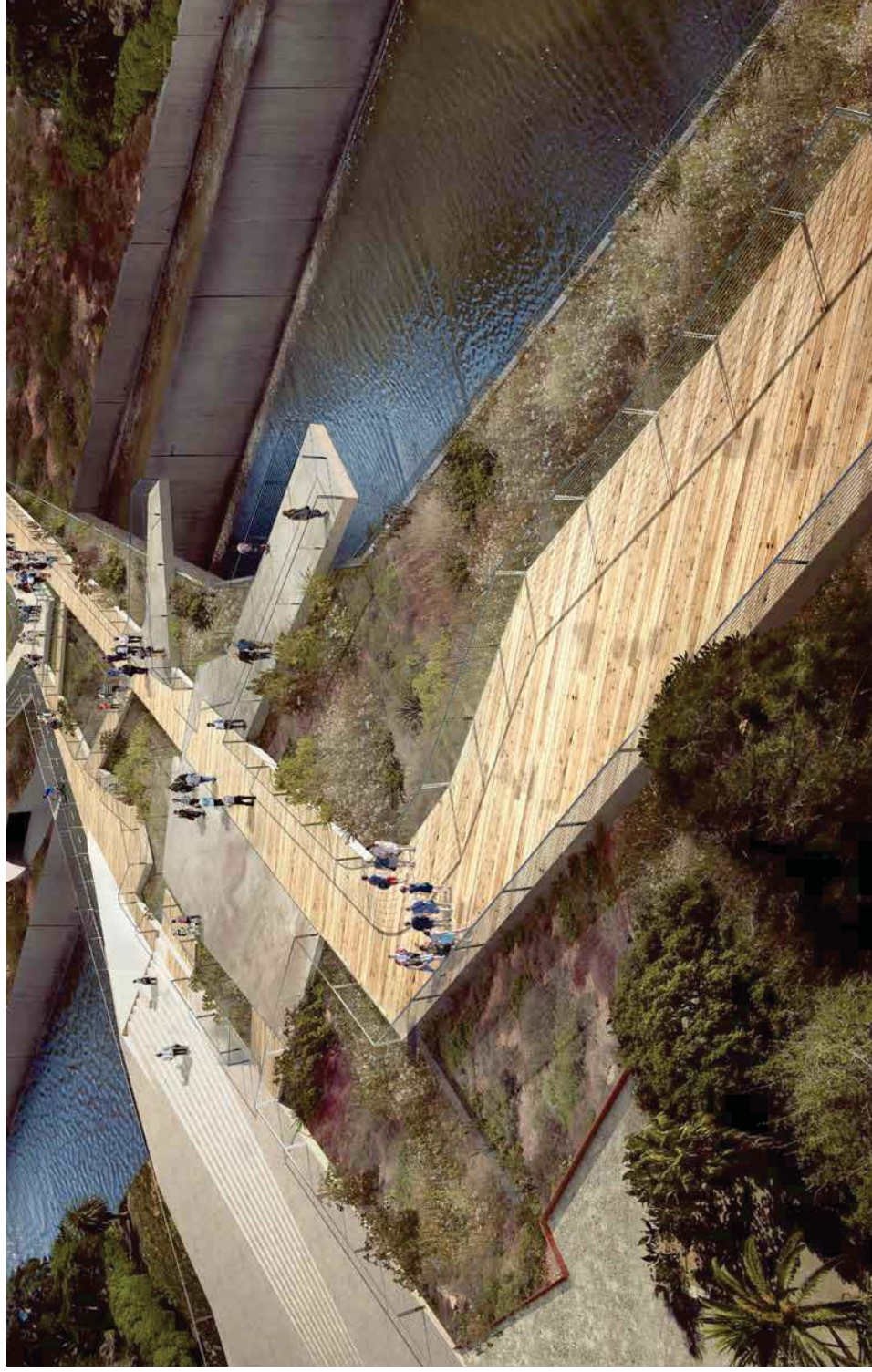


Figure 5.4 Deck [Over LA River Channel]



## TUNNELS AND UNDERCROSSINGS

Aside from the technical challenges that must be overcome, tunnels present a particularly difficult spatial challenge. The primary spatial challenges include: the need for light (preferable natural light), designs that allow for safe passage 24 hours a day, and maintaining the required head height.

### Standard Tunnel Profiles

Similar to channel bridges, the different forms of typical profile shapes impact the user's perception and experience of a tunnel. Thus, the tunnel profile is also the starting point for developing a design that challenges generic tunnel design solutions.

### Shape + Perception

Simple deformations, such as tapering or flaring the profile at different intervals within the length of the crossing, were studied to understand their impact on the perception and function of a tunnel. Certain types of shaping can provide benefits such as making a tunnel appear shorter or allowing more light into the center.

### Lighting + Signage

Lighting is the most critical design element for tunnel safety. Transitioning from a dark to light space (or vice versa), lighting that is too dim, and creation of spaces hidden from view each create their own safety issues. Addressing each issue can be accomplished by combining different lighting and signage elements or individually. For example, combining concealed artificial LED lighting with daylighting through punched window openings to the river and street, can radically change the character of a tunnel interior and provide adequate lighting. Signage and graphics that wrap from the entry threshold to the interior mitigate the harshness of a typical transition into a tunnel.

## CROSSING TYPOLOGIES

### Entrance + Interior Shaping

A major defining moment of a tunnel is its entrance. Different types of gateways alter the perception of where a tunnel begins and has the potential to further blur its threshold. Any extension of the tunnel makes the space seemingly longer and darker, however, partial shade canopies also have the potential to define a new point of destination along the path.

### Landscape + Vegetation

Another important approach to providing continuity along the length of the river is to incorporate vegetation and integrated landscapes into the design of tunnels. The "green way" has the potential to blur thresholds between tunnel and path.

### Issues of Path

The same issues of path for channel bridges also exist for tunnels; creating continuity along the bikeway while using different paving materials for different infrastructure crossing types. For tunnels, changing the texture of the path before entering a tunnel might further blur the threshold condition, while also bringing a less industrious character to the interior.

## TUNNELS

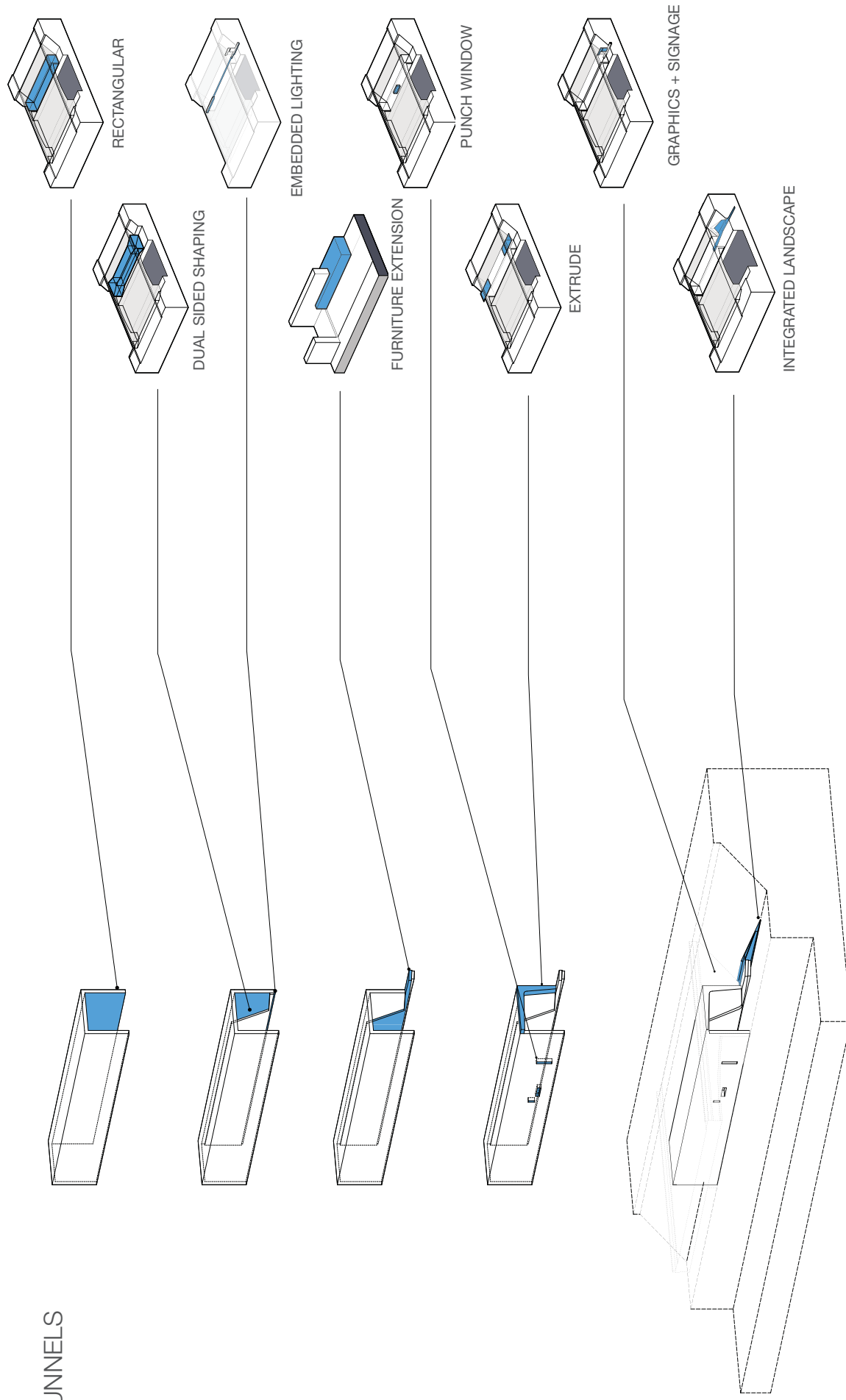


Figure 5.5 Tunnel Typologies  
5-14

## TUNNELS



## CROSSING TYPOLOGIES



Figure 5.6 Typical Tunnel

## RAMP UNDERCROSSING



## CROSSING TYPOLOGIES

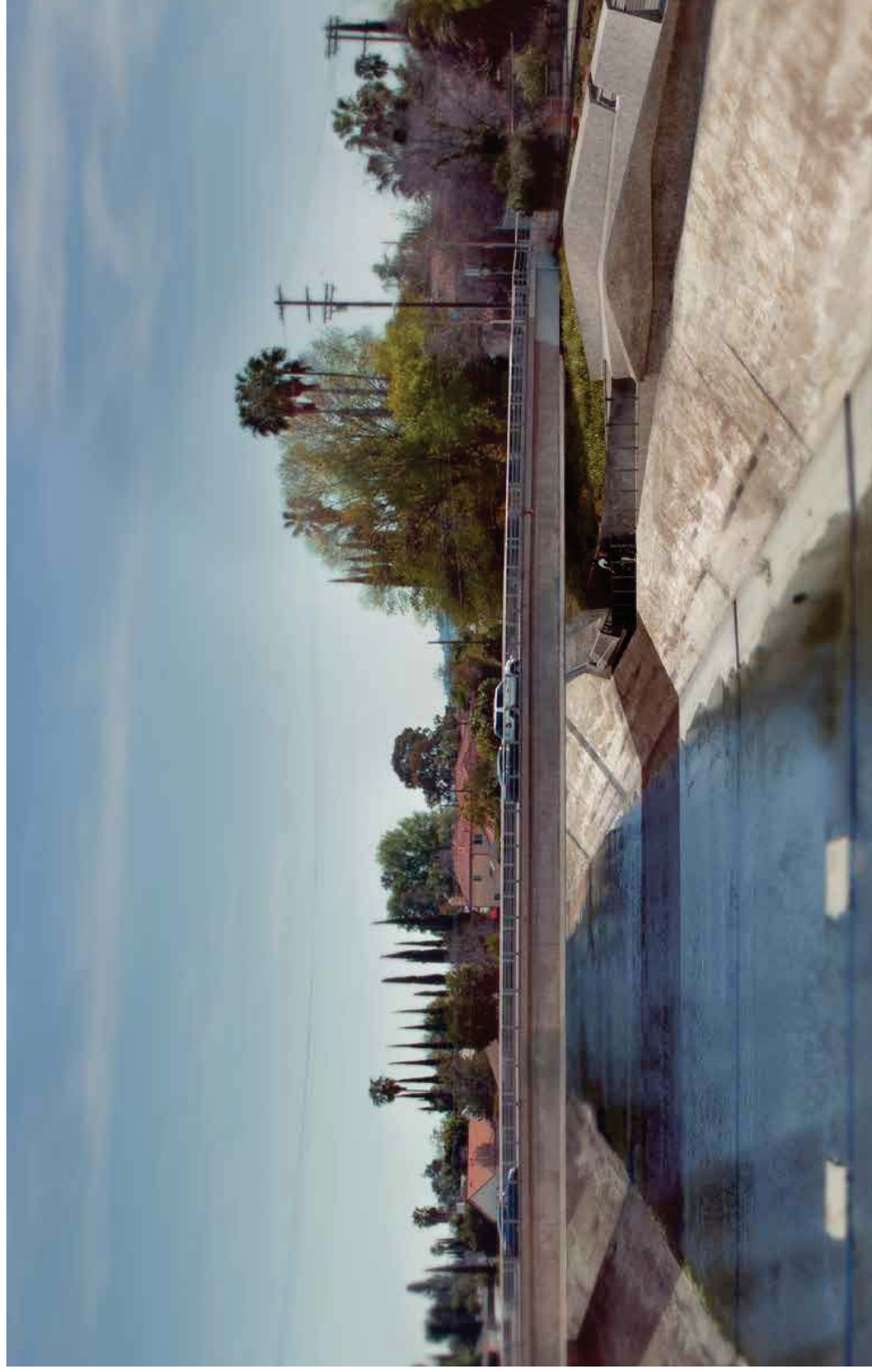


Figure 5.7 Typical Ramp Undercrossing



## STREET BRIDGES

Tunnels or ramp undercrossings are difficult or impossible to implement in some locations because of the elevation of a street or significant utility conflicts. In these cases, bridges will be considered as the next appropriate alternative for bicycles and pedestrians crossing streets intersecting the LA River.

### Standard Street Bridge Profiles

Street bridges are visually unique compared to other elements of the bikeway. As a result, the pros and cons of a typical bridge profile have a more pronounced impact upon user perception and experience, while also visually impacting non-users. The typical bridge profile must challenge generic design solutions for a typical bridge so that the street bridges are visually integrated into the bikeway, for users and non-users.

#### Shape + Perception

As is with channel bridges, site specific interventions for street bridges may require modifications to the shape of a standard straight bridge. Changes in the basic geometric shape of a bridge plane alters how the bridge is approached, perceived, and experienced as a gateway between the bikeway and surrounding built environment. These changes should be viewed as opportunities to invite use of the bikeway.

#### Lighting + Signage

Because street bridges provide the most prominent interaction between the bikeway and surrounding built environment, wayfinding, signage, and lighting elements provide a more substantial role for street bridges than channel bridges. It is important these elements are closely integrated into the design of bridges, to provide continuity along the bikeway and connecting to the bikeway. Design of these elements will allow users to navigate between the fixed bikeway and variable destinations outside the bikeway. Signage will include: graphics on the bikeway pavement, stand alone pieces, or integrated designs. New lighting can be especially helpful for bridges during night hours and can produce exciting visual effects on the final bridge forms.

#### Entrance + Threshold

A major defining moment of a bridge is its entrance. Different types of gateways alter the perception of where a bridge begins and has the potential to further blur the threshold of bridge and path. In addition, canopies also define a new point of destination along the path. All of these conditions allow street bridges to extend into the surrounding built environment, physically or perceptibly.

## CROSSING TYPOLOGIES

### Landscape + Vegetation

Another important approach to developing a visual relationship between the bikeway and surrounding context, as well as continuity along the length of the river is to incorporate vegetation and integrated landscapes into the design of bridges. The greenway has the potential to blur thresholds between bridge and the community, and bridge and path.

### Infrastructural Scale + Issues of Path

Street bridges will have the largest scale of any infrastructure associated with the future bikeway. As a result, the scalar relationships that exist between bridges, bikeway, and surrounding context is different than channel bridges. Instead of contending with the scale of the river channel roadways (typical infrastructural scales of heavy mass and concrete tuned to the scale of the city), street bridges are constructed at that scale. However, street bridges still need to address the intimate scale of the human body, the bicycle, and the individuals that will ultimately occupy the spaces. The challenge is to design so that bridges address both of these scales.

The issue of scale impacted by the larger infrastructure of street bridges also draws increased attention to the issues of path. Although the entire LA River Greenway project is an issue of path continuity, the idea of path does not have to remain constant. There are multiple ways to interpret material breakup of the path, how the path touches the ground, and the relationship of path to structure.

### Enclosure

The idea of "enclosure" relates to simple geometric transformations to a standard bridge profile that either alters or breaks the mass. This collection is intended to provide basic moves that can be combined to allow light to permeate an enclosure while also providing shade and security.

## STREET BRIDGES

## CROSSING TYPOLOGIES

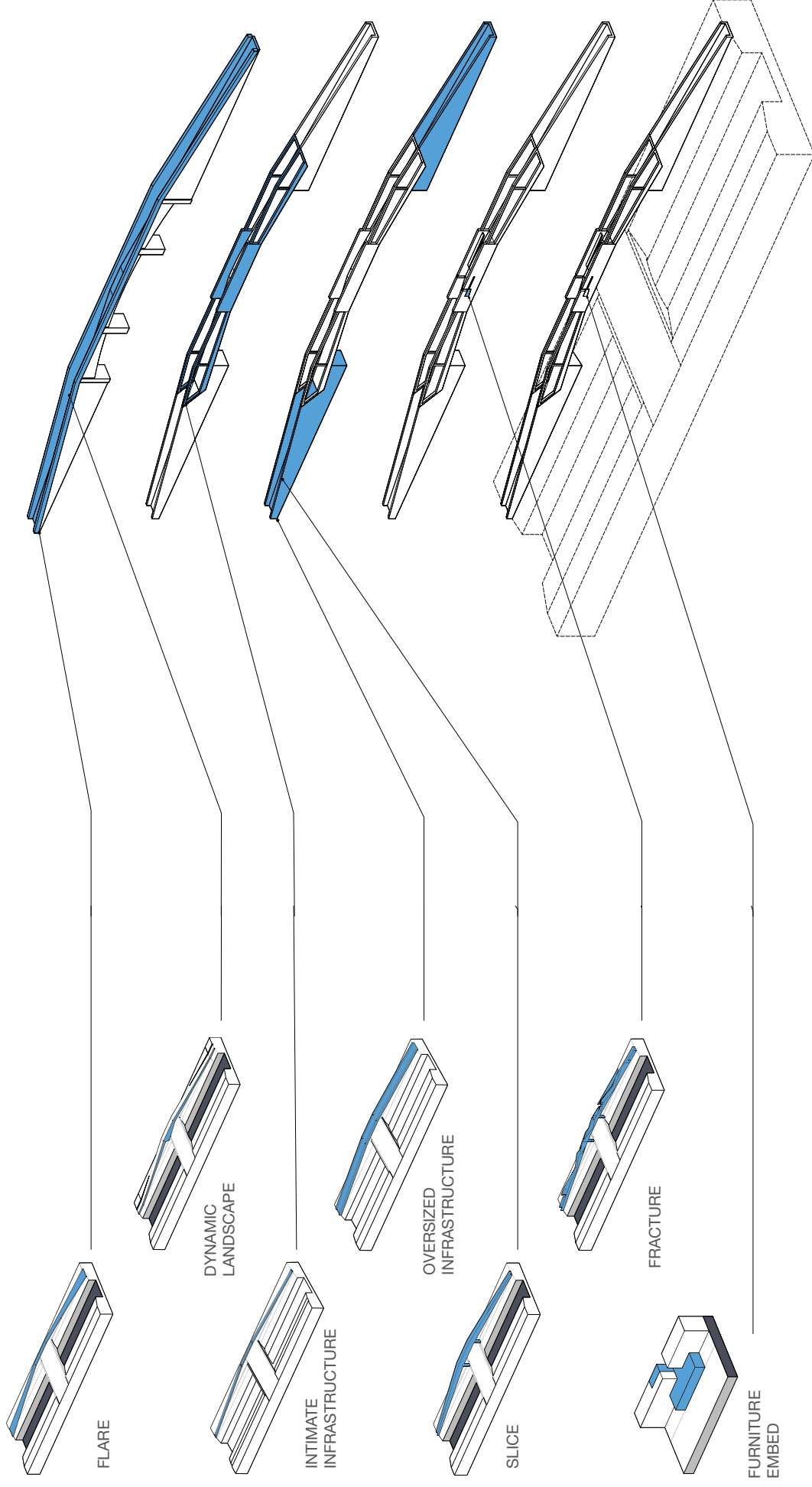


Figure 5.8 Street Bridge Typologies  
5-18

## STREET BRIDGES



## CROSSING TYPOLOGIES



Figure 5.9 Typical Street Bridge

## OCCUPY THE CHANNEL

Challenges located at many of the crossing sites, which preclude or limit the effectiveness of traditional crossing types, provide an opportunity for unusual approaches to provide the best solution. One solution is occupying the channel, which could entail a floating platform, or solutions that cantilever into or over the channel.

### Standard Undercrossing Profiles

Occupying the channel and cantilever sections are not generic solutions themselves. However, these solutions are made of standard components such as the structural platform and pathway profile shapes that relate to perception and experience. Different profiles of these structural components can sway a design solution towards a more generic or innovative solution, which each provide pros and cons for the user experience.

### Shape + Perception

Occupying the channel would be employed for sites with unique physical conditions, which would likely require modifications to the standard shape of structural components to respond to those specific challenges. Changes in the basic geometric shape of a bridge plane alters how structures occupying the channel are approached, perceived, and experienced.

### Issues of Path

Path continuity will be disrupted by occupying the channel; a cantilevered section could provide less disruption to path continuity. While continuity may be disrupted, these typologies provide an impactful moment, which may call for special path treatment. Additionally, the material breakup of the path, how the path touches the ground, and the relationship of path to structure can each be interpreted in multiple ways. Changing materials and textures of the path before crossing a bridge might further blur the threshold condition, while also bringing a less industrial character to the walking surface for pedestrians.

## CROSSING TYPOLOGIES

### Landscape + Vegetation

Another important approach to providing continuity along the length of the river is to incorporate vegetation and integrated landscapes into the design of bridges, platforms, lookouts, and undercrossings. As occupying the channel disrupts that continuity, extending the greenway has the potential to reconnect occupying the channel infrastructure and path. Additionally, since this crossing type will have increased interaction with water in the LA River, there are opportunities for landscaping and vegetation to contribute to ecological health of the LA River just as much as its contribution towards perception and experience for the user.

### Enclosure

The idea of “enclosure” relates to simple geometric transformations to a standard bridge profile that either alters or breaks the mass. This collection is intended to provide basic moves that can be combined to allow light to permeate an enclosure while also providing shade and security.

### Lighting + Signage

It is important for users to easily identify where they are and where they want to go next as they move between two separated spaces; but, occupying the channel can also limit where wayfinding, signage, and lighting elements will can be used. Nevertheless, wayfinding, signage, and lighting will be integrated into the design of bridges to provide necessary guidance for users as they move from one side of the river to the other, where feasible.



## OCCUPY THE CHANNEL

## CROSSING TYPOLOGIES

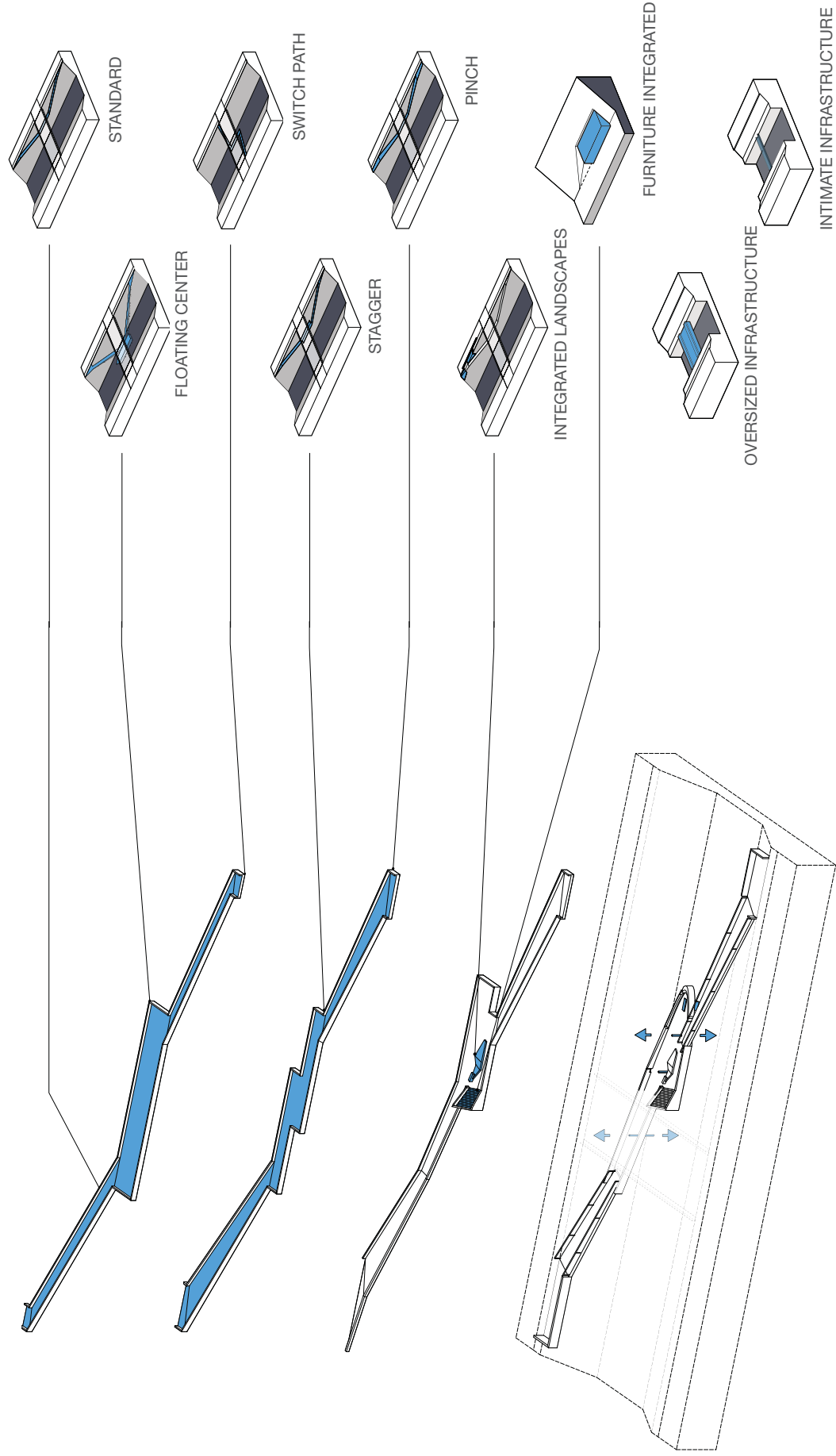


Figure 5.10 Occupy the Channel Typologies

## OCCUPY THE CHANNEL



## CROSSING TYPOLOGIES



Figure 5.11 Occupy the Channel Concept Rendering

## CANOPIES



## ARCHITECTURAL ELEMENTS

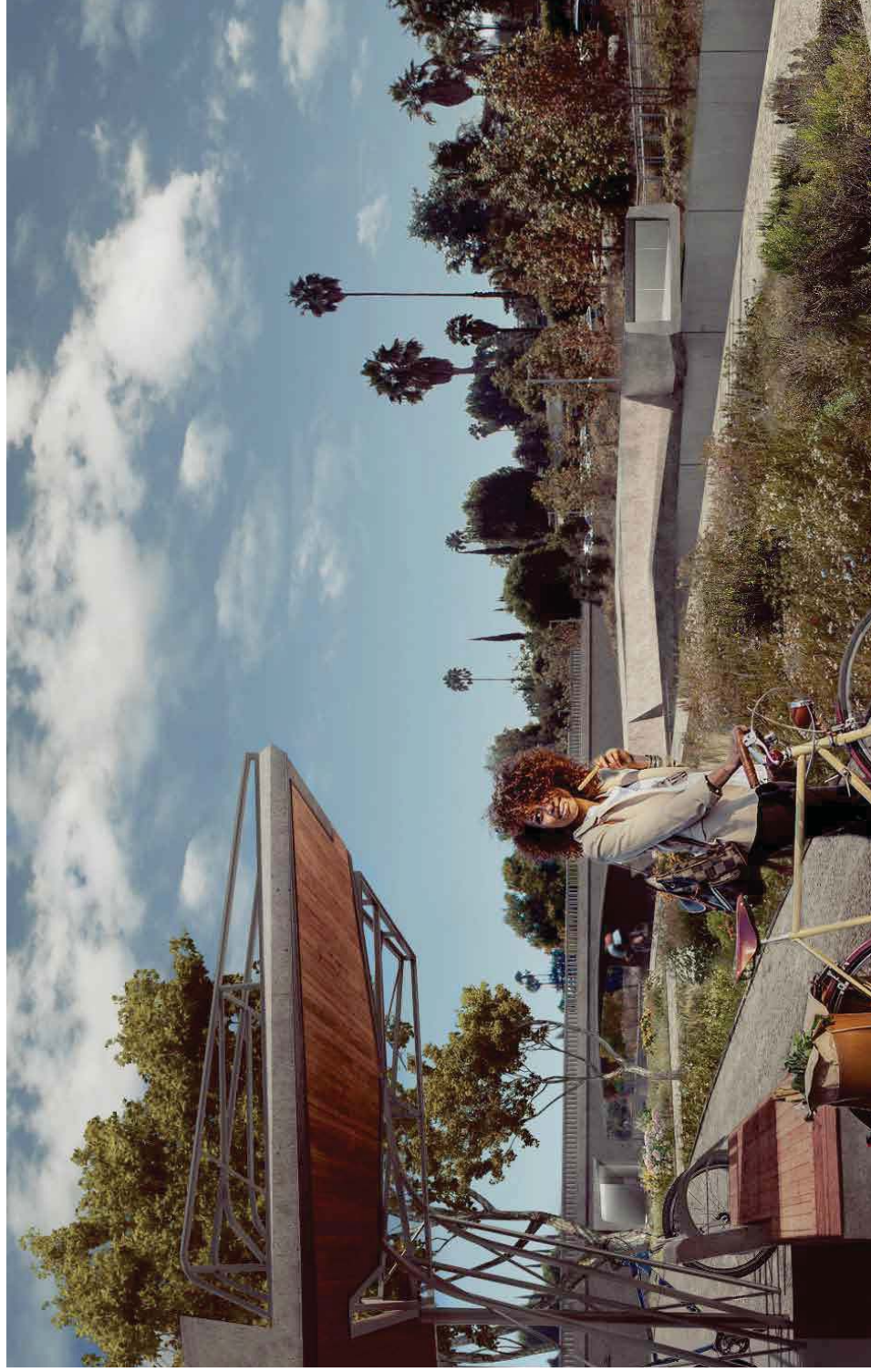


Figure 5.12 Typical Canopy



## BIRD BLINDS



### BIRD BLINDS

- 200 sq ft elevated viewing platform
- Concrete panels and steel frame elements

## ARCHITECTURAL ELEMENTS



Figure 5.13 Typical Bird Blind



OVERLOOKS



OVERLOOK LENGTH PER SEGMENT

Segment 01	156 LF
Segment 02	78 LF
Segment 03	78 LF
Segment 04	-
Segment 05	-
Segment 06	-
Segment 07	78 LF
Segment 08	468 LF
Segment 09	234 LF

WIDENED WALKWAY LENGTH PER SEGMENT

Segment 01	5,465 LF
Segment 02	-
Segment 03	-
Segment 04	-
Segment 05	-
Segment 06	1,933 LF
Segment 07	1,620 LF
Segment 08	-
Segment 09	1,130 LF

ARCHITECTURAL ELEMENTS



Figure 5.13 Typical Overlook

## AMPHITHEATER



## ARCHITECTURAL ELEMENTS



Figure 5.14 Typical Amphitheatre



## RESTROOMS



### RESTROOMS

- 500 sq ft two-stall restroom
- Board formed concrete with wood and small steel frame design elements

## ARCHITECTURAL ELEMENTS



Figure 5.13 Typical Restrooms

## KIOSK



## ARCHITECTURAL ELEMENTS

### KIOSK

- 200 sq ft kiosk
- Board formed concrete with small steel frame elements

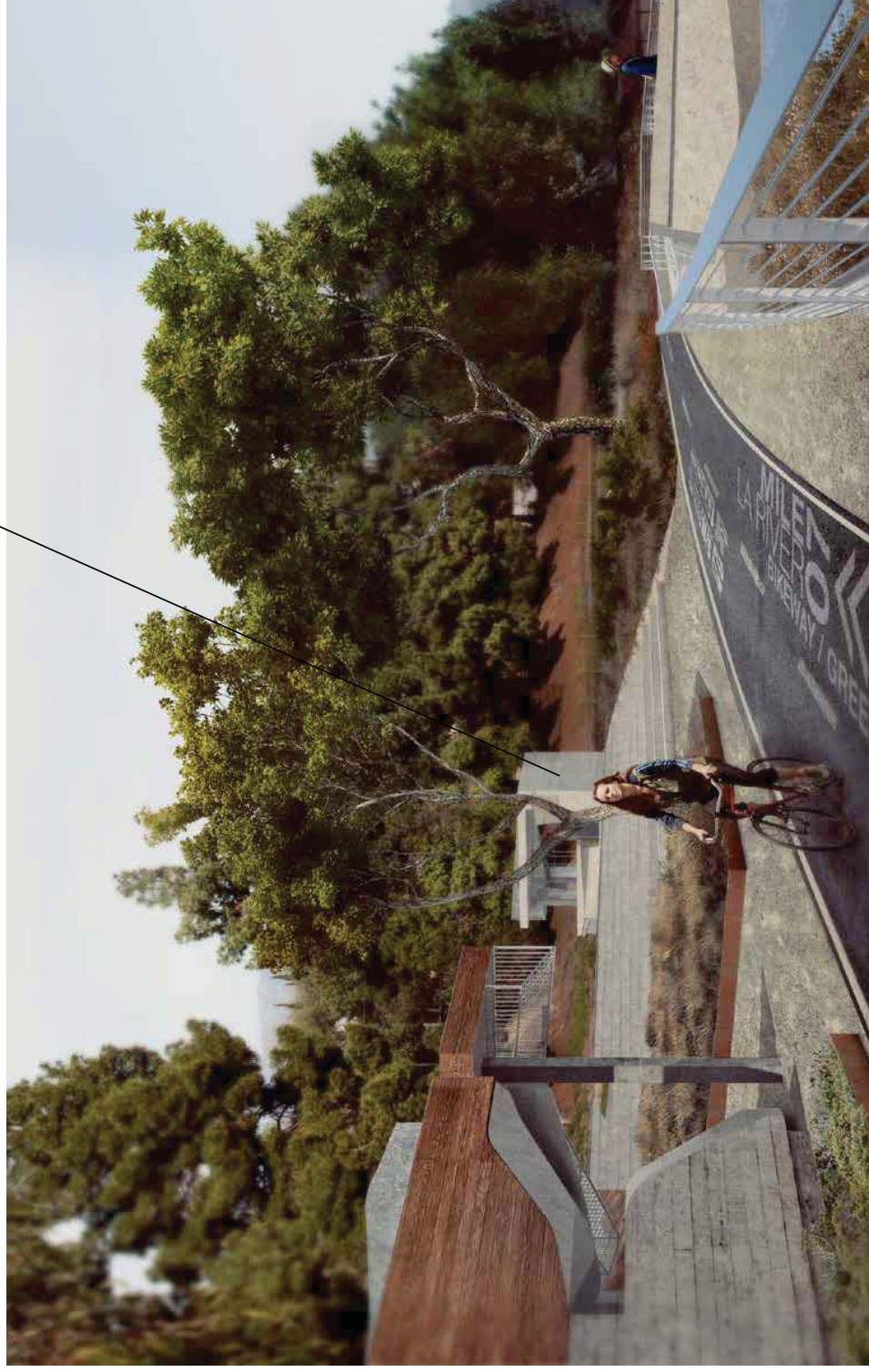


Figure 5.16 Typical Kiosk



## INTEGRATED SEATING

## ARCHITECTURAL ELEMENTS



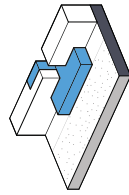
Channel Bridge: Interior



Street Bridge: Exterior



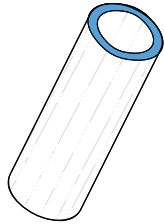
Street Bridge: Interior



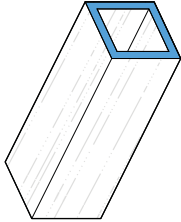
EMBEDDED FURNITURE

## STANDARD BUILDING MATERIALS

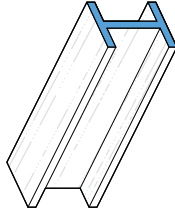
Materials with different properties can be used in distinct ways to enhance certain experiences and produce emotional effects. This list of standard building materials will be low maintenance and help to unify the design of infrastructure along the LA River Greenway and Bikeway. As materials are used repetitively for specific design elements, similar features along the future bikeway become more easily recognized.



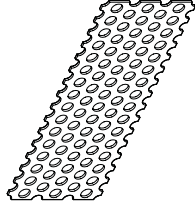
STEEL TUBE



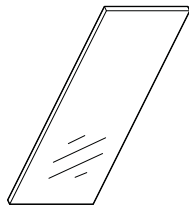
STEEL BEAM



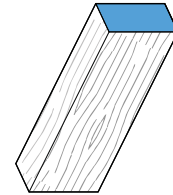
WIDE FLANGE



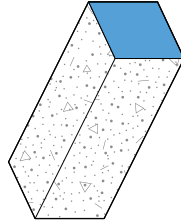
PERFORATED STEEL



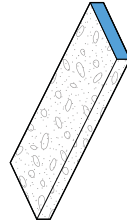
GLASS



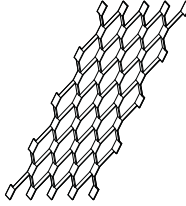
WOOD



CONCRETE



DECOMPOSED GRANITE



EXPANDED STEEL



## PLAYGROUND



Play elements will be incorporated into the river parks along the future bikeway. The proposed play elements along the corridor provide an opportunity for neighborhood recreation in communities with limited to no access to existing parks. The design of play elements can be sculptural and artistic in nature to enhance visual aesthetics of the area. Playgrounds will take linear or more alternative forms in the sections that are urban in character, as available space can be limited.



Play structure made of natural materials



Climbable playground sculpture



Play area inspired by nature



Linear play element



Play sculpture made of natural materials



Durable art installation doubles as play area

## ARCHITECTURAL ELEMENTS



## BIKE REPAIR STATIONS



Bike repair stations have been proposed at the river parks located throughout the future bikeway. Typical bike repair station components include screw drivers, wrenches, hex tools, and heavy-duty air pumps. Bike repair stations allow bicyclists the ability to make simple fixes without having to leave the future bikeway and contribute to creating an environment of bicycle friendliness.



## ARCHITECTURAL ELEMENTS

Bike Repair Station - Standard Components



Heavy-duty air pump



## BIKE AMENITIES

Additional bike amenities include bike counters, bike parking facilities, and the potential for bike share systems where space allows. Bike counters provide counts for daily and year to date ridership levels along the future bikeway. The data generated by bike counters helps to establish a baseline to track ridership levels. Bike parking facilities will be proposed along the future bikeway to allow users the opportunity to safely park their bicycles.

## ARCHITECTURAL ELEMENTS



Powder coated aluminium bike racks



Corten steel bike racks



Inverted U bike rack (LADOT Standard)



Bike share system (LA Metro standard)



City of San Francisco bike counter



Custom bike racks

## SEATING

Seating will be proposed at various locations along the future bikeway to allow bicyclists and pedestrians the opportunity to rest and relax. Some seating areas will be shaded by canopy structures or by mature tree cover to provide relief from the sun. At overlook locations and places of scenic interest, seating will be located to facilitate desirable points of view. Concrete is the preferred seating material for durability, ease of maintenance, and to support the overall aesthetics of the future bikeway. The design of seating elements will facilitate short term occupancy by keeping seat lengths to a minimum width.

CONCRETE 'RIBBON' BENCH - CREATES SEATING  
NODES WHILE PREVENTING LONG TERM USE



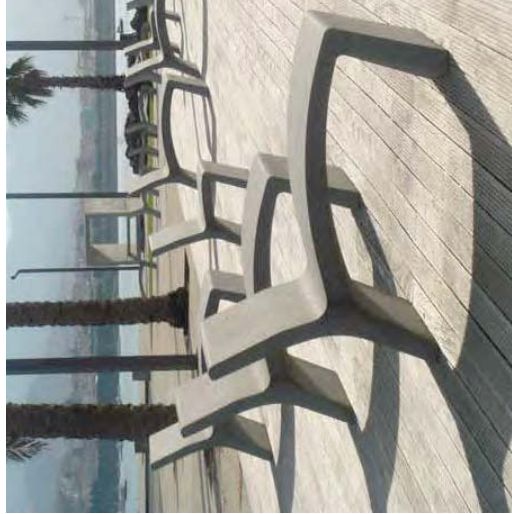
Concrete 'Ribbon' Bench - Creates seating nodes while preventing long term use



ADA Compliant Seating



Seating elements as planter edge



Concrete chase-style seating



'Pebble' style seating inspired by the LA River while facilitating short term use



Durable concrete bench



## SITE AMENITIES

Additional site amenities include drinking fountains and trash/recycling receptacles. Drinking fountains will be proposed at river park locations to allow bicyclists and pedestrians the opportunity to rehydrate. Drinking fountain design will be ADA compliant and may include water bottle filling stations, “dog level” drinking fountains, and exposed drains/pipes as an education measure to show where the water goes after consumption. Trash and recycling receptacles will be included as well along the future bikeway and at river park locations. The materials, colors, and finishes of site amenities will be selectively chosen to support the overall aesthetic vision of the corridor.

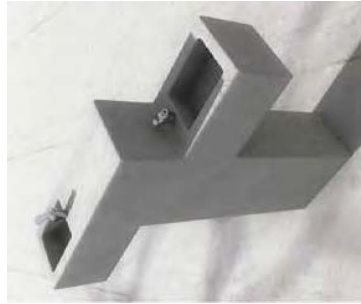
## ARCHITECTURAL ELEMENTS



Water bottle filling station



Corten steel drinking fountain



Durable ADA compliant drinking fountain



Drinking fountain with exposed drain



Solar powered recycling and trash compactor; reduces emptying frequency



Galvanized steel trash receptacle



Corten steel trash receptacle



Separated pet waste, trash, and recycling receptacle containers

# LIGHTING

Lighting along the future bikeway will be for both aesthetic and safety purposes and will include a variety of lighting fixture types. Methods of proposed lighting include hybrid solar elements, custom lighting applications, and lighting embedded into fences and railings. The future bikeway will be consistently lit to create a feeling of safety in the corridor. Lighting will be designed so that it does not extend beyond site boundaries.

# ARCHITECTURAL ELEMENTS



Embedded pathway lighting



Lighting embedded into railing



Bollards with lighting elements



Pedestrian scale lighting



Hybrid solar lighting on existing LA River bikepath



## WAYFINDING

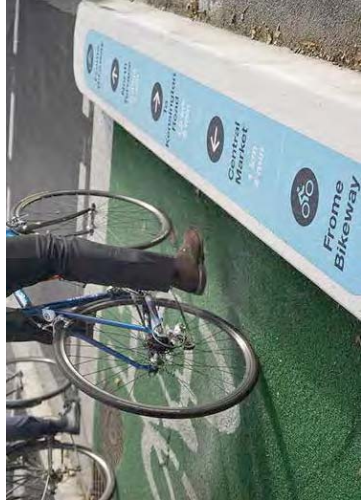
Signage along the future bikeway will include directional signage, interpretive signage, and graphics as wayfinding measures. Signage will be located to allow users accessing the future bikeway at multiple points the ability to effectively navigate and understand their location within the corridor. Directional and informational signage will indicate destinations and areas of interest within the future bikeway and in the surrounding vicinity. Interpretive signage will inform users of local ecology, habitats, and native plant and animal species along the LA River.

The concept to include large scale bikeway embedded info-graphics is an important feature of the project. This can be thermoplastic paint or duratherm embedded material. This can create a unified design to the bike facility that can be implemented onto other existing bike facilities as funds allow. This design feature can help join all the bike facilities (built and planned) into a future “LA Riverway” and contribute to a unified sense of place. This feature will be incorporated throughout to:

- indicate potential transition areas where pedestrians will be mixing with cyclists
- call out places of interest along the corridor
- indicate street crossings and potential connecting bike routes
- mark mileage and progress along bike route

See Fig 5.17 for conceptual bikeway embedded info-graphic

## ARCHITECTURAL ELEMENTS



Directional signage doubles as footrest for bicyclists



Informational signage indicating location within overall corridor



Signage with corridor mileage markers



Existing LA River signage with local habitat and ecological information



Corten steel signage with plant species information



Directional signage with distance information

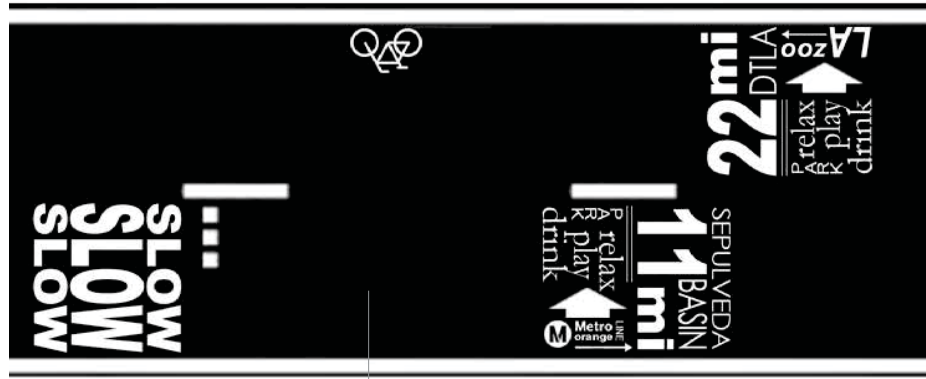


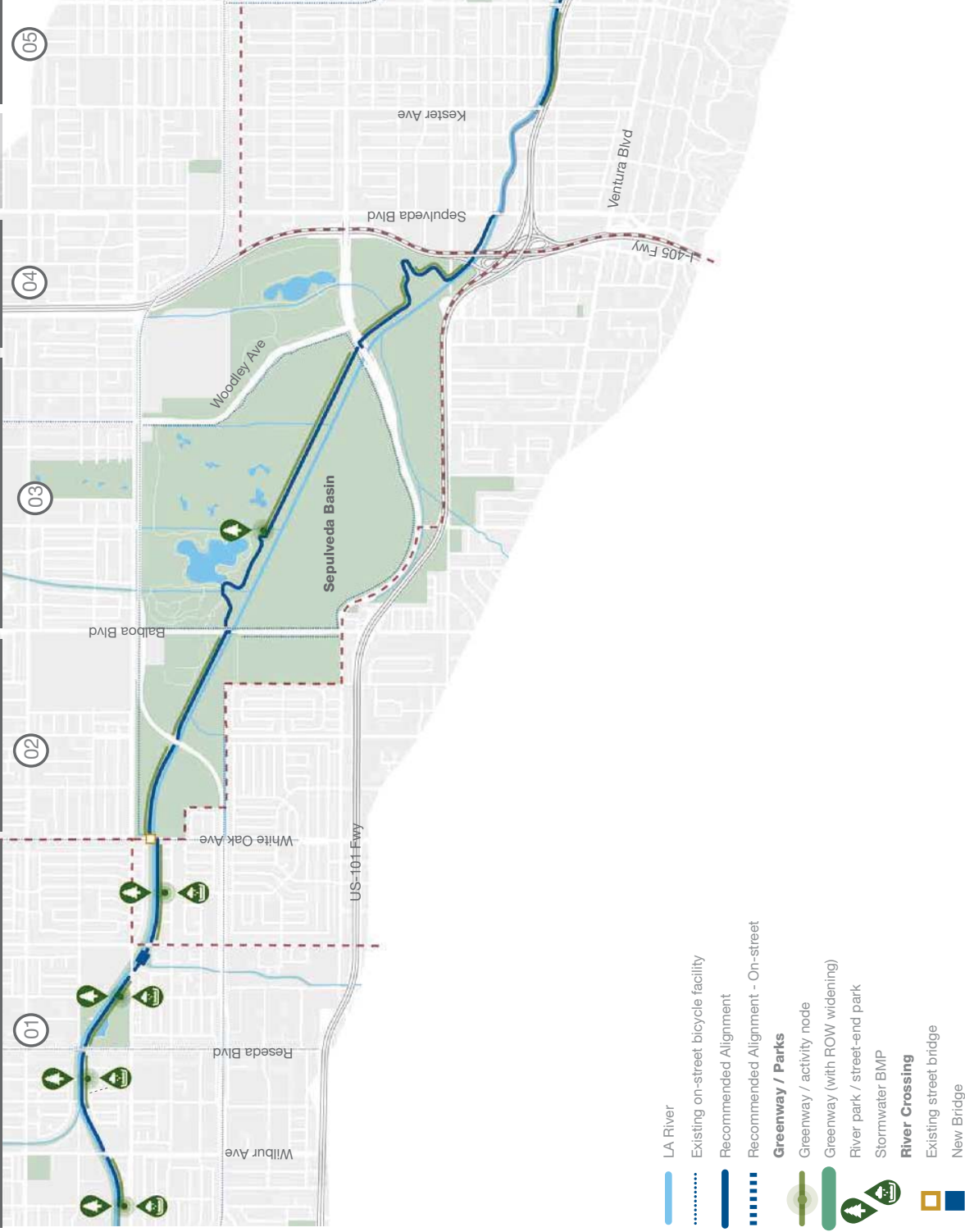
Fig 5.17 Bikeway embedded info-graphics

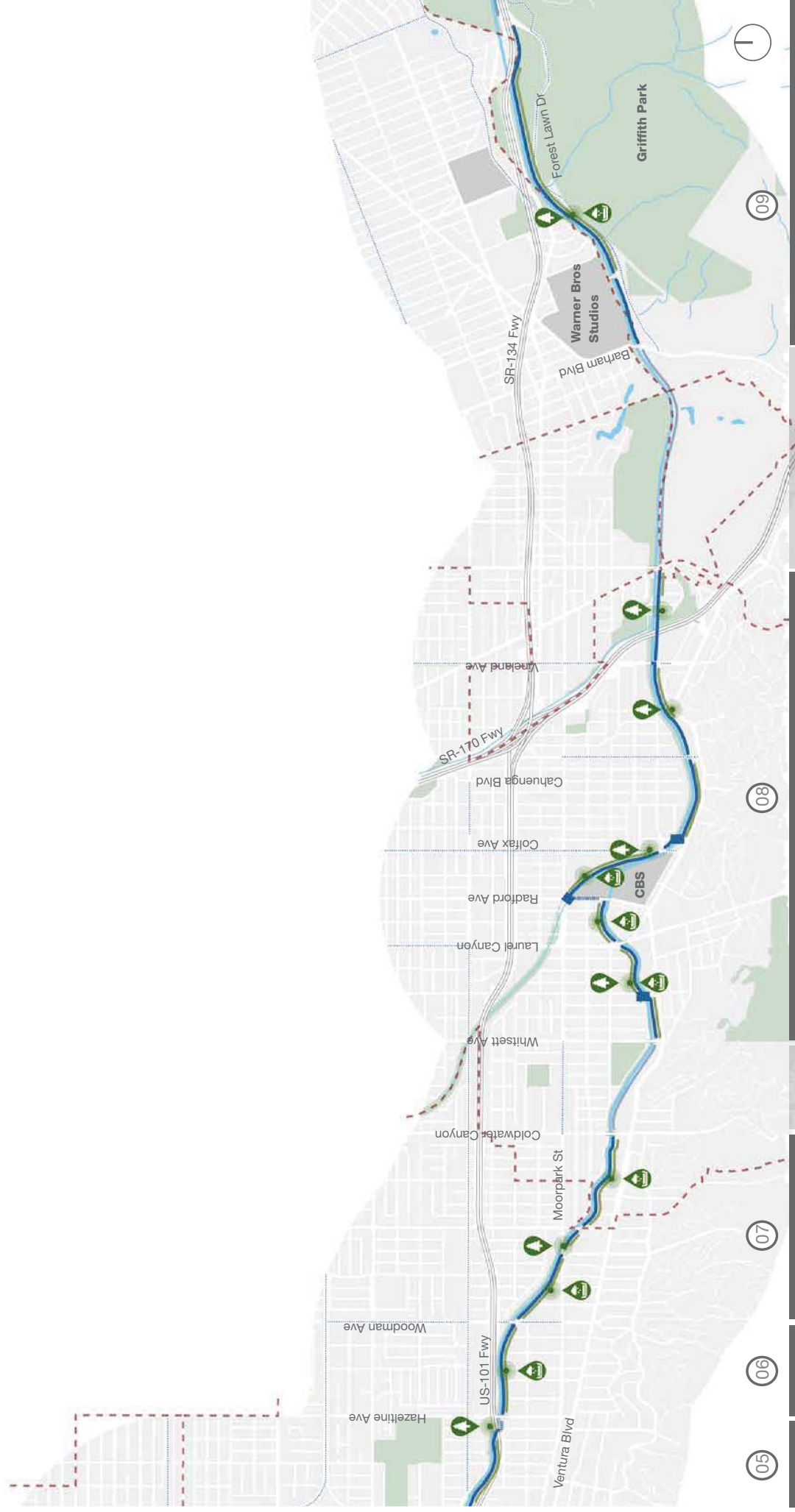
## GREENWAY + RIVER PARKS

A major component of this new link between communities and neighborhoods will be a landscaped buffer alongside the bikeway to provide aesthetic enhancements, buffering from adjacent uses, stormwater BMP elements and habitat restoration. This “Greenway” could be as narrow as a few feet to 30’ or more depending on the ROW available. Areas in the western reach have limited ROW and may not have opportunities for greening although most areas can provide a narrow bioswale to capture the stormwater runoff that might fall onto the bikeway.

Water that might run off the impervious surface of the future bikeway would be directed into adjacent bioswales to reduce the velocity and flow of stormwater, as well as reducing pollutant discharges. These stormwater features will promote environmental sustainability while improving the aesthetics of the bikeway. The bioswales will contain California native plants that can withstand period inundation and additional filtration through sand and gravel to recharge groundwater and excess runoff ultimately being directed into the river.

Additional opportunities to treat stormwater from drainage areas adjacent to the river have been analyzed and potential river parks have been identified to provide water quality facilities to treat the runoff coming from adjacent neighborhoods before being discharged into the river. Other river park opportunities have been identified that provide additional value and are discussed on the following pages.







## GREENWAY + RIVER PARKS | LINK REMNANT HABITAT

One of the major goals of this project is to restore the ecological functions of the LA River by facilitating ecological restoration of the riverine edge with multi-benefit green spaces. To achieve that goal, this project proposes watershed improvements, educational opportunities, aesthetic enhancements, healthy mobility options and habitat restoration.

Development in the San Fernando Valley has reduced the habitat area of indigenous species that once roamed the valley and surrounding ecological areas. The barriers such as dense housing, freeways and abundant amounts of impervious surfaces that we have created over time have inhibited movement of wildlife throughout Southern California. This breaking up of habitat has created gaps in the habitat corridors and has directly contributed to a precipitous reduction of the range and diversity of plant and animal species. The proposed greenway of this project along the river corridor can help link the significant ecological areas to habitat remnants and contribute to the health and vitality of the plant and animal community of the region.

The San Fernando basin is surrounded by significant ecological areas such as the Santa Monica Mountains, Santa Susana Mountains and the San Gabriel Mountains. These ranges have vital tributaries that drain to the LA River in the project area and thus have a potential to provide a corridor for native habitat. The tributaries of Aliso Creek, Bull Creek, Caballero Creek and Tujunga Wash are going through significant changes and restoration efforts as well and will eventually contribute the overall health of the LA River.



Typical bi-directional bike path with decomposed granite pedestrian walking path adjacent to the LA River alongside bioswale, interpretive signage, seating nodes, and overlook spaces.



## GREENWAY + RIVER PARKS | LINK REMNANT HABITAT

The Sepulveda Basin and Griffith Park feature many bird species and pollinator species habitat maps and have been identified as important remnant habitat locations in the “Green Visions Plan for 21st Century Southern California”. The Green Visions Plan facilitates habitat conservation along the Los Angeles River and states that connectivity between larger ecological areas and with smaller urban remnant habitats is important to conserving biodiversity in urban landscapes. Restoration of historically present native plant communities will help support this linking of remnant habitats for birds, native insects and pollinators.

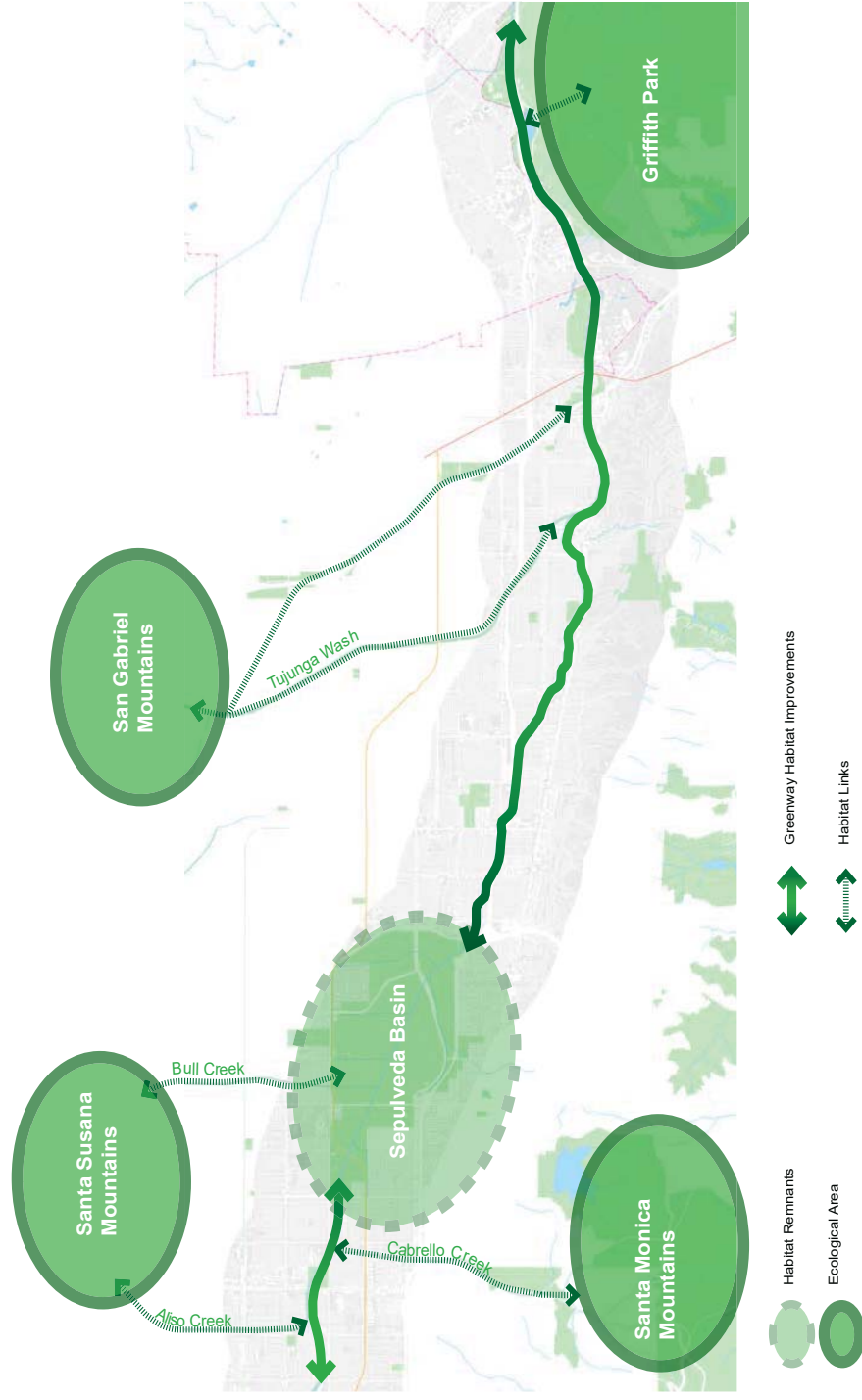


Figure 5:18 Remnant Habitat Diagram



## GREENWAY | HABITAT MATRIX

TABLE 5.1 GREENWAY HABITAT MATRIX

GREENWAY SEGMENT	TREE COUNT	PERMEABLE PAVING	HABITAT LANDSCAPE	STORMWATER BMP	LENGTH*	LANDSCAPE WIDTH	TOTAL LANDSCAPE AREA
Vanalden Avenue - Wilbur Avenue	43	6,650 sf	4,423 sf	2,660 sf	1,330 ft	4 - 7 ft	7,083 sf
Wilbur Avenue - Reseda Avenue	34	9,700 sf	2,500 sf	2,500 sf	1,940 ft	0 / 4 ft	5,000 sf
Reseda Avenue - Victory boulevard	53	8,150 sf	4,740 sf	3,160 sf	1,630 ft	5 ft	7,900 sf
Lindley Avenue - White Oak Avenue	0	13,050 sf	2,610 sf	0 sf	2,610 ft	0 - 1 ft	2,610 sf
White Oak Avenue - Orange Line Busway	83	12,750 sf	7,650 sf	5,100 sf	2,550 ft	5 ft	12,750 sf
Orange Line Busway - Balboa Boulevard	95	14,700 sf	8,820 sf	5,880 sf	2,940 ft	5 ft	14,700 sf
Balboa Boulevard - Burbank Boulevard	200	37,250 sf	23,800 sf	12,000 sf	7,450 ft	4 - 5 ft	35,800 sf
Burbank Boulevard - Sepulveda (Sepulveda Dam)	110	16,450 sf	9,870 sf	6,580 sf	3,290 ft	5 ft	16,450 sf
Kester Avenue - Van Nuys Boulevard	72	12,050 sf	39,446 sf	4,840 sf	2,420 ft	4 - 25 ft	44,286 sf
Van Nuys Boulevard - Hazeltine Avenue	72	10,850 sf	23,348 sf	4,340 sf	2,170 ft	7 - 25 ft	27,688 sf
Hazeltine Avenue - Woodman Avenue	88	13,000 sf	19,085 sf	5,200 sf	2,600 ft	3 - 27 ft	24,285 sf
Woodman Avenue - Moorpark Street	75	11,350 sf	15,890 sf	4,540 sf	2,270 ft	7 - 11 ft	20,430 sf
Moorpark Street - Fulton Avenue	20	3,000 sf	3,238 sf	1,200 sf	600 ft	8 - 15 ft	4,438 sf
Fulton Avenue - Coldwater Canyon Avenue	90	14,250 sf	47,306 sf	5,700 sf	2,850 ft	13 - 45 ft	53,006 sf
Whitsett Avenue - Laurel Canyon (South Side)	0	1,250 sf	0 sf	0 sf	250 ft	0 ft	0 sf
Whitsett Avenue - Laurel Canyon (North Side)	90	13,500 sf	32,550 sf	5,400 sf	2,700 ft	20 - 50 ft	37,950 sf
Laurel Canyon Boulevard - Tujunga Confluence	45	6,750 sf	41,201 sf	2,700 sf	1,350 ft	15 - 45 ft	43,901 sf
Tujunga Confluence - Colfax Avenue	95	14,250 sf	17,100 sf	5,700 sf	2,850 ft	8 ft	22,800 sf
Colfax Avenue - Tujunga Avenue (North Side)	5	750 sf	2,700 sf	300 sf	150 ft	20 ft	3,000 sf
Colfax Avenue - Tujunga Avenue (South Side)	85	12,750 sf	17,850 sf	5,100 sf	2,550 ft	5 - 30 ft	22,950 sf
Tujunga Avenue - Vineland Avenue	50	13,850 sf	22,200 sf	2,960 sf	2,770 ft	0 - 23 ft	25,160 sf
Vineland Avenue - Lankershim Blvd (West of 101)	2	250 sf	250 sf	100 sf	50 ft	7 ft	300 sf
Vineland Avenue - Lankershim Blvd (East of 101)	25	7,600 sf	4,100 sf	1,640 sf	820 ft	7 ft	5,740 sf
Barham Boulevard - WB Gate 7	31	4,700 sf	14,100 sf	1,880 sf	940 ft	15 - 20 ft	15,980 sf
WB Gate 7 - Forest Lawn Drive	220	33,000 sf	122,224 sf	13,200 sf	6,600 ft	6 - 20 ft	135,424 sf
Total (SF)		291,850 sf	487,001 sf	102,680 sf	57,610 ft		589,361
Total (ACRES)		6.86	11.44	2.41			13.84

\* Length represents length of the pedestrian pathway between street crossings and does not indicate length of greenway. See SF of Habitat Landscape, Stormwater BMP and Total Landscape Area for greenway square footage.

## RIVER PARKS | CRITERIA



**LARGE**  
40,000 sf and up



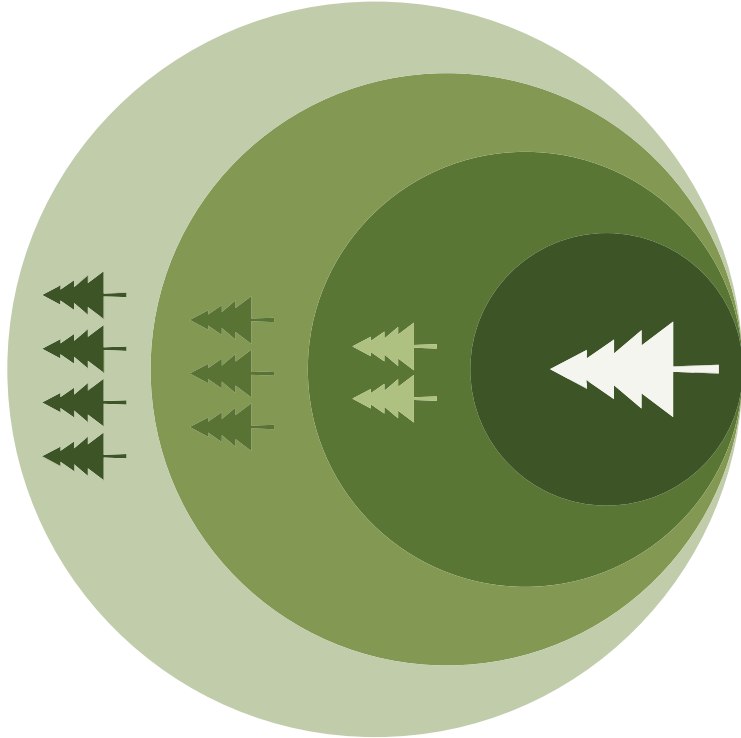
**MEDIUM**  
20,000 sf to 40,000 sf



**SMALL**  
10,000 sf to 20,000 sf



**MICRO**  
< 10,000 sf



### OPPORTUNITIES & FEATURES



**CONNECTION TO REGIONAL BIKEWAY**



**ENVIRONMENTAL & HABITAT VALUE**  
Protect or enhance natural environment with stormwater and infiltration opportunities; linking habitat corridors



**CULTURE & EDUCATION**  
with proximity to schools, libraries, religious institutions



**SCENIC/VIEW OPPORTUNITIES**



**SAFETY & VISIBILITY**  
Convenient to access, remains unlocked



**SPORTS & RECREATION**

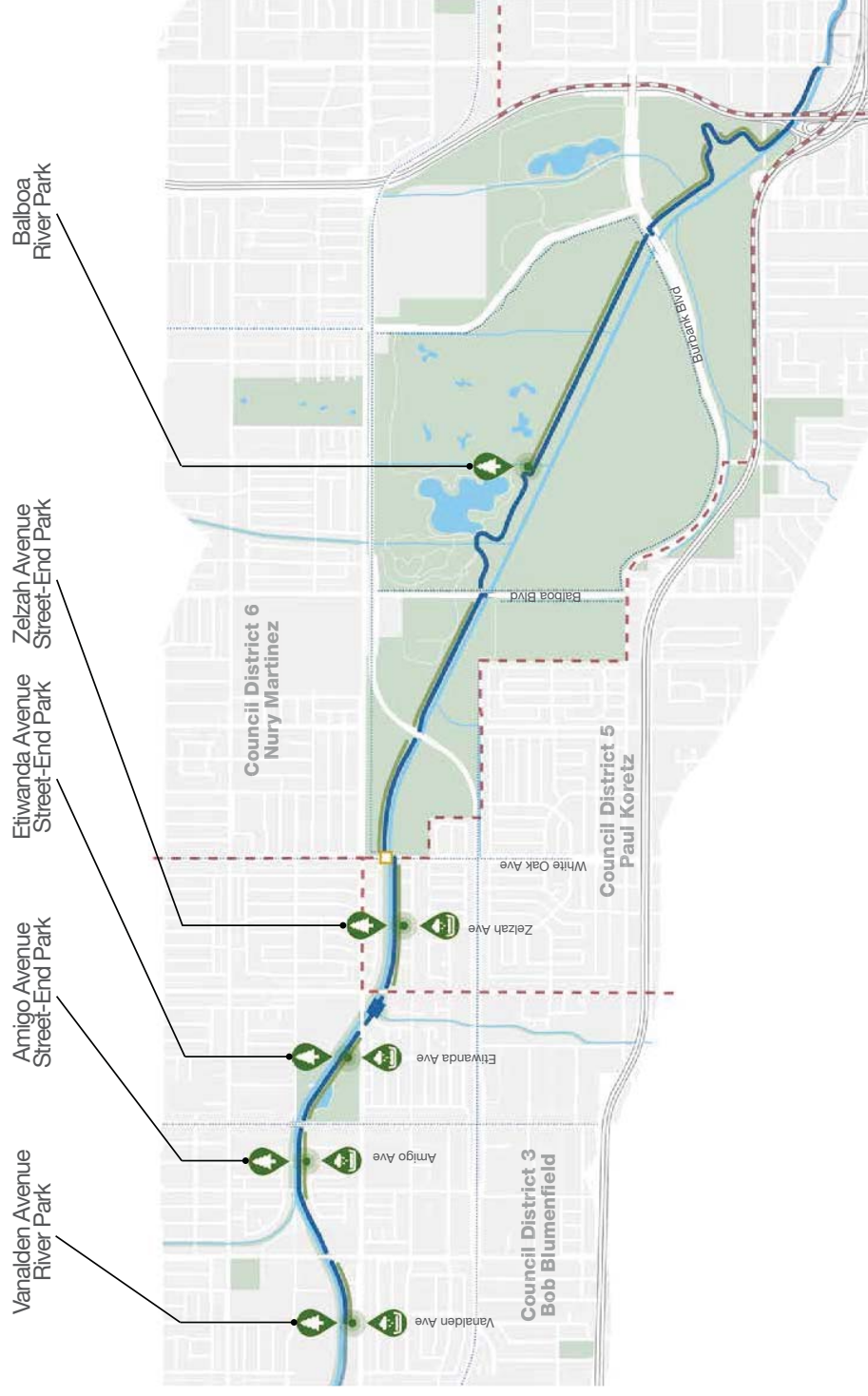


**RETAIL & COMMERCIAL FEATURES**  
proximity to offices, shops, and restaurants, dog parks



## RIVER PARKS | WESTERN REACH

There are five river park opportunities within the western reach of the future bikeway. These parks are located at street ends on the following streets: Vanalden Avenue, Amigo Avenue, Etiwanda Avenue and Zelzah Avenue. Balboa Overlook is within the Balboa Lake Recreation area and serves as a resting area and habitat viewing site.



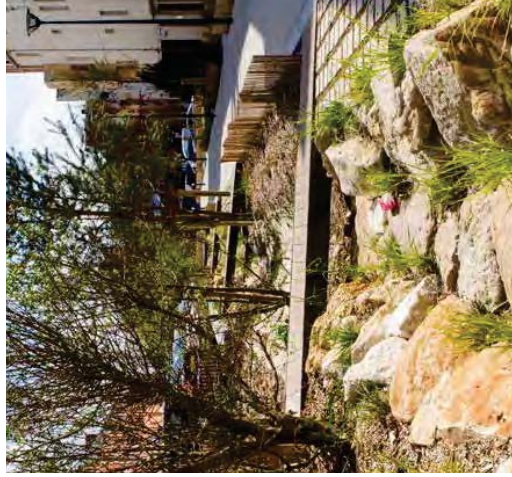
## RIVER PARK STREET END | VANALDEN

Vanalden Avenue ends at the LA River and connects to an existing pedestrian bridge and will be an important neighborhood connection to the future bikeway. This micro river park is approximately 719 SF and will potentially treat stormwater from 3 acres with 86% impervious surfaces. Proposed river park features include street end bioswales and a shaded neighborhood gathering area. Other elements in this Street End River Park include:

- Interpretive and Wayfinding Signage
- Lighting
- Bicycle Gateway
- Bioswale Planting
- Benches and Seating Elements
- Trash and Recycling Receptacles
- Drinking Fountain
- Habitat Garden



Vanalden Avenue River Park Drainage Area Collection No. 1 and 2



Street end bioswale will filter and infiltrate stormwater before entering the LA river



Figure 3.01.1 Vanalden Avenue River Park Concept Diagram



## RIVER PARK STREET END | AMIGO

Amigo Avenue ends at the LA River and connects to an existing pedestrian bridge and will be an important neighborhood connection to the future bikeway. This micro river park is 1579 SF and will potentially treat stormwater from 20 acres with 42% impervious surfaces. Design features of this river park include bioswales to treat stormwater, shaded seating areas, habitat gardens, and an overlook area. Other elements in this Street End River Park include:

- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Lighting
- Benches and Seating Elements
- Trash and Recycling Receptacles
- Drinking Fountain
- Gabion Retaining Walls
- Rest Area
- River Overlook Deck extending over the river



Amigo Avenue River Park Drainage Area Collection No. 2 through 5



Sculptural seating elements

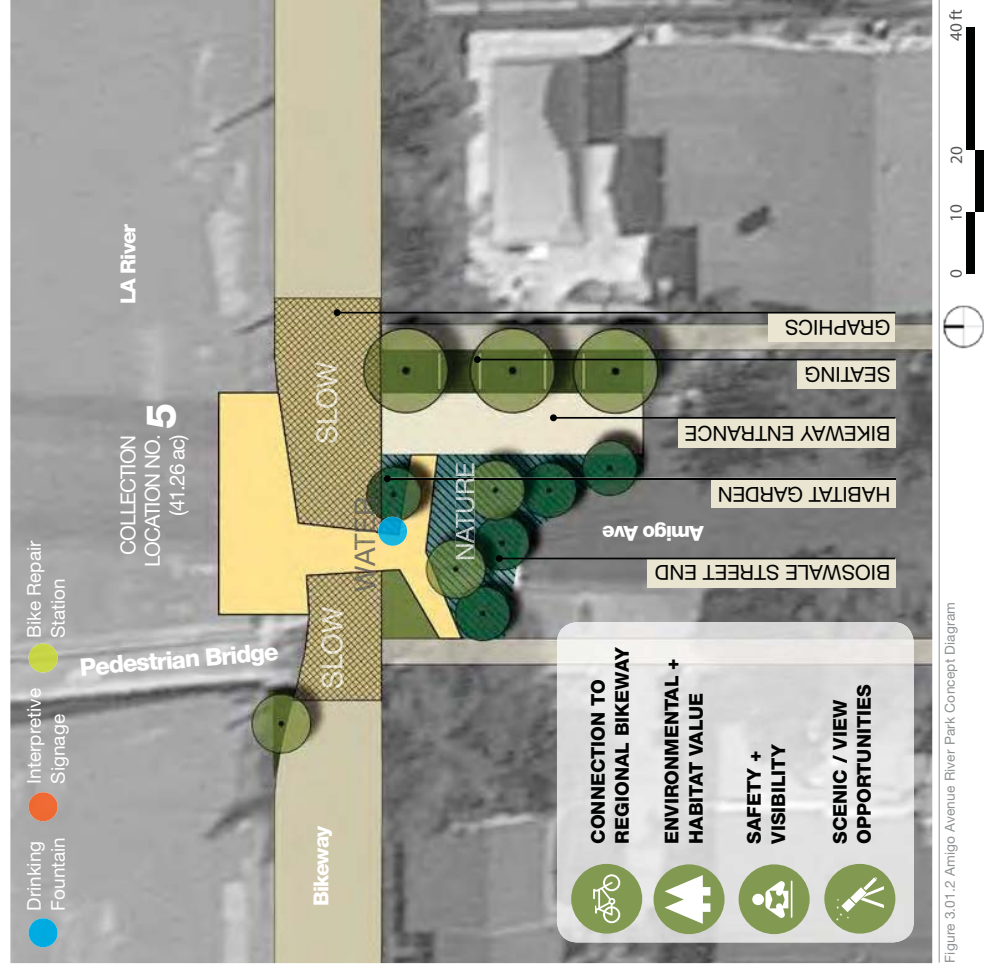
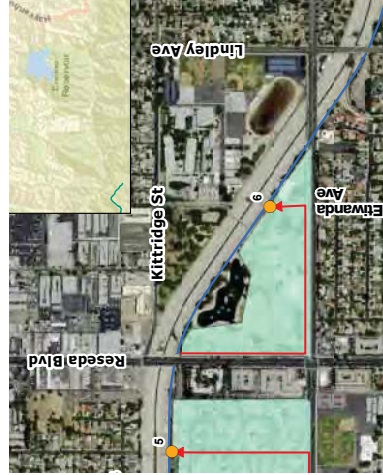


Figure 3.01.2 Amigo Avenue River Park Concept Diagram

## RIVER PARK STREET END | ETIWANDA

The river park proposed at Etiwanda Avenue will connect to the existing pedestrian bridge providing bicycle and pedestrian connections to the neighborhoods on the north and south sides of the future bikeway. This river park is approximately 1604 SF and will potentially treat stormwater from 21 acres with 42% impervious surfaces. Features proposed at this river park include play elements, shaded resting areas, bioswales to treat stormwater before it enters the LA River, and a river overlook. This river park is easily accessible from Reseda High School providing cultural and educational opportunities. Other elements in this Street End River Park include:

- Bikeway Gateway
- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Lighting
- Benches and Seating Elements
- Trash and Recycling Receptacles
- Drinking Fountain
- River Overlook Deck extending over the river
- Urban play elements
- Meandering pedestrian pathway



Etiwanda Avenue River Park Drainage Area Collection No. 5 and 6



Linear play elements

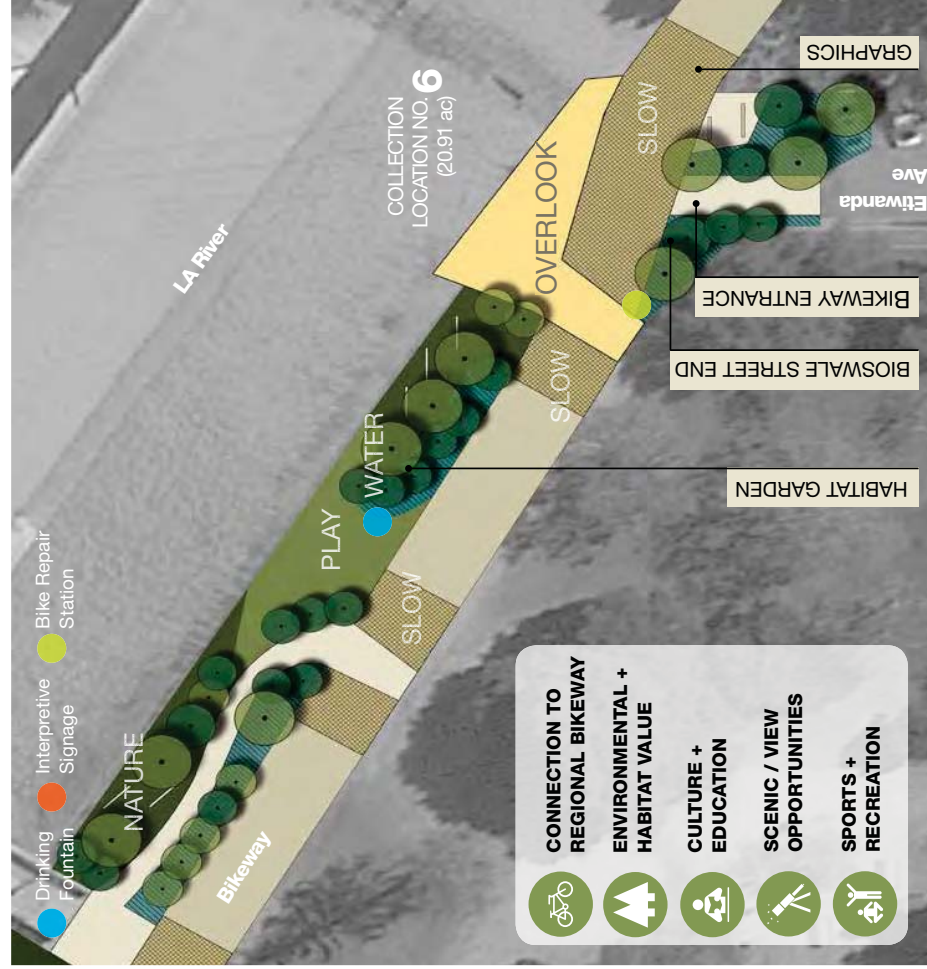


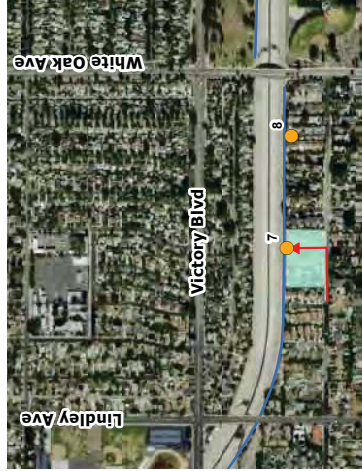
Figure 3.01.3 Etiwanda Avenue River Park Concept Diagram



## RIVER PARK STREET END | ZELZAH

Zelzah Avenue ends at the LA River and will be the location of a river park. This river park will provide neighborhood greenspace and an access point to the future bikeway. This park is approximately 737 SF and will potentially treat stormwater from 3.5 acres with 42% impervious surfaces. River park design features will include shaded resting areas, vegetated areas for habitat restoration, and two street end bioswales framing the access point to the future bikeway. Other elements in this Street End River Park include:

- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Lighting
- Benches and seating elements
- Trash and Recycling Receptacles
- Gabion Retaining Walls



Zelzah Avenue River Park Drainage Area Collection No. 7 and 8



Shaded seating area with artistic benches

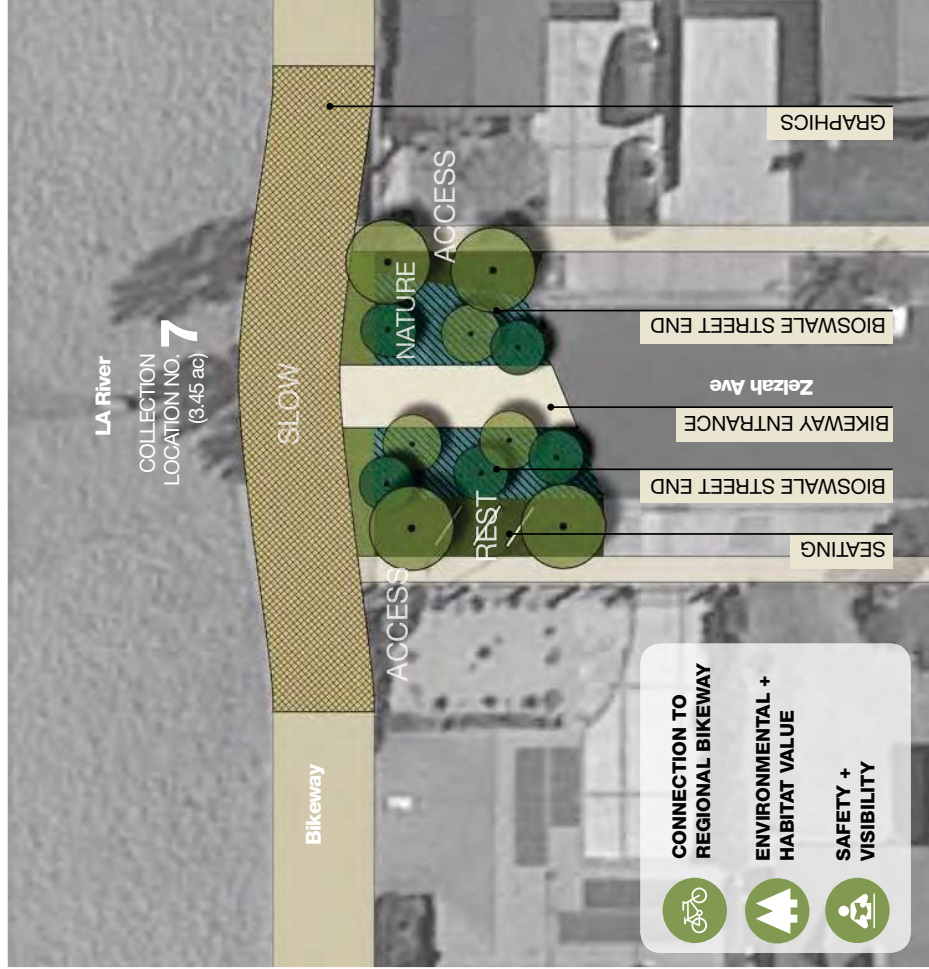


Figure 3.01.4 Vanalden Avenue River Park Concept Diagram

## RIVER PARK | BALBOA

The Balboa River Park is located within the Sepulveda Basin Recreation Area. The park is proposed between Balboa Boulevard and Burbank Boulevard and offers a place to rest within the Sepulveda Basin. A scenic overlook is the main feature of this park and provides an area for wildlife observation. Design elements include bioswales, habitat restoration, and areas for play. Other elements in this river park include:

- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Lighting
- Bicycle Rack and Locker
- Benches and seating elements
- Trash and Recycling Receptacles
- Drinking Fountain
- Gathering Area
- Bird Blind Structure



Habitat Restoration Areas



Overlook

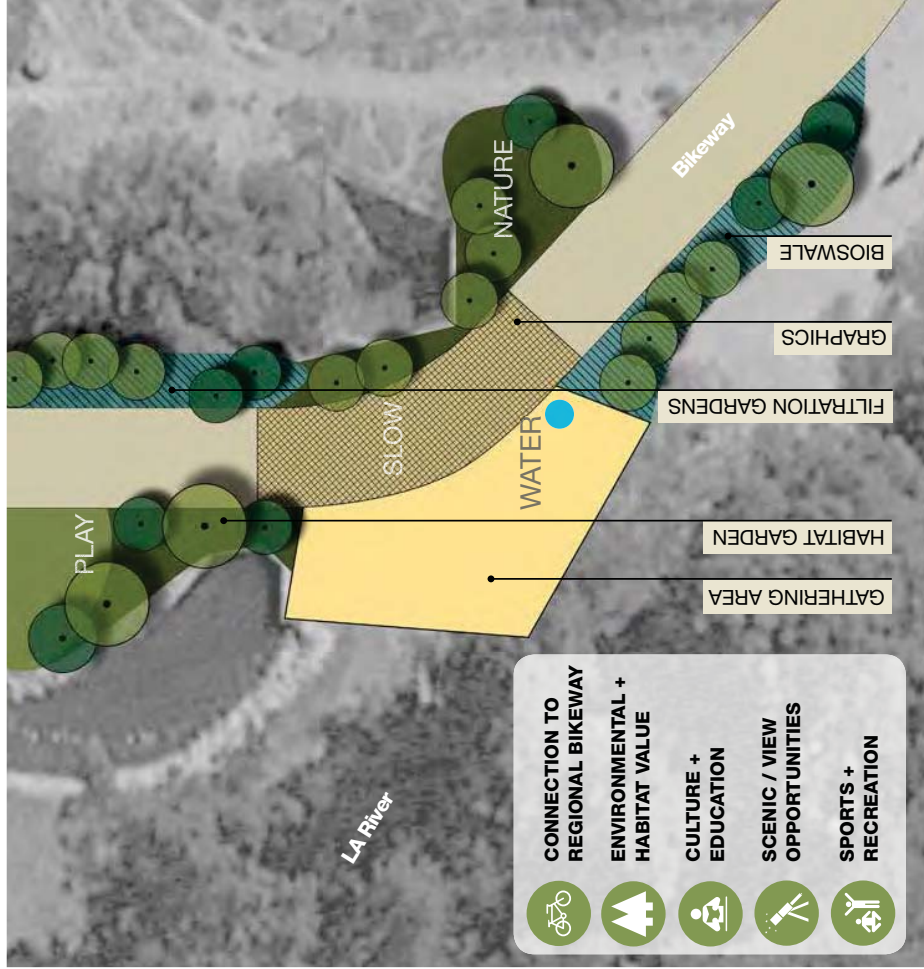
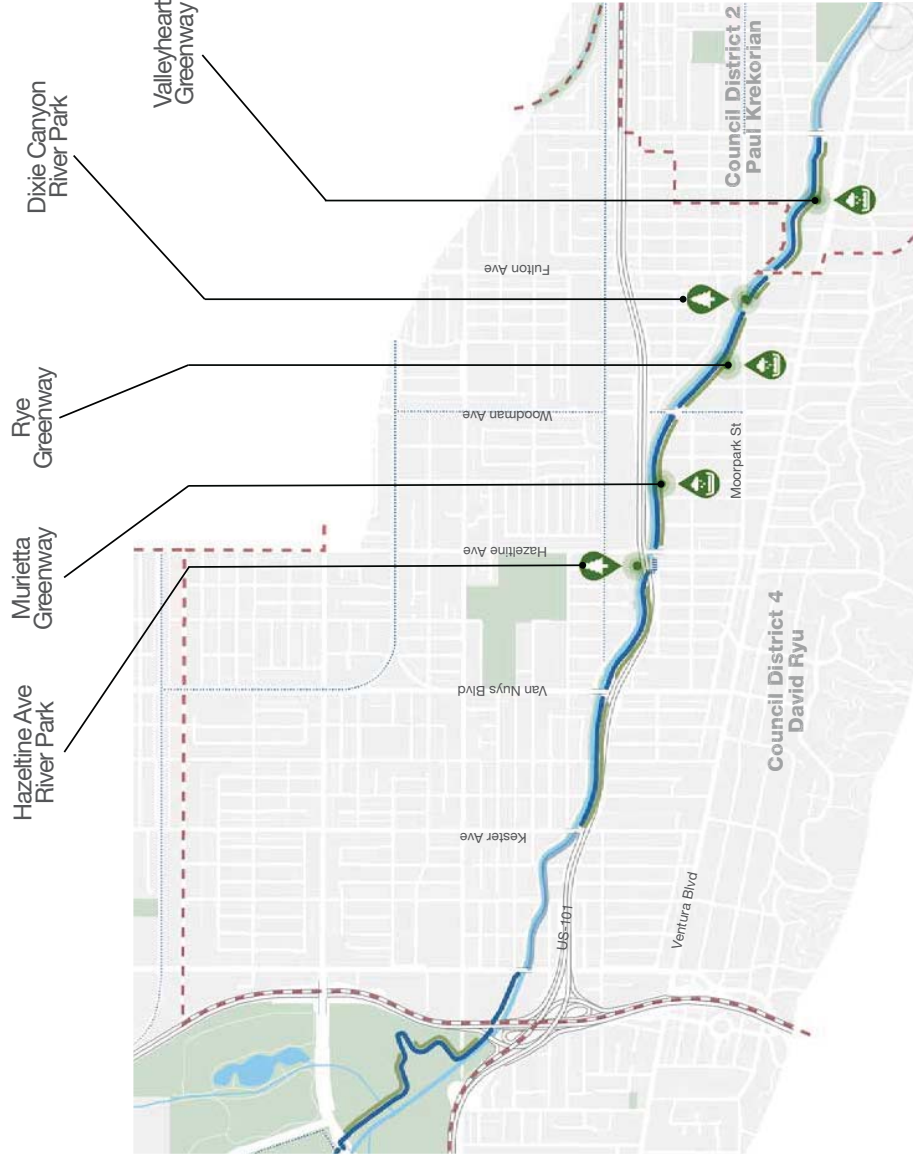


Figure 3.03.1 Balboa Overlook Concept Diagram

## RIVER PARKS AND STREET ENDS | CENTRAL REACH

There are two river park opportunities within the central reach of the project. These parks are located at the US-101 and Hazeltime Avenue intersection and the Dixie Canyon Avenue and Moorpark Street intersection. The three greenways in the central reach are located at Murietta Avenue, Rye Street, and Valleyheart Drive.





## RIVER PARK | HAZELTINE AVENUE

The Hazeltiline Avenue River Park is located in Segment 05, off of Hazeltiline Avenue and directly underneath US-101 which bridges over the LA River and future bikeway. It is also located directly next to an existing river access point. The unique character of the park creates opportunities for art, play, sports, and recreation. Additional park features include:

- Interpretive and Wayfinding Signage
- Lighting
- Bicycle Rack and Locker
- Bicycle Repair Station
- Benches, Chairs and Tables
- Trash and Recycling Receptacles
- Swings from the bridge above
- Resilient Surfacing for play area
- Restroom



Swings attached to freeway above



Community Art Features

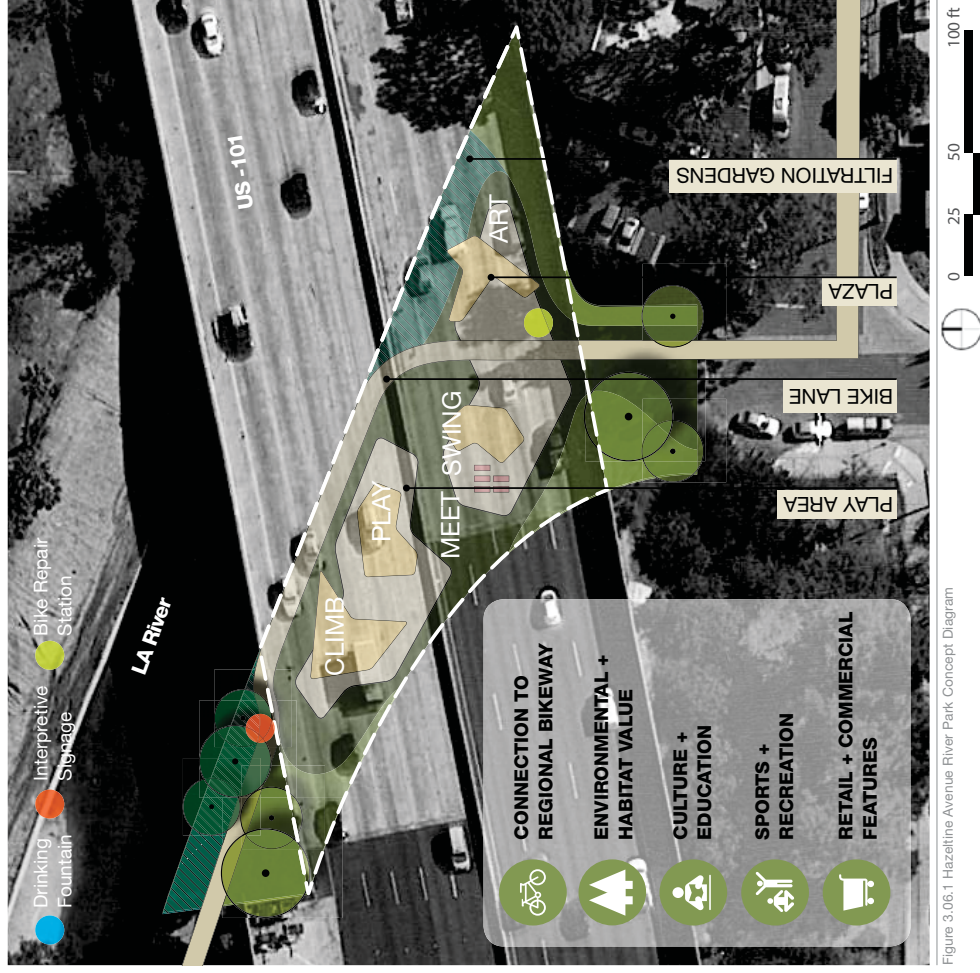


Figure 3.06.1 Hazeltiline Avenue River Park Concept Diagram



## RIVER PARK | RYE

The Rye River Park is located at the intersection of Moorpark Street and Valleyheart Drive. The location is very residential surrounded by multi-family apartment buildings. Moreover, the park is located at a cul de sac where a pedestrian bridge spans across the LA River. This unique character creates scenic view opportunities for people to look into the LA River. The park also features:

- Interpretive and Wayfinding Signage
- Graphics on paving
- Lighting
- Bicycle Fix Station
- Benches, Chairs and Tables
- Kiosks
- Bioswale Planting



Rye Street River Park Drainage Area Collection No. 15



Site furniture and graphics on paving

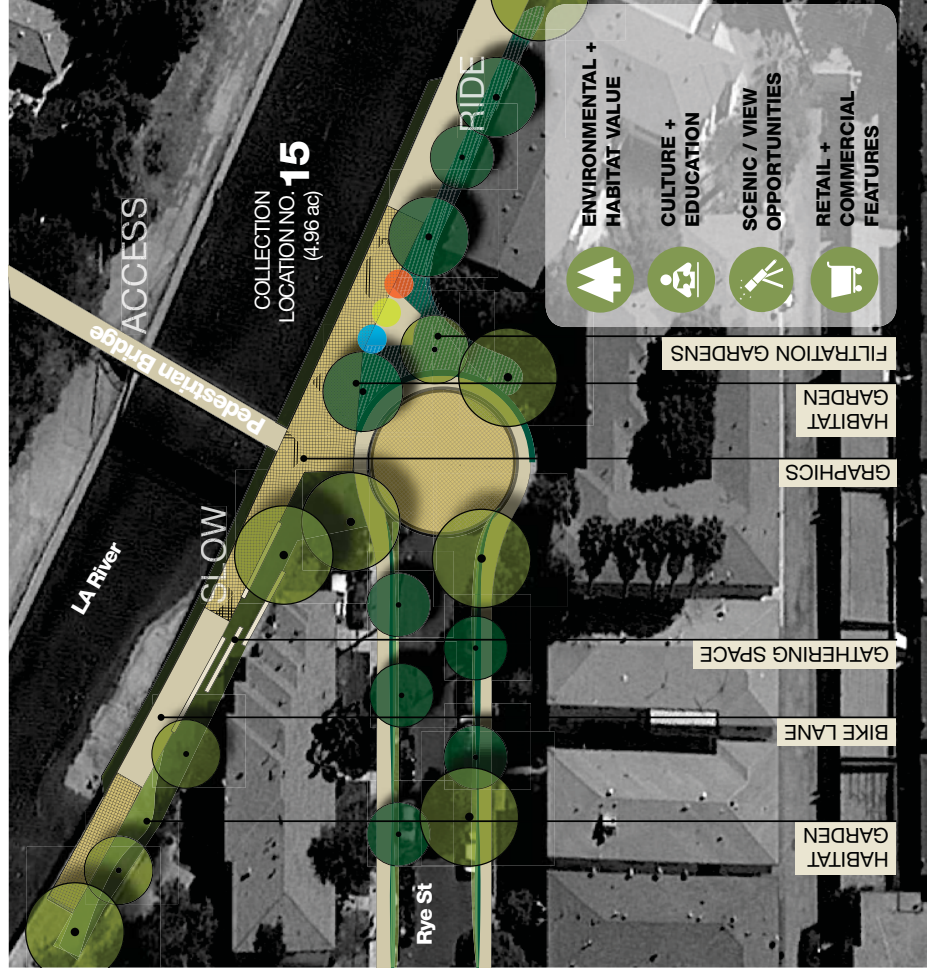


Figure 3.07.1 Rye River Park Concept Diagram

## RIVER PARK | DIXIE CANYON

Dixie Canyon river park is located at the intersection of Moorpark Street and Valleyheart Drive. The location is very residential situated adjacent to a church and school. Moreover, the park is located on Moorpark Street where it bridges over the river channel. This unique character creates scenic view opportunities for people to look into the river. The park also features:

- Interpretive and Wayfinding Signage
- Paving graphics
- Lighting
- Bicycle Rack and Locker
- Bicycle Repair Station
- Benches, Chairs and Tables
- Trash and Recycling Receptacles
- River Overlook Deck extending over the LA River
- Kiosks
- Bioswale Planting
- Raised Planters
- Clip-On Viewing Platform



Multi-functional community space



Artwork and graphics

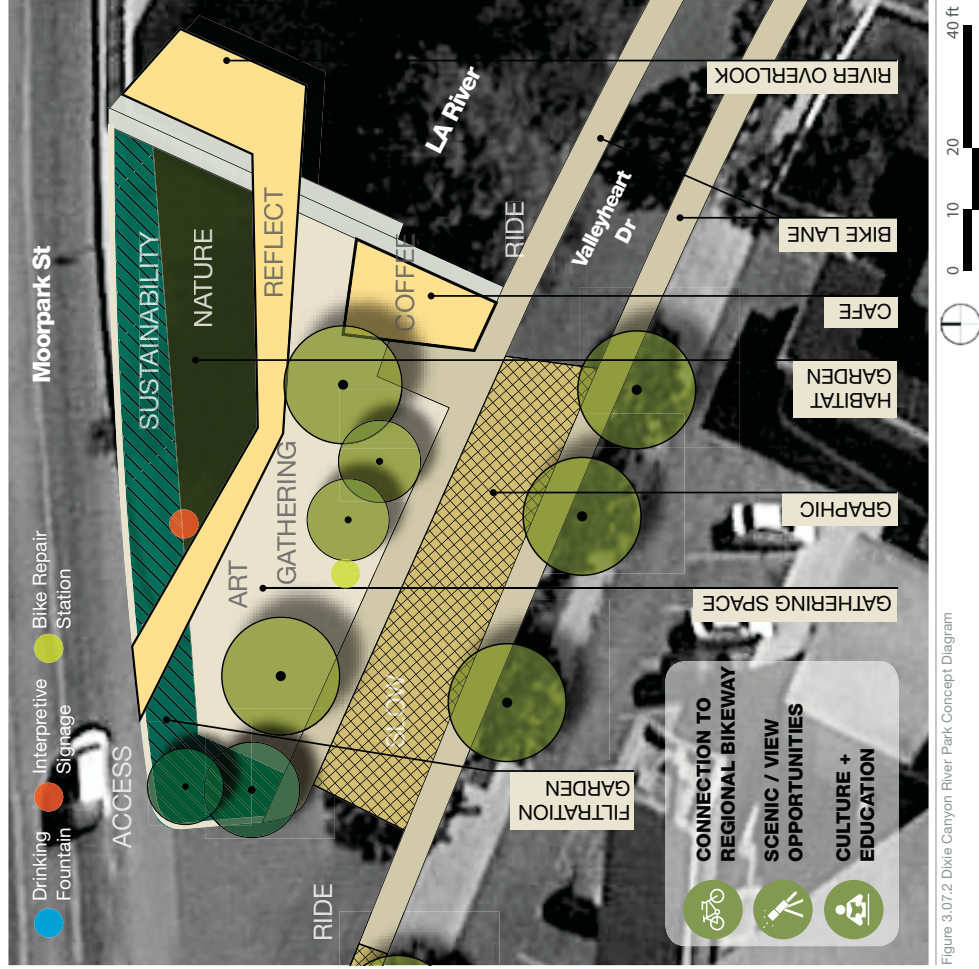
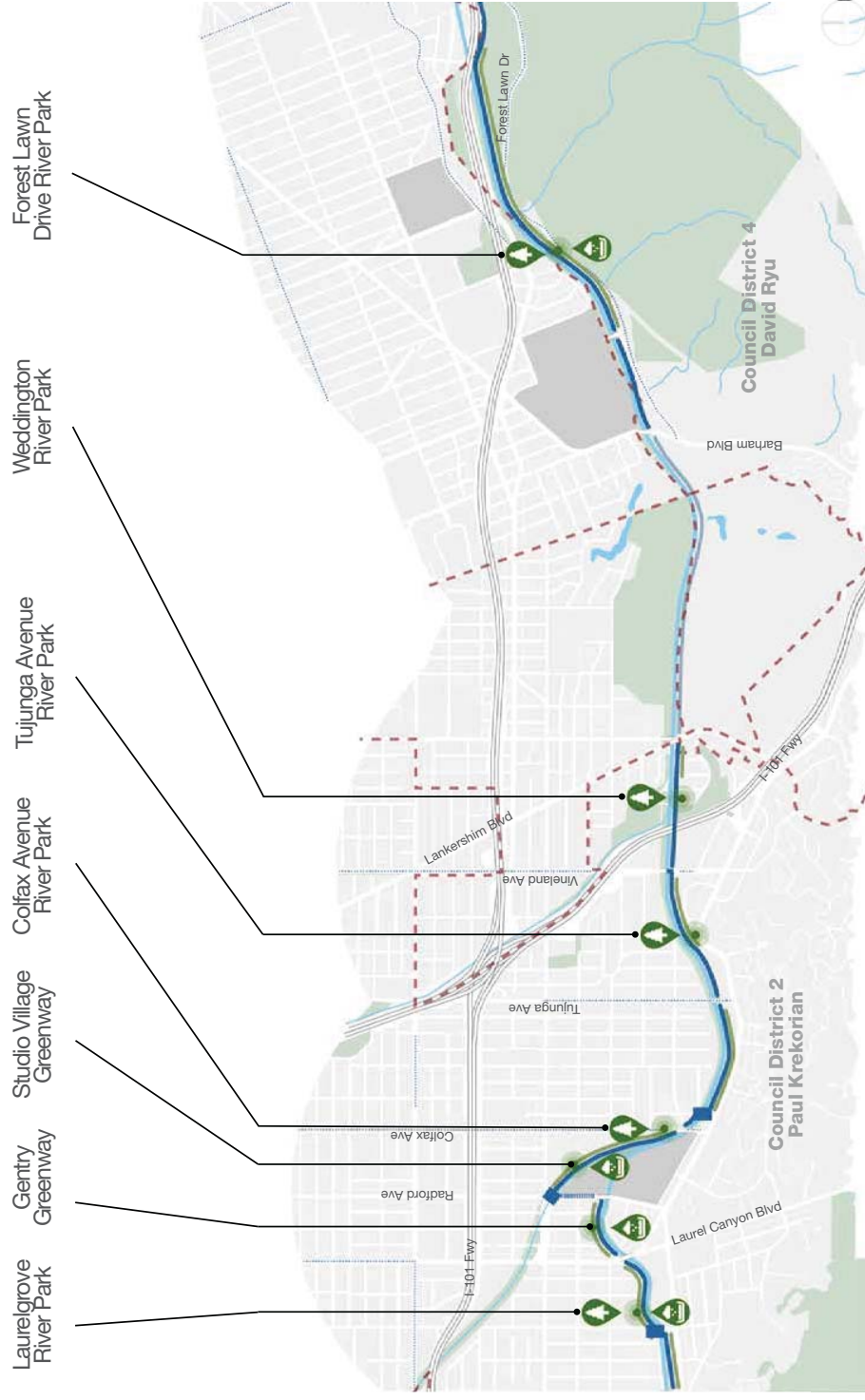


Figure 3.07.2 Dixie Canyon River Park Concept Diagram



## RIVER PARKS AND STREET ENDS | EASTERN REACH

There are five river park opportunities and two greenway opportunities within the eastern reach of the project. These parks are located as shown on the following map. Laurelgrove River Park, Gentry Greenway, Studio Village Greenway, Colfax Avenue River Park, Tujunga Avenue River Park, and Weddington Park are within Segment 08. Forest Lawn River Park is within Segment 09.



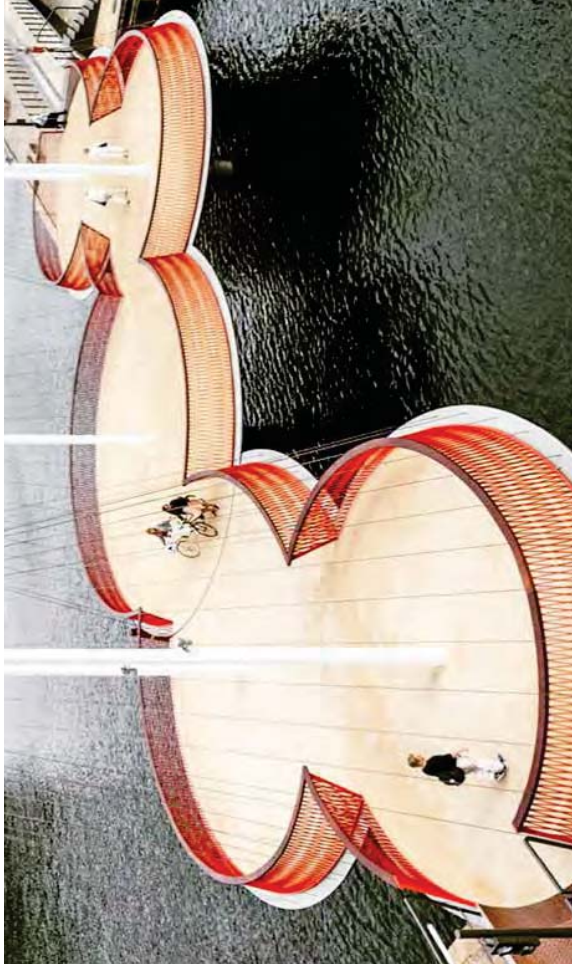
## RIVER PARK | LAURELGROVE

The Laurel Grove River Park is located on the north side of the LA River channel between Laurel Grove Avenue and Laurel Canyon Avenue, directly adjacent to Valleyheart Drive. The perpendicular streets of St. Clair Avenue, Bellingham Avenue, and Vantage Avenue all end at Valleyheart Drive. A pedestrian bridge at Laurel Grove Avenue connects the retail and commercial features to the Studio City neighborhood. Because of all the street-end conditions, this linear park serves as an infiltration zone the micro-watershed. In result, this park is rich in environmental and habitat value. In addition, the park also features:

- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Paving graphics
- Lighting
- Bicycle Rack and Locker
- Bicycle Repair Station
- Benches, Chairs and Tables
- Trash and Recycling Receptacles
- Meandering Pedestrian Pathways
- Food and Café Kiosks
- Gabion Retaining Walls
- Access ramp and stairs
- Terraced Amphitheater
- Restroom
- (2) Clip-On Viewing Platforms



Food cafe and kiosk



Pedestrian bridge concept



Gabion walls to retain existing slope planting



Outdoor seating also serves as classroom area



Pedestrian walkway and bikeway with shade canopy trees



# RIVER PARK | LAURELGROVE



Figure 3.08.1 Laurelgrove River Park Concept Diagram



## GREENWAY | STUDIO VILLAGE

Studio Village Greenway is located on the east side of the Tujunga Wash between Radford Avenue and Colfax Avenue, north of the LA River. Because of all the street-end conditions, this linear park serves as an infiltration zone the micro-watershed. In result, this park is rich in environmental and habitat value. In addition, the park also features:

- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Lighting



Rye Street River Park Drainage Area Collection No. 27 through 35



Linear bioswale



Figure 3.06.2 Studio Village Greenway Collection Location Map





## RIVER PARK | COLFAX

The Colfax River Park is located at the end of Troost Street and directly adjacent to the Colfax Avenue Bridge and a pedestrian bridge. The bridges connect the retail and commercial features from Ventura Boulevard to the neighborhood located north of the LA River. The park offers a river landing that extends over the LA River as well as terraced gardens, educational amenities, and habitat and filtration gardens. The park also features:

- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Graphics on paving
- Lighting
- Bicycle Rack and Locker
- Bicycle Repair Station
- Benches, Chairs and Tables
- Trash and Recycling Receptacles
- Meandering Pedestrian Pathways
- Drinking Fountain
- Food and Café Kiosks
- Gabion Retaining Walls
- Access ramp and stairs
- Terraced Amphitheater
- River Overlook Extension
- Clip-On Viewing Platform



Rest stops and graphics for cyclists



Habitat and filtration garden



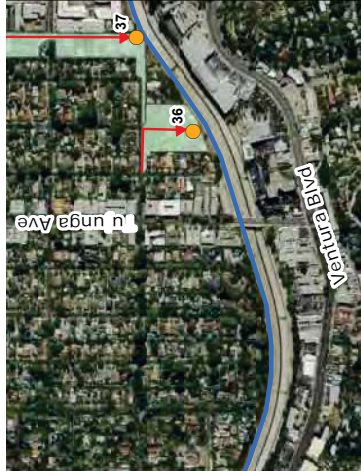
Figure 3.08.1 Colfax River Park Concept Diagram



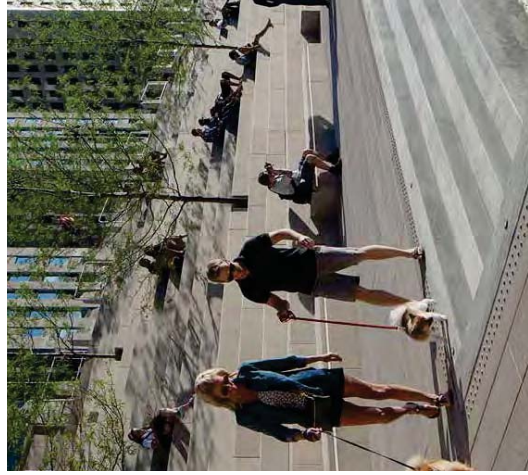
## RIVER PARK | TUJUNGA AVENUE

Tujunga Avenue River Park is located on the north side of the channel between Tujunga Avenue and Vineland Avenue. Perpendicular streets such as Klump Street, Fair Avenue, Elmer Avenue, and Bankman Avenue all terminate at Valleyheart Drive. This linear park connects to the regional bikeway and also conjoins the retail and commercial corridor at Ventura Boulevard to the adjacent neighborhood. Due to all the street-end conditions, this linear park is an ideal storm water filtration zone for the micro-watershed. In result, this park is has good environmental and habitat value. The park is also made up of:

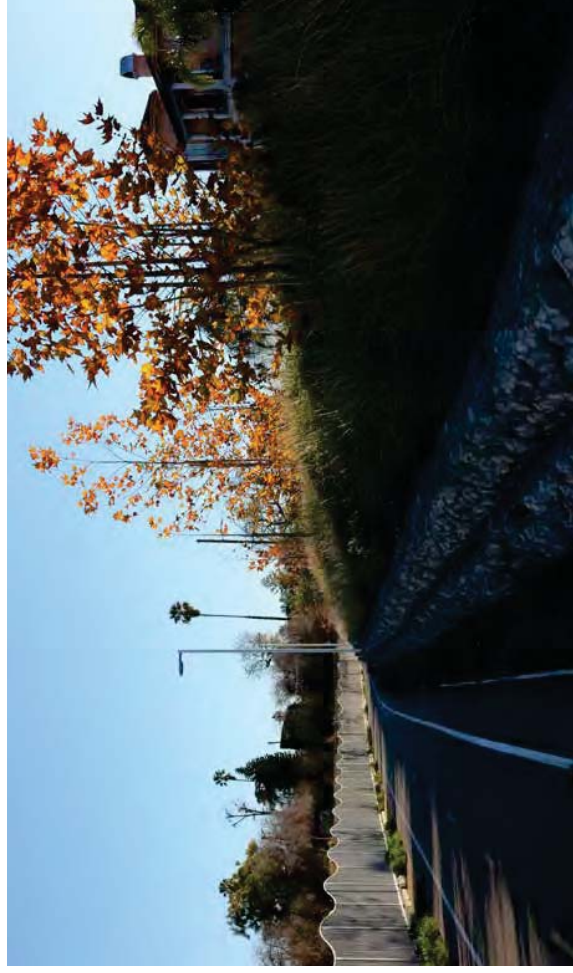
- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Lighting
- Bicycle Rack and Locker
- Bicycle Repair Station
- Benches, Chairs and Tables
- Trash and Recycling Receptacles
- Meandering Pedestrian Pathways
- Food and Café Kiosks
- Gabion Retaining Walls
- Access ramp and stairs
- Terraced Amphitheater
- (2) Clip-On Viewing Platforms
- River Deck Crossing
- Restroom



Tujunga Avenue River Park Drainage Area Collection No. 36 through 37



Terraced seating and gathering area



Bi-directional bikeway with gabion retaining walls to hold slope and planting area



River overlook



Shade tree canopy



# RIVER PARK | TUJUNGA AVENUE

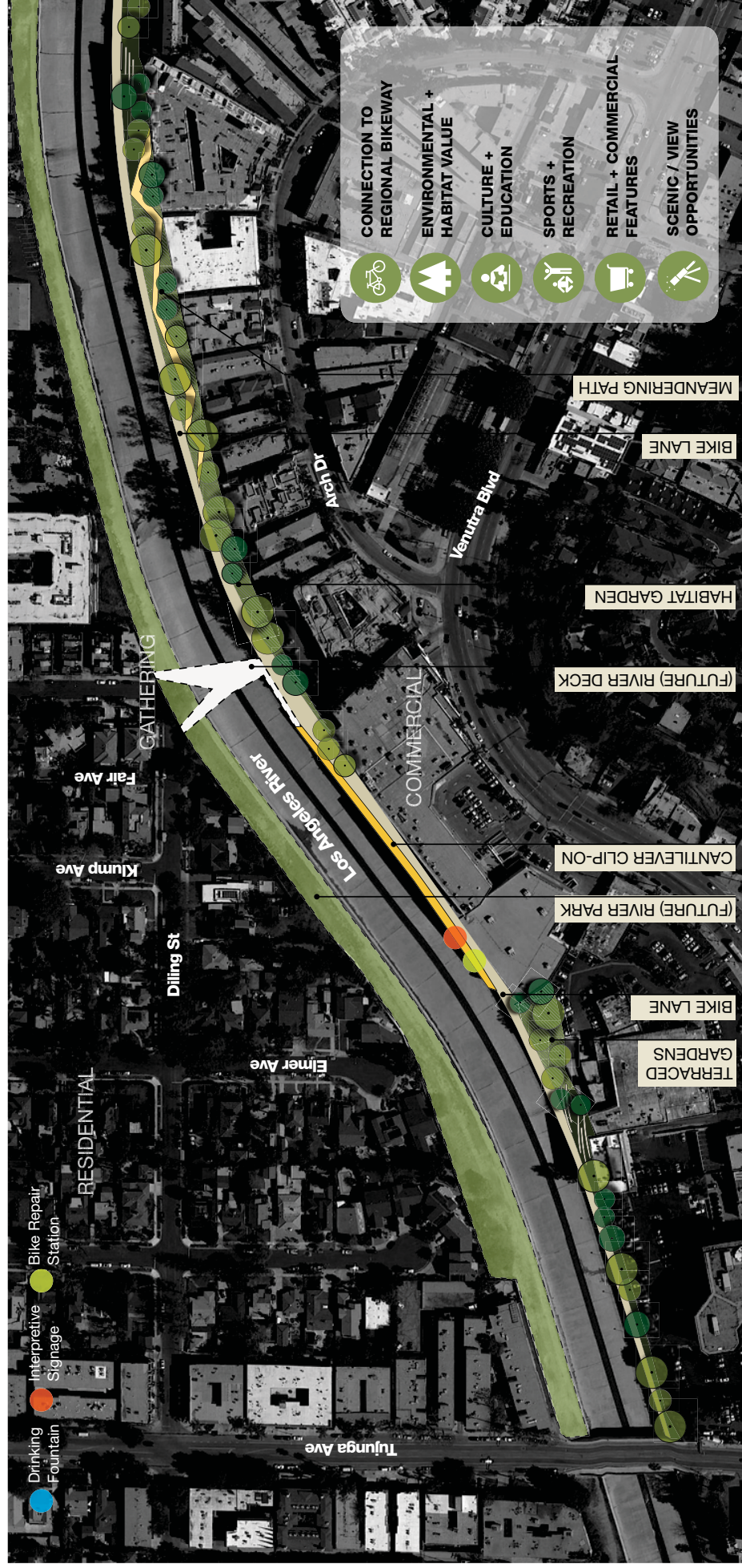


Figure 3.08.4 Tujunga Avenue River Park Concept Diagram



## RIVER PARK | WEDDINGTON

The Weddington River Park is in Segment 08; directly adjacent to Interstate US-101 between North and South Weddington Park. This park bridges over LA River that splits the two parks at this stretch. The "deck" allows bicycle riders to connect from the Tujunga Central Branch to the LA River regional bikeway. The river park serves as a habitat crossing and corridor over the LA River and the also creates scenic view opportunities into the LA River. The park also features:

- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Lighting
- Food and Café Kiosks
- Bicycle Rack and Locker
- Bicycle Repair Station
- Benches, Chairs and Tables
- Trash and Recycling Receptacles
- Meandering Pedestrian Pathways
- Gabion Retaining Walls
- Access ramp and stairs
- River Deck Crossing
- Clip-On Viewing Platform



River deck crossing



River deck crossing over LA River allows pedestrian connection to both sides of Weddington Park



River deck with seating elements



River deck precedents





# RIVER PARK | WEDDINGTON

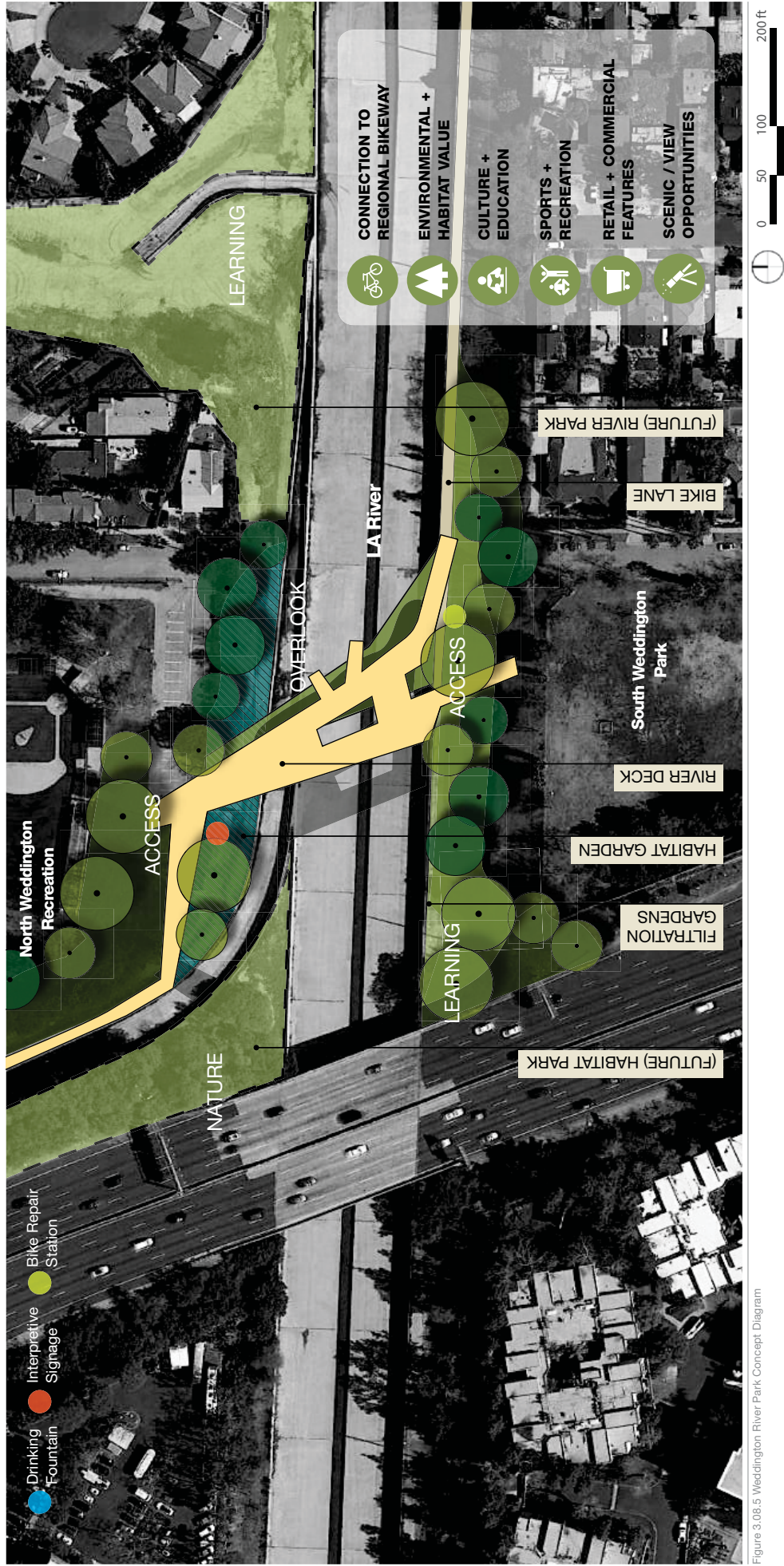


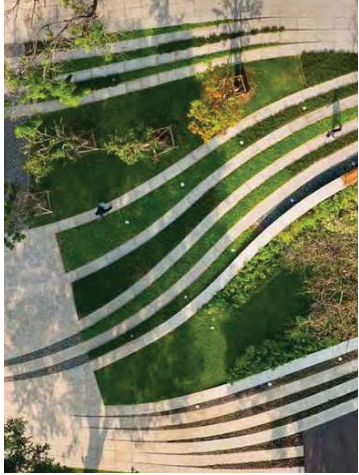
Figure 3.08.5 Weddington River Park Concept Diagram



## RIVER PARK | FOREST LAWN

The Forest Lawn River Park has a linear orientation and is parallel between the LA River and Forest Lawn Drive. Design features include an overlook, vegetated habitat areas, signage with wildlife information, and various methods of stormwater infiltration. This park provides a significant amount of greenspace within the eastern reach. The park also features:

- Bioswale Planting
- Habitat Gardens
- Shade Trees
- Interpretive and Wayfinding Signage
- Lighting
- Drinking fountain
- Bicycle Racks
- Bicycle Repair Station
- Benches and seating elements
- Trash and Recycling Receptacles
- Meandering Pedestrian Pathways
- Gabion Retaining Walls
- Access walkways



Terraced park areas



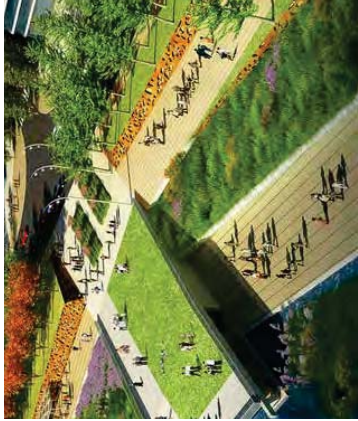
Urban play elements



Bikeway and pedestrian walkway with vegetated infiltration areas



Bike parking



Terraced park areas with overlook



# RIVER PARK | FOREST LAWN

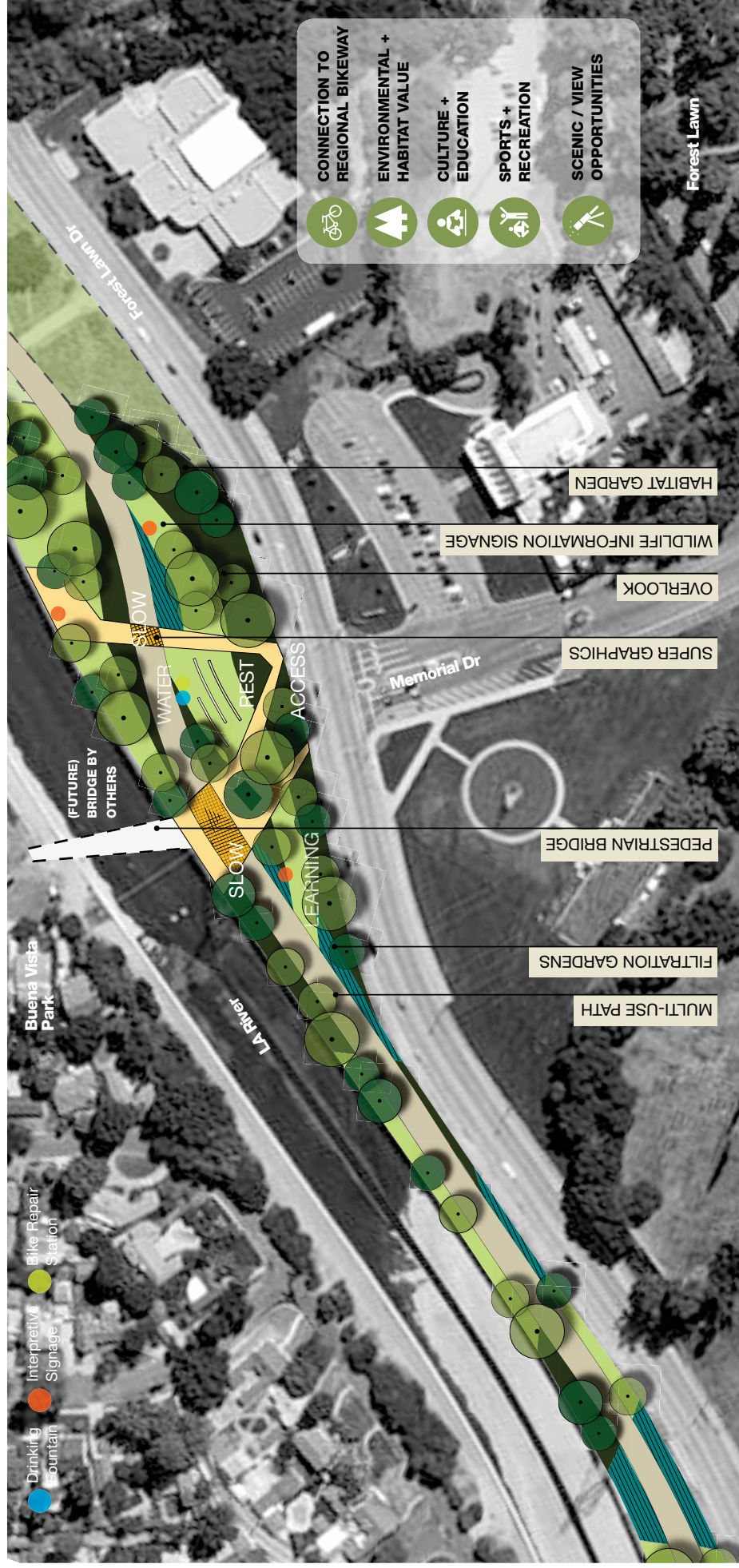


Figure 3.09.1 Forest Lawn River Park Concept Diagram

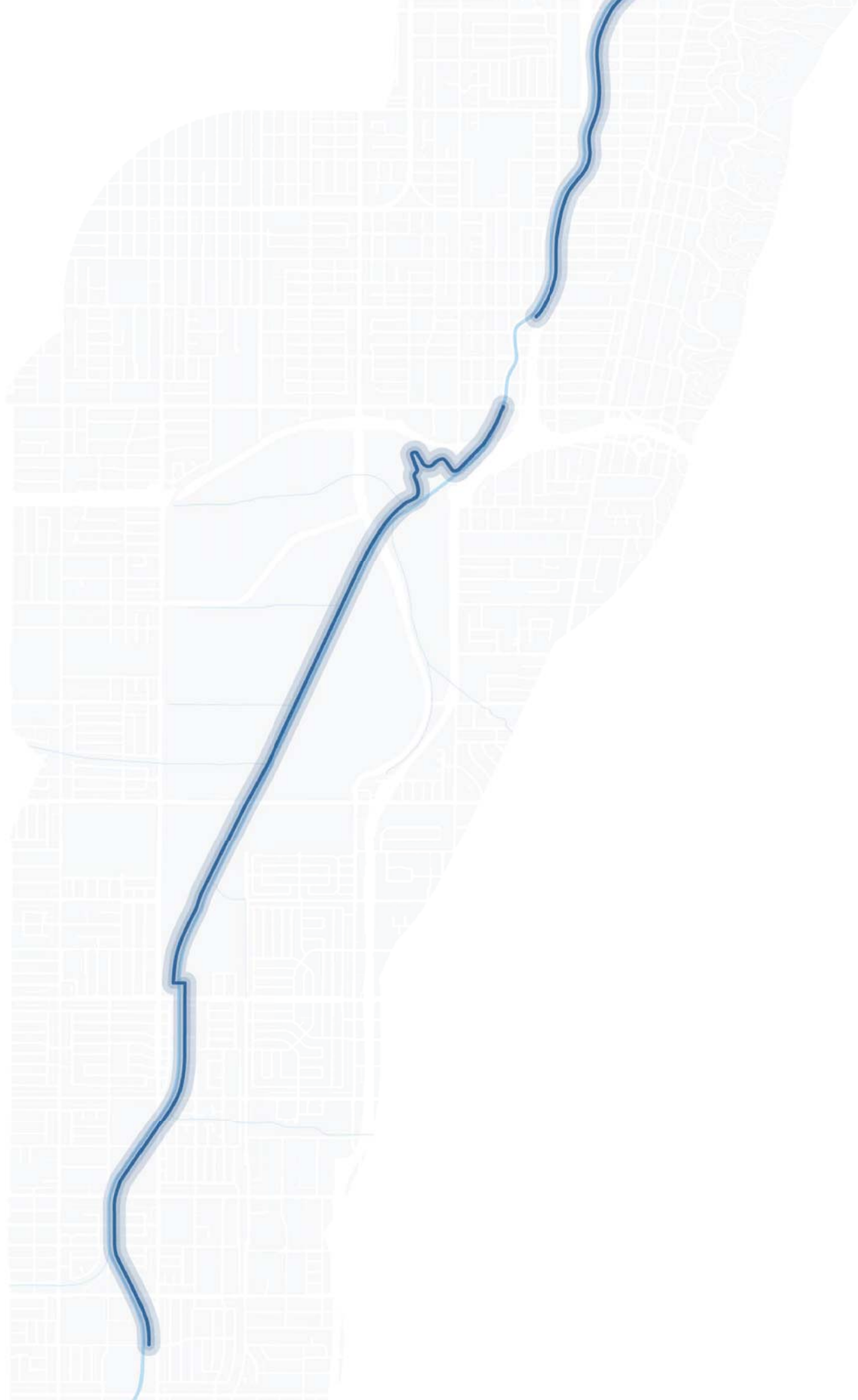


## RIVER PARKS + STREET ENDS | HABITAT MATRIX

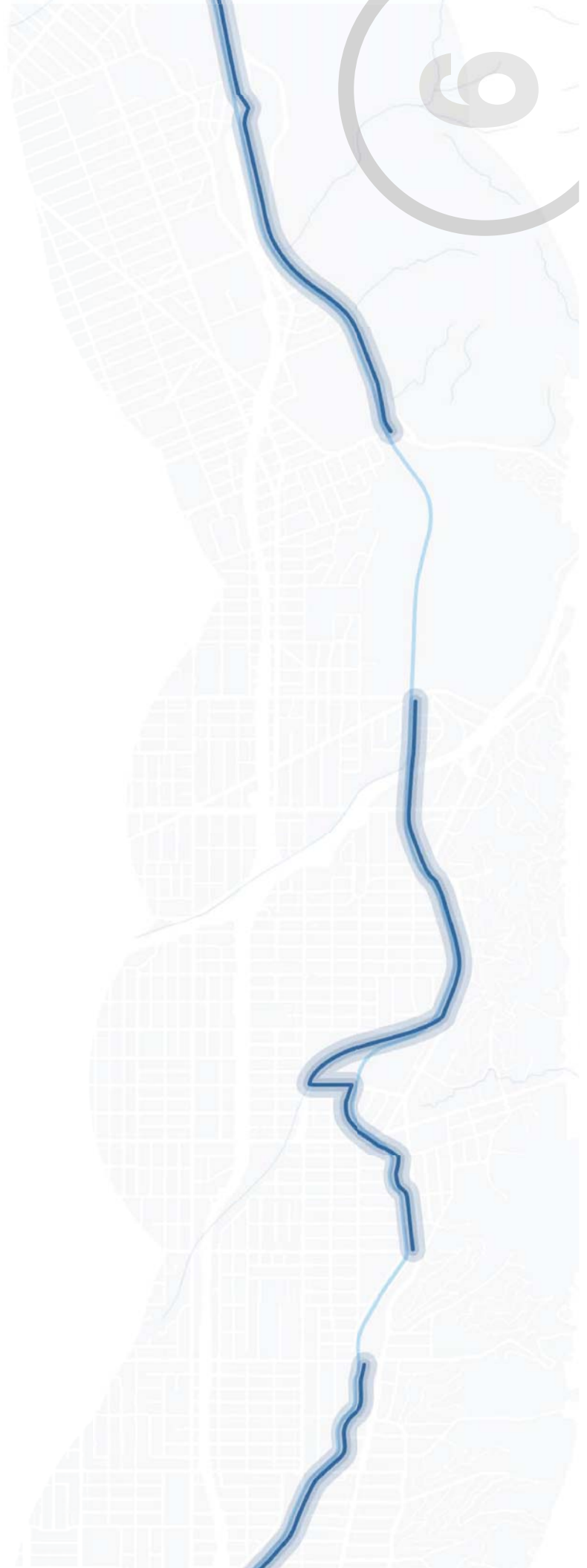
TABLE 5.2 RIVER PARKS AND STREET ENDS  
HABITAT MATRIX

GREENWAY PARK	TREE COUNT	PERMEABLE PAVING	HABITAT LANDSCAPE	STORMWATER BMP	TOTAL AREA
Vanalden Avenue River Park	8	280 sf	439 sf	370 sf	0.02 acres/ 719 sf
Yolanda Avenue River Park	13	1,452 sf	980 sf	656 sf	0.04 acres/1,902 sf
Amigo Avenue River Park	10	874 sf	524 sf	495 sf	0.03 acres/ 1,503 sf
Eitwanda Avenue River Park	39	5,156 sf	3,460 sf	2,156 sf	0.16 acres/ 6,875 sf
Zelzah Avenue River Park	12	1,325 sf	723 sf	615 sf	.04 acres/ 1,775 sf
Balboa River Park	30	6,936 sf	5,842 sf	3,120 sf	0.22 acres/ 9,736 sf
Hazeltine Avenue River Park	8	20,490 sf	6,373 sf	2,367 sf	0.6 acres/ 27,204 sf
Dixie Canyon River Park	20	9,690 sf	1,570 sf	2,048 sf	0.5 acres/ 21,520 sf
Laurelgrove River Park	101	94,436 sf	28,440 sf	31,239 sf	3.3 acres/ 143,034 sf
Colfax River Park	28	112,786 sf	7,265 sf	11,681 sf	3 acres/129,405 sf
Tujunga River Park	260	34,260 sf	51,390 sf	68,520 sf	3.9 acres/171,300 sf
Weddington River Park	200	27,900 sf	83,700 sf	27,900 sf	3.6 acres/161,000 sf

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## OVERVIEW

The Envision System was adopted by the Los Angeles City Council on November 4, 2016 as a system for measuring sustainability and to receive certification for Bureau of Engineering (BOE) projects.

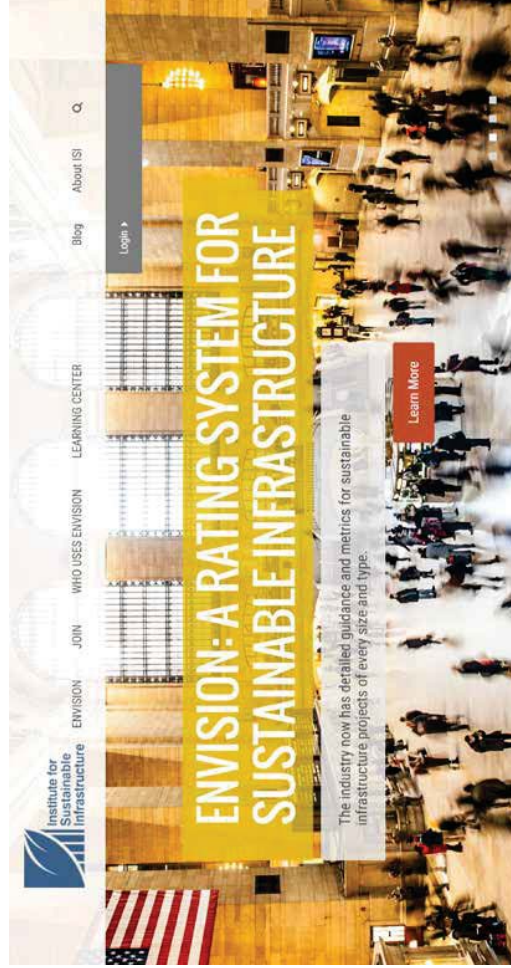
An analysis of potential levels of achievement that could be pursued with development of the LA River Valley Bikeway and Greenway was completed based on review of the Envision system, site conditions, and working with City Staff. This chapter summarizes the opportunities and constraints for achieving desired Envision levels. This chapter references Chapter 2: Site Analysis and Chapter 7: Supplemental Analysis and examines the entire length of the project when analyzing the Envision System. Compilation of a draft Envision Self-Assessment Scorecard was the result of an initial Envision evaluation.

## PURPOSE

The Envision rating system is a project assessment tool with the purpose of evaluating and giving recognition to infrastructure projects that contribute to a sustainable future. This rating system also serves as a guide for sustainable infrastructure design. This project strives for the highest level of achievement - the goal of Platinum.

## APPLICABILITY

The Envision rating system is an appropriate rating system for the LA River Valley Bikeway and Greenway because, when constructed, this project will have multiple environmental benefits, including improving the quality of life and the local climate. For example, the improvement of community mobility and shifting modes of travel from automobile to active forms of transportation of biking and walking will improve the quality of life for those using the new facilities. This will have secondary benefits such as reducing traffic and therefore greenhouse gas emissions, and enhancing public space. By documenting community input, program changes and design decisions during the feasibility stage, The LA River Valley Bikeway and Greenway can maximize social and environmental benefits.



Source: Institute for Sustainable Infrastructure

## PROCESS

Envisioning partnering sessions were completed between engineering, planning, landscape, and architectural teams and the City. Sessions started with an overview of the Envision system, review of one or two credits from each category, and the potential levels of achievement that may be available for each credit. There are 60 total credits in the categories of Quality of Life, Leadership, Resource Allocation, Natural World, and Climate and Risk. In a subsequent effort, each credit's applicability to this project was evaluated. An evaluation of time required to develop each credit sufficiently was also completed.

A draft self-assessment scorecard summarizes the findings from evaluation of Envision; see Tables 6.1 through 6.6 on the following pages. The scorecard was adapted to show an expected level of effort to obtain a Platinum award level.

A Supplementary analysis was prepared by the team, based on the expected built project and proposed alternatives. The supplementary analysis will be used as a basis to document the environmental benefits of the project. The supplementary analysis included these topics and can be found in Chapter 07:

- Economic cost/benefit
- Greenhouse gas reduction
- Vehicle miles traveled reduction
- Disadvantaged community vicinity
- Commercial and job centers proximity and linkage and active commuting benefits
- Water quality and infiltration benefits
- Job creation
- Public safety benefits
- Public health benefits
- Public transit proximity and linkages
- Safe Routes to School linkages
- Open space and park proximity
- Outdoor recreation economic activity
- Arts, culture, and community asset linkages
- Usage projection



### Advantages

The advantages of the draft scorecard developed at this time are the following:

- The purpose of the project aligns well with the goals of Envision. The project is intended to have strong environmental benefits.
- The Envision process began at the Feasibility Study phase, rather than later in design or construction. This allows the team to program the right project from inception.
- The draft scorecard recognizes the lofty Quality of Life, Leadership, and Climate and Risk benefits of the project. This can be seen with the numerous restorative and conserving expected levels of achievement.
- The current version of Envision is version 1. If the application and fees are filed early this year 2017, the project can be held to the current Envision requirements for the duration of the project. This will provide the project more flexibility in achieving a Platinum level. The City is expected to wait until subsequent versions are released so the project can be held to presumably higher standards at a later date, and therefore develop a high quality project.
- As the CEQA and NEPA environmental documentation phase progresses, this effort can be documented and correlated with the Envision process.

### Disadvantages

The disadvantages of the draft scorecard developed are the following:

- It relies somewhat on an improved level of achievement for Resource Allocation. This is the minimum level of achievement that must be met, but the reuse of demolition materials and the sourcing of regional materials at specific times can be difficult to ensure because the contractor's release date is often tied to availability of funding, and the contractor's pricing depends upon flexibility in obtaining materials from various sources. This is a circumstance we will have to deal with and may be controlled somewhat through the project specifications.
- Since the construction of the project is likely to be phased, documenting the resources used will require separate Envision tracking, and the combining of data at the end. Therefore, the project may not reach Envision certification until all project phases are constructed.
- The level of achievement assumed at this time may change for various credits as more information is obtained about the project.



## ENVISION SELF-ASSESSMENT - QUALITY OF LIFE

### Improve Community Quality of Life

Providing new bikeways and walkways encourage community member to enjoy outdoor activities which are associated with increased health benefits. Enhancing the natural habitats of the channelized LA River can strengthen connections to nature in the urban context and can have rejuvenating effects on people.

#### Stimulate Sustainable Growth and Development

Sustainable job and business growth is expected to occur as the completed bikeway creates economic and employment opportunities for vendors along the route.

#### Develop Local Skills and Capabilities

The development of the project and construction will focus on utilizing local and small businesses.

#### Enhance Public Health and Safety

Innovative design techniques need to be assessed for the exposure and risks created by the application of new and/or non-standard technologies, materials, equipment and methodologies.

#### Minimize Noise and Vibration

Noise and vibration will be monitored and minimized as described in Chapter 11. This would occur during construction to mitigate noise/vibration generated from site activities such as car or truck traffic. After construction, newly implemented structures and trees will dampen noise and protect the community from any noise generated at the site through typical operations.

#### Minimize Light Pollution

Light pollution will be minimized through the use of directional lighting and light shields.

### Improve Community Mobility and Access

The new bike path will connect to existing bike networks, public transportation (bus and rail), and community destinations/amenities. A mode shift should reduce traffic in the neighborhood. For those who currently bike on local streets, a dedicated bikeway will improve safety.

#### Encourage Alternate Modes of Transportation

Alternative modes of transportation are encouraged through implementation of the bikeway and pedestrian access and transit will be utilized more intensely.

#### Improve Site Accessibility, Safety and Wayfinding

Site accessibility, safety, wayfinding, and emergency evacuation will be improved with new bikeway access, signage, handicap ramps, view corridors, and landscape lighting.

#### Preserve Historic and Cultural Resources

Historic and cultural resources will be preserved with the reawakening of the LA River as an amenity. Installing new bridges will add architectural interest and connect neighborhoods previously separated by the concrete river channel.

#### Preserve Views and Local Character

Views and local character will be enhanced with the increased access to the LA River and views from the new bike path segments. Local character will develop through site improvements, including opportunities for public art.

#### Enhance Public Space

Several locations along the proposed bikeway provide opportunities for small parks at street ends adjacent to the LA River and will create new public space and access for recreation.

Category	Credit Name	Description	Planning/Design/Const	Drawing/Spec Sect	Possible Levels of Achievement							No. of Points	Pursuit Level	City of LA BOE DPW	Civil	Landscape	Traffic	Economic	Environmental	Electrical	Constructability Review
					Improved	Enhanced	Superior	Conserving	Restorative												
PURPOSE	QL1.1	Improve community quality of life	P		2	5	10	20	25	Restorative		25		•	•	•					
	QL1.2	Stimulate sustainable growth and development	P		1	2	5	13	16	Restorative		16		•	•	•		•			
	QL1.3	Develop local skills and capabilities	P, D, & C		1	2	5	12	15	Conserving		12		•	•	•					•
	QL2.1	Enhance public health and safety	P, D, & C		2			16		Conserving		16		•	•	•					•
COMMUNITY	QL2.2	Minimize noise and vibration	P, D, & C		2			8	11	Improved		2		•	•	•		•			•
	QL2.3	Minimize light pollution	D		1	2	4	8	11	Conserving		8		•	•	•				•	
	QL2.4	Improve community mobility and access	P		1	4	7	14		Conserving		14		•	•	•	•				
	QL2.5	Encourage alternate modes of transportation	P		1	3	6	12	15	Restorative		15		•	•	•	•				
WELLBEING	QL2.6	Improve site accessibility, safety and wayfinding	P & D			3	6	12	15	Restorative		15		•	•	•					
	QL3.1	Preserve historic and cultural resources	P		1		7	13	16	Conserving		13		•	•	•					
	QL3.2	Preserve views and local character	P		1	3	6	11	14	Conserving		11		•	•	•					
	QL3.3	Enhance public space	P & D		1	3	6	11	13	Restorative		13		•	•	•					
		<b>SUBTOTAL</b>			<b>14</b>	<b>27</b>	<b>62</b>	<b>150</b>	<b>151</b>			<b>160</b>		•	•	•					

Source: PSOMAS, 2017.

## ENVISION SELF-ASSESSMENT - LEADERSHIP

### Provide effective Leadership and Commitment

Effective government leadership and commitment has been provided by the City in making this project a priority and ensuring commitment to the original program. Early community involvement, and local transportation authority involvement, has been provided through outreach efforts.

### Establish a Sustainability Management Program

The City has embraced sustainability as a core goal, and established a sustainability management system at many levels. The City has credentialed Envision specialists and stated in numerous formats that sustainability is a primary goal of the project.

### Foster Collaboration and Teamwork

Due to the complexity and scale of the proposed bikeway, collaboration and teamwork has been paramount to this project at the City level and the design level.

### Provide for Stakeholder Involvement

Stakeholder involvement has been present in the project for many years. Community (Council District, RCC, NOC, and TAC) outreach and workshops will occur and be documented. The EIR Process that occurred for the Master Plan allowed the community to provide input, and City Council has continuously supported the project.

### Pursue By-product Synergy Opportunities

The principle underlying by-product synergy is that one industry's waste stream can be used by another as a primary resource. It is a simple idea, but one which has enormous potential for reducing waste volumes and toxic emissions to air and water, as well as cutting operating costs

### Improve Infrastructure Integration

Improvements to existing infrastructure will occur concurrently with the implementation of the bikeway segments. Coordination with local transportation authority will result in efficiencies. Potential creation of reclaimed water corridor will link infrastructure.

### Plan for Long-term Monitoring and Maintenance

Long-term monitoring and maintenance is to occur during commissioning of the site facilities and intermittent bikeway usage counts. Material selection based on durability and longevity will help minimize the need for frequent maintenance.

### Address Conflicting Regulations and Policies

Work with officials to identify and address laws, standards, regulations or policies that may unintentionally create barriers to implementing sustainable infrastructure. Will also require strong coordination between various LA City departments and bureaus.

### Extended Useful Life

The City is extending the useful life of the new bikeway by identifying segments which can be connected to existing bikeways in order to develop a continuous route. This will extend the useful life since more bike traffic will develop and there will be future opportunities to further increase bike usage.

Table 6.2 DRAFT SELF-ASSESSMENT SCORECARD - LEADERSHIP																				
Category	Credit Name	Description	Planning/Design/Construct	Drawing/Spec Sect	Possible Levels of Achievement						No. of Points	City of LA BOE DPW	Civil	Landscape	Traffic	Economic	Environmental	Electrical	Constructability Review	
					Improved	Enhanced	Superior	Conserving	Restorative	Pursuit Level										
COLLABORATION	LD1.1	Provide effective leadership and commitment			2	4	9	17		Superior	9	•	•	•						
	LD1.2	Establish a sustainability management system			1	4	7	14		Superior	7	•	•	•						
	LD1.3	Foster collaboration and teamwork	P		1	4	8	15		Superior	8	•	•	•						
	LD1.4	Provide for stakeholder involvement	P		1	5	9	14		Conserving	14	•	•	•						
MANAGEMENT	LD2.1	Pursue by-product synergy opportunities	P, D, & C		1	3	6	12	15	Improved	1	•	•	•					•	
	LD2.2	Improve infrastructure integration	P & D		1	3	7	13	16	Enhanced	3	•	•	•	•					
PLANNING	LD3.1	Plan for long-term monitoring and maintenance	P, D, & C		1	3		10		Enhanced	3							•		
	LD3.2	Address conflicting regulations and policies	P & D		1	2	4	8		Improved	1	•	•	•						
	LD3.3	Extended useful life	P		1	3	6	12		Conserving	12	•	•	•	•			•		
		SUBTOTAL			10	31	56	115	31										56	

Source: PSOMAS, 2017.

## ENVISION SELF-ASSESSMENT - RESOURCE ALLOCATION

### Reduce Net Embodied Energy

Also known as embedded energy, embodied energy is the attempt to measure the total of all the energy necessary for an entire product life cycle. This includes energy required to fabricate and transport materials. Construction timing may restrict ability to meet this.

#### Support Sustainable Procurement Practices

Preference will be given to suppliers who use sustainable practices in addition to specifying materials which can be produced and supplied by sustainable means.

#### Use Recycled Materials

This applies to both new products made from recycled material as well as re-purposing used material for new features within the bikeway. Also creates opportunities to use materials that promote cradle to cradle materials and systems.

#### Use Regional Materials

In addition to the statements above, sourcing materials from nearby vendors and manufacturers who also use locally sourced materials reduces energy consumption.

#### Divert Waste from Landfills

Re-purposing demolition materials will reduce the amount of waste deposited in landfills. Coordinating with other construction projects for exchange of demolition materials should be considered.

#### Reduce Excavated Materials Taken Off-site

The design process will attempt to equalize the amount of excavated material to the amount of fill material in order to reduce the need to remove it from the site.

#### Provide for Deconstruction and Recycling

Certain materials such as asphalt, can be removed and reused as potential base material for pathways.

### Reduce Energy Consumption

Preference will be given to selecting site components which require less energy than conventional elements (e.g. LED lighting and drip irrigation).

#### Use Renewable Energy

Whenever possible, renewable energy sources will be utilized (e.g. solar powered irrigation controller).

#### Commission and Monitor Energy Systems

Facilities will undergo a commissioning process to ensure they are complying with all city, state and federal requirements.

#### Protect Fresh Water Availability

Fresh water availability will be protected through the use of drought tolerant plant material, reclaimed water for irrigation and the protection of the LA River through implementation of stormwater BMPs.

#### Reduce Potable Water Consumption

Potable water consumption will be reduced as a result of constructing a new reclaimed water line for the use of landscape irrigation.

#### Monitor Waste Systems

Implement programs to monitor irrigation and storm water system performance during operations and their impact on receiving waters. For example, water meters and BMP maintenance agreement.

Table 6.3 DRAFT SELF-ASSESSMENT SCORECARD - RESOURCE ALLOCATION																								
Category	Credit Name	Description	Planning/Design/Construct	Drawing/Spec Sect	Possible Levels of Achievement										Pursuit Level	No. of Points	City of LA BOE DPW	Civil	Landscape	Traffic	Economic	Environmental	Electrical	Constructability Review
					Improved	Enhanced	Superior	Conserving	Restorative															
RESOURCE ALLOCATION	RA1.1	Reduce net embodied energy	D & C		2	6	12	18		Improved					2	•								
	RA1.2	Support sustainable procurement practices	D & C		2	3	6	9		Improved					2	•	•							
	RA1.3	Use recycled materials	D & C		2	5	11	14		Improved					2	•	•				•			
	RA1.4	Use regional materials	D & C		3	6	9	10		Improved					3	•	•				•			
	RA1.5	Divert waste from landfills	D & C		3	6	8	11		Improved					3	•	•				•			
	RA1.6	Reduce excavated materials taken off site	D & C		2	4	5	6		Improved					2	•	•				•			
	RA1.7	Provide for deconstruction and recycling	D & C		1	4	8	12		Improved					1	•	•	•			•			
	RA2.1	Reduce energy consumption	P & D		3	7	12	18		Improved					3	•	•	•			•			
	RA2.2	Use renewable energy	P		4	6	13	16	20	Enhanced					6	•	•				•			
		Commission and monitor energy systems																						
ENERGY	RA2.3	Protect fresh water availability	P, D, & C		3		11			Enhanced					3	•	•	•			•			
	RA3.1	Reduce potable water consumption	P & D		2	4	9	17	21	Improved					2	•	•	•						
	RA3.2	Monitor water systems	P & D		2	9	13	17	21	Improved					2	•	•	•						
WATER	RA3.3		P, D, & C		1	3	6	11		Improved					1	•	•	•						
	SUBTOTAL				27	66	111	170	62						32									

Source: PSOMAS, 2017.



## ENVISION SELF-ASSESSMENT - NATURAL WORLD

### Preserve Prime Habitat

The segments of the channelized LA River which have a soft bottom are generally more desirable to local wildlife due to the higher amount of natural vegetation in the LA River channel. Efforts to protect and enhance these habitats will be a priority for the project.

### Protect Wetlands and Surface Water

Providing a buffer of stormwater BMPs (e.g. bioswales) at street ends and planting areas along the bike path will intercept urban runoff and help to filter and infiltrate stormwater before it reaches the LA River channel.

### Preserve Prime Farmland

The proposed bikeway improvements are within a fully urbanized area where existing prime farmland is unlikely.

### Avoid Adverse Geology

The existing concrete channel of the LA River currently serves as protection against many adverse geologic conditions such as mud flows and flash floods. The proposed bikeway improvements will not compromise the integrity of the concrete channel.

### Preserve Floodplain Functions

Considerations were taken during the design process to accommodate the times when the LA River channel will be full and impact the potential use of the proposed facilities (e.g. flooded underpasses, floating river overlooks).

### Avoid Unsuitable Development on Steep Slopes

The site improvements avoid construction on steep slopes that could erode.

### Preserve Greenfields

Emphasis was placed on protecting and/or enhancing open space, and concentrating site improvements to previously developed areas. At a regional scale,

implementation of the project should also increase attractiveness of urban infill development along the LA River instead a new greenfield development in other parts of the City.

### Manage Stormwater

Stormwater will be managed to comply with County of Los Angeles Low Impact Development guidelines and State Water Board regulations.

### Reduce Pesticide and Fertilizer Impacts

Plant selection focuses on the use of native and regionally appropriate plant material with established natural resistances to pests and disease, thus reducing the need for pesticides and fertilizer.

### Prevent Surface and Groundwater Contamination

In addition to surface stormwater treatments, a strict adherence to proper hazardous materials handling will be upheld.

### Preserve Species Biodiversity

A large variety of new native landscape plants and trees will attract local wildlife, birds and beneficial insects.

### Control Invasive Species

Removal of invasive plant species will occur during the demolition. The installation of new native and climate appropriate plant material will be placed to minimize the re-establishment of invasive species.

### Restore Disturbed Soils

Disturbed soil areas within the project limits will be restored to its original condition.

### Maintain Wetland and Surface Water Functions

The proposed stormwater BMPs will help reduce pollutant loads from entering local waterways.

Category	Credit Name	Description	Planning/Design/Construct	Drawing/Spec Sect	Possible Levels of Achievement										No. of Points	City of LA BOE DPW	Chill	Landscape	Traffic	Economic	Environmental	Electrical	Constructability Review
					Improved	Enhanced	Superior	Conserving	Restorative	Pursuit Level													
SITING	NW1.1	Preserve prime habitat	P			9	14	18	Conserving			14	●			●			●				
	NW1.2	Protect wetlands and surface water	P & D		1	4	9	14	18	Superior			9	●		●							
	NW1.3	Preserve prime farmland	N/A			6	12	15	N/A														
	NW1.4	Avoid adverse geology	P & D		1	2	3	5	Enhanced			2	●										
	NW1.5	Preserve floodplain functions	P & D		2	5	8	14	Improved			2	●										
	NW1.6	Avoid unsuitable development on steep slopes	P & D		1		4	6	Improved			1	●	●	●								
	NW1.7	Preserve greenfields	P & D		3	6	10	15	23	Restorative			23	●	●	●							
LAND & WATER	NW2.1	Manage stormwater	P & D		4	9	17	21	Enhanced			4	●		●								
	NW2.2	Reduce pesticide and fertilizer impacts	P & D		1	2	5	9	Improved			1	●		●								
	NW2.3	Prevent surface and groundwater contamination	P, D & C		1	4	9	14	18	Improved			1	●		●							
	NW3.1	Preserve species biodiversity	P & D		2		13	16	Conserving			13	●		●				●				
BIODIVERSITY	NW3.2	Control invasive species	P & D			5	9	11	Superior			5	●		●								
	NW3.3	Restore disturbed soils	P & D				8	10	Conserving			8	●		●								
	NW3.4	Maintain wetland and surface water functions	P & D		3	6	9	15	19	Enhanced			6	●		●							
		SUBTOTAL			15	33	86	165	169						89								

Source: PSOMAS, 2017.

## ENVISION SELF-ASSESSMENT - CLIMATE AND RISK

### Reduce Greenhouse Gas Emissions

Greenhouse gas emissions will be reduced through the mode shift away from fossil fuel vehicles. Additionally, during construction application of SCAQMD and CalGreen standards with the documentation and control of expected pollutants.

### Reduce Air Pollutant Emissions

Air pollutant emissions will be reduced through the careful demolition of structures with lead paint, implementation of dampening of soil during earthmoving, limitation on material VOC content, and provision for ample landscaping.

### Assess Climate Threat

While the LA River Valley Bikeway and Greenway will decrease individual VMT that contribute GHG emissions by replacing vehicle trips, it will also promote the citywide shift to active transportation modes by expanding the active transportation network. (Refer to climate impact assessment report based on SCAG for further discussion.)

### Avoid Traps and Vulnerabilities

Avoid high, long-term community costs/risks through smart design such as minimizing the width of bikeway, impacting the LA River channel hydraulics, and over-irrigating drought resistant landscaping.

### Prepare for Long-term Adaptability

Long-term adaptability is addressed through the implementation of reclaimed water for irrigation, and implementation of LID measures.

### Prepare for Short-term Hazards

Short-term hazards will be addressed through building codes to mitigate facility failure during a earthquake. Included in this is the provision for storm water detention.

### Manage Heat Island Effects

A preference for material selection with higher solar reflective index (SRI) will be practiced in order to minimize the potential for heat island effect. New trees along the LA River will provide shade resulting in lower ambient temperatures.

Table 6.5 DRAFT SELF-ASSESSMENT SCORECARD - CLIMATE AND RISK																					
Category	Credit Name	Description	Planning/Design/Construct	Drawing/Spec Sect	Possible Levels of Achievement							No. of Points	City of LA BOE DPW	Civil	Landscape	Traffic	MARRS	Economic	Environmental	Electrical	Constructability Review
					Improved	Enhanced	Superior	Conserving	Restorative	Pursuit Level											
CLIMATE	EMISSION	CR1.1	Reduce greenhouse gas emissions	> D & C		4	7	13	18	25	Restorative	25					•		•		
		CR1.2	Reduce air pollutant emissions	> D & C		2	6		12	15	Restorative	15					•		•		•
	RESILIENCE	CR2.1	Assess climate threat	P					15		Conserving	15					•				
		CR2.2	Avoid traps and vulnerabilities	P & D		2	6	12	16	20	Improved	2		•	•						
		CR2.3	Prepare for long-term adaptability	P & D					16	20	Conserving	16		•	•						
	CR2.4	Prepare for short-term hazards	P & D		3		10	17	21	Conserving	17		•	•							
	CR2.5	Manage heat islands effects	P & D			1	2	4	6	Improved	1		•	•							
		SUBTOTAL				12	21	39	100	101		91									

Source: PSOMAS, 2017.

ENVISION SELF-ASSESSMENT - SUMMARY

The key areas in which the proposed design is successful in obtaining the majority of available points is with the Quality of Life and Climate and Risk categories. This is largely due to the nature of how bikeways and greenways typically improve personal and environmental health in a multitude of ways.

A moderate amount of points are achievable for the Leadership and Natural World categories and a minimal amount of attainable points can be achieved in the category of Resource Allocation. The primary factor may be because of the existing concrete channel and closely surrounding urban context confines the ability to restore the LA River corridor to a condition which reflects a more natural waterway.

It worth noting the number of marks shown in the columns for City of LA BOE / DPW, Civil, and Landscape, which denotes the important role these aspects have in future design and construction stages of the LA River Valley Bikeway and Greenway. Although several of the possible credits come into play during construction and implementation of the improvements, the City of LA has a vital role in the ongoing maintenance and stewardship of the potential benefits the improvements will have.

NEXT STEPS

Future efforts will consist of updating and refining the Envision review documentation, coordinating the necessary calculations and exhibits related to construction, presenting to the Institute of Sustainable Infrastructure compliance with Envision Guidelines, and the expected recognition of a Platinum level project.

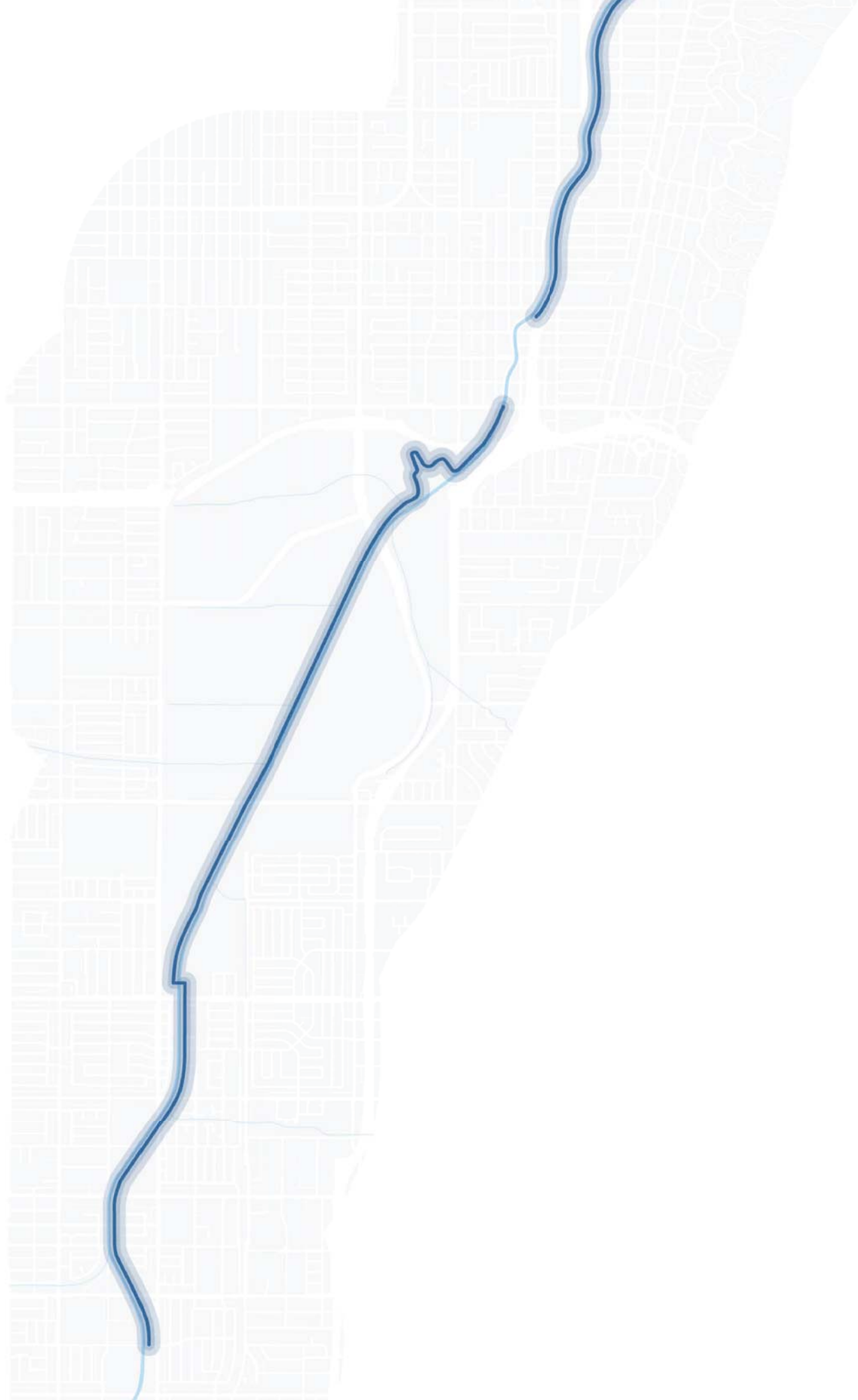
Table 6.6 DRAFT SELF-ASSESSMENT SCORECARD - SUMMARY

Summary Assessment:	
Maximum number of available points	809
Total number of points associated with N/A credits	15
Total number of point attempted	794
Total points (X)	430
Percentage of total points attempted (X/794)	54% Platinum (50% or more points achieved)

Source: PSOWAS, 2017.



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# OVERVIEW

The FSR includes a supplemental analysis of existing and planned future conditions to aid in alignment and scope decision-making within this FSR as well as later stages of the LA River Bikeway and Greenway project. The analysis was conducted based on the expected built project preferred alignment and proposed alternatives using prevailing qualitative and quantitative standards of practice. An evidence-based analysis was performed for individual topics, and is presented for the entire project area or by gap section - Western Reach, Central Reach, and Eastern Reach - as appropriate for each individual analysis. The following topics were studied and are presented in this chapter:

- 7.1 Usage Projection
- 7.2 Economic Cost/Benefit
- 7.3 Job Creation
- 7.4 Vehicle Miles Traveled Reduction
- 7.5 Greenhouse Gas Reduction
- 7.6 Public Health Benefits
- 7.7 Disadvantaged Community Vicinity
- 7.8 Water Quality and Infiltration Benefits
- 7.9 Public Transit Proximity and Linkages
- 7.10 Commercial and Job Center Proximity, Linkages and Active Commuting Benefits
- 7.11 Public Safety Benefits
- 7.12 Safe Routes to School Linkages
- 7.13 Arts, Culture, and Community Asset Linkages
- 7.14 Open Space and Park Proximity and Linkages
- 7.15 Outdoor Recreation Economic Activity

## Topic Organization

The analysis of each topic follows a similar format. First, an overview of background information on the topic including relevant statistics, national planning trends and research, and local policies for each condition frames the conversation of relevant analysis to be completed. To support the facts used as the basis for analysis, a summary of data collection and other methodology of analysis is provided when necessary. Based on the overview and data available, the LA River Bikeway and Greenway's impact on or ability to contribute to the desired goals of each topic was analyzed. Finally, a discussion of next steps is included to ensure future design and development of the LA River Bikeway and Greenway supports the goals of each topic, as well as to identify potential funding opportunities for the LA River Bikeway and Greenway unique to each topic, when applicable.

- WESTERN REACH Vanalden Avenue to Kester Avenue
- CENTRAL REACH Kester Avenue to Coldwater Canyon
- EASTERN REACH Whitsett Avenue to Zoo Drive

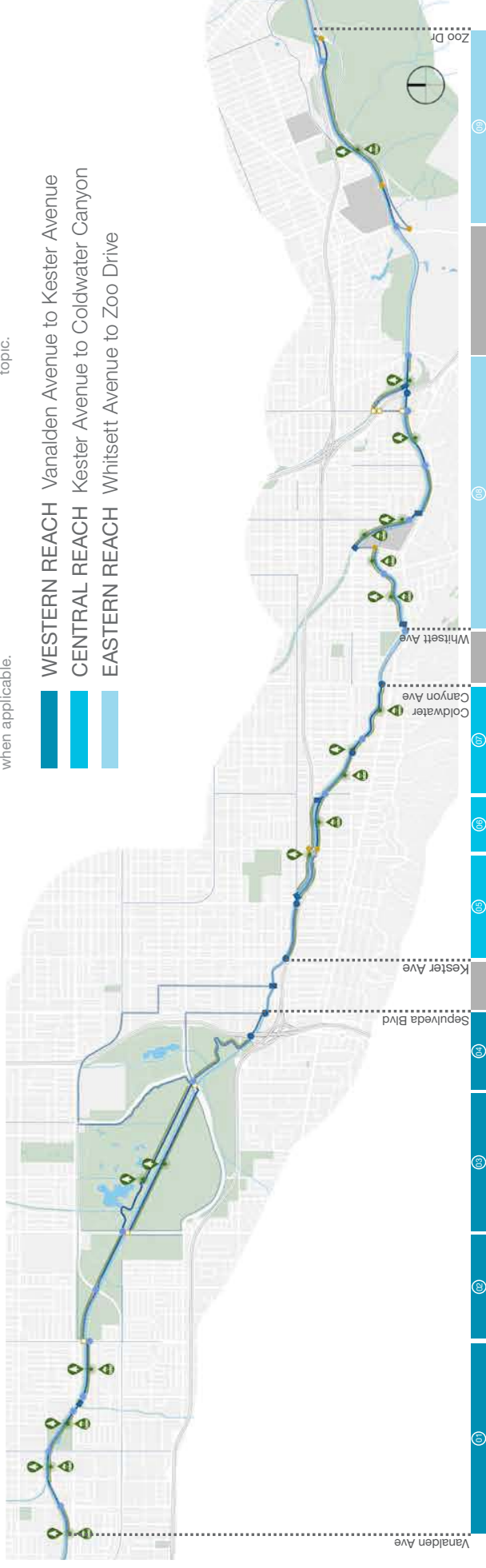


Figure 7.1 LA River Valley Bikeway and Greenway Project Area

Given this FSR is assessing the potential bikeway alignment along the LA River, many elements of the future bikeway are mostly fixed or limited in their adaptability, because of the desire for the pathway alignment to be adjacent to the LA River as much as possible. As a result, the effect of different alternatives for the LA River Bikeway and Greenway may have a minimal impact for each topic. For example, the alignment located on the north versus south side of the LA River is minimal compared to a feasibility study accessing which corridors within a city would provide the most significant impacts to the various supplemental analysis topics listed. Rather, by looking at the future bikeway by gap reach section, a picture of the relationship between the future bikeway and surrounding context can be formed. In this context, it is possible to see where the future bikeway will be able to contribute to the positive goals of each supplemental analysis topic, and where there will continue to be infrastructure gaps and where future investments or policies will be needed to achieve the goals for each topic.

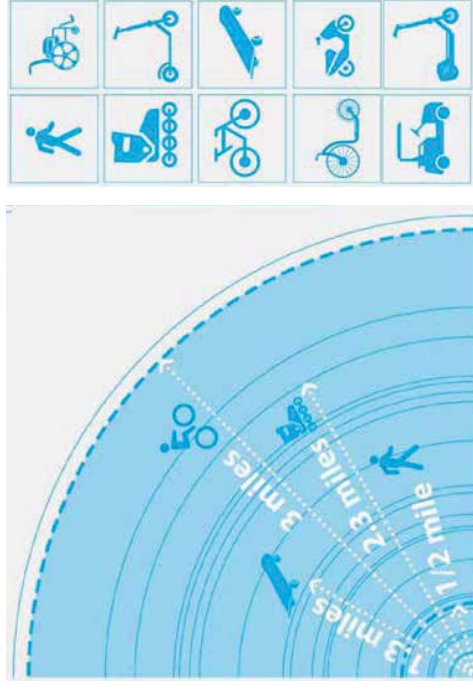
#### Geographic Scales

The supplementary analyses were conducted utilizing a variety of scales depending upon the topic. The scales used for analysis match the prevailing standard for contemporary planning research and analysis when crafting public policy and informing design decisions. The following ranges were used:

- 1/4 mile: The standard distance used which a typical pedestrian will walk as part of a commute trip.
- 1/2 mile: A reasonable walking distance for most people. The 2002 National Survey of Bicyclist and Pedestrian Attitudes and Behavior surveyed almost 10,000 people over the age of 16 and found that only 5 percent of walking trips were for getting to work. Of the other trips, 38 percent were for personal errands, 28 percent were for exercise, and 21 percent were for recreation or leisure with an average trip length

of 1.3 miles. Furthermore, studies show distance pedestrian are willing to walk varies depending upon the urban form along their trip with more dense and vibrant environments supporting longer walking distances. Finally, 1/2 mile is the distance used by Metro's First-Last Mile Strategic Plan access shed for pedestrians.

- 2 miles: Infrastructure improvements for Safe Routes to School are limited to within a 2 mile radius of schools. 2 miles also provides a reasonable distance that some bicyclists are willing to travel for a typical trip.
- 2.5 miles: Standard distance used for economic and market analysis, specifically regarding capture of market share.
- 3 miles: The standard distance used which a typical bicyclist will travel for a trip. A 3 mile radius from transit stations is also identified in Metro's First-Last Mile Strategic Plan access shed for bicyclists.



Source: First-Last Mile Strategic Plan, Metro, 2014

## 7.1 USAGE PROJECTION

### Overview

Bicycle use and the perception of bicycle use has dramatically evolved during the past few decades. This shift has occurred as various concerns and interests that have gained importance and popularity in mainstream culture—changing demographic preferences, economics, personal health, and environmental sustainability—converge with the improved understanding of how the physical conditions of local, city, and regional transportation systems impact other city systems, which can be redesigned to promote positive, shared goals of affordable, equitable, balanced, and healthy mobility.

#### Impact of Bicycle Infrastructure on Demand

National studies show communities that invest in bicycle infrastructure show a corresponding increase in bicycle ridership<sup>1</sup> relative to all travel modes.<sup>2,3</sup> Although only about 1 percent of total U.S. trips are made by bicycle (according to the 2009 NHTS estimates), several cities around the country such as Portland, Minneapolis, and Seattle have cycling rates five to ten times higher due to supportive public policies and infrastructure.<sup>4</sup>

A cross sectional analysis of 43 large cities across the country found that for U.S. cities with population more than 250,000, each additional mile of bike lanes per square mile is associated with a roughly one percentage point increase in bicycle commute mode share.<sup>5</sup> A similar trend is also shown in Figure 7.1.1, which charts the relationship between addition of bicycle lane miles, percent of work commute by bicycle, and number of bicycle fatalities in six major cities. Figure 7.1.1 shows a greater increase in bicycle use than an increase in the number of bicycle facilities. Furthermore, as bicycle use and bicycle facilities increase, the number of fatalities decreases, creating a positive feedback loop whereby safer biking conditions encourage more bicyclists.

In 2010, there were 334 miles of existing bikeways in the City of Los Angeles and as of 2008 the bicycle commute to work mode share was 0.9 percent (up from 0.61 percent in 2000). According to this projection, the full completion of 1,684 miles of bikeways could result in 3.6 percent of all work related trips to be made by

bicycle. Additionally, as bicycle ridership would be proportionately higher within  $\frac{1}{4}$  mile of existing facilities,<sup>6</sup> an increase from 0.9 percent to 3.6 percent total bicycle commute mode could result in a visible reduction of travel delay along corridors with bicycle facilities. However, this may be an underestimate, as bicycle use in the City has already shown a 48 percent increase in bicycle commuting over 8 years between 2000 and 2008 while the City implemented 59.2 miles of additional bicycle lanes within the same period. This represents a 0.3 percent increase relative to other travel modes, which is nearly three times the amount of growth predicted (0.12 percent) in comparison to national research trends described previously.

#### Increase in Overall Bicycle Demand from Preferences

Several converging factors indicate demand in bicycling as a travel mode choice will continue to increase. Such factors include, but are not limited to, changing demographic preferences, responses to high gas prices, concerns about personal health and fitness, and transportation impacts on the environment.

In 2009, people between the ages of 16 to 34 drove 23 percent less than the same age group did in 2000.<sup>7</sup> Research is increasingly showing that decrease in driving as a preference may be more than a short-term trend; instead be a result of rising gas prices as the average cost of gasoline has more than doubled during that same time.<sup>8</sup> This has made driving a more costly travel choice that disproportionately impacts those with less disposable income.

The shift in preference is further supported by the percentage of people aged 16–44 with a drivers license, which has decreased since 1983. In 2014, just 24.5 percent of 16-year-olds had a license, a 47-percent decrease from 1983, when 46.2 percent did. 69 percent of 19-year-olds had licenses in 2014, compared to 87.3 percent in 1983, a 21-percent decrease. Among young adults, the declines are smaller but still significant—16.4 percent fewer 20-to-24-year-olds had licenses in 2014 than in 1983, 11 percent fewer 25-to-29-year-olds, 10.3

percent fewer 30-to-34-year-olds, and 7.4 percent fewer 35-to-39-year-olds.<sup>9</sup>

Decreased rates of driving have created a spike in interest in alternative travel modes is reflected in available bicycle ridership data for the Los Angeles region. From 2007 to 2008 alone, there was a 41 percent increase in bicycle commuting in LA.<sup>10</sup> This is compared to a 36 percent increase in bicycle commute mode from 2005 to 2009 in Los Angeles County,<sup>11</sup> demonstrating an overall interest in bicycle commuting throughout the region. While data on bicycle commuting is readily available from varied sources such as the U.S. Census American Community Survey, bicycle ridership data as a percentage of total trips has only recently been collected on a local level. The Los Angeles County Bicycle Coalition (LACBC) conducted multi-year bicycle counts at 17 intersections which showed an average 32 percent increase in bicycle ridership from 2009 to 2011.<sup>12</sup>

The ability for bicycle travel to serve as a practical modal substitute for many trips helps to explain this growth trajectory. According to the 2009 National Household Travel Survey, 41 percent of all trips in Los Angeles County are 3 miles or less,<sup>13</sup> which is the standard trip length used as found to be attractive for bicycle riders. However, a disproportionate share of congestion tends to be work-related trips. In the 2012 Regional Transportation Plan/Sustainable Communities Strategy (RTS/SCS), SCAG projects that on a regional level, 27 percent of work-commute trips will be under 5 miles by 2035, which is expected to be a much larger share in the City given the higher density land use patterns and better job housing balance. A Portland based study found that median bicycle work-commute distance was 3.8 miles,<sup>14</sup> which demonstrates that a substantial amount of work related trips can be accommodated by bicycle travel if this mode is perceived to be both safe (adequate protection from traffic) and convenient (connects to home and work destinations).

Evidence indicates that in spite of the increased interest in bicycling in the City, a lack of adequate bicycle facilities

inhibits the latent demand for bicycling from reaching its full potential. The most often cited reasons for not bicycling in general are fear of riding with traffic, lack of access to bicycle facilities, lack of bicycle parking, bad weather, and distance.<sup>15</sup> A 1991 national transportation poll reported that 46 percent of adults who bike at least twice a year say they would sometimes commute to work by bicycle if safe bicycle lanes were available.<sup>16</sup> More recent data from Portland found that of 566 people randomly surveyed in 2005, over half identified as at least occasional riders, and the lack of bicycle lanes was a barrier for 37 percent of respondents who wanted to cycle more (between 83 to 90 percent of irregular bicyclists).<sup>17</sup> On a local level, a 2012 Caltrans-sponsored survey of travelers along Santa Monica Blvd. found that 60 percent of all the people surveyed responded that they would be “somewhat likely” to walk and bike more if there were more bicycle lanes.<sup>18</sup> From a public outreach survey conducted as part of the Bicycle Plan process, respondents answered that Class II bike lanes were the most preferred (43%) and most needed (63%) type of bicycle facility.<sup>19</sup>

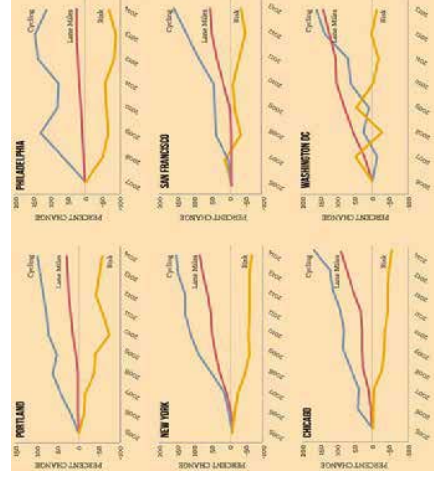


Figure 7.1.1 Bike Lane Miles vs Bike Commute Percent  
Source: Streetsblog USA



The growth in bicycle commute mode share and ridership in general as a result of new bikeways is not expected from those who either lack interest or whose lifestyle prohibits them from bicycling on a regular basis. Rather, growth of the build-out of bike facilities is mostly expected from people who already occasionally ride due to convenience or recreation, or show an interest in doing so. A recently developed conceptual scheme that classifies the public attitude toward bicycling into four categories: 'strong and the fearless', 'enthusied and confident', 'interested but concerned', and 'no way no how' identified 60 percent of people as belonging in the 'interested but concerned category', while 33 percent had no interest bicycling regardless of bicycle investment.<sup>20</sup> The 'interested but concerned' category are not regular bicycle riders, but are interested in bicycling more although they are not comfortable riding amongst higher flow traffic without some level of protection.<sup>21</sup> The surveys indicate that investments in higher level of protection, (from signed routes as the lowest level, Class II bicycle lanes higher level, and physically separated cycle track or bicycle path as the highest level) will likely yield higher level of ridership from this category. This is especially true in encouraging more women to bicycle, whom currently contribute to only 25 percent of bicycle trips across the country, and as low as 17 percent of bike trips in the City according to LACBC's 2011 bicycle count. Irrespective of gender, people living within at least a half-mile of a path are at least 20 percent more likely to bicycle at least once a week (compared to people living between one-half and one mile away from a path).<sup>22</sup>

While it is an important objective to provide bicycle facilities for the population that currently choose to bicycle in the City, it is also important to recognize the ridership gains that can be made from a larger demographic that will make this a travel choice once they deem it both safe and convenient. This larger increase in ridership would be a benefit to the bicycle rider's personal health, and budget, as well as the greater public benefit through reduced congestion, and increased environmental quality.

## Analysis

Table 7.1.1 shows the estimated increase in new bicycle trips and miles based on construction of the LA River Bikeway. Construction of the LA River Bikeway is estimated to create over 580,000 new bicycle trips, which equals over 3.1 million miles.

## Sources

<sup>1</sup> Dill, Jennifer and Theresa Carr. 2003. Bicycle Commuting and Facilities in Major Cities: If You Build Them, Commuters Will Use Them. Transportation Research Record 1828:116-123

<sup>2</sup> Buehler, R. and J. Pucher, (2011) Cycling to work in 90 large American cities: new evidence on the role of bike paths and lanes. Transportation (2012) 39:409-432

<sup>3</sup> Krizek, K.J., G. Barnes, and K. Thompson. (2009) Analyzing the Effect of Bicycle Facilities on Commute Mode Share over Time. Journal of Urban Planning and Development. 10.1061/\_ASCE\_0733-9488\_2009\_135:2(66-73)

<sup>4</sup> Alliance for Bicycling and Walking, 2012. Bicycling and Walking in the United States: 2012 Benchmarking Report

<sup>5</sup> Dill, Jennifer and Theresa Carr. 2003. Bicycle Commuting and Facilities in Major Cities: If You Build Them, Commuters Will Use Them. Transportation Research Record 1828:116-123

<sup>6</sup> The average distance travelled by bicycle to a bicycle facility is 0.27 miles. Dill and Jennifer, Ph.D. John Gilebe. 2007. Understanding and Measuring Bicycling Behavior: a Focus on Travel Time and Route Choice. OTREC-RR-08-03 Approximately 38 percent of Los Angeles County population has access to bikeways (within 0.27 miles) (American Community Survey, 2008, SCAG 2012 RTP/SCS, pp. 25) The commute mode share is 1.11 percent by bicycle in high accessible areas as defined in Metro's Countywide Sustainability Planning Policy.

<sup>7</sup> Davis, Benjamin, Tony Dutzik, and Phineas Baxandall.

(2012) Transportation and the New Generation: Why Young People Are Driving Less and What It Means for Transportation Policy, U.S. PIRG Education Fund and the Frontier Group

<sup>8</sup> Ibid.

<sup>9</sup> Beck, Julie. The Decline of the Driver's License, The Atlantic, 22 Jan 2016.

<sup>10</sup> The City of Los Angeles Department of City Planning. (2011) 2010 Bicycle Plan.

<sup>11</sup> Southern California Association of Governments. (2012) Proposed Final 2012-2035 RTP/SCS

<sup>12</sup> Los Angeles County Bicycle Coalition. 2011. 2011 Los Angeles Bicycle and Pedestrian Count Report.

<sup>13</sup> Safe Routes to School California website. [http://saferoutescalifornia.wordpress.com/2012/09/24/19percent\\_lac/](http://saferoutescalifornia.wordpress.com/2012/09/24/19percent_lac/) Accessed on November 29, 2012, and NHTS, National Household Travel Survey, U.S. Department of Transportation and Federal Highway Administration, 2001, 2009.

<sup>14</sup> Dill, J., Gilebe, J., 2007. Understanding and measuring bicycling behavior: A focus on travel time and route choice. Oregon Transportation Research and Education Consortium, Portland, OR.

<sup>15</sup> League of American Bicycling. 2003. Bicycling in America in 2003. <http://www.bikeleague.org/media/facts/pdf/BicyclinginAmerica02to03.pdf> Accessed on 11/27/12

<sup>16</sup> Harris Poll Data published by Bicycling Magazine, April 1991 and by Rodale Press, 1992.

<sup>17</sup> Dill, Jennifer and Kim Voros, 2007. Factors Affecting Bicycling Demand: Initial Survey Findings from the Portland, Oregon, Region. Transportation Research Record: Journal of the Transportation Research Board, Issue 2031, 2007, pp 9-17

<sup>18</sup> Sanders, Rebecca, Ashleigh Griffin, Kara E. MacLeod, Jill F. Cooper, David Ragland. 2012. The Effects of Transportation Corridors' Roadside Design Features on User Behavior and Safety, and their Contributions to Health, Environmental Quality, and Community Economic Vitality: Phase IV Final Report (Draft). Caltrans - Report Number CA111-1094

<sup>19</sup> The City of Los Angeles Department of City Planning. (2011) 2010 Bicycle Plan.

<sup>20</sup> Dill, Jennifer and Nathan McNeil. 2012. FOUR TYPES OF CYCLISTS? Testing a Typology to Better Understand Bicycling Behavior and Potential

<sup>21</sup> Ibid..

<sup>22</sup> Vernez-Moudon, A.V., Lee, C., Cheadle, A.D., et al., 2005. Cycling and the built environment, a US perspective. Transp. Res. Part D 10, 245-261.

<sup>23</sup> Active Health and Economic Impact Study, SCAG June 2016; Task 4. Transportation System Cost Analysis

<sup>24</sup> Inner Sydney Regional Bicycle Network Demand Assessment and Economic Appraisal. AECOM, April, 2010

**TABLE 7.1.1: SUMMARY OF NEW ANNUAL BICYCLE TRIPS AND MILES**

TRIP TYPE	NEW ANNUAL BICYCLE TRIPS	NEW ANNUAL BICYCLE MILES
Utilitarian	174,520	2,707,386
Recreational	409,291	415,358
<b>Total</b>	<b>583,811</b>	<b>3,122,744</b>

Source: KOA Corporation, 2017

## 7.2 ECONOMIC COST / BENEFIT

### Overview

Economic benefits created by the future bikeway are wide-ranging, but primary economic benefits resulting from this type of bicycle infrastructure project include: construction, ongoing maintenance, general retail, and bicycle related retail. The LA River Bikeway project will convert the existing maintenance road along the LA River into a greenway and Class I bicycle path. That process will require a multi-year design and construction process estimated at over \$500 million in construction costs, which will create substantial construction jobs. This bikeway/greenway will connect two of LA's most important large recreation areas, the Sepulveda Basin Recreation Area west of I-405 and Griffith Park near the junction of I-5 and SR-134, which increases the regional recreation network.

#### Bikeway Usage and Retail Spending Benefits

International and domestic separated bikeway infrastructure has demonstrated the ability to have an immediate and long-term impact on bikeway usage, with separated infrastructure correlated with strong shifts towards bicycling and use of the bikeway resource. Increased bikeway usage contributes directly to the key economic benefits of the bikeway through retail spending by both bicycle commuters and recreational users of the bikeway at businesses within the catchment area.

Multiple studies and precedents have shown the economic benefits to retail business from bicycle infrastructure and users, including when bicycle infrastructure replaces automobile infrastructure:

- Retail sales increased 179% on Magnolia Street in Fort Worth, Texas after it was reconfigured with a 'road diet'<sup>1</sup>
- An analysis of 78 businesses in metropolitan Portland found that non-drivers, including cyclists, are "competitive consumers, spending similar amounts or more, on average, than their counterparts using automobiles."<sup>2</sup>
- A neighborhood survey of 420 people on First and Second avenues in Manhattan's East Village, home to protected bike lanes, found that aggregate spending

by non-drivers accounted for 95 percent of all retail spending in the area. Cyclists spent about \$163 per week on average, compared to \$143 among drivers.<sup>2</sup>

- In LA, business data was collected along York Avenue before and after a road diet that replaced car lanes with bike lanes. The change was found to have "little effect on surrounding businesses, property values, and customer shopping patterns." Sales tax revenue, a proxy for business success, was higher on the section of York with the new bike lane than the section without it, \$1,116,745 to \$574,777.<sup>2</sup>

A common trait of these studies and precedents is that these bicycle infrastructure improvements were made along pedestrian-oriented commercial corridors. One component missing from these studies is the benefits that providing a network of bicycle infrastructure that increases the number of residents who can access bicycle friendly commercial areas would have on retail areas above bicycle improvements made only to specific commercial corridors. If bicycle users and bicycle infrastructure result in the same amount, if not increased amount, of retail sales for commercial areas, then it would stand that increasing the area that is accessible to commercial areas using bicycles would further compound the economic benefits to retail from bicycle users.

### Methodology

Project costs used for economic cost/benefits are based on cost estimates for preliminary design concepts for the LA River Bikeway, which was estimated to be \$177.1 million. Since that time, estimated project costs have been updated and increased that will require a corresponding increase in the economic cost/benefits of the project. However, as Option 1 of the LA River Bikeway (shown in Chapter 10) is approximately \$153 million, the estimated project costs used for this economic cost/benefit analysis is a good indicator of the cost/benefits for build out of the LA River Bikeway according to Option 1.

#### Construction Cost

Preliminary estimates indicate a total construction cost of \$177.1 million (Table 7.2.1), which if annualized over a three-year build-out period would amount to \$59.37 million per year. The average per mile construction cost is \$14.25 million.

#### Maintenance Cost

A reasonable preliminary estimate of maintenance cost based on literature research is one percent of construction cost or \$1.78 million per year when the project is completed.

#### Catchment Area

For commuters, the catchment area population is estimated to be all residents within one mile of the bikeway; a population of 209,600 in 2016, and projected to increase to 216,700 by 2021, when project construction is completed. According to a recent SCAG study<sup>4</sup>, the average number of trips that a person in the

SCAG region takes per day is 3.58; with bicycle trips are only 1.3 percent of the total. Using estimates based upon detailed transportation mode share modeling work done by others,<sup>5</sup> bicycle mode share will increase to 2.5 percent for the residents of this one-mile catchment area when this bikeway is completed. With the bikeway completed, the average commuter bike trip for residents of this one-mile catchment area is projected to lengthen slightly from the SCAG average of 6.02 miles to 6.5 miles. This increased trip length is based on the assumption that the resident commuters will ride slightly out of their shortest path to take advantage of the safety and greater speed provided by this bikeway.

Not every bike commuter that comes into this catchment area will reside within the area. Before the bikeway is constructed, the outside resident bike commuter share is assumed to total five percent. After the bikeway is constructed, the outside residents commuting into this catchment area are assumed to grow to 15 percent of the increased number of bicycle commuters.

**TABLE 7.2.1: CONSTRUCTION AND MAINTENANCE COST ESTIMATES**

IMPROVEMENT TYPE	UNITS	COST PER UNIT (MILLIONS)	COST FOR IMPROVEMENT (MILLIONS)
Bikeway/Greenway - Miles	12.5	\$ 7.0	\$ 100.0
Street Bridge	4	\$ 4.0	\$ 16.0
River Bridge	2	\$ 3.0	\$ 6.0
Tunnel or Undercrossing	14	\$ 2.5	\$ 35.0
At-Grade Crossing	3	\$ 0.3	\$ 0.9
Special Bridge	2	\$ 20.0	\$ 40.0
Total Bike Path			\$197.9
Total Adjusted for Value Engineering @ 90%			\$ 177.1
Annual Construction Cost - Assumes 3 Years			\$ 59.37
Capital Cost per Mile			\$ 14.25
Annual Maintenance Cost @ 1%			\$ 1.78
Annual Maintenance Cost @ 1% per Mile			\$ 0.14

Source: Lee Saylor Associates, New Zealand Ministry of Tourism, and Land Econ Group

**TABLE 7.2.2: ESTIMATED RETAIL SPENDING IMPACT FROM INCREASED CYCLING DUE TO BIKEWAY**

IMPACT FROM BICYCLE COMMUTERS AND RECREATION USERS	2016 OR BEFORE	2021 OR AFTER	DIFFERENCE
<b>Impact from Commuters</b>			
Catchment Area Population - 1 Mile from Bikeway	209,600	216,700	7,100
Daily Trips per Capita in SCAG Region	3.58	3.58	-
Catchment Area Trip Generation	750,368	775,786	25,418
Bicycle Share of Trips	1.30%	2.50%	1.20%
Total Daily Bicycle Trips	9,755	19,395	9,640
Annual Bicycle Commuter Trips (@ 255 Annual Days)	2,487,470	4,945,636	2,458,166
Average Length of Bicycle Trips	6.02	6.50	0.48
Annual Miles of Bicycle Trips	14,974,569	32,146,632	17,172,063
Bicycle Related Expenditures per Mile	\$ 0.05	\$ 0.05	-
Bicycle Related Consumer Spending	\$ 748,728	\$ 1,607,332	\$ 858,603
Percentage Induced Impact from Outside Catchment Area	5%	15%	-
Subtotal Bike Shop Spending from Bicycle Commuters / Net Gain	\$ 786,165	\$ 1,848,431	\$ 1,062,266
<b>Impact from Recreational Users</b>			
Population Over 6 Years Old	1,394,593	1,442,734	48,140
Participation Rate	0.14	0.18	0.04
Estimated Incidence of Participation per Year	23	27	4
Number of Rides per Year	4,490,590	7,011,685	2,521,095
Average Miles per Recreation Ride	12.8	14.5	1.7
Annual Miles per Recreation Ride	57,479,553	101,669,437	44,189,883
Bicycle Related Expenditures per Mile	\$ 0.05	\$ 0.05	-
Bicycle Related Consumer Spending	\$ 2,873,978	\$ 5,083,472	\$ 2,209,494
Percentage Induced Impact from Outside Catchment Area	5%	20%	15%
Total Additional Bike Spending from Recreation Bicyclists	\$ 3,017,677	\$ 6,100,166	\$ 3,082,490
Add Retail/Restaurant Spending by Recreation Bicyclist (@ \$10.66 per Ride)	\$ 47,869,691	\$ 74,744,565	\$ 26,874,875
Additional Spending Related to Two Bike Races per Year	\$ 0	\$ 720,000	\$ 720,000
Subtotal Retail Spending from Recreation Bicyclists	\$ 50,887,367	\$ 81,564,731	\$ 30,677,364
<b>Total Additional Spending from Commuters and Recreation Users / Net Gain</b>	<b>\$ 51,673,532</b>	<b>\$ 83,413,163</b>	<b>\$ 31,739,631</b>

Source: Outdoor Participation Report, 2016; Technical Memo Summarizing Economic Impact of Active Transportation, Nov. 2016 by SCAG, The Economic Benefits of Bicycle Infrastructure, League of American Bicyclists and estimates by Land Econ Group

For recreational usage of this bikeway, the catchment area population is estimated to be all residents living within five miles of the bikeway.

In addition, it is estimated that two new bicycle races will use this new bikeway, attracting more visitors and increasing retail spending.

### Analysis

Estimate of the increased commuter and recreation bicycling induced by the proposed separated bikeway infrastructure is detailed in Table 7.2.2.

#### Increased Spending by Bike Commuters

Increased spending by bicycle commuters is estimated based on the SCAG computed average bicycle related expenditure per mile of \$0.05, which includes bicycle purchase, maintenance and repair service, safety equipment, and tires. This yields an increase in direct bicycle related expenditure for commuters from \$790,000 to \$1.85 million. The development of this bikeway/greenway increases bicycle related retail spending from commuters by \$1.06 million due to increased usage. This spending is largely for bicycle purchases, repairs, tires, helmets, other accouterments and related sports apparel.

#### Increased Spending from Recreational Users

Commuters and recreation users of the bikeway have substantially different spending patterns. For commuters, whose main concern is with the efficiency of the daily trip, the largest share of the spending is directly related to the bicycle. For recreational riders, who have fewer outings and more time to ride greater distances per outing, the primary spending is for refreshments and nourishment. The analysis for recreational users is similar to that used above for commuters, with two distinctions. First, participation rates are derived from The Outdoor Foundation,<sup>6</sup> and second, the estimated spending per recreational user is \$10.66 per ride for meals, beverages, and other refreshments.

The estimated recreational user retail spending increases from \$50.9 million to \$81.6 million after the bikeway is constructed.

When combined with the commuter usage, the retail spending by users of the bikeway grows from \$51.7 million to \$83.4 million, an increase of \$31.7 million. The estimated distribution of added retail spending by type of bicyclists is detailed in Table 7.2.3. As indicated, the largest majority of the spending impact is from increased recreation usage, and the primary beneficiaries will be restaurants, bars and coffee shops near the bikeway, particularly those near staging areas where recreational bicyclists arrive by car to transfer to their bicycles.

**TABLE 7.2.3: ESTIMATED DISTRIBUTION OF ADDITIONAL RETAIL SPENDING DUE TO BIKEWAY**

	BICYCLE COMMUTERS	RECREATION BICYCLISTS	RACE EVENTS	TOTAL
Bike Dealers & Repair Shops	\$849,813	\$ 2,396,589	\$ 100,800	\$ 3,347,202
Sporting Goods / Apparel Stores	\$ 159,340	\$ 1,497,868	\$ 28,800	\$ 1,686,008
Grocery and Convenience Stores	\$ 21,245	\$ 3,594,884	\$ 86,400	\$ 3,702,529
Restaurants, Bars and Coffee	\$ 31,868	\$ 22,468,023	\$ 504,000	\$ 23,003,891
<b>Total Spending</b>	<b>\$ 1,062,266</b>	<b>\$ 29,957,364</b>	<b>\$ 720,000</b>	<b>\$ 31,739,631</b>

Source: Estimates by Land Econ Group



### New Retail Spending Benefit for LA County Economy

This additional annual retail spending by cyclists has an impact on the Los Angeles County economic output, and this additional output can be estimated with the use of multipliers developed by the US Department of Commerce, Bureau of Economic Analysis (BEA) named RIMS II multipliers. RIMS II multipliers are derived from a set of national input-output (I-O) accounts that show the goods and services produced by each industry and the use of these goods and services by individual industries and final users. RIMS II adjusts the national I-O relationships for each region to account for local supply conditions.

The adjustments account for the fact that local industries often do not supply all of the intermediate inputs needed to produce the region's output. Industries must purchase some intermediate inputs from suppliers outside the region. These purchases are referred to as "leakages" because they represent money that no longer circulates in the local economy.

The I-O framework that underlies RIMS II imposes the following assumptions that need to be considered when conducting an economic impact study:

- Backward linkages – only the impacts related to the production of output are considered
- Fixed purchase patterns – major structural changes in an economy are not considered
- Industry homogeneity – the same production process for all businesses in an industry are assumed
- No supply constraints – constant prices of inputs to local businesses are assumed
- No regional feedback – feedback that may exist among regions are not considered
- No time dimension – the length of time for the total impact to be realized is unclear

RIMS II has two types of multipliers, and the difference is summarized below:

- Type I multipliers account for the direct and indirect impacts of a final demand change. The direct impact

relates to the first round of purchases by the bicyclists in retail stores or by the City of Los Angeles in the construction contract and maintenance agreements for the bikeway/greenway. The indirect impact relates to the subsequent rounds of inputs purchased by supporting industries; these would include nurseries supplying plants for the greenway. The sum of the direct and indirect impacts is often called the inter-industry effect. Type II multipliers account for the induced impact of final demand change, in addition to the inter-industry effect. The induced impact relates to the spending of workers whose earnings are affected by a final demand change. This impact is often called the household-spending effect.

In preparing this analysis, LEG made two necessary adjustments:

- Because in the retail sector so much of value of goods sold comes from outside the region, RIMS II requires the application of a "retail margin adjustment" before multipliers can be applied. This adjustment factor is 0.39 for all retail nationally and 0.27 for grocery purchases.
- The RIMS II employment multipliers are based upon 2010 dollars. Therefore, the local spending impacts were adjusted from 2016 dollars to 2010 dollars to remove inflation from the estimates of employment impact.

The retail adjustments are applied to the added spending in the last column of Table 7.2.3, and the resulting gain in Los Angeles County economic output is estimated in Table 7.2.4. As shown, the bikeway induces additional retail spending by commuter and recreation bicyclists; and that additional spending increase the economic output of Los Angeles County by an estimated \$51.1 million per year.

#### Consumer Benefits of Reduced Automobile Usage

The bikeway increases bicycle commuter usage miles, and an estimated 85 percent of those miles represent a mode shift from automobile trips with the balance coming from walking and transit trips.<sup>7</sup> Because the impact on transit ridership is so small, no transit operating efficiency gain is considered. At 85 percent mode shift from automobiles and an assumed average ridership of 1.1 per car, the automobile mileage reduction is approximately 13.3 million miles from the 17.2 million miles of bicycle commuter ridership gain.

According to the Environmental Protection Agency (EPA), the average CO<sub>2</sub> generation per automobile mile is 411 grams. Therefore, the increase in commuter bicycle usage will remove 5.5 million kilograms or six thousand tons of CO<sub>2</sub> from the LA County atmosphere per year.

For commuters who shift from automobile usage to bicycle usage, a substantial operating cost savings can be gained. According to the 2015 information compiled by AAA, the total annual operating cost for an average automobile is \$8,697.<sup>8</sup> At an assumed typical annual mileage of 15,000 miles, the average operating cost per mile is \$0.58, which includes fuel, insurance, depreciation, registration and maintenance. When compared against \$0.05 per mile for bicycle usage, the net savings is \$0.53 per mile. At 13.3 million miles, this translates into an annual savings of \$7.0 million for these bicycle commuters. Since the largest portion of automobile operating cost is depreciation, this savings shifts economic activity away from the metropolitan areas that produce automobiles to local retailers and restaurants that serve bicycle commuters.

The increased in bicycle usage also has substantial health benefits by reducing incidence of diabetes, heart disease and obesity. These health-related benefits are covered in a separate memorandum report.

### Sources

- <sup>1</sup> Blue, Ely. Bikenomics, pg. 111, 2013.
- <sup>2</sup> Jaffe, Eric. The Complete Business Case for Converting Street Parking Into Bike Lanes, CityLab, 13 March 2015.
- <sup>3</sup> New Zealand Ministry of Tourism estimate of bikeway and bike path maintenance cost
- <sup>4</sup> Active Health and Economic Impact Study, SCAG June 2016; Task 4. Transportation System Cost Analysis
- <sup>5</sup> Inner Sydney Regional Bicycle Network Demand Assessment and Economic Appraisal, AECOM, April, 2010
- <sup>6</sup> Outdoor Participation Report, 2016
- <sup>7</sup> Active Health and Economic Impact Study, SCAG June 2016; Task 4. Transportation System Cost Analysis
- <sup>8</sup> AAA News Room, April 28, 2015

**TABLE 7.2.4: INCREASED LA COUNTY ECONOMIC ACTIVITY OUTPUT DUE TO BIKEWAY INDUCED INCREASED RETAIL SPENDING**

CATEGORY	NOTE ON RIMS II	DIRECT <sup>1</sup>	DIRECT AND INDIRECT Multiplier <sup>2</sup>	Output	DIRECT + INDIRECT + INDUCED Multiplier <sup>3</sup>	Output
Restaurants & Cafes	Food Services and Drinking Places	23,003,891	1.4671	33,749,009	1.9815	45,582,211
Retail - Bike Stores	National Retail Margin of 0.38	1,271,937	1.3824	1,758,326	1.8897	2,403,579
Retail - Sports Apparel	National Retail Margin of 0.38	640,683	1.3824	885,680	1.8897	1,210,699
Grocery Stores	RIMS estimated Margin of 0.27	999,683	1.3824	1,381,962	1.8897	1,889,101
<b>Total</b>		<b>\$ 25,916,194</b>	<b>1.4576</b>	<b>\$ 37,774,976</b>	<b>1.9712</b>	<b>\$ 51,085,589</b>

<sup>1</sup> Input provided from Table 3 with retail margin adjustments

<sup>2</sup> RIMS II Type I Multiplier

<sup>3</sup> RIMS II Type II Multiplier

Source: Bureau of Economic Analysis and Land Econ Group

## 7.3 JOB CREATION

### Overview

In terms of job creation, this bikeway/greenway project will have both one-time construction impacts and ongoing maintenance and retail spending impacts.

### Analysis

Analysis for job creation utilizes the same preliminary cost estimates that were used for the economic cost/benefit analysis. Similar to the economic cost/benefit analysis, project costs estimates for job creation will need to be increased and updated, but is also a good indicator of the cost/benefits for build out of the LA River Bikeway according to Option 1.

#### Construction Jobs

This overall construction project of \$177.1 million is assumed to be built over three years with an expenditure of \$59.4 million per year. Similar to Economic Cost/Benefit, construction costs can be used to estimate employment gain with the use of RIMS II multipliers that are based upon industry input-output relationships established through detailed surveys conducted by the BEA. Since the construction estimates are in 2016 dollars and the multipliers are in 2010 dollars, the construction cost estimates were deflated to 2010 dollars as to not over-state the employment impacts. As shown in Table 7.3.1, over the three-year construction period this bikeway/greenway project will create 661 jobs per year. If the construction were to be all funded from state and federal government grants, then these would be all new jobs to Los Angeles County.

#### Annual Maintenance Jobs

At the previously estimated annual maintenance cost of \$1.78 million per year, this project will create 23 maintenance jobs on an annual basis.

#### New Retail Jobs

The additional retail spending, after retail margin adjustments, were used to estimate jobs generated once again with the use of RIMS II multipliers (Table 7.3.2). The number of jobs created by the additional retail spending by bike commuters and recreation riders amount to 469 per year with over 90 percent being in restaurants, bars and coffee shops.

**TABLE 7.3.1: CONSTRUCTION AND MAINTENANCE JOBS OF BIKEWAY / GREENWAY**

CATEGORY	DIRECT <sup>1</sup>	DIRECT <sup>1</sup>	DIRECT AND INDIRECT		DIRECT + INDIRECT + INDUCED	
			Per \$ (M)	Employment	Per \$ (M)	Employment
Construction - Annual for 3 Years	2016 \$	2010 \$ <sup>4</sup>				
	59,370,000	53,807,591	7.5415	460	12.2884	661
Maintenance - On-going Annual	1,781,100	1,614,228	10.5992	17	14.5177	23
<b>Total</b>	<b>\$ 61,151,100</b>	<b>\$ 55,421,819</b>	<b>7.6014</b>	<b>477</b>	<b>12.3533</b>	<b>685</b>

<sup>1</sup> Input provided from Table 3 with retail margin adjustments

<sup>2</sup> RIMS II Type I Multiplier

<sup>3</sup> RIMS II Type II Multiplier

<sup>4</sup> Los Angeles Area CPI Adjustment Index from 2010 to 2016

Source: Bureau of Economic Analysis and Land Econ Group

**TABLE 7.3.2: NEW RETAIL JOBS FROM INCREASE BICYCLIST SPENDING DUE TO BIKEWAY**

CATEGORY	DIRECT <sup>1</sup>	DIRECT <sup>1</sup>	DIRECT AND INDIRECT		DIRECT + INDIRECT + INDUCED	
			Per \$ (M)	Employment	Per \$ (M)	Employment
Restaurants & Cafes	2016 \$	2010 \$ <sup>4</sup>				
	23,003,891	20,848,644	17.0541	356	20.4659	427
Retail - Bike Stores	1,271,937	1,152,768	12.8321	15	16.1964	19
Retail - Sports Apparel	640,683	580,657	12.8321	7	16.1964	9
Grocery Stores	999,6863	906,022	12.8321	12	16.1964	15
<b>Total</b>	<b>\$ 61,151,100</b>	<b>\$ 55,421,819</b>	<b>16.5797</b>	<b>389</b>	<b>19.9861</b>	<b>469</b>

<sup>1</sup> Input provided from Table 3 with retail margin adjustments

<sup>2</sup> RIMS II Type I Multiplier

<sup>3</sup> RIMS II Type II Multiplier

<sup>4</sup> Los Angeles Area CPI Adjustment Index from 2010 to 2016

Source: Bureau of Economic Analysis and Land Econ Group

## 7.4 VEHICLE MILES TRAVELED REDUCTION

### Overview

Reducing VMT requires a combination of sustainable approaches working together. The City of LA Mobility Plan sites the following as factors that contribute to reducing VMT:

- Land use policies aimed at shortening the distance between housing, jobs, and services
- Increasing availability of affordable housing options with proximity to high-quality transit stations
- Offering more attractive non-vehicle alternatives (biking, walking, transit)
- Transportation Demand Management (TDM) that encourage ride sharing
- Pricing mechanisms that encourage commuters to consider alternatives to driving alone

The interdependency of multiple approaches to encourage reduction of VMT is exemplified in current research that suggests best practices employ a 'carrot and stick' approach. Generally, 'carrots' used for reducing VMT focus on the strategy of providing attractive non-vehicle alternatives, such as bicycle and pedestrian infrastructure improvements. 'Sticks' that can be used to reduce VMT range from congestion pricing for vehicles, parking pricing to 'road diets' that substitute vehicle infrastructure for pedestrian and bicycle infrastructure. The LA River Bikeway and Greenway is an example of providing attractive non-vehicle alternatives through infrastructure improvements.

Based on the 2009 National Household Travel Survey, 50% of all trips made are three miles or less, shown in Figure 7.4.1. Of trips of 3 miles or less, 2% are completed by bicycle, 21% are walked, 72% use private automobile, and 5% by other modes including public transit, shown in Figure 7.4.2. Trips of three miles or less are the trips that are most applicable to be completed without automobiles. These trips current completed by private vehicle represent the low hanging fruit that can be substituted for bicycle and pedestrian trips, if safe and convenient multi-modal infrastructure is provided.

Furthermore, 85% of bicycling trips are three miles or less, but nearly 58% of transit trips are longer than

three miles. These statistics show the ability for bicycle and transit modes to act as complementary travel modes because they are most likely used for trips of different distances. Understanding the complementary relationship between bicycle and transit modes, Metro developed the First-Last Mile Strategic Plan to encourage the development of a high-quality pedestrian and bicycle network surrounding public transit stations as a way to reduce VMT throughout the region.

Thus, while the LA River Valley Bikeway and Greenway project focuses on safe, attractive bicycle infrastructure to reduce VMT on its own, it also contributes to further reductions in VMT if it provides connections to public transit. (A more in depth analysis of the potential connections between the LA River Bikeway and public transit is in section 7.9 Proximity and Linkages to Public Transit.) The combined investments in individual non-vehicle infrastructure improvements provide reductions in VMT that are greater than the sum of their individual reductions to VMT because each non-vehicle mode and infrastructure improvement benefits the attractiveness and function of other non-vehicle modes.

### Methodology

This analysis of VMT focuses on the potential of the future bikeway to encourage an increase of local trips made by bicycle instead of private vehicle trips.

### Analysis

The LA River Bikeway and Greenway would improve regional livability by providing expanded active transportation options with new access to transit, homes, schools, jobs, nature, recreation, and other community-serving amenities. It would complete approximately 11 to 12 miles of gaps in the regional bikeway network in the San Fernando Valley from Vanalden Avenue to the West and Forest Lawn Drive/Zoo Drive to the East. As a result of implementing the LA River Bikeway project, regional use of the bike and greenway trail would result in a decrease in annual VMT due to off-setting of vehicle trips by utilitarian and recreational patrons.

### Next Steps

While the LA River Bikeway and Greenway is an example of providing attractive non-vehicle alternatives through infrastructure improvements, the future bikeway would be better leveraged and the bikeway would be higher utilized if it was implemented with other public policies that made driving vehicles a less attractive option than it is today.

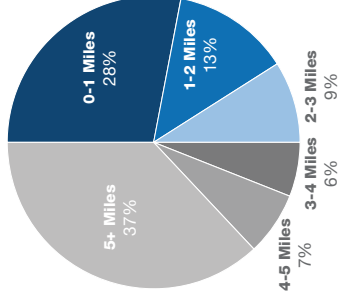


Figure 7.4.1 Percent of Household Trips by Distance

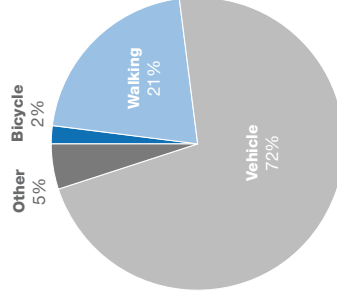


Figure 7.4.2 Share of Bicycle, Walking, and Vehicle Trips Less than 3 Miles

TABLE 7.4.1: SUMMARY OF ANNUAL VMT REDUCTION

TRIP TYPE	NEW ANNUAL BICYCLE TRIPS	NEW ANNUAL BICYCLE MILES	ANNUAL VMT REDUCTION
Utilitarian	174,520	2,707,386	254,614
Recreational	409,291	415,358	1,405,013
<b>Total</b>	<b>583,811</b>	<b>3,122,744</b>	<b>1,659,627</b>

Source: KOA Corporation, 2017



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7.5 GREENHOUSE GAS REDUCTION

Overview

Greenhouse gases (GHG) are a class of air pollutants that are generally understood to contribute to climate change through a natural atmospheric mechanism referred to as the “greenhouse effect.” Simply put, the greenhouse effect characterizes the Earth’s atmosphere as a paneled greenhouse that allows heat energy to enter but is capable of trapping some of that energy and preventing it from emanating back out into space. The gases in the atmosphere that contribute to this natural phenomenon are GHGs, the most common of which include carbon dioxide (CO2), methane (CH4) and nitrous oxide (N2O). Emissions of these chemicals are stringently regulated in California, as the State has undertaken a firm commitment to mitigating the effects of climate change resulting from GHG emissions. Primary sources of GHG emissions in California in 2014 are shown in Figure 7.5.1.

In addition to CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, GHGs include hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and water vapor. Of all the GHGs, CO<sub>2</sub> is the most abundant pollutant that contributes to climate change through fossil fuel combustion. In 2014, CO<sub>2</sub> emissions constituted approximately 84 percent of statewide GHG emissions, with approximately 73 percent of the total resulting from fossil fuel combustion and approximately 11 percent from other processes.<sup>1</sup> The other GHGs are less abundant but have higher global warming potential than CO<sub>2</sub>. To account for this higher potential, emissions of other GHGs are frequently expressed in the equivalent mass of CO<sub>2</sub>, denoted as CO<sub>2</sub>e, which is calculated by multiplying mass quantities of a GHG compound by its Global Warming Potential (GWP) value. Table 7.5.1 displays the GWP for the three most common GHG pollutants. This FSR focuses on emissions of CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O as they represent a vast majority of GHG emissions from mobile sources and fossil fuel combustion within California.

In September 2006, the California Global Warming Solutions Act of 2006, also known as Assembly Bill (AB) 32, was signed into law. AB 32 focuses on reducing GHG emissions in California and requires the California Air Resources Board (CARB) to adopt rules and regulations

that would achieve GHG emissions equivalent to statewide levels in 1990 by 2020. CARB initially determined that the total Statewide aggregated GHG 1990 emissions level and 2020 emissions limit was 427 million metric tons of CO<sub>2</sub>e. The 2020 target reduction was estimated to be 174 million metric tons of CO<sub>2</sub>e throughout California, with regional jurisdiction falling under individual Metropolitan Planning Organizations (MPOs). Additionally, California recently passed Senate Bill 32 (SB 32) in September 2016, which extends AB 32 and requires emissions to be reduced by 40% of 1990 levels by 2030.

To enhance California’s ability to reach the AB 32 goals, the Sustainable Communities and Climate Protection Act of 2008 (SB 375) was enacted to reduce GHG emissions from automobiles and light trucks through integrated transportation, land use, housing and environmental planning. Under the law, the regional MPO for the project

area, the Southern California Association of Governments (SCAG), is tasked with developing a Sustainable Communities Strategy (SCS) – a newly required element of the Regional Transportation Plan (RTP) – that provides a plan for meeting emissions reduction targets set forth by the California Air Resources Board (CARB). In April 2017, SCAG submitted a memo to the CARB updating its regional GHG target recommendation. The MPOs new target is for the region to achieve an 18 percent reduction in per capita GHG emissions by 2035 relative to the 2005 emissions inventory, which is more aggressive than the 13 percent reduction required by SB 375.

Methodology

One critical element of GHG emissions reductions efforts is reducing regional VMT. Table 7.5.2 presents the results of the regional transportation analysis to determine the

TABLE 7.5.1: GLOBAL WARMING POTENTIAL FOR SELECTED GREENHOUSE GASES

POLLUTANT	LIFETIME (YEARS)	GLOBAL WARMING POTENTIAL (20-YEAR)	GLOBAL WARMING POTENTIAL (100-YEAR)
Carbon Dioxide (CO <sub>2</sub> )	100	1	1
Methane (CH <sub>4</sub> )	12	84	28
Nitrous Oxide (N <sub>2</sub> O)	121	264	265

Source: California EPA Air Resources Board, First Update to the Climate Change Scoping Plan, May 2014

TABLE 7.5.2: SUMMARY OF MODE SHIFT IN REGIONAL TRANSPORTATION

TRIP TYPE	NEW ANNUAL BICYCLE TRIPS	NEW ANNUAL BICYCLE MILES	ANNUAL VMT REDUCTION
Utilitarian	174,520	2,707,386	254,614
Recreational	409,291	415,358	1,405,013
Total	583,811	3,122,744	1,659,627

Source: KOA Corporation, 2017

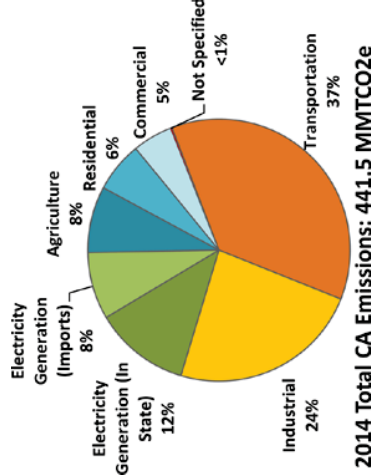


Figure 7.5.1 Sources of GHG Emissions in California  
Source: California EPA Air Resources Board

at 40 mph, and therefore using 40 mph produces a conservative estimate in the incremental reduction in regional GHG emissions. If average speeds are lower in 2035 upon project implementation, the GHG emissions reductions would be even greater than the quantities estimated in this analysis.

### Analysis

Table 7.5.3 presents the results of the GHG emissions analysis using the weighted-average emission factor for each pollutant. N<sub>2</sub>O emissions were calculated as a subset of NO<sub>x</sub> emissions using the recommended CARB methodology provided with the EMFAC model documentation. The GHG emissions assessment determined that implementation of the proposed LA River Bikeway project would decrease annual GHG emissions in the City of Los Angeles by approximately 119,833 MTCO<sub>2</sub>e. Encouraging active transportation and reducing VMT are fundamental tenets of regional and state efforts to minimize the materialized effects of climate change and improve public and environmental health. Implementation of the LA River Bikeway project would be consistent with the goals of AB 32, SB 375, and the 2016 - 2040 RTP/SCS.

### Next Steps

California's Cap and Trade Program was established to enforce the requirements created by AB 32 - California

Global Warming Solutions Act of 2006 - that requires California to return to 1990 emission levels by 2020. Revenues collected from the Cap and Trade Program are deposited into the Greenhouse Gas Reduction Fund (GGRF). Funds from the GGRF are appropriated by the Legislature to State agencies implementing GHG emission reduction programs and projects. Individual elements and/or segments of the LA River Valley Bikeway and Greenway may qualify for funding from the following agencies and programs from the GGRF:

- Caltrans - Active Transportation Program
- Strategic Growth Council - Active Transportation/Complete Streets, Local Planning and Implementation
- Air Resources Board - Pilot Projects in Disadvantaged Communities
- Department of Water Resources - Water Conservation
- California Natural Resources Agency - Urban Greening Program

### Sources

<sup>1</sup> California Air Resources Board, Greenhouse Gas Emission Inventory, 2016.

<sup>2</sup> California Climate Investments, <http://www.caclimateinvestments.ca.gov/>

**TABLE 7.5.3: SUMMARY OF ANNUAL GHG EMISSIONS REDUCTIONS IN 2035**

POLLUTANT	ANNUAL GHG EMISSIONS REDUCTIONS (METRIC TONS CO <sub>2</sub> e)
Carbon Dioxide (CO <sub>2</sub> )	119,633
Methane (CH <sub>4</sub> )	29
Nitrous Oxide (N <sub>2</sub> O)	171
<b>Total</b>	<b>119,833</b>

Source: TAHA, 2017



## 7.6 PUBLIC HEALTH BENEFITS

### Overview

#### Air Quality

Despite advances in transportation technology, alterations to transportation infrastructure, and public policies aimed at reducing VMT during the past several decades, the Los Angeles Region still suffers from the worst air-quality in the United States.<sup>1</sup> Exposure to air pollution causes adverse health effects in the community. Known health risks resulting from air pollution include:

- Asthma
- Lung Cancer
- Wheezing, coughing, and sShortness of breath
- Cardiovascular harm
- Susceptibility to infections
- Reproductive and development harm
- Premature death

Reducing emissions of air pollutants consequently reduces the likelihood that an individual contracts an adverse health effect as a result of exposure. A decrease in the frequency of adverse health effects incidences will ultimately lower the burden of cost on society through health care savings. In 2011, the American Lung Association of California commissioned research to determine the correlation between reducing emissions of air pollutants and the frequency of certain health conditions known to be associated with exposure to specific air pollutants. Table 7.6.1 presents the results of the American Lung Association's study. The values shown represent the number of incidences of individuals affected by a specific health endpoint per ton of annual  $PM_{2.5}$  and  $PM_{2.5}$ -precursor ( $VOC$ ,  $NO_x$ ,  $SO_x$ ) emissions in the scenario year 2035, as well as offset  $O_3$  exposure represented by the sum of  $VOC$  and  $NO_x$  emissions.

#### Active Transportation

Public health professionals are paying an increasing amount of attention to the consequences of sedentary lifestyle on public health, further finding that prevailing transportation and land use patterns present barriers to healthy travel options.<sup>2</sup> Health experts maintain that thirty minutes a day of utilitarian bicycling (replacing

short distance trips of five miles or less) constitutes the adequate level of 'moderate intensity' of activity shown to produce the optimal health benefits that include lower blood pressure as well as lower incidents of obesity, diabetes, heart disease and other diseases.<sup>3</sup> From data that is available, modest increases in bicycling resulted in an 11 percent reduction in heart disease, and a study in Copenhagen found a 28 percent reduction in mortality.<sup>4</sup> Increases in bicycling have also shown to improve mental health, alleviate symptoms of depression and anxiety, improve cognitive function of school aged children, prevent or slow cognitive decline in older adults, as well as contribute to an overall sense of well being.<sup>5</sup>

According to the County Health Rankings & Roadmaps program,<sup>6</sup> 19 percent of the population in Los Angeles County lacks the recommended amount of physical activity while 22 percent are classified as obese.<sup>7</sup> As stated above, the implementation of the LA River Bikeway project will encourage higher bicycle ridership from portions of the population that are currently reluctant to bicycle without adequate facilities, thereby increasing access to healthy activities and fostering healthy outcomes for a larger section of the population. The Los Angeles County Bicycle Plan indicates that the total number of bicycle commuters could increase from the current estimate of 2,612 to 12,021 by the year 2030 in the Metro Planning Area.<sup>8</sup> SCAG estimates that a replacement of as much as two-thirds of vehicle trips of three miles or less with other bicycle and pedestrian travel modes could result in a reduction of 7.8 million vehicle miles by 2020 and 20.4 million vehicle miles by 2035.<sup>9</sup> Short trip distances replaced by bicycle trips could make a significant impact on lowering criteria air pollutants such as ozone ( $O_3$ ) precursors in urban areas.

#### Methodology

The CARB states that for each 1 percent replacement of automobile trips with bicycle trips in the South Coast region results in a reduction of 1,027,214 VMT, which corresponds to a reduction of 1.38 combined tons of volatile organic compounds ( $VOC$ ) and  $NO_x$ , 0.25 tons

of respirable particulate matter of diameter less than 10 microns ( $PM_{10}$ ), and 7.78 tons of carbon monoxide ( $CO$ ) in the year 2010.<sup>10</sup> Therefore, increasing bicycle ridership would result in beneficial reductions in criteria air pollutant emissions. To provide a quantitative demonstration of the benefits of implementing the LA River Bikeway project, the annual VMT reduction year 2035. Emissions of  $PM_{2.5}$  that were considered in

**TABLE 7.6.1: SUMMARY OF ESTIMATED ANNUAL CASE INCIDENCE PER TON OF AIR POLLUTANT EMITTED**

HEALTH ENDPOINT	$PM_{2.5}$	$VOC$	$NO_x$	$SO_x$	$O_3$ ( $VOC+NO_x$ )
Premature Mortality (Pope & Laden)	0.07631	0.00078	0.00594	0.00619	0.00018
Chronic Bronchitis	0.3417	0.00035	0.00264	0.00276	-
Acute Myocardial Infarction	0.07272	0.00076	0.00565	0.00609	-
Hospitalization: Respiratory	0.00882	0.00009	0.00069	0.00072	0.00087
Hospitalization: Cardiovascular	0.01982	0.00021	0.00154	0.00165	-
ER Visits (respiratory related)	0.01754	0.00018	0.00135	0.00142	0.00027
Acute Bronchitis	0.0875	0.00089	0.00671	0.00709	-
Work Loss Days	6.48295	0.06564	0.50044	0.51187	-
School Loss Days	-	-	-	-	0.13765
Asthma Exacerbation	0.95418	0.00969	0.07339	0.07681	0.19102
Acute Respiratory Symptoms	37.23382	0.38744	2.95034	3.02214	-
Lower Respiratory Symptoms	1.04022	0.0106	0.07988	0.08416	-
Upper Respiratory Symptoms	0.78766	0.0801	0.06068	0.06357	-

Source: American Lung Association, 2011

**TABLE 7.6.2: SUMMARY OF ANNUAL CRITERIA POLLUTANT EMISSIONS REDUCTIONS IN 2035**

POLLUTANT	ANNUAL EMISSIONS REDUCTION (POUNDS)	ANNUAL EMISSIONS REDUCTION (TONS)
Fine Particulate Matter ( $PM_{2.5}$ )	30,620	15.3
Volatile Organic Compounds ( $VOC$ )	6,361	3.2
Nitrogen Oxides ( $NO_x$ )	34,361	17.2
Sulfur Oxides ( $SO_x$ )	2,640	1.3
Carbon Monoxide ( $CO$ )	548,202	274.1

Source: TAHA, 2017

the analysis included those from vehicle exhaust as well as brake wear and tire wear on roadways. Table 7.6.2 presents the annual emissions reductions that would result from transportation mode shift with the accessibility of the expanded bikeway network.

### Analysis

The case incidence frequencies displayed in Table 7.6.1 were utilized in conjunction with estimated annual air pollutant emissions shown in Table 7.6.2 to evaluate the public health benefits of implementing the LA River Bikeway project. The public health benefits resulting from LA River Bikeway implementation were characterized by the number of health endpoint incidences that would be prevented or avoided by reducing the regional VMT and associated mobile source emissions. Table 7.6.3 presents the number of incidences that would be avoided with implementation of the proposed LA River Bikeway project, calculated as the product of the annual emissions in tons shown in Table 7.6.2 and the frequency rates presented in Table 7.6.1. The column on the far right of Table 7.6.3 presents the sum of each avoided incidence as a result of reducing emissions of all pollutants.

The results in Table 7.6.3 suggest that VMT reductions associated with implementation of the proposed LA River Bikeway project would annually prevent: 1.3 cases of premature mortality; 0.6 cases of chronic bronchitis; 1.2 cases of acute myocardial infarction; 0.2 cases of hospitalization due to respiratory complications; 0.3 cases of emergency room visits; 1.5 cases of acute bronchitis; 107.7 lost work days; 2.8 lost school days; 19.9 cases of asthma exacerbation; 641.3 cases of acute respiratory symptoms; 17.4 cases of lower respiratory symptoms; and 13.2 cases of upper respiratory symptoms. The expansion of the bikeway network would generally improve regional air quality and reduce the frequency of adverse health effects associated with exposure to air pollution.

In addition to health effects incidence, the American Lung Association of California evaluated the burden of cost to society per ton of air pollutant emitted. The study estimated the cost to society in the scenario year 2035 using 2010

dollars as a benchmark. The determined costs were based on the monetary burden placed on the health care system as well as the social cost of GHG emissions as they present challenges to sustainability efforts and energy efficiency. Table 7.6.4 presents a summary of the monetary benefits of the proposed LA River Bikeway project resulting from the decrease in annual VMT. A separate column has been provided to clarify the units for each type of emission. It should be noted that because 2010 dollars were used as the metric for the assessment, inflation since the time of study publication would cause the results of the analysis to be conservative relative to 2017 dollars. Ultimately, the analysis determined that implementation of the LA River Bikeway project would decrease annual public health and energy costs within the SCAG region by approximately \$17,326,887.

### Sources

<sup>1</sup> <http://www.stateoftheario.org/2013/city-rankings/most-polluted-cities.html>

<sup>2</sup> Designing Healthy Communities website, <http://designinghealthycommunities.org/the-american-way-of-unhealthy-living/>, accessed on May 23, 2017.

<sup>3</sup> Garrard, Jan., Chris Rissel, and Adrien Bauman. 2012. Health Benefits of Cycling, a chapter in City Cycling, edited by John Pucher and Ralph Buehler.

<sup>4,5,7</sup> Ibid.

<sup>6</sup> A collaboration between the Robert Wood Johnson Foundation and the University of Wisconsin Population Health Institute, County Health Rankings & Roadmaps program website, <http://www.countyhealthrankings.org/app/california/2012/los-angeles/county/1/overall>, accessed on May 23, 2017.

<sup>8</sup> The County of Los Angeles 2012 Bicycle Master Plan <http://dpw.lacounty.gov/pd/bikepath/bikeplan/docs/bmp/Appendix%20B.pdf>, Accessed May 23, 2017.

<sup>9</sup> SCAG 2012 RTP/SCS, Active Transportation, Page 42

<sup>10</sup> CARB Website, <http://www.arb.ca.gov/planning/tsaq/bicycle/factsht.htm>, accessed on May 24, 2017.

HEALTH ENDPOINT	PM <sub>2.5</sub>	VOC	NO <sub>x</sub>	SO <sub>x</sub>	O <sub>3</sub>	TOTAL
Premature Mortality (Pope & Laden)	1.1683	0.0025	0.1021	0.0082	0.0037	1.3
Chronic Bronchitis	0.5231	0.0011	0.0454	0.0036	-	0.6
Acute Myocardial Infarction	1.1133	0.0024	0.0971	0.0080	-	1.2
Hospitalization: Respiratory	0.1350	0.0003	0.0119	0.0010	0.0177	0.2
Hospitalization: Cardiovascular	0.3034	0.0007	0.0265	0.0022	-	0.3
ER Visits (respiratory related)	0.2685	0.0006	0.0232	0.0019	0.0055	0.3
Acute Bronchitis	1.3396	0.0028	0.1153	0.0094	-	1.5
Work Loss Days	99.2542	0.2088	7.5979	0.6756	-	107.7
School Loss Days	-	-	-	-	2.8027	2.8
Asthma Exacerbation	14.6085	0.0308	1.2609	0.1014	3.8894	19.9
Acute Respiratory Symptoms	585.361	1.2323	50.6888	3.9888	-	641.3
Lower Respiratory Symptoms	15.9258	0.0337	1.3724	0.1111	-	17.4
Upper Respiratory Symptoms	12.0591	0.0255	1.0424	0.0839	-	13.2

Source: American Lung Association, 2011

POLLUTANT	VALUE	UNIT (2010 \$)	LA RIVER BIKEWAY REDUCTION	LA RIVER BIKEWAY SAVINGS (2010 \$)
GHG	37.9	per MTCO <sub>2</sub> e	119,833	\$ 4,542,486
PM <sub>2.5</sub>	756,413	per Ton Direct PM <sub>2.5</sub>	15.3	\$ 11,580,707
Indirect PM: VOC	7,778	per Ton VOC	3.2	\$ 24,738
Indirect PM: NO <sub>x</sub>	58,841	per Ton NO <sub>x</sub>	17.2	\$ 1,010,928
Indirect PM: SO <sub>x</sub>	61,386	per Ton SO <sub>x</sub>	1.3	\$ 81,020
Ozone: Health	1,648	per Ton VOC + NO <sub>x</sub>	20.4	\$ 33,555
Ozone: Agriculture / Forests	318	per Ton VOC + NO <sub>x</sub>	20.4	\$ 6,475
Visibility	1,270	per Ton PM + NO <sub>x</sub> + SO <sub>x</sub> + VOC	37.0	\$ 46,979
<b>Total</b>	-	-	-	<b>\$ 17,326,888</b>

Source: TAHA, 2017

## 7.7 DISADVANTAGED COMMUNITY VICINITY

### Overview

Disadvantaged communities are communities designated by the California Environmental Protection Agency (CalEPA), pursuant to Senate Bill 535 - De Leon, 2012 (SB 535). Disadvantaged communities are characterized as communities that are disproportionately impacted by various sources of pollution and whose population are often especially vulnerable to pollution effects. Because of the disproportionate and cumulative impact upon a vulnerable population, disadvantaged communities disproportionately suffer from the public health issues described in Section 7.6. Furthermore, disadvantaged communities also suffer from cumulative impacts, meaning exposure from all sources of pollution in a geographic area,<sup>1</sup> which increases the severity and risk of public health issues more than exposure from a single pollutant.

### Methodology

Disadvantaged communities are based on the California Communities Environmental Health Screening Tool (CalEnviroScreen) developed by the Office of Environmental Health Hazard Assessment (OEHHA). CalEnviroScreen was first released by CalEPA in October 2014, after gathering public input for measuring disadvantaged communities.

CalEnviroScreen combines environmental, health and socioeconomic data at the census tract level to compare communities. Overall CalEnviroScreen scores are calculated by combining the scores for two groups of indicators: pollution burden and population characteristics, which is used to rank all California communities. Pollution burden represents the potential exposures to pollutants and the adverse environmental conditions caused by pollution, which include:

#### EXPOSURE INDICATORS

- Air quality – Ozone concentrations
- Air quality – Particulate matter concentrations
- Diesel particulate matter emissions
- Drinking water contaminants
- Pesticide use

- Toxic releases from facilities
- Traffic density

#### ENVIRONMENTAL EFFECT INDICATORS

- Cleanup sites
- Groundwater threats
- Hazardous waste generators and facilities
- Impaired water bodies
- Solid waste sites and facilities

Population Characteristics indicators, which represent biological traits, health status, or community characteristics that can result in increased vulnerability to pollution include:

#### SENSITIVE POPULATION INDICATORS

- Age – Children and elderly
- Asthma - Emergency department visits
- Low birth weight infants

#### SOCIOECONOMIC FACTOR INDICATORS

- Educational Attainment
- Linguistic isolation
- Poverty
- Unemployment

CalEPA defines disadvantaged communities as those whose combined score is within the highest 25th percentile.

An analysis of disadvantaged communities within the project vicinity was completed by utilizing available CalEnviroScreen data. The analysis focused within two miles of the Los Angeles River. Two miles is the maximum distance allowed for infrastructure improvements from schools under the Safe Routes to School program and provides an appropriate distance from which a community can still receive benefits.

### Analysis

#### Western Reach

There are disadvantaged communities spread across the full length of the western reach. While the majority of disadvantaged communities are located north of the LA River and future bikeway, there are two disadvantaged census tracts south of the LA River: one along US-101 Freeway and the other adjacent to the LA River west of White Oak Avenue. Furthermore, disadvantaged communities are located adjacent to the north side of the LA River and Sepulveda Basin from Aliso Canyon Wash to I-405 Freeway. The short-term alternative alignment for segment 04 passes through disadvantaged communities along a portion of the proposed route: west of I-405 and north of Burbank Boulevard.

#### Central Reach

All of the disadvantaged communities within the central reach are located north of the LA River. Within the two-mile buffer of the LA River, disadvantaged communities are concentrated along I-405 and north of Burbank Boulevard. A portion of the segment 04 interim alignment along the Orange Line Bikeway and Noble Avenue are located within disadvantaged communities.

#### Eastern Reach

Similar to the central reach, all of the disadvantaged communities in the eastern reach are located north of the LA River. The interim alignment along Vineland Avenue and the Tujunga Wash passes through a disadvantaged community. The largest concentration of disadvantaged communities north of the western reach is along SR-170, along I-5 and adjacent to Burbank Airport. The largest concentration of disadvantaged communities within the two mile buffer of the LA River in the western reach is located along I-5, but within in the City of Burbank.

### Next Steps

Disadvantaged communities in California are specifically targeted for investment of proceeds from the California's cap-and-trade program, which is part of California's compliance with Assembly Bill 32 - Global Warming Solutions Act 2006 (AB 32). Funds received from the cap-and-trade program are deposited into the Greenhouse Gas Reduction Fund (GGRF) and appropriated by the

State Legislature for programs that further reduce emissions of GHG. SB 535 directed that at least 25% of the proceeds go to projects that provide a benefit to disadvantaged communities and at least 10% of the funds go to projects located within those communities.

SB 535 has since been expanded by Assembly Bill 1550 - Gomez, 2016 (AB 1550), which modified the investment minimums to disadvantaged communities. AB 1550 requires at least 25% of funds go to projects within and benefiting disadvantaged communities and at least an additional 10% is for low-income households or communities. As of Spring 2017, the State Legislature is debating new legislation to extend the cap-and-trade program beyond 2020, which may impact investment requirements benefiting disadvantaged communities.

There are a few areas of the LA River Bikeway project that are located within a disadvantaged community and would qualify for the 25% of GGRF earmarked for disadvantaged communities. Areas within disadvantaged communities include all of segment 01 and parts of the interim alignments for segments 04, and 07.

Potential agencies and programs from the GGRF that the LA River Bikeway project would qualify for include:

- Caltrans - Active Transportation Program
- Strategic Growth Council - Active Transportation/Complete Streets, Local Planning and Implementation
- Air Resources Board - Pilot Projects in Disadvantaged Communities
- Department of Water Resources - Water Conservation
- California Natural Resources Agency - Urban Greening Program

### Sources

<sup>1</sup> Office of Environmental Health Hazard Assessment, <https://oehha.ca.gov/calenviroscreen>



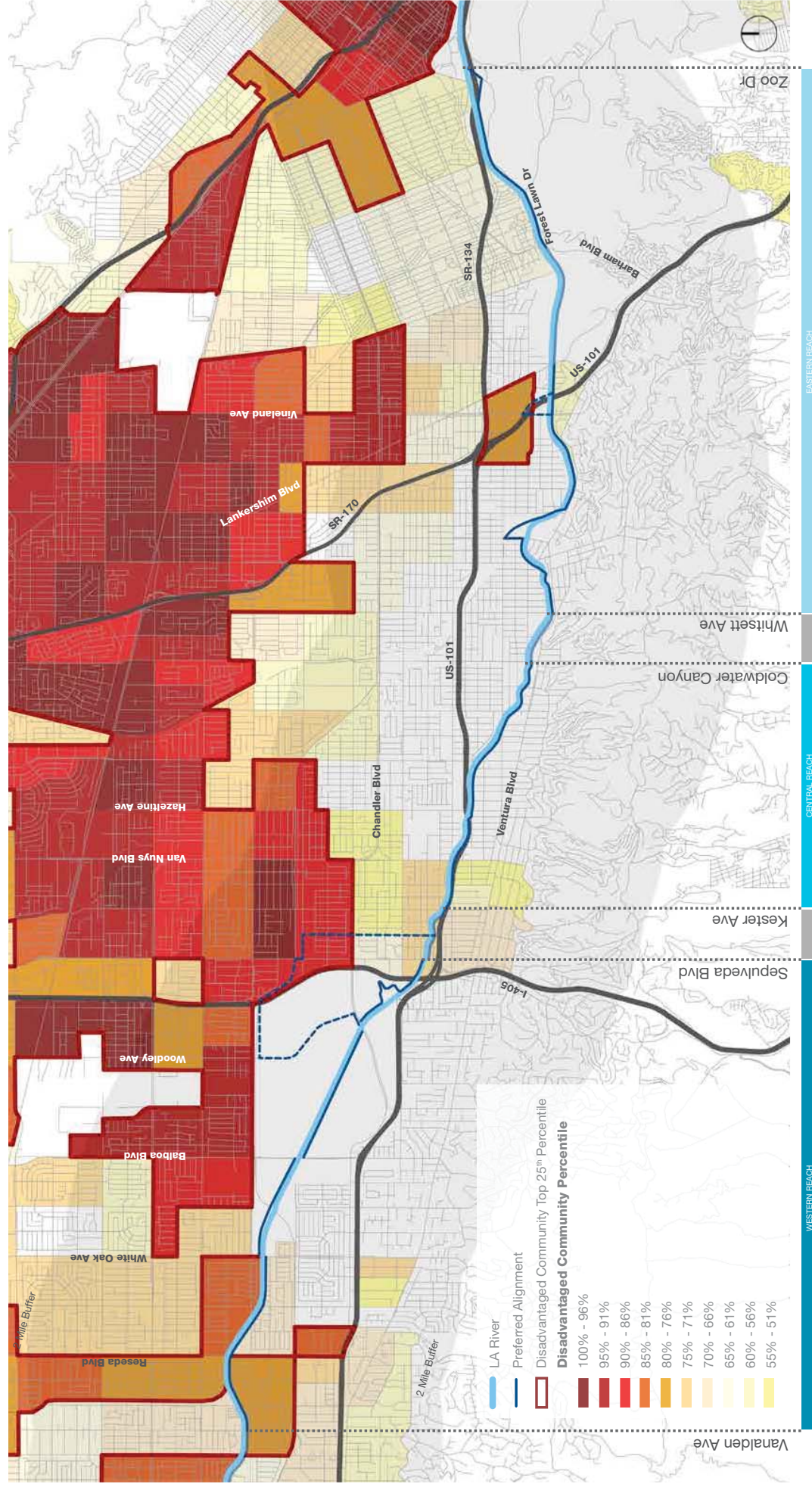


Figure 7.7.1 Disadvantaged Communities by Census Tract

## 7.8 WATER QUALITY AND INFILTRATION BENEFITS

### Overview

Stormwater mitigation can be achieved through several different types of structural best management practices (BMP) that capture or manage stormwater, including bioswales. Some benefits of bioswales include<sup>1</sup>:

- Protects local waterways from stormwater pollutants
- Diverts stormwater from overburdened storm sewer systems
- Creates habitat for wildlife
- Reduces non-point pollution by filtering stormwater
- Reduces standing water (puddles) that can attract mosquitoes
- Creates colorful gardens with a variety of flowers and plants year round
- Requires little maintenance after establishment

#### City of Los Angeles' Low Impact Design Manual

The first priority according to the City of Los Angeles' Low Impact Design (LID) Manual are BMPs that infiltrate stormwater, which reduces the volume of water entering the medium and large municipal separate storm sewer systems (MS4) and therefore reduces the pollutants that enter the MS4. Infiltration BMPs also provide the benefit of recharging groundwater. However, infiltration BMPs are not feasible at all locations. Infiltration BMPs require soils with high permeability. They cannot be placed adjacent to building foundations, walls, or other locations where additional groundwater could

present adverse structural impacts. A pure infiltration BMP located adjacent to river channel walls on the LA River could present such an adverse impact even if soil permeability allowed these BMPs.

Capture and use BMPs like cisterns have second priority according to the LID Manual, but these are most commonly designed for concepts involving buildings and habitation, where captured stormwater could offset potable water use. These types of BMPs are less desirable for the LA River Bikeway project.

The third priority for structural BMPs according to the LID Manual is high efficiency bioinfiltration BMPs. These are landscaped features that collect stormwater and treat it through biological or physical processes before discharging the stormwater.

One type of high efficiency bioinfiltration BMP is the bioinfiltration facility. Bioinfiltration facilities are designed for partial infiltration of runoff and partial biotreatment, according to the LID manual. These facilities have a layer of plants and soil where pollutants can be adsorbed and biodegraded as stormwater percolates through the soil medium. Then the stormwater fills a reservoir filled with materials with high porosity like gravel. This allows some stormwater to infiltrate into the surrounding soil. If stormwater exceeds the flow rate that can infiltrate into the ground, a perforated pipe underdrain carries the treated stormwater to an outlet. Bioinfiltration facilities were chosen as the concept BMP type for the LA River.

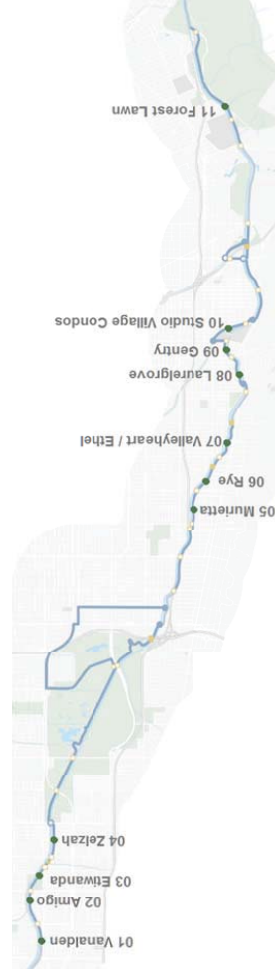


Figure 7.7.1 Location of Street-End Bioinfiltration Facilities

**TABLE 7.7.1: STREET END BIOINFILTRATION BMP SIZING**

BIO INFILTRATION FACILITY	DRAINAGE AREA (AC)	85 <sup>TH</sup> PERCENTILE DEPTH (IN)	IMPERVIOUS AREA FRACTION	DESIGN CAPTURE VOLUME (CF)	DESIGN INFILTRATING SURFACE AREA (SF)
01 Vanalden	3.11	1.06	0.86	14,145	6,656
02 Amigo	41.26	1.08	0.42	105,788	49,783
03 Etiwanda	20.91	1.09	0.10	22,338	10,512
04 Zelzah	3.45	1.11	0.42	9,091	4,278
05 Murietta	9.33	1.18	0.76	42,256	19,885
06 Rye	4.96	1.16	0.86	24,687	11,617
07 Valleyheart / Ethel	2.48	1.16	0.91	12,970	6,104
08 Laurelgrove	73.98	1.13	0.42	198,435	93,381
09 Gentry	9.88	1.12	0.42	26,270	12,362
10 Studio Village	16.39	1.11	0.86	78,060	36,734
11 Forest Lawn	13.26	1.03	0.29	24,690	11,619

Source: CWE, 2017

**TABLE 7.7.2: FEASIBLE AREAS FOR BIOINFILTRATION**

BIO INFILTRATION FACILITY	DESIGN INFILTRATING SURFACE AREA (SF)	APPROX. FEASIBLE BIOINFILTRATION AREA (SF)	PERCENT FEASIBLE
01 Vanalden	6,656	1,186	18%
02 Amigo	49,783	1,628	3%
03 Etiwanda	10,512	10,595	101%
04 Zelzah	4,278	726	17%
05 Murietta	19,885	7,938	40%
06 Rye	11,617	3,300	28%
07 Valleyheart / Ethel	6,104	6,132	100%
08 Laurelgrove	93,381	32,340	35%
09 Gentry	12,362	16,400	133%
10 Studio Village	36,734	17,032	46%
11 Forest Lawn	11,619	16,500	142%

Source: CWE, 2017



## Methodology

For the LA River Bikeway concept BMPs, eleven areas were chosen where it would be feasible to capture stormwater from adjacent City streets and treat it through bioinfiltration facilities. In addition, an analysis is included for a linear bioinfiltration facility that would be placed along the bikeway where feasible to treat stormwater runoff from the bikeway itself.

### Street-end Bioinfiltration BMPs

Bioinfiltration facilities were sized according to the methodology used in the City's LID Manual. The locations of the street end bioinfiltration facilities are shown in Figure 7.7.1. Properties of the watersheds draining to each street end bioinfiltration facility are listed in Table 7.7.1. The 85th percentile rain depth is the amount of rainfall that would be exceeded in only 15% of storm events and was acquired from the Los Angeles County Hydrology Map. The impervious area information was gathered from typical values for land use types as listed in a dataset from the Southern California Association of Governments (SCAG) for data from 2005.

Table 7.7.2 shows the drainage calculation values for the facilities. The design capture volume (DCV) is the volume of water that would be expected to be produced in an 85th-percentile rainfall event that should be captured by each bioinfiltration facility. The DCV is calculated by multiplying the 85th-percentile rain depth by 1.5 and by the catchment area, which is defined by the following formula from the LID Manual:

$$\text{Catchment area} = (\text{Impervious area} \times 0.9) + [(\text{pervious and undeveloped area}) \times 0.1]$$

The design infiltrating surface area dictates how much area the bioinfiltration facility must cover to capture the entire DCV in a three hour time period. It is calculated by dividing the DCV by the depth of water that can pass through it in three hours, which is a function of ponding depth and permeability of the soil filter medium.

Due to geometric constraints along the site, it is not always feasible to construct a bioinfiltration feature

large enough to capture the entire DCV. However a bioinfiltration feature that only captures a fraction of the DCV still provides stormwater recharge and pollutant filtration benefits. Table 7.7.2 lists the amount of area that would be feasible in which to place a bioinfiltration feature and calculates the percentage of design area that would be feasible under site constraints. The entire DCV can be captured by concept bioinfiltration features at Etiwanda, Valleyheart/Ethel, Gentry and Forest Lawn. At other locations, only a fraction of the DCV can be captured.

### Linear Bioinfiltration BMPs

Linear bioinfiltration features are designed as bioinfiltration strips with an 18-inch width along the paved part of the bikeway. Their function is to provide stormwater mitigation for the bikeway itself. The list of 22 separate sections of linear bioinfiltration features are listed in Table 7.7.3, sorted by LA River bikeway gap section and segment.

## Analysis

### Groundwater Recharge

The amount of water that can be used to recharge the aquifer on an annual basis was estimated using some basic assumptions. The first assumption is that bioinfiltration BMPs can infiltrate the entire stormwater DCV. The second assumption is that the 85th-percentile storm is met or exceeded in about ten rainfall events per year on average, so the total water quality volume for each bioinfiltration feature in a given year can be estimated as the 85th-percentile rain depth multiplied by ten. The third assumption is that the volume of water that each bioinfiltration feature captures in a year is linearly proportional to its feasible percentage of design area.

Given these assumptions, the annual volume of water captured by the eleven concept street end bioinfiltration BMPs and the concept linear bioinfiltration BMP was calculated as shown in Table 7.7.4.

The annual volume of water captured was calculated as the percent feasible multiplied by the assumed annual

water quality volume. For bioinfiltration BMPs where the feasible area was larger than the area necessary to capture the entire DCV, the percent feasible was rounded down to 100%.

For the linear bioinfiltration BMP, the 85th-percentile rain was assumed everywhere to be the highest value, and the width was sized to capture the entire DCV based on that rainfall. The approximate length of bikeway along which

a bioinfiltration BMP can be placed is approximately 45,000 feet, and when multiplied by the paved bicycle lane width of 13 feet, this gives a total drainage area of 13.46 acres.

The total estimated annual volume of stormwater that could be captured by the concept bioinfiltration BMPs is 93.72 acre-feet. The largest concept street end bioinfiltration BMPs at Laurelgrove, Etiwanda, Forest Lawn, and Gentry together capture 63.97 acre-feet of

TABLE 7.7.3: LINEAR BIOINFILTRATION BMP FEASIBLE LOCATIONS

LINEAR BIOINF. ID	STATION FROM	STATION TO	GAP SECTION	BIKEWAY SEGMENT	FEASIBLE LENGTH (FT)
1	100+00.00	113+15.94	C - Western Reach	01 - Vanalden to White Oak	1,316
2	114+24.97	127+80.42	C - Western Reach	01 - Vanalden to White Oak	1,355
3	128+15.51	133+20.51	C - Western Reach	01 - Vanalden to White Oak	505
4	133+67.88	140+67.94	C - Western Reach	01 - Vanalden to White Oak	701
5	156+87.77	162+86.74	C - Western Reach	01 - Vanalden to White Oak	599
6	250+89.22	305+00.00	C - Western Reach	02 - White Oak to Balboa	5,411
7	307+00.00	390+79.61	C - Western Reach	03 - Balboa to Burbank	8,380
8	392+55.78	402+62.17	C - Western Reach	04 - Burbank to Sepulveda	1,006
9	404+66.07	443+23.37	E - Central Reach	04 - Burbank to Sepulveda	3,857
10	550+00.00	558+00.00	E - Central Reach	05 - Kester to Hazelton	800
11	600+676.25	622+00.00	E - Central Reach	06 - Hazelton to Woodman	2,133
12	633+00.00	642+40.00	E - Central Reach	07 - Woodman to Coldwater	940
13	655+00.00	658+65.78	E - Central Reach	07 - Woodman to Coldwater	366
14	671+00.00	674+00.00	E - Central Reach	07 - Woodman to Coldwater	300
15	674+35.14	686+33.99	E - Central Reach	07 - Woodman to Coldwater	1,199
16	1000+12.65	1025+69.96	G - Eastern Reach	08 - Whitsett to Lankershim	2,557
17	1033+00.00	1055+00.00	G - Eastern Reach	08 - Whitsett to Lankershim	2,200
18	1057+42.00	1064+25.00	G - Eastern Reach	08 - Whitsett to Lankershim	683
19	1086+17.26	1082+00.00	G - Eastern Reach	08 - Whitsett to Lankershim	1,583
20	1158+00.00	1168+97.00	G - Eastern Reach	09 - Barham to Forest Lawn	1,098
21	1170+00.00	1245+17.25	G - Eastern Reach	09 - Barham to Forest Lawn	7,517
22	1253+00.00	1259+01.25	G - Eastern Reach	09 - Barham to Forest Lawn	601

Source: CWE, 2017



stormwater runoff per year, which is 68% of the total estimated feasible volume.

Table 7.7.5, Table 7.7.6, and Table 7.7.7 break down the quantity of groundwater recharge by bikeway segment and by gap section.

#### Pollutant Loading

Bioinfiltration BMPs can filter out pollutants that would ordinarily enter the LA River at street ends and at other points of stormwater concentration. The total quantity of pollutants that can be filtered on an annual basis was estimated using certain assumptions. The first assumption was that pollutants in stormwater can be estimated using event mean concentrations (EMCs) that correlate pollutants to land use. The second was that different land uses convey water at a rate that is proportional to their area within that drainage area.

Seven pollutants were included in this analysis: trash, nitrate, total copper, total lead, total zinc, fecal coliform, and total suspended solids (TSS). Table 7.7.8, which comes from the User's Guide for the Structural BMP Prioritization and Analysis Tool (SBPAT) shows the average EMCs by land use for these pollutants broken down by land use. This data is based on data collected by the Los Angeles County Department of Public Works for the NPDES permit.

Table 7.7.8 was converted from concentrations in liters to concentrations in cubic feet to match with the units from Section 3.

To determine the quantity of pollutants removed by each bioinfiltration BMP, the amount of each land use type within each drainage area was determined using GIS. Land uses were based on a shapefile of SBPAT land uses. For each land use within each drainage area, the assumed annual water quality volume was calculated under the method described in Section 3. The annual water quality volume was multiplied by the percent of feasible area to determine an annual volume of water captured by each bioinfiltration BMP per land use type. This number was then multiplied by the relevant EMC for that land use type to determine the mass of pollutants

removed from stormwater runoff per land use type within the drainage area. This was then summed for each land use type to develop the numbers in Table 7.7.9.

The quantity of trash removed was determined by multiplying the EMC for trash by the acreage of the land type within the drainage area, and then multiplying by the percent feasible area.

The linear bioinfiltration feature was assumed to be placed on land corresponding with the SBPAT land use type for Improved Flood Waterways and Structures, which is "Open".

If the concept plans were executed, the bioinfiltration BMPs would remove approximately 55 cubic feet of trash, 120 kilograms of nitrate, 1.8 kilograms of copper, 0.8 kilograms of lead, 7.4 kilograms of zinc, 18,000 kilograms of total suspended solids, and 23 trillion fecal coliform bacteria colonies from the LA River.

The largest pollutant removal effects tends to correspond with the largest street-end bioinfiltration BMPs. The bioinfiltration BMP at Laurelgrove will remove more metals than any other BMPs, but the largest quantity of removed nitrate and total suspended solids are anticipated to from the BMP at Etiwanda.

Table 7.7.10, Table 7.7.11, and Table 7.7.12 sort the quantity of pollutants removed by bikeway segment and by gap section.

#### Sources

<sup>1</sup> Bioswales can improve water quality resources, Michigan State Extension, 10 June 2015.

**TABLE 7.7.4: ANNUAL GROUNDWATER RECHARGE PER BIOINFILTRATION BMP**

BIO INFILTRATION FACILITY	DRAINAGE AREA (AC)	85 <sup>TH</sup> PERCENTILE DEPTH (IN)	ASSUMED ANNUAL WATER QUALITY VOLUME (IN)	ASSUMED ANNUAL WATER QUALITY VOLUME (AC-FT)	PERCENT FEASIBLE	ANNUAL VOLUME OF WATER CAPTURED (AC-FT)
01 Vanalden	3.11	1.06	10.6	2.75	18%	0.50
02 Amigo	41.26	1.08	10.8	37.14	3%	1.11
03 Etiwanda	20.91	1.09	10.9	17.99	100%	17.99
04 Zelzah	3.45	1.11	11.1	3.19	17%	0.54
05 Murielita	9.33	1.18	11.8	9.17	40%	3.67
06 Rye	4.96	1.16	11.6	4.80	28%	1.34
07 Valleyheart / Ethel	2.48	1.16	11.6	2.38	100%	2.38
08 Laurelgrove	73.98	1.13	11.3	69.67	35%	24.38
09 Gentry	9.88	1.12	11.2	9.22	100%	9.22
10 Studio Village	16.39	1.11	11.1	15.15	46%	6.97
11 Forest Lawn	13.26	1.03	10.3	11.38	100%	11.38
Linear BMP	13.46	1.18	11.8	13.24	100%	13.24
<b>Total</b>						<b>93.72</b>

Source: CWE, 2017

**TABLE 7.7.5: ANNUAL GROUNDWATER RECHARGE PER BIKEWAY SEGMENT - WESTERN REACH**

BIKEWAY SEGMENT	ANNUAL VOLUME OF WATER CAPTURED (AC-FT)
01 Vanalden to White Oak	22.45
02 White Oak to Balboa	1.59
03 Balboa to Burbank	2.46
04 Burbank to Sepulveda	1.43
<b>Total</b>	<b>27.93</b>

Source: CWE, 2017

**TABLE 7.7.6: ANNUAL GROUNDWATER RECHARGE PER BIKEWAY SEGMENT - CENTRAL REACH**

BIKEWAY SEGMENT	ANNUAL VOLUME OF WATER CAPTURED (AC-FT)
05 Kester to Hazeltine	0.23
06 Hazeltine to Woodman	4.29
07 Woodman to Coldwater Canyon	4.54
<b>Total</b>	<b>9.07</b>

Source: CWE, 2017

**TABLE 7.7.7: ANNUAL GROUNDWATER RECHARGE PER BIKEWAY SEGMENT - EASTERN REACH**

BIKEWAY SEGMENT	ANNUAL VOLUME OF WATER CAPTURED (AC-FT)
08 Whitsett to Lankershim	42.64
09 Barham to Forest Lawn	14.08
<b>Total</b>	<b>56.72</b>

Source: CWE, 2017

**TABLE 7.7.8: AVERAGE EMC'S BY LAND USE (FROM SBPAT)**

LAND USE	TRASH (cf/ac)	NITRATE (mg/L)	TOTAL COPPER (mg/L)	TOTAL LEAD (mg/L)	TOTAL ZINC (mg/L)	FECAL COLIFORM (MPN/100 ml)	TSS (mg/L)
Agriculture	0.0	34.4	100.1	30.2	274.8	6.03E+04	999
Commercial	1.0	0.55	31.4	12.4	237.1	7.99E+04	67
Educational	1.0	0.61	19.9	3.6	117.6	7.99E+04	99.6
Industrial	1.0	0.87	34.5	16.4	537.4	3.76E+03	219
Transportation	1.0	0.74	52.2	9.2	292.9	1.68E+03	77.8
Open	0.0	1.17	10.6	3	26.3	6.31E+03	216.6
SF Residential	1.0	0.78	17.7	11.3	71.9	3.11E+04	124.2
MF Residential	1.0	1.51	12.1	4.5	125.1	1.18E+04	39.9

Source: CWE, 2017

**TABLE 7.7.9: ANNUAL POLLUTANTS REMOVED PER BIOINFILTRATION BMP**

BIOINFILTRATION FACILITY	TRASH (cf)	NITRATE (kg - N)	TOTAL COPPER (g)	TOTAL LEAD (g)	TOTAL ZINC (g)	FECAL COLIFORM (MPN)	TSS (kg)
01 Vanalden	0.6	0.69	9	5	60	1.3E+11	51
02 Amigo	1.2	1.22	26	16	100	4.3E+11	173
03 Etiwanda	2.1	25.96	297	92	1,106	3.2E+12	4,725
04 Zelzah	0.6	0.52	12	8	48	2.1E+11	83
05 Murietta	3.2	4.86	70	36	375	9.6E+11	495
06 Rye	1.4	2.50	20	7	207	2.0E+11	66
07 Valleyheart/Ethel	0.2	3.48	32	9	105	2.2E+11	592
08 Laurelgrove	25.1	24.57	550	325	2,204	9.0E+12	3,722
09 Gentry	9.0	9.59	202	117	796	3.2E+12	1,467
10 Studio Village	7.2	12.8	104	38	1,039	1.0E+12	2,566
11 Forest Lawn	4.6	13.93	256	95	1,912	3.2E+12	3,537
Linear BMP	0.0	19.10	173	49	429	1.0E+12	3,537
<b>Total</b>	<b>55.2</b>	<b>119.22</b>	<b>1,751</b>	<b>797</b>	<b>8,384</b>	<b>2.3E+13</b>	<b>17,898</b>

Source: CWE, 2017

**TABLE 7.7.10: ANNUAL POLLUTANTS REMOVED PER BIKEWAY SEGMENT - WESTERN REACH**

BIOINFILTRATION FACILITY	TRASH (cf)	NITRATE (kg - N)	TOTAL COPPER (g)	TOTAL LEAD (g)	TOTAL ZINC (g)	FECAL COLIFORM (MPN)	TSS (kg)
01 - Vanalden to White Oak	4.5	30.29	362	125	1,357	4.1E+12	5,384
02 - White Oak to Balboa	0.0	2.29	21	6	52	1.2E+11	424
03 - Balboa to Burbank	0.0	3.55	32	9	80	1.9E+11	657
04 - Burbank - Sepulveda	0.0	2.06	19	5	46	1.1E+11	381
<b>Total</b>	<b>4.5</b>	<b>37.19</b>	<b>433</b>	<b>145</b>	<b>1,534</b>	<b>4.5E+12</b>	<b>6,846</b>

Source: CWE, 2017

**TABLE 7.7.11: ANNUAL POLLUTANTS REMOVED PER BIKEWAY SEGMENT - CENTRAL REACH**

BIOINFILTRATION FACILITY	TRASH (cf)	NITRATE (kg - N)	TOTAL COPPER (g)	TOTAL LEAD (g)	TOTAL ZINC (g)	FECAL COLIFORM (MPN)	TSS (kg)
05 - Kester to Hazeltine	0.0	0.34	3	1	8	1.8E+10	63
06 - Hazeltine to Woodman	3.2	5.76	78	38	396	1.0E+12	663
07 - Woodman to Coldwater Canyon	1.6	7.17	63	20	339	4.8E+11	878
<b>Total</b>	<b>4.8</b>	<b>13.27</b>	<b>144</b>	<b>59</b>	<b>743</b>	<b>1.5E+12</b>	<b>1,603</b>

Source: CWE, 2017

**TABLE 7.7.12: ANNUAL POLLUTANTS REMOVED PER BIKEWAY SEGMENT - EASTERN REACH**

BIOINFILTRATION FACILITY	TRASH (cf)	NITRATE (kg - N)	TOTAL COPPER (g)	TOTAL LEAD (g)	TOTAL ZINC (g)	FECAL COLIFORM (MPN)	TSS (kg)
08 - Whitsett to Lankershim	41.3	49.93	883	488	4,107	1.3E+13	6,159
09 - Barham to Forest Lawn	4.6	17.83	291	105	2,000	3.4E+12	3,289
<b>Total</b>	<b>45.9</b>	<b>67.76</b>	<b>1,174</b>	<b>593</b>	<b>6,107</b>	<b>1.7E+13</b>	<b>9,448</b>

Source: CWE, 2017

## 7.9 PUBLIC TRANSIT PROXIMITY AND LINKAGES

### Overview

Recent planning research and public policy has increased awareness of need for quality first-mile, last-mile connections between destinations and transit stations. Furthermore, it has become increasingly evident that bicycles and pedestrians are primary sources for transit trips and should be prioritized through pedestrian and bicycle friendly infrastructure improvements connecting to transit stations. 91% of Metro users access stations by non-vehicle modes (walk, bike, transit).<sup>1</sup> Metro's First-Last Mile Strategic plan places a strong emphasis on increasing multi-modal options (especially bicycling and walking) to access transit. Within the LA River corridor, the individual transit operators and different transit modes create different physical conditions between the LA River and public transit options.

The transit operators along the LA River Valley Corridor are the Los Angeles County Metropolitan Transportation Authority (METRO), Southern California Regional Rail Authority (Metrolink) and Burbank Bus. Between the three transit providers, there are five types of public transit modes along the LA River Valley Corridor. Each mode provides unique conditions for connecting the LA River to surrounding destinations. The five types of public transit, as well as key advantages/disadvantages are:

- **Local Bus** - Local buses have frequent stops at almost every or every other street, share travel lanes with other vehicles and have bicycle racks on the front of all buses. While they have slower travel times, the high number of routes and frequent stops allow it to provide the closest connections between the LA River and destinations.
- **Rapid Bus** - Rapid buses typically match a similar local bus route but has less frequent stops only at major streets in order to reduce travel times. Rapid bus routes can share lanes with other vehicles or have bus only lanes during peak hours and have bicycle racks on the front of all buses.
- **Bus Rapid Transit (BRT)** - BRT uses 60' buses along a dedicated ROW with a limited number of stops at major streets and destinations and also include

bicycle racks on the front of buses. BRT functions similar to light rail lines with dedicated stations with faster travel times than local and rapid bus.

- **Light Rail Train (LRT) and Heavy Rail Train (HRT)** - LRT and HRT uses rail cars along a dedicated ROW and electrified rail track that can be at street level, underground, or elevated. They have limited stops at major streets and destinations with stations that require payment before entering and include park-and-ride facilities for some stations. LRT and HRT provide a connected network of lines within the Los Angeles Region with fast travel times and allow bicycles on rail cars.
- **Commuter Rail** - Metrolink trains are diesel powered and similar to traditional Amtrak trains that serve the entire Southern California Region. Stations are located at major city/employment centers and trains provided dedicated space to store bicycles.

### Methodology

Existing Metro local bus lines, rapid bus lines, bus stops, HRT lines, and HRT stations were downloaded from Metro's Developer website. Existing Metrolink routes and stations were also mapped, shown in Figure 7.9.1. A 1/4 mile buffer was applied to each local bus stop. A 1/2 mile buffer was applied to each rapid bus stop, HRT station, and Metrolink station. Existing Class I and Class II bicycle facilities were also mapped, showing the connections between bicycle and public transit networks through the project area.

### Analysis

The orientation of routes as east-west versus north-south impacts the relationship between public transit and the future bikeway. East-west public transit lines and the future bikeway will most likely act as supplementary travel modes to each other rather than complementary along the future bikeway. The bikeway and east-west transit lines will serve similar destinations and both provide safe, direct alternatives to driving. Most bicycle and transit users will not separate their trip into two modes when they would be able to bicycle or take public transit for the entire trip length.



Source: Google Images



On the other hand, transit lines with a north-south orientation will likely serve as complementary travel modes with the future bikeway. Trips originating along the LA River corridor would be able to travel east-west along the future bikeway until intersecting with the desired public transit line to take them north or south of the LA River, which would keep bicyclists safe from vehicle traffic and provide a convenient one-seat transit ride.

#### Western Reach

Local bus, rapid bus and the Orange Line BRT connections are all conveniently accessible to the LA River within the western reach. There are local bus stops available within a short distance to the LA River along the following north-south streets, which could be easily accessed by bicycle even if bicycle lanes are not currently available by using the sidewalk:

- White Oak Avenue
- Reseda Avenue
- Balboa Boulevard
- Woodley Avenue
- Sepulveda Boulevard

In addition to local buses, there are three rapid bus lines within 1 mile of the LA River through the western reach:

- 734 - Travels between the Sepulveda Boulevard Expo Line Station in West Los Angeles and the Sylmar Metrolink Station along Sepulveda Boulevard within three miles of the LA River bikeway. There are 734 stops at the Orange Line Busway and Magnolia Boulevard within 1/4 mile of the LA River Bikeway interim route and final alignment, respectively.
- 744 - Travels between Northridge (Devonshire Street) and Pacoima (Foothill Boulevard) north-south along Reseda Avenue and east-west along Ventura Boulevard. There are 744 bus stops at Vanowen Street and Victory Boulevard within 1/4 mile of the LA River connected by a striped bicycle lane.
- 750 - Travels east-west between the Warner Center in Woodland Hills and Universal Studios along Ventura Boulevard with stops at Reseda Avenue, White Oak Avenue, Balboa Boulevard and Woodley

Avenue. The Reseda Avenue stop is connected to the LA River by a striped bicycle lane.

The Orange Line BRT travels east-west between Chatsworth and North Hollywood (Lankershim Boulevard), and also provides service to Warner Center. Sharing an east-west corridor with the LA River, the Orange Line BRT crosses the LA River between White Oak Avenue and Balboa Boulevard and has stops at Reseda Avenue (.75 miles), Balboa Boulevard (.35 miles) and Woodley Avenue (1.0 miles). Due to its exclusive ROW, closer distance and similar service areas transit riders would be more likely to use the Orange Line compared to the 750 rapid bus line for east-west transit trips. Orange Line stops are connected to the LA River by the Orange Line bikeway.

#### Central Reach

There are local bus lines on the following north-south streets:

- Kester Avenue
- Van Nuys Boulevard
- Woodman Avenue
- Coldwater Canyon Avenue

The 744 and 750 rapid bus lines continue through the central reach. The 744 rapid bus line travels north-south along Van Nuys Boulevard with the closest stop at Huston Street within 1/4 mile of the LA River. The 750 rapid bus line travels east-west along Ventura Boulevard and is between 1/2 mile (at Kester Avenue) and 600 feet (at Coldwater Canyon Avenue) to the LA River. In addition to stops at Kester Avenue and Coldwater Canyon there is a stop at Woodman Avenue (1/4 mile). There are no bicycle lanes connecting any of the rapid bus stops to the LA River within the central reach.

The Orange Line also continues east-west through the central reach. While stations are located at Sepulveda Boulevard, Woodman Avenue, Van Nuys Boulevard and Burbank Boulevard, they are between 1.5 and 1.75 miles north of the LA River and there are no bicycle lanes that connect between the LA River and any station.

#### Eastern Reach

The Red Line stop at Universal City is the most significant public transportation connection along the LA River Valley Bikeway regarding connection to the regional transportation network. This station is significant because it would connect the LA River Valley Bikeway, and all destinations along the Bikeway, to the rail network in the Los Angeles Basin. Trips originating within areas served by the rail network in the LA Basin would now have a safe and viable alternative to an automobile trip by combining bicycle and rail to a destination along the LA River corridor.

The Universal City Station is located at the corner of Lankershim Boulevard and Campo de Cahuenga about 1/4 mile south of the LA River. There would be no bicycle connection between the Universal City Station and the LA River. However, there are multiple options to provide a connection to the LA River; along Lankershim Boulevard which could extend the LA Great Streets improvements along Lankershim between Magnolia Street and Vanowen Street to Universal City Station, or through South Weddington park which would allow bicyclists to avoid automobile conflicts. The North Hollywood Red Line station is located at Chandler Boulevard but it is almost 2 miles from the LA River and there are no bicycle connections.

Local bus lines on the following streets:

- Laurel Canyon Boulevard
- Vineland Avenue
- Lankershim Boulevard
- Cahuenga Boulevard
- Barham Boulevard/Olive Avenue/North Hollywood Way

The 750 rapid bus line terminates at the Universal Studio/City Red Line Station within the western reach.

#### Next Steps

The City of Los Angeles will continue to implement the First-Last Mile Strategic Plan in order to enhance connections between pedestrian and bicycle and

public transportation networks. The LA River Bikeway will provide a route for those first/last mile connections within the western, central, and eastern reaches.

#### Sources

- <sup>1</sup> First-Last Mile Strategic Plan, Metro, 2014.

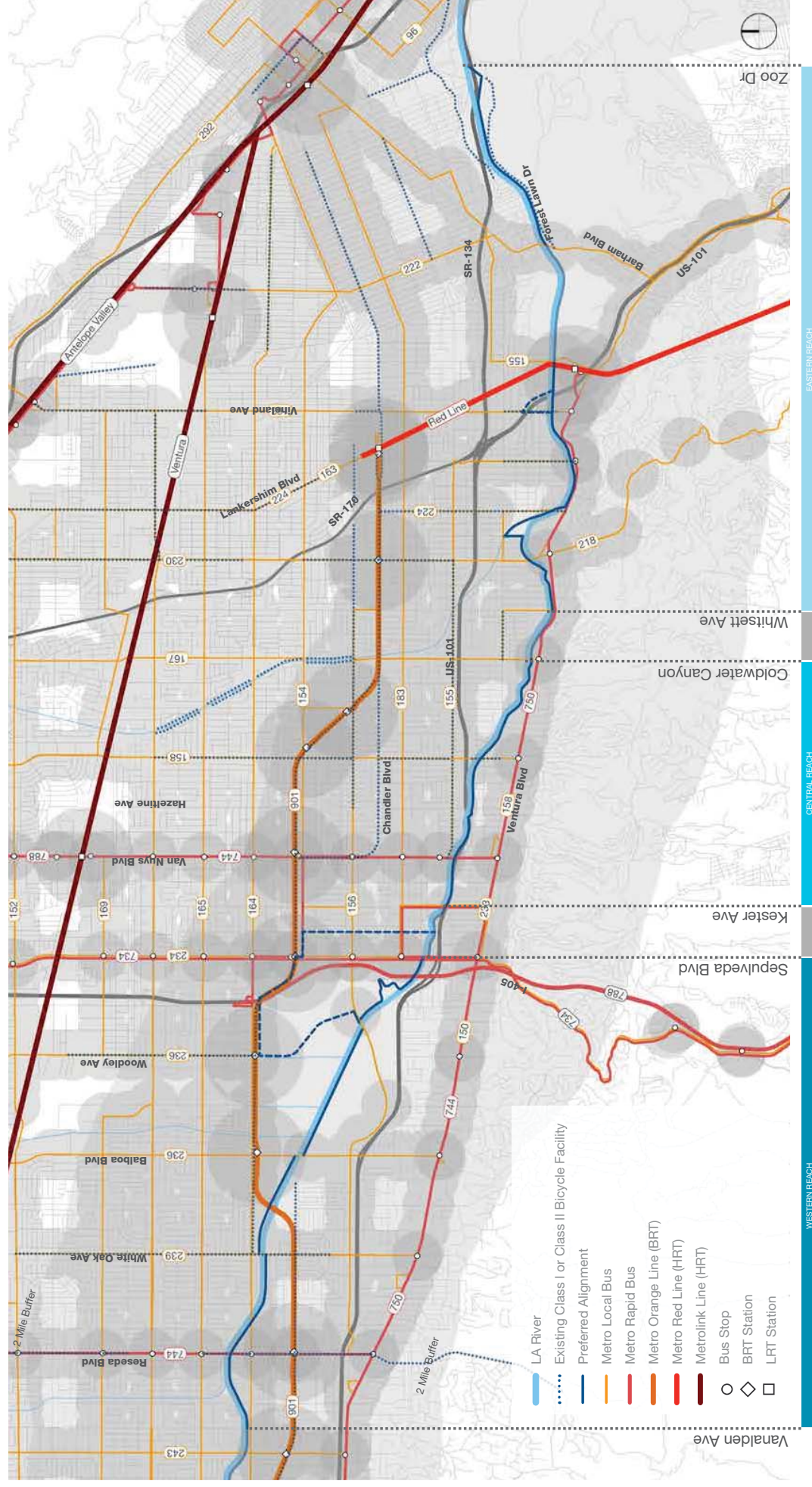


Figure 7.9.1 Existing Public Transportation Network

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## 7.10 COMMERCIAL AND JOB CENTERS PROXIMITY AND LINKAGES + ACTIVE COMMUTING BENEFITS

### Overview

The number of bicyclists is growing rapidly within every community in the United States for both commute and non-commute trips, as communities build more miles of quality bicycle infrastructure. From 2000 to 2013, bicycle commuting rates in Bicycle Friendly Communities (BFCs) increased 62%, and 31% in non-BFCs. Additionally, the National Household Travel Survey showed that the number of trips made by bicycle in the U.S. more than doubled from 1.7 billion in 2001 to 4 billion in 2009 (League of American Bicyclists). During an overlapping period from 2004 to 2014, the number of protected bicycle lanes have doubled every two years nationally. However, according to a 2003 study by Bureau of Labor Statistics, work commute trips only make up 15% of all household trips.<sup>1</sup>

As shown in the Economic Cost/Benefit section, there are significant economic benefits resulting from increase in bicycle trips for commute and non-commute trips. However, studies have documented the wide-ranging positive impacts on public health, physically and mentally, created from active (walking and biking) commutes:

- Research shows that every additional hour per day spent driving creates a 6% greater risk of obesity, while every hour spent walking reduces that risk by 4.8%.<sup>2</sup>
- A review of the literature on cycling and health found that commuting just a few miles by bike had a huge benefit for cardiovascular fitness (up to 30%) and a decrease in cancer mortality (20% risk reduction with one hour of daily cycling).<sup>2</sup>
- A 2013 study from Sweden found that commute choice had a substantial effect on overall happiness, with active commutes having a positive correlation with happiness and driving commutes having the opposite.<sup>2</sup>
- A 2014 study looked at psychological well-being among 18,000 adults found that those who walked, biked, or took transit had a greater sense of well-being than those who drove. The difference was especially significant for those who switched from driving to a walking or biking commute during the study.<sup>2</sup>

### Methodology

This section analyzes the proximity and linkages to job and commercial centers by mapping active transportation commuting trends, land use data, and census employment data. The first set of maps show the percent of commute trips made by active transportation (walking, bicycle, and transit) and bicycle by census tract based on US Census 2015 American Community Survey (ACS) 5-year estimates. The second set of maps uses US Census Longitudinal Employer-Household Dynamics (LEHD) from 2014 to map number of jobs located within a census tract as well as the number of residential population with jobs to identify job centers. The last map compares existing commercial centers and major employers with the location of the existing network of Class I (separated pathway) and Class II (striped on-street lanes) bicycle infrastructure and the future bikeway. GIS Land Use data for the City of Los Angeles, aerial imagery and site visits were utilized to categorize the character of existing commercial areas. The analysis will inform the ability of the future bikeway to provide connections to existing commercial areas and job centers, and where additional bicycle infrastructure would be needed to connect to those commercial areas and job centers.

### Analysis

#### Active and Bicycle Commute Share

The averages for percent of commutes by active transportation modes and bicycle within the City of Los Angeles for the year 2015 are 15.1% and 1.7%, respectively. Of the 212 census tracts within a 2.5 mile buffer of the LA River Bikeway (final and interim alignments), 32 census tracts (15.5%) have commutes higher than the citywide average for both active transportation and bicycle modes. Census tracts with the highest share of commutes by active transportation and bicycle are almost exclusively located north of the LA River. Areas of multiple census tracts with higher shares of active transportation and bicycle commutes are located in Van Nuys east of I-405 and north of the Orange Line Busway, North Hollywood along Lankershim Boulevard

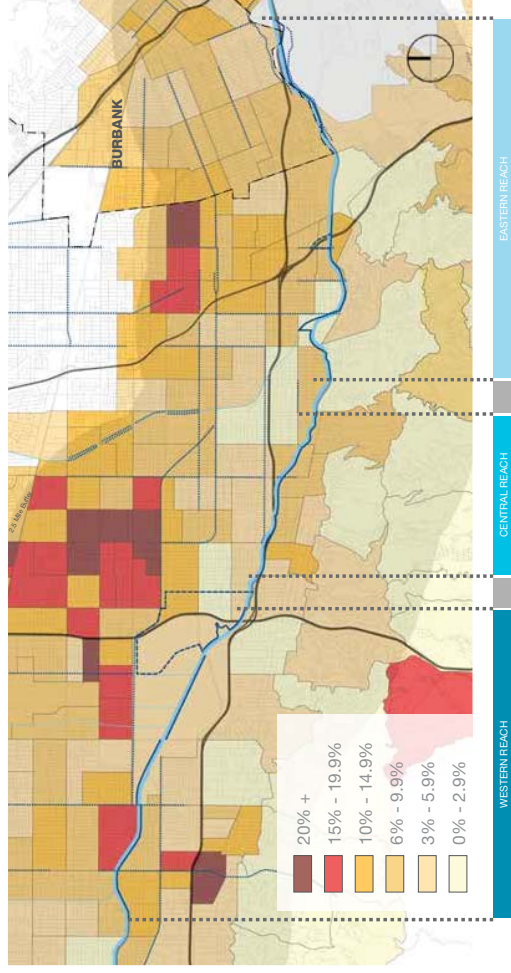


Figure 7.10.1 Percent of Commute to Work by Active Transportation by Census Tract

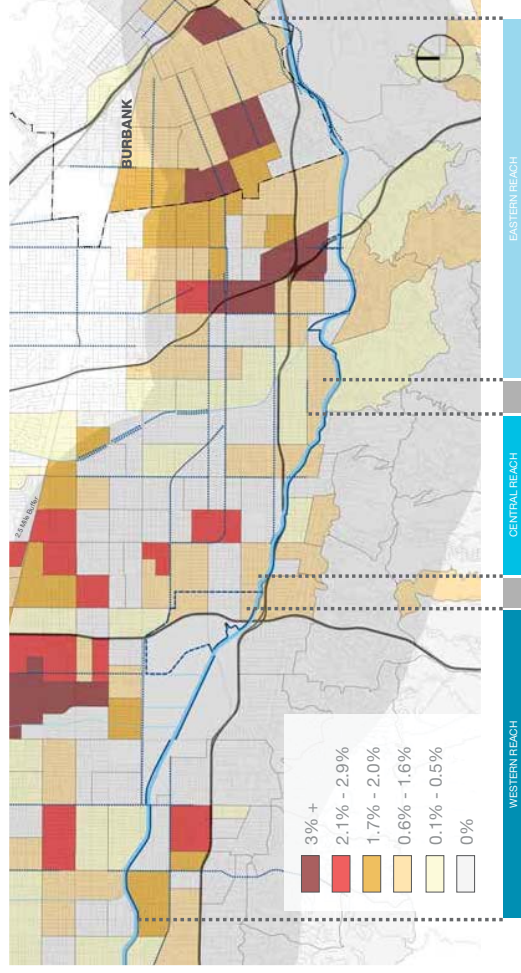


Figure 7.10.2 Percent of Commute to Work by Bicycle by Census Tract

and Chandler Boulevard corridors, and Reseda between Tampa Avenue and White Oak Avenue. Generally these areas are characterized by multiple Class I and Class II bicycle facilities, as well as proximity to high quality transit (Orange Line BRT, Red Line, Metrolink). Generally, areas with higher percentage of commuters by active transportation also have high percentage of commute by bicycle. Areas with low percentage of commuters by bicycle with high percentage of commuters by active transportation are located in Santa Monica Mountains south of the LA River, south of US-101 in Reseda, and along the LA River west of SR-170/US-101/SR-134 interchange.

**Number of Jobs/Residential Population with Jobs**

Within a 2.5 area of the LA River Bikeway and there is a significant variety in the number and concentration of jobs located within a census district. The number of jobs in a census district ranges from under 100 to over 31,000 (with a standard deviation of 4,100). While only nine (9) census tracts (4.2%) contain over 8,000 jobs, 103 census tracts (47.3%) have under 1,000 jobs. Areas with the highest concentration of jobs are located along the Ventura Boulevard corridor (sometimes adjacent to US-101 and LA River), south of the Sepulveda Basin, as well as within the City of Burbank just west of I-5 Freeway.

While there is a large variety in jobs between census tracts, variety in the number of residential population with jobs in a census tract is much less significant (with a standard deviation of only 620). Areas with the highest number of jobs among residential population are typically located in the same areas of high concentration of jobs, including: City of Burbank west of I-5 Freeway, along US-101 in the central and eastern reaches, and south of the Sepulveda Basin. This suggests that many of the areas with high concentrations of jobs and residential population with jobs are comprised of mixed-use districts in part.

**Commercial/Job Centers - Western Reach**

There are two commercial areas along the western reach that are within two miles of the LA River. There

is a commercial node at the intersection of Reseda Boulevard and Sherman Way, which is comprised of primarily auto-oriented retail in the form of strip retail and big box. However, this node also includes some pedestrian-oriented retail buildings with storefronts up to the sidewalk edge, which could encourage the redevelopment of this node with pedestrian-oriented, mixed-use developments. Commercial uses centered at Reseda Boulevard/Sherman Way extend along Reseda Boulevard from the LA River north to Satcoy Street and along Sherman Way between the Aliso Canyon Wash and Lindley Avenue. Currently, there is a striped bicycle lane along Reseda Avenue extending from the LA River to Vanowen Street connecting the future bikeway to a portion of this commercial area. The Mobility plan calls for an upgrade to a protected bicycle lane to Rhinaldi Street, which would provide enhanced connectivity to the entire commercial node.

Ventura Boulevard is one of the major commercial corridors in the Valley and extends from Woodland Hills to Studio City. Through the western reach, Ventura Boulevard roughly parallels the LA River south of US-101 between 0.75 and 1.5 miles south of the LA River. Through the western reach, this segment of Ventura Boulevard varies between sections of pedestrian-oriented and automobile-oriented retail. There are also a number of mid-rise and high-rise office buildings spread throughout the segment. The Ventura Boulevard corridor is currently connected to the LA River by striped bicycle lanes along Reseda Avenue, but is planned to be upgraded to protected bicycle lanes. There are no other north-south bicycle connections to Ventura Boulevard within the western reach. Currently, there are no bicycle facilities along Ventura Boulevard, but it is designated as a Tier 3 bikeway in the Mobility Plan, which would receive a striped bicycle lane.

In addition to the Ventura Boulevard corridor, the Van Nuys Airport is a major job center within the western reach. Various entrances to Van Nuys Airport are located between approximately 1.2 - 1.6 miles north from the Orange Line bikeway on the north side of the Sepulveda Basin. Woodley Avenue provides a striped bike lane from the Orange Line bikeway to the Van Nuys Flyaway

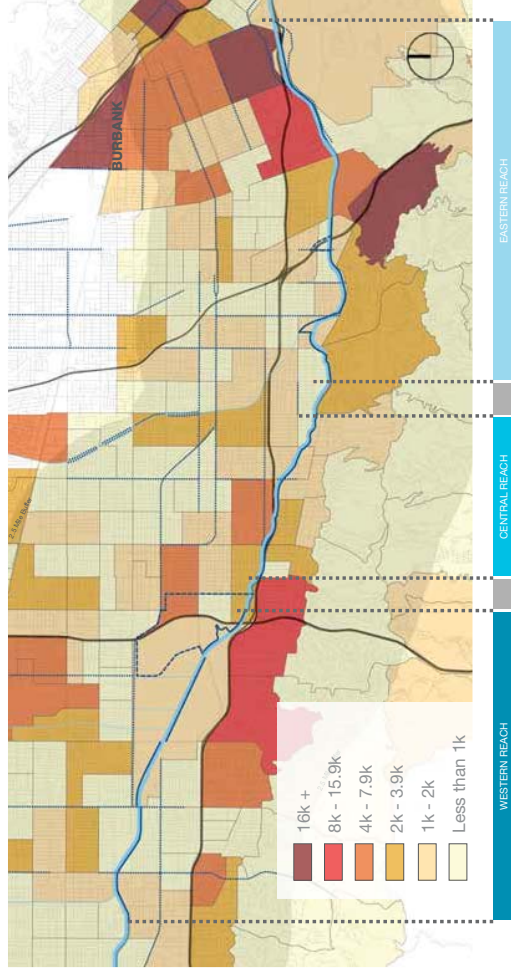


Figure 7.10.3 Number of Jobs (Total) by Census Tract

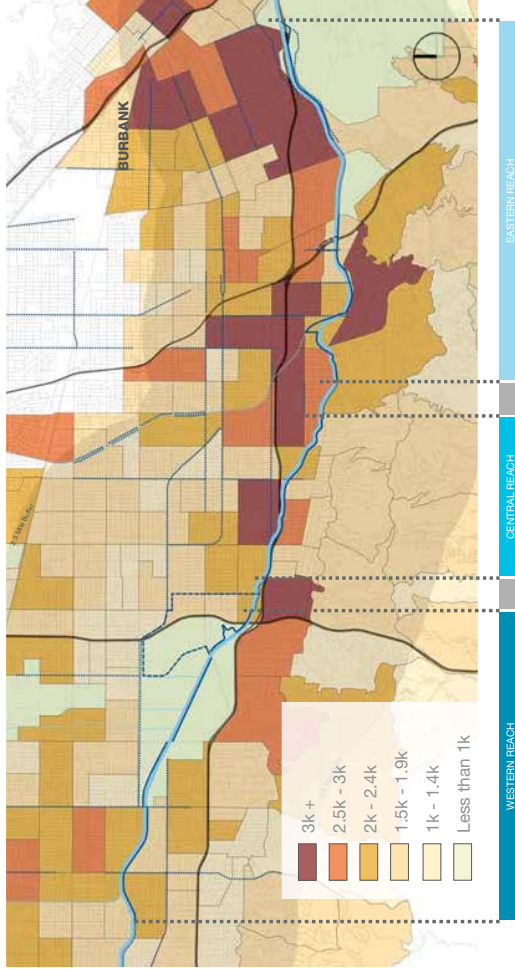


Figure 7.10.4 Number of Residential Population with Jobs (Total) by Census Tract



Bus Terminal at Saticoy Street, which can provide a connection between the LA River Valley Bikeway and Van Nuys Airport. However, the intersection of Woodley Avenue and Victory Boulevard provides safety hazards and lack of comfortability for bicyclists, which limits the effectiveness of the connection to Van Nuys Airport. As Woodley Avenue is planned to be upgraded to a protected bicycle lane per the Mobility Plan, a protected bicycle intersection at Woodley Avenue/Victory Boulevard would further increase access to Van Nuys Airport.

#### Commercial/Job Centers - Central Reach

There are two commercial corridors within the central reach: north-south along Van Nuys Boulevard, north of Ventura Boulevard and east-west along Ventura Boulevard. The Van Nuys Boulevard commercial corridor is almost exclusively comprised of auto-oriented commercial uses, including: car dealerships, big box retail, strip retail, fast food and car repair shops. While Van Nuys Boulevard intersects with the LA River, the existing commercial uses and lack of a bicycle lane south of Chandler Boulevard make this an unattractive commercial corridor for bicyclists in its present condition. Although Van Nuys Boulevard is planned to be upgraded with protected bicycle lanes from south of Ventura Boulevard to I-210, the auto-oriented commercial uses most likely limit the ability of this commercial corridor to serve as a commercial destination for bicyclists.

Ventura Boulevard generally follows the urban form exhibited parallel to the western reach. Ventura Boulevard is predominately pedestrian-oriented retail of smaller, individually-owned businesses with auto-oriented uses (gas stations, fast food, car dealership, shopping centers and grocery stores) occasionally disrupting the street frontage. There are also mid-rise and high-rise structures spread throughout the central reach along Ventura Boulevard. While there are no bicycle lanes that currently connect the LA River to Ventura Boulevard within the central reach, the planned protected bicycle lane along Van Nuys Boulevard would extend south past Ventura Boulevard and provide an attractive connection.

The Ventura and Van Nuys Boulevard corridors and the Westfield Fashion Square are the largest job centers

within the central reach. The Westfield Fashion Square is an indoor shopping mall between Hazeltine Avenue and Woodman Avenue along Riverside Drive made up of approximately 154 stores and restaurants. There are already bicycle lanes along Riverside Avenue that directly connect to the LA River. While the nature of mall shopping is not applicable for most bicyclists in American culture today, there is an opportunity to encourage mall workers to commute by bicycle today. Attractive bicycle facilities and amenities (bicycle hub, secured storage, bicycle valet, etc.) should be developed within the mall that would make arriving by bicycle an attractive option and remove the stigma of being 'uncool' to encourage future shopping trips to be made by bicycle; and would also further encourage bicycle commuting by workers.

#### Commercial/Job Centers - Eastern Reach

There are two major commercial corridors and one major commercial/entertainment center located within the eastern reach. The Ventura Boulevard commercial corridor is between a typical city block (300 ft) and 1/4 mile south of the LA River. Retail along Ventura Boulevard is primarily pedestrian-oriented west of Colfax Avenue and auto-oriented east of Colfax Avenue. Currently, there are no bicycle lanes that connect the LA River and the pedestrian-oriented section of Ventura Boulevard, but there is a bicycle lane that connects the LA River and Ventura Boulevard at Tujunga Avenue. There is a bicycle lane planned along Colfax Avenue in the Mobility Plan that would provide a connection between the LA River and Ventura Boulevard.

The Lankershim Boulevard commercial corridor extends north from the LA River. South of US-101 Lankershim Boulevard is comprised of auto-oriented retail. Between US-101 and North Hollywood Red Line Station at Chandler Boulevard Lankershim is primarily comprised of pedestrian-oriented retail, including the NoHo Arts District with over 20 live performance venues. Currently there are no bicycle lanes that connect the LA River to Lankershim Boulevard, but a protected bicycle lane is planned for the entire length of Lankershim Boulevard. The protected bicycle lane could provide safe and attractive bicycle access along the entire commercial

corridor and, in addition to the corridor's location near multiple Metro Red Line stations, could potentially encourage redevelopment of pedestrian-friendly mixed-use retail along the corridor.

Universal Studios is a regional entertainment and commercial destination that includes the Universal Theme Park, Universal City Walk and Universal filming studios and offices. While the Universal Studios campus is located adjacent to the LA River, Universal Citywalk and entrance to the theme park are located approximately 1/2 mile south of the LA River. Currently, there are no bicycle facilities that would connect the LA River with Citywalk or the theme park. However, the planned protected bicycle lane along Lankershim Boulevard would provide direct access to the Universal Studios entrance.

In addition to Universal Studios, there are other multiple major job centers within the eastern reach, which are made up of both individual employers and employment districts. There are four movie/television studios located along the LA River - CBS Studio, Universal Studios, Warner Brothers Studio, and Walt Disney Studio - that have a consolidated, private campus. The future bikeway is directly adjacent to three of the studios (CBS, Universal, and Warner Brothers) while Walt Disney Studio is located on the opposite side of the River and SR-134. It would be beneficial to coordinate with the three adjacent studios in order to create highly-visible employee entrances and amenities (e.g. secured bicycle parking, showers, bicycle hub, coffee stands, etc.) directly off the future bikeway, which would encourage bicycle commuting among employees by making it a more visible and prioritized mode of travel. Connections to Walt Disney Studio could utilize Riverside Drive on the north side of the LA River if access to Riverside Drive can be provided from the future bikeway on the south side of the LA River.

Downtown Burbank with a mix of civic, office, retail and entertainment jobs that is roughly bounded by Verdugo Avenue to the South, Glenoaks Boulevard to the east, Burbank Boulevard to the north and I-5 to the west. Downtown Burbank is located within two miles of the LA River, but is separated by I-5 and an incomplete network

of bicycle paths and lanes. While the City of Burbank has completed a Bicycle Master Plan for the City, the plan does not provide any Class I (bicycle path) or Class II (bicycle lane) direct connections between the LA River and Downtown Burbank.

Bob Hope Airport is located approximately 3.6 miles north of the LA River, and is a major employer within the Valley. Bob Hope Airport also lacks bicycle lanes and paths that would provide a safe, direct connection to the LA River. Furthermore, there are no Class I or Class II bicycle facilities planned to connect the LA River to the Bob Hope Airport within the City of Burbank. While a connection to the Bob Hope Airport could be made using protected bicycle lanes along Lankershim Boulevard and Sherman Way, this route does not provide access to the airport entrance.

## Sources

<sup>1</sup> Blue, Ely. Bikenomics, pg. 29, 2013.

<sup>2</sup> <https://www.washington.edu/wholeu/2015/07/30/benefits-of-an-active-commute/>



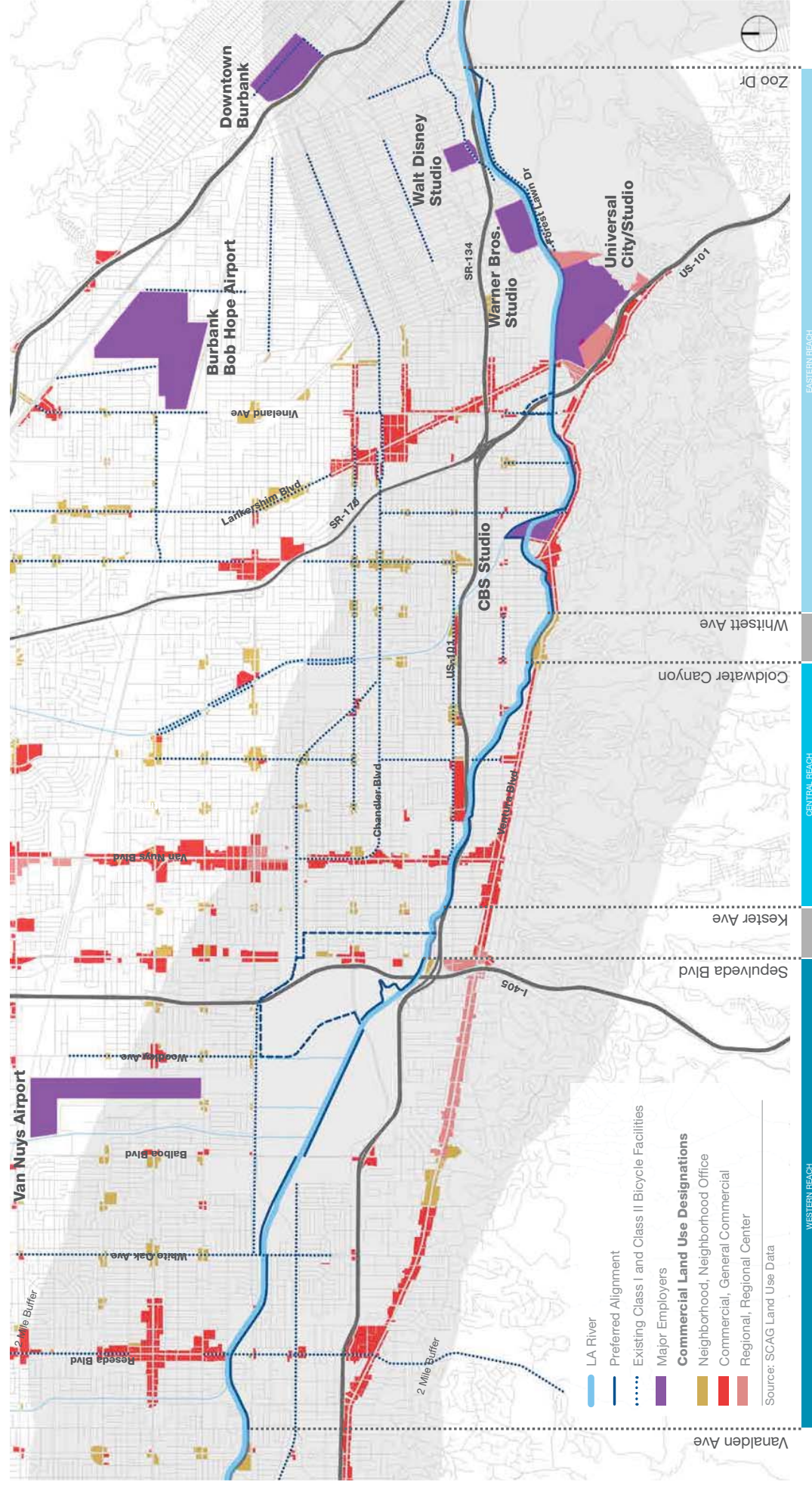


Figure 7.10.1 Existing Commercial Land Uses and Major Employers

## 7.11 PUBLIC SAFETY BENEFITS

### Overview

Public safety benefits for the LA River Bikeway involve two independent discussions: interactions between all travel modes (vehicles, transit, bicyclists, and pedestrians) within transportation networks, and personal safety along bicycle facilities.

#### Road Safety

Although the LA River Bikeway is to be designed and a bicycle and pedestrian path along the LA River to have no interactions with vehicles, actual development of the bikeway will likely include a phased approach that will require utilization of at-grade street crossings and some on-street alignments (see Chapter 10 for a detailed discussion of project phasing strategy). Additionally, even after full build-out of the bikeway and greenway, bicyclists will still interact with vehicles at all access points to the LA River Bikeway and Greenway as they transition between the existing and planned citywide on-street bicycle network and the LA River Bikeway. Furthermore, bicycle and pedestrian crossings at major intersections are a major safety concern. Therefore, access points where ramps and pathways connect the LA River Bikeway to existing streets have an important relationship to the project. In order to maximize public safety at these access points, it is likely appropriate to adjust roadway configurations that lead to the LA River Bikeway access points. Therefore, discussion regarding road safety includes a discussion of best practices in roadway design that maximize public safety.

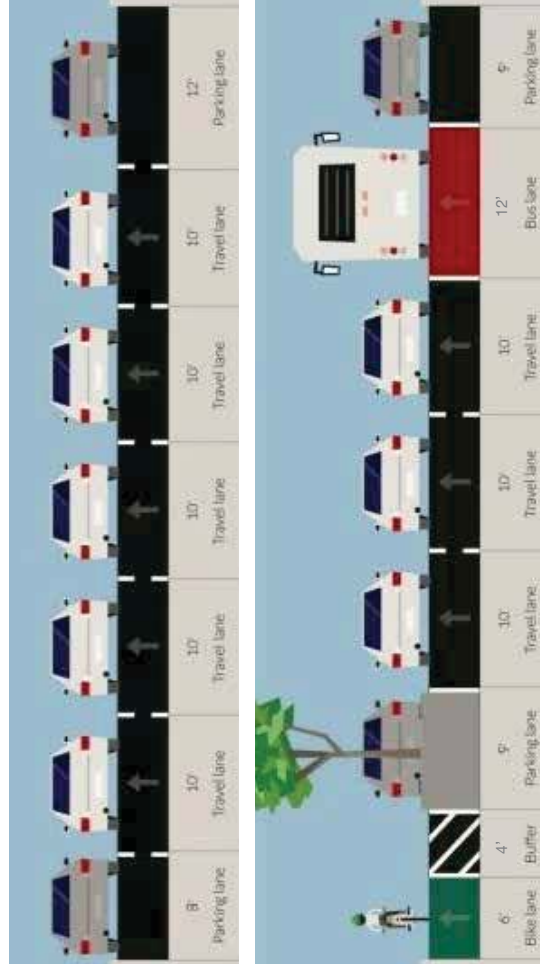
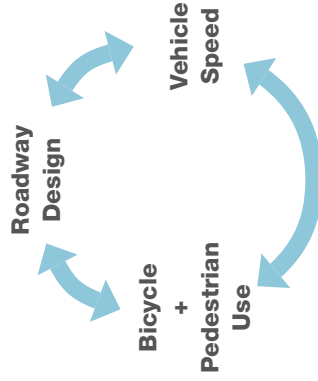
The perception of safety is one of the most important factors in choosing bicycle as a travel mode. In 2001, bicyclists in the United States had 12 times more fatalities than drivers per mile traveled.<sup>1</sup> The perceived and actual safety of bicyclists and pedestrians is dependent upon the interrelationship between a few primary factors, represented to the right.

Each factor of roadway design, vehicle speed, and bicycle and pedestrian both influence and are dependent upon the other factors, creating a positive feedback loop towards increased safety and multi-modal use, or a negative feedback loop for increased collisions and greater reliance on vehicles.

Safety of bicyclists and pedestrians is directly related to vehicle speed. Collisions with a vehicle traveling at 20 miles per hour results in a 5 percent pedestrian fatality. As vehicle speed increases, pedestrian fatalities also increase. At 30, 40 and 50 miles per hour, fatalities increase to 40, 80 and 100 percent, respectively.<sup>2</sup> Bicycle lanes, when accompanied by travel lane reduction can help reduce over-all vehicle speed.<sup>3</sup>

Motorists drive slower when bicyclists and pedestrians are visible either in number or frequency, and drive faster when few of pedestrian and bicyclists are present resulting in higher over all travel speeds. This effect of modified driving behavior is consistent with other research focused on 24 California cities that shows that higher bicycling rates among the population generally shows a much lower risk of fatal crashes for all road users.<sup>4</sup> Comparing these low versus high bicycling communities, there was a ten-fold reduction in fatality rate for motorists, and eleven-fold reduction in fatality rate for pedestrians, and an almost fifty-fold reduction in fatality rate for bicyclists.<sup>5</sup>

Injury risks to bicyclists in New York City dropped by 72 percent between 2000 and 2010 and declined by nearly 30 percent two consecutive years in a row (2008, and 2009) when the City was the most active in building bicycle lanes,<sup>6</sup> particularly protected bicycle lanes. A 2000 safety study of 682 bicycle-motor vehicle crashes in Phoenix found that 95 percent of crashes occurred



Sources: Protected bicycle Lanes in NYC, NYCDOT



Sources: Protected bicycle Lanes in NYC, NYCDOT

on streets with no bicycle facilities and merely 2 percent occurred in bicycle lanes.<sup>7</sup>

Inclusion of protected bicycle lanes further increases the level of safety (similar to what is proposed for the Figueroa Corridor Streetscape Project). The before and after cross sections and image from New York City shown on the previous page show how bicycle can be separated from traffic. Roadway designs with protected bicycle lanes are especially effective at reducing crashes at intersections by indicating where all travel modes should travel, which creates predictability and minimizes sharing of the same road space. Protected bike lanes in New York City on 8th Avenue and 9th Avenue resulted in 35 percent and 58 percent decrease respectively in injuries to all road users.<sup>8</sup> In the same study, implementation of bus/bike lanes in First and Second Avenue led to 37 percent decrease in injury crashes.

The design of bicycle facilities, particularly the introduction of separated bicycle facilities, is important for bicyclist safety. The addition of bicycle lanes on arterial streets is shown to reduce the risk of serious injuries by about 30 percent, while the upgrade to fully protected bicycle lanes or cycle tracks reduce the risk of injury by 90 percent.<sup>9</sup> This is important for the LA River Bikeway because a majority of the access points to the bikeway are from intersections with arterial streets. As shown within Usage Projection, the largest increases in bicycle use occur with protected bicycle facilities, and are compounded when individual protected facilities are combined into a continuous network.

Of 68 cities across California with highest per capita pedestrian and bicycle collisions, per capita injury rates to pedestrians and bicyclists are shown to fall precipitously revealing a non-linear relationship of bicycle safety as the level of bicycling increases.<sup>10</sup> This study showed as much as an eightfold variation of collisions (expressed as a percentage of those that bike or walk to work) in comparing low and high bicycling cities.<sup>11</sup>

### Public Safety Benefits

An effective and well used bike path depends on users feeling personally safe as well as the facility being well maintained. Plans for LA River Valley Bikeway safety, operations and maintenance should be incorporated into the design and long-term operation plan of the future bikeway. Some elements within those plans would occur up-front during the planning and design process while others are long-term and ongoing. Up-front design elements include:

- Safe access and egress
- Personal safety
- On bikeway location information (mile markers)
- Emergency responder access
- Maintenance access

On-going elements include:

- Safety education
- Interagency coordination
- Maintenance including post high-water
- High water notification and closure

Of particular importance for the design and ongoing maintenance of safety is by utilizing Crime Prevention Through Environmental Design (CPTED). CPTED is a multi-disciplinary approach to deterring criminal behavior through environmental design. CPTED strategies rely upon the ability to influence offender decisions that precede criminal acts by affecting the built, social and administrative environment.<sup>12</sup> This includes who uses a spaces as well as how that space is used.

### Methodology

Analysis of public safety will focus on the interaction between bicyclists and pedestrians, specifically vehicle-pedestrian and vehicle-bicycle collisions. GIS data from the LA GeoHub website was utilized to map vehicle-bicycle collisions within two miles of the LA River and vehicle-pedestrian collisions within 1/2 mile of the LA River. Collision data was used from the SWIRTS (Statewide Integrated Traffic Records System) GIS data set covering the years 2009-2013. SWIRTS is a database that serves as a means to collect and process official data gathered from a collision scene. Data was filtered to include only pedestrian/bicycle collisions that resulted in injuries or fatalities to pedestrians/bicyclists. This is the same process applied by other analysis of the safety of transportation networks, including the LADOT in their application for SRTS funding through the California ATP. The maps also include the location of the Los Angeles High Injury Network, developed for Vision Zero.



## Analysis

### Western Reach

There are two areas within two miles of the LA River along the western reach located within the high injury network that have a higher concentration of vehicle-bicycle collisions than average through the study area. The first area is located in the commercial areas along Reseda Boulevard between Ventura Boulevard and Satcoy Street. Within this area there is an even higher concentration of vehicle-bicycle collisions north of Vanowen Street, where there are no bicycle lanes on Reseda Boulevard. The second area includes a multiple block area between Woodley Avenue, Victory Boulevard, Sepulveda Boulevard and Sherman Way. Within this area vehicle-bicycle crashes are not as concentrated at a few nodes/intersections but rather more evenly distributed throughout the area.

The areas of concentrated vehicle-pedestrian collisions are similar to the areas of vehicle-bicycle collisions within the western reach. There is a similar concentration of vehicle-pedestrian collisions along Reseda Boulevard, including four fatalities. While vehicle-bicycle collisions were more spread out along I-405 north of Victory Boulevard vehicle-pedestrian collisions are concentrated along Sepulveda Boulevard between Burbank Boulevard and Victory Boulevard. Finally, there is a concentration of vehicle-pedestrian collisions, including three fatalities along Ventura Boulevard within one mile of the LA River. It is worth noting that while there were no fatalities from vehicle-bicycle collisions, there were a total of 11 pedestrian fatalities within the western reach.

### Central Reach

The area along Van Nuys Boulevard north of the Orange Line bikeway has the highest concentration of vehicle-bicycle collisions within the central reach. This area is adjacent to one of the areas of vehicle-bicycle collisions within the western reach. Additionally, there is a consistent, albeit lower volume, of vehicle-bicycle collisions along Ventura Boulevard

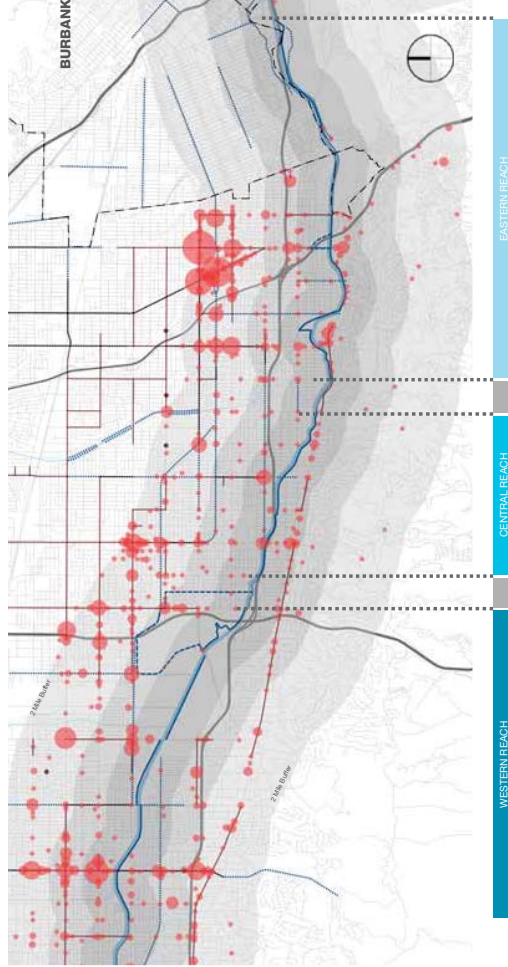


Figure 7.11.1 Vehicle-Bicycle Collisions

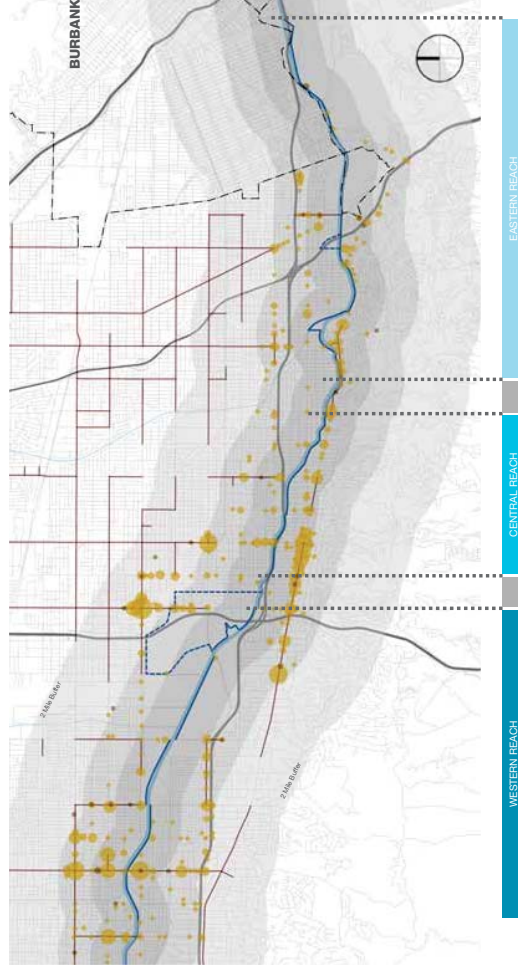
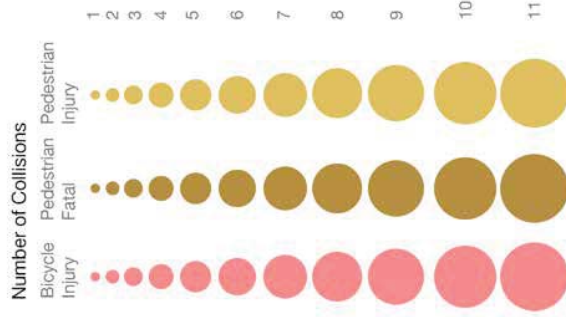
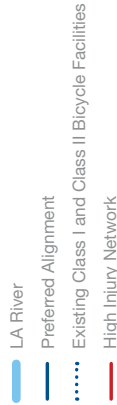


Figure 7.11.2 Vehicle-Pedestrian Collisions



For vehicle-pedestrian collisions, the highest concentration occurs along Ventura Boulevard between Kester Avenue and Van Nuys Boulevard, including two pedestrian fatalities. However, there is also a consistent distribution of vehicle-pedestrian collisions along Ventura Boulevard similar to the vehicle-bicycle collisions. Ventura Boulevard is between 1/2 mile at Kester Avenue and 600 feet at Coldwater Canyon Avenue to the LA River along the central reach. While the short distance and parallel route of the future bikeway through the central reach may reduce the number of vehicle-bicycle/pedestrian collisions as the future bikeway is utilized, it should not be expected to relieve a majority of collisions. Ventura Boulevard will continue to act as the primary commercial corridor and will continue to support the highest volume of pedestrian and bicycle traffic volumes.

#### Eastern Reach

GIS collision data for the City of Burbank has not been mapped.

Within the City of Los Angeles, there is a significant concentration of vehicle-bicycle collisions along Lankershim Boulevard, Burbank Boulevard and Vineland Avenue, between those same streets. While the volume of crashes is much lower, there is also a consistent distribution of vehicle-bicycle collisions along Ventura Boulevard.

## Next Steps

#### Facility Design

The LA River Valley Bikeway should afford users a safe bicycling experience. For safety, access points from the local road network should be spaced at intervals of one mile if feasible. This distance and the corresponding response time is a critical factor for emergency situations. If this is not possible when emergencies arise, users and/or first responders may have to travel significant distances to enter or exit the bikeway.

Mile markers should be installed at quarter mile intervals along the bikeway. These mile markers allow users to quickly identify where they are and to communicate

that information to first responders in the event of an emergency. This is currently the policy for existing segments of the LA River Bike Path within the City of Los Angeles. A stencil has been approved for use and should continue to be used for all new segments of the bikeway. Most people call 911 in case of an emergency. However, the bikeway is not included on 911 Operator locator maps in the County of Los Angeles. By providing location identification information on the in between access/egress points, users will be able to inform emergency response operators of their location, which reduces delays for first responders in finding the location of people in need of assistance.

Wayfinding signage should be installed directing users to and from the bikeway, as well as along its entirety. The signage should include directions to important destinations such as parks, commercial zones, government facilities and bike routes. Maps should be placed at the entry points to the bikeway to provide a location perspective to users.

Access points should provide bicyclists and pedestrian's space to easily enter and exit the bikeway while avoiding motor vehicles, other bicyclists and pedestrians. Each access location should include a clear space to provide people on bicycles an opportunity to see and react to oncoming traffic. This includes a good view of the roadway and vehicle travel lanes and also allows motorists to see people on bicycles as they exit the bikeway. This point, known as the sight triangle, should be designed so people on bicycles and motorists have time to see each other, slow or stop and avoid a crash.

The measured sight distance at each location should be a function of the speed limit and width of the roadway. It is also desirable to have room for curb ramps for access between the ramp and the street.

Signage at access points should clearly indicate the actions the bicyclist should take such as stop or which way to turn. They should also provide information on nearby destinations. Lighting at the access point should help provide a safe environment at night. Lighting should make the location of the ramp more visible to people

on bicycles, enhance navigation of the ramp/roadway intersection, and make people on bicycles more visible to motorists as they approach the ramp.

Isolation can be an issue along the bikeway. Installing pedestrian scale lighting, emergency phones and surveillance cameras will make the bikeway safer and more comfortable for all users.

Roadways and bike facilities leading to the LA River Valley Bikeway need to be designed to safely accommodate users coming to and from the bikeway. Nearby intersections and sidewalks should be clear of obstructions that may be hazardous to people on bicycles that use these for access to the bikeway.

#### Safety Education and Encouragement

The City of Los Angeles and community organizations can partner to provide safety education and encouragement for people to use the LA River Valley Bikeway. Programs may include bicycle education that promotes bicycle safety for new and experienced riders as well as activities such as the LA River Ride, sponsored by the Los Angeles County Bike Coalition, for example.

#### Operations and Maintenance

Ongoing maintenance of the LA River Valley Bikeway is critical to maintain a safe riding environment. It is suggested the following minimums be considered:

- Machine sweeping the bike bikeway and access roads to the once per week.
- After the bikeway is closed due to weather conditions machine sweeping the bikeway prior to reopening.
- Review of surface conditions at least monthly and anomalies corrected as soon as possible.
- Review of fences and gates reviewed monthly and anomalies corrected as soon as possible.

## Sources

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- <sup>2</sup> U.S. Department of Transportation National Highway Traffic Safety Administration. 1999. Literature Review on Vehicle Travel Speeds and Pedestrian Injuries. DOT HS 809 021
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## 7.12 SAFE ROUTES TO SCHOOL LINKAGES

### Overview

Safe Routes to School (SRTS) is an international initiative to increase the number of students who walk and bicycle to school through infrastructure improvements and community programs. In 2013, the City of Los Angeles SRTS program created an Action Plan that prioritized 50 schools within the LAUSD with the highest need for improvement.

Of the top 50 schools prioritized in the Action Plan, only two are located within the project vicinity:

- Panorama City Elementary School, ranked 41 out of 50 and is located approximately 4.2 miles north of the LA River along Kester Avenue; and
- Van Nuys Elementary School, ranked 49 out of 50 and is located approximately 2.1 miles north of the LA River one block east of Van Nuys Boulevard.

The LA River Valley Bikeway is located outside of the two mile radius required for infrastructure improvements for both Panorama City Elementary School and Van Nuys Elementary School, thus not eligible to be directly included within SRTS project. Furthermore, plans for Panorama City and Van Nuys have not been completed as of Spring 2017, which limits ability of this analysis to plan linkages between schools and the bikeway.

Among the current tasks of the Action Plan is to complete individualized School Travel Plans for all top 50 schools. The Action Plan has set benchmarks to complete 45 plans by 2020 and 75 plans by 2025. The Action Plan has also set benchmarks for installing improvements, based on the Travel Plans, for 2020, which include:

- Install improvements at 45 schools
- Upgrade crosswalks at 60 percent of schools
- Install 45 demonstration projects

### Methodology

Top 50 schools were prioritized using the following metrics:

1. Number of vehicle-pedestrian/bicycle collisions
2. Number of students living within ¼ mile from school
3. Number of students eligible for Free-Reduced Price Meals

#### 4. Lack of prior state/federal SRTS funding

Based on the current timeline for completing SRTS projects, there is potential that all or some of the LA River Valley Bikeway Segments could be completed before planning and implementation of the top 50 priority schools is completed. If all of the LA River Valley Bikeway segments are completed before improvements for the top 50 schools are completed, funding for segments of the LA River Valley Bikeway could not be shared with SRTS grants.

However, if completion of some or all of the LA River Valley Bikeway segments occurs after planning or improvements for the top 50 schools have been completed, there is potential opportunity to coordinate construction of the LA River Valley Bikeway with schools that would be competitive for SRTS funding or to include LA River Valley Bikeway segments within SRTS Travel Plans.

An initial analysis of which schools outside the top 50 priority schools would be competitive for SRTS funding was completed based on metrics used to develop the top 50 priority schools as well as priorities for the state Active Transportation Program (ATP):

- Number of vehicle-pedestrian/bicycle collisions;
- Status as a disadvantaged community
- Student enrollment (as a substitute for student population within 1/4 mile of school)
- Number of students eligible for Free-Reduced Meal Prices
- Potential for LA River Valley Bikeway to be utilized as route between residential areas and schools

### Analysis

There are 65 public elementary, middle, and high schools within a two mile radius of the LA River Valley Bikeway segments. Of those 65 public schools, 19 are within the City of Los Angeles and located within a disadvantaged community according to CalEnviroScreen. Table 7.12.1 shows the performance metrics of each school, which provides an initial idea of which schools would be most competitive to receive funding from the SRTS program.

		Vehicle-Pedestrian/Bicycle Collisions within 1/2 mile					
ID	School	Enrollment	Pedestrian Fatal	Pedestrian Injury	Bicycle Fatal	Bicycle Injury	Percent Eligible for Free-Reduced Meal Prices
<b>Elementary Schools</b>							
1	Shirley Avenue	535	1	15	0	18	76-80%
2	Vanalden Avenue	432	0	12	0	13	81-85%
3	Newcastle	432	2	20	0	9	81-85%
4	Bertrand Avenue	422	3	28	0	19	76-80%
5	Gault Street	408	0	7	0	15	81-85%
6	Bassett Street	880	1	26	0	25	66-70%
7	Columbus Avenue	531	3	53	0	23	71-75%
8	Sylvan Park	839	2	40	0	32	91-95%
9	Lankershim	472	0	64	0	76	81-85%
<b>Middle Schools</b>							
1	William Mulholland	1,162	0	5	0	7	81-85%
<b>High Schools</b>							
1	Sherman Oaks Center for Enriched Studies	2,089	2	20	0	22	81-85%
2	Reseda	1,597	2	28	0	26	81-85%
3	Zane Grey Continuation	59	2	28	0	26	81-85%
4	Independence Continuation	142	0	7	0	22	81-85%
5	Daniel Pearl Journalism & Communications Magnet	366	0	7	0	19	81-85%
6	Valley Alternative Magnet	619	0	7	0	19	81-85%
7	Will Rodgers Continuation	184	6	71	0	54	81-85%
8	Van Nuys	2,594	6	72	0	56	81-85%
9	East Valley Senior	612	0	59	0	69	81-85%



Western Reach

In Table 7.12.1 there are multiple elementary (ld# 2 and 3) and high schools (ld# 1, 2 and 3) within a 1/2 mile of the LA River west of Balboa Avenue. Because of the close proximity to the schools to the LA River, it is likely the future bikeway would be used as a route to/from school. Additionally, there are multiple areas that have concentrations of vehicle-pedestrian/bicycle collisions west of Balboa Avenue and within a 1/2 mile of those schools. The most significant areas of collisions occur along Reseda Avenue between Ventura Boulevard and Vanowen Street

There are three additional elementary schools (ld# 6, 7 and 8) within the western reach that would be competitive for SRTS funding based on demographic and collision data. However, there are no residential areas between the schools and LA River. The short-term alternative using the Orange Line bikeway and Noble Avenue could potentially provide a route connecting the schools to residential areas north of US-101 Fwy.

Central Reach

There are two high schools located within the central reach that would be competitive for SRTS funding. The schools are located within a significant concentration of vehicle-pedestrian/bicycle collisions, which are concentrated along Van Nuys Boulevard, Vanowen Street, and Sepulveda Boulevard. However, while the schools are within two miles of the LA River, the concentration of collisions is on the opposite side of the schools from the LA River. It is unlikely the future bikeway would provide an alternative route for bicyclists and pedestrians traveling to the school through those high-collision areas.

Eastern Reach

There is one elementary (ld# 9) and one high school (ld# 8) located within disadvantaged communities in Los Angeles. There is a significant concentration of vehicle-pedestrian/bicycle collisions within 1/2 mile of the schools and are concentrated along Lankershim, Magnolia, and Burbank. While proximity of the schools

to each other makes them attractive to have a shared plan, students traveling to/from school would likely not utilize the future bikeway as a route due to its distance from the schools.

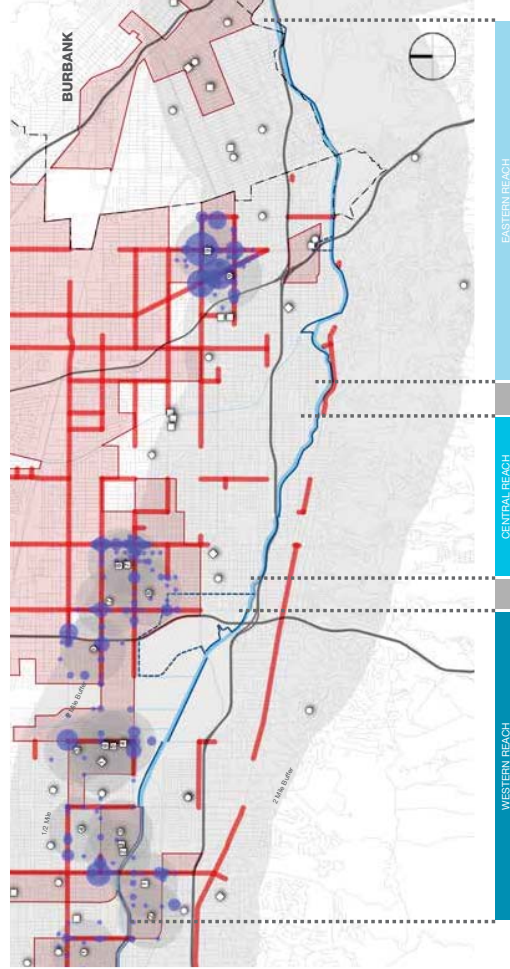
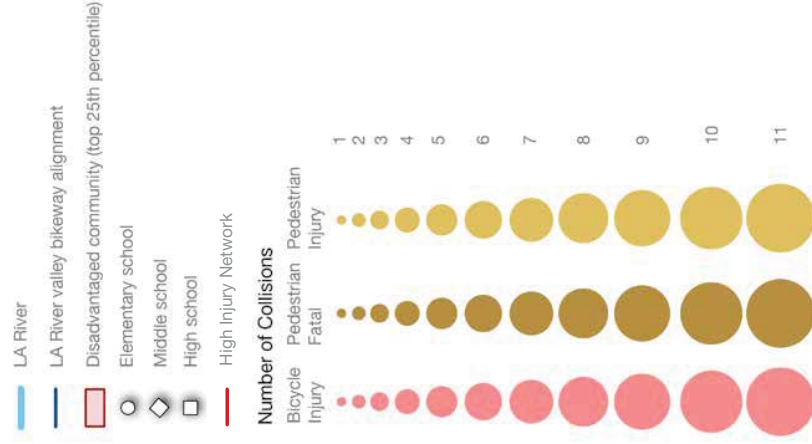


Figure 7.12.1 Vehicle-Bicycle Collisions

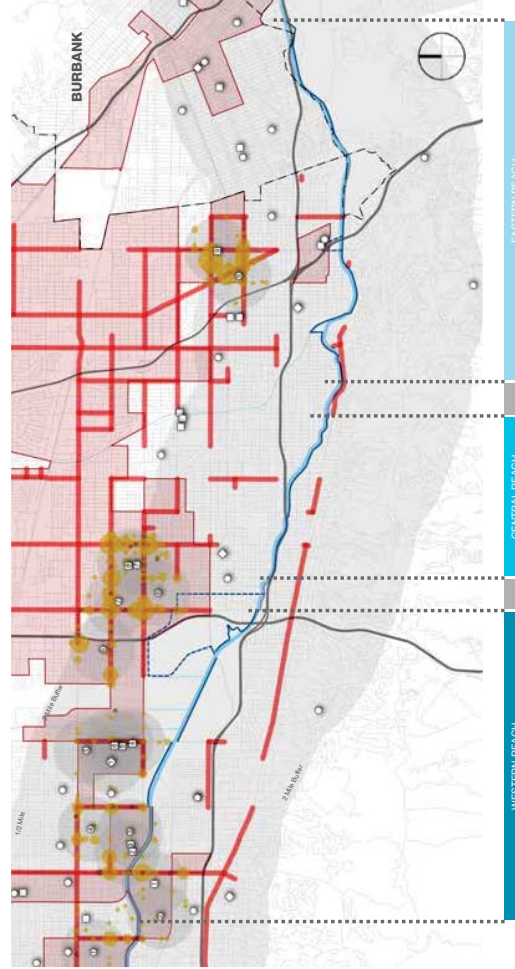


Figure 7.12.2 Vehicle-Pedestrian Collisions

## 7.13 ARTS, CULTURE, AND COMMUNITY ASSET LINKAGES

### Overview

Art, culture, and community assets contribute to equitable, healthy, and creative communities within the Los Angeles region. Art, culture, and community assets have immense diversity within Los Angeles and the San Fernando Valley. They vary in use from historic buildings to neighborhood dance studios; they can vary in size and reputation from neighborhood community center to a global renowned art institution; and they attract a wide variety of users from young to old and rich to poor. Because of their diversity, the arts strengthen communities by increasing cultural empathy and fostering civic and public engagement.

Bicycling and walking share the same values and opportunities as the arts; both modes enhance the democracy of public space. Because they can be used by persons of every age and income, they bring diverse peoples together the same way that art, culture, and community assets do. Additionally, bicycles have always been a part of social movements, from the woman's movement in the late 1800's to the environmental movement of the 1960's and the 21st Century. As both arts and cultural institutions and the LA River Bikeway evolve, they can be linked physically as well as through their values.

### Methodology

Arts, culture, and community assets were identified and mapped primarily utilizing GIS data from Los Angeles County for Locations/Points of Interest. This dataset comes from the County's Location Management System (LMS), which is a collaborative system to locations across the County. The full dataset contains over 73,000 locations, compiled from the following data sources:

- 211 LA County
- HSIP Freedom from the HIFLD working group
- County Services Locator
- Schools from California Department of Education
- Other GIS files

Other data sources that were utilized include:

- Navigate LA

- Arts for LA "Cultural Assets Map"
- City of Los Angeles, "Historic Places LA: Los Angeles Historic Resources Inventory."

### Analysis

#### Historic Resources, Historic Preservation Overlay Zones and Major Cultural Assets

There are a number of historic and cultural resources within two-miles of the LA River Valley Bikeway including a historic district, historic buildings, and major cultural assets. The Van Nuys Historic Preservation Overlay Zone (HPOZ) is separated into three contiguous areas located approximately two miles north of the LA River along Van Nuys Boulevard. The largest area is bounded by Vanowen Street, Tyrone Avenue, Hamlin Street, and Hazeltine Avenue.

There are eight properties that are listed on the National Register of Historic Places (NRHP) within two miles of the LA River Valley Bikeway and in the City of LA. Properties listed on the historic register include two library branches (Van Nuys and North Hollywood), a historic building (Rancho el Encino) located in Los Encinos State Historic Park, two case study houses (No. 1 and 21) - which were experiments in American residential architecture sponsored by Arts & Architecture magazine that commissioned major architects between 1945 and 1966, site of a treaty signing ending the Mexican-American War (Campo de Cahuenga), and two civic buildings in Burbank (City Hall and Post Office). Historic resources are spread throughout all three western, central, and eastern reaches, but a majority are located within eastern reach. Rancho el Encino and Campo de Cahuenga area located closest to the LA River, within a 1/2 mile distance.

Finally, there are a number of major cultural assets including museums (Travel Town Museum), library branches, and performing arts centers.

#### Churches, Civic Buildings, and Community Services

Community assets relate to all types of organizations that bring people together and enhance sense of community from providing community health and

safety to promoting community engagement in local government. Some of the community assets identified for the FSR and described in this section include:

- Church (all religious denominations)
- City Hall
- Courthouse
- Police and fire station
- Hospitals and medical center
- Homeless shelter
- Farmer's market

While community assets are spread among all three of western, central, and eastern reaches, there are areas with particular concentrations of community assets.

Areas with high concentrations of uses include a quarter-mile area around Van Nuys Boulevard/Victory Boulevard intersection and along Ventura Boulevard in the western reach and Lankershim Boulevard in the eastern reach. Of the identified cultural assets, churches are the most prevalent within a two-mile buffer of the LA River Bikeway.

#### Schools and Other Education

There are 331 educational facilities within two miles of the LA River Valley Bikeway based on the LA County LMS. Education facilities include:

- Public elementary, middle, and high schools
- Private and charter schools
- Adult education
- Colleges and universities
- Early childhood education and headstart
- Special curriculum schools and programs

Within two miles of the LA River Valley Bikeway, colleges and universities are primarily made up of specialized schools (cosmetology/schools), trade schools (Northwest College Glendale, Glendale Career College), or individual buildings for nearby campuses (Phillips Graduate University) rather than traditional four-year universities. However there are two junior colleges located within two miles: Los Angeles Valley College and Los Angeles Ort Technical Institute.

Education facilities are spread fairly evenly throughout all three of the western, central, and eastern reaches.

Most of the education facilities are located north of the LA River, however, within the western reach there are roughly an even amount of education facilities on both the north and south sides of the LA River.

#### Cultural Assets

The cultural assets shown were mapped by Arts for LA. Arts for LA is a nonprofit organization that helps communities throughout Los Angeles County advocate for greater investment in the arts. The Arts for LA cultural assets maps shows organizations that represents disciplines of dance, literary, visual, film, music, theatre, and multi-disciplinary that are used for performing, education, community, or infrastructure.

The highest concentration of cultural assets is located along Lankershim Boulevard between Magnolia Boulevard and Camarillo Street, in an area known as the North Hollywood (NoHo) Arts District. The NoHo Arts District is an emerging mixed-use, walkable neighborhood first established as a formal arts district by business and theater owners in the Universal City/ North Hollywood Chamber of Commerce in 1992 with support from the Los Angeles Department of Cultural Affairs. It is home to contemporary theaters, dance studios, art galleries, restaurants and cafes, and shops including 33 professional theaters listed on the NoHo Arts District webpage. The district also features the a large concentration of music recording studios.

### Next Steps

Many of the art and community assets within the two-mile buffer of the LA River are located more than a half-mile distance from the LA River, which highlights the need for quality bicycle connections from the LA River to these areas of concentrated activities. Many of these connections are proposed through documents like the Mobility Plan and Great Streets Initiative. In fact, Lankershim Boulevard is proposed to undergo a road diet as part of the City of Los Angeles's Great Streets Initiative to enhance the safety and walkability of the NoHo Arts District. Those plans and initiatives that propose such pedestrian oriented improvements should be prioritized for implementation.



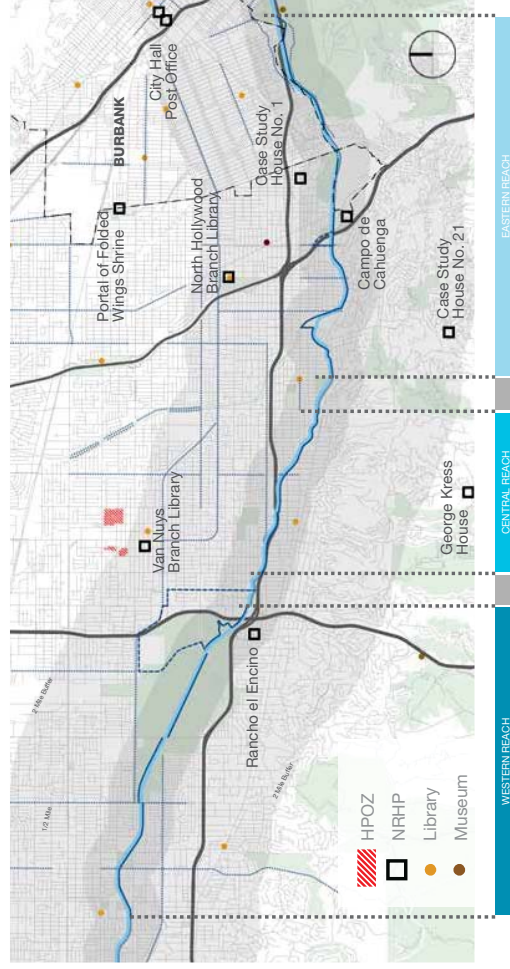


Figure 7.13.1 Historic Resources, Historic Preservation Overlay Zones, and Cultural Assets

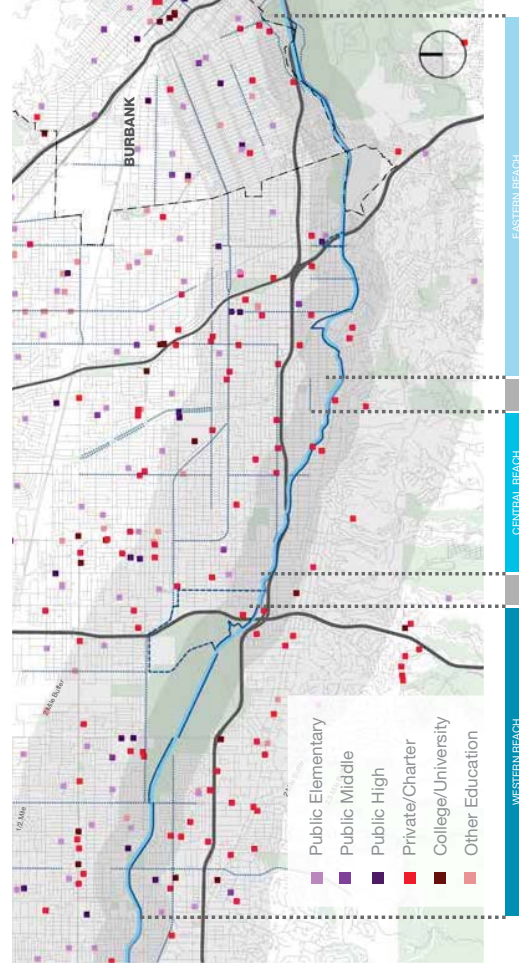


Figure 7.13.3 Education and Schools

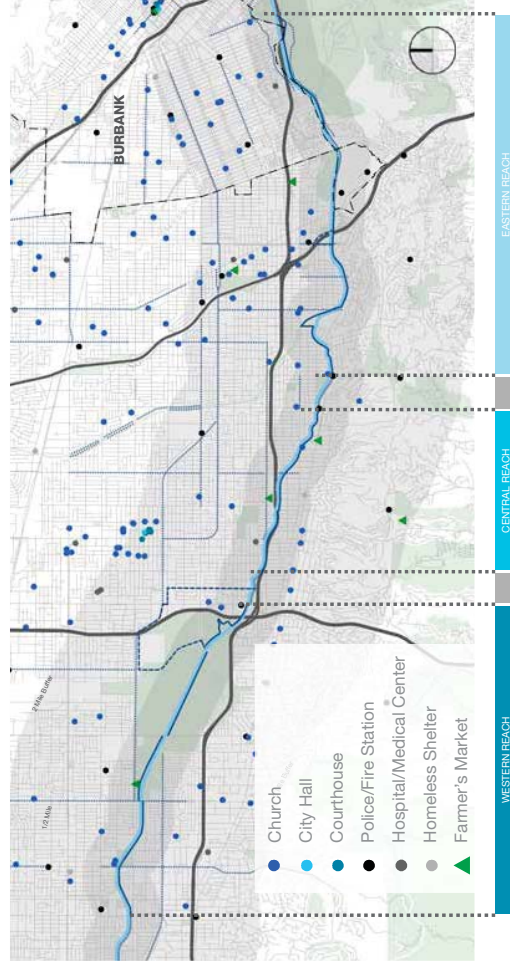


Figure 7.13.2 Churches, Civic Buildings, and Community Services

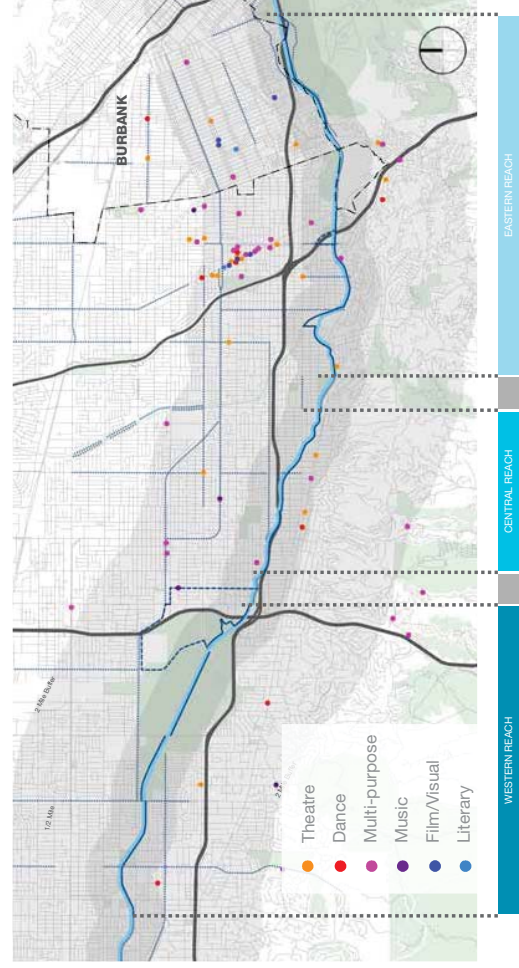


Figure 7.13.4 Arts for LA Cultural Assets Map



## 7.14 OPEN SPACE AND PARK PROXIMITY AND LINKAGES

### Overview

Regarding the LA River Bikeway, parks and open space located in close proximity provide two important functions: connection to recreation areas as well as connection to plant and animal habitats. Recreation and exercise currently represent about 60% of bicycle trips within the US,<sup>1</sup> which makes parks a complementary land use for bicycle pathways. Parks and open space provide areas for bicyclists to rest, participate in additional recreation or exercise activities and/or serve as a location for bicyclists to exercise using bicycle paths or trails.

### Methodology

An analysis of open space and parks was completed by utilizing GIS Land Use data for LA County, information from Google Maps, aerial imagery and site visits.

### Analysis

#### Western Reach

The future bikeway bisects two public parks and open spaces within the western reach. The most significant open space is the Sepulveda Basin, which is bisected by an approximately 3.2 mile segment of the future bikeway. The Sepulveda Basin includes:

- Sepulveda Basin Wildlife Reserve
- LA River Recreation Area
- LA River Access Point
- Balboa Lake/Anthony C. Beilenson Park
- Multiple golf courses
- Multiple sports complexes and recreational sport fields (baseball, soccer, cricket, tennis)

Opposite sides of the park can be accessed by shared pedestrian/bicycle paths over Burbank Boulevard and Balboa Boulevard

The future bikeway is also adjacent to Reseda Park, located between Reseda Boulevard and Etiwanda Avenue. Reseda Park includes

- Baseball/kickball fields

- Basketball and tennis courts
- Walking paths around Reseda Lake
- Seating and benches
- Open space

There is an existing pedestrian bridge at Etiwanda Avenue that connects the two sides of the park.

Randall D. Simmons Park is located within 1/2 mile from the LA River along Wilbur Avenue. Randall Simmons Park includes open space, picnic tables and children's playground.

Additionally, entrance to the Santa Monica Mountains open space areas and regional hiking and trail system can be accessed at Marvin Braude Mulholland Gateway Park. The park is located just over three miles to the south of the LA River along Reseda Boulevard, which connects to the LA River via a striped bicycle lane. Marvin Braude Mulholland Park encompasses 1,500 acres of wild land above the unpaved portion of Mulholland Drive and connects with Topanga State Park and the 20,000 acre "Big Wild," with the entire area serving as an ecological sensitive area.

#### Central Reach

There are two parks within 1/2 mile of the LA River in the central reach. Ernie's Walk is an approximately 1,500 ft long linear park/walking path along the north bank of the LA River channel between Kester Avenue and Cedros Avenue. The Van Nuys/Sherman Oaks Recreation Area is located within a 1/2 mile north of the LA River between Van Nuys Boulevard and Hazeltime Boulevard. The recreation area includes:

- Tennis, basketball and volleyball courts and programs
- Baseball, soccer and flag football fields and organized programs
- Aquatic center
- Open space and children's playground
- Picnic tables and benches

Additionally, there are multiple parks located within the Santa Monica Mountains along Mulholland Drive, approximately 1.5 miles south of the LA River. Individual parks include;

- Fossil Ridge Park
- Dixie Canyon Park
- Longridge Park
- Coldwater Canyon Open Space
- MRCA Open Space

However, there are no bicycle lanes connecting the LA River to the various parks within the Santa Monica Mountains.

#### Eastern Reach

There are multiple parks and open space within a 1/2 mile of the LA River that vary in size and amenities. The LA River bisects North Weddington Park and South Weddington Park. North Weddington Park includes Basketball Courts, Children's Play Area, Community Room, Handball Courts, Picnic Tables and Stage; while South Weddington Park includes open space and baseball fields. There is no direct crossing or adjacent on-street bicycle lanes connecting the two sides of the park.

Woodbridge Park is located approximately 1/2 mile north of the LA River at Elmer Avenue and Moorpark Street. Woodbridge Park provides a children's playground area, picnic tables, outdoor fitness equipment and walking paths. There is a bicycle lane along Tujunga Avenue that provides a connection between the park and the LA River.

Fryman Canyon Park is located approximately 1.5 miles south of the LA River along Mulholland Drive. The 122 acre park offers spectacular views, a fitness course, and access to the Betty B. Dearing Cross Mountain Trail. The Dearing Trail traverses the park and connects to Wilacre Park, Franklin Canyon, and Coldwater Canyon Park.

Griffith Park is a regional park and open space destination that covers 4,310 acres. It is located at the eastern end of the Santa Monica Mountains. The northwest edge of the park is located adjacent to SR-134 south of the LA River with access provided at Zoo Drive.

### Next Steps

There are multiple sources of grant funding available for creating and maintaining parks and open space encompassing local, regional, state, and federal levels.

However, one source of funding of particular interest to the LA River Bikeway is the Los Angeles County Regional Park and Open Space District (RPOSD). The RPOSD administers grant funds from Proposition A first passed in 1992. Since then, the RPOSD has awarded more than \$1 billion in grants for the development and improvement of parks, recreational, cultural, and community facilities and open spaces throughout Los Angeles County. Grant-funded projects range from tree planting to open space acquisition; hiking and walking trails to beaches; rivers and streams to wildlife habitat. Los Angeles County residents passed Proposition A on the November 2016 ballot, which extends Proposition A funding. As the LA River Bikeway project will include the development of new park space, new bicycle and walking paths, new tree plantings and habitat landscape, as well as increasing the use and attractiveness of existing park and open space facilities within the San Fernando Valley, the LA River Bikeway is a strong candidate for grant funding from the RPOSD.

### Sources

<sup>1</sup> [http://www.pedbikeinfo.org/data/factsheet\\_general.cfm](http://www.pedbikeinfo.org/data/factsheet_general.cfm)

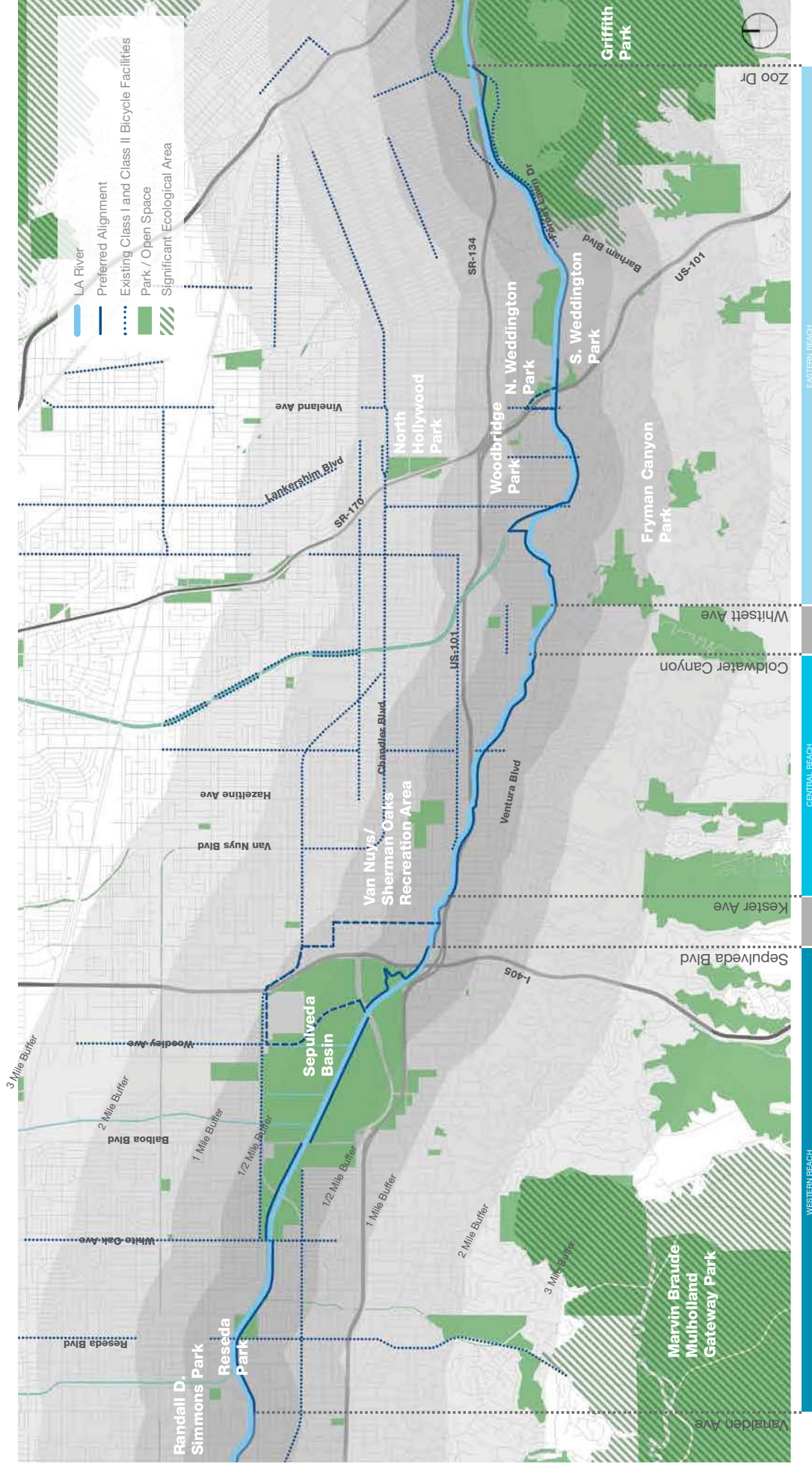


Figure 7.14.1 Existing Parks and Open Space

## 7.15 OUTDOOR RECREATION ECONOMIC ACTIVITY

### Overview

The LA River Bikeway/Greenway is expected to generate additional outdoor recreational activity. Within the five-mile catchment area, the recreational bicycling participation rate is projected to increase from 14 percent to 18 percent for the over the age of six population. The average annual incidences of participation is projected to grow from 23 to 27 per year, and the estimated average distance per ride is projected to increase slightly from 12.8 to 14.5 miles. Because of the safety, attractiveness and the length of the bikeway/greenway, more people are expected to participate in recreation bicycling, to ride more frequently and to ride a greater distance per trip. In addition, more bicyclists will come from outside this catchment area to participate in this outdoor recreation experience.

The SCAG region currently hosts 16 bike races plus 20 triathlon events per year with one-third of the triathlon being a bicycle event. With this bikeway designed to minimize conflicts with automobile traffic, it would be well suited to host these types of competitive recreation events. For the economic activity and employment generation analysis, two new bike races are assumed to be induced by this new bikeway. If these prove to be successful, more would likely be added. The revenue generated per event has been estimated at \$360,000,<sup>1</sup> and this amount for two events are added to the increase in recreation bicycle usage in order to project new economic activity and employment creation.

### Methodology

This analysis parallels the Economic Cost/Benefit and Job Creation analysis methodology, but excluding bicycle commuters, that utilizes the same preliminary cost estimates. Project costs estimates for outdoor recreation economic activity will need to be increased and updated, but is also a good indicator of the cost/benefits for build out of the LA River Bikeway according to Option 1. The recreation bicyclists and race events spending are shown in Table 7.15.1.

### Analysis

The total estimated retail spending by recreation bicyclists is \$30.7 million per year, which is 97 percent of the total retail spending including commuters. With commuters primarily concerned with trip efficiency, nearly all of the retail spending and resulting economic impact is due to increased recreation usage. The annual economic output from this new spending, after retail margin adjustments, amounts to \$50.3 million (Table 7.15.2).

As indicated in Table 7.15.3, the annual employment impact of this new spending is 463 jobs with over 90 percent in restaurants, coffee shops and bars. With a sizable share of the increased customer activity coming from leisure riders, we anticipate that most of these jobs will likely be in trendy, revamped or newly-opened establishments located within one half mile of the bikeway. In addition, establishments specializing in health foods, juices and smoothies, and other products associated with a healthy lifestyle may be of particular interest to the recreational rider demographic. As noted above, we expect some clustering near key staging areas where there is parking for recreational riders to begin and end their rides.

This bikeway could have a positive impact on attendance and related spending at other outdoor recreation venues located within its vicinity. These would include the Los Angeles Zoo at Griffith Park and the venues located in the Sepulveda Basin Recreation Area such as the Encino Velodrome, Balboa Sports Center, The Japanese Garden and the Archery Ranch at Woodley Park. By constructing a safer bicycle route to these venues, more youngsters without ready access to automobiles may be permitted to bicycle to these venues on their own. Without survey data, it is premature to attempt to quantify this type of impact.

### Sources

<sup>1</sup> Active Health and Economic Impact Study, SCAG June 2016; Task 4. Transportation System Cost Analysis

<sup>2</sup> RIMS II Type I Multiplier

<sup>3</sup> RIMS II Type II Multiplier

<sup>4</sup> Los Angeles Area CPI Adjustment Index from 2010 to 2016

**TABLE 7.15.1: CONSTRUCTION AND MAINTENANCE JOBS OF BIKEWAY / GREENWAY**

CATEGORY	RECREATION BICYCLISTS	RACE EVENTS	TOTAL
Bike Dealers & Repair Shops	\$ 2,396,589	8%	\$ 100,800
Sporting Goods / Apparel Stores	\$ 1,497,868	5%	\$ 28,800
Grocery and Convenience Stores	\$ 3,594,884	12%	\$ 86,400
Restaurants, Bars and Coffee	\$ 22,468,023	75%	\$ 504,000
<b>Total</b>	<b>\$ 29,957,364</b>		<b>\$ 720,000</b>
			<b>\$ 30,677,364</b>

**TABLE 7.15.2: GAIN IN LA COUNTY ECONOMIC OUTPUT DUE TO BIKEWAY INDUCED RECREATION SPENDING**

CATEGORY	NOTE ON RIMS II	DIRECT <sup>1</sup>	DIRECT AND INDIRECT	DIRECT + INDIRECT + INDUCED
Restaurants & Cafes	Food Services and Drinking Places	22,972,023	Multiplier <sup>2</sup> 1.4671	Output 33,702,255
Retail - Bike Stores	National Retail Margin of 0.38	949,008	1.3824	1,311,908
Retail - Sports Apparel	National Retail Margin of 0.38	580,134	1.3824	801,977
Grocery Stores	RIMS Margin of 0.27 (estimated)	993,947	1.3824	1,374,032
<b>Total</b>		<b>\$ 25,495,112</b>	<b>1.4587</b>	<b>\$ 37,190,173</b>
				<b>\$ 50,286,944</b>

<sup>1</sup> Input provided from Table 3 with retail margin adjustments

<sup>2</sup> RIMS II Type I Multiplier

<sup>3</sup> RIMS II Type II Multiplier

**TABLE 7.15.3: NEW RETAIL JOBS FROM INCREASE BICYCLIST SPENDING DUE TO BIKEWAY**

CATEGORY	DIRECT <sup>1</sup>	DIRECT <sup>1</sup>	DIRECT AND INDIRECT	DIRECT + INDIRECT + INDUCED
	2016 \$	2010 \$ <sup>4</sup>	Per \$ (M)	Employment
Restaurants & Cafes	22,972,023	20,819,761	17.0541	355
Retail - Bike Stores	949,008	860,095	12.8321	11
Retail - Sports Apparel	580,134	525,781	12.8321	7
Grocery Stores	993,947	900,823	12.8321	12
<b>Total</b>	<b>\$ 25,495,112</b>	<b>\$ 23,106,460</b>	<b>16.6363</b>	<b>384</b>
				<b>463</b>

<sup>1</sup> Input provided from Table 3 with retail margin adjustments

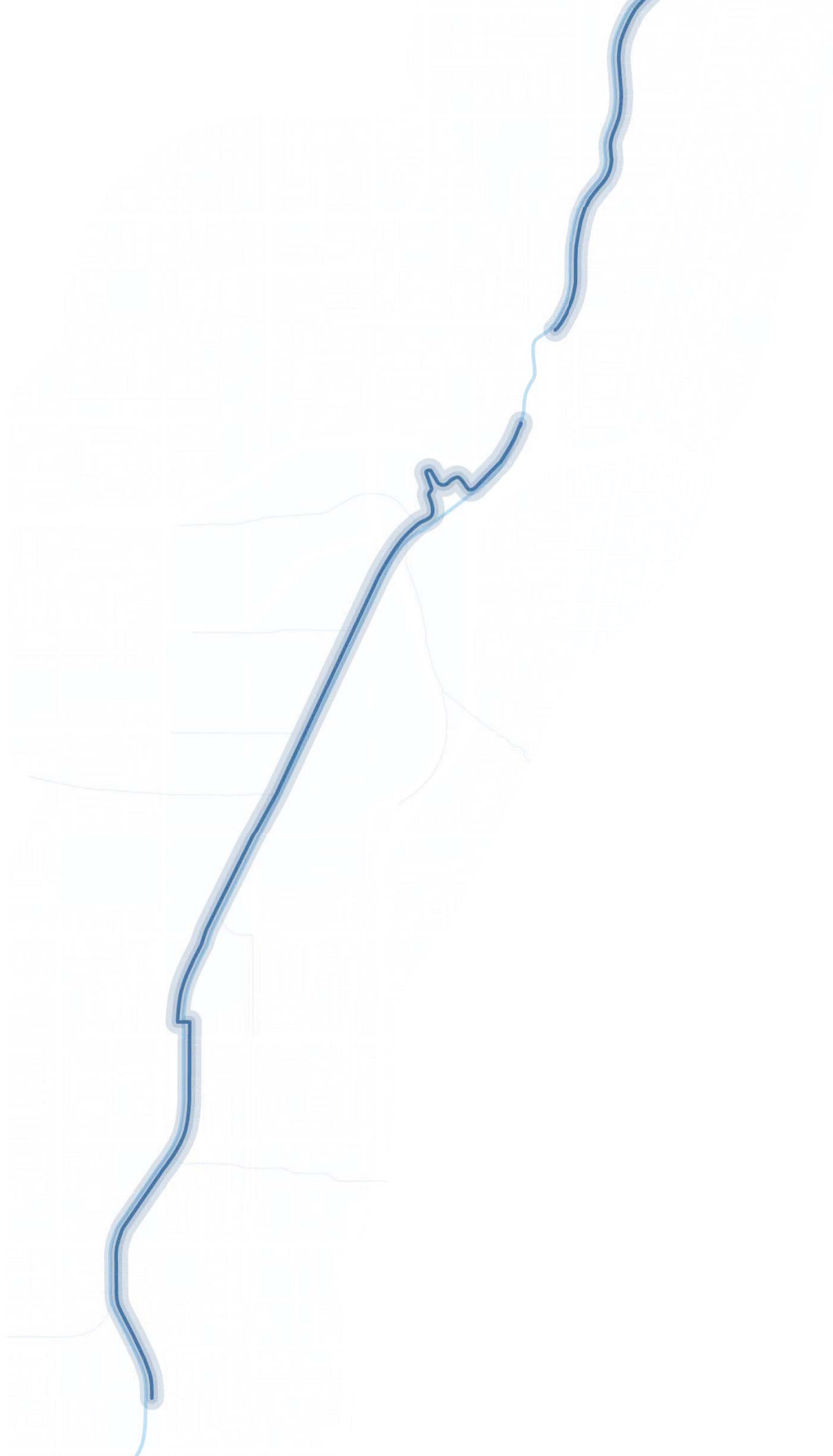
<sup>2</sup> RIMS II Type I Multiplier

<sup>3</sup> RIMS II Type II Multiplier

<sup>4</sup> Los Angeles Area CPI Adjustment Index from 2010 to 2016



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# OVERVIEW

As an integral part of the Feasibility Study process, the Consultant team presented project deliverables for review and comment by project stakeholders and community members. Public engagement activities for the Project covered a significant swath of the San Fernando Valley along the LA River, running from its far west reaches at Vanalden to Riverside Drive/Zoo Drive at Griffith Park as the River approaches the Los Angeles Basin. The Project area includes Council Districts- 2, 3, 4, 5 and 6.

The outreach began with developing a comprehensive list of stakeholders tailored to this project including residents, neighborhood councils, business leaders, institutions, BIDS, community-based organizations and non-profits, schools and educational institutions, and major employers as well as additional special interest groups unique to the area, especially bike organizations within Los Angeles and the Project area. Community Meetings were held in both the east and west valley to help solicit the community's preferences and input. Meetings with a Technical Advisory Committee (TAC) comprised of staff from the City of Los Angeles, County of Los Angeles, and other public agencies was also a key element in the process. Other Stakeholders meetings included the Advisory Stakeholder Committee (ASC) that was divided into separate East and West Valley meetings. The ASC meetings involved community stakeholders and neighborhood council members for a more focused and rigorous dialogue with civic leaders and special interest groups.

## OUTREACH AND STAKEHOLDER ENGAGEMENT PROCESS

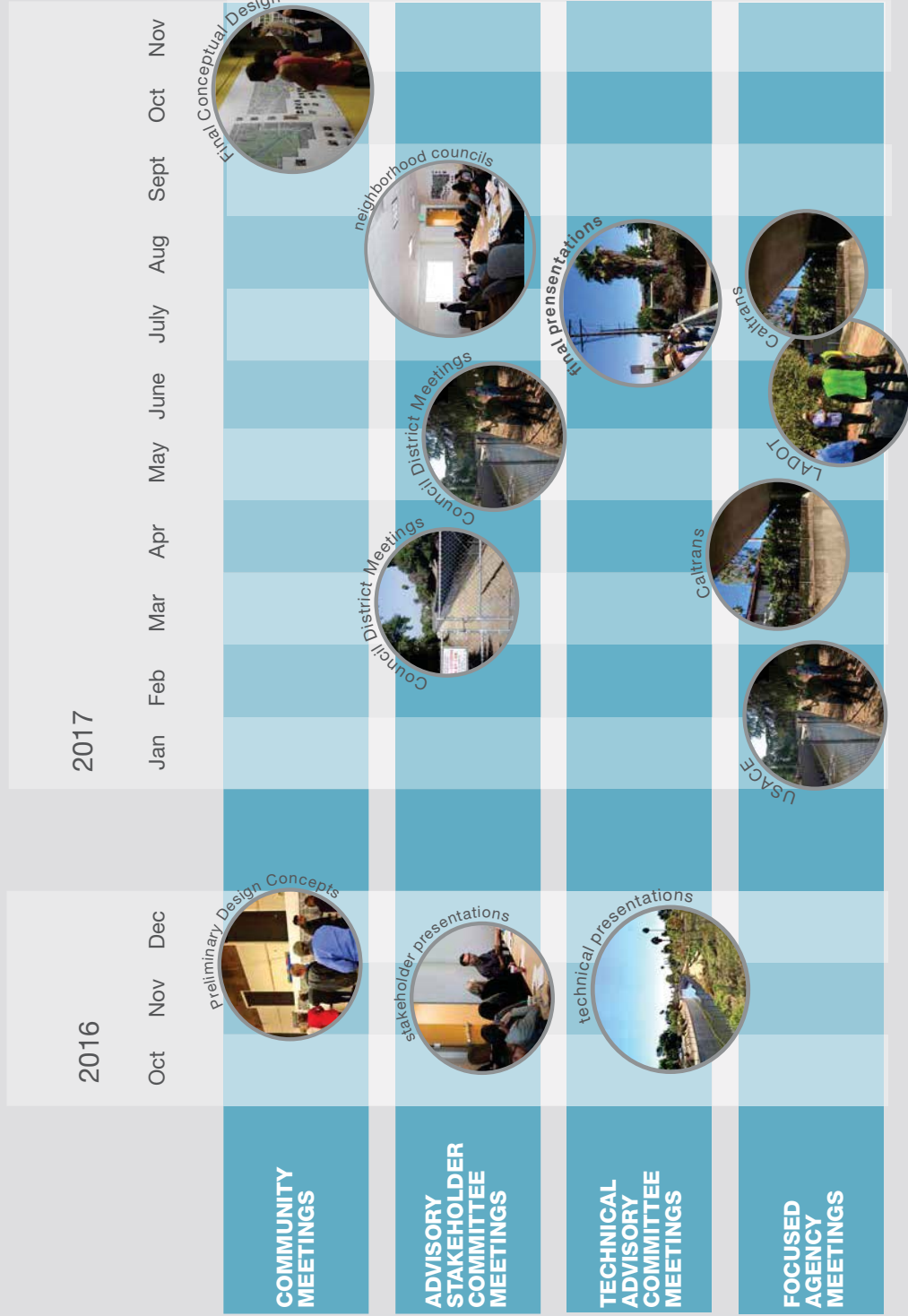


Figure 8.1 Outreach and Stakeholder engagement process and timeline

## COMMUNITY MEETINGS

### Introduction

The City of Los Angeles Bureau of Engineering hosted the first round of community meetings for the Los Angeles River Valley Bikeways and Greenways Project. This Project entails designing and constructing new bike path and greenway facilities along the Los Angeles River that will complement and connect to projects that have already been built or are underway. The project area encompasses the San Fernando Valley from Vanalden Avenue to Forest Lawn Drive/Zoo Drive.

The purpose of the community meetings was to give community stakeholders an opportunity to learn more about the project and to provide input on preliminary design concepts. Public input received at these meetings will be incorporated into the next phase of the design process.

### Meeting Format

The first meetings were held on Tuesday, December 6, from 6:30 to 8:00 PM at the Encino Community Center Auditorium in the West San Fernando Valley and on Tuesday, December 13 from 6:30 to 8:00 PM at Los Angeles Valley College in the Central/East portion of the project area. Both meetings consisted of identical content and format. Approximately 42 community stakeholders attended the first meeting and 24 community stakeholders attended the second meeting.

City Staff for the City of Los Angeles, Bureau of Engineering Architectural Division, welcomed attendees and introduced the consultant team before providing an overview of the Project and presenting sample segment challenges along the proposed bike path. The presentation continued with representatives from the consultant team, who spoke about the focused alignment study, lexicon of typologies, and the potential

place, material and furniture elements. The team then presented landscape design elements including linking remnant habitat, corridor typologies, typical bikeway cross sections, and pocket parks and street ends. The presentation was concluded and time for questions was provided while advising attendees to also submit their questions or concerns on the provided comment card. Consultant team members and City staff responded directly to the public on their verbal questions and comments.

The second set of community meetings were held on Thursday, October 12, from 6:00 to 7:30 PM at the West Valley Regional Branch Library in Reseda and on Tuesday, October 17 from 6:00 to 7:30 PM at Valley Plaza Branch Library in North Hollywood. Both meetings provided identical content and format. Approximately 12 community stakeholders attended the first meeting and 16 community stakeholders attended the second meeting.

Nur Malhis, Project Manager for the City of Los Angeles, Bureau of Engineering, Architectural Division, welcomed attendees and introduced the consultant team before providing an overview of the Project and presenting sample and interim segment challenges along the proposed bike path. The presentation continued with Dean Howell, Project Manager from Gruen Associates, the lead Project consultant, who spoke about the focused alignment study, the lexicon of typologies and the potential place, material and furniture elements. Gruen Associates then presented landscape design elements including linking remnant habitat, corridor typologies, typical bikeway cross sections, and pocket parks and street ends. City Staff concluded the presentation and provided time for questions while advising attendees



Figure 8.2 Community meeting presentation at the Encino Community Center



Figure 8.3 Community meeting presentation at the Monarch Hall, Los Angeles Valley College



Figure 8.4 Community meeting presentation boards and scroll drawing at the Valley Plaza Branch Library

## COMMUNITY MEETINGS

to also submit their questions or concerns on the provided comment cards. Consultant team members and City staff responded directly to the public on their verbal questions and comments. See Appendix H-K for full exhibits presented and community comments/responses.

### Meeting Notification

The community was notified of the meetings via email distribution to the consultant team's in-house project database, social media, Council District outreach and correspondence, and Neighborhood Council announcements and notices. An email distribution network was initially developed by the consultant team using data from current and previous City of Los Angeles projects in the Project area and across other relevant projects. Extensive research was further conducted to identify opinion leaders and local stakeholders in and around the Project area, including neighborhood and community groups, homeowner associations, Neighborhood Councils, civic clubs, agencies, businesses, environmental groups, and elected officials in the City of Los Angeles as well as the cities of Glendale and San Fernando. Over 200 contacts were identified and used for the email announcement.

The Los Angeles City Council offices of Paul Krekorian (Council District 2), Bob Blumenfeld (Council District 3), David Ryu (Council District 4), Paul Koretz (Council District 5), and Nury Martinez (Council District 6) were contacted directly by email and phone to obtain input on important stakeholders to include in the project's email distribution list. Council offices were also asked to disseminate news of the meetings using their own

channels of communication including social media, newsletters, and email blasts. A one-page community meeting announcement was designed to facilitate news sharing.

Using research, and input from Council District offices, pertinent Neighborhood Councils were added to outreach efforts. When available, general contact email addresses and key Neighborhood Council members contacts were added to the email distribution network. Upon receiving the general email announcement, Neighborhood Councils were contacted individually via email. Forty-five Neighborhood Council contacts received personalized emails to follow-up on the general notification and to request that they share information about the meetings with their constituents, neighbors and other local stakeholders.

The email announcement was distributed four times to the list of over 200 contacts: a meeting announcement, a reminder, a location update, and a second reminder for the final meeting of the year. Open-rates for all four email campaigns ranged from 37.5% on the low-end to 40.3% on the high-end, both above the average open-rate of 26.14% for government emails as reported by MailChimp. All email questions were directed to LAValleyBikepath@gmail.com, a project-specific email account created by the team outreach consultant.

In addition to email announcements and direct outreach, the team outreach consultant posted news of the meetings on social media and routinely monitored and interacted with stakeholders on Twitter, including the Los Angeles County Bicycle Coalition and Friends of the Los Angeles River, that shared information about the community meetings.



Figure 8.5 Community and consultant team members at the Encino Community Center



Figure 8.6 Community members at the Monarch Hall, Los Angeles Valley College



## TECHNICAL ADVISORY COMMITTEE

As an integral part of the Feasibility Study process, the team presented the project deliverables for review and comment by project stakeholders and community members. A Technical Advisory Committee (TAC) was formed and was comprised of staff from the City of Los Angeles, County of Los Angeles, and other public agencies. A total of two (2) meetings were conducted during the Feasibility Study.

A list of participating agencies were as follows:

Bureau of Sanitation  
California Department of Transportation  
Department of Recreation and Parks  
Department of Water and Power  
Friends of the LA River  
Los Angeles County Bike Coalition  
Los Angeles River Works  
Los Angeles County Public Works  
Los Angeles Department of Transportation  
Los Angeles County Metropolitan Transportation Authority  
Mountains Recreation and Conservation Authority  
National Park Service  
Police and Fire Department  
River LA & Gehry Partners  
Southern California Association of Governments  
Trust for Public Land  
Urban Waters Federal Partnership  
United States Army Corps of Engineers

The TAC had the opportunity to review and comment on the feasibility study deliverables throughout the process. Project overview, site analysis and draft alternatives were presented at the first meeting. Final concept alternatives and cost estimates were presented at the second meeting. They reviewed on these dates:

**Wednesday, November 16, 2016**

**BOE  
1149 S. Broadway  
Los Angeles, CA 90015**

**Wednesday, April 19, 2017**

**BOE  
1149 S. Broadway  
Los Angeles, CA 90015**

## ADVISORY STAKEHOLDER MEETINGS

The team conducted a total of four (4) Advisory Stakeholder Meetings (ASC). These were conducted to address the project as two separate areas consisting of the ASC-East and the ASC-West districts. The ASC-West district addressed segments 01-04. The ASC-East district addressed segments 05-09.

These meetings were comprised of decision-makers from the applicable Council Districts, Neighborhood Councils, and representative from the Mayor's office. In the first set of meetings, the Consultant Team presented site analysis and draft concepts, including bridge crossings and design of street end parklets.

The meetings were as follows:

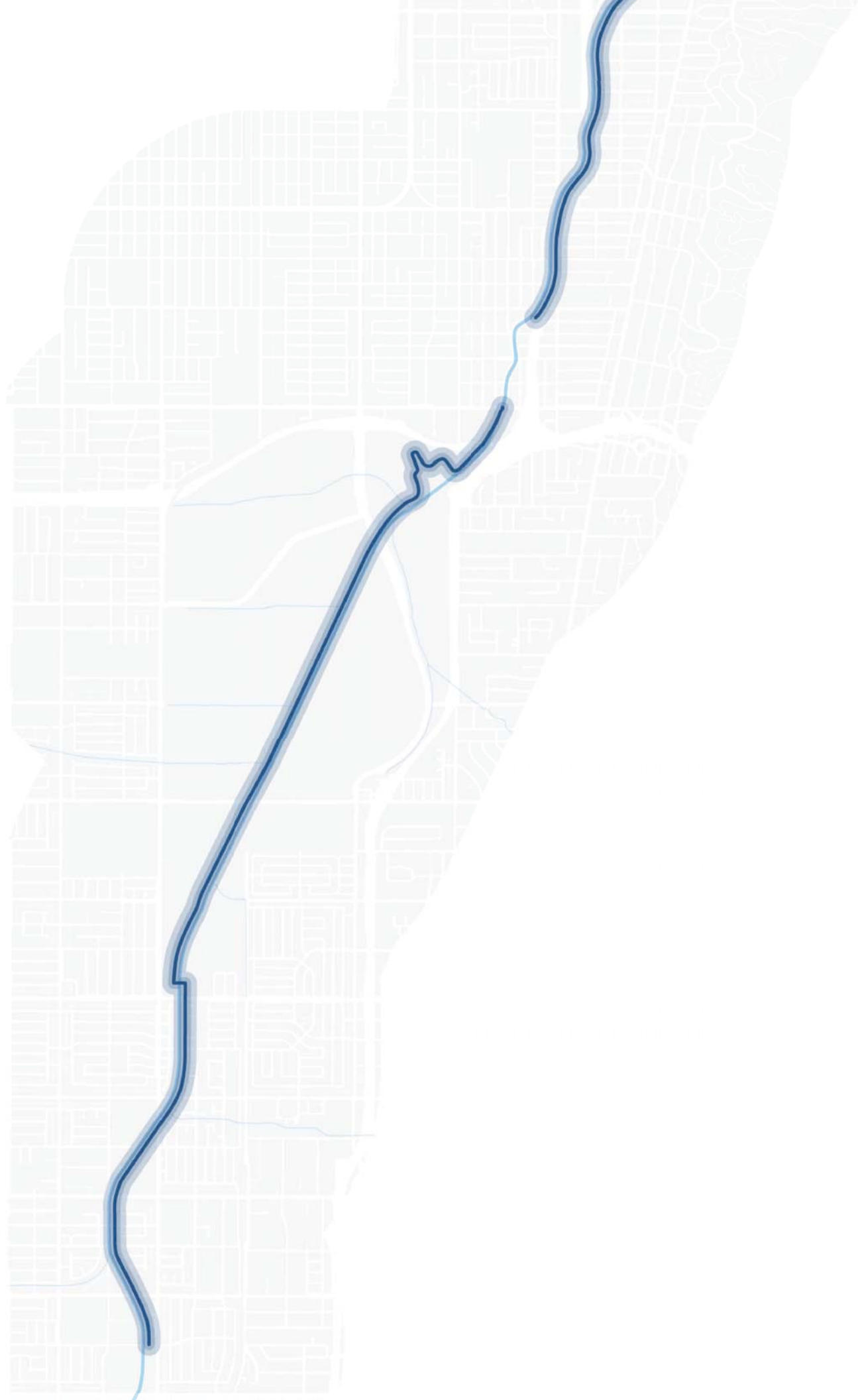
**Wednesday, November 30, 2016  
ASC-East and West Valley Meetings  
Marvin Braude Building  
6262 Van Nuys Blvd  
Van Nuys, CA 91401**

Final concept alternatives and findings of the FSR were presented as follows:

**Wednesday, July 26, 2017  
ASC-West Valley Meeting  
Marvin Braude Building  
6262 Van Nuys Blvd  
Van Nuys, CA 91401**

**Wednesday, August 2, 2017  
ASC-East Valley Meeting  
Marvin Braude Building  
6262 Van Nuys Blvd  
Van Nuys, CA 91401**

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## CONCEPTUAL COST ESTIMATES | 9



## OVERVIEW

The LA River Bikeway and Greenway project will construct a bikeway and pedestrian path along a 12 mile section of the LA River. The LA River Bikeway and Greenway project includes the construction of pocket parks and stormwater BMPs including a greenway bioswale along the alignment, as well as undercrossing ramps, bridges, and tunnels where existing streets cross the LA River. A cost estimate for the future bikeway project, and all included elements, was prepared to represent preliminary estimates for the feasibility stage of the project. This chapter presents the methodology used to establish the cost estimate, cost estimates for each individual project segment, and estimated cost for the future bikeway project. A full breakdown of the estimated costs for each individual element of each category for all sections of the LA River Bikeway and Greenway can be found in the Appendix.

## METHODOLOGY

### Estimate of Cost

The cost estimate includes direct costs for individual physical elements required for project construction, as well as allowances for indirect/soft costs and contingencies that may potentially occur during design and construction. The cost estimate was prepared from a survey of the quantities of work - items prepared from written or drawn information provided at the design-development, working drawing or bid-documents stage of the design. For the LA River Bikeway and Greenway, the survey of quantities of work included the following materials:

- Conceptual engineering plans
- FSR Chapter 2 - Site Analysis
- FSR Chapter 3 - Study Alignment and Alternatives
- FSR Chapter 5 - Conceptual Design

Historical costs, information provided by contractors and suppliers, as well as judgemental evaluation by the cost estimator, design team, and City staff were used as appropriate as the basis for pricing. As a result of the multiple sources of cost information and conceptual design of the project, a variety of assumptions were made in pricing tunnels, ramps, bridges, and other bikeway elements.

### Competitive Bidding

The prices in the cost estimate are based on competitive bidding. Competitive bidding is receiving responsive bids from at least five or more general contractors and three or more responsive bids from major subcontractors or trades. Major subcontractors are structural steel, plaster / EIFS contractors, mechanical, plumbing, and electrical.

Without competitive bidding, contractor bids can and have ranged from 25% - 100% over the prices in this estimate, depending upon the size of the job. Figure 9.2 shows the general relationship between number of bids received and its impact on project cost.

Number of Bids	Percentage Differential
1	+25 to 100%
2 - 3	+10 to 25%
4 - 5	0 to +10%
6 - 7	0 to -10%
8 or more	-10 to -20%

Figure 9.2 Impact of Number of Bids on Project Costs

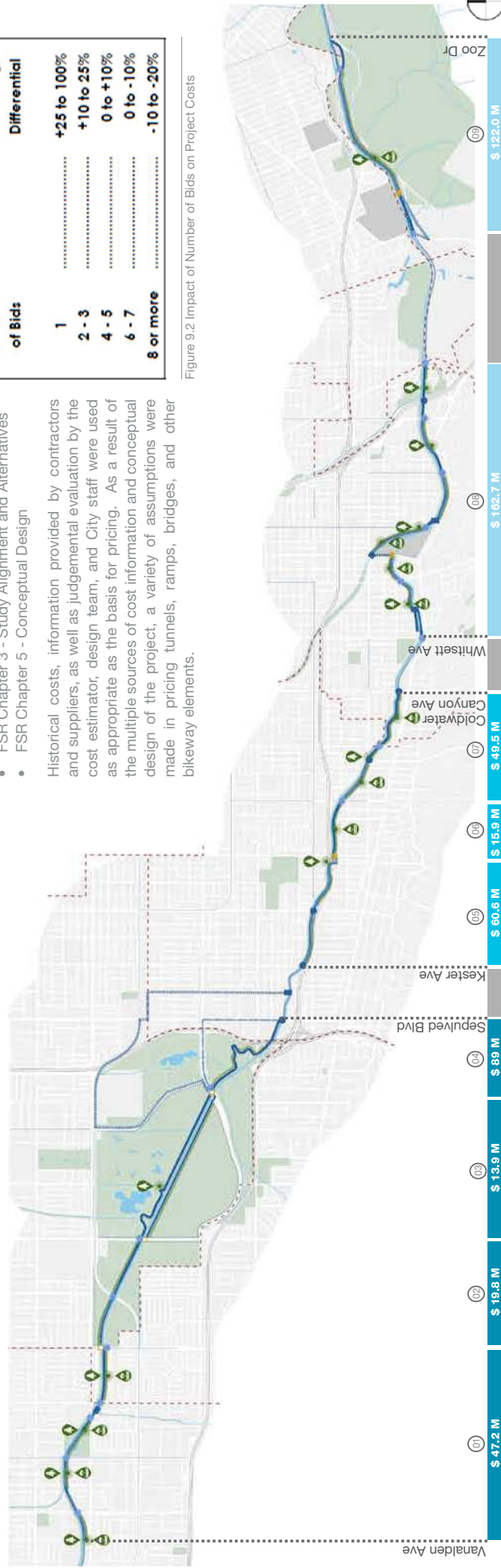


Figure 9.1 LA River Valley Bikeway and Greenway Cost Estimates by Project Segment

### Wage Rate

The estimate is based on prevailing wage-rates and conditions currently applicable in Los Angeles, CA.

### Specific Exclusions

The following items were specifically excluded from the cost estimate:

- Right-of-way acquisition
- Interim street intersection improvements

Interim street intersection improvements include re-striping, new traffic signals, crosswalks, and other potential intersection improvements that would be completed if an street undercrossing or overcrossing could not be completed during the initial construction phase due to cost, permitting, or design requirements. The cost estimate presented in this chapter only includes the costs for the final design condition. Two exceptions include the interim alignments in Segments 04 and 08 bypassing new crossings over I-405 and US-101, respectively. A full discussion of phasing scenarios and estimated costs for interim street intersection improvements that are required for phasing scenarios are included in Chapter 10.

### Direct Costs / Hard Costs

Direct costs include construction of all of the physical elements needed to complete the LA River Bikeway and Greenway. The following categories were used to group related costs.

#### Existing Conditions

The costs for demolishing and/or clearing existing surfaces, structures, and brush are associated with existing conditions. Estimated costs for preparing existing conditions average between \$40 k and \$115 k per mile.

### Earthwork

Earthwork includes preparing the alignment surface for construction of the future bikeway. Specific tasks include: excavating to grade, moving of materials, grading, fine grading, disposal of excavated materials, install and remove silt fence, and maintain Stormwater Pollution Prevention Plan (SWPP). Estimated costs for earthwork average between \$120 k and \$440 k per mile.

#### Bikeway

The bikeway includes construction of the bikeway, pedestrian path, and structural elements supporting the bikeway and path. Components that make up the bikeway include: gravel base, subgrade, asphalt concrete, jet seal, and striping. Components that make up the pedestrian path include: subgrade and decomposed granite. Other bikeway elements include railings, retaining walls, ramps connecting between the bikeway and cross streets, and modification to existing sidewalks. Estimated costs for constructing the bikeway, pedestrian path and other elements averages between \$1.5 m and \$3.5 m per mile.

#### Bridges and Undercrossings

Bridges and undercrossing include streets over the LA River, undercrossing ramps, and tunnels. The cost estimate for bridges and undercrossings include all the elements for demolition of existing structures and physical improvements. Cost for bridges and undercrossings are based on the square foot cost or linear foot cost of typical structure. For the LA River Bikeway and Greenway, bridges and undercrossings have typically been estimated between \$2.5 million and \$4 million per bridge or undercrossing.

### Utilities

Costs for utilities include costs for new installation of utilities related to lighting the bikeway, as well as relocation of existing utilities. New lighting utilities include light poles every 100 feet, pole foundations, electric boxes, and conduit trenching and wires. Potential utilities that were estimated to be relocated include: water lines, sewer lines, gas lines, storm drains, and replacing utility connections. Estimated costs for relocating existing and providing new utilities averages between \$440 k and \$750 k per mile.

#### Landscaping

Landscaping costs are associated with elements that make up the greenway and bioswale along the bikeway alignment. Specific elements include: trees, habitat landscape planting, irrigation, bioswales, and stormwater best management practices (BMP). Estimated costs for the greenway bioswale and planting along the alignment averages between \$240 k and \$1.3 m per mile.

#### River Parks

River parks are made of two types of features: natural landscape and park amenities, and architectural elements. Elements that comprise the natural landscape features and park amenities include: clearing and grading, permeable paving walkways, habitat landscape planting, bioswales, trees, irrigation, stormwater BMP, benches and seating, trash and recycling, drinking fountain, signage, and lighting. Potential architectural features include: shade canopy, bike fix-it station, bike racks, river overlooks, restroom, kiosk, amphitheater, bird blind, and habitat deck. Estimated costs for river parks vary considerably due to variations in size and amenities and architectural features provided, and range between approximately \$200 k and \$18m. Structures that would be cantilevered over the edge of the river wall to allow for additional space in the river parks have shown to be very expensive. Due to the steep costs associated with this, these elements have been left out of the cost totals for River parks.

### Public Art

\$75,000 was estimated to be included for public art features within each segment.

Earthwork+Bikeway+Ped Path	\$ 36.4 M
Utilities	+ \$ 1.2 M
At-grade crossings	+ \$ 1.4 M
Street + River Crossings	+ \$ 78.4 M
Landscaping	+ \$ 8.2 M
River Parks and Street Ends	+ \$ 35.0 M
Public Art	+ \$ 0.7 M
Total Direct Cost	\$ 161 M

Figure 9.3 Total Direct Costs by Project Component



### Indirect Costs / Soft Costs / Contingencies

Allowances for the following indirect costs are based on the direct cost subtotal. However, subtotal allowances can be calculated in different sequence that could result in different total costs. Figure 9.4 shows the sequence of soft costs applied to estimated hard costs for the LA River Bikeway and Greenway project.

#### Design Contingency (25%)

Design contingency is included in a construction budget to cover additional costs for possible design changes. Design changes will occur as project moves from conceptual design to construction documents as more detailed information of existing conditions are surveyed, which may require design changes. The amount of contingency varies with the stages of design; as the design is finalized, the contingency should be reduced to near zero. At the feasibility study stage that only includes conceptual design, the design contingency is estimated at 30%.

#### General Conditions (15%)

General conditions cover costs during construction including: field supervision, mobilization, and demobilization.

#### Bonds / Insurance (3%)

Covers costs of payment and performance bonds.

#### Contractor Fee (7%)

Covers costs for contractor overhead and profit.

#### Escalation (15%)

Escalation costs include the projected rise of construction costs from year to year. Construction of the LA River Bikeway and Greenway will take multiple years due to both the project size and scope, as well as potential project phasing. Current escalation costs are observed at a 5% per year escalation rate to the midpoint of

construction, which equals a 15% estimated escalation allowance for three year construction timeline.

#### Design Fees (15%)

Typical soft costs include architecture and engineering fees.

#### Project Management / Construction Management and Third Party Costs (15%)

Permits, testing, inspection. Permits and taxes also fall into this category.

#### Project and Change Order Contingency (15%)

Construction contingency costs that occur after the bid process.

### Total Cost

Adding together all the indirect/soft costs and contingencies typical of an infrastructure of this size and at this stage the development process with the direct costs, the total estimated cost for the LA River Bikeway and Greenway in its final proposed design condition is \$588.6 million.

### Individual Segment Costs

Individual direct/hard costs of each category for all the project segments are shown on the remaining pages.

	Existing Conditions	\$ 0.7 M
	Earthwork	+ \$ 2.7 M
	Bikeway + Ped Path	+ \$ 28.3 M
	Street + River Crossings	+ \$ 144.0 M
	Utilities	+ \$ 7.1 M
	Landscaping	+ \$ 7.3 M
	River Parks and Street Ends	+ \$ 33.9 M
	Public Art	+ \$ 0.7 M
	<b>Total Direct Cost</b>	<b>\$ 225.3 M</b>
25%	Design Contingency	+ \$ 56.3 M
	<b>Subtotal</b>	<b>\$ 281.6 M</b>
25%	General Conditions Bonds/Insurance/Contractor Fees	+ \$ 70.4 M
	<b>Subtotal</b>	<b>\$ 352.0 M</b>
15%	Escalation	+ \$ 52.8 M
	<b>Estimated Construction Award</b>	<b>\$ 404.8 M</b>
15%	Design Fees	+ \$ 60.7 M
15%	Project Management / Construction Management + 3 <sup>rd</sup> Party Costs	+ \$ 60.7 M
15%	Project + Change Order Contingency	+ \$ 60.7 M
	<b>Total Project Cost</b>	<b>\$ 588.8 M</b>

Figure 9.4 Sequence of Indirect Cost Burdens

## SEGMENT 01

## Vanalden Avenue to White Oak Avenue

Segment 01 is 1.9 miles in length along the south side of the LA River with multiple undercrossing ramps and river parks.

TABLE 9.1: SEGMENT 01 ESTIMATED DIRECT COSTS

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Lighting Bioswale		\$ 4,117,445
Bridges and Undercrossings Wilbur Avenue - Undercrossing Ramp Reseda Boulevard - Undercrossing Ramp Lindley Avenue - Undercrossing Ramp White Oak Avenue - Undercrossing Ramp White Oak Avenue- At grade improvements Victory Boulevard - Undercrossing Ramp Caballero Creek - Overcrossing	\$ 2,500,000* \$ 2,500,000* \$ 2,500,000* \$ 2,500,000* \$ 100,000 \$ 1,000,000* \$ 144,225	\$ 11,280,859**
Utilities		\$ 406,200
Landscaping		\$ 379,070
River Parks Vanalden Avenue Yolanda Avenue Etiwanda Avenue Zelzah Avenue	\$ 213,572 \$ 291,914 \$ 1,169,452 \$ 298,275	\$ 1,973,213
Public Art		\$ 75,000
TOTAL DIRECT COSTS		\$ 18,231,947

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options

## SEGMENT 02

## White Oak Avenue to Balboa Boulevard

Segment 02 is 1.07 mile in length along the north side of the LA River through the Sepulveda Basin and one undercrossing ramp at the Orange Line Busway.

TABLE 9.2: SEGMENT 02 ESTIMATED DIRECT COSTS

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Lighting Bioswale		\$ 2,247,228
Bridges and Undercrossings Orange Line Busway - Undercrossing Ramp	\$ 4,764,971	\$ 4,764,971
Utilities		\$ 195,750
Landscaping		\$ 465,460
River Parks		\$ 0
Public Art		\$ 75,000
TOTAL DIRECT COSTS		\$ 7,748,409

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options

## SEGMENT 03

### Balboa Boulevard to Burbank Boulevard

Segment 03 is 1.45 mile long on the north side of the LA River and begins at Balboa Boulevard and ends at Burbank Boulevard with one undercrossing ramp and river park.

**TABLE 9.3: SEGMENT 03 ESTIMATED DIRECT COSTS**

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Lighting Bioswale		\$ 4,454,419
Bridges and Undercrossings Burbank Boulevard - Undercrossing Ramp	\$ 170,125	\$ 170,125
Utilities		\$ 0
Landscaping		\$ 572,000
River Parks Balboa	\$ 216,523	\$ 216,523
Public Art		\$ 75,000
<b>TOTAL DIRECT COSTS</b>		<b>\$ 5,488,067</b>

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options

## SEGMENT 04

### Burbank Boulevard to Sepulveda Boulevard

Segment 04 is approximately 1.2 miles along the north side of the LA River between Burbank Boulevard and Sepulveda Boulevard that will navigate over the Sepulveda Dam area and the I-405 via a pedestrian/bike bridge.

**TABLE 9.4: SEGMENT 04 ESTIMATED DIRECT COSTS**

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Lighting Bioswale		\$ 1,562,608
Bridges and Undercrossings I-405 - Street Bridge Sepulveda Dam - Modification Sepulveda Boulevard - Street Bridge	\$ 18,509,898 \$ 82,775 \$ 9,511,408	\$ 32,319,693**
Utilities		\$ 0
Landscaping		\$ 282,160
River Parks		\$ 0
Public Art		\$ 75,000
<b>TOTAL DIRECT COSTS</b>		<b>\$ 34,239,461</b>

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options



## SEGMENT 04 - INTERIM PHASE

### Burbank Boulevard to Sepulveda Boulevard

Segment 04 interim phase is a 4.0 mile long stretch that will connect the western and central reaches via the Orange Line Bikeway and Noble Avenue while bridge over I-405 is planned and constructed.

**TABLE 9.5: SEGMENT 04 INTERIM ALIGNMENT ESTIMATED DIRECT COSTS**

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Lighting Bioswale		\$ 672,808
Bridges and Undercrossings Noble Avenue - River Crossing	\$ 2,093,170	\$ 2,093,170**
Utilities		\$ 0
Landscaping		\$ 141,080
River Parks		\$ 0
Public Art		\$ 75,000
<b>TOTAL DIRECT COSTS</b>		<b>\$ 2,907,058</b>

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options

## SEGMENT 05

### Kester Avenue to Hazeltime Avenue

Segment 05 is a 1.05 mile long stretch that connects to the existing LA River bike path to the west of Kester Avenue and ends at Hazeltime Avenue with a river park under US-101.

**TABLE 9.6: SEGMENT 05 ESTIMATED DIRECT COSTS**

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Lighting Bioswale		\$ 4,758,749
Bridges and Undercrossings Kester Avenue - Street Bridge Van Nuys Boulevard - Street Bridge At-Grade Hazeltime Avenue	\$ 8,580,187 \$ 5,590,140 \$ 337,500	\$ 16,295,876**
Utilities		\$ 62,400
Landscaping		\$ 875,100
River Parks Hazeltime Avenue	\$ 952,933	\$ 952,933
Public Art		\$ 75,000
<b>TOTAL DIRECT COSTS</b>		<b>\$ 23,357,058</b>

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options

## SEGMENT 06

## Hazeltine Avenue to Woodman Avenue

Segment 06 is a 0.5 mile long stretch along the south side of the LA River beginning at Hazeltine Avenue and ending at Woodman Avenue.

TABLE 9.7: SEGMENT 06 ESTIMATED DIRECT COSTS

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Bioswale		\$ 2,027,259
Bridges and Undercrossings Woodman Avenue - Tunnel	\$ 3,679,094	\$ 3,679,094
Utilities		\$ 62,400
Landscaping		\$ 336,750
River Parks		\$ 0
Public Art		\$ 75,000
<b>TOTAL DIRECT COSTS</b>		<b>\$ 6,180,503</b>

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options

## SEGMENT 07

## Woodman Avenue to Coldwater Canyon Avenue

Segment 07 is a 1.15 mile long stretch along the south side of the LA River that begins at Woodman Avenue and will connect to the LA River greenway trail project currently under construction at Coldwater Canyon Avenue.

TABLE 9.8: SEGMENT 07 ESTIMATED DIRECT COSTS

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Bioswale		\$ 5,417,057
Bridges and Undercrossings Fulton Avenue - Undercrossing Ramp Moorpark Street - Street Bridge Coldwater Canyon - Street Bridge	\$ 2,382,036 \$ 3,372,033 \$ 3,564,822	\$ 10,359,419**
Utilities		\$ 594,000
Landscaping		\$ 1,592,970
River Parks Dixie Canyon		\$ 1,698,301
Public Art		\$ 75,000
<b>TOTAL DIRECT COSTS</b>		<b>\$ 19,271,747</b>

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options

## SEGMENT 08

### Whitsett Avenue to Lankershim Boulevard

Segment 08 is a 3.24 mile long reach that begins at Whitsett Avenue and ends at Lankershim Boulevard. Segment 08 occupies both sides of the LA River and includes multiple river crossings, river parks, and street crossings.

**TABLE 9.9: SEGMENT 08 ESTIMATED DIRECT COSTS**

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Bioswale		\$ 8,405,121
Bridges and Undercrossings Whitsett Avenue - Tunnel Laurel Canyon Avenue - Tunnel Tujunga Avenue - Tunnel Vineland Avenue - Tunnel US-101 - Tunnel River Crossing Whitsett Avenue Radford Avenue Colfax Avenue Vineland Avenue Central Wash Weddington Park At-Grade Radford Avenue	\$ 2,482,904 \$ 4,430,431 \$ 1,404,392 \$ 3,363,559 \$ 5,381,002  \$ 678,855 \$ 1,803,358 \$ 3,000,000 \$ 25,000 \$ 800,000 \$ 8,524,055 \$ 312,175	\$ 32,318,556**
Utilities		\$ 100,550
Landscaping		\$ 2,043,560
River Parks Laurel Grove Colfax Tujunga Weddington	\$ 3,309,214 \$ 5,114,800 \$ 9,287,900 \$ 3,109,200	\$ 20,821,114
Public Art		\$ 75,000
<b>TOTAL DIRECT COSTS</b>		<b>\$ 63,763,901</b>

Sources: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options

## SEGMENT 09

### Barham Drive to Zoo Drive

Segment 09 is a 2.0 mile long stretch along the south side of the LA River from Barham Boulevard to the project terminus at Zoo Drive, and includes a large river park and tunnel at SR-134.

**TABLE 9.10: SEGMENT 09 ESTIMATED DIRECT COSTS**

DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Bioswale		\$ 4,297,390
Bridges and Undercrossings Barham Boulevard - Undercrossing Ramp SR-134 - Tunnel At-Grade Barham Boulevard Warner Brothers Studio Gate 7 Zoo Drive	\$ 2,213,794 \$ 28,072,865  \$ 400,000 \$ 112,000 \$ 500,000	\$ 31,298,659
Utilities		\$ 249,475
Landscaping		\$ 1,782,450
River Parks		\$ 8,268,675
Public Art		\$ 75,000
<b>TOTAL DIRECT COSTS</b>		<b>\$ 45,971,649</b>

Sources: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options



SEGMENT 09- INTERIM OPTION

Interim Alignment: Barham Boulevard to Zoo Drive

This alternative alignment proposes to by-pass right-of-way conflicts that will require property acquisition along the LA River between Barham Boulevard and Zoo Dr. by converting the existing bike lanes along Forest Lawn Drive to protected bike lanes.

TABLE 9.10.1: SEGMENT 09 INTERIM ESTIMATED DIRECT COSTS		
DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Bioswale		\$ 2,000,000
At-Grade Barham Boulevard Zoo Drive	\$ 400,000 \$ 500,000	\$ 1,000,000
Utilities		\$ 0
Landscaping		\$ 0
River Parks		\$ 0
Public Art		\$ 0
TOTAL DIRECT COSTS		\$ 3,000,000

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*\*15% surcharge added to bridge options

SEGMENT 09- INTERIM OPTION

Interim Alignment: Barham Boulevard to Zoo Drive

This alternative alignment proposes to by-pass right-of-way conflicts that will require property acquisition along the LA River between Barham Boulevard and Warner Brothers Studio Gate 7 by utilizing existing Class II Bike Lanes on Forest Lawn Drive. The alignment will realign back to the river at WB Studio Gate 7

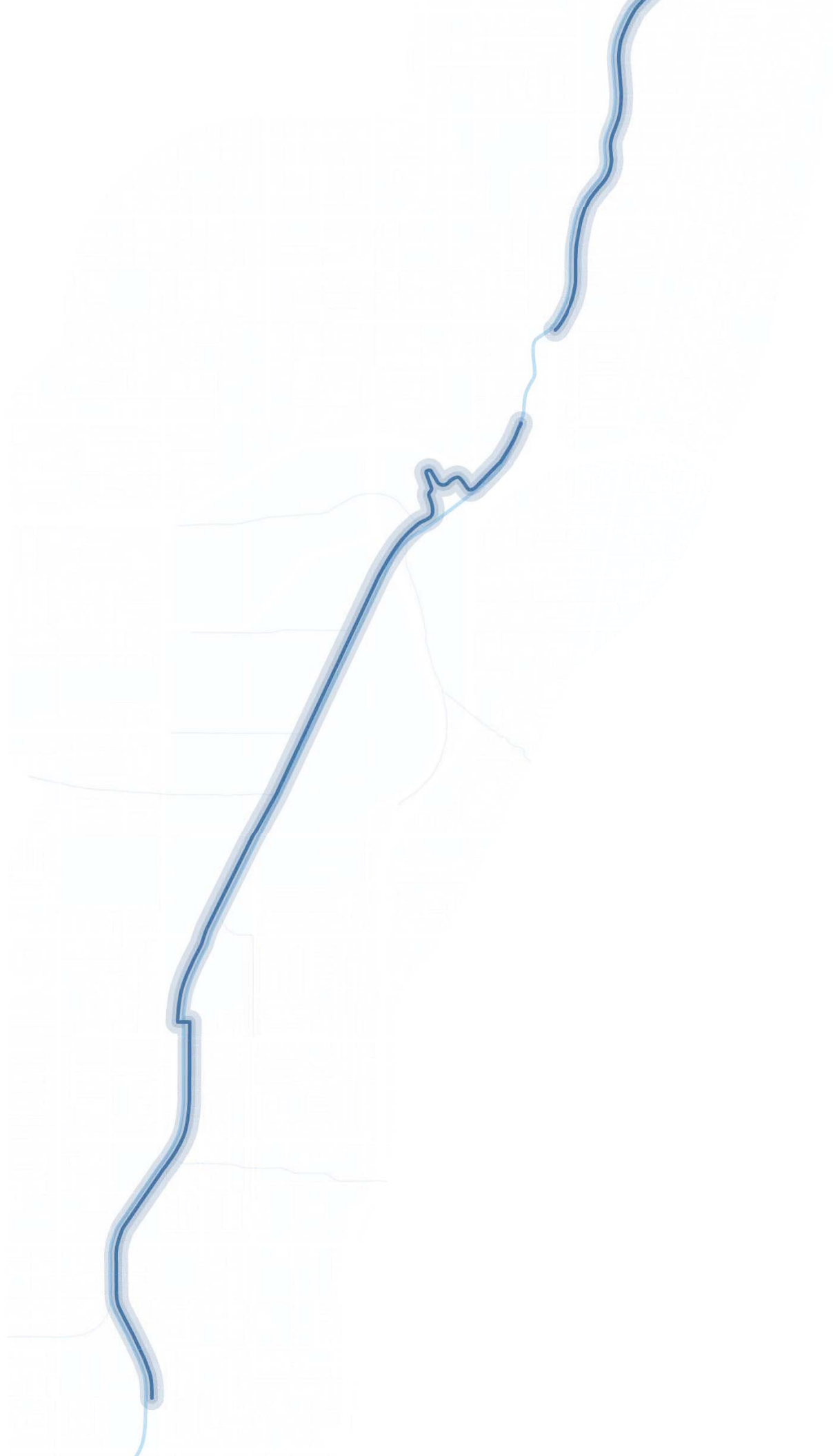
TABLE 9.10.2: SEGMENT 09 INTERIM ESTIMATED DIRECT COSTS		
DESCRIPTION	UNIT COST	TOTAL COST
Bikeways Existing Conditions Earthwork Bikeway Pedestrian Path Bioswale		\$ 4,297,390
At-Grade Barham Boulevard Warner Brothers Studio Gate 7 Zoo Drive	\$ 400,000 \$ 112,000 \$ 500,000	\$ 1,012,000
Utilities		\$ 249,475
Landscaping		\$ 1,782,450
River Parks		\$ 1,480,050
Public Art		\$ 75,000
TOTAL DIRECT COSTS		\$ 8,896,365

Source: Conceptual Cost Estimate, LA River Bikeway, Lee Saylor Associates, 2017.

\*Source: BOE

\*\*115% surcharge added to bridge options

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# OVERVIEW

In terms of cost and scale the LA River Bikeway and Greenway is a major infrastructure project. Traditionally, major infrastructure projects require multiple phases due to spatial and cost constraints. Full build-out of the LA River Bikeway and Greenway is estimated to cost over \$588 million; it will require substantial environmental coordination between multiple agencies (see Chapter 11 for discussion of the environmental planning process), as well as cover a 12 mile distance that passes through multiple neighborhood council districts. As a result, build-out of the LA River Bikeway and Greenway will most likely need to be completed in multiple phases.

A phasing strategy plan is needed so that the LA River Bikeway can provide the maximum benefits to users, the surrounding community, and citywide environmental sustainability goals as phases are constructed. The phasing analysis plan is based on a combination of all elements studied during the FSR. Based on the completed analysis and through discussions with City staff, potential project phasing strategies presented in this chapter are primarily based on two conflicting factors: cost and maximizing continuity.

## Cost

The cost impact on the construction of the LA River Bikeway and Greenway is based on two factors: estimated cost of the project and available funds.

### Conceptual Cost Estimates

Full build-out of the LA River Bikeway and Greenway project is estimated to cost \$588 million, which includes direct/hard costs and all typical indirect/soft costs. (A full discussion of the estimated costs of the LA River Bikeway can be found in Chapter 8.) While the total project cost is estimated at over \$588 million, individual elements of the project can be constructed independently, which reduces the cost of constructing part of the project at

one time. Figure 10.1 and 10.2 show the percentage of the total project cost contributed by each element.

### Available Funds

A little over \$60 million is currently available for construction of the LA River Bikeway and Greenway through various funding sources. Current funding sources include:

- Proposition K - Prop K created a citywide assessment district (raising \$25 million per year) for 30 years to fund acquisition, improvement, construction, and maintenance of City parks, recreation facilities, and other projects. Construction of a bikeway along the north side of the LA River through Segment 02 is one of the specified projects in Prop K.
- Measure M - The Los Angeles County Transportation Expenditure Plan passed as part of Measure M provides \$60 million of funding for completion of the LA River Bikeway within the San Fernando Valley, scheduled to be available in 2023. The \$60 million available may also include funding for bikeway segments along the LA River that are outside the scope of this project.

Figure 10.3 shows the difference between project costs that are currently funded versus project costs that are still unfunded. The City of LA will pursue additional funding sources that can be used for design and construction of the LA River Bikeway and Greenway. Securing additional funds will allow for more extensive project to be built during initial phases. Potential sources of funds that the LA River Bikeway and Greenway qualify for include:

- Federal Lands Access Program (FLAP) - \$15 million. FLAP provides grants to improve transportation facilities that provide access to, or are adjacent to, or are located within Federal lands. Segments 02, 03, and 04 are located within the Sepulveda Basin, Federal land

owned by the Army Corps of Engineers, and Segment 01 would connect the existing West Valley Bikeway to the Sepulveda Basin.

- State of California Active Transportation Program (ATP) - ATP grants are used to encourage increased use of active modes of transportation, such as biking and walking, and includes funding for Safe Routes to School (SRTS). The ATP program awards annual grants in two categories the LA River Valley Bikeway and Greenway qualify for: 50% to the state for a statewide competitive program, and 40% to Metropolitan Planning Organizations (MPO) in urban areas with populations greater than 200,000 for the large urbanized area competitive program.
- Measure M Local Return Dollars - 17 percent of revenue collected from Measure M sales tax is distributed to cities within LA County to fund local transportation projects. In Los Angeles Measure M local return dollars are distributed by LA City Council and have been earmarked for Vision Zero and street repaving to date.
- Vision Zero - LA City Council provides an annual budget for projects supporting LA's Vision Zero initiative. Parts of the LA River Valley Bikeway and Greenway parallel and/or intersect with the High-Injury Network. Vision Zero funding could be applied to sections of the LA River Valley Bikeway and Greenway that provide a safer alternative route from on-street bicycle facilities.

- Senate Bill 1 Road Repair and Accountability Act 2017 (SB 1) - SB 1 increases the state gasoline tax, state diesel tax, and vehicle registration fees for transportation projects. In addition to increasing funding for programs such as ATP, revenue from SB 1 is also allocated to local cities, which is distributed by LA City Council in Los Angeles, funding Vision Zero and street repaving to date.

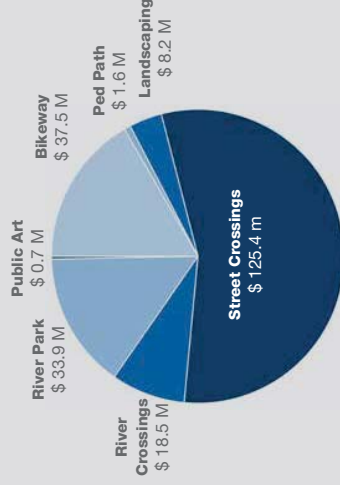


Figure 10.1 Direct Costs

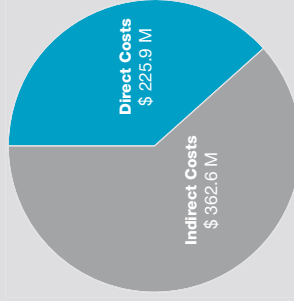


Figure 10.2 Direct Costs vs. Indirect Costs

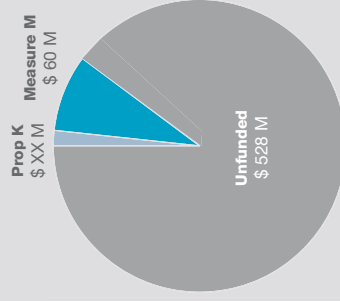


Figure 10.3 Funded vs. Unfunded

## Maximizing Continuity

Maximum continuity can have a variety of definitions, depending on the perspective considered. The reality of continuity that can be created is affected by the scale considered, type of user, and level of safety and confidence provided, among other factors. The design of the future bikeway and location of segments that are constructed can contribute to, or detract from, the continuity from the different perspectives of each factor. The concept of maximizing continuity is understood to provide a continuous bicycle pathway that accommodates the maximum variety and amount of users and maximizes the safety of those users. The goal of the LA River Bikeway and Greenway phasing plan is to balance the trade-offs from different perspectives that result from the varied options available for phasing the LA River Bikeway to achieve maximum continuity.

### Connected Bicycle Network

Continuity of the LA River Bikeway and Greenway can be first considered from physical connections to the existing and planned bike network. This can be considered from a neighborhood to a regional scale. When considered from those different geographic scales, different phasing options can provide continuity and connection to a certain bicycle network at one scale, but not at another. Some scenarios that provide examples of considerations taken regarding connection to the physical bikeway network:

- East vs. west continuity: is it better to first construct western segments that provide a continuous path from the Western San Fernando Valley to Sepulveda Basin or to first construct eastern segments that will create a connection between the LA Basin and eastern San Fernando Valley?
- Internal vs. external continuity: Is it better to have a continuous Class I Bike Path within only a few

segments or to have a mix of Class I Bike Path and Class III sharrows over all nine segments?

Phasing the LA River Bikeway and Greenway faces trade-offs between continuity within the LA River Bikeway itself versus the full bicycle network within the City of Los Angeles.

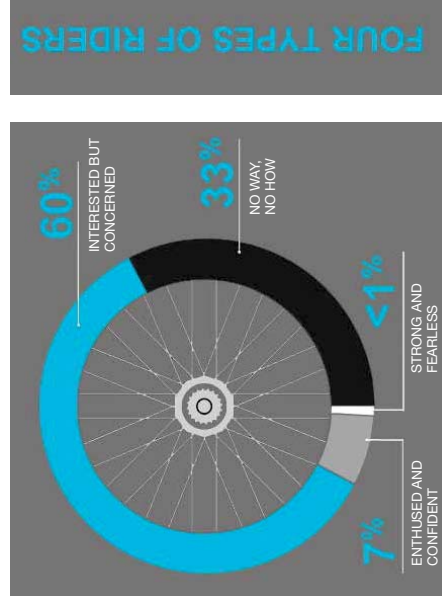
### Type of User

The LA River Bikeway and Greenway will attract a wide variety of bicycle users, from small children on recreational trips with parents, to daily commuters, and to long distance cyclists. Each of these users has a different level of skill, endurance, and confidence in riding a bicycle, as well as different requirements and expectations from a bicycle facility. As such, different bicycle facilities are necessary for some users in order to be able to traverse the bikeway. For example, a separated pathway may be required for some users who do not have the skill or confidence to use an on-street facility that shares right of way with vehicle traffic. Alternatively, an undercrossing ramp or bridge may make using the bikeway instead of on-street facilities worthwhile for long distance cyclists, but at-grade crossings would increase travel times to much to be a worthwhile route. This also includes the type of amenities that are provided; restroom facilities may be needed to accommodate certain users. Different facilities need to be prioritized in order to attract and accommodate the maximum amount of users.

### Safety

Considering continuity of the LA River Bikeway and Greenway from the safety perspective combines the physical connections created by the future bikeway with requirements of different users. Users will only use bicycle facilities that provide adequate safety.

Providing bicycle facilities that create a higher safety risk for users (i.e. Class III sharrows) will not be utilized by the 'interested but concerned' bicycle user group, which considers the benefits of creating a 'continuous' bikeway if nobody uses it because some elements are less safe than others.



Source: Four Types of Cyclists, Portland Department of Transportation, 2009.



## OPTION 1

### Base Scenario

Utilize existing on-street bicycle facilities; limited greenway, no river parks; undercrossing only in segments 01 and 02.

### Overview

Option 1 presents the baseline scenario in order to compare what are the minimum facilities that can be constructed with the available funds, while still providing a safe and usable route along the LA River. Option 1 includes the following features:

- A Class I Bike Path along the LA River through all of Segments 01, 02, 05 and parts of Segments 07 (between Woodman Avenue and Fulton Avenue) and 08 (between Radford Avenue and Lankershim Boulevard);
- On-street sharrows (Class III) for parts of segment 04 (along Noble Avenue);
- On-street sharrows (Class III) for parts of Segments 07 (along Valleyheart Drive between Fulton Avenue and Coldwater Canyon); Segment 06 (between Hazeltine Ave and Woodman); and Segment 08 (along Valleyheart Drive between Whitsett Avenue and Radford Avenue);
- Modify existing on-street bicycle lanes (Class II) in Segment 09 along Forest Lawn Drive to protected bicycle lanes (Class I) as feasible;
- Utilize existing Orange Line Bike Path (Class I) in Segments 03 - 04;
- All at-grade street crossings with new light signals, except for an undercrossing ramp at the Orange Line Busway, overcrossing at Van Nuys Blvd and undercrossing at US-101;
- River crossings utilizing existing street bridges at White Oak Avenue, Whitsett Avenue, and Vineland Avenue;
- New bridge crossing Noble Ave; Tujuanga Wash at Radford Avenue; and
- Utilize existing pedestrian bridge east of Colfax

### Pros / Cons

#### Pros

- Avenue and at Laurelgrove Ave.
- At-grade crossings will be replaced with undercrossing ramps, tunnels, or bridges during later phases
- Cheapest option that is as close to \$70 million budget as possible
- Connects western San Fernando Valley to Sepulveda Basin

#### Cons

- The following items are not included within Option 1:
  - Greenway landscaping (with the exception of the bioswale provided to treat stormwater off bikeway)
  - River parks and stormwater BMPs from surrounding streets
  - Overcrossings or Undercrossings except as noted
- Does not create a continuous pathway along the LA River
- Includes multiple areas with on-street Class II (bike lane) and Class III (sharrow) that limits type of users and decreases safety
- Limited landscaping, bioswale, or habitat planting along bikeway
- No river parks or water treatment of surrounding streets

### Cost

Direct/hard costs for Option 1 are estimated to be \$58.9 million. Construction of the bikeway, and required earthwork preparation and installation of utilities, accounts for the highest percentage of spending for Option 1 at \$21.2 million. Indirect/soft costs increase the estimated cost for Option 1 to \$153.5 million. Most of the costs are concentrated in Segments 01, 02, and 08; there are no improvement costs for Segment 03.

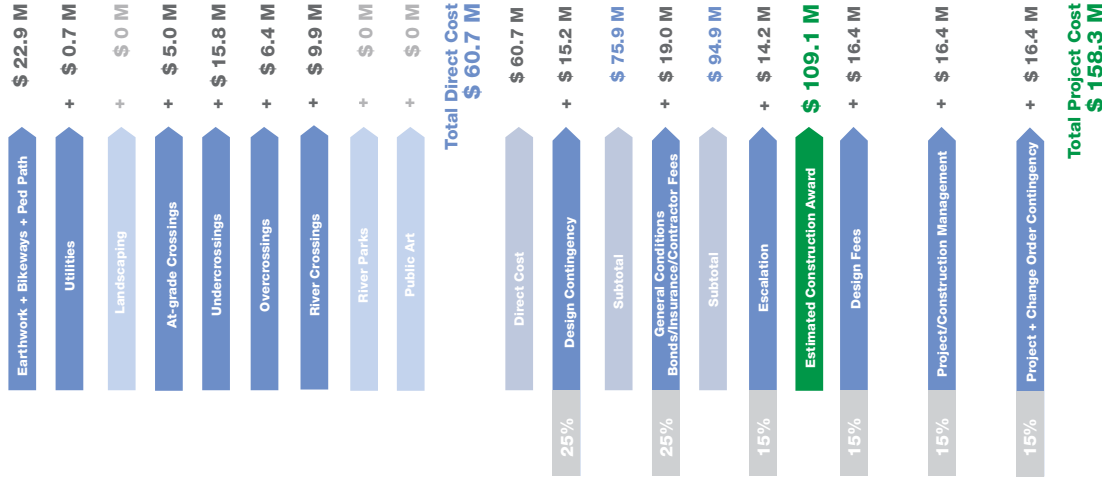


Figure 10.4 Option 1 Baseline Scenario Direct and Indirect Costs

OPTION 1



**TOTAL PROJECT COST \$ 158M**

Total Miles = 15

	01	02	03	04	05	06	07	08	09	
Segment Cost	\$41m	\$19m	\$0m	\$7m	\$31m	\$1m	\$11m	\$42m	\$6m	
Distance	1.9 miles	1.07 miles	1.62 miles	2.55 miles	1.05 miles	0.52 miles	1.18 miles	3.24 miles	2.0 miles	

Figure 10.5 Option 1 Baseline Scenario - Phase I

## OPTION 2

### Added Investment Base Scenario

Majority bikeway and pedestrian path along LA River, utilize some on-street bicycle facilities; no greenway, no river parks; majority of street-crossings at-grade with focused undercrossing at trapezoidal channel.

#### Overview

Option 2 builds on the baseline scenario by providing upgraded facilities at additional locations. Option 2 also provides increased Class I Bike Path, and separate pedestrian path, along the LA River from Option 1. Option 2 includes the following features:

- A Class I Bike Path and pedestrian path along the LA River through all of Segments 01, 02, 05, 06, 07, and parts of Segment 09 (between Warner Brothers Studio Gate 7 and Zoo Drive);
- On-street sharrows (Class III) for parts of segment 04 (along Noble Avenue);
- On-street bicycle lanes (Class I and Class II) in segment 09 along Forest Lawn Drive west of Warner Brothers Studio Gate 7
- Existing Orange Line Bike Path (Class I) in segment 03 and partially in segment 04;
- Undercrossing ramps in Segments 01 (Wilbur Avenue, Reseda Boulevard, Victory Boulevard, Lindley Avenue, and White Oak Avenue) and 02 (Orange Line Busway);
- All at-grade street crossings with new light signals, for Segments 05 - 09, except for a street bridge at Van Nuys Boulevard;
- River crossings utilizing existing street bridges at White Oak Avenue
- New river bridge crossing at Noble Ave, Radford Avenue, Weddington Park; and
- Modification of existing pedestrian bridge east of Colfax Avenue and at Laurelgrove Avenue
- At-grade crossings will be replaced with undercrossing ramps, tunnels, or bridges during later phases

#### Pros / Cons

##### Pros

The following items are not included within Option 2:

- Greenway landscaping (with the exception of the bioswale provided to treat stormwater off bikeway)
- River parks and stormwater BMPs from surrounding streets
- Overcrossings or Undercrossings except as noted

##### Cons

- Does not create a continuous pathway along the LA River
- Includes on-street facilities along Noble Avenue (Class III sharrows) and along Forest Lawn Drive between Barham Boulevard and Warner Brothers Studio Gate 7. (Existing Class II bike lanes)
- Limited landscaping, bioswale, or habitat planting along bikeway
- No river parks or water treatment of surrounding streets
- Majority of street crossings are at-grade

##### Cost

Direct/hard costs for Option 2 are estimated to be \$70.3 million. Similar to Option 1, construction of the bikeway, and required earthwork preparation and installation of utilities, accounts for the highest percentage of spending for Option 1 at \$33.9 million. Indirect/soft costs increase the estimated cost for Option 2 to \$183.4 million. Costs are spread throughout every project segment, except segment 03 through the Sepulveda Basin. Segments with the highest costs include segments 01, 05, and 08, primarily due to costs associated with street undercrossings, street bridges and river crossings.

Earthwork + Bikeways + Ped Path	\$ 31.9 M
Utilities	+ \$ 0.7 M
Landscaping	+ \$ 0 M
At-grade Crossings	+ \$ 5.6 M
Undercrossings	+ \$ 21.0 M
Overcrossings	+ \$ 6.4 M
River Crossings	+ \$ 9.0 M
River Parks	+ \$ 0 M
Public Art	+ \$ 0 M
<b>Total Direct Cost</b>	<b>\$ 74.9 M</b>
Design Contingency	+ \$ 18.7 M
Subtotal	\$ 93.6 M
General Conditions Bonds/Insurance/Contractor Fees	+ \$ 23.4 M
Subtotal	\$ 117.0 M
Escalation	+ \$ 17.7 M
<b>Estimated Construction Award</b>	<b>\$ 134.7 M</b>
Design Fees	+ \$ 20.7 M
Project/Construction Management	+ \$ 20.7 M
Project + Change Order Contingency	+ \$ 20.7 M
<b>Total Project Cost</b>	<b>\$ 196.8 M</b>

Figure 10.6 Option 2 Strategic Investment Scenario Direct and Indirect Costs



OPTION 2

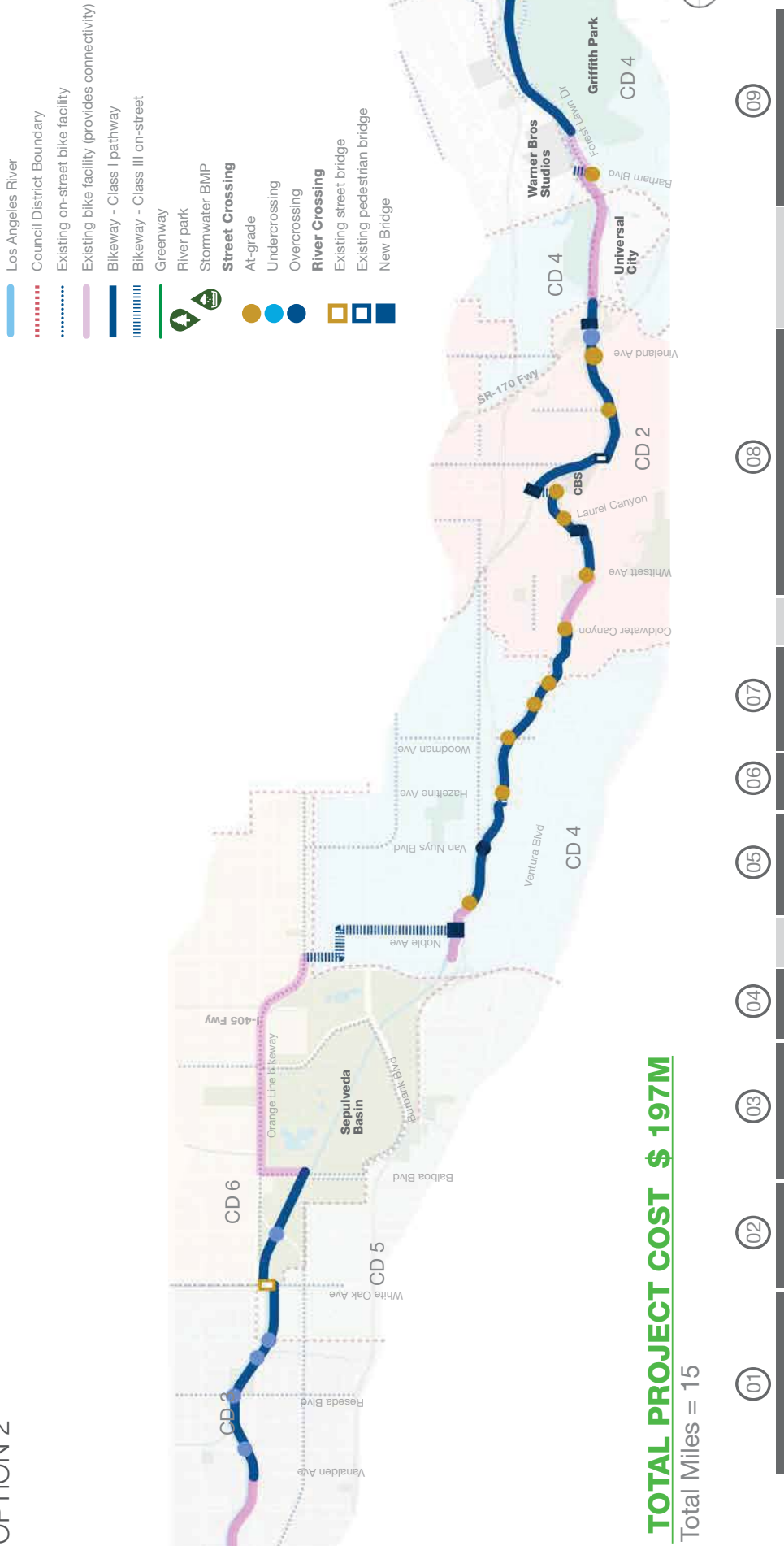


Figure 10.7 Option 2 Strategic Investment Scenario - Phase I

## OPTION 3

### Full Build-Out Scenario with Interim Options

Bikeway, pedestrian path, greenway, river parks, majority of street crossings with undercrossing or bridge; no freeway bridges or tunnels.

#### Overview

Option 3 presents the full build out scenario of the LA River Bikeway except for proposed bridges over I-405 and a tunnel through SR-134. As a result, interim routes through Segment 04 (along the Orange Line Bikeway and Noble Avenue) and Segment 09 (along Forest Lawn Drive) are still required. The remainder of project segments include a bikeway, pedestrian path, and greenway along the LA River. Option 3 also includes build out of bioswales along the alignment and within river parks. Finally, Option 3 assumes on-street facilities between Barham Boulevard and Warner Brothers Studio Gate 7 due to potential requirement for right of way acquisition. Option 3 includes the following features:

- A Class I Bike Path and pedestrian path along the LA River through all of Segments 01 - 03, 05 - 08, and parts of Segment 04 (along Woodley Avenue) and 09 (between Warner Brothers Studio Gate 7 and Zoo Drive);
- Existing Orange Line Bike Path (Class II) in part of Segment 04
- New on-street sharrows (Class III) for parts of segment 04 (along Noble Avenue);
- New protected bicycle lanes along Barham Boulevard and reconfigured intersection at Barham Boulevard and Forest Lawn Drive; Updated existing on-street Bicycle Lanes (Class II) in Segment 09 along Forest Lawn Drive west of Warner Brothers Studio Gate 7 with new protected bicycle lanes.
- Greenway bioswale with trees and habitat planting along the bikeway alignment along LA River
- Majority of street crossings with undercrossing ramps, tunnels, or bridges

#### Pros / Cons

##### Pros

- At-grade crossings at: Kester Avenue, Hazeltine Avenue, Fulton Avenue, Barham Avenue, and Zoo Drive;
- River crossings utilizing existing street bridges at White Oak Avenue
- New river crossing bridges at: Noble Avenue, Laurelgrove Avenue, Radford Avenue, Colfax Avenue and Weddington Park; and
- River parks and stormwater BMP

The following items were not included within Option 3:

- Some architectural features within some river parks
- Bridge over I-405; Tunnel at I-134
- Balboa and Tujunga river parks

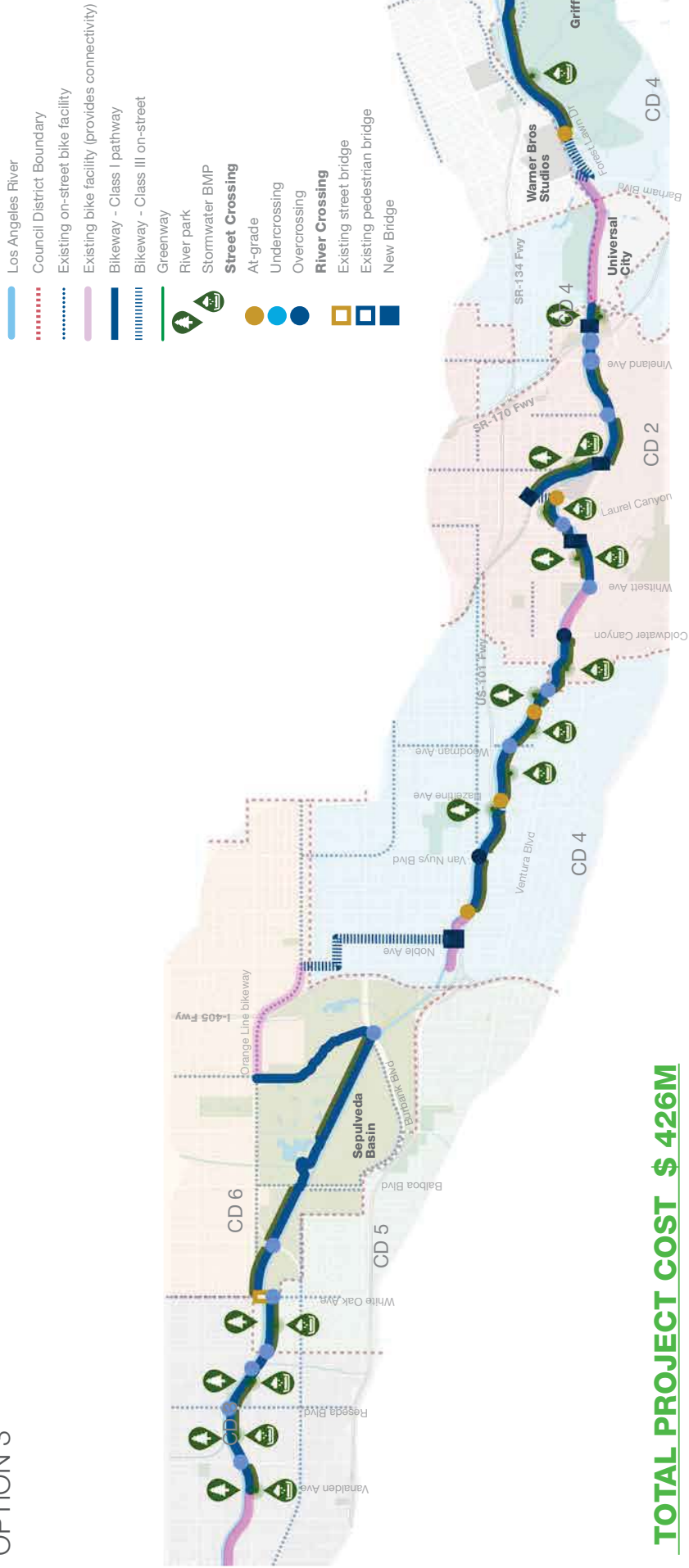
##### Cost

Direct/hard costs for Option 3 are estimated to be \$161.1 million. Direct costs associated with construction of the bikeway, and required earthwork preparation and installation of utilities, street crossings, and river parks each have costs over \$36.4 million. Indirect/soft costs increase the estimated cost for Option 3 to \$419.7 million. Due to its length and number of street and river crossings required, Segment 08 has the highest costs. Segments 01, 05, 07, and 09 each all have costs over \$40 million dollars.

Earthwork + Bikeways + Ped Path	\$ 36.4 M
Utilities	+ \$ 1.2 M
Landscaping	+ \$ 8.2 M
At-grade Crossings	+ \$ 1.4 M
Undercrossings	+ \$ 39.0 M
Overcrossings	+ \$ 27.3 M
River Crossings	+ \$ 17.6 M
River Parks	+ \$ 33.9 M
Public Art	+ \$ 0.7 M
<b>Total Direct Cost</b>	<b>\$ 163.7 M</b>
Direct Cost	\$ 163.7 M
25% Design Contingency	+ \$ 40.9 M
Subtotal	\$ 204.6 M
25% General Conditions Bonds/Insurance/Contractor Fees	+ \$ 51.2 M
Subtotal	\$ 255.8 M
15% Escalation	+ \$ 38.4 M
<b>Estimated Construction Award</b>	<b>\$ 294.2 M</b>
15% Design Fees	+ \$ 44.1 M
15% Project/Construction Management	+ \$ 44.1 M
15% Project + Change Order Contingency	+ \$ 44.1 M
<b>Total Project Cost</b>	<b>\$ 426.5 M</b>

Figure 10.8 Option 3 - Full Build Scenario Direct and Indirect Costs

# OPTION 3



**TOTAL PROJECT COST \$ 426M**

Total Miles = 18

Segment Cost	\$48m	\$20m	\$14m	\$8m	\$61m	\$16m	\$50m	\$165m	\$44m
Distance	1.9 miles	1.07 miles	3.0 miles	4.0 miles	1.05 miles	0.52 miles	1.18 miles	3.24 miles	2.0 miles

Figure 10.9 Option 3 Full Build Scenario - Phase I



## CONCLUSION

### Design Scenarios for Connectivity

Phasing scenarios presented in this chapter are applicable based on the current physical, political, and financial conditions. As current funding has remained at \$60 million, a design/construction sequence has been studied to navigate a path forward. The adjacent graphic shows design priorities and a construction sequence. In collaboration with the city, segment 1 and segment 2 were assessed to have priority over other segments and are under consideration to be the first projects to move into the next schematic phase. These segments create connectivity from the existing West Valley river bike path to the Sepulveda Basin, has potential for minimal environmental impacts and stays within the \$60 million construction budget.

#### Segment 9 \$30m\*

- Connects to LA River Bike path to the east and the LA River Bike path adjacent to Universal that is in design.
- Creates connectivity from downtown to Valley and the Orange Line at Lankershim

\*does not include design fees, project management,

#### LA RIVERWAY- San Fernando Valley Design Completion

Projected Design Costs Full Build Out Option with interim options- Bike Path / Pedestrian Path / Greenway / Majority Separated Grade Crossings / Pocket Parks					
	mi	Design Priority	Construction Sequence	Construction Award	
Mason to Vanoween (existing)	1.89				
1-Vanalden to White Oak	1.9	1	2	\$32,760,529	
2-White Oak to Balboa	1.06		1	\$13,922,922	
3-Balboa to Burbank	3.2	4	8	\$9,861,370	
4-Burbank to Sepulveda (interim)	2.6		7	\$5,358,386	
Sepulveda to Kester (existing)	0.56				
5-Kester to Hazeltime	1.05	5	11	\$41,969,714	
6-Hazeltime to Woodman	0.5		10	\$11,105,591	
7-Woodman to Coldwater Canyon	1.15		9	\$34,628,921	
Coldwater to Whitsett (existing)	0.6				
8-Whitsett to Lankershim	2.84	2		\$113,767,166	
8a- Whitsett to Radford	0.85		3	\$34,050,033	
8b Radford to Vineland	1.49		4	\$59,687,703	
8c Vineland to Lankershim	0.5		5	\$20,029,431	
Lankershim to Barham (In Design)	1.25				
9-Barham to Forest Lawn	2.0	3	6	\$30,052,716	
TOTALS				\$293,427,316	

#### Segment 1-2 \$55m\*

- Creates connectivity from West Valley river bike path to Sepulveda Basin and existing LA River bike paths
- Potential for fewer environmental impacts

#### Segment 3-4 \$15m\*

- Creates connectivity from West Valley to East Valley and existing LA River bike paths
- May require more environmental analysis

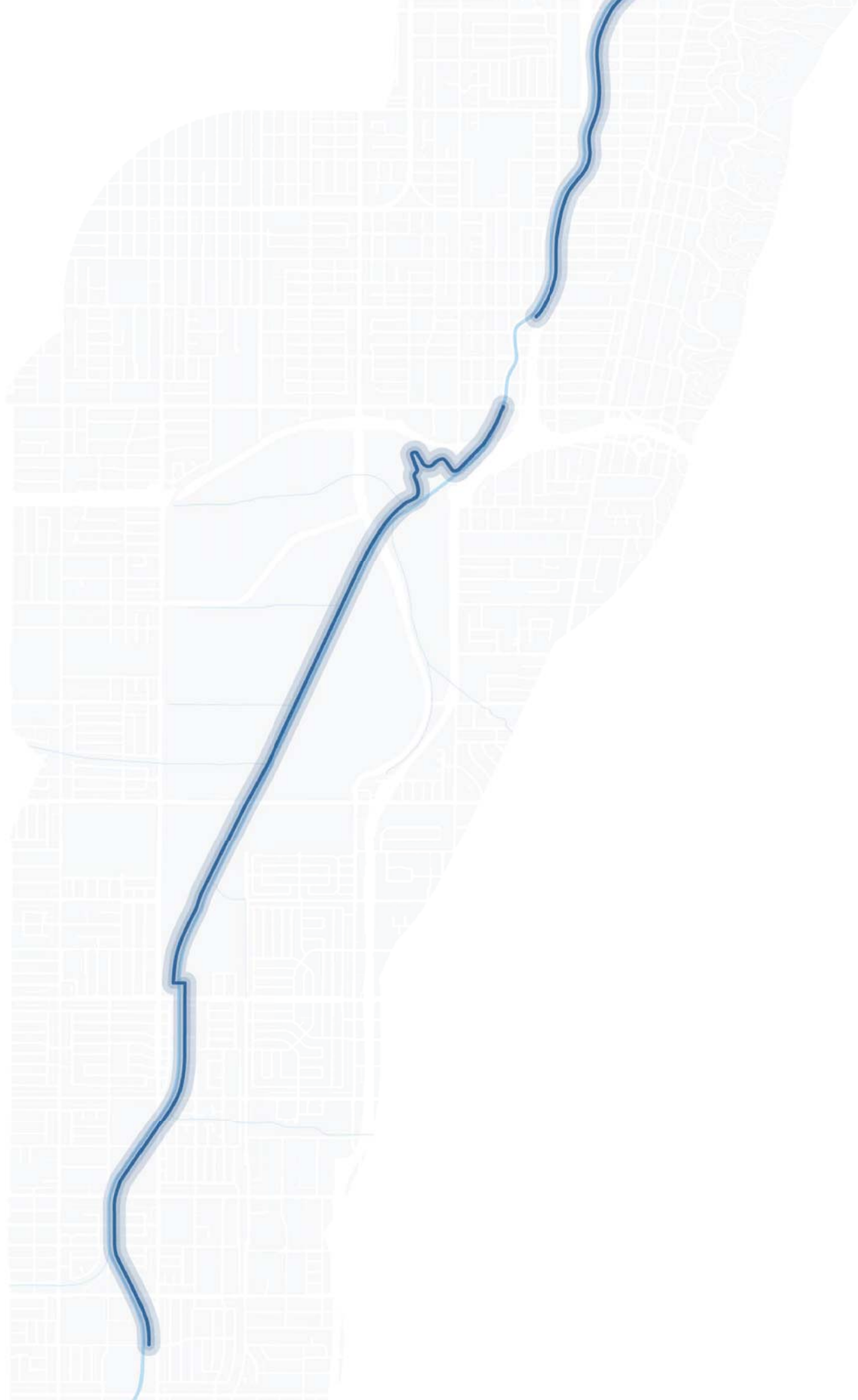
#### Segment 5-6-7 \$118m\*

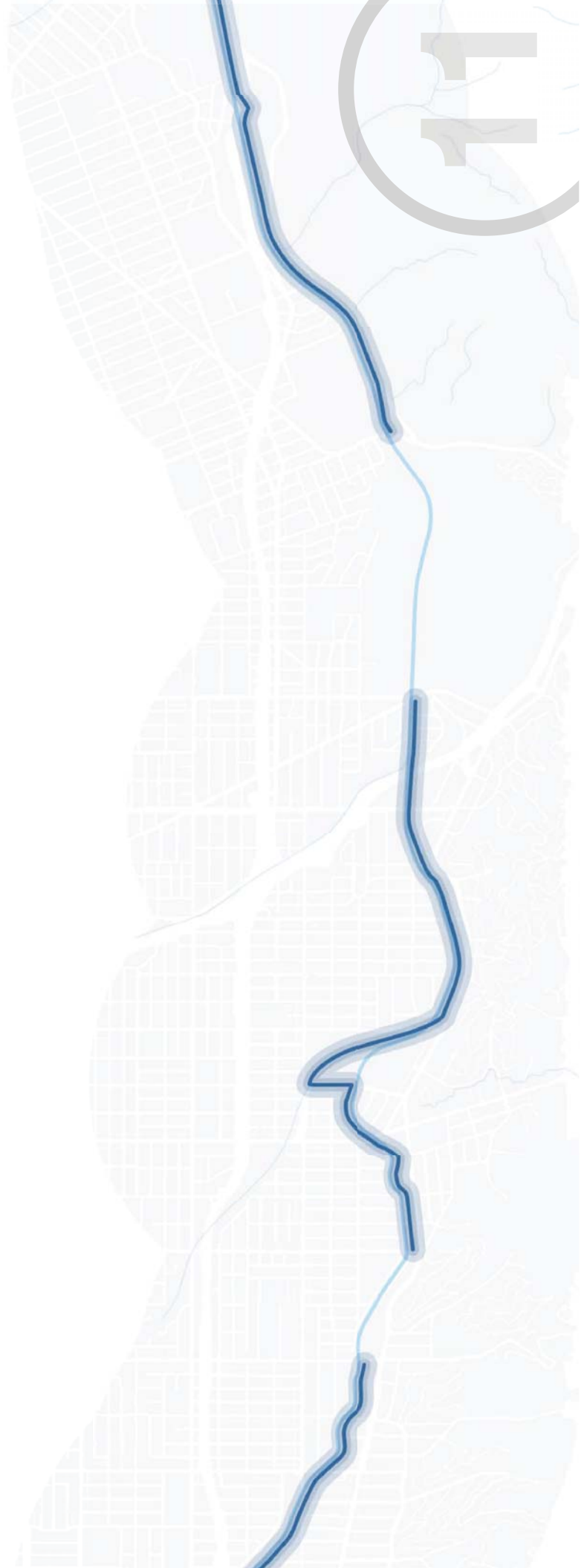
- Connects to existing Sepulveda Blvd-Kester LA River bike path and existing Coldwater Canyon LA River Bike Path

#### Segment 8 \$113m\*

- Connects to Whitsett Ave LA River Bike path and ends at La River Bike Path (in Design) at Lankershim

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Source: LA River Revitalization Master Plan

## BACKGROUND - 2007 PEIR/PEIS

The Programmatic Environmental Impact Report/Programmatic Environmental Impact Statement (PEIR/PEIS) was prepared in 2007 to evaluate the Los Angeles River Revitalization Master Plan (LARRMP). The Federal Lead Agency was the Army Corps of Engineers (ACOE) and the State Lead Agency was the City of Los Angeles, Department of Public Works, Bureau of Engineering (BOE). The LARRMP addressed near-term and long-term planning actions for one-half mile on each side of a 32-mile stretch of the Los Angeles River within the City of Los Angeles from Owensmouth Avenue in Canoga Park to Washington Boulevard near the northern boundary with Vernon.

The 2007 PEIR/PEIS identified potential environmental impacts associated with 1) reinvestment and development of five opportunity sites (Canoga Park, River Glen, Taylor Yard, Chinatown-Cornfields, and Downtown Industrial), 2) an array of LA River channel modifications, 3) numerous parks of different characteristics, 4) green streets, including greenways and the completion of the Los Angeles River Bikeway. The 2007 PEIR/PEIS addressed a project much larger than the currently proposed bikeways and greenways.

The PEIR/PEIS concluded that impacts associated with the LARRMP implementation could result in significant adverse environmental impacts related to air quality, water quality, biological resources, land use, noise, public health and safety, transportation, socioeconomic resources (population, housing, and employment), environmental justice, and cultural resources.

The PEIR/PEIS evaluation of environmental impacts was programmatic (i.e. very broad with no project details). Nonetheless, the PEIR/PEIS identifies potential project mitigation measures that could be applicable in order

to avoid, minimize, or reduce potential environmental impacts on certain environmental resource areas. The PEIR/PEIS also identifies where further project-level investigations, studies, and assessments would be needed to accompany future Master Plan implementation projects in order to better define potential project-specific environmental impacts and refine potential mitigation measures to reduce project impacts.

Site-specific environmental analyses can tier from (or copy from) the PEIR/PEIS to avoid duplicative reconsideration of basic policy considerations.

As specific design features of a proposed project are identified, the nature of project-specific analyses can be determined. The following factors are important in determining the appropriate environmental documentation:

- Potential for unmitigable adverse impacts (possibly that have not previously been disclosed in the PEIR/PEIS);
- Potential for Right of way acquisition;
- Level of stakeholder interest;
- Potential for community controversy;
- Magnitude of any traffic, air quality, and noise effects;
- Potential effects to protected resources (biological, cultural and recreational); and
- Relationships between Lead Agencies.

The 2007 PEIR/PEIS is available to provide a Tier 1 document that allows for preparation of a variety of supplemental, subsequent or totally independent documents.

## POTENTIAL FAST TRACK PROCESS (ES)

At the outset of the project, BOE indicated that funding opportunities had been missed because none of the Greenway Projects are “shovel ready.” It is anticipated that funding will become available for different sized Greenway Projects and that funding of all projects will not occur simultaneously. Therefore, BOE expressed interest in proceeding rapidly with individual environmental documentation of segments that 1) have independent utility and 2) may be prioritized with respect to available funding opportunities.

Individual project segments will be designed and completed over time. Each segment appears to have “independent utility,” i.e. each segment could be operated independently and be of benefit to the adjacent community.

Therefore, preparing separate California Environmental Quality Act (CEQA) and/or National Environmental Policy Act (NEPA) documents was considered for various segments of the proposed bicycle path and greenway. Separating the segments into separate projects could only proceed if the individual project segments can be self-contained and independently operable. A number of greenway/bicycle path segments along the LA River have already been approved and/or completed using Categorical Exemptions.

### Exemptions / Exclusions

The possibility of preparing Categorical Exemptions (as has been undertaken in the past for similar projects along the LA River) was explored. Project segments appear eligible for exemption under several classes:

CEQA Guidelines Section 15301, or Class 1, provides an exemption from environmental review for the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures,

facilities, mechanical equipment, or topographical features, involving negligible or no expansion of an existing use beyond that existing at the time of the lead agency's determination. This exemption applies to existing highways and streets, sidewalks, gutters, bicycle and pedestrian trails, and similar facilities (this includes road grading for the purpose of public safety). Therefore, if the proposed project includes design features such as street and sidewalk modifications, expanded crosswalks, new sidewalk, and traffic lane configuration changes where no more than negligible increase in use would result, and all changes would occur within the existing street and sidewalk right-of-way, then that segment of the proposed bicycle path and greenway may be appropriately exempt from environmental review under Class 1.

CEQA Guidelines Section 15304, or Class 4, provides an exemption from environmental review for minor public or private alterations in the condition of land, water, and/or vegetation which do not involve removal of healthy, mature, scenic trees except for forestry and agricultural purposes. This exemption class includes new landscaping and the creation of bicycle lanes on existing right-of-way. Therefore, if the proposed project includes new bicycle lanes within the existing right-of-way and existing trees would remain, then that segment of the proposed bicycle path and greenway may be appropriately exempt from environmental review under Class 4.

Similarly, for NEPA purposes, segmenting the documentation (for the independently operable segments) could allow for the preparation of one or more Categorical Exclusions (CEs) along certain segments. CEs are typically prepared for actions which do not induce significant impacts to planned growth or land use for the area; do not require the relocation of significant numbers of people, do not have a significant impact on any natural, cultural, recreational, historic or

other resource, do not involve significant air, noise, or water quality impacts, do not have significant impacts on travel patterns, and do not otherwise, either individually or cumulatively, have any significant environmental impacts.

The possibility for NEPA CEs was explored. The Army Corps of Engineers (ACOE) indicated that there is no exclusion available in their NEPA Guidance that would allow any portion of the project to proceed with an exclusion.

Caltrans indicated that they could be willing and able to do CEs (presumably supported by technical studies) for some of the Greenway projects, up to and possibly even including bridges across their facilities. Caltrans indicated that they are uncertain as to what their role might be without more information regarding project funding sources. Caltrans indicated they were unable to participate in environmental review without identification of specific funding. Without knowing their role, they are unable to give guidance.

### CEQA Tiering from 2007 PEIR/PEIS

The City Attorney and BOE staff agreed that tiering was potentially appropriate for certain segments and that segments with independent utility could be addressed in separate environmental documents. An Addendum would not be possible if it were to identify any new significant adverse impacts not already identified in the 2007 PEIR/PEIS.

The City Attorney indicated a preference for preparing Addendums (and a Supplemental EIR if need be for specific segments), rather than using an independent (i.e. not tiered from the 2007 PEIR/PEIS) Categorical Exemption approach for eligible segments.

### NEPA Tiering from 2007 PEIR/PEIS

The ACOE, in a meeting, indicated that an Addendum process to the PEIR/PEIS was not possible because of the age of the PEIR/PEIS (10 years old; their limit is 5 years). They initially suggested (because of limited changes within the channel) that a simple Environmental Assessment/Finding of No Significant Impact (EA/FONSI) (30 pages is their limit) could be sufficient to address individual segments.

However, in subsequent discussions, ACOE indicated that they would prefer not to address the segments individually (they specifically requested hydrologic modeling of the entire reach) and indicated that an EIS may be necessary because of the size of the project and public interest, as well as the possibility of finding the least Bell's vireo (an endangered species) in the Sepulveda Basin.



Source: Gruen Associates

## ANTICIPATED CEQA AND NEPA PROCESSES

It appears that the NEPA process will drive the overall schedule. While the CEQA process could proceed quickly, because ACOE has indicated that no part of the project can proceed without an ACOE permit (and associated environmental process), there is no benefit to completing the CEQA process substantially in advance of the NEPA process. A downside of completing the CEQA document in advance of the NEPA document is that the analyses and mitigation measures can diverge resulting in confusion and difficulties in implementing mitigation during construction.

Therefore, while CEQA Addendums are possible (no new significant impacts are anticipated compared to what was identified in the 2007 PEIR/PEIS), a more efficient CEQA process, given the anticipated NEPA process, is the preparation of one EIR not tiered from the 2007 PEIR/PEIS. This allows greater flexibility in tailoring specific mitigation measures much more appropriate to bicycle paths and greenways.

Preparation of one or more Addendums to the EIR may be appropriate if design details emerge for individual segments after completion of the EIR.

The scope of work included in the original consultant proposal contemplates preparation of one CEQA document (anticipated to be an EIR) and one NEPA document (anticipated to be an EA) with the BOE as the Lead Agency for CEQA and either the ACOE and/or Caltrans (acting on behalf of Federal Highway Administration [FHWA]) as the Lead Agencies for purposes of compliance with NEPA. Re-scoping of this original proposal may be necessary depending on the selected NEPA process (re-scoping will be needed for an EIS and/or for multiple NEPA documents as well as to add another 1.25 miles to the alignment to be analyzed at the southern end).

### NEPA

#### Army Corps of Engineers

ACOE has indicated (in one of the meetings with them) that they believe that a new programmatic EIS may be the most appropriate NEPA document followed by individual EAs for individual segments. But ACOE indicated that if the results of the Biological Resources analysis and Cultural Resources analysis lead to No Effect determinations on the part of the respective agencies (USFWS, CDFW, SHPO) then a Programmatic EA (supported by substantial appendices) may still be possible. A Programmatic EA would be followed by individual segment EAs).

The City is in the process of negotiating an agreement with ACOE to allow expedited processing of environmental documents. Even with expedited processing, an EIS process is substantially longer than an EA process (and an EIR process), so the potential for an EA should continue to be pursued. See tentative conceptual schedules at the end of this section.

#### Caltrans

Caltrans has indicated that they cannot participate in environmental review until it is determined what the funding source will be. If FHWA were to fund the entire length, then their participation would be for the entire route. Caltrans NEPA documentation will, at a minimum, be required for project components that affect Caltrans facilities (the bridges across freeways).

### CEQA

As noted above, given the anticipated NEPA process, it is anticipated that an EIR will be prepared. It is anticipated that an EIR would be prepared in tandem with the NEPA document to keep analyses and mitigation measures consistent. This would likely involve temporarily putting the EIR on hold while the NEPA document is going through certain portions of the NEPA reviews.

### NEPA and CEQA Schedules

Schematic schedules are presented below that identify the following:

- Schedule 1 identifies the tentative schedule to prepare, in parallel, i) a Programmatic EA and ii) an EIR that would address the overall program and to the extent feasible project details for segments in parallel. It is anticipated that a programmatic EA processed through the ACOE would require approximately 16 to 18 months. However, it could be substantially less with ACOE agreeing to process the document quickly (theoretically simple EAs can be processed in 6 months or less). The minimum time for a CEQA EIR is 10 to 12 months. Because of page limits it may be difficult for a programmatic EA to identify project details, and therefore a Programmatic EA would likely need to be followed by individual EAs for most, if not all segments (see Schedule 3 below).
- Schedule 2a identifies the tentative schedule to prepare, in parallel, i) a Draft Programmatic EIS (that could also address project-level details where such details are available) and Draft EIR (with project details as available). Schedule 2b identifies the tentative schedule to prepare a Final EIS and Final EIR in parallel. The schedule for preparation of an EIS is highly variable and is determined primarily by agency review times (The EPA must review the document). For this project a tentatively estimated timeframe is about 34 months.
- Schedule 3 identifies a generic tentative schedule for a project specific EA (either Caltrans and/or ACOE) that would be needed after the programmatic EA and possibly for certain segments after the EIS. The timeframe to prepare EAs is highly variable; we are anticipating up to 12 to 14 months. However, EAs can be prepared in substantially shorter timeframes, possibly as short as 3 to 4 months for simple



segment EAs if ACOE (and Caltrans as applicable) is agreeable.

- A separate schedule for CEQA addendums (should they be needed) is not shown because they are much smaller documents that can be completed well within the timeframe of an EA.

Currently there appear to be two environmental processing options:

1. A programmatic EA and programmatic EIR (Schedule 1 – estimated to be 16 to 18 months), likely followed by individual EAs (Schedule 3 – which could be 4 to 14 months or more) for segments (segments can be combined, each segment would not require a separate EA). The total number of separate EAs for the segments is not known, but assuming they could be prepared in tandem after the programmatic EA (possibly starting before the programmatic EA is completed), the total time for a programmatic EIR and programmatic EA followed by one or more segment EAs would be 16 months minimum (assuming very fast processing of segment EAs) to 32+ months with more typical review times.

2. A programmatic EIS possibly with project-level information for some segments (Schedules 2a and 2b – estimated to be 34 months total), also followed by one or more EAs (Schedule 3) for segments where design details were unavailable for the EIS. The total number of separate EAs for the segments is not known for this option either, but assuming they could be prepared in tandem after the programmatic EIS (possibly starting before the programmatic EIS is completed), the total time for a programmatic EIR and programmatic EIS followed by one or more segment EAs would be 38 months minimum (assuming very fast processing of segment EAs) to 48+ months with more typical review times.

Note also that ACOE will not accept biological studies that are more than three years old. Therefore, special status species surveys should not be undertaken where construction is more than three years out.

The City of Los Angeles is negotiating an agreement with the ACOE that should allow for faster processing times. Schedules 1 through 3 are based on typical experiences with the agencies involved. They could go faster (or slower).



Sepulveda Basin Wildlife Reserve

## OVERVIEW OF ENVIRONMENTAL ISSUES (CEQA AND NEPA)

### Biological Resources

Much of the LA River's sides and bottom are in a concrete-lined channel. Within portions of the unlined or soft-bottom reaches of the LA River are scattered wetlands and riparian vegetation. Wetlands and riparian habitat are located within the LA River channel in the Sepulveda Basin and the Glendale Narrows. With the exception of these areas, the diversity and species richness along the project corridor is generally low. Most of the wildlife along the LA River is limited to species that have adapted to urban habitats. Ground surveys will identify the location of wetlands and riparian habitat and the potential for presence of sensitive species.

A biological reconnaissance (top of bank) of the entire route and informal consultation with the resource agencies will reveal any potential for taking of endangered species. The reconnaissance study will identify the need for any additional special status species surveys.

ACOE has indicated Bell's vireo (which is both Federally and State listed as Endangered) is present in the Sepulveda Basin, however they also indicated that a No Adverse Effect Determination is likely from the resource agencies (USFWS and CDFWS). It is anticipated that project-related impacts on wetlands, riparian habitats and endangered species will be none to relatively small. The 2007 PEIR/PEIS found impacts on biological resources to be mostly beneficial, providing more and improved fish and wildlife habitat since the LARRMP would provide more vegetation, velocity reduction measures, and bioswales/filtration areas. The proposed greenway and bikeway would contribute to this beneficial impact by increasing vegetation to the LA River corridor.

The 2007 PEIR/PEIS found potential adverse impacts associated with human and wildlife interactions, such as skunks, raccoons, coyotes, and snakes. Coyotes

and raccoons can get into trash, and coyotes can prey on domestic dogs and cats. These types of adverse interactions are inevitable if habitat in the LA River corridor improves and greater numbers of these types of species inhabit the area. However, most of the wildlife have adapted to urban habitat. The 2007 PEIR/PEIS indicates that individual projects, such as the proposed project, would need to coordinate with appropriate resource agencies and land managers to ensure, to the greatest extent possible, that high value habitats could be accounted for and their functions and values are enhanced.

Construction activities associated with the proposed bikeway and greenway have the potential to temporarily affect biological resources in the Sepulveda Basin and Glendale Narrows. Mitigation, such as noise reduction/shielding and habitat avoidance, may be appropriate to reduce impacts to sensitive species. Construction activities would be temporary, and coordination with resource agencies would ensure that potential impacts during construction are minimized.

The 2007 PEIR/PEIS found construction impacts on biological resources to be low since most of the project corridor is of extremely poor habitat quality, except for the Sepulveda Basin and Griffith Park/Glendale Narrows. In these areas, the 2007 PEIR/PEIS found impacts to biological resources during construction for the LA River channel modifications, parks, green streets, greenways, and bikeway, could be high and potentially significant. Work would need to be coordinated with land managers and resource agencies to ensure that adverse impacts during construction would be reduced to less than significant levels. The construction impacts that were evaluated in the 2007 PEIR/PEIS were for the entire LARRMP, which involves more intensive construction than the proposed greenway and bikeways. The LARRMP that was evaluated in the 2007 PEIR/PEIS involves large amounts of excavation and the subsequent





find, at a minimum, that the proposed activity would not cause jeopardy to the species, better still, they would find that the project is “not likely to adversely affect” the species, and best, they would find that the project would not affect the species at all.

The USFWS representative indicated the project would likely be able to get a “not likely to adversely affect” determination if the project followed some basic avoidance strategies. The representative was confident that the project could get a “no effect” decision if the project included the commitment to work outside the breeding season in the areas where the Least Bell’s vireo has nested.

ACOE undertakes annual surveys of the nesting locations of the Least Bell’s vireo, and therefore the location of where nests have been historically located and can be used to determine an area of avoidance for work during the nesting season.

## Cultural Resources

### Historic, Archeological, Paleontological, and Cultural Tribal Resources

The LA River was a center for prehistoric and historic settlement, food procurement, and transportation. Because the LA River has been disturbed in the past, it is unlikely that intact archaeological resources would be present. However, floods can encapsulate cultural remains in deep layers, and some intact prehistoric or historic deposits could be present, especially below the edges of the LA River channels. Archaeological sites or burials that may be important to contemporary Native American communities could be encountered during construction of the proposed project. Additionally, some of the bridges over the LA River, as well as the LA River containment and flood control facilities, are over 45 years old and may be eligible for listing or are listed on the National Register of Historic Places (NRHP),

California Register of Historical Resources (CRHR), and/or are City of Los Angeles Cultural-Historical Monuments. Resources that are over 45 years old within the project corridor (including components of the LA River infrastructure) will be evaluated for historic significance and any potential changes that could result from the project will be evaluated.

The project corridor may include subsurface geologic units that could yield scientifically important vertebrate paleontological resources under shallow Holocene alluvium. Because the LA River has been channelized, there may be locations where paleontological resources could be near the surface and exposed by excavation.

The likelihood of encountering paleontological resources depends on the location, depth of the sensitive geologic units, and the depth of ground disturbance. Typically, in urban settings, paleontological resources are only discovered and made available for study as a consequence of construction projects. According to the 2007 PEIR/PEIS, beneficial impacts could result if paleontological resources are discovered and made available for scientific study. Negative impacts could occur if the resources are inadvertently destroyed without being studied during construction or if subjected to unauthorized collection or damage due to exposure and erosion.

Cultural resources inventory and surveys will identify the cultural resources within the project footprint. In meeting with Caltrans, they indicated that for any cultural analysis that they may require, the Area of Potential Effect (APE) can be confined to the footprint of the project (rather than the usually-required 0.5 mile). (The environmental team had already assumed as much in the proposal, but it was helpful to have the assumption confirmed.)

A Draft APE Map and narrative justifying the limits of the APE will be prepared (conforming to requirements described in 36 Code of Federal Regulation (CFR) Part 800.16 (d)). California Historical Resources Information System (CHRIS) records search of the APE, as well

as a 0.5-mile radius around the project alignments, at the South Central Coastal Information Center (SCCIC) will be conducted. In addition to the archaeological inventory records and reports, an examination will be made of historic maps, NRHP, CRHR, the California Historical Resources Inventory, and the listing of California Historical Landmarks. An Existing Conditions Report will summarize the results of the data review and address any potential cultural resources concerns. Section 106 Consultation will include inquiries to local governments, local historic groups, and Native American individuals and groups regarding their knowledge of historic properties in the immediate vicinity of the APE.

A Phase I intensive pedestrian survey of each segment within the APE and detailed field investigations will be conducted to identify any built environment properties which qualify for listing in the National and/or California registers. NRHP and CRHR criteria will be used to make these findings in compliance with 36 CFR §800.4(b) and PRC §5024.1, respectively. During the survey, the architectural historians will take digital photographs of any buildings, structures or objects that are potentially over 45 years of age within the APE to support field observations.

Separate archaeological and built environment technical reports will be prepared in compliance with Section 106 of the NHPA and CEQA to meet the Secretary of Interior’s Standards and Guidelines following guidelines as required for Archeological Resource Management Reports (ARMR). In addition, a Paleontological Resources Technical Report will be drafted documenting the results of the paleontological study based on the records maintained by the Natural History Museum of Los Angeles County (LACM) or the San Bernardino County Museum (SBCM) to determine whether or not previously recorded paleontological resources occur in accordance with established Society of Vertebrate Paleontology (SVP) and Los Angeles County General Plan guidelines.

Ground-disturbing activities associated with the proposed project, such as excavation and grading, could potentially affect the integrity of archaeological sites, if present, and historic structures. Although the depth of disturbance generally would be shallow and would be planned for highly disturbed areas, such as streets, some relatively undisturbed areas and depths could be excavated that could impact archaeological resources that have research value or may be important to contemporary Native Americans.

The 2007 PEIR/PEIS found that ground disturbance activities (of the much larger LARRMP project that included redevelopment at five opportunity sites, as well as numerous parks and channel modifications) could affect the integrity of archaeological sites, if present. However, ground disturbance activities associated with the proposed greenway and bikeway would be less extensive than the LARRMP project that was evaluated in the 2007 PEIR/PEIS.

The 2007 PEIR/PEIS indicated that moderate to high beneficial effects could occur if revitalization of the LA River corridor leads to the restoration and rehabilitation of historic structures. However, moderate to high negative impacts could occur if the LARRMP results in the loss of historic structures. The potential adverse impacts that were identified in the 2007 PEIR/PEIS was for the entire LARRMP, which is a much larger project than the proposed greenway and bikeway. Impacts associated with the proposed project are anticipated to be much lower than the LARRMP project that was evaluated in the 2007 PEIR/PEIS. The cultural resources technical reports for the proposed project will address the potential for the proposed project to affect archaeological and historic resources. The team anticipates that impacts will be “no effect” for purposes of Section 106 consultation and less than significant with mitigation with respect to NEPA.



## Aesthetics

The project would increase the amount of landscaping along the LA River. In general the proposed greenway would enhance the visual environment. Removal of trees particularly mature trees must be identified even though the project includes extensive new landscaping. New bridges could introduce visual elements that could be visible in medium-range views. The existing visual setting along the individual project segments will be evaluated and described as it relates to its visual characteristics. New lighting will be designed to provide security but not to be intrusive to adjacent residential or biologically sensitive areas. The additional landscaping may be considered a beneficial impact since many portions of the LA River lacks vegetation. Impacts associated with new lighting along the project corridor are anticipated to be low since the surrounding area is highly developed with urban uses.

The 2007 PEIR/PEIS found a direct beneficial long-term impact on visual character or quality because the LARRMP would increase the amount of natural areas in highly developed areas. Additionally, moderate, direct and beneficial long-term impacts are anticipated within and around the project corridor because derelict or neglected areas would gain a greater sense of visual vitality from open space development.

During construction, employee and construction vehicles, as well as soil disturbance, could temporarily affect visual character or the visual quality of the project corridor. Impacts on aesthetic resources from construction would be temporary. The 2007 PEIR/PEIS found (for the much larger LARRMP project) a direct, adverse short-term impact on light and/or glare as a result of potential nighttime lighting construction activities. The 2007 PEIR/PEIS generally found impacts on aesthetic resources during construction to be low because construction would be temporary. Construction of the proposed greenway and bikeway would occur during the daytime and, thus, adverse

impacts associated with nighttime lighting are not anticipated. The proposed greenway and bikeway project is much smaller than the LARRMP and, thus, impacts during construction are anticipated to be less than discussed in the 2007 PEIR/PEIS.

## Land Use

The proposed project is located within the Encinitas, Van Nuys-North Sherman Oaks, Sherman Oaks-Studio City-Toluca Lake-Cahuenga Pass, North Hollywood-Valley Village, and Hollywood Community Plan Areas (CPAs). Existing land use, zoning, and General Plan land use designations within and adjacent to the LA River vary. The land use analysis will document the proposed project's consistency and compatibility with surrounding land uses, as well as consistency and compatibility with the LARRMP and the community plans in which the project corridor is located. The proposed greenways and bikeways generally would be located within the LA River corridor and public street right-of-way that intersect with the LA River. Land use impacts associated with the proposed project are expected to be low.

The 2007 PEIR/PEIS found that high and potentially significant land use impacts would likely occur where a proposed land use associated with the LARRMP could be inconsistent with existing land uses as approved in the area's Community Plan. LA River channel modifications and the development of parks that require land acquisition outside of the LA River were identified as having the potential to result in inconsistencies with existing land uses, as well as inconsistencies with the adopted Community Plans. The LARRMP with its many components is a much larger project than the proposed greenways and bikeways. Land acquisition for the proposed greenways and bikeways is anticipated to be limited. Land use impacts associated with the proposed project are anticipated to be less than those identified for the LARRMP in the 2007 PEIR/PEIS.

## Transportation / Traffic

The project would include modifications to ten (10) street ends that connect with the bicycle path and greenway. The following three types of crossings at roadway intersections are proposed: undercrossings, at-grade crossings, and overcrossings. The Transportation/Traffic assessment (to be prepared by KOA Corporation) will address whether there would be significant changes to delay resulting from geometric considerations or changes to the signal timing or the type of traffic control and potential bicycle and pedestrian safety hazards. Bikeways and greenways typically do not generate new vehicle trips, rather they can replace vehicle trips. The proposed undercrossings and overcrossings would minimize conflict between vehicles and users of the project corridor. However, KOA has preliminarily identified potential traffic impacts where the alignment could be diverted on to City streets, including on Sepulveda Boulevard between the Metro Orange Line and Oxnard Street and also if a travel lane is removed on Burbank Boulevard. CEQA Guidelines are currently being revised to remove delay as a measure of traffic impact. It is not known if this change will be in effect for the project environmental document.

The 2007 PEIR/PEIS found long-term adverse impacts from the LARRMP since the LARRMP would increase traffic and parking demand due to more visitors (associated with development of the five opportunity areas and the addition of substantial park space), increase traffic accidents due to restricted visibility if plants are not kept pruned, and result in the acquisition of right-of-way to develop park spaces or terracing along the LA River. The 2007 PEIR/PEIS also found beneficial impacts if the added landscaping and green streets would employ traffic calming measures. The 2007 PEIR/PEIS indicates that if the traffic analysis for individual projects along the LA River corridor finds potential impacts, mitigation measures may need to

be provided to reduce impacts to less than significant levels. Potential mitigation measures include widening impacted arterials, signal timing modifications, and the addition of designated parking spaces/lots or parking meters. Impacts associated with the proposed greenway and bikeway are anticipated to be much less than what was discussed in the 2007 PEIR/PEIS since the proposed greenway and bikeway is a much smaller project than the LARRMP and the proposed greenway and bikeway would not generate substantial new vehicle trips. The proposed project would include features (such as under crossings and over crossings) that would minimize conflict between vehicles and users of the project corridor. However, there would be some locations where the bikeway would cross streets and there is the potential to impact traffic operations in limited locations.

Construction activities could include temporary and intermittent lane closures and temporary loss of parking. As construction activities are temporary, transportation/traffic impacts during construction are anticipated to be limited.

The 2007 PEIR/PEIS found potential adverse short-term impacts during construction, such as from truck traffic and lane closures, and includes mitigation measures to reduce temporary construction impacts to a less than significant level (such as the implementation of a construction traffic management plan).

## Air Quality

Emissions (including criteria pollutant generated from construction and operation), Greenhouse Gases, and Potential Odors

Criteria pollutant emissions or reductions will be characterized as a result of construction and operation of the proposed project based on changes in VMT and

anticipated construction equipment use. The air quality analysis will include an assessment of both regional emissions and localized pollutant concentrations associated with the various phases of construction. Construction activities could potentially result in short-term increases in pollutant emissions associated with equipment exhaust, worker commute trips, fugitive dust associated with grading and loading activities, and off-gassing from asphalt paving. The potential for significant construction-period air quality impacts under CEQA will be determined using the guidelines and methodology set forth in the South Coast Air Quality Management District's (SCAQMD's) CEQA Air Quality Handbook. Construction emissions would be compared to the SCAQMD thresholds. Construction-related emissions, such as grading and excavation, could increase localized concentrations of particulate matter (PM) for brief periods. Construction activities associated with the proposed project would be required to adhere to SCAQMD rules and regulations, including Rule 403 (Fugitive Dust), which would reduce construction emissions.

The 2007 PEIR/PEIS found potential adverse impacts associated with increases in fugitive dust and vehicle emissions during construction activities. Potential impacts would be high and potentially significant because the LARRMP would involve major demolition and construction activities. The 2007 PEIR/PEIS indicates that potential short-term adverse air quality impacts would be higher for construction activities that are more extensive. The 2007 PEIR/PEIS evaluated construction impacts associated with the entire LARRMP. The demolition, earthwork, and other types of construction activities evaluated in the 2007 PEIR/PEIS was for the overall LARRMP. Air quality impacts during construction of the bikeways and greenways would be much lower than because the proposed project would involve less earthwork (the depth of disturbance generally would be shallow) and, fewer haul truck trips are anticipated, compared to the larger LARRMP.

The air quality assessment of bicycle and pedestrian activity within the project corridor will identify the potential to reduce pollutant emissions as a result of reducing vehicle trips.

The 2007 PEIR/PEIS found potential long-term adverse impacts from vehicle emissions that would accompany increased traffic from implementation of the LARRMP. Long-term air quality impacts associated with the proposed bikeways and greenways are anticipated to be much less than the larger LARRMP project since the proposed bikeways and greenways are not anticipated to generate substantial new vehicle trips.

The 2007 PEIR/PEIS found beneficial impacts due to the establishment of green vegetation in the LA River channel and developing parks, greens streets, paseos, and promenades along the LA River corridor. The 2007 PEIR/PEIS found a beneficial impact to GHG as a result of increasing the amount of green open space and adding trees along streets thereby reducing GHG.

The GHG analysis for the proposed project will characterize the generation of GHGs during construction and assess the increase in GHG emissions during operation of the proposed project. The proposed project would be consistent with local and regional GHG reduction policies and regulations (including Assembly Bill 32, Senate Bill 32, Senate Bill 375, the 2016 Regional Transportation Plan/Sustainable Communities Strategy [RTP/SCS] and City of Los Angeles Mobility Plan [MP] 2035). GHG emissions associated with construction and mobile-source activity will be calculated and potential reductions in GHG identified as a result of reduced vehicle trips.

## Health Risk Analysis

As applicable based on air quality and water quality potential impacts

Construction of the proposed project will result in the temporary release of toxic air contaminants (TAC) in exhaust of heavy-duty equipment and may result in soil disturbance from earthmoving activities. A health risk analysis will be completed if sensitive receptors are identified within close proximity to a component of the proposed project that will require substantial heavy-duty equipment activity. In the event that a health risk analysis is warranted, TAC emissions will be assessed in accordance with methodologies devised by the SCAQMD and the Office of Environmental Health Hazard Assessment (OEHHA). Construction activities would result in emissions of TACs due to equipment and truck exhaust emissions. The level of activity associated with construction of the bicycle path is

anticipated to be generally below a level of concern. Operational activities are not expected to release toxic air contaminants since the bicycle lanes and greenway typically do not generate pollutant emissions. The 2007 PEIR/PEIS did not conduct a health risk analysis.

## Noise

For bicycle and pedestrian activities, noise and vibration would be minor resulting in a less-than-significant impact. The evaluation of construction-related noise will be based on the anticipated use of construction equipment (to be identified by the project team). Sensitive land uses located adjacent to the project corridor would be most affected by construction noise. However, it is likely that construction activity would move quickly along the project corridor and noise exposure at individual sensitive receptors would be



Source: Gruen Associates



short in duration and intermittent. Construction noise impacts are expected to be limited.

The 2007 PEIR/PEIS found short-term adverse impacts on sensitive receptors during construction. The 2007 PEIR/PEIS includes mitigation measures that would reduce construction noise impacts to less than significant levels. The LARRMP that was evaluated in the 2007 PEIR/PEIS involves more extensive construction than the proposed project. The proposed project would use much less construction equipment and would have fewer haul truck trips than the overall implementation of the LARRMP. Construction noise associated with the proposed project would be less than the impacts that were identified in the 2007 PEIR/PEIS and likely less than significant as a result of the limited duration of construction activities adjacent to sensitive receptors.

The 2007 PEIR/PEIS found long-term indirect beneficial impacts as the LA River Revitalization project would decrease vehicle use, which may help in reducing noise sources in the LA River corridor.

## Hazardous Materials

An Envirostor database review will be conducted to determine potential for construction activities to encounter contaminated soils (Envirostor is maintained by the California Department of Toxic Substances Control [DTSC]). If hazardous materials or contaminated soils are identified along the project corridor, construction workers could potentially be exposed to hazardous materials or contaminated soils. The handling of hazardous materials and soils with elevated levels of contaminants would be required to comply with federal, state, and local regulations. Thus, it is anticipated that impacts associated with hazardous materials will be less than significant.

The 2007 PEIR/PEIS found minimal to low potential impacts involving hazardous waste because standard

operating procedures and best management practices would be implemented to minimize potential impacts associated with the public exposure to hazardous materials during construction and maintenance. Additionally, the City requires all users of hazardous materials to comply with state and federal occupational safety and health codes and regulations and to review and keep a record of material safety data sheets for site materials.

Operational activities associated with the proposed bikeways and greenways are not anticipated to involve the transport, use, and disposal of hazardous materials. Significant impacts associated with the handling of hazardous materials during operations of the proposed project are not expected.

The 2007 PEIR/PEIS found minimal to low potential impacts involving hazardous waste. However, the 2007 PEIR/PEIS identified approximately 1,550 hazardous, toxic, and radioactive wastes (HTRW) incidents/sites within one mile of the LA River corridor and the project's opportunity sites. The 2007 PEIR/PEIS states that once specific designs are prepared with additional site details, boundaries, and building or structure locations, subsequent environmental review should be conducted to determine how specific hazardous materials at the HTRW incidences/sites could affect public health and safety. The 2007 PEIR/PEIS also states that soils and water quality in the LA River should be tested at locations where possible contamination is suspected. Additionally, DTSC, the California Department of Health Services, and the U.S. Environmental Protection Agency should be contacted to help identify the best sampling locations.

The 2007 PEIR/PEIS found low potential impacts involving school safety. Standard operating procedures associated with the routine transport, use, or disposal of hazardous materials; accidental release of hazardous materials; and fencing of construction sites to prevent unauthorized access would result in minimal adverse

impacts from exposing students or school staff to hazardous emissions or hazardous materials during construction. Operational activities associated with the proposed project, which is a much smaller project than the LARRMP that was evaluated in the 2007 PEIR/PEIS, are not likely to involve the transport, use, or disposal of hazardous materials. Adverse impacts on school safety are not anticipated.

## Public Health and Safety

The area surrounding the LA River corridor is highly populated. Access to the LA River makes the risk of drowning and other river-related accidents a potential health and safety concern. During dry periods, the LA River channel typically contains low volumes and heights of water. However, during periodic storms, the channel rapidly fills with stormwater runoff, conveying

large volumes of fast-moving runoff water to the Pacific Ocean. During and following these storms, when water levels and flow velocities in the LA River channel rise quickly, the risk of accidental death and injuries to individuals venturing close to the LA River increases dramatically. The proposed greenways and bikeway will attract users to the LA River, which could potentially increase the risk of accidental drowning or water-related injury, particularly during and following flooding. However, the proposed project would likely include components that would minimize the risk of accidental drowning or water-related injury. Impacts associated with drowning or water-related injury are likely to be low with implementation of features that would minimize these risks.

The 2007 PEIR/PEIS found a high and potentially significant adverse impact associated with LA River water safety. The LARRMP would increase opportunities for the public to interact with the LA River,



Typical fencing that lines the LA River in the rectangular sections of the LA River

which would increase the risk of accidental drowning or water-related injury particularly during and following flooding. The County of Los Angeles Fire Department has formed special Swift Water Rescue teams, and the City of Los Angeles Fire Department has a Swift Water Rescue team that respond to emergencies along the LA River, as well as other rivers, creeks, and arroyos during and following storms. These teams are strategically collocated in selected fire stations throughout Los Angeles County to be able to rapidly respond to such emergencies. The proposed greenway and bikeway would increase opportunities for the public to interact with the LA River, although to a lesser extent than the larger LARRMP. The proposed project's impacts on safety is anticipated to be lower than the LARRMP since the proposed project is smaller and would likely include components that would minimize the risk of accidental drowning or water-related injury.

Van Nuys Airport is located just north of the LA River, with the southern portion of the airport within one mile of the LA River. Impacts associated with airport operations are not expected since the proposed project does not include structures that would interfere with airport operations or safety. The 2007 PEIR/PEIS found low potential impacts involving operations safety because the LARRMP does not include structures that would interfere with airport operations or safety.

High fire hazard zones in close proximity to the project corridor are primarily located within the Santa Monica Mountains and foothills interface with the City. A small portion of the project corridor (located at the southern end of the project corridor near Forest Lawn Drive/Zoo Drive) is located within and near a high fire hazard zone. Adverse impacts associated with wildfires are expected to be low for the proposed project.

The 2007 PEIR/PEIS found low potential impacts involving wildfire. Construction and maintenance of the LARRMP would involve construction equipment or activities that could accidentally start a fire in a high fire hazard

zone. However, standard operating procedures (such as requiring construction and maintenance equipment to be maintained in proper working conditions, only certified or trained operators should be allowed to use the equipment, no smoking along the project corridor, and the provision of fire extinguishers) would minimize potential impacts associated with wildfire.

Methane zones are established by City Council ordinance. Methane zones are surrounded by a methane buffer zone. Both have established land use restrictions and mitigation policies to manage land use. The southern end of the project corridor (near the Forest Lawn Drive/Zoo Drive) and its vicinity is located within a methane and methane buffer zone. The 2007 PEIR/PEIS found minimal adverse impacts from methane because construction and maintenance associated with the LARRMP would be done in accordance with regulations pertaining to development within the methane zones and buffer zones. Proposed project impacts is also anticipated to be minimal since construction activities within methane zones and buffer zones would be required to comply with these regulations.

Vector-borne diseases associated with the proposed greenway and bikeway will be minor, if any, since the proposed project does not involve components that would increase the amount of surface water within the LA River corridor. The 2007 PEIR/PEIS indicated that the City of Burbank expressed concerns about the spread or increase in infectious diseases because breeding grounds, such as standing water, for mosquitoes would increase with implementation of the LARRMP, which includes LA River channel modifications, the addition of numerous parks, and the development of five opportunity sites. The 2007 PEIR/PEIS states that although the aerial extent of surface water is expected to increase under LARRMP, the suitability of habitat for vectors cannot be determined until specific designs of individual LA River revitalization projects are proposed with additional details. The proposed greenway and bikeway is a smaller project than the LARRMP and does

not involve components that would increase the amount of surface water within the LA River corridor. Proposed project impacts to vector-borne diseases is likely to be low and would be less than the LARRMP that was analyzed in the 2007 PEIR/PEIS.

## Hydrology, Water Quality Analysis and Sediment Analysis

The proposed project would add vegetation throughout the project corridor. The additional landscaping would help improve water quality by filtering out pollutants before runoff enters the LA River. Modeling of LA River flows will be conducted to ensure that project improvements do not interfere with LA River flows or result in adverse impacts to bridges. The hydrology analysis conducted for the proposed project will include a description of the surface hydrology and hydrogeology of the alignment, including characteristics of storm drains, streams, and surface waters on or near the alignment, as well as underlying aquifers, channels, basins and flood control. Applicable regulations in which the proposed project would be required to comply include: the federal Clean Water Act, the State Porter-Cologne Water Quality Control Act, and the permitting and regulatory authority of the Regional Water Quality Control Board (RWQCB) and ACOE. It is anticipated that impacts during operations of the proposed project would be low.

The 2007 PEIR/PEIS found potentially high and adverse impacts on water quality due to soil erosion from wind and stormwater runoff. Disturbed soils would need to be stabilized and best management practices implemented to reduce potential impacts on water quality to less than significant levels. Additional trash entering the LA River from increased recreational activity would likely have low to moderate adverse impacts on public health. The 2007 PEIR/PEIS identifies the potential for extensive earthwork, potentially contributing to soil erosion, sedimentation, and adverse water quality effects. The

proposed project is a much smaller project and less earthwork is anticipated. Impacts for the proposed project are anticipated to be much less than the impacts identified in the 2007 PEIR/PEIS and likely less than significant.

The 2007 PEIR/PEIS found low to moderate impacts from vegetation becoming uprooted during high water events and becoming entangled on bridge pilings and restricting water flow. The proposed project is much smaller than the overall implementation of the LARRMP contemplated in the 2007 PEIR/PEIS, and impacts associated with the proposed project are anticipated to be lower than the impacts that were identified in the 2007 PEIR/PEIS and likely less than significant.

The 2007 PEIR/PEIS found low to moderate beneficial impacts on water quality because the LA River Revitalization project would increase in-channel vegetation and create vegetative bio-swales and bio-filtration areas, which would help filter out pollutants. The 2007 PEIR/PEIS states that project-specific water quality studies and impact analysis should be conducted to properly account for potential water pollution in future implementation project areas within the LA River corridor. The water quality studies should also address any potential long-term impacts to water quality and habitat caused by transitioning storm flows into and out of culverts from the channel.

Construction activities for the proposed project would disturb soils within the project corridor, which could temporarily contribute to pollutants in stormwater runoff, increase sedimentation, and increase erosion rates. Preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP) would be required for the proposed project under the National Pollutant Discharge Elimination System General Construction Activity Permit. The SWPPP would include best management practices that help control erosion, water quality, sediments. Impacts during construction would be temporary and is anticipated to be low.



The 2007 PEIR/PEIS found extensive erosion and subsequent impacts to air and water quality since the LARRMP would necessitate considerable amount of ground clearing and earthwork. Soils would be subject to erosion until construction is complete and vegetation becomes reestablished. The 2007 PEIR/PEIS states that development of a stormwater pollution control plan would help control erosion and loss of soil. The proposed project is a much smaller project and would involve less earthwork. Impacts on erosion, air and water quality is expected to be less than the impacts identified in the 2007 PEIR/PEIS and likely less than significant.

### Public Services

Direct and indirect impacts to public services, including police protection, fire, and emergency services, as well as impacts to parks and recreational facilities are anticipated to be minor. The proposed bikeways and greenways would be a new recreational resource to the City. However, there is considerable public interest in safety along the greenway and identification of project security measures is important.

The analysis of impacts to recreational facilities will address the potential temporary impacts due to construction that could require closure of existing bicycle facilities. The proposed project would improve bicycle accessibility and connectivity, and therefore safety, and would encourage bicycle use (potentially resulting in improved health of the population). Construction-related impacts generally would not be considered significant due to their temporary and limited duration.

The 2007 PEIR/PEIS found moderate to high impacts on recreation demand at existing parks and recreation facilities in the vicinity of the LA River. The 2007 PEIR/PEIS states that site-specific analysis would be required to assess the significance of any impacts on demand for recreation and park services, evaluate the capacity of available resources, identify appropriate mitigation to reduce impacts to less than significant levels, and identify any other effects related to access to or use

of recreational facilities in the LA River corridor. The proposed project is a much smaller project and impacts are anticipated to be lower than the LARRMP project that was evaluated in the 2007 PEIR/PEIS, and likely less than significant. The 2007 PEIR/PEIS also found moderate to high beneficial recreation impacts as a result of providing additional recreational resources, capacity, and opportunities throughout the LA River corridor.

The 2007 PEIR/PEIS found that the LARRMP would not result in the need for new or altered public services related to police, fire protection, schools and libraries in the LA River corridor and its vicinity. However, the creation of new parks, paseos, promenades, trails and bikeways would result in additional demand for public services, such as police, fire protection, and/or emergency medical treatment. According to the 2007 PEIR/PEIS, site-specific analysis associated with these types of development, including identifying and evaluating mitigation actions, if applicable, would be required to reduce potentially adverse impacts to less than significant levels. The LARRMP would develop numerous park facilities and pathways, which would result in additional demand for public services. The proposed project is small component of the overall LARRMP. The proposed project's demand for public services would be much less than analyzed for the overall implementation of the LARRMP, and less than significant.

### Population and Housing

The proposed project is not anticipated to have an adverse effect on population and housing since greenways and bikeways do not induce population growth. Land acquisition resulting in the loss of housing also is not anticipated.

The 2007 PEIR/PEIS found that implementation of LA River channel modifications that would require expanding the LA River right-of-way could potentially impact housing, depending on the type of land use that

would be displaced. LARRMP projects are required to analyze site-specific housing impacts, including identifying mitigation actions, if applicable. Population and housing impacts associated with the proposed project, would not induce population growth or displace housing, and are expected to be lower than the LARRMP that was analyzed in the 2007 PEIR/PEIS.

### Utilities and Service Systems

Demand for utility service systems (i.e. water, wastewater, and solid waste) are anticipated to be minor and contacting utility providers regarding demand is not necessary. Any potential for relocation of utility lines will be identified and addressed as appropriate. The relocation of utilities would occur during construction and would be temporary.

The 2007 PEIR/PEIS found that the LA River channel



Typical multi-family housing adjacent to the LA River

## ADDITIONAL NEPA ISSUES

Much of the NEPA analyses methodology is similar to CEQA. However, NEPA differs from CEQA in regards to Air Quality, Environmental Justice, Cultural Resources, Biological Resources, and Socioeconomics. These topics are further discussed below.

### Air Quality

The federal air quality analysis involves the same methodology as for CEQA; however, federal ambient air quality thresholds are applicable to NEPA. In addition, the federal assessment process could also require an air quality conformity determination, which includes project consistency with the regional Federal Transportation Improvement Program (FTIP), as well as, as appropriate, project-level PM and carbon monoxide (CO) hotspot assessments. The proposed project is not anticipated to generate PM and CO hotspots since the proposed bikeway and greenway are not expected to involve activities that would generate PM and CO emissions. The 2007 PEIR/PEIS did not provide an air quality conformity determination.

### Environmental Justice

The potential for a disproportionately high and adverse human health or environmental effects on minority populations and low-income populations is anticipated to be limited; however, this analysis is required under Executive Order 12898. The proposed project could also benefit minority, lower income, and transit-dependent populations by creating a new recreational resource to the area.

The 2007 PEIR/PEIS found that any future proposals for displacing affordable housing units in the LA River corridor to implement the LARRMP would result in high and potentially significant impacts that would likely require mitigation. The level of potential impacts on environmental justice populations and children's health and safety can be expected to be high and potentially

significant during the construction phase, particularly from noise and other construction activities. The 2007 PEIR/PEIS indicated that additional consideration of environmental justice issues and children safety should occur during project-level review. This should include consideration of potential local impacts and potential benefits and enhancements for communities near future project sites. Project-level review should include outreach to potentially affected communities as part of the project planning and implementation process. The project-level review should also identify appropriate mitigation actions and best management practices during construction to reduce potential impacts to less than significant levels. The LARRMP that was evaluated in the 2007 PEIR/PEIS is a much larger project than the proposed bikeways and greenways. The proposed project would primarily be located within the LA River corridor. The displacement of affordable housing units will not occur with the proposed project. Additionally, the proposed project would involve less intensive construction and would involve fewer earthworks than the overall implementation of the LARRMP. It is anticipated that the proposed project's impact on environmental justice populations would be far less than the larger LARRMP project and would not be substantial.

### Cultural Resources

NEPA requires cultural resources to be evaluated in accordance with Section 106 of the NHPA. As previously discussed, the cultural resource inventory and surveys will be prepared in compliance with Section 106 of the NHPA.

### Biological Resources

The LA River is a navigable waterway of the U.S., as defined by 33 CFR §329.4. As previously discussed, the proposed project would involve coordination with the ACOE, as well as consultation with the USFWS and CDFW, to ensure that wetlands and sensitive species would not be adversely affected by the proposed project.

### Socioeconomics

The proposed project is not expected to involve land acquisition that would result in the displacement of commercial and industrial businesses. The 2007 PEIR/PEIS found that any displacement of existing commercial and industrial businesses could result in high and potentially significant impacts associated with loss of jobs. Although the 2007 PEIR/PEIS found bikeways would have moderate to high impacts on socioeconomic impacts associated with the proposed project are anticipated to be less than the 2007 PEIR/PEIS because the proposed project is not expected to involve substantial land acquisition that would result in the displacement of commercial and industrial businesses.



Vanalden Ave Pedestrian Bridge



## ENVIRONMENTAL REVIEW OPTIONS: TENTATIVE CONCEPTUAL SCHEDULES

Schedule 1: Programmatic EA (ACOE and Possibly Individual EA for Caltrans) and EIR (BOE)

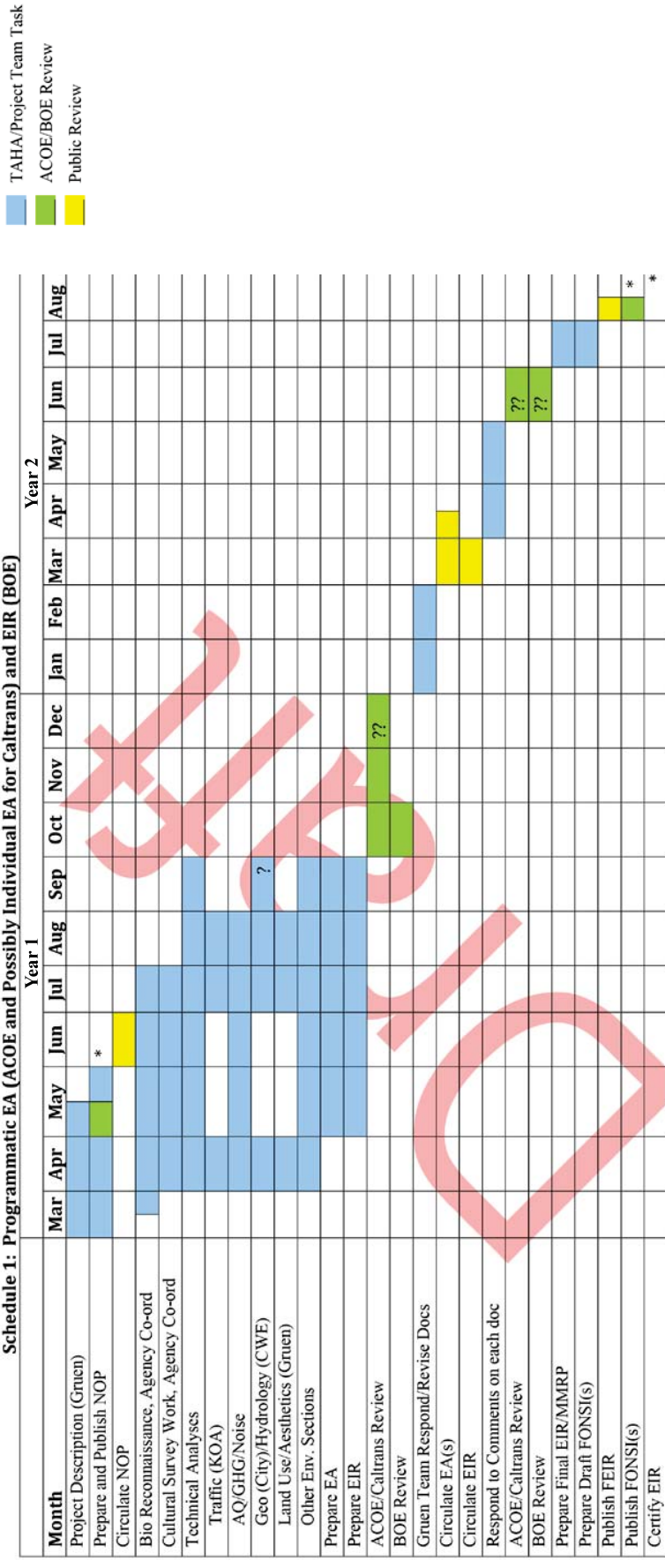


Table 11.1 Schedule 1: Programmatic EA (ACOE and Possibly Individual EA for Caltrans) and EIR (BOE)

Schedule 2a: Programmatic EIS (ACOE) and Programmatic EIR (BOE) through Draft

Month	Year 1												Year 2							
	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug		
Project Description (Gruen)																				
Prepare and Publish NOP																				
Prepare and Publish NOI																				
Circulate NOP and NOI																				
Bio Reconnaissance, Agency Co-ord																				
Cultural Survey Work, Agency Co-ord																				
Technical Analyses																				
Traffic (KOA)																				
AQ/GHG/Noise																				
Geo (City)/Hydrology (CWE)																				
Land Use/Aesthetics (Gruen)																				
Other Env. Sections																				
Prepare EIS																				
Prepare EIR																				
ACOE Review																				
BOE Review																				
Gruen Team Respond/Revise Docs																				
ACOE 2nd Review/EPA Review																				
Gruen Team Response/Revises docs																				
Circulate EIS																				
Circulate EIR																				

Table 11.2 Schedule 2a: Programmatic EIS (ACOE) and Programmatic EIR (BOE) through Draft

Schedule 2b: Final EIS (ACOE) and Final EIR (EIR)

	Year 2												Year 3											
	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec								
Respond to Comments on each doc																								
ACOE Review																								
BOE Review																								
Gruen Team Respond to Comments																								
ACOE 2nd Review/EPA																								
Prepare Final EIR/MMRP																								
Prepare Final EIS																								
Publish FEIS																								
Publish FEIR																								
Certify EIR																								
Issue/Publish ROD																								
																*								

Table 11.3 Schedule 2b: Final EIS (ACOE) and Final EIR (EIR)

TAHA/Project Team Task  
ACOE/BOE Review  
Public Review

Schedule 3: Individual EA (ACOE or Caltrans)

Month	1	2	3	4	5	6	7	8	9	10	11	12	13
Project Description													
Technical Analyses and Agency Co-ord													
Bio													
Cultural													
Traffic (KOA)													
AQ/GHG/Noise													
Geo (City)/Hydrology (CWE)													
Land Use/Aesthetics (Gruen)													
Other Env. Sections													
Prepare EA													
ACOE/Caltrans Review							??						
Gruen Team Respond/Revise Docs													
Circulate EA(s)													
Respond to Comments													
ACOE/Caltrans Review													
Prepare Draft FONSI(s)													
Publish FONSI(s)													*

■ TAHA/Project Team Task  
■ ACOE/Caltrans Review (AC)  
■ Public Review

Table 11.4 Schedule 3: Individual EA (ACOE or Caltrans)



FTIP#: LA9919165  
Subregion ID: Central Cities

**DRAFT**

ID#: MMLARVB  
FA# 9200000000MMLARVB

## FUNDING AGREEMENT ACTIVE TRANSPORTATION

This Funding Agreement ("FA") is made and entered into effective as of November 8, 2022 ("Effective Date"), and is by and between the Los Angeles County Metropolitan Transportation Authority ("LACMTA") and City of Los Angeles ("GRANTEE") for the Los Angeles River Valley Bikepath – Design & Construction, LACMTA ID# MMLARVB, (the "Project") and FTIP# [Insert#]. The Project is eligible for funding under Line 13 of the Measure M Expenditure Plan.

WHEREAS, LACMTA adopted Ordinance #16-01, the Los Angeles County Traffic Improvement Plan, on June 23, 2016 (the "Ordinance"), which Ordinance was approved by the voters of Los Angeles County on November 8, 2016 as "Measure M" and became effective on July 1, 2017.

WHEREAS, the funding set forth herein is intended to fund Plans, Specifications and Estimates (PS&E), Right-of-Way, and Construction of the Project.

WHEREAS, the LACMTA Board, at its December 2, 2021 meeting, programmed \$60,000,000, in Measure M Funds to GRANTEE for Plans, Specifications and Estimates (PS&E), and Construction, subject to the terms and conditions contained in this FA; and

WHEREAS, the Funds are currently programmed as follows: \$60,000,000 in Measure M Funds in Fiscal Years (FY) 2022-23; FY 2023-24; FY 2024-25, FY 2025-26, FY 2026-27, and FY 2027-28. The total designated for Plans, Specifications and Estimates (PS&E), and Construction of the Los Angeles River Valley Bikepath – Design & Construction is \$60,000,000.

WHEREAS, LACMTA will reimburse the GRANTEE for the cost incurred for the Project performed in conjunction with this agreement up to a not-to-exceed amount of \$60,000,000;

NOW, THEREFORE, the parties hereby agree as follows:

The terms and conditions of this FA consist of the following and each is incorporated by reference herein as if fully set forth herein:

1. Part I – Specific Terms of the FA
2. Part II – General Terms of the FA
3. Attachment A – Project Funding
4. Attachment B – Expenditure Plan- Cost & Cash Flow Budget
5. Attachment C – Scope of Work
6. Attachment D – Project Reporting and Expenditure Guidelines
7. Attachment D-1 – Quarterly Progress Report
8. Attachment E – Federal Transportation Improvement Program (FTIP) Sheet
9. Attachment F – Bond Requirements
10. Attachment G – Special Grant Conditions

In the event of a conflict, the Special Grant Conditions, if any, shall prevail over the Specific Terms of the FA and any attachments and the Specific Terms of the FA shall prevail over the General Terms of the FA.

IN WITNESS WHEREOF, the parties have caused this FA to be executed by their duly authorized representatives as of the dates indicated below:

LACMTA:

LOS ANGELES COUNTY METROPOLITAN TRANSPORTATION AUTHORITY

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Stephanie N. Wiggins  
Chief Executive Officer

APPROVED AS TO FORM:

DAWYN R. HARRISON  
Interim County Counsel

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Deputy

GRANTEE:

City of Los Angeles, Bureau of Engineering

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Ted Allen  
City Engineer

APPROVED AS TO FORM:

By: \_\_\_\_\_ Date: \_\_\_\_\_  
Edward M. Jordan  
City Attorney

**PART I**  
**SPECIFIC TERMS OF THE FA**

1. Title of the Project (the "Project"): Los Angeles River Valley Bikepath – Design & Construction. LACMTA ID# MMLARVB.

2. Grant Funds:

This is a one-time only grant of the Measure M Funds subject to the terms and conditions agreed to herein. This grant does not imply nor obligate any future funding commitment on the part of LACMTA.

3. This grant shall be paid on a reimbursement basis. GRANTEE must provide the appropriate supporting documentation with the Monthly Progress Report and/or the Quarterly Expenditure Report. GRANTEE Funding Commitment, if applicable, must be spent in the appropriate proportion to the Funds with each quarter's expenditures. LACMTA will withhold five percent (5%) of eligible expenditures per invoice as retention pending an audit of expenditures and completion of Scope of Work.

4. **Attachment A** the "Project Funding" documents all sources of funds programmed for the Project as approved by LACMTA. The Project Funding includes the total programmed funds for the Project, including the Funds programmed by LACMTA and the GRANTEE Commitment of other sources of funding (the "GRANTEE Funding Commitment"). The Project Funding also includes the fiscal years in which all the funds for the Project are programmed. The Funds are subject to adjustment by subsequent LACMTA Board Action.

5. **Attachment B** is the Expenditure Plan- Cost & Cash Flow Budget (the "Expenditure Plan"). The obligation for LACMTA to grant the Funds for the Project is subject to sufficient Funds being made available for the Project by the LACMTA Board of Directors. If such Funds are not made available as anticipated from Measure M Program revenues, LACMTA will have the right to adjust the cash flow accordingly until such funds become available. LACMTA shall have no obligation to provide any other funds for the Project, unless otherwise agreed to in writing by LACMTA. GRANTEE shall update the Expenditure Plan annually, no later than December 31, and such update shall be submitted to LACMTA. If the LACMTA's Project Manager concurs with such updated Expenditure Plan in writing, Attachment B shall be replaced with the new Attachment B setting forth the latest approved Expenditure Plan. Payments under this FA shall be consistent with Attachment B as revised from time to time. Any change to the final milestone date must be made by a fully executed amendment to this FA.

6. **Attachment C** is the "Scope of Work". The GRANTEE shall complete the Project as described in the Scope of Work. This Scope of Work shall include a detailed description of the Project and the services to be completed, utility coordination, right-of-way acquisition and procurement and construction management services. No later than December 31 of each year, GRANTEE shall notify LACMTA if there are any changes to the final milestone date set forth in the schedule or any changes to the Scope of Work. If LACMTA agrees to such changes, the parties shall memorialize such changes in an amendment to this FA. Work shall be delivered

in accordance with the schedule and Scope of Work identified in this FA unless otherwise agreed to by the parties in writing in an amendment to this FA. If GRANTEE fails to meet milestones or in delivery of the Project, LACMTA will have the option to suspend or terminate the FA for default as described in Part II, Sections 2, 9, 10 and 11 herein below. To the extent interim milestone dates are not met but GRANTEE believes and can show documentation acceptable to LACMTA supporting GRANTEE's ability to make up the time so as to not impact the final milestone date, GRANTEE shall notify LACMTA of such changes in its Monthly Progress Reports and such interim milestone dates will automatically be amended to the latest interim milestone dates provided in the Monthly Progress Reports Attachment D-1. In no event can the final milestone date be amended by a Monthly Progress Report.

7. No changes to this FA, including but not limited to the Funds, and any other source of funds from LACMTA in the Project Funding, Expenditure Plan or the Scope of Work shall be allowed without an amendment to the original FA, approved and signed by both parties.

8. **Attachment D** is the "Project Reporting & Expenditure Guidelines". GRANTEE shall complete the "Quarterly Progress Report" and/or the "Quarterly Expenditure Report". The Quarterly Progress Report is attached to this FA as Attachment D-1 in accordance with Attachment D – Project Reporting and Expenditure Guidelines.

9. Attachment E, the "FTIP PROJECT SHEET (PDF)", is required to ensure that the Project is programmed correctly in the most up-to-date FTIP document. The FTIP PROJECT SHEET (PDF) can be found in ProgramMetro FTIP database under the reports section at <http://program.metro.net>. All projects that receive funding through Measure M must be programmed into the FTIP, which includes locally funded regionally significant projects for information and air quality modeling purposes. GRANTEE shall review the Project in ProgramMetro each year and update or correct the Project information as necessary during a scheduled FTIP amendment or adoption. GRANTEE will be notified of amendments and adoptions to the FTIP via e-mail. Changes to the FTIP through ProgramMetro should be made as soon as possible after GRANTEE is aware of any changes to the Project, but no later than October 1 of the year the change or update is effective. Should GRANTEE fail to meet this date, it may affect GRANTEE's ability to access funding, delay the Project and may ultimately result in the Funds being lapsed.

10. LACMTA anticipates it may need to avail itself of lower cost bonds or other debt, the interest on which is tax exempt for federal tax purposes (collectively, the "Bonds") to provide at least a portion of its funding commitments under this Agreement to GRANTEE. GRANTEE shall ensure that the expenditure of the Funds disbursed to GRANTEE does not jeopardize the tax-exemption of the interest, as specified in the Bond Requirements attached as **Attachment F** to this Agreement. GRANTEE agrees to provide LACMTA with progress reports, expenditure documentation, and any other documentation as reasonably requested by LACMTA and necessary for LACMTA to fulfill its responsibilities as the grantee or administrator or bond issuer of the Funds. With regard to LACMTA debt financing to provide any portion of the Funds, GRANTEE shall take all reasonable actions as may be requested of it by LACMTA's Project Manager for the Project, to assist LACMTA in



demonstrating and maintaining over time, compliance with the relevant sections of the Federal Tax Code to maintain such Bonds' tax status.

11. No changes to the (i) Grant amount, (ii) Project Funding, (iii) the Scope of Work (except as provided herein), or (iv) Final milestone date, shall be allowed without a written amendment to this FA, approved and signed by the LACMTA Chief Executive Officer or his/her designee and GRANTEE. Modifications that do not materially affect the terms of this FA, such as redistributing Funds among existing budget line items or non-material schedule changes must be formally requested by GRANTEE and approved by LACMTA in writing. Non-material changes are those changes which do not affect the grant amount or its schedule, Project Funding, Financial Plan, or the Scope of Work, including the Work schedule.

12. LACMTA's Address:

Los Angeles County Metropolitan Transportation Authority  
One Gateway Plaza  
Los Angeles, CA 90012  
Attention: Peter Carter  
LACMTA Project Manager  
Mail Stop: 99-22-6  
Phone: (213) 922-7480  
Email: [carterp@metro.net](mailto:carterp@metro.net)

13. GRANTEE's Address:

City of Los Angeles  
1149 S. Broadway, Suite 700  
Los Angeles, CA 90015-2213  
Attention: Nur Malhis  
Sr Project Manager/Sr Civil Engineer  
Phone: (213) 485-4737  
Email: [nur.malhis@lacity.org](mailto:nur.malhis@lacity.org)

**PART II**  
**GENERAL TERMS OF THE FA**

**1. TERM**

The term of this FA shall commence on the Effective Date of this FA, and shall terminate upon the occurrence of all of the following, unless terminated earlier as provided herein: (i) the agreed upon Scope of Work has been completed; (ii) all LACMTA audit and reporting requirements have been satisfied; and (iii) the final disbursement of the Funds has been made to GRANTEE. All eligible Project expenses as defined in the Reporting and Expenditure Guidelines (Attachment D), incurred after the FA Effective Date shall be reimbursed in accordance with the terms and conditions of this FA unless otherwise agreed to by the parties in writing.

**2. SUSPENSION OR TERMINATION**

Should LACMTA determine there are insufficient Measure M Funds available for the Project, LACMTA may suspend or terminate this FA by giving written notice to GRANTEE at least thirty (30) days in advance of the effective date of such suspension or termination. If the Project are suspended or terminated pursuant to this section, LACMTA will not reimburse GRANTEE any costs incurred after that suspension or termination date, except those costs necessary to: (i) return any facilities modified by the Project construction to a safe and operable state; and (ii) suspend or terminate the construction contractor's control over the Project. LACMTA's share of these costs will be consistent with the established funding percentages outlined in this FA.

**3. ESTIMATED COST OF SERVICES**

The estimated not to exceed amount of allowable Project Scope of Work for Plans, Specifications and Estimates (PS&E), Right-of-Way, and Construction services described in Attachment C – Scope of Work is \$60,000,000 based on the Attachment B – Expenditure Plan. The not to exceed amount specified herein may be adjusted to account for actual costs of right-of-way, actual bid prices, or change orders during the construction phase with a written and executed amendment to this Funding Agreement. All incurred expenses and other direct costs (ODCs) will be actual cost with no mark-up (i.e., actual “pass-through” costs). City of Los Angeles burdened labor costs will be calculated based on the City of Los Angeles audited overhead rate applied to actual direct labor costs using “raw” hourly rates for each employee.

**4. INVOICE BY GRANTEE**

Unless otherwise stated in this FA, the Monthly Progress Report or the Quarterly Expenditure Report, with supporting documentation of expenses, Project progress and other documents as required, which has been pre-approved by LACMTA, all as described in Part II, Section 6.1 of this FA, shall satisfy LACMTA invoicing requirements. Grantee shall only submit for payment the LACMTA pre-approved Monthly Progress Report or Quarterly Expenditure Report Packets to the LACMTA Project Manager at the email address shown in Part I and to LACMTA Accounts Payable Department as shown below.

Submit invoice with supporting documentation to:  
[ACCOUNTSPAYABLE@METRO.NET](mailto:ACCOUNTSPAYABLE@METRO.NET) (preferable)

or

mail to:

**Los Angeles County Metropolitan Transportation Authority**  
**Accounts Payable**  
**P. O. Box 512296**  
**Los Angeles, CA 90051-0296**

All invoice material must contain the following information:

Re: LACMTA ID# MMLARVB and FA# FA9200000000MMLARVB  
Peter Carter; Mail Stop 99-22-6

## 5. USE OF FUNDS

5.1 GRANTEE shall utilize the Funds to complete the Project as described in the Scope of Work and in accordance with the Reporting and Expenditure Guidelines, the specifications for use for the transportation purposes described in the Measure M Ordinance.

5.2 Attachment C shall constitute the agreed upon Scope of Work between LACMTA and GRANTEE for the Project. The Funds, as granted under this FA, can only be used towards the completion of the Scope of Work detailed in Attachment C.

5.3 GRANTEE shall not use the Funds to substitute for any other funds or Project not specified in this FA. Further, GRANTEE shall not use the Funds for any expenses or activities above and beyond the approved Scope of Work (Attachment C) without an amendment to the FA approved and signed by the LACMTA Chief Executive Officer or his Designee. To the extent LACMTA provides GRANTEE with bond or commercial paper proceeds, such Funds may not be used to reimburse for any costs that jeopardize the tax exempt nature of such financings as reasonably determined by LACMTA and its bond counsel.

5.4 GRANTEE must use the Funds in the most cost-effective manner. If GRANTEE intends to use a consultant or contractor to implement all or part of the Project, LACMTA requires that such activities be procured in accordance with GRANTEE's contracting procedures and consistent with State law as appropriate. GRANTEE will also use the Funds in the most cost-effective manner when the Funds are used to pay "in-house" staff time. This effective use of funds provision will be verified by LACMTA through on-going Project monitoring and through any LACMTA interim and final audits.

5.5 GRANTEE'S employee, officers, councilmembers, board member, agents, or consultants (a "GRANTEE Party") are prohibited from participating in the selection, award, or administration of a third-party contract or sub-agreement supported by the Funds if a real or apparent conflict of interest would be involved. A conflict of interest would include, without limitation, an organizational conflict of interest or when any of the following parties has a financial or other interest in any entity selected for award: (a) a GRANTEE Party (b) any member of a GRANTEE Party's immediate family, (c) a partner of a GRANTEE Party; (d) any

organization that employs or intends to employ any of the above. This conflict of interest provision will be verified by LACMTA through on-going Project monitoring and through any LACMTA interim and final audits.

5.6 If a facility, equipment (such as computer hardware or software), vehicle or property, purchased or leased using the Funds, ceases to be used for the proper use as originally stated in the Scope of Work, or the Project is discontinued, any Funds expended for that purpose must be returned to LACMTA as follows: GRANTEE shall be required to repay the Funds in proportion to the useful life remaining and in an equal proportion of the grant to GRANTEE Funding Commitment ratio.

## 6. REIMBURSEMENT OF FUNDS

Funds will be released on a reimbursement basis in accordance with invoices submitted in support of the Quarterly Expenditure Reports. LACMTA will make all disbursements electronically unless an exception is requested in writing. Reimbursements via Automated Clearing House (ACH) will be made at no cost to GRANTEE. GRANTEE must complete the ACH form and submit such form to LACMTA before grant payments can be made. ACH Request Forms can be found at [www.metro.net/projects/call\\_projects/call\\_projects-reference-documents/](http://www.metro.net/projects/call_projects/call_projects-reference-documents/). GRANTEE must provide detailed supporting documentation with its Monthly Progress and Quarterly Expenditure Reports. GRANTEE shall demonstrate that the GRANTEE Funding Commitment has been spent in direct proportion to the Funds invoiced with each quarter's expenditures.

## 7. REPORTING AND AUDIT REQUIREMENTS/PAYMENT ADJUSTMENTS

7.1 GRANTEE shall submit the draft of Monthly Progress Report (Attachment D-1) within seven (7) days from the last day of each month, if required, and submit the draft of Quarterly Expenditure Report (Attachment D-2) within sixty (60) days after the close of each quarter on the last day of the months November, February, May and August to the LACMTA Project Manager for review and pre-approval of the applicable report. LACMTA Project Manager shall review and respond in writing to the draft Monthly Progress within five (5) business days from receipt and Quarterly Expenditure Report within thirty (30) calendar days from receipt. Grantee shall submit the LACMTA pre-approved Monthly Progress Report and Quarterly Expenditure Report no later than five (5) days after receipt of LACMTA's written approval. Should GRANTEE fail to submit either the draft or pre-approved reports within five (5) days of the due date and/or submit incomplete reports, LACMTA will not reimburse GRANTEE until the completed required reports are received, reviewed, and approved. The Monthly Progress and the Quarterly Expenditure Reports shall include all appropriate documentation (such as contractor invoices, timesheets, receipts, etc.), and any changes to interim milestone dates that do not impact the final milestone date. All supporting documents must include a clear justification and explanation of their relevance to the Project. If no activity has occurred during a particular quarter, GRANTEE will still be required to submit the Monthly Progress and Quarterly Expenditure Reports indicating no dollars were expended that quarter. If a request for reimbursement exceeds \$500,000 in a single month, then GRANTEE can submit such an invoice once per month with supporting documentation. Expenses that are not



invoiced to LACMTA Accounts Payable within ninety (90) days after the lapsing date specified in Part II, Section 9.1 below are not eligible for reimbursement.

7.2 GRANTEE shall submit the Project expenditure estimates for the subsequent fiscal year by February of each year. LACMTA will use the estimates to determine the Project budget for the upcoming fiscal year.

7.3 LACMTA, and/or its designee, shall have the right to conduct audits of the Project as deemed appropriate, such as financial and compliance audits, interim audits, pre-award audits, performance audits and final audits. LACMTA will commence a final audit within six months of receipt of acceptable final invoice, provided the Project is ready for final audit (meaning all costs and charges have been paid by GRANTEE and invoiced to LACMTA, and such costs, charges and invoices are properly documented and summarized in the accounting records to enable an audit without further explanation or summarization including actual indirect rates for the period covered by the FA period under review). GRANTEE agrees to establish and maintain proper accounting procedures and cash management records and documents in accordance with Generally Accepted Accounting Principles (GAAP). GRANTEE shall reimburse LACMTA for any expenditure not in compliance with the Scope of Work and/or not in compliance with other terms and conditions of this FA. The allowability of costs for GRANTEE's own expenditures submitted to LACMTA for this Project shall be in compliance with Office of Management and Budget (OMB) Circular A-87. The allowability of costs for GRANTEE's contractors, consultants and suppliers expenditures submitted to LACMTA through GRANTEE's Monthly Progress Reports and Quarterly Expenditures shall be in compliance with OMB Circular A-87 or Federal Acquisition Regulation (FAR) Subpart 31 and 2 CFR Subtitle A, Chapter II, Part 225 (whichever is applicable). Findings of the LACMTA audit are final. When LACMTA audit findings require GRANTEE to return monies to LACMTA, GRANTEE agrees to return the monies within thirty (30) days after the final audit is sent to GRANTEE.

7.4 GRANTEE's records shall include, without limitation, accounting records, written policies and procedures, contract files, original estimates, correspondence, change order files (including documentation covering negotiated settlements), invoices, and any other supporting evidence deemed necessary by LACMTA to substantiate charges related to the Project (all collectively referred to as "records"). Such records shall be open to inspection and subject to audit and reproduction by LACMTA auditors or authorized representatives to the extent deemed necessary by LACMTA to adequately permit evaluation of expended costs. Such records subject to audit shall also include, without limitation, those records deemed necessary by LACMTA to evaluate and verify, direct and indirect costs, (including overhead allocations) as they may apply to costs associated with the Project. These records must be retained by GRANTEE for three years following final payment under this Agreement. Payment of retention amounts shall not occur until after the LACMTA's final audit is completed.

7.5 GRANTEE shall cause all contractors to comply with the requirements of Part II, Section 7, paragraphs 7.3 and 7.4 above. GRANTEE shall cause all contractors to cooperate fully in furnishing or in making available to LACMTA all records deemed necessary by LACMTA auditors or authorized representatives related to the Project.

7.6 LACMTA or any of its duly authorized representatives, upon reasonable written notice, shall be afforded access to all GRANTEE's records and its contractors related to the Project, and shall be allowed to interview any employee of GRANTEE and its contractors through final payment to the extent reasonably practicable.

7.7 LACMTA or any of its duly authorized representatives, upon reasonable written notice, shall have access to the offices of GRANTEE and its contractors, shall have access to all necessary records, including reproduction, at no charge to LACMTA, and shall be provided adequate and appropriate work space in order to conduct audits in compliance with the terms and conditions of this FA.

7.8 When business travel associated with the Project requires use of a vehicle, the mileage incurred shall be reimbursed at the mileage rates set by the Internal Revenue Service, as indicated in the United States General Project Administration Federal Travel Regulation, Privately Owned Vehicle Reimbursement Rates.

7.9 GRANTEE shall be responsible for ensuring all contractors/ subcontractors for the Project comply with the terms of the Measure M Ordinance. GRANTEE shall cooperate with LACMTA Management Audit Project Department such that LACMTA can meet its obligations under the Measure M Ordinance.

7.10 GRANTEE shall certify each invoice by reviewing all subcontractor costs and maintaining internal control to ensure that all expenditures are allocable, allowable and reasonable and in accordance with OMB A-87 or FAR subpart 31 and 2 CFR Subtitle A, Chapter II, part 225, (whichever is applicable) and the terms and conditions of this FA.

7.11 GRANTEE shall also certify final costs of the Project to ensure all costs are in compliance with OMB A-87 or FAR subpart 31 and 2 CFR Subtitle A, Chapter II, part 225, (whichever is applicable) and the terms and conditions of this FA.

7.12 In addition to LACMTA's other remedies as provided in this FA, LACMTA may withhold the Funds if the LACMTA audit has determined that GRANTEE failed to comply with the Scope of Work (such as misusing Funds or failure to return Funds owed to LACMTA in accordance with LACMTA audit findings) and /or is severely out of compliance with other terms and conditions as defined by this FA, including the access to records provisions of Part II, Section 6.

## 8. GRANT

This is a one-time only grant of the Measure M Funds subject to the terms and conditions agreed to herein. This grant does not imply nor obligate any future funding commitment on the part of LACMTA.

## 9. SOURCES AND DISPOSITION OF FUNDS

9.1 The obligation for LACMTA to grant the Funds for the Project is subject to sufficient Funds being made available for the Project by the LACMTA Board of Directors. If such Funds are not made available as anticipated from Measure M Program revenues, LACMTA will have the right to adjust the cash flow accordingly until such funds become available. LACMTA shall have no obligation to provide any other funds for the Project, unless otherwise agreed to in writing by LACMTA.

9.2 GRANTEE shall fully fund and contribute the GRANTEE Funding Commitment, if any is identified in the Project Funding (Attachment A), towards the cost of the Project. If the Funds identified in Attachment A are insufficient to complete the Project, GRANTEE agrees to secure and provide such additional non-LACMTA programmed funds necessary to complete the Project.

9.3 GRANTEE shall be responsible for any and all cost overruns for the Project pursuant to Section 9.2.

9.4 GRANTEE shall be eligible for the Funds up to the grant amount specified in Part I, Section 2 of this FA subject to the terms and conditions contained herein. Any Funds expended by GRANTEE prior to the Effective Date of this FA shall not be reimbursed nor shall they be credited toward the GRANTEE Funding Commitment requirement, without the prior written consent of LACMTA. GRANTEE Funding Commitment dollars expended prior to the year the Funds are awarded shall be spent at GRANTEE's own risk, or as delineated in a Letter of No Prejudice executed by the prospective GRANTEE and LACMTA.

9.5 If GRANTEE receives outside funding for the Project in addition to the Funds identified in the Project Funding and the Expenditure Plan at the time this grant was awarded, this FA shall be amended to reflect such additional funding. If, at the time of final invoice or voucher, funding for the Project (including the Funds, GRANTEE Funding Commitment, and any additional funding) exceeds the actual Project costs, then the cost savings shall be applied in the same proportion as the sources of funds from each party to this FA as specified in the Project Funding and both the Funds and GRANTEE Funding Commitment required for the Project shall be reduced accordingly. LACMTA shall have the right to use any cost savings associated with the Funds at its sole discretion, including, without limitation, programming the unused Funds to another project or to another grantee within the subregion in accordance with the Measure M Ordinance. If, at the time of final voucher, it is determined that GRANTEE has received Funds in excess of what GRANTEE should have received for the Project, GRANTEE shall return such overage to LACMTA within 30 days from final voucher.

## 10. TIMELY USE OF FUNDS / REPROGRAMMING OF FUNDS

10.1 GRANTEE must demonstrate timely use of the Funds by:

- (i) Executing this FA within sixty (60) days of receiving formal transmittal of the FA from LACMTA, or by December 31 of the first Fiscal Year in which the Funds are programmed, whichever date is later; and

- (ii) Procuring contract/consultant to complete project phase scope of work within six months of Agreement or FA execution with Metro.
- (iii) Expending at least a portion of Measure M funds within 12 months of the date of Agreement or FA execution. Use of funds includes issuance of an award of a consultant contract, or encumbrance of staff labor charges by project sponsor.
- (iv) Delivering Work in accordance with schedule, budget, and scope of work; changes to the aforementioned will require an Amendment to Attachment C to reflect updated milestone dates. Meeting the Project milestone due dates as agreed upon by the LACMTA and GRANTEE in Attachment C of this FA; and
- (v) Submitting the Monthly Progress Reports and Quarterly Expenditure Reports as described in Part II, Section 7.1 of this FA; and
- (vi) Expending the Funds granted under this FA for allowable costs within three years or 36 months from July 1 of the Fiscal Year in which the Funds are programmed, unless otherwise stated in this FA. All Funds programmed for FY 2022-23 are subject to lapse by June 30, 2025. All Funds programmed for FY 2023-24 are subject to lapse by June 30, 2026. All Funds programmed for FY 2024-25 are subject to lapse by June 30, 2027. All Funds programmed for FY 2025-26 are subject to lapse by June 30, 2028. All Funds programmed for FY 2026-27 are subject to lapse by June 30, 2029. All Funds programmed for FY 2027-28 are subject to lapse by June 30, 2030.

## 11. DEFAULT

A Default under this FA is defined as any one or more of the following: (i) GRANTEE fails to comply with the terms and conditions contained herein; and/or (ii) GRANTEE fails to perform satisfactorily or make material changes, as determined by LACMTA at its sole discretion, to the Expenditure Plan, the Scope of Work, or the Project Funding without LACMTA's prior written consent or approval as provided herein.

## 12. REMEDIES

12.1 In the event of a Default by GRANTEE, LACMTA shall provide written notice of such Default to GRANTEE with a 30-day period to cure the Default. In the event GRANTEE fails to cure the Default, or commit to cure the Default and commence the same within such 30-day period to the satisfaction of LACMTA, LACMTA shall have the following remedies: (i) LACMTA may terminate this FA; (ii) LACMTA may make no further disbursements of Funds to GRANTEE; and/or (iii) LACMTA may recover from GRANTEE any Funds disbursed to GRANTEE as allowed by law or in equity.

12.2 Effective upon receipt of written notice of termination from LACMTA, GRANTEE shall not undertake any new work or obligation with respect to this FA unless so directed by LACMTA in writing. Any Funds expended after termination shall be the sole responsibility of GRANTEE.



12.3 The remedies described herein are non-exclusive. LACMTA shall have the right to enforce any and all rights and remedies herein or which may be now or hereafter available at law or in equity.

### 13. COMMUNICATIONS

13.1 GRANTEE shall ensure that all Communication Materials contain recognition of LACMTA's contribution to the Project as more particularly set forth in "Funding Recipient Communications Guidelines" available online at <http://metro.net/partners-civic>. The Funding Recipient Communications Guidelines may be changed from time to time during the course of this Agreement. GRANTEE shall be responsible for complying with the latest Funding Recipient Communications Guidelines during the term of this Agreement, unless otherwise specifically authorized in writing by the LACMTA Chief Communications Officer.

13.2 For purposes of this Agreement, "Communications Materials" include, but are not limited to, press events, public and external newsletters, printed materials, advertising, websites radio and public service announcements, electronic media, and construction site signage. A more detailed definition of "Communications Materials" is found in the Funding Recipient Communications Guidelines.

13.3 The Metro logo is a trademarked item that shall be reproduced and displayed in accordance with specific graphic guidelines. The preferred logo lock-up for Funding Recipients to use is included in the Funding Recipient Communications Guidelines.

13.4 GRANTEE shall ensure that any subcontractor, including, but not limited to, public relations, public affairs, and/or marketing firms hired to produce Project Communications Materials for public and external purposes will comply with the requirements contained in this Section.

13.5 The LACMTA Project Manager shall be responsible for monitoring GRANTEE's compliance with the terms and conditions of this Section. GRANTEE's failure to comply with the terms of this Section shall be deemed a default hereunder and LACMTA shall have all rights and remedies set forth herein.

### 14. PROJECT DESIGN

14.1 GRANTEE shall coordinate and seek input with LACMTA Planning and Operations and other municipal operators for any potential effect to transit service as necessary.

14.2 GRANTEE must receive concurrence in writing from LACMTA on the proposed design of the Project.

14.3 In the event that concurrence on the design of the Project between GRANTEE and LACMTA is not demonstrated as described in Part II, Section 14.2 of this FA, the GRANTEE shall be considered in Default pursuant to Part II, Section 11 of this FA.

## 15. OTHER TERMS AND CONDITIONS

15.1 This FA, along with its Attachments, constitutes the entire understanding between the parties, with respect to the subject matter herein. The FA shall not be amended, nor any provisions or breach hereof waived, except in writing signed by the parties who agreed to the original FA or the same level of authority. Adoption of revisions or supplements to the Guidelines shall cause such revisions or supplements to become incorporated automatically into this Agreement as though fully set forth herein.

15.2 GRANTEE is obligated to continue using the Project dedicated to the public transportation purposes for which the Project was initially approved. The Project right-of-way, the Project facilities constructed or reconstructed on the Project site, and/or Project property purchased, excluding construction easements and excess property (whose proportionate proceeds shall be distributed in an equal proportion of the grant to GRANTEE Funding Commitment ratio), shall remain dedicated to public transportation use in the same proportion and scope and to the same extent as described in this FA. Equipment acquired as part of the Project, including office equipment, vehicles, shall be dedicated to that use for their full economic life cycle, including any extensions of that life cycle achieved by reconstruction, rehabilitation, or enhancements.

15.3 In the event that there is any legal court (e.g., Superior Court of the State of California, County of Los Angeles, or the U.S. District Court for the Central District of California) proceeding between the parties to enforce or interpret this FA, to protect or establish any rights or remedies hereunder, the prevailing party shall be entitled to its costs and expenses, including reasonable attorney's fees.

15.4 Neither LACMTA nor any officer or employee thereof shall be responsible for any damage or liability occurring by reason of anything done or committed to be done by GRANTEE under or in connection with any work performed by and or service provided by GRANTEE, its officers, agents, employees, contractors and subcontractors under this FA. GRANTEE shall fully indemnify, defend and hold LACMTA and its subsidiaries, and its officers, agents and employees harmless from and against any liability and expenses, including without limitation, defense costs, any costs or liability on account of bodily injury, death or personal injury of any person or for damage to or loss of risk of property, any environmental obligation, any legal fees and any claims for damages of any nature whatsoever arising out of the Project, including without limitation: (i) use of the Funds by GRANTEE, or its officers, agents, employees, contractors or subcontractors; (ii) breach of GRANTEE's obligations under this FA; or (iii) any act or omission of GRANTEE, or its officers, agents, employees, contractors or subcontractors in the performance of the work or the provision of the services, in connection with the Project including, without limitation, the Scope of Work, described in this FA.

15.5 Neither party hereto shall be considered in default in the performance of its obligation hereunder to the extent that the performance of any such obligation is prevented or delayed by unforeseen causes including acts of God, acts of a public enemy, and government acts beyond the control and without fault or negligence of the affected party. Each party hereto shall give notice promptly to the other of the nature and extent of any such circumstances claimed to delay, hinder, or prevent performance of any obligations under this FA.

15.6 GRANTEE shall comply with and ensure that work performed under this FA is done in compliance with Generally Accepted Accounting Principles (GAAP), all applicable provisions of federal, state, and local laws, statutes, ordinances, rules, regulations, and procedural requirements including Federal Acquisition Regulations (FAR), and the applicable requirements and regulations of LACMTA. GRANTEE acknowledges responsibility for obtaining copies of and complying with the terms of the most recent federal, state, or local laws and regulations, and LACMTA requirements including any amendments thereto.

15.7 GRANTEE agrees that the applicable requirements of this FA shall be included in every contract entered into by GRANTEE or its contractors relating to work performed under this FA and LACMTA shall have the right to review and audit such contracts.

15.8 GRANTEE shall not assign this FA, or any part thereof, without prior approval of the LACMTA Chief Executive Officer or his designee. Any assignment by GRANTEE without said prior consent by LACMTA shall be void and unenforceable.

15.9 This FA shall be governed by California law. If any provision of this FA is held by a court of competent jurisdiction to be invalid, void, or unenforceable, the remaining provisions shall nevertheless continue in full force without being impaired or invalidated in any way.

15.10 The covenants and agreements of this FA shall inure to the benefit of, and shall be binding upon, each of the parties and their respective successors and assigns.

15.11 GRANTEE will advise LACMTA prior to any key Project staffing changes. Notice will be given to the parties at the address specified in Part I, unless otherwise notified in writing of change of address or contact person.

15.12 GRANTEE, in the performance of the work described in this FA, is not a contractor nor an agent or employee of LACMTA. GRANTEE attests to no organizational or personal conflicts of interest and agrees to notify LACMTA immediately in the event that a conflict, or the appearance thereof, arises. GRANTEE shall not represent itself as an agent or employee of LACMTA and shall have no powers to bind LACMTA in contract or otherwise.

ATTACHMENT A -PROJECT FUNDING

Measure M - Funding Agreement Projects - FA# 920000000MMLARVB

Project Title: LA River Way -San Fernando Valley Completion Project (Vanalden to Forest Lawn Zoo Drive) Project#: MMLARVB

Rev 5/24/2022

PROGRAMMED BUDGET - SOURCES OF FUNDS

SOURCES OF FUNDS	Prior Years	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY 2027-2028	FY2028-2029	Total Budget	% of Budget
LACMTA PROGRAMMED FUNDING										
MEASURE M FUNDS	\$ -	\$ 11,000,000	\$ 10,715,000	\$ 11,000,000	\$ 11,000,000	\$ 11,000,000	\$ 5,285,000	\$ -	\$ 60,000,000	
SUM PROG LACMTA FUNDS	\$ -	\$ 11,000,000	\$ 10,715,000	\$ 11,000,000	\$ 11,000,000	\$ 11,000,000	\$ 5,285,000	\$ -	\$ 60,000,000	35%
		55%	45%	30%	39%	45%	22%	0%		
OTHER NON LACMTA FUNDING:										
LOCAL:	\$ 6,050,000	\$ 1,530,000							\$ 7,580,000	4%
STATE:	\$ -	\$ 5,577,000	\$ 6,506,500	\$ 6,506,500	\$ -	\$ -	\$ -	\$ -	\$ 18,590,000	11%
FEDERAL:	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%
PRIVATE OR OTHER:	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	0%
FUNDS TO BE DETERMINED BY THE GRANTEE	\$ 1,770,000	\$ 1,770,000	\$ 6,753,000	\$ 18,702,069	\$ 17,043,825	\$ 13,550,034	\$ 19,115,034	\$ 6,715,688	\$ 83,649,650	49%
Funds may be Local, Federal, State										
SUM NON-LACMTA FUNDS	\$ 6,050,000	\$ 8,877,000	\$ 13,259,500	\$ 25,208,569	\$ 17,043,825	\$ 13,550,034	\$ 19,115,034	\$ 6,715,688	\$ 109,819,650	65%
		45%	55%	70%	61%	55%	78%	100%		
TOTAL PROJECT FUNDS	\$ 6,050,000	\$ 19,877,000	\$ 23,974,500	\$ 36,208,569	\$ 28,043,825	\$ 24,550,034	\$ 24,400,034	\$ 6,715,688	\$ 169,819,650	100%

Notes:



## ATTACHMENT B - EXPENDITURE PLAN COST &amp; CASH FLOW BUDGET

Measure M - Funding Agreement Projects - FA# 9200000000MMLARVB  
 Project Title: Complete LA River Bikepath Project#:MMLARVB

Rev 8/1/2022

## PROGRAMMED SOURCES OF FUNDS

SOURCES OF FUNDS	Prior Years	FY 2022-23 Qtr 1	FY 2022-23 Qtr 2	FY 2022-23 Qtr 3	FY 2022-23 Qtr 4	FY 2023-24 Qtr 1	FY 2023-24 Qtr 2	FY 2023-24 Qtr 3	FY 2023-24 Qtr 4	TOTAL BUDGET
<b>LACMTA PROGRAMMED FUNDS:</b>										
<b>MEASURE M FUNDS:</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E		\$692,500	\$692,500	\$692,500	\$692,500	\$986,250	\$986,250	\$986,250	\$986,250	\$6,715,000
Right-of-Way Acquisition										\$0
Construction		\$2,057,500	\$2,057,500	\$2,057,500	\$2,057,500	\$1,692,500	\$1,692,500	\$1,692,500	\$1,692,500	\$15,000,000
Vehicle Purchase										\$0
Others										\$0
<b>Total Measure M</b>		<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,678,750</b>	<b>\$2,678,750</b>	<b>\$2,678,750</b>	<b>\$2,678,750</b>	<b>\$21,715,000</b>
<b>SUM PROG LACMTA FUNDS:</b>		<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,678,750</b>	<b>\$2,678,750</b>	<b>\$2,678,750</b>	<b>\$2,678,750</b>	<b>\$21,715,000</b>
<b>OTHER NON LACMTA FUNDING:</b>										
<b>LOCAL: CITY FUNDS</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E	\$ 6,050,000	\$1,530,000								\$ 7,580,000
Right-of-Way Acquisition										\$0
Construction										\$0
Vehicle Purchase										\$0
Others										\$0
<b>Total LOCAL</b>	<b>\$ 6,050,000.00</b>	<b>\$1,530,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$7,580,000</b>
<b>STATE: ATP Cycle 4</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction		\$1,394,250	\$1,394,250	\$1,394,250	\$1,394,250	\$1,626,625	\$1,626,625	\$1,626,625	\$1,626,625	\$12,083,500
Vehicle Purchase										\$0
Others										\$0
<b>Total STATE</b>		<b>\$1,394,250</b>	<b>\$1,394,250</b>	<b>\$1,394,250</b>	<b>\$1,394,250</b>	<b>\$1,626,625</b>	<b>\$1,626,625</b>	<b>\$1,626,625</b>	<b>\$1,626,625</b>	<b>\$12,083,500</b>
<b>UNKNOWN FUTURE SOURCE</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction		\$442,500	\$442,500	\$442,500	\$442,500	\$1,688,250	\$1,688,250	\$1,688,250	\$1,688,250	\$8,523,000
Vehicle Purchase										\$0
Others										\$0
<b>Total Unknown Source</b>		<b>\$442,500</b>	<b>\$442,500</b>	<b>\$442,500</b>	<b>\$442,500</b>	<b>\$1,688,250</b>	<b>\$1,688,250</b>	<b>\$1,688,250</b>	<b>\$1,688,250</b>	<b>\$8,523,000</b>
<b>SUM NON-LACMTA FUNDS :</b>	<b>\$6,050,000</b>	<b>\$3,366,750</b>	<b>\$1,836,750</b>	<b>\$1,836,750</b>	<b>\$1,836,750</b>	<b>\$3,314,875</b>	<b>\$3,314,875</b>	<b>\$3,314,875</b>	<b>\$3,314,875</b>	<b>\$28,186,500</b>
<b>PROJECT FUNDING FY2022-2023 and FY2023-2024</b>		<b>\$6,116,750</b>	<b>\$4,586,750</b>	<b>\$4,586,750</b>	<b>\$4,586,750</b>	<b>\$5,993,625</b>	<b>\$5,993,625</b>	<b>\$5,993,625</b>	<b>\$5,993,625</b>	<b>\$49,901,500</b>

## ATTACHMENT B - EXPENDITURE PLAN COST &amp; CASH FLOW BUDGET

Measure M - Funding Agreement Projects - FA# 9200000000MMLARVB  
 Project Title: Complete LA River Bikepath Project#:MMLARVB

Rev 8/1/2022

## PROGRAMMED SOURCES OF FUNDS

SOURCES OF FUNDS		FY 2024-25 Qtr 1	FY 2024-25 Qtr 2	FY 2024-25 Qtr 3	FY 2024-25 Qtr 4	FY 2025-26 Qtr 1	FY 2025-26 Qtr 2	FY 2025-26 Qtr 3	FY 2025-26 Qtr 4	TOTAL BUDGET
<b>LACMTA PROGRAMMED FUNDS:</b>										
<b>MEASURE M MSP FUNDS:</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E		\$508,750	\$508,750	\$508,750	\$508,750	\$130,000	\$130,000	\$130,000	\$130,000	\$2,555,000
Right-of-Way Acquisition										\$0
Construction		\$2,241,250	\$2,241,250	\$2,241,250	\$2,241,250	\$2,620,000	\$2,620,000	\$2,620,000	\$2,620,000	\$19,445,000
Vehicle Purchase										\$0
Others										\$0
<b>Total Measure M</b>		<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$22,000,000</b>
<b>SUM PROG LACMTA FUNDS:</b>		<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$22,000,000</b>
<b>OTHER NON LACMTA FUNDING:</b>										
<b>LOCAL: City Funds</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction										\$0
Vehicle Purchase										\$0
Others										\$0
<b>Total LOCAL</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>STATE: ATP Cycle 4</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction		\$1,626,625	\$1,626,625	\$1,626,625	\$1,626,625					\$6,506,500
Vehicle Purchase										\$0
Others										\$0
<b>Total STATE</b>		<b>\$1,626,625</b>	<b>\$1,626,625</b>	<b>\$1,626,625</b>	<b>\$1,626,625</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$6,506,500</b>
<b>UNKNOWN FUTURE SOURCE</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction		\$4,675,517	\$4,675,517	\$4,675,517	\$4,675,517	\$4,260,956	\$4,260,956	\$4,260,956	\$4,260,956	\$35,745,894
Vehicle Purchase										\$0
Others										\$0
<b>Total UNKNOWN FUTURE SOURCE</b>		<b>\$4,675,517</b>	<b>\$4,675,517</b>	<b>\$4,675,517</b>	<b>\$4,675,517</b>	<b>\$4,260,956</b>	<b>\$4,260,956</b>	<b>\$4,260,956</b>	<b>\$4,260,956</b>	<b>\$35,745,894</b>
<b>SUM NON-LACMTA FUNDS :</b>		<b>\$6,302,142</b>	<b>\$6,302,142</b>	<b>\$6,302,142</b>	<b>\$6,302,142</b>	<b>\$4,260,956</b>	<b>\$4,260,956</b>	<b>\$4,260,956</b>	<b>\$4,260,956</b>	<b>\$42,252,394</b>
<b>PROJECT FUNDING FY2024-25 and FY2025-26</b>		<b>\$9,052,142</b>	<b>\$9,052,142</b>	<b>\$9,052,142</b>	<b>\$9,052,142</b>	<b>\$7,010,956</b>	<b>\$7,010,956</b>	<b>\$7,010,956</b>	<b>\$7,010,956</b>	<b>\$64,252,394</b>

## ATTACHMENT B - EXPENDITURE PLAN COST &amp; CASH FLOW BUDGET

Measure M - Funding Agreement Projects - FA# 9200000000MMLARVB  
 Project Title: Complete LA River Bikepath Project#:MMLARVB

Rev 8/1/2022

## PROGRAMMED SOURCES OF FUNDS

SOURCES OF FUNDS		FY 2026-27 Qtr 1	FY 2026-27 Qtr 2	FY 2026-27 Qtr 3	FY 2026-27 Qtr 4	FY 2027-28 Qtr 1	FY 2027-28 Qtr 2	FY 2027-28 Qtr 3	FY 2027-28 Qtr 4	TOTAL BUDGET
<b>LACMTA PROGRAMMED FUNDS:</b>										
<b>MEASURE M MSP FUNDS:</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E		\$ -	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Right-of-Way Acquisition										\$0
Construction		\$2,750,000	\$2,750,000	\$2,750,000	\$2,750,000	\$1,321,250	\$1,321,250	\$1,321,250	\$1,321,250	\$16,285,000
Vehicle Purchase										\$0
Others										\$0
<b>Total MEASURE M</b>		<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$1,321,250</b>	<b>\$1,321,250</b>	<b>\$1,321,250</b>	<b>\$1,321,250</b>	<b>\$16,285,000</b>
<b>SUM PROG LACMTA FUNDS:</b>		<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$2,750,000</b>	<b>\$1,321,250</b>	<b>\$1,321,250</b>	<b>\$1,321,250</b>	<b>\$1,321,250</b>	<b>\$16,285,000</b>
<b>OTHER NON LACMTA FUNDING:</b>										
<b>LOCAL: City Funds</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction										\$0
Vehicle Purchase										\$0
Others										\$0
<b>Total LOCAL</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>STATE: ATP Cycle 4</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction										\$0
Vehicle Purchase										\$0
Others										\$0
<b>Total STATE</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>UNKNOWN FUTURE SOURCE</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction		\$3,387,509	\$3,387,509	\$3,387,509	\$3,387,509	\$4,778,759	\$4,778,759	\$4,778,759	\$4,778,759	\$32,665,068
Vehicle Purchase										\$0
Others										\$0
<b>Total UNKNOWN FUTURE SOURCE</b>		<b>\$3,387,509</b>	<b>\$3,387,509</b>	<b>\$3,387,509</b>	<b>\$3,387,509</b>	<b>\$4,778,759</b>	<b>\$4,778,759</b>	<b>\$4,778,759</b>	<b>\$4,778,759</b>	<b>\$32,665,068</b>
<b>SUM NON-LACMTA FUNDS :</b>		<b>\$3,387,509</b>	<b>\$3,387,509</b>	<b>\$3,387,509</b>	<b>\$3,387,509</b>	<b>\$4,778,759</b>	<b>\$4,778,759</b>	<b>\$4,778,759</b>	<b>\$4,778,759</b>	<b>\$32,665,068</b>
<b>PROJECT FUNDING</b>										
<b>FY2026-27 and FY2027-28</b>		<b>\$6,137,509</b>	<b>\$6,137,509</b>	<b>\$6,137,509</b>	<b>\$6,137,509</b>	<b>\$6,100,009</b>	<b>\$6,100,009</b>	<b>\$6,100,009</b>	<b>\$6,100,009</b>	<b>\$48,950,068</b>

## ATTACHMENT B - EXPENDITURE PLAN COST &amp; CASH FLOW BUDGET

Measure M - Funding Agreement Projects - FA# 9200000000MMLARVB  
 Project Title: Complete LA River Bikepath Project#:MMLARVB

Rev 8/1/2022

## PROGRAMMED SOURCES OF FUNDS

SOURCES OF FUNDS		FY 2028-29 Qtr 1	FY 2028-29 Qtr 2	FY 2028-29 Qtr 3	FY 2028-29 Qtr 4	FY 2029-30 Qtr 1	FY 2029-30 Qtr 2	FY 2029-30 Qtr 3	FY 2029-30 Qtr 4	TOTAL BUDGET
<b>LACMTA PROGRAMMED FUNDS:</b>										
<b>MEASURE M MSP FUNDS:</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction										\$0
Vehicle Purchase										\$0
Others										\$0
<b>Total MEASURE M</b>		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>SUM PROG LACMTA FUNDS:</b>		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>OTHER NON LACMTA FUNDING:</b>										
<b>LOCAL: City Funds</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction										\$0
Vehicle Purchase										\$0
Others										\$0
<b>Total LOCAL</b>		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>STATE: ATP Cycle 4</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction										\$0
Vehicle Purchase										\$0
Others										\$0
<b>Total STATE</b>		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
<b>UNKNOWN FUTURE SOURCE</b>										
Planning Activities/Prog Dev										\$0
Environmental										\$0
Design and PS&E										\$0
Right-of-Way Acquisition										\$0
Construction		\$1,678,922	\$1,678,922	\$1,678,922	\$1,678,922					\$6,715,688
Vehicle Purchase										\$0
Others										\$0
<b>Total UNKNOWN FUTURE SOURCE</b>		\$1,678,922	\$1,678,922	\$1,678,922	\$1,678,922	\$0	\$0	\$0	\$0	\$6,715,688
<b>SUM NON-LACMTA FUNDS :</b>		\$1,678,922	\$1,678,922	\$1,678,922	\$1,678,922	\$0	\$0	\$0	\$0	\$6,715,688
<b>PROJECT FUNDING FY2028 -29 and FY2029 -30</b>		\$1,678,922	\$1,678,922	\$1,678,922	\$1,678,922	\$0	\$0	\$0	\$0	\$6,715,688
<b>TOTAL LACMTA FUNDS</b>	\$0	\$8,250,000	\$8,250,000	\$8,250,000	\$8,250,000	\$6,750,000	\$6,750,000	\$6,750,000	\$6,750,000	\$60,000,000
<b>TOTAL NON-LACMTA FUNDS</b>	\$6,050,000	\$14,735,323	\$13,205,323	\$13,205,323	\$13,205,323	\$12,354,590	\$12,354,590	\$12,354,590	\$12,354,590	\$109,819,650
<b>TOTAL PROJECT FUNDING</b>	\$6,050,000	\$22,985,323	\$21,455,323	\$21,455,323	\$21,455,323	\$19,104,590	\$19,104,590	\$19,104,590	\$19,104,590	\$169,819,650



**ATTACHMENT C  
SCOPE OF WORK  
CAPITAL PROJECT****PROJECT NAME:** LA River Way-San Fernando Valley Completion Project**PROJECT LOCATION/LIMITS/AREA:**

Approximately 13 miles of new bikeway gap closures along or adjacent to the Los Angeles River (LA River) in the City of Los Angeles, in the San Fernando Valley, between Vanalden Avenue to the west and Forest Lawn Drive/Zoo Drive to the east, which spans across the West, Mid and East San Fernando Valley.

**PROJECT DESCRIPTION AND PROJECT NEXUS:**

New Class I bikeway path to fill a series of gaps along the LA River Bikepath. The improvements will also include pedestrian walking paths (as feasible), decorative fencing and gates, roadway crossings, pet waste stations, drinking fountains, lighting, operational and wayfinding signage, site furnishings, educational interpretive elements, Best Management Practices (BMPs) for stormwater runoff, landscaping and irrigation. Other improvements include additional Class II, Class III or Class IV on street bike facilities that have connection points that lead to the bike paths along the LA River.

The minimum 12-foot-wide asphalt bicycle paths will be designed per the California Department of Transportation Highway Design Manual (HDM) "Class I" standards. The completion of the LA River trail system will improve regional livability by providing expanded active transportation options with new access to transit, homes, schools, jobs, nature, recreation and other community-serving amenities.

The following table below dictates the different segments for the project.

Segments	Description	CD(s)	Distance
1 & 2	Between Vanalden Ave. and White Oak Ave. and White Oak to Balboa Blvd	3, 5, 6	2.97 Miles
3 & 4	Between Balboa Blvd. and Burbank Blvd. & Burbank to Sepulveda	6	1.6 Miles
5	Between Kester Ave. and Hazeltine Ave.	4	1.11 Miles
6	Between Hazeltine Ave. and Woodman Ave.	4	0.52 Mile
7	Between Woodman Ave. and Coldwater Cyn Ave.	4, 2	1.11 Miles
8	Between Whitsett Ave. and Lankershim Blvd.	2	3.6 Miles
9	Between Barham Blvd. and Forest Lawn/Zoo Dr.	4	1.94 Miles

*Note: The miles noted in the table above only include the new bikeway infrastructure which is needed to create a connection to fill the gaps, in order to make a continuous seamless path of travel. The miles above do not include some additional on street bike connections leading to the LA River*

**PROJECT FUNDING:**

PHASE	LACMTA – MEASURE M FUNDS	LOCAL AGENCY*	TOTAL
PA/ED	\$3,244,500		\$3,244,500
PS&E	\$6,025,500	\$7,580,000	\$13,605,500
Construction	\$50,580,000	\$102,239,650	\$152,819,650
Post Construction	\$150,000		\$150,000
<b>TOTAL BUDGET COST</b>	<b>\$60,000,000</b>	<b>\$109,819,650</b>	<b>\$169,819,650</b>

\*Specific funding source to be determined

**ESTIMATED PROJECT COSTS:**

	Item Description	Quantity	Unit	Unit Cost	Total Cost	Metro	Non Metro
1	<b>Mobilization</b>	LS	LS	LS	\$ 7,700,000.00	\$ 2,720,500.00	\$ 4,979,500.00
2	<b>Traffic Control</b>	LS	LS	LS	\$ 550,000.00	\$ 194,300.00	\$ 355,700.00
3	<b>Stormwater Protection, Erosion Control</b>	LS	LS	LS	\$ 2,200,000.00	\$ 777,300.00	\$ 1,422,700.00
4	<b>Demolition, Clearing, and Grubbing</b>	LS	LS	LS	\$ 2,200,000.00	\$ 777,300.00	\$ 1,422,700.00
5	<b>Earthwork</b> [Excavation , Grading, Disposal]	LS	LS	LS	\$ 3,300,000.00	\$ 1,165,900.00	\$ 2,134,100.00
6	<b>Bikeway (Class I, Class II, Class III, Class IV) and Pedestrian Path</b> [AC Paving, Striping, Railing, Retaining Wall, Bollards ]	LS	LS	LS	\$ 26,400,000.00	\$ 9,327,500.00	\$ 17,072,500.00
7	<b>Lighting</b> [Poles, Conduits, Lighting Fixtures, Pull Boxes]	LS	LS	LS	\$ 4,620,000.00	\$ 1,632,300.00	\$ 2,987,700.00
8	<b>Landscaping, Irrigation, Bioswale</b> [Shrubs, trees, ground covers, vines, pvc schedule pipe, rain bird sprinkler heads, irrigation controllers, bioswale, underdrains]	LS	LS	LS	\$ 7,953,000.00	\$ 2,197,300.00	\$ 5,755,700.00
9	<b>Utilities</b> [Relocation of poles, pull boxes, storm drain modifications, connections to existing storm drain]	LS	LS	LS	\$ 1,320,000.00	\$ 466,400.00	\$ 853,600.00
10	<b>Wayfinding Signage, Benches, Bike Racks, Pet Waste Stations, Drinking Fountains</b>	LS	LS	LS	\$ 825,000.00	\$ 291,500.00	\$ 533,500.00
<b>Undercrossings in River Channel (Under Bridges)</b>							
11	<b>Wilbur Ave; Reseda Ave; Victory Blvd; Lindley Ave White Oak Ave; Balboa Blvd</b> [Concrete Retaining Wall in the Channel and all associated scope]	6	EA	\$ 3,850,000.00	\$ 23,100,000.00	\$ 6,936,400.00	\$ 16,163,600.00
<b>At Grade Street Crossings</b>							
12	<b>Kester Ave; Hazeltine Ave; Woodman Ave ; Moorpark St ; Fulton Ave; Coldwater Canyon Ave; Whitsett Ave; Laurel Canyon Ave; Radford Ave; Tujunga Ave; Vineland Ave; Barham Blvd; Zoo Drive</b> [Crosswalk striping, ADA improvements, and HAWK signal system]	13	EA	\$ 616,000.00	\$ 8,008,000.00	\$ 2,829,400.00	\$ 5,178,600.00
<b>Overcrossings (Bridges Over Streets or River)</b>							
13	<b>River Bridge Crossing (Noble Avenue)</b>	LS	LS	LS	\$ 2,805,000.00	\$ 991,100.00	\$ 1,813,900.00
14	<b>Bridge Overcrossing (Van Nuys Blvd)</b>	LS	LS	LS	\$ 9,911,000.00	\$ 3,501,700.00	\$ 6,409,300.00
15	<b>River Bridge Crossing( Radford)</b>	LS	LS	LS	\$ 3,091,000.00	\$ 1,092,000.00	\$ 1,999,000.00
16	<b>River Bridge Crossing (Weddington)</b>	LS	LS	LS	\$ 13,134,000.00	\$ 4,640,500.00	\$ 8,493,500.00
	<b>Total Construction Hard Costs</b>				<b>\$ 117,117,000</b>	<b>\$ 39,541,400</b>	<b>\$ 77,575,600</b>
17	Construction Contingency			15%	\$ 17,567,550	\$ 5,594,300.00	\$ 11,973,300.00
18	Construction Administration (CM, PM, Direct Costs, etc)			15%	\$ 17,567,550	\$ 5,594,300.00	\$ 11,973,300.00
	<b>Total Construction Budget</b>				<b>\$ 152,252,100</b>	<b>\$ 50,730,000</b>	<b>\$ 101,522,100</b>
19	Design (PAED, PS&E, Direct Costs, Staff Costs, Administration)			15%	\$ 17,567,550	\$ 9,270,000.00	\$ 8,297,550.00
	<b>Total Project Costs</b>				<b>\$ 169,819,650</b>	<b>\$ 60,000,000</b>	<b>\$ 109,819,650</b>
<b>Notes</b>							
1. Cost of construction includes design contingency, and escalation till midpoint of construction which is estiated in June 2027							
2. Breakdown above differentiates the allocation between Metro Measure M Funds and Non-Measure M Contribution to yield the Total Project Costs							

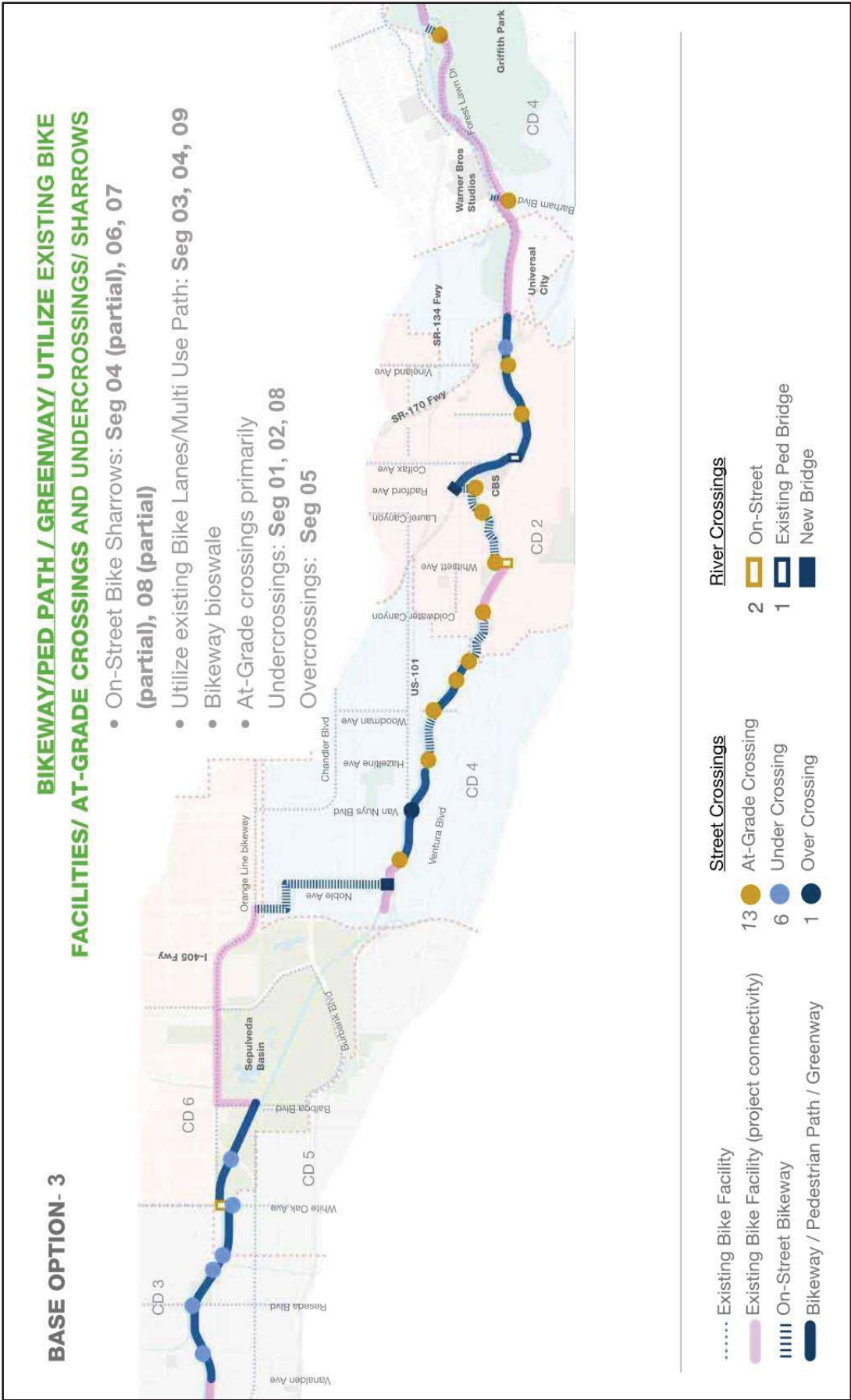
**PROJECT DETAILED SCHEDULE:**

<b>Milestones</b>	<b>Begin</b>	<b>End</b>	<b>Duration (months)</b>
PAED	7/1/2022	06/30/2023	12
PS&E	7/1/2023	6/30/2025	24
ROW	7/1/2022	06/30/2025	36
CONSTRUCTION	01/01/2023	06/30/2029	78
POST-CONSTRUCTION	01/01/2026	12/31/2029	48

**Notes:**

1. Project Phases depict overlaps with one another or appear out of sequence because some project segments will start prior to others. Also, this project schedule depicts
2. This project schedule depicts the overall completion of the project, which would extend beyond the projected funding allocations and expenditures of Measure M Funding. The current Measure M Funding will fund \$60M of the projected \$170M project cost.

PROJECT MAP:





**FA ATTACHMENT D  
PROJECT REPORTING & EXPENDITURE GUIDELINES**

**REPORTING PROCEDURES**

- Quarterly Progress/Expenditure Report (**Attachment D2**) are required for all projects. The GRANTEE shall be subject to and comply with all applicable requirements of the funding agency regarding project-reporting requirements. In addition, GRANTEE will submit the Quarterly Expenditure Report to the LACMTA, after receiving LACMTA Project Manager's acceptance of the draft report, at [ACCOUNTSPAYABLE@METRO.NET](mailto:ACCOUNTSPAYABLE@METRO.NET) or by mail to **Los Angeles Metropolitan Transportation Authority, Accounts Payable, P. O. Box 512296, Los Angeles, California 90051-0296**. Please note that letters or other forms of documentation may not be substituted for this form.
- The Quarterly Progress/Expenditure Report covers all activities related to the project and lists all costs incurred. It is essential that GRANTEE provides complete and adequate response to all the questions. The expenses listed must be supported by appropriate documentation with a clear explanation of the purpose and relevance of each expense to the project.
- In cases where there are no activities to report, or problems causing delays, clear explanation, including actions to remedy the situation, must be provided.
- GRANTEE is required to track and report on the project schedule. LACMTA will monitor the timely use of funds and delivery of projects. Project delay, if any, must be reported each quarter.
- The draft Quarterly Expenditure Report is due to the LACMTA as soon as possible after the close of each quarter, but no later than the following dates for each fiscal year:

<i>Quarter</i>	<i>Report Due Date</i>
July –September	November 30
October - December	February 28
January - March	May 31
April - June	August 31

LACMTA Project Manager shall review and respond in writing to the draft Quarterly Expenditure Report within thirty (30) calendar days from receipt.

Upon completion of the Project a final report that includes project's final evaluation must be submitted.

## **EXPENDITURE GUIDELINES**

- Any activity or expense charged above and beyond the approved Scope of Work (FA Attachment C) **is considered ineligible** and will not be reimbursed by the LACMTA unless **prior written authorization** has been granted by the LACMTA Chief Executive Officer or his/her designee.
- Any expense charged to the grant must be clearly and directly related to the project.
- Administrative cost is the ongoing expense incurred by the GRANTEE for the duration of the project and for the direct benefit of the project as specified in the Scope of Work (Attachment C). Examples of administrative costs are personnel, office supplies, and equipment. As a condition for eligibility, all costs must be necessary for maintaining, monitoring, coordinating, reporting and budgeting of the project. Additionally, expenses must be reasonable and appropriate to the activities related to the project.
- LACMTA is not responsible for, and will not reimburse any costs incurred by the GRANTEE prior to the Effective Date of the FA, unless **written authorization** has been granted by the LACMTA Chief Executive Officer or his/her designee.

## **DEFINITIONS**

- Allowable Cost: To be allowable, costs must be reasonable, recognized as ordinary and necessary, consistent with established practices of the organization, and consistent with industry standard of pay for work classification.
- Excessive Cost: Any expense deemed “excessive” by LACMTA staff would be adjusted to reflect a “reasonable and customary” level. For detail definition of “reasonable cost”, please refer to the Federal Register *OMB Circulars A-87 Cost Principals for State and Local Governments; and A-122 Cost Principals for Nonprofit Organizations*.
- Ineligible Expenditures: Any activity or expense charged above and beyond the approved Scope of Work is considered ineligible.

LACMTA  
ATTACHMENT D-1 QUARTERLY PROGRESS REPORT  
PROJECT TITLE:

Grantee To Complete	
Quarterly Report Date	
FA#	
Quarterly Report #	

**GRANTEES ARE REQUESTED TO EMAIL THIS REPORT TO LACMTA PROJECT MANAGER**

after the close of each quarter. Please note that letters or other forms  
of documentation may not be substituted for this form. Refer to the  
Reporting and Expenditure Guidelines (Attachment D) for further information.

**SECTION 1: GENERAL INFORMATION**

PROJECT TITLE: \_\_\_\_\_

FA #: \_\_\_\_\_

QUARTERLY REPORT SUBMITTED FOR: Quarter: \_\_\_\_\_ Fiscal Year: \_\_\_\_\_

DATE SUBMITTED: \_\_\_\_\_

LACMTA Project Manager	Name:	
	Phone Number:	
	E-mail:	
GRANTEE Contact / Project Manager	Contact Name:	
	Job Title:	
	Department:	
	City / Agency:	
	Mailing Address:	
	Phone Number:	
	E-mail:	

LACMTA  
ATTACHMENT D-1 QUARTERLY PROGRESS REPORT  
PROJECT TITLE:

**SECTION 3 : MONTHLY PROGRESS REPORT**

**1. DELIVERABLES & MILESTONES**

List all deliverables and milestones as stated in the FA, with start and end dates. **DO NOT CHANGE THE ORIGINAL FA MILESTONE START AND END DATES BELOW.**

Grantees must make every effort to accurately portray milestone dates in the original FA Scope of Work, since this will provide the basis for calculating any project delay. If milestone start and/or end dates change from those stated in the Original FA, please only update the actual start/end dates. Additionally, please provide a CPM if the project is in construction.

FA Milestones	Original FA Start Date in Scope of Work (Month/Year)	Original FA End Date in Scope of Work (Month/Year)	Actual Start Date (Month/Year)	Actual End Date (Month/Year)	Percent Completed by Time	Current Completion Forecast (Month/Year)	Schedule Variance (Months)
<b>SOLICITATION (BID/PROPOSAL)</b>							
Develop Solicitation Package							
Fully Executed Contract							
<b>ENVIRONMENTAL</b>							
<b>OTHER: (Please specify)</b>							
<b>SOLICITATION (BID/PROPOSAL)</b>							
Develop Solicitation Package							
Fully Executed Contract							
<b>PS&amp;E</b>							
35% PS&E							
65% PS&E							
95% PS&E							
<b>OTHER: (Please specify)</b>							
<b>ROW</b>							
<b>OTHER: (Please specify)</b>							
<b>SOLICITATION (BID/PROPOSAL)</b>							
Develop Solicitation Package							
Fully Executed Contract							
<b>CONSTRUCTION</b>							
<b>OTHER: (Please specify)</b>							

**2. PROJECT COMPLETION**

Based on the comparison of the original and actual project milestone schedules above, project is (select only one) :

- ☐ Ahead of original FA schedule
 ☐ Less than 12 months behind original schedule  
☐ On schedule per original FA schedule
 ☐ More than 24 months behind original schedule  
☐ Between 12-24 months behind original schedule

**3. TASKS/MILESTONES ACCOMPLISHED**

List tasks or milestones accomplished and progress made this quarter.



LACMTA  
ATTACHMENT D-1 QUARTERLY PROGRESS REPORT  
PROJECT TITLE:

4. PROJECT DELAY/ACTION ITEM TO RESOLVE DELAY

If the project is delayed, include description of the delay and action items that have been, or will be, undertaken to resolve the delay.

Delay Issue(s)	Targeted Resolution/Response Date

5. COST SUMMARY

FA Milestones	Project Budget	LACMTA Approved Changes	Current Approved Budget	Expenditures to Date	Cost Variance	Percent Completed by Dollar Amount
EARLY PLANNING						
ENVIRONMENTAL/PLANNING						
DESIGN AND PS&E						
ROW ACQUISITION						
CONSTRUCTION						
VEHICLE PURCHASE						
OTHERS						

6. RISK MANAGEMENT PLAN / PROJECT RISK REGISTER

This Risk Register shall include a listing of potential project risks. Identify project risks and provide a description of individual risk events or unplanned events that may occur and the estimated outcome or impact to project scope, cost and schedule; provide a qualitative assessment of risk potential; identify risk mitigation strategies; and provide recommendations or actions for responding to project risk. This section requires periodic updates as the project progresses and as risk events occur.

Risk Category	Risk Event	Risk Potential (Low/Medium/High)	Risk Mitigation Strategies	
Early Planning				
Environmental/Planning				
Design and PS&E				
ROW				
Construction				
Bid/Award				
Third Party				

I certify that I am the responsible Project Manager or fiscal officer and representative of \_\_\_\_\_ and that to the best of my knowledge and belief the information stated in this report is true and correct.

\_\_\_\_\_  
Signature

\_\_\_\_\_  
Date

\_\_\_\_\_  
Name

\_\_\_\_\_  
Title

**DRAFT**

## Los Angeles Metropolitan Transportation Authority

### 2023 Federal Transportation Improvement Program (\$000)

TIP ID <b>LA9919165</b>		Implementing Agency <b>Los Angeles A, City of</b>									
Project Description: Construct approximately 13 miles of New Class I bikeway path to fill a series of gaps along the LA River Bikepath. The improvements will also include pedestrian walking paths (as feasible), decorative fencing and gates, roadway crossings, and other amenities as necessary . RECREATIONAL ONLY.										SCAG RTP Project #: 7120004 Study: N/A Is Model: Model #: PM: Nur Malhis - (213)485-4737  LS: N LS GROUP#: Conformity Category: EXEMPT - 93.126	
System :Transit		Route :		Postmile:		Phase: Engineering/Plans, Specifications and Estimates (PS&E)				Completion Date 12/31/2035	
Transit Rt:		Transit Mode:		Fare:0.00		Trans Fee:0.00		Prk Ride Loc:		Air Basin: Various Envir Doc: INITIAL STUDY/NEGATIVE DECLARATION -- CEQA - 05/06/2022	
										Uza: Los Angeles-Long Beach-Santa Ana Sub-Area: Sub-Region:	
Headway Peak:		Headway OP:		Stop Time :		Parking \$: 0.00		Stop Dist:		CTIPS ID: EA #: PPNO:	
Program Code: NCN25 - BICYCLE & PEDESTRAIN FACILITIES-NEW		Stop Loc:									

	PHASE	PRIOR	22/23	23/24	24/25	25/26	26/27	27/28	BEYOND	PROG	TOTAL
Measure M	PE		\$9,270			\$0					\$9,270
	RW		\$0			\$0					\$0
	CON		\$0			\$50,730					\$50,730
	SUBTOTAL		\$9,270			\$50,730					\$60,000
	TOTAL		\$9,270			\$50,730					\$60,000
	TOTAL PE: \$9,270		TOTAL RW: \$0			TOTAL CON: \$50,730					TOTAL PROGRAMMED: \$60,000

- **General Comment:** This project is to design and construct 13 miles of gap in the San Fernando Valley and the project is coded into Segments. Segments will start and end at different dates, which is the reason why CON Phase beginning before the PS&E Phase ends, etc. This schedule rolls all the PAED , PS&E, CON Phases of all Segments together. Construction Phase includes Post Construction Phase, which is the period of project closeout, and final contractor review.

- **Modeling Comment:**

- **TCM Comment:**

- **Amendment Comment:**

- **CMP Comment:**

- **Narrative:**

Last Revised Amendment 23-05 - Submitted	Change reason:NEW PROJECT	Total Project Cost	<b>\$60,000</b>
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**ATTACHMENT F  
BOND REQUIREMENTS**

The provisions of this Attachment F apply only if and to the extent some or all of the Funds are derived from LACMTA issued Bonds or other debt, the interest on which is tax exempt for federal tax purposes (collectively, the "Bonds").

GRANTEE acknowledges that some or all of the Funds may be derived from Bonds, the interest on which is tax-exempt for federal tax purposes. GRANTEE further acknowledges its understanding that the proceeds of the Bonds are subject to certain ongoing limitations relating to the use of the assets financed or provided with such proceeds ("Project Costs" or "Project Components") in the trade or business of any person or entity other than a governmental organization (any such use by a person or entity other than a governmental organization is referred to as "Private Use"). Private Use will include any sale, lease or other arrangement pursuant to which a nongovernmental person or entity receives a legal entitlement of a Project Component and also includes certain agreements pursuant to which a nongovernmental person will operate or manage a Project Component. Each quarterly invoice submitted by GRANTEE to reimburse prior expenditures (or to be received as an advance) shall provide information regarding the specific Project Costs or Project Components to which the Funds which pay that invoice will be allocated and whether there is or might be any Private Use associated with such Project Costs or Project Components. GRANTEE will, for the entire time over which LACMTA's Bonds or other debt remains outstanding, (1) notify and receive LACMTA's approval prior to entering into any arrangement which will or might result in Private Use and (2) maintain records, including obtaining records from contractors and subcontractors as necessary, of all allocations of Funds to Project Costs or Project Components and any Private Use of such Project Costs or Project Components in sufficient detail to comply and establish compliance with Section 141 of the Internal Revenue Code of 1986, as amended (the "Code"), or similar code provision then in effect and applicable, as determined by LACMTA in consultation with its bond counsel.

GRANTEE will designate one or more persons that will be responsible for compliance with the obligations described in this Attachment F and notify LACMTA of such designations.

**ATTACHMENT G**  
**SPECIAL GRANT CONDITIONS**  
**CLOSEOUT REPORTING POLICY FORM**

Grantees are required to establish project goals and to identify basic performance indicators to be collected in order to measure the effectiveness of the projects. Grantees will be asked to collect and submit data and a Closeout Report to LACMTA upon completion of the project. Evaluations will need to be completed before and after projects are constructed. The costs for project evaluation shall be included in the project budget. At minimum, projects will be evaluated for their effectiveness in improving pedestrian and bicyclist safety and enhancing connectivity and mobility. Additionally, projects will be evaluated against the specific goals and objectives established in this program, including those related to innovative partnership and project delivery. Examples of the methods of evaluation are detailed below.

- **Safety:** Projects will aim to reduce the occurrence and severity of vehicle-pedestrian and vehicle-bicyclist crashes. Progress towards this goal can be measured by evaluating collisions and the details surrounding them, including where they occurred, when they occurred, who was involved, and what precipitating actions took place. Progress towards this goal also can be evaluated qualitatively through user interface surveys (e.g., assessing perceived safety of walking and bicycling). Resources: [Transportation Injury Mapping System](#) and [Statewide Integrated Traffic Records System](#) (SWITRS).
- **Connectivity/Mobility:** Projects will aim to increase the number and percent of people walking or bicycling, and/or accessing transit on foot or bike. Progress towards this goal can be measured by counting the number of pedestrians and bicyclists using the constructed facilities. Bicycle and pedestrian counts should be taken on a mid-weekday and weekend, excluding winter months. The "after" counts should not be taken until six (6) months after the completion of the project. Bicycle and pedestrian count data should be uploaded to the SCAG/Metro Bike Count Data Clearinghouse. Progress towards this goal also can be measured by counting the number of households within a quarter-mile of a low-stress bicycle facility, the number of jobs within a quarter-mile of a low-stress bicycle facility, and the number of destinations (e.g., schools, medical centers, parks, etc.) within a quarter-mile of a low-stress bicycle facility. Progress towards this goal also can be evaluated qualitatively through user interface surveys.
- **Project Partnerships and Delivery Approaches:** Cycle 1 places a strong emphasis on innovative/experimental project partnerships and delivery. This priority can be evaluated through the assessment of project delivery timelines, as well as compiling and analyzing qualitative input from project sponsors and participants.



## DRAFT

FTIP#: LA9919165  
Subregion ID: Central Cities

Project#: MMLARVB  
FA# 9200000000MMLARVB

1. Name of Sponsoring Agency or Grantee (whichever is applicable): City of Los Angeles
2. Contact Name: Nur Malhis
3. Contact Phone: (213) 485-4737
4. Contact Email: [nur.malhis@lacity.org](mailto:nur.malhis@lacity.org)
5. Project Description: *New Class I bikeway path to fill a series of gaps along the LA River Bikepath. The improvements will also include pedestrian walking paths (as feasible), decorative fencing and gates, roadway crossings, pet waste stations, drinking fountains, lighting, operational and wayfinding signage, site furnishings, educational interpretive elements, Best Management Practices (BMPs) for stormwater runoff, landscaping and irrigation. Other improvements include additional Class II, Class III or Class IV on street bike facilities that have connection points that lead to the bike paths along the LA River.*

By signing this form, the agency commits itself to the following:

- Establishing project goals and to identify basic performance indicators to measure the effectiveness of the project, and
- Collecting data and submitting a completed Closeout Report to LACMTA upon completion of the project.

Signature:



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Agency Representative

10/7/2022

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Date