Los Angeles River Master Plan Update
Steering Committee Meeting #7
September 25, 2019, 9:00 a.m. – 12:00 p.m.

Summary

Location

Los Angeles County Public Works Headquarters
900 South Fremont Ave, Alhambra, CA 91803
Conference Room A-B

Attendees

Steering Committee Members

- City of Los Angeles Mayor's Office, Edward Belden, alternate for Michael Affeldt
- City of Los Angeles Bureau of Engineering, Deborah Weintraub alternate for Gary Lee Moore
- Council for Watershed Health, Eileen Alduenda
- East Yard Communities for Environmental Justice, mark! Lopez, Alessandro Negrete and Jessica Prieto, alternates
- Friends of LA River, Manuel Gonez alternate for Marissa Christiansen
- From Lot to Spot, Viviana Franco, and Jessica Cervantes, alternate
- Long Beach Conservation Corps, Kayla Kelly-Slatten, alternate for Dan Knapp
- Los Angeles County 1st District, Guadalupe Duran-Medina and Martin Reyes, alternate for Waqas Rehman
- Los Angeles County 2nd District, Carmen Gosey, alternate for Karly Katona
- Los Angeles County 3rd District, Virdiana Velez, alternate for Katy Young
- Los Angeles County 4th District, Jocelyn Rivera-Olivas
- Los Angeles County Flood Control District, Keith Lilley, Carolina Hernandez, alternate
- Los Angeles Department of Water and Power, Rafael Villegas, alternate for Evelyn Cortez-Davis
- Los Angeles Waterkeeper, Melissa von Mayrhauser, alternate for Bruce Resnik
- Metropolitan Transit Authority, Lauren Cencic
- River and Mountains Conservancy, Joseph Gonzalez, alternate for Mark Stanley
- Santa Monica Mountains Conservancy, Brian Baldauf, alternate for Joseph T. Edmiston
- Sierra Club Long Beach Area, Gabrielle Weeks
- The Boethius Initiative UCLA Department of World Arts and Cultures, Catherine Gudis, alternate for Peter Sellers
- The Nature Conservancy, Shona Ganguly

- Trust for Public Land, Robin Mark
- Urban Waters Federal Partnership, Justin Yee
- US Army Corps of Engineers, Eduardo DeMesa
- US Department of Housing and Urban Development, Pauline K. Louie

Los Angeles Board of Supervisors

- Sup. Sheila Kuehl

Los Angeles County Public Works

- Director Mark Pestrella
- Keith Lilley
- Genevieve Osmeña
- Christine Wartman
- Donna Diaz
- Ernesto Rivera
- Nayiri Vartanian
- Ryan Ong

Additional Los Angeles County Staff

- Iris Regn, Los Angeles County Arts Commission

Consultant Team

- Mark Hanna, Geosyntec
- Najwa Pitois, Geosyntec
- Yoshi Anderson, Geosyntec
- Paul Senker, Geosyntec
- Joe Goldstein, Geosyntec
- Jessica Henson, OLIN
- Joanna Karaman, OLIN
- Diana Jih, OLIN
- Tensho Takemori, Gehry Partners
- Shuo Zhai, Gehry Partners
- Dana McKinney, Gehry Partners
- Jack Hughes, Kearns & West
- Jenna Tourje, Kearns & West
- Joan Isaacson, Kearns & West
- Taylor York, Kearns & West
- Delia Torres, Languages 4 You
- Jon Switalski, River LA

1. Welcome and Agenda Overview

Welcome

On September 25, 2019, Los Angeles County Public Works (Public Works) conducted the seventh Steering Committee meeting for the Los Angeles River Master Plan Update (Master Plan Update). Genevieve Osmeña, Public Works' Project Manager for the Master Plan Update, provided welcoming remarks. She thanked those who were attending the meeting for the first time, as well as those who had been attending since the first meeting. She also thanked the members of the public for their attendance. Osmeña said that later in the meeting they would see examples of how the Master Plan could be implemented by project proponents and noted that some special guests would be arriving to offer remarks.

Meeting Purpose, Agenda, and Objectives

Joan Isaacson, facilitator from Kearns & West, reviewed the meeting agenda, located in Appendix A. The primary purpose of the meeting was to review the Draft Master Plan contents and completion schedule, review and discuss the design framework, and hear updates on the community engagement program, including upcoming events. She invited members of the public to give verbal input at the end of the meeting, or to provide written input using the comment cards. She also noted that Los Angeles County Board of Supervisors member Sheila Kuehl and Public Works Director Mark Pestrella would arrive during the meeting, and that the project team would pause the planning discussions to hear from them and see the seventh installment of the River Story video series.

Isaacson then quickly reviewed the charge of the Steering Committee, which is to provide input and feedback to the project team, to share their expertise and perspectives, and to act as conduits to the communities and constituents they represent by sharing information with them and bringing their feedback into the process.

2. Community Engagement Update

Additional Meetings

Isaacson gave an update on the additional meetings conducted by the project team to provide updates and solicit feedback and input. They have had 10 meetings to date, five in 2018 and five between February and July 2019. See page 20 in Appendix B for a list of organizations they met with.

Engagement Round Two Summary

Jon Switalski from River LA recapped Round Two of community engagement and community partner events. In Round Two, 1,291 individuals were engaged, 991 of whom took the digital survey. Millennials were the leading age demographic among survey

respondents. Switalski highlighted a participant distribution map to show where people who engaged lived and reviewed responses to the survey questions.

Through community partner events, the project team helps engage local community organizations to talk with constituents in their geographies. Each engagement activity was tailored to community partners' desire to talk about the Los Angeles River. For more information on Round Two community engagement see pages 21 to 23 in Appendix B.

Engagement Round Three Preview

Round Three community meetings will take place on October 15, 2019, in Canoga Park, October 16 in North Long Beach, and October 17 in Central Los Angeles. Meetings will focus in part on communicating the Draft Master Plan and will feature large boards for that purpose. See page 24 in Appendix B for examples of the boards.

Q&A/Discussion

Below is a summary of questions and comments, and associated responses, from the community engagement update portion of the meeting. The round bullet points indicate questions and comments from Steering Committee members. Dashes indicate the project team's responses.

- Is there still an online survey people can take?
  - Rounds One and Two incorporated surveys. Given the stage of Draft Master Plan development there are no surveys underway. Draft Master Plan content will be posted online, and people will be able to submit comments.

3. What's in the Master Plan Update and Schedule to Completion

What's Included

Jessica Henson, OLIN, provided an overview of the contents for the Draft Master Plan, explaining that the document is organized into two key components – strategic directions and design framework. The strategic directions component, which the Steering Committee has given continuous feedback on during the past year and a half, addresses the Goals, Actions, and Methods (GAMs) and implementation responsibilities and funding sources. The design framework builds on the GAMs and includes needs, sites, a kit of parts and common elements, recommendations, and site examples.

Henson provided an overview of the Table of Contents and noted that the Master Plan will be available in both English and Spanish. The project team will also prepare a high-level summary pamphlet. Henson then presented examples of page design for the Master Plan document, noting that the document will be pleasant to look at and have a similar aesthetic to a magazine. As each goal is presented in the document, it will be accompanied by a narrative that provides context for the goal and ties it closely to input

received from the community. Callouts will define important terms, provide context, address values and meanings, and provide additional information to support the methods. Appendices will contain important technical information such as needs mapping, plant and signage guidelines, soil guidelines, hydrology and hydraulics analyses, and the project database of sources (see pages 25 to 28 of Appendix B).

The team presented an estimated timeline for the Draft Master Plan, noting that the dates are subject to change. The final version of the Draft Master Plan, for public review, will be distributed in Spring 2020. Early draft chapters will be provided to the Steering Committee in December 2019. It will have over 250 pages of content. A full early draft will be provided to the Subcommittee members for review in January 2020. Subcommittee members will have three weeks to review and provide comment. (Note: Since the Steering Committee meeting in September, the schedule has adjusted slightly. See note at end of Section 3.)

Q&A/Discussion

- A longer period for review of the early draft document is needed. Members need time to coordinate the review with their organizations.
- When will the Steering Committee receive an update on the environmental review process, and how will that process align with the Draft Master Plan schedule?
  - County Counsel has determined the need for a CEQA document, but it has not been officially initiated. The intent is to line up that process with the finalization of the Master Plan itself in summer of next year.
- Will the draft key chapters planned for December distribution be the same versions as those distributed in January? Winter break could affect people's availability to complete the review in the three-week period
  - The project team will confer and provide an answer.
- Can the draft documents be distributed in a format that can be broken apart and shared in parts?
  - Yes.
- Does this schedule give agency staff sufficient time for their reviews?
- Will you be marking changes between the draft chapters and the final draft?
  - The project team will discuss this question, as well as methods for logging comments and how they were addressed.
- Will there be any community engagement events for public feedback during the three-week review period?
  - No, the three-week review period is for internal review by committee members. The public draft document will be announced and posted on the website in April 2020 (estimated date). There might be some further community engagement during the public review period.
- What is the timeline for Board of Supervisors' consideration of adoption?
  - Mid- to late summer/fall 2020.

(Note: The schedule was adjusted after the meeting so that subcommittee members will be given the full draft in mid-January 2020 and five weeks to review it.)

4. Design Framework

Goal-Informed Project Design

Mark Hanna, Geosyntec, and Henson provided an update on the design framework, which is driven by the goals. The document's structure is illustrated with a pyramid diagram. Community needs form the foundation of the pyramid, strategic directions and design form the body, and the reimagined river is the outcome at the top. They gave examples of how the Master Plan could guide site opportunities and design (see page 30 to 39 in Appendix B).

The design framework applies to projects, and it has three components:

- Site-specific opportunities
- The kit of parts for addressing the needs identified for specific sites
- Common elements to provide consistency in amenities along the river

Sites Recap

Henson and Hanna reviewed the site selection process. Hanna noted that that the project team utilizes overlays of existing plans, then works to identify additional sites based on alignment of need, opportunity, and cadence along the Los Angeles River Corridor. Potential sites are located where need and opportunity overlap. Cadence confirms that projects are equally distributed along the river and vary in scale.

The project team has identified a preliminary list of opportunity sites. It is important to note that sites are not linked to any specific projects. Sites only indicate geographic locations that present opportunities for project development to meet community needs. More details on site selection can be found on pages 40 to 42 of Appendix B.

Kit of Parts

Henson and Hanna provided an overview of the kit of parts, noting that the kit contains elements that projects can draw upon, combine, and implement alongside the common elements. The kit of parts is organized into six categories: Floodplain Reclamation, Crossings & Platforms, Trails & Access Gateways, Channel Modifications, Diversions, and Off Channel Assets (see pages 42 to 45 of Appendix B).

Common Elements

Henson explained that common elements will help implement goals and needs that apply to the entire river. These include benches, trash cans, signage, restrooms, art, etc. The common elements fall into two types: 1) bespoke, unique elements, such as art, pavilions, and gathering areas that are community-specific; and 2) consistent elements, such as

benches, lighting, and wayfinding. Many common elements, such as restrooms and water fountains, may have a regular cadence along the river (see pages 46 to 48 in Appendix B).

Applying the Kit of Parts

Henson and Hanna explained that the kit of parts can be system-based or site-based and provided examples.

System-based projects are composed of many sites working together. These are generally extra-large projects, including the Los Angeles River trail, 1% flood risk reduction, groundwater recharge, and land banking for affordable and permanent supportive housing. These projects may have a complex set of factors and are affected by other long-term plans and policies (see pages 45 to 48 in Appendix B).

Site-based projects are geographically focused on needs most relevant to the project area. For example, pavilions can provide amenities ranging from seating and shade to cafés and bike repair facilities, can incorporate local art, and would be built at a scale most appropriate to the location. Some site-based projects, such as modifications to the channel, bypass tunnels for flood control, and connectivity with and across the river, are good examples of site-based projects that could work as components of larger system-based projects.

Example projects and further details can be found on pages 49 to 70 of Appendix B.

5. River Story

The attendees watched the seventh installment of the River Story series, which highlighted Native American voices in relation to water and the Los Angeles River.

6. Special Remarks by Director Pestrella and Supervisor Kuehl

Public Works Director Mark Pestrella gave opening remarks before introducing Supervisor Sheila Kuehl. He thanked the Steering Committee members for their work and remarked that the River Story video was a great example of how the collaborative Master Plan Update has sought to learn about cultures and protect people, places, and the environment along the Los Angeles River.

Supervisor Kuehl said she was very pleased to be at the Steering Committee meeting. She noted that Los Angeles has a spiritual connection to the ocean and could be twice blessed by having such a connection to the Los Angeles River. She said the work being done through the Master Plan Update would have hundreds of years of repercussions for the people who live in the County now, and those who would come after. She underscored

the importance of asking who nature is for, and said that in Los Angeles County, people think they should have some connection to nature even if nature doesn't only exist for human benefit.

Supervisor Kuehl commented that the work in updating the Master Plan is historic. A chance to connect with nature in this way doesn't always happen in Los Angeles. Nature has been heavily impacted by urbanization and there is a chance to undo some of that impact to reconnect with nature. The river has been a focal point for indigenous populations as well as for stewards, advocates, and leaders. It is a historic threshold to have all the expertise in the room coming together. This is the 21st century way to do things, with leaders in public health, social justice, flood management, wildlife and habitat conservation, education, and arts and culture figuring it out together. She said that the Steering Committee was an asset, in addition to the river and the uses it provides, that would benefit millions of people.

Supervisor Kuehl said the Master Plan will be comprehensive, inclusive, and equitable for all 51 miles of the river. It is hard work gathering information, weighing community concerns, and imagining the future. She said it couldn't be done without leaders who bring a culturally sensitive, practical, and visionary approach to planning. She thanked the Steering Committee members and Director Pestrella for their work and dedication.

Design Framework Q&A/Discussion

After Supervisor Kuehl's remarks, the Steering Committee and the project team moved to discussion about the design framework.

- Is there an update on what vision statement was selected? It is important for communication to the public.
  - The project team received great feedback on the vision statement at the previous Steering Committee meeting. There was stronger preference for the imaginative vision. The phrase about infrastructure was adjusted. The vision statement and the goals are indeed important for communicating to the public.
- The project team's work shows a thoughtful process.
- Is the project team continuing coordination with the California State Water Resources Control Board and Southern California Wetlands Recovery Project (SCWRP)?
  - Yes, the project team met with the state and regional water quality control board and SCWRP on the Los Angeles River Environmental Flows Study. There have been frequent check-ins throughout the process, and another is planned.
- Thank you for the thoughtful development on the kit of parts and the focus on the human experience in the design perspective.

- The kit of parts could incorporate opportunities for biodiversity and habitat.
  - Every kit of parts element addresses biodiversity; it is a guiding principle. There are a set of indicator species that help measure which scenarios can support wildlife. Thus, every kit of parts element has a biodiversity overlay.
- Will there be any recommendations for funding sources in the Master Plan?
  - The project team is spending a lot of time on this in consultation with Public Works and supervisors' deputies. There are good existing measures that supply funding. There might be other creative strategies for funding that could be imagined.
- Socioeconomic impacts also should relate to everything. It would be good if there was a menu of options for cities and agencies to address them.
  - The project team is working toward many things and one is a forum for ongoing discussion about social justice and housing affordability issues. Another is making sure there is an assessment for any significant project along the river to fund the acquisition of land for affordable housing or to preserve affordable housing. Another effort is working with Public Works for best practices for outreach to people experiencing homelessness. The project team is also looking at access to the river and contaminated sites.
- Is there a section for strategic implementation of the Master Plan?
  - The US Army Corps of Engineers is considering divestiture to the Los Angeles County Flood Control District. This would take many years but is one potential future typology of governance. The Master Plan will not propose new governance structures.
- Post-disaster studies show that nature-based solutions save money and lives when compared to gray infrastructure.
  - The system needs to be developed to be ready for a 1% flood event in the short term. Some of the longer-term solutions consider opportunities presented in the aftermath of major storms. The status quo will not solve future problems. The project team did research on numbers and factors of how investment would help save money in the future.
- Lower Los Angeles Rivers and Mountains Conservancy is helping coordinate with the Lower River Park District, and this should be considered as an overlay.
- There are gaps between connectivity loop trails in Compton Creek.
- Consider connectivity and access to transit.
- There should be some confirmation with cities that project sites are still available.
- Will we talk about revisions to the GAMs section?
  - GAMs are currently under review by County Counsel, but comments are welcome at any time. The GAMs will be distributed to the Steering Committee after the team completes the current effort with County Counsel.
- The project team has done incredible work in finding great opportunities and solutions.

- How will the kit of parts be used with site implementation and the flexibility that is needed to meet specific conditions?
  - There will be flexibility in terms of hearing what a community wants. The wireframe diagram shows the range of elements that could be considered. Community input is critical. Each project has its own permitting phase. Some existing projects are coming from plans more than a decade old and we hope the needs analysis will be considered when moving forward.
- How would the Master Plan affect permitting?
  - The Master Plan Design Guidelines are intended to guide the permitting process for projects along the main channel that LA County reviews.
- It should not be assumed that planned sites are moving forward.
- Biodiversity recommendations seem less specific than flood risk management recommendations.
  - Some strategic directions are aiming for specificity. For each goal, many actions can be taken now. Since regional analyses are at varying stages some recommendations are more strongly supported than others.
- Will guidelines be consistent along the entire length of the river?
  - There are a few challenges to make guidelines applicable along all 51 miles. Public Works doesn't have jurisdiction over all 51 miles. US Army Corps of Engineers has the rest. The guidelines can't direct municipalities, but Public Works hopes that municipalities will adopt the Master Plan guidelines.
- Public transportation is important because many areas don't have parking lots.
- How did the ARBOR Study factor into planning?
  - There are projects from the ARBOR study listed in the planned major projects. Also, the ARBOR study is represented in the overlays to show restoration areas in the eleven-mile reach.
- What about access to water and cleaner water?
  - The GAMs talk about river access and water quality. Goal nine addresses water quality. Those need to move together and that is the intent of the pyramid structure.
- Why is social equity centered on analysis instead of "do no harm"?
  - The way the slides were put together might have led to miscommunication. The project team has spent an enormous amount of effort on social equity research and agree that the Master Plan is intended to support, not negatively impact, social structures.
- There are off channel river assets such as frontage roads that could be adapted for pedestrians and include more permeable surfaces.
- There is not much mention of arts in the kit of parts.
  - Similar to biodiversity, and through the GAM, these issues are principles across all 51 miles

- The Master Plan introduction should mention the protection against social harm, and there should be mention of preservation of social and cultural histories.

7. Public Comment

Verbal Comments

During the public comment portion of the meeting, one person, Liliana Griego from Friends of the LA River, spoke addressing the following topics:

- Nature-based solutions are important.
- Think about incorporating nature and natural shade in place of pavilions.
- Are there goals and metrics on concrete removal?

Comment Cards

No comment cards were received during the meeting.

8. Wrap Up

Upcoming events and meetings are listed below:

- Steering Committee Meeting #8 - Thursday, December 12, 2019
- Upcoming Outreach Events
  - Community Meetings
    - Canoga Park - Tuesday, October 15, 2019
    - North Long Beach - Wednesday, October 16, 2019
    - Central Los Angeles - Thursday, October 17, 2019
  - Community Partner Events
    - East Yard Communities for Environmental Justice: LA River Forum, November 21, 2019

To give input or ask questions, contact Genevieve Osmeña at (626) 458-4322 or email at LARiver@dpw.lacounty.gov.

Appendix A

Meeting Agenda

Los Angeles River Master Plan Update
Steering Committee Meeting #7
Wednesday, September 25, 2019, 9:00 a.m. – 12:00 p.m.

Agenda

Location

Los Angeles County Public Works Headquarters
Conference Room A-B
900 South Fremont Ave,
Alhambra, CA 91803

1. River Story (5 minutes)

2. Welcome and Agenda Overview (5 minutes)

- Welcome
- Roundtable Introductions
- Meeting Purpose, Agenda, and Objectives
- Steering Committee Updates

3. Community Engagement Update (10 minutes)

Objectives: 1) Report on Round Two of community engagement, 2) preview Round Three, and 3) announce upcoming events.

- Additional Meetings
- Engagement Round 2 Summary
- Engagement Round 3 Preview
- Community Partner Events
- Q&A/Discussion

4. What's in the Master Plan Update and Schedule to Completion (15 minutes)

Objectives: 1) Show and discuss what will be included in the Master Plan, 2) the timeline for completing it, and 3) the types of feedback that are needed at various points in the process.

- What's Included
- Timeline for Feedback and Completion
- Q&A/Discussion

5. Design Framework (80 minutes)

Objective: Show design ideas.

- Goal Informed Project Design
- Sites Recaps
- Kit of Parts
- Common Elements
- System Proposals
- Site Design Examples

6. Special Remarks by Supervisor Kuehl and Director Pestrella (20 minutes)

7. Design Framework Q&A/Discussion (25 minutes)

Objective: Solicit feedback on design ideas.

8. Public Comment (15 minutes)

- Verbal Comments
  - Speakers to be called in order of speaker cards submittal, with caveat that all are welcome and encouraged to provide input, with or without filling out a card
  - Up to 15 minutes total for the Public Comment item
  - Total time per person will depend on number of speaker cards received
- Comment Cards
- Email Comments Anytime to LARiver@dpw.lacounty.gov

9. Wrap Up (5 minutes)

- Upcoming Steering Committee Meeting
  - Steering Committee Meeting #8 - Thursday, December 12
- December Agenda Overview
- Upcoming Outreach Events
  - Community Meetings:
    - Canoga Park - Tuesday, October 15
    - North Long Beach - Wednesday, October 16
    - Central Los Angeles - Thursday, October 17
  - Community Partner Events
    - East Yard Communities for Environmental Justice: LA River Forum, November 21

- Input, Questions, Ideas? Contact Genevieve Osmeña at (626) 458-4322 or LARiver@dpw.lacounty.gov

Appendix B

Meeting Presentation

LOS ANGELES RIVER
MASTER PLAN UPDATE

Steering Committee Meeting #7

25 September 2019

WELCOME

Source: OLIN

MEETING PURPOSE AND AGENDA

Source: OLIN

PURPOSE OF TODAY'S MEETING

MEETING AGENDA

WELCOME AND AGENDA OVERVIEW	COMMUNITY ENGAGEMENT UPDATE	WHAT'S IN THE PLAN AND SCHEDULE TO COMPLETION	DESIGN FRAMEWORK	PUBLIC COMMENT	WRAP UP
• River Story #7 • Welcome and Steering Committee Updates • Roundtable Introductions • Meeting Purpose, Agenda and Objectives • Discussion/Q&A	• Additional Meetings • Engagement Round 2 Summary • Engagement Round 3 Preview • Community Partner Events • Discussion/Q&A	• What's Included • Timeline for Feedback and Completion • Discussion/Q&A	• Goal Informed Project Design • Site Selection Review • Kit of Parts • Common Elements • System-Based Examples • Site-Based Examples • Discussion/Q&A	• Verbal Comments • Comment Cards • Email Comments Anytime to LARiver@dpw.lacounty.gov	• November Agenda Overview • Important Upcoming Dates

INPUT, QUESTIONS, IDEAS?
Contact Genevieve Osmeña at (626) 458-4322
or LARiver@dpw.lacounty.gov

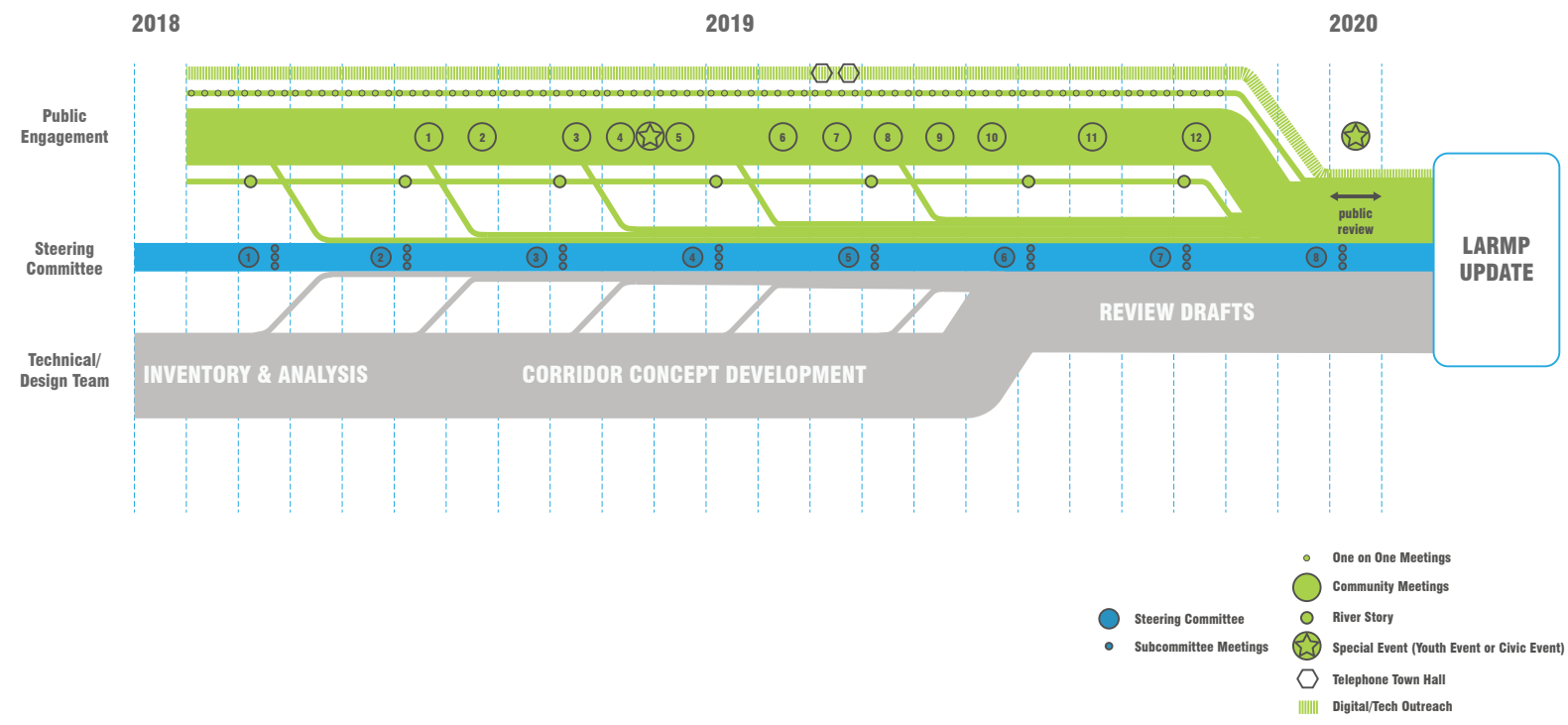
GUIDES FOR PRODUCTIVE DISCUSSIONS

- Everyone equally contributes.
- Stay concise.
- Listen for understanding.
- Help forge paths for solutions.

STEERING COMMITTEE UPDATES

Source: OLIN

LA RIVER MASTER PLAN SCHEDULE



STEERING COMMITTEE FRAMEWORK

WE ARE HERE

	2018				2019			
	1	2	3	4	5	6	7	8
Key Theme & Tentative Date	LAUNCH 11 APRIL 2018	INVENTORY & VISION PRINCIPLES 27 JUNE 2018	GOALS & ANALYSIS 26 SEPTEMBER 2018	GAPS & PLANNING 12 DECEMBER 2018	PRIORITIES & OPPORTUNITIES 10 APRIL 2019	DESIGNS & PLANS 26 JUNE 2019	PLANS & STANDARDS 25 SEPTEMBER 2019	DRAFT REVIEW 12 DECEMBER 2019
Dialogue Focus	Vision Brainstorming Project Schedule and Scope Committee Organization Draft Community Outreach Plan, Branding Strategy, and Website Flood Control History, Plan Priorities, Channel Strategies	Draft Vision Principles Existing Conditions Literature Review Community Outreach Plan Demographics, Affordable Housing, Displacement	Revised Draft Vision and Goals Goal-Driven Planning Jurisdictional Boundaries Water Resources, O&M, Access and Security, Safety, Homelessness Youth Summit	Policy Framework Planning Reaches Design Guidelines Review Geographic Gap Analysis Intro	Gap Analysis Draft Planning Concepts Table of Contents Revised Goals, Actions, & Methods Introduction	Design Guidelines Goals, Actions, and Methods and Implementation Matrix Site Selection	Design Concepts and Design Guidelines Update	Preview of LARMP Key Concepts

Q & A AND DISCUSSION

Source: OLIN

COMMUNITY ENGAGEMENT UPDATE

Source: USACE, Los Angeles District, E-1517 - NW of 7th St - 9-7-1927, http://cespl.maps.arcgis.com/apps/MapSeries/index.html?appid=e15694dbf7c54f8c96285a0e74039e69

MEETINGS WITH OTHER ORGANIZATIONS

NATIVE AMERICAN COMMUNITIES ONGOING COORDINATION

June 26, 2019

- Discussion of placenames and village locations

RIO HONDO CONFLUENCE AREA PROJECT

ONGOING COORDINATION

- Community engagement meeting and discussions with project team

SELA CULTURAL CENTER & RIVERS AND MOUNTAINS CONSERVANCY

ONGOING COORDINATION

- Discussions with project team and sponsoring agency

CITY OF LA DEPARTMENT OF CITY PLANNING

July 12, 2019

- Coordination of facilities and amenities along the LA River Trail

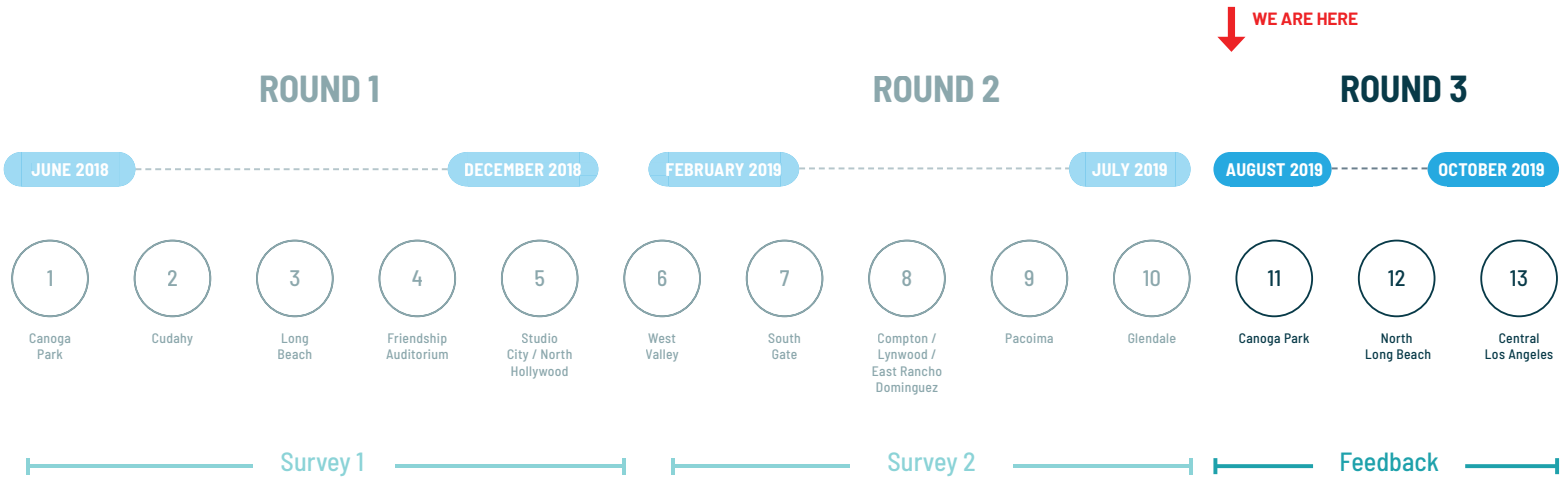
UPPER LA RIVER & TRIBUTARIES (AB466)

July 25, 2019

- Working Group discussed and voted on recommended Design Areas for each of the six tributaries—areas are now selected.
- Alternate sites along the tributaries will still be proposed but are not the single recommended site for each tributary
- Minimal overlap between ULART Design areas and LARMP Site Selection, but some coordination may be necessary for Verdugo Wash and Burbank Western

ENGAGEMENT UPDATE

COMMUNITY ENGAGEMENT MEETINGS



ENGAGEMENT UPDATE ROUND 2 (FEBRUARY-AUGUST 5)

1291 ENGAGED IN COMMUNITY MEETINGS & SURVEY

110 Community members attended the West Valley meeting

75 Community members attended the South Gate meeting

60 Community members attended the Compton / E Rancho Dominguez meeting

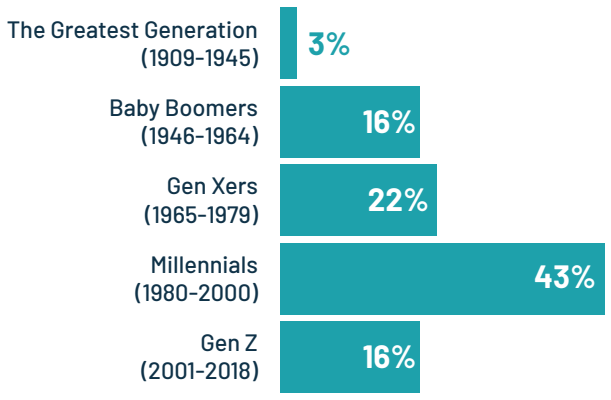
55 Community members attended the Pacoima meeting

80 Community members attended the Glendale meeting

991 Completed digital and in-person surveys as of August 5, 2019

Source: Community Meetings, Survey

GENERATIONS REPRESENTED:



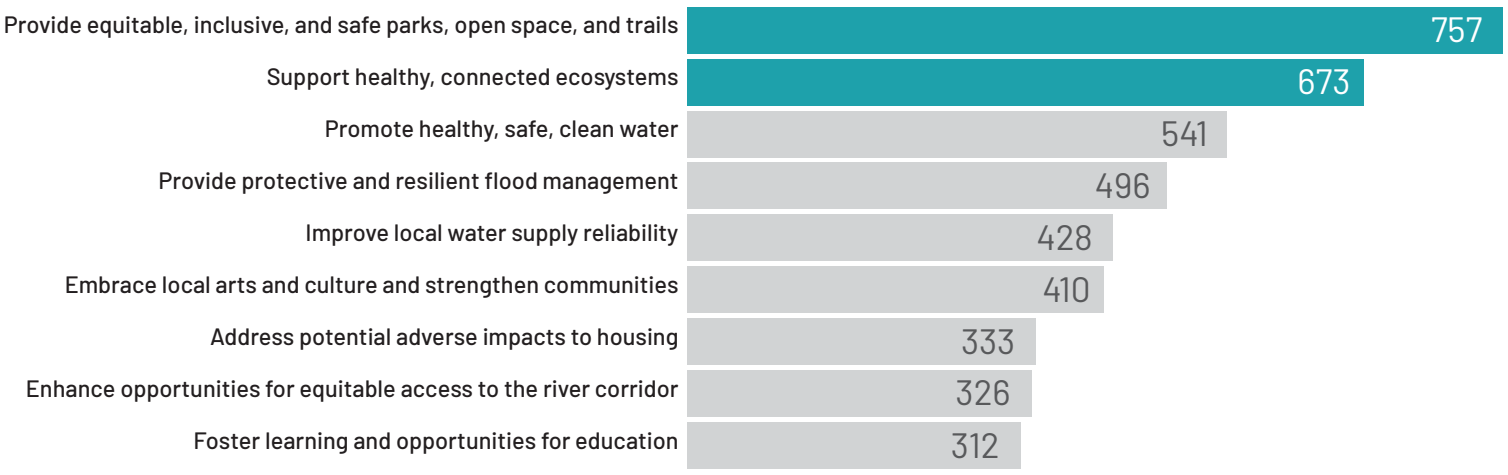
ENGAGEMENT UPDATE ROUND 2 (FEBRUARY-AUGUST 5)

WHERE DO YOU LIVE?

- West Valley Attendees
- South Gate Attendees
- Compton / E Rancho Dominguez Attendees
- Pacoima Attendees
- Glendale Attendees
- Digital & In-Person Survey Respondents

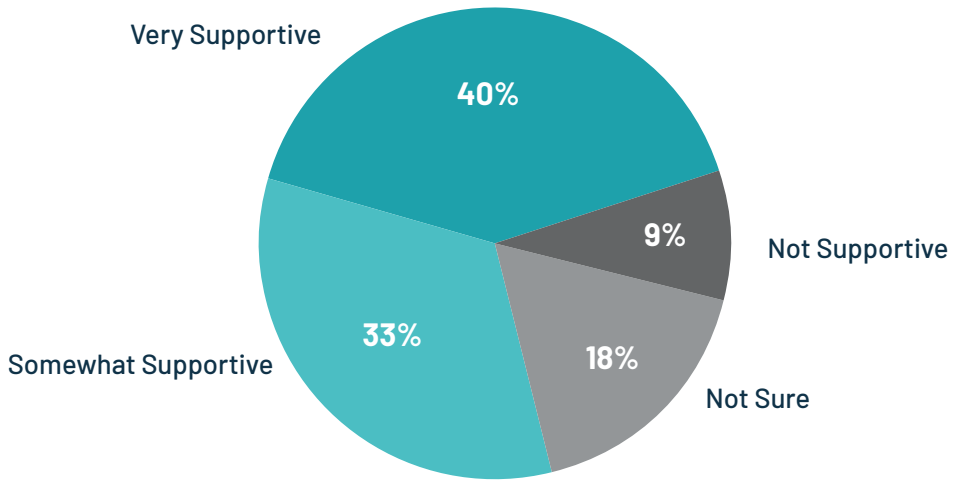
Source: Community Meetings, Survey

WHICH OF THE GOALS FOR THE LA RIVER ARE MOST IMPORTANT TO YOU?



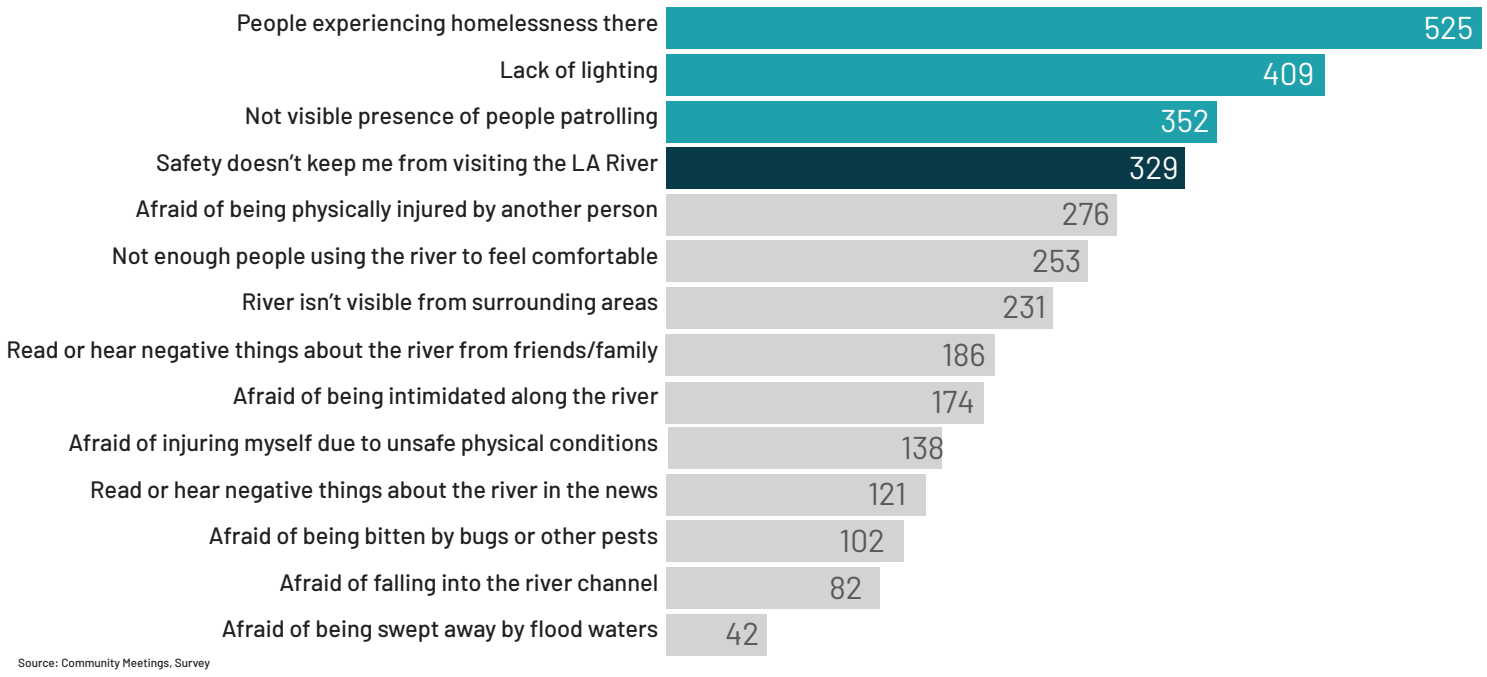
Source: Community Meetings, Survey

HOW SUPPORTIVE ARE YOU OF SOME INCREASE IN TAXES TO FUND PROJECTS THAT WOULD ACHIEVE THE 3 GOALS FOR THE LA RIVER YOU IDENTIFIED AS MOST IMPORTANT TO YOU?



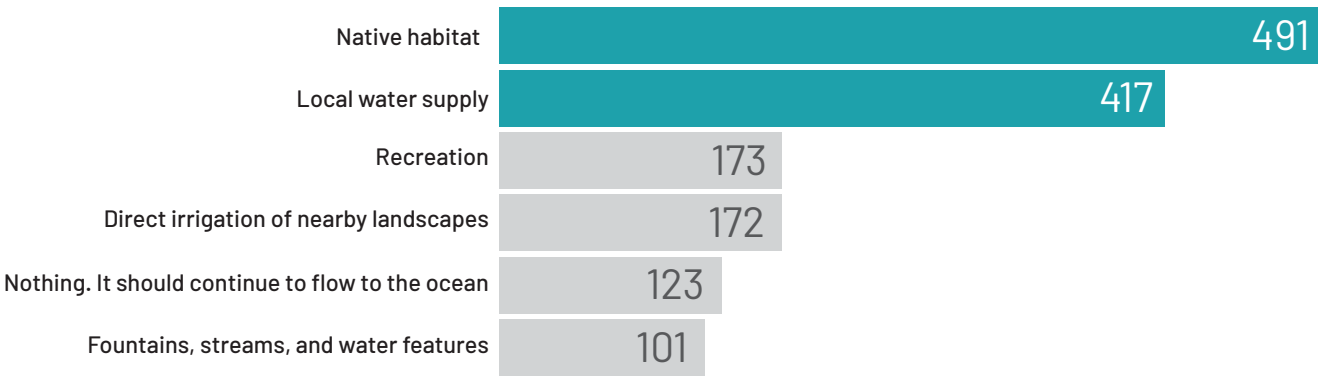
Source: Community Meetings, Survey

WHAT ABOUT SAFETY KEEPS YOU FROM VISITING THE LA RIVER?



Source: Community Meetings, Survey

WHEN IT'S NOT RAINING, THERE IS STILL FLOW IN THE LA RIVER. WHAT DO YOU THINK IS A BETTER USE FOR THIS WATER INSTEAD OF LETTING IT FLOW TO THE OCEAN?



Source: Community Meetings, Survey

COMMUNITY PARTNER UPDATE

- Resource Conservation District of the Santa Monica Mountains
- Pacoima Beautiful
- Fernandeños Tataviam Band of Mission Indians
- Gabrielino-Tongva Tribe
- Anahuak
- From Lot to Spot
- East Yard Communities for Environmental Justice
- Friends of the LA River
- Las Fotos Project
- Weaving the River

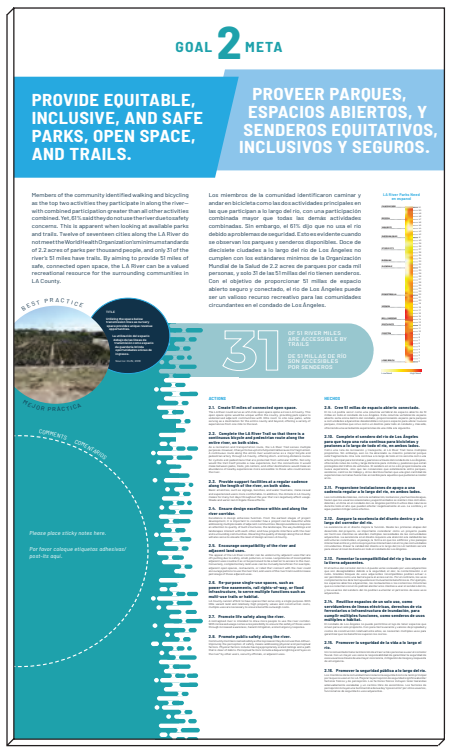
ENGAGEMENT ROUND 3 (OCTOBER)

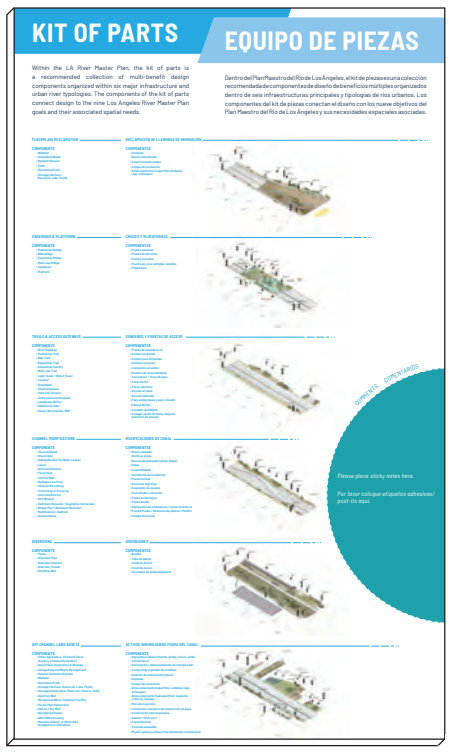
CANOGA PARK
October 15

NORTH LONG BEACH
October 16

CENTRAL LOS ANGELES
October 17

ENGAGEMENT ROUND 3 (OCTOBER)





WHAT'S IN THE PLAN

Source: OLIN

WHAT'S IN THE PLAN

STRATEGIC DIRECTIONS

- **Goals, Actions, Methods**
- **Implementation Responsibility and Partners**
- **Funding Sources**

DESIGN FRAMEWORK

- **Needs Analysis**
- **Sites**
- **Kit of Parts and Common Elements** (possible intervention strategies)
- **System Recommendations**
- **Design Examples**

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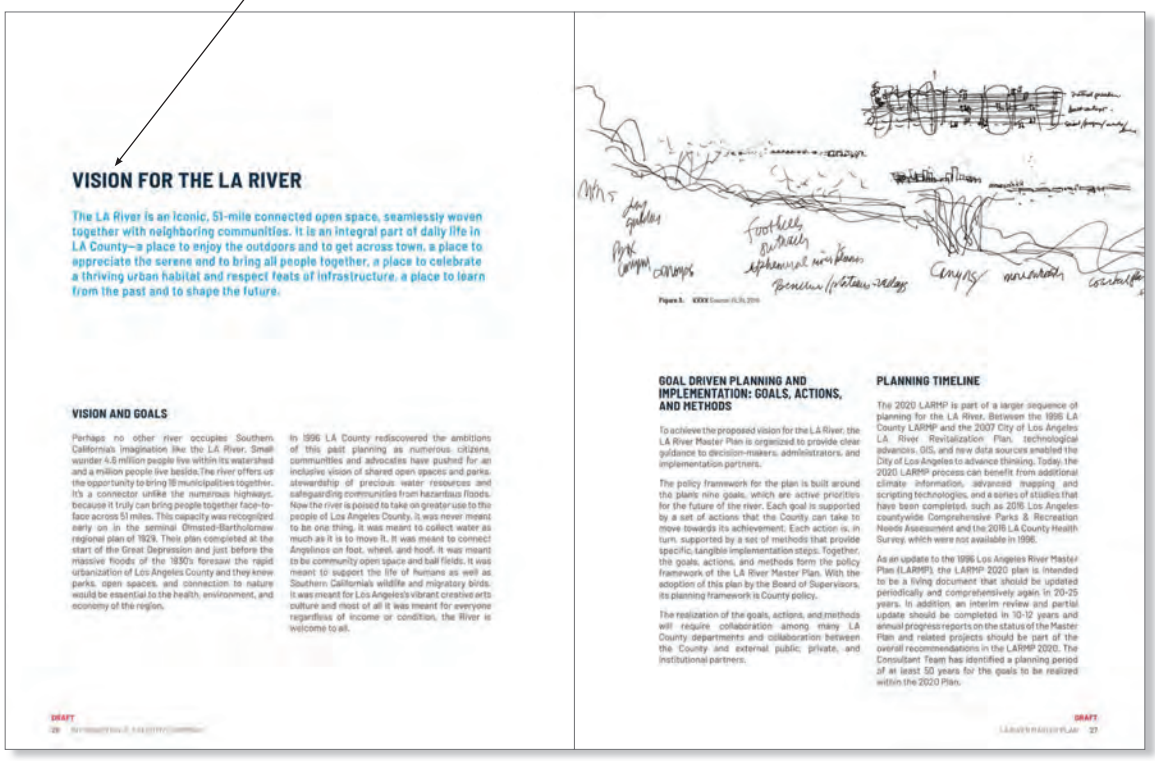
LARMP

VISION STATEMENT



VISION FOR THE LA RIVER

The LA River is an iconic, 51-mile connected open space, seamlessly woven together with neighboring communities. It is an integral part of daily life in LA County—a place to enjoy the outdoors and to get across town, a place to appreciate the serene and to bring all people together, a place to celebrate a thriving urban habitat and respect feats of infrastructure, a place to learn from the past and to shape the future.

VISION AND GOALS

Perhaps no other river occupies Southern California's imagination like the LA River. Small wonder 4.8 million people live within its watershed and a million people live beside. The river offers us the opportunity to bring 18 municipalities together. It's a connector unlike the numerous highways, because it truly can bring people together face-to-face across 51 miles. This capacity was recognized early on in the seminal Olmsted-Bartholomew regional plan of 1929. This plan completed at the start of the Great Depression and just before the massive floods of the 1930's foresaw the rapid urbanization of Los Angeles County and they knew parks, open spaces, and connection to nature would be essential to the health, environment, and economy of the region.

In 1996 LA County rediscovered the ambitions of this past planning as numerous citizens, communities and advocates have pushed for an inclusive vision of shared open spaces and parks, stewardship of precious water resources and safeguarding communities from hazardous floods. Now the river is poised to take on greater use to the people of Los Angeles County. It was never meant to be one thing, it was meant to collect water as much as it is to move it. It was meant to connect Angelinos on foot, wheel, and hoof. It was meant to be community open space and ball fields. It was meant to support the life of humans as well as Southern California's wildlife and migratory birds. It was meant for Los Angeles's vibrant creative arts culture and most of all it was meant for everyone regardless of income or condition, the River is welcome to all.

GOAL DRIVEN PLANNING AND IMPLEMENTATION: GOALS, ACTIONS, AND METHODS

To achieve the proposed vision for the LA River, the LA River Master Plan is organized to provide clear guidance to decision-makers, administrators, and implementation partners.

The policy framework for the plan is built around the plan's nine goals, which are active priorities for the future of the river. Each goal is supported by a set of actions that the County can take to move towards its achievement. Each action is, in turn, supported by a set of methods that provide specific, tangible implementation steps. Together, the goals, actions, and methods form the policy framework of the LA River Master Plan. With the adoption of this plan by the Board of Supervisors, its planning framework is County policy.

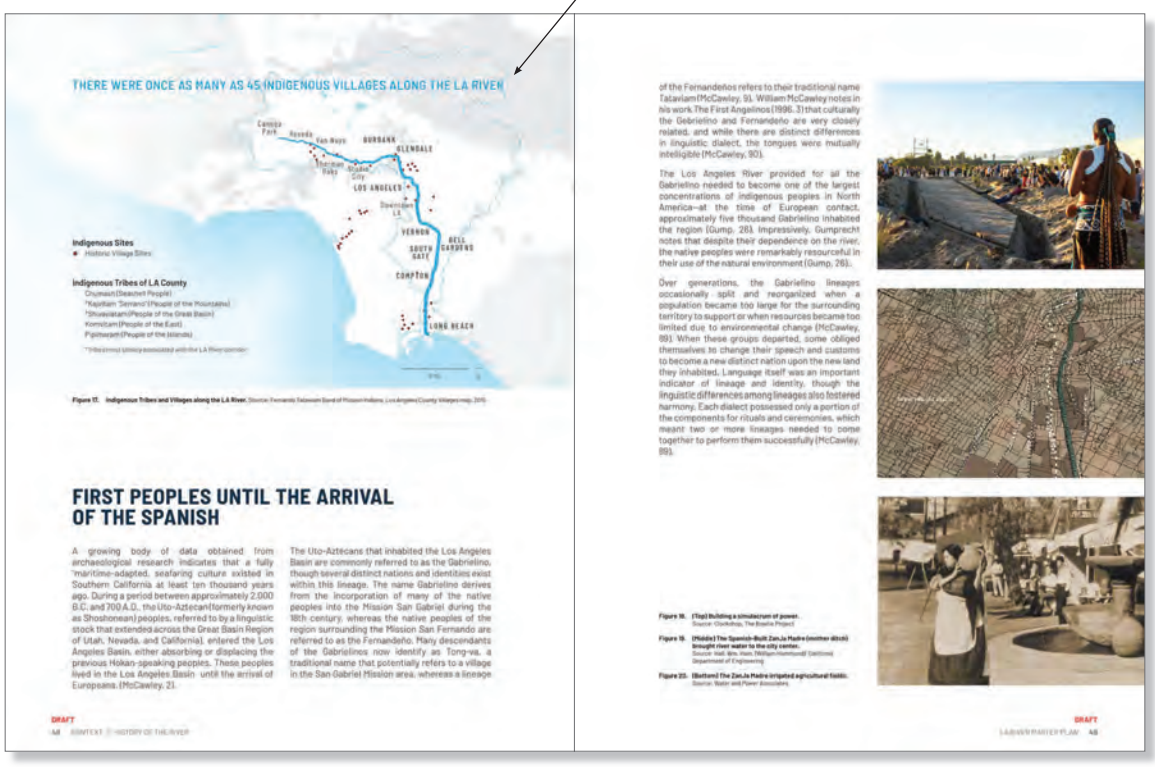
The realization of the goals, actions, and methods will require collaboration among many LA County departments and collaboration between the County and external public, private, and institutional partners.

PLANNING TIMELINE

The 2020 LARMP is part of a larger sequence of planning for the LA River. Between the 1996 LA County LARMP and the 2007 City of Los Angeles LA River Revitalization Plan, technological advances, GIS, and new data sources enabled the City of Los Angeles to advance thinking. Today, the 2020 LARMP process can benefit from additional climate information, advanced mapping and scripting technologies, and a series of studies that have been completed, such as 2016 Los Angeles countywide Comprehensive Parks & Recreation Needs Assessment and the 2015 LA County Health Survey, which were not available in 1996.

As an update to the 1996 Los Angeles River Master Plan (LARMP), the LARMP 2020 plan is intended to be a living document that should be updated periodically and comprehensively again in 20-25 years. In addition, an interim review and partial update should be completed in 10-12 years and annual progress reports on the status of the Master Plan and related projects should be part of the overall recommendations in the LARMP 2020. The Consultant Team has identified a planning period of at least 50 years for the goals to be realized within the 2020 Plan.

HISTORICAL CONTEXT



THERE WERE ONCE AS MANY AS 45 INDIGENOUS VILLAGES ALONG THE LA RIVER

Indigenous Sites
- Historic Village Sites

Indigenous Tribes of LA County
- Chumash (Seacoast People)
- *Kayxtam 'Serrano' (People of the Mountains)
- *Shuvelatam (People of the Great Basin)
- Kinmitam (People of the East)
- Pipimaram (People of the Islands)

FIRST PEOPLES UNTIL THE ARRIVAL OF THE SPANISH

A growing body of data obtained from archaeological research indicates that a fully "maritime-adapted, seafaring culture existed in Southern California at least ten thousand years ago. During a period between approximately 2,000 B.C. and 700 A.D., the Uto-Aztecan (formerly known as Shoshonean) peoples, referred to by a linguistic stock that extended across the Great Basin Region of Utah, Nevada, and California), entered the Los Angeles Basin, either absorbing or displacing the previous Hokan-speaking peoples. These peoples lived in the Los Angeles Basin until the arrival of Europeans. (McCawley, 21).

The Uto-Aztecans that inhabited the Los Angeles Basin are commonly referred to as the Gabrielino, though several distinct nations and identities exist within this lineage. The name Gabrielino derives from the incorporation of many of the native peoples into the Mission San Gabriel during the 18th century, whereas the native peoples of the region surrounding the Mission San Fernando are referred to as the Fernandeño. Many descendants of the Gabrielinos now identify as Tong-va, a traditional name that potentially refers to a village in the San Gabriel Mission area, whereas a lineage of the Fernandeños refers to their traditional name Tataviam (McCawley, 9). William McCawley notes in his work The First Angelinos (1996, 3) that culturally the Gabrielino and Fernandeño are very closely related, and while there are distinct differences in linguistic dialect, the tongues were mutually intelligible (McCawley, 90).

The Los Angeles River provided for all the Gabrielino needed to become one of the largest concentrations of indigenous peoples in North America—at the time of European contact, approximately five thousand Gabrielino inhabited the region (Gump, 26). Impressively, Gumprecht notes that despite their dependence on the river, the native peoples were remarkably resourceful in their use of the natural environment (Gump, 26).

Over generations, the Gabrielino lineages occasionally split and reorganized when a population became too large for the surrounding territory to support or when resources became too limited due to environmental change (McCawley, 89). When these groups departed, some obliged themselves to change their speech and customs to become a new distinct nation upon the new land they inhabited. Language itself was an important indicator of lineage and identity, though the linguistic differences among lineages also fostered harmony. Each dialect possessed only a portion of the components for rituals and ceremonies, which meant two or more lineages needed to come together to perform them successfully (McCawley, 89).

ENGAGEMENT SUMMARY

WEBSITE

The LA River Master Plan website functioned as a digital archive for the master planning process, bulletin board for upcoming meetings and events, and portal to digital surveys. The website provided access to all public presentations, digital mapping, technical memos, research, and drafts of the Master Plan document.

DIGITAL OUTREACH

Social media posts, social media ads, and a monthly email communicated the breadth of river-related issues, the planning process, and engagement opportunities to a wide, diverse audience.

OTHER PRESENTATIONS

LA County staff and the consultant team met with other groups and organizations throughout the process to coordinate efforts and present on the progress of updating the LA River Master Plan. Presentations were given to the Regional Water Quality Control Board, AB466 Upper Tributaries Working Group, Gateway Cities Council of Governments.

RIVER STORIES

Stakeholders ranging in age and level of involvement with river-related advocacy were interviewed about their personal connections to the river. Videos of these interviews, called *River Stories*, were posted on the Master Plan website and screened at community meetings and events.

GOAL

GOAL TWO

PROVIDE EQUITABLE, INCLUSIVE, AND SAFE PARKS, OPEN SPACE, AND TRAILS.

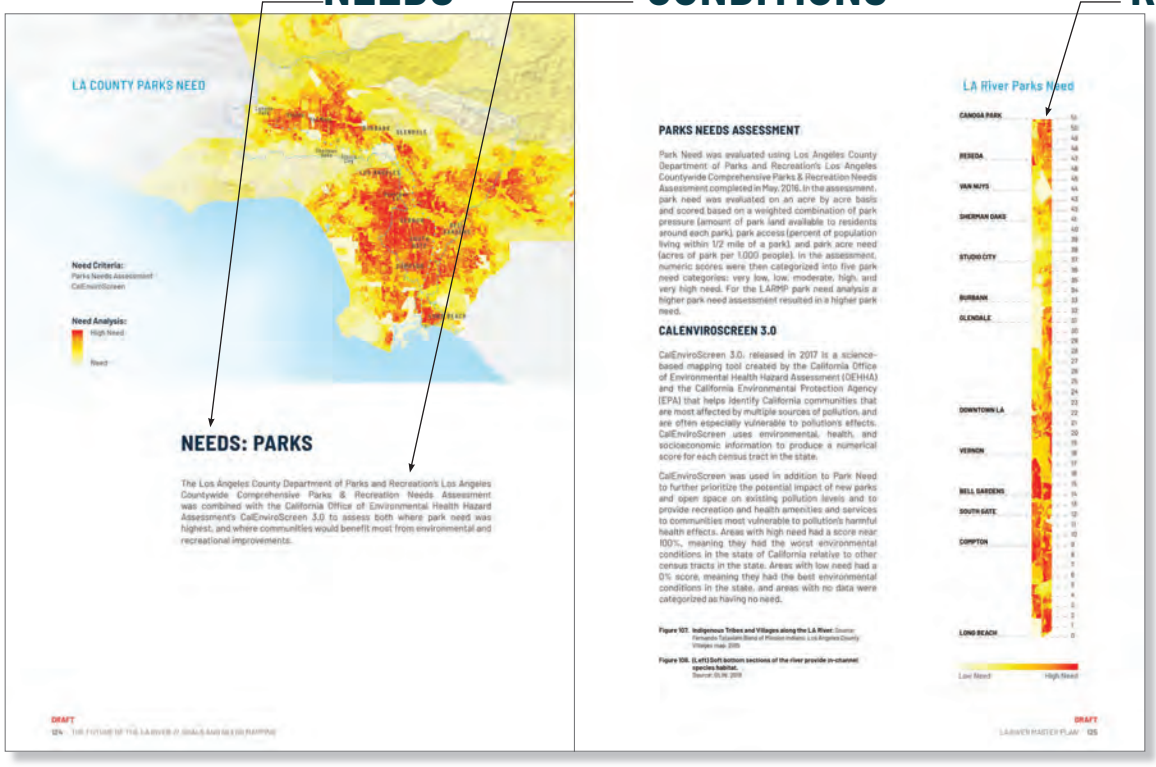
Members of the community identified walking and bicycling as the top two activities they participate in along the river—with combined participation greater than all other activities combined. Yet, 61% said they do not use the river due to safety concerns. This is apparent when looking at available parks and trails. Twelve of seventeen cities along the LA River do not meet the World Health Organization's minimum standards of 2.2 acres of parks per thousand people, and only 31 of the river's 51 miles have trails. By aiming to provide 51 miles of safe, connected open space, the LA River can be a valued recreational resource for the surrounding communities in LA County.

61 PERCENT OF SURVEY AND COMMUNITY MEETING PARTICIPANTS SAID THAT THEY DO NOT USE THE LA RIVER DUE TO SAFETY

NEEDS

EXISTING CONDITIONS

RULER



NEEDS: PARKS

The Los Angeles County Department of Parks and Recreation's Los Angeles Countywide Comprehensive Parks & Recreation Needs Assessment was combined with the California Office of Environmental Health Hazard Assessment's CalEnviroScreen 3.0 to assess both where park need was highest, and where communities would benefit most from environmental and recreational improvements.

PARKS NEEDS ASSESSMENT

Park Need was evaluated using Los Angeles County Department of Parks and Recreation's Los Angeles Countywide Comprehensive Parks & Recreation Needs Assessment completed in May, 2016. In the assessment, park need was evaluated on an acre by acre basis and scored based on a weighted combination of park pressure (amount of park land available to residents around each park), park access (percent of population living within 1/2 mile of a park), and park acre need (acres of park per 1,000 people). In the assessment, numeric scores were then categorized into five park need categories: very low, low, moderate, high, and very high need. For the LARMP park need analysis a higher park need assessment resulted in a higher park need.

CALENVIROSCREEN 3.0

CalEnviroScreen 3.0, released in 2017 is a science-based mapping tool created by the California Office of Environmental Health Hazard Assessment (OEHHA) and the California Environmental Protection Agency (EPA) that helps identify California communities that are most affected by multiple sources of pollution, and are often especially vulnerable to pollution's effects. CalEnviroScreen uses environmental, health, and socioeconomic information to produce a numerical score for each census tract in the state.

CalEnviroScreen was used in addition to Park Need to further prioritize the potential impact of new parks and open space on existing pollution levels and to provide recreation and health amenities and services to communities most vulnerable to pollution's harmful health effects. Areas with high need had a score near 100%., meaning they had the worst environmental conditions in the state of California relative to other census tracts in the state. Areas with low need had a 0% score, meaning they had the best environmental conditions in the state, and areas with no data were categorized as having no need.

ACTIONS

METHODS

ADDRESS POTENTIAL ADVERSE IMPACTS TO HOUSING AFFORDABILITY AND PEOPLE EXPERIENCING HOMELESSNESS.

ACTIONS

6.1. Create an ongoing forum for the coordination of housing and community stabilization strategies along the river.

Ensuring that river improvements strengthen communities without contributing to already intense housing affordability challenges requires a complex balancing act and the best strategies are likely to change. LA County needs ongoing input from impacted communities in order to help guide the evolution of this strategy over time.

6.1.1. Establish an LA River Housing Affordability Task Force that includes representatives from the County and river adjacent cities, as well as key community stakeholders, including affordable housing advocates and representatives of communities directly experiencing displacement. Provide funding for staffing or consultants to support the Task Force.

6.2. Require a housing impact assessment be completed as part of the planning for all sizable river improvement projects.

A housing impact assessment is a tool for quantifying how a project might affect nearby housing prices or rents. By conducting such an assessment during the planning phase of a project, proactive steps can be taken in proportion to the projected impact to mitigate adverse effects on housing affordability and the risk of displacement.

6.2.1. Develop an assessment tool to evaluate whether projects are likely to significantly impact housing affordability.

6.2.2. Prior to committing County resources to river projects or approving permits that impact the river right-of-way, require completion of a concise assessment of affordable housing needs and opportunities. The extent of analysis required should vary depending on the scale of the river project.

6.3. Increase units of affordable housing within one mile of the river.

The most effective way to mitigate adverse effects on housing affordability is to increase the supply of affordable housing or preserve existing affordable housing. By investing in more housing units with restricted rents near the river we can help ensure that river adjacent communities remain income diverse even as the river improves.

6.3.1. Encourage a mix of supportive housing, affordable rental, and affordable homeownership units in both new construction and preservation buildings.

6.3.2. Expand the LA County Community Development Commission's Home Ownership Program (HOP) to provide additional affordable homeownership opportunities in river adjacent communities.

6.3.3. Designate river adjacent communities at risk of increased displacement as priority areas for County affordable housing investment.

6.3.4. Publicly report on the progress toward this goal annually through the LA River Housing Affordability Task Force.

6.4. Develop an affordable housing land bank authority, land acquisition loan fund, or similar organization to strategically purchase land along the river and hold it for future development as affordable housing or permanent supportive housing.

The primary obstacle to building new affordable housing and permanent supportive housing is the lack of available land on which to build it. LA County is largely built out, with few vacant properties and relatively high property values. A land bank authority or similar organization that is specifically tasked with assembling development parcels could lower the barrier to creating new affordable housing.

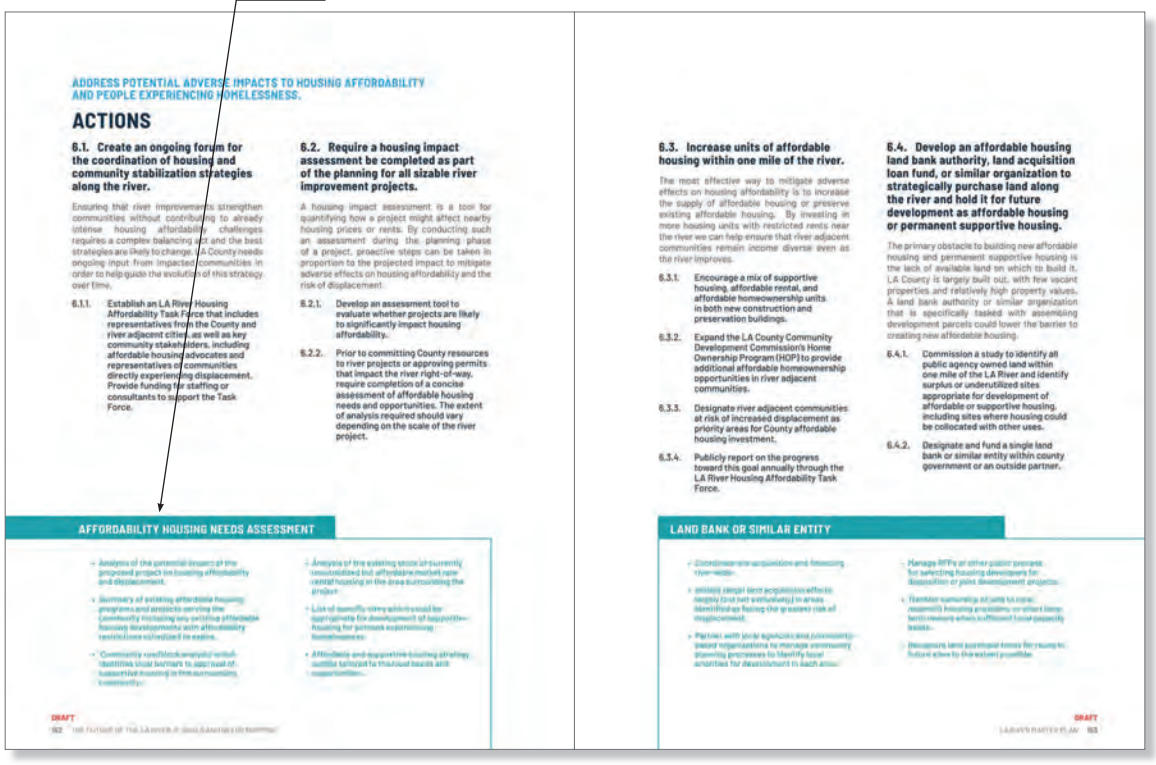
6.4.1. Commission a study to identify all public agency owned land within one mile of the LA River and identify surplus or underutilized sites appropriate for development of affordable or supportive housing, including sites where housing could be collocated with other uses.

6.4.2. Designate and fund a single land bank or similar entity within county government or an outside partner.

AFFORDABILITY HOUSING NEEDS ASSESSMENT

LAND BANK OR SIMILAR ENTITY

ADDITIONAL INFO TO SUPPORT METHODS



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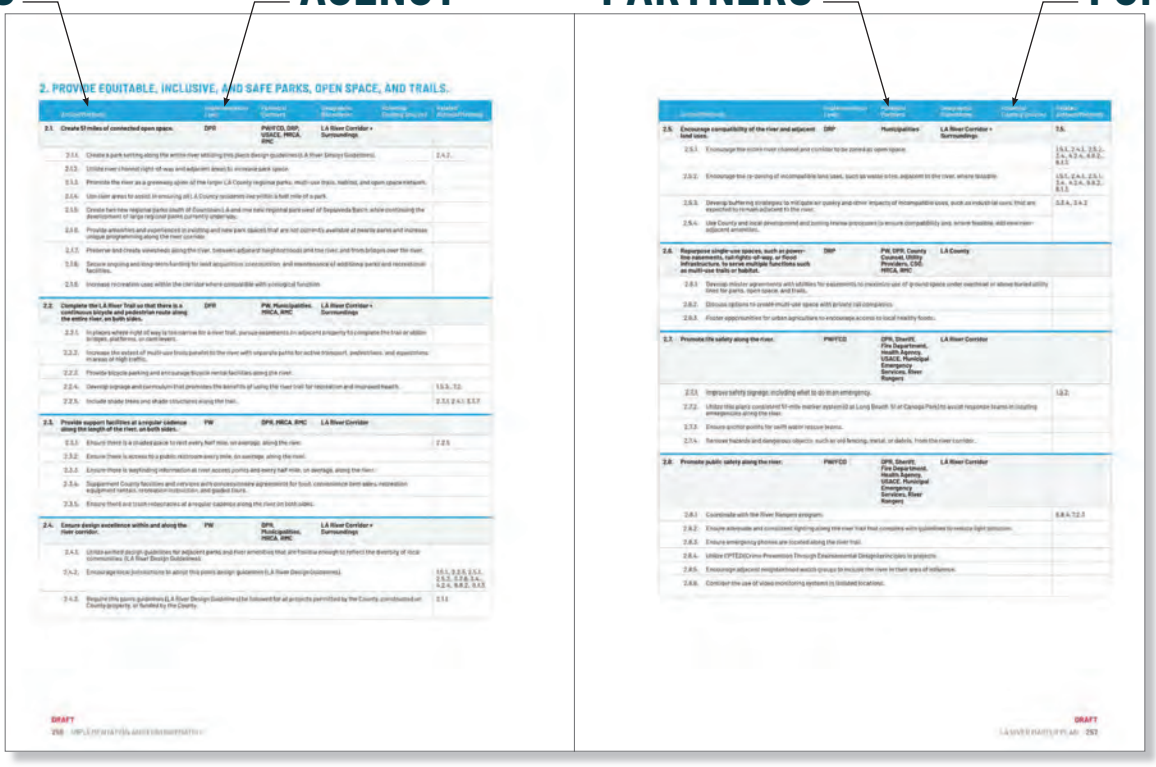
AFFORDABILITY HOUSING NEEDS ASSESSMENT

LAND BANK OR SIMILAR ENTITY

ACTIONS — LEAD AGENCY — PARTNERS — FUNDING



2. PROVIDE EQUITABLE, INCLUSIVE, AND SAFE PARKS, OPEN SPACE, AND TRAILS.

APPENDICES

DESIGN GUIDELINES

- Plant Species
- Soils Guidelines
- Trail Widths Requirements
- Signage Leading to Projects
- Permitting Overview
- O&M Planning

TECHNICAL DOCUMENTS

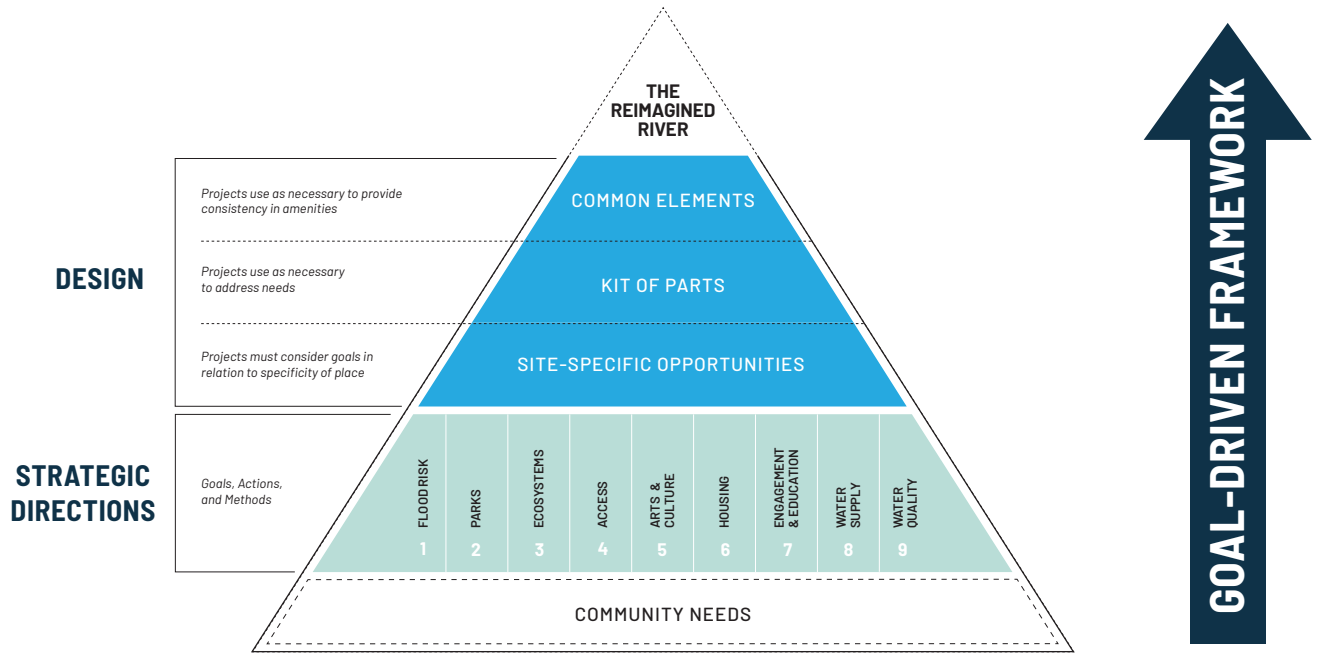
- Additional River Rulers
- Hydrology and Hydraulics Analysis
- Needs Mapping and Weighting
- Project Database / Library of Sources and Data Catalog

TIMELINE TO COMPLETION

DRAFT SCHEDULE

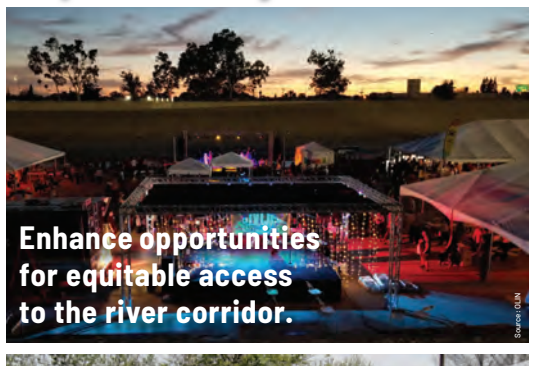
- SUBCOMMITTEES TO RECEIVE KEY CHAPTERS BY: **DECEMBER 2019**
- SUBCOMMITTEES TO RECEIVE FULL DRAFT BY: **JANUARY 2020**
  (ESTIMATED 3 WEEKS FOR REVIEW)
- FINAL DRAFT: FOR PUBLIC COMMENT **(ESTIMATED: APRIL 2020)**

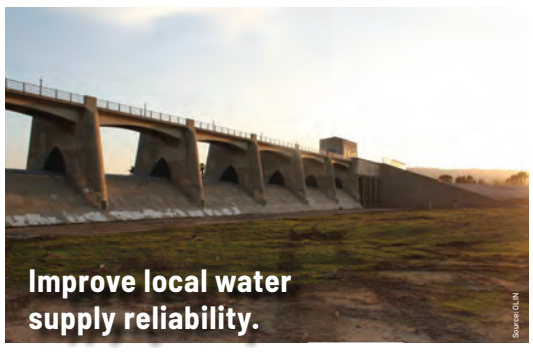
GOAL-DRIVEN FRAMEWORK

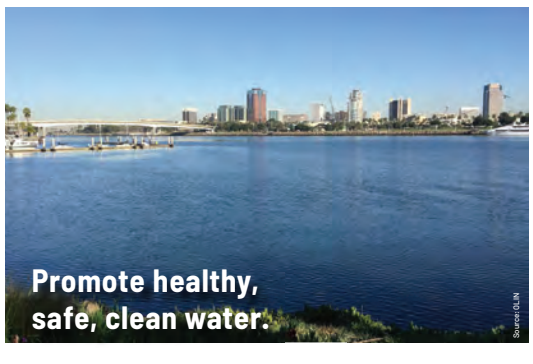


GOAL INFORMED PROJECT DESIGN

Source: OLIN



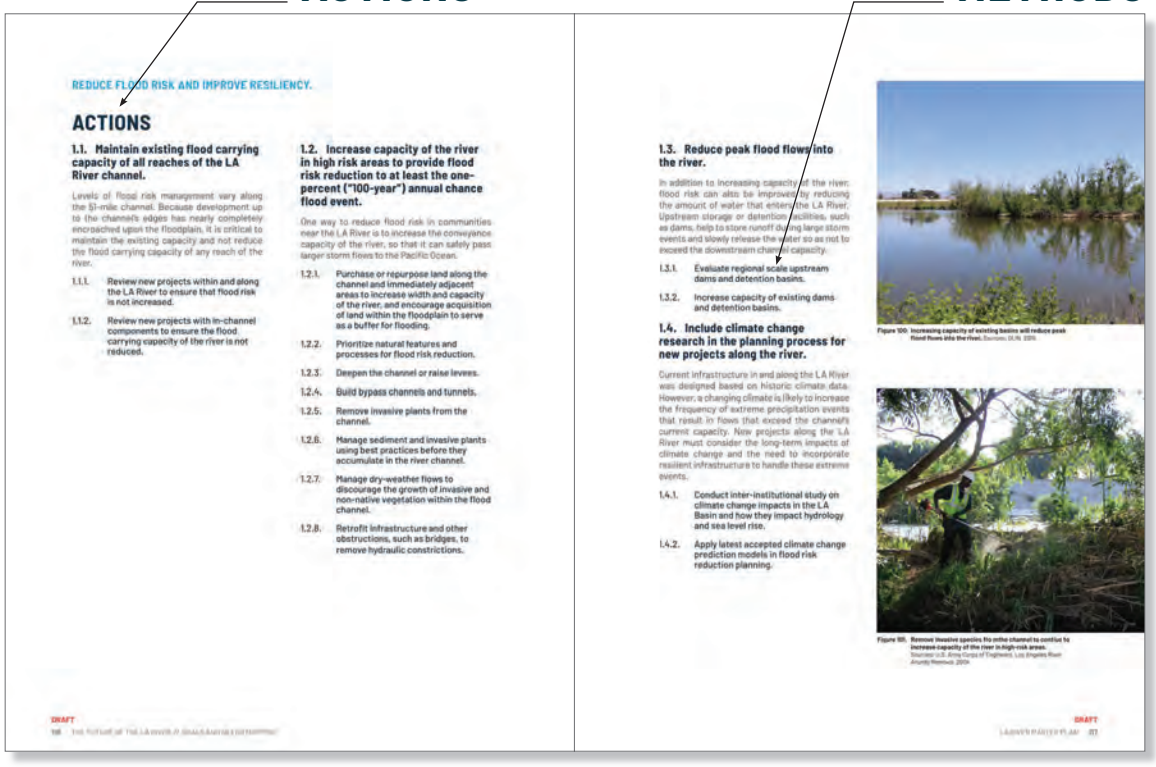




FLOOD RISK

ACTIONS

METHODS



REDUCE FLOOD RISK AND IMPROVE RESILIENCY.

ACTIONS

1.1. Maintain existing flood carrying capacity of all reaches of the LA River channel.

Levels of flood risk management vary along the 51-mile channel. Because development up to the channel's edges has nearly completely encroached upon the floodplain, it is critical to maintain the existing capacity and not reduce the flood carrying capacity of any reach of the river.

1.1.1. Review new projects within and along the LA River to ensure that flood risk is not increased.

1.1.2. Review new projects with in-channel components to ensure the flood carrying capacity of the river is not reduced.

1.2. Increase capacity of the river in high risk areas to provide flood risk reduction to at least the one-percent ("100-year") annual chance flood event.

One way to reduce flood risk in communities near the LA River is to increase the conveyance capacity of the river, so that it can safely pass larger storm flows to the Pacific Ocean.

1.2.1. Purchase or repurpose land along the channel and immediately adjacent areas to increase width and capacity of the river, and encourage acquisition of land within the floodplain to serve as a buffer for flooding.

1.2.2. Prioritize natural features and processes for flood risk reduction.

1.2.3. Deepen the channel or raise levees.

1.2.4. Build bypass channels and tunnels.

1.2.5. Remove invasive plants from the channel.

1.2.6. Manage sediment and invasive plants using best practices before they accumulate in the river channel.

1.2.7. Manage dry-weather flows to discourage the growth of invasive and non-native vegetation within the flood channel.

1.2.8. Retrofit infrastructure and other obstructions, such as bridges, to remove hydraulic constrictions.

DRAFT

1.3. Reduce peak flood flows into the river.

In addition to increasing capacity of the river, flood risk can also be improved by reducing the amount of water that enters the LA River. Upstream storage or detention facilities, such as dams, help to store runoff during large storm events and slowly release the water so as not to exceed the downstream channel capacity.

1.3.1. Evaluate regional scale upstream dams and detention basins.

1.3.2. Increase capacity of existing dams and detention basins.

1.4. Include climate change research in the planning process for new projects along the river.

Current infrastructure in and along the LA River was designed based on historic climate data. However, a changing climate is likely to increase the frequency of extreme precipitation events that result in flows that exceed the channel's current capacity. New projects along the LA River must consider the long-term impacts of climate change and the need to incorporate resilient infrastructure to handle these extreme events.

1.4.1. Conduct inter-institutional study on climate change impacts in the LA Basin and how they impact hydrology and sea level rise.

1.4.2. Apply latest accepted climate change prediction models in flood risk reduction planning.

Figure 100. Increasing capacity of existing basins will reduce peak flood flows into the river. Sources: OLIN, 2015.

Figure 101. Remove invasive species fro mthe channel to contiue to increase capacity of the river in high-risk areas. Sources: U.S. Army Corps of Engineers, Los Angeles River Ecosystem Restoration Study, 2004

DRAFT

FLOOD RISK

HOW CAN THE LARMP HELP?

DO NO HARM

- **MAINTAIN EXISTING CHANNEL CAPACITY** (Actions 1.1, 1.6)
- **NEW PROJECTS SHOULD NOT REDUCE CAPACITY** (Actions 1.1, 1.6, 1.7)

IMPROVE CAPACITY

- **WHERE POSSIBLE, REDUCE FLOOD RISK BY INCREASING THE CHANNEL'S CONVEYANCE CAPACITY** (Actions 1.1, 1.6)

REDUCE PEAK FLOOD FLOWS

- **REDUCE WATER ENTERING THE LA RIVER CHANNEL THROUGH UP-STREAM STORAGE AND DETENTION** (Actions 1.2)

INCLUDE CLIMATE CHANGE RESEARCH

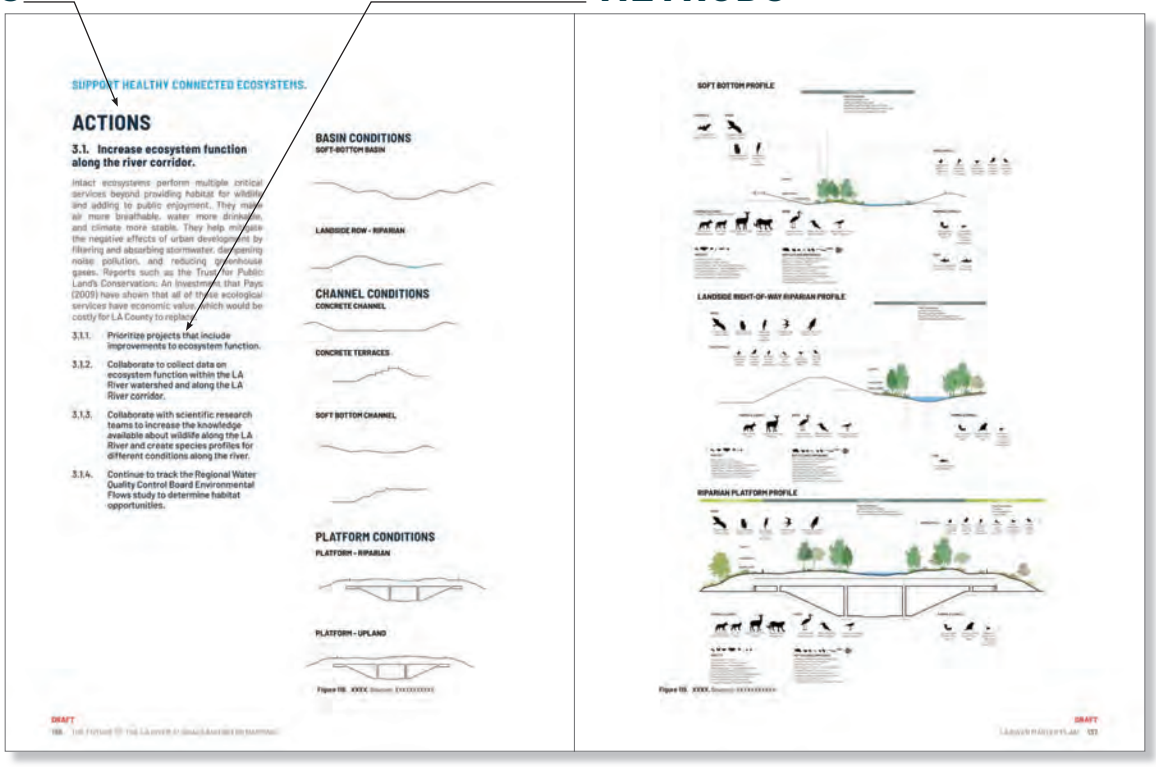
- **NEW PROJECTS SHOULD CONSIDER THE IMPACTS OF CLIMATE CHANGE TO CREATE A MORE RESILIENT INFRASTRUCTURE** (Actions 1.3)

GOAL 3: HEALTHY CONNECTED ECOSYSTEMS

Source: OLIN

ACTIONS

METHODS



SUPPORT HEALTHY CONNECTED ECOSYSTEMS.

ACTIONS

3.1. Increase ecosystem function along the river corridor.

Intact ecosystems perform multiple critical services beyond providing habitat for wildlife and adding to public enjoyment. They make air more breathable, water more drinkable, and climate more stable. They help mitigate the negative effects of urban development by filtering and absorbing stormwater, dampening noise pollution, and reducing greenhouse gases. Reports such as the Trust for Public Land's Conservation: An Investment that Pays (2009) have shown that all of these ecological services have economic value, which would be costly for LA County to replace.

3.1.1. Prioritize projects that include improvements to ecosystem function.

3.1.2. Collaborate to collect data on ecosystem function within the LA River watershed and along the LA River corridor.

3.1.3. Collaborate with scientific research teams to increase the knowledge available about wildlife along the LA River and create species profiles for different conditions along the river.

3.1.4. Continue to track the Regional Water Quality Control Board Environmental Flows study to determine habitat opportunities.

BASIN CONDITIONS
SOFT-BOTTOM BASIN

LANDSIDE ROW - RIPARIAN

CHANNEL CONDITIONS
CONCRETE CHANNEL

CONCRETE TERRACES

SOFT BOTTOM CHANNEL

PLATFORM CONDITIONS
PLATFORM - RIPARIAN

PLATFORM - UPLAND

DRAFT

SOFT BOTTOM PROFILE

LANDSIDE RIGHT-OF-WAY RIPARIAN PROFILE

RIPARIAN PLATFORM PROFILE

DRAFT

HOW CAN THE LARMP HELP?

RECOMMEND NEW STUDIES

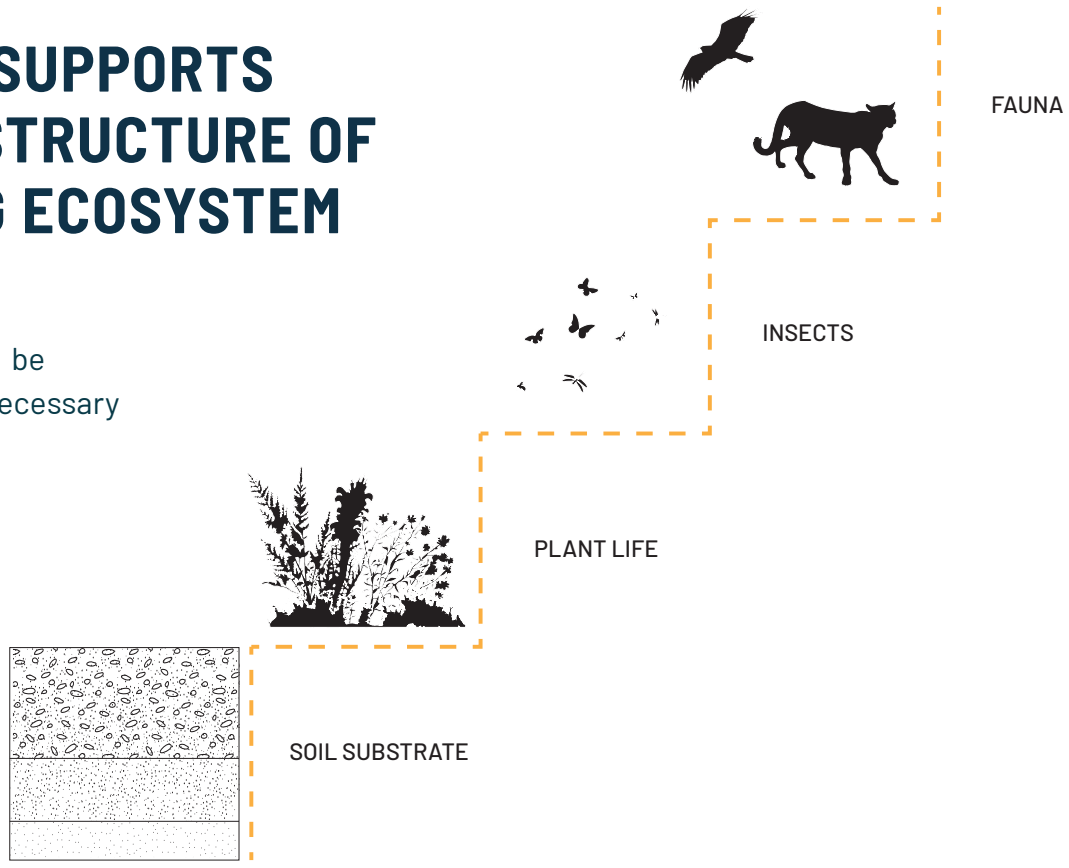
- **DEVELOP METHODOLOGY FOR EVALUATING ECOSYSTEM FUNCTION ALONG THE LA RIVER** (Actions 3.1, 3.6)
- **FILL GAPS IN SCIENTIFIC RESEARCH ON WILDLIFE ALONG THE LA RIVER** (Actions 3.2, 3.6)

ESTABLISH BIODIVERSITY PROFILES

- **ADOPT NATIVE PLANT COMMUNITY SPECIES LISTS** (Actions 3.2)
- **CREATE PROFILES OF HABITAT AND SPECIES THAT ARE SUPPORTED IN THE VARIOUS SECTIONS OF THE LA RIVER** (Actions 3.1, 3.2)

HEALTHY SOIL SUPPORTS THE LIFE AND STRUCTURE OF A FUNCTIONING ECOSYSTEM

- Contaminated soils should be evaluated and treated as necessary



BIODIVERSITY PROFILES - INDEX

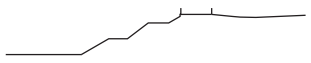
CHANNEL CONDITIONS

CONCRETE CHANNEL

SOFT BOTTOM CHANNEL

CONCRETE TERRACES

RIPARIAN RAMP



LANDSIDE ROW - UPLAND

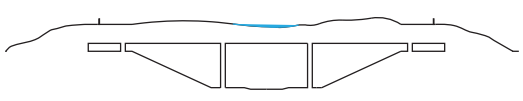
BASIN CONDITIONS

SOFT-BOTTOM BASIN

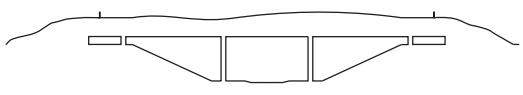
LANDSIDE ROW - RIPARIAN

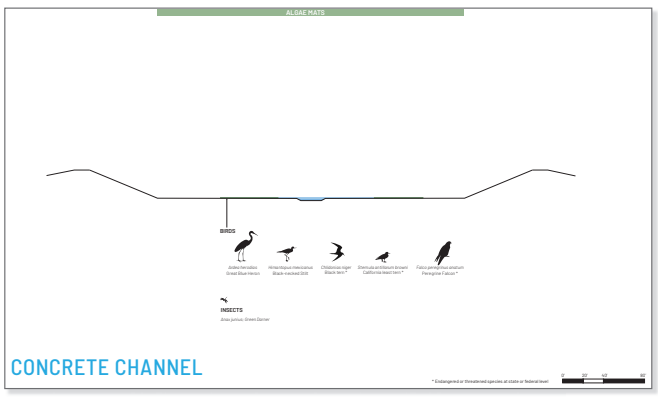
PLATFORM CONDITIONS

PLATFORM - RIPARIAN

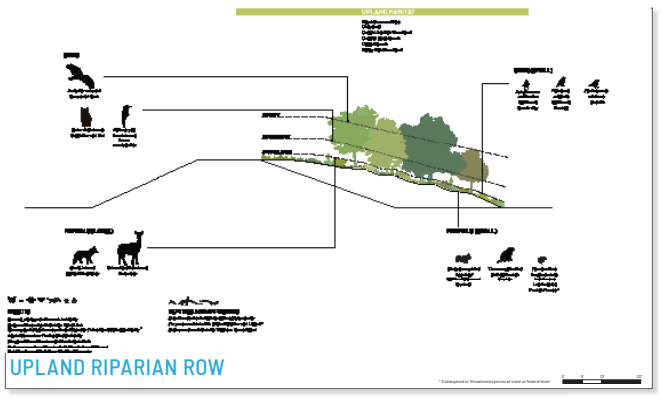


PLATFORM - UPLAND

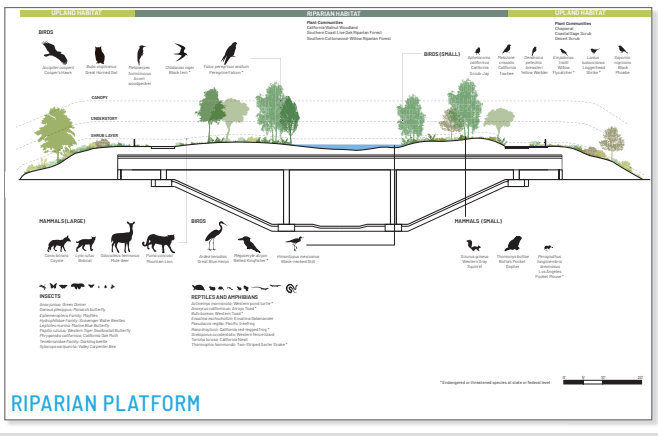




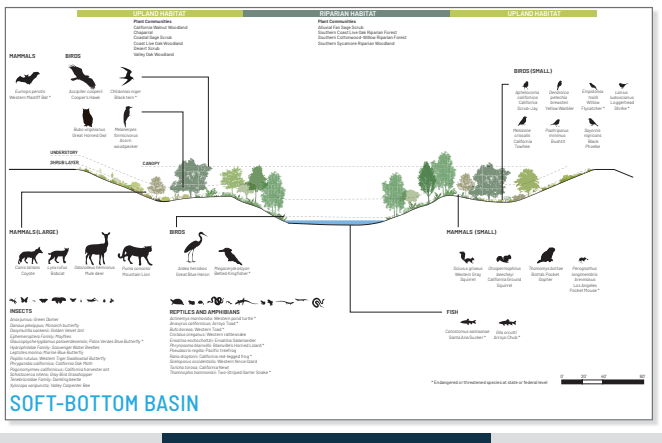
CONCRETE CHANNEL



UPLAND RIPARIAN ROW



RIPARIAN PLATFORM

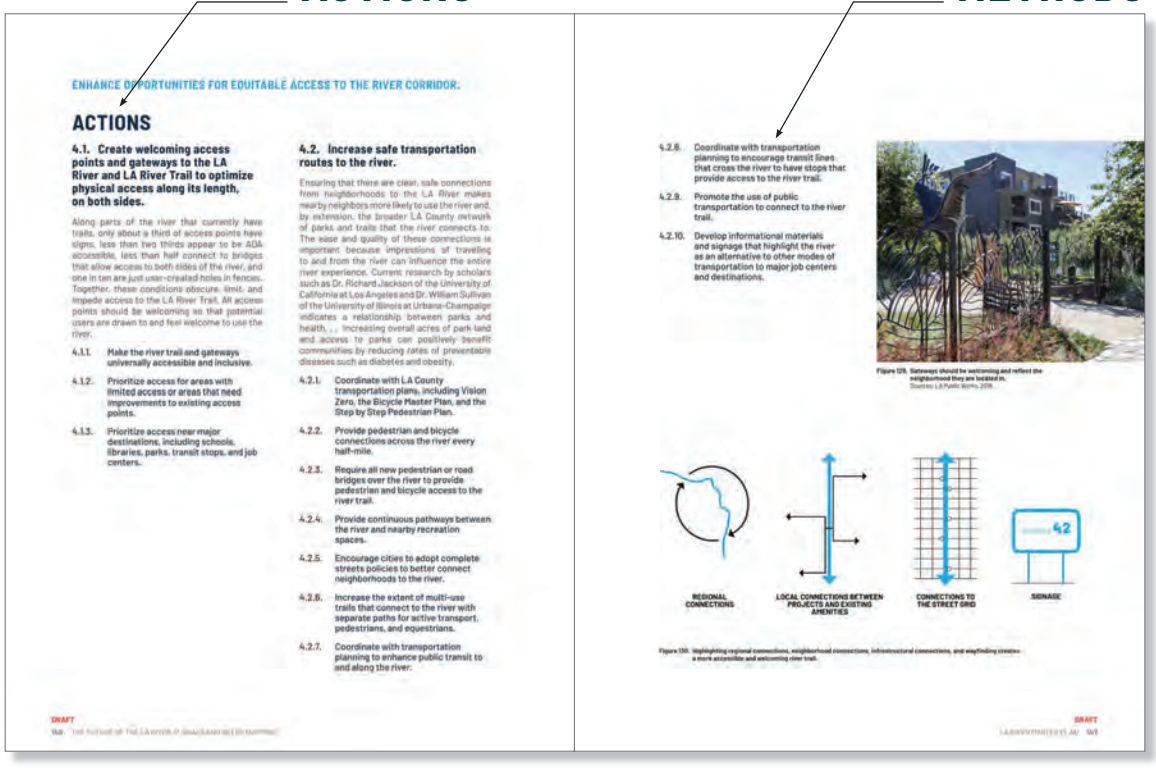


SOFT-BOTTOM BASIN

EQUITABLE ACCESS

ACTIONS

METHODS



ENHANCE OPPORTUNITIES FOR EQUITABLE ACCESS TO THE RIVER CORRIDOR.

ACTIONS

4.1. Create welcoming access points and gateways to the LA River and LA River Trail to optimize physical access along its length, on both sides.

Along parts of the river that currently have trails, only about a third of access points have signs, less than two thirds appear to be ADA accessible, less than half connect to bridges that allow access to both sides of the river, and one in ten are just user-created holes in fences. Together, these conditions obscure, limit, and impede access to the LA River Trail. All access points should be welcoming so that potential users are drawn to and feel welcome to use the river.

4.1.1. Make the river trail and gateways universally accessible and inclusive.

4.1.2. Prioritize access for areas with limited access or areas that need improvements to existing access points.

4.1.3. Prioritize access near major destinations, including schools, libraries, parks, transit stops, and job centers.

4.2. Increase safe transportation routes to the river.

Ensuring that there are clear, safe connections from neighborhoods to the LA River makes nearby neighbors more likely to use the river and, by extension, the broader LA County network of parks and trails that the river connects to. The ease and quality of these connections is important because impressions of traveling to and from the river can influence the entire river experience. Current research by scholars such as Dr. Richard Jackson of the University of California at Los Angeles and Dr. William Sullivan of the University of Illinois at Urbana-Champaign indicates a relationship between parks and health, . . . Increasing overall acres of park land and access to parks can positively benefit communities by reducing rates of preventable diseases such as diabetes and obesity.

4.2.1. Coordinate with LA County transportation plans, including Vision Zero, the Bicycle Master Plan, and the Step by Step Pedestrian Plan.

4.2.2. Provide pedestrian and bicycle connections across the river every half-mile.

4.2.3. Require all new pedestrian or road bridges over the river to provide pedestrian and bicycle access to the river trail.

4.2.4. Provide continuous pathways between the river and nearby recreation spaces.

4.2.5. Encourage cities to adopt complete streets policies to better connect neighborhoods to the river.

4.2.6. Increase the extent of multi-use trails that connect to the river with separate paths for active transport, pedestrians, and equestrians.

4.2.7. Coordinate with transportation planning to enhance public transit to and along the river.

4.2.8. Coordinate with transportation planning to encourage transit lines that cross the river to have stops that provide access to the river trail.

4.2.9. Promote the use of public transportation to connect to the river trail.

4.2.10. Develop informational materials and signage that highlight the river as an alternative to other modes of transportation to major job centers and destinations.

Figure 129. Gateways should be welcoming and reflect the neighborhood they are located in.
Sources: LA Public Works, 2019.

Figure 130. Highlighting regional connections, neighborhood connections, infrastructural connections, and wayfinding creates a more accessible and welcoming river trail.

EQUITABLE ACCESS

HOW CAN THE LARMP HELP?

REGIONAL CONNECTIONS	LOCAL CONNECTIONS BETWEEN PROJECTS AND EXISTING AMENITIES	CONNECTIONS TO THE STREET GRID	SIGNAGE
• **INCREASE THE EXTENT OF MULTI-USE TRAILS THAT CONNECT TO THE RIVER** (Action 4.2)	• **PRIORITIZE ACCESS NEAR MAJOR DESTINATIONS OR AREAS THAT NEED IMPROVEMENTS TO EXISTING ACCESS POINTS** (Action 4.1)	• **ENCOURAGE THE DEVELOPMENT OF SAFE ROUTES TO THE RIVER** (Action 4.1)	• **MAKE THE TRAIL AND GATEWAYS UNIVERSALLY ACCESSIBLE AND INCLUSIVE** (Action 4.1) • **DEVELOP INFORMATIONAL MATERIALS AND SIGNAGE** (Action 4.2)

EQUITABLE ACCESS

MAJOR REGIONAL TRAILS

- Existing Regional Trails
- Existing Local Trails
- Planned Trails
- Transmission Line Right-of-Way

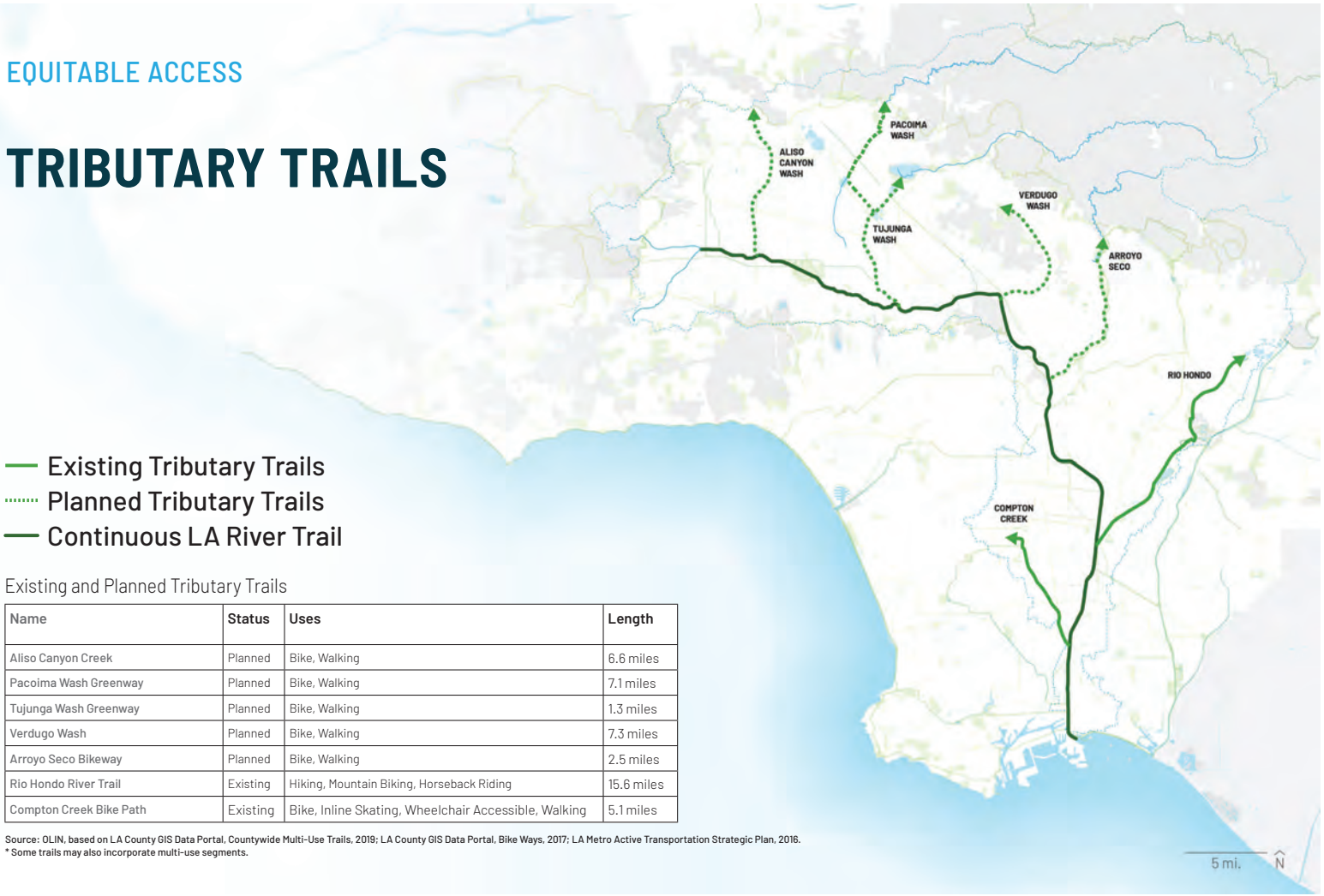
Major Existing Regional Trails

#	Name	Uses	Length
1	LA River Trail	Bike, Horseback Riding, Wheelchair Accessible, Walking	30 miles
2	San Gabriel River Trail	Hiking, Mountain Biking, Horseback Riding, Walking	37.8 miles
3	Orange Line	Bike, Inline Skating, Wheelchair Accessible, Walking	32.9 miles
4	Schabarum-Skyline Trail	Hiking, Mountain Biking, Horseback Riding	29.9 miles
5	Rio Hondo River Trail	Hiking, Mountain Biking, Horseback Riding, Walking	15.6 miles
6	The Strand (Marvin Braude Bike Trail)	Bike, Inline Skating, Wheelchair Accessible, Walking	11.5 miles
7	Coyote Creek Bikeway	Bike, Inline Skating, Wheelchair Accessible, Walking	9.5 miles
8	Ballona Creek Bike Path	Hiking, Mountain Biking, Walking	6.7 miles
9	Santa Anita Wash Trail	Hiking, Mountain Biking, Horseback Riding	6.5 miles
10	San Fernando Road Bike Path	Bike, Inline Skating, Wheelchair Accessible, Walking	5.7 miles
11	Palos Verdes Drive N	Bike, Walking	4.8 miles
12	Whittier Greenway	Bike, Inline Skating, Wheelchair Accessible, Walking	4.7 miles
13	Shoreline Beach	Bike, Inline Skating, Wheelchair Accessible, Walking	4.1 miles

Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.
* Some Class I bike paths may also incorporate multi-use segments.

EQUITABLE ACCESS

TRIBUTARY TRAILS



- Existing Tributary Trails
- Planned Tributary Trails
- Continuous LA River Trail

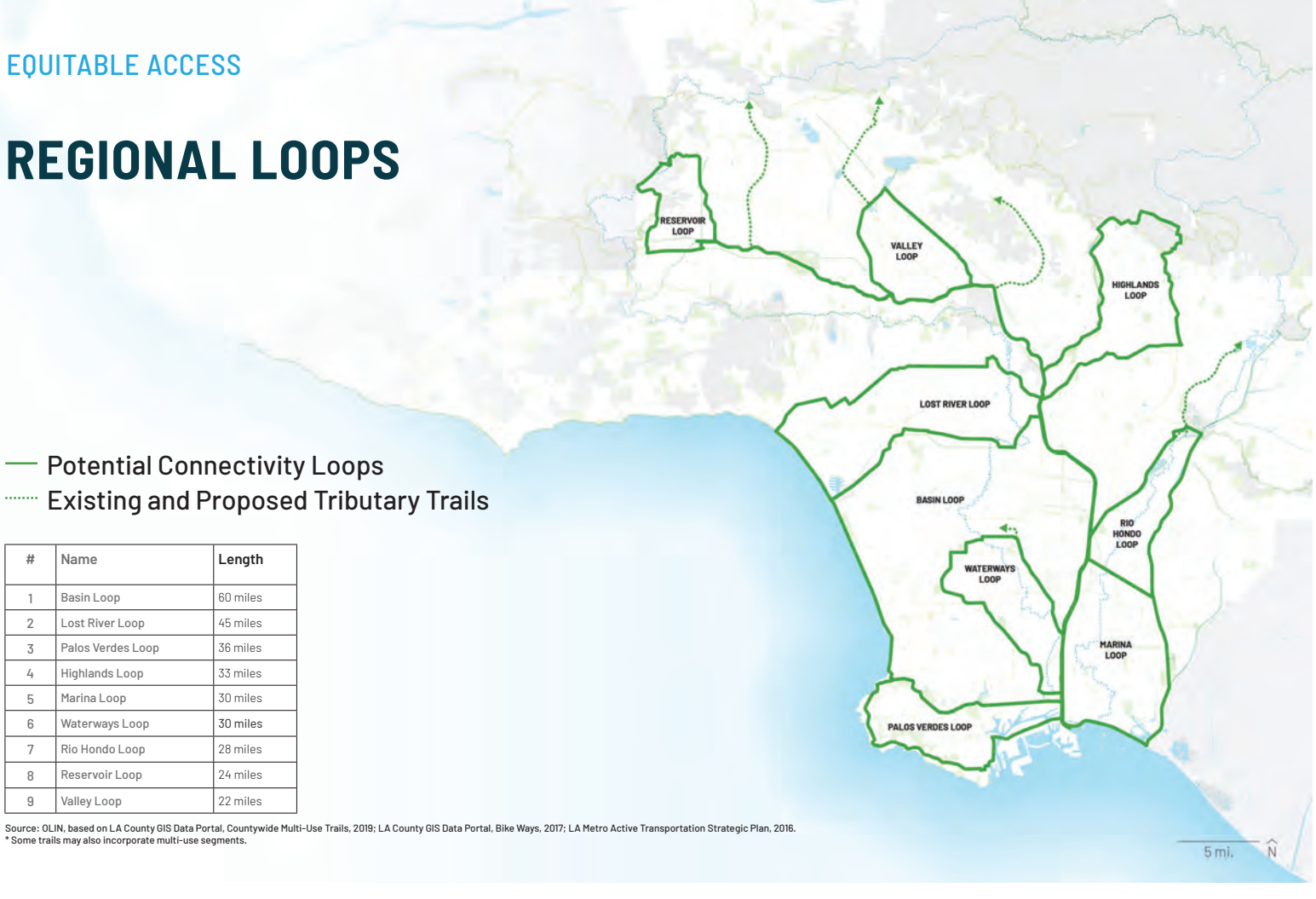
Existing and Planned Tributary Trails

Name	Status	Uses	Length
Aliso Canyon Creek	Planned	Bike, Walking	6.6 miles
Pacoima Wash Greenway	Planned	Bike, Walking	7.1 miles
Tujunga Wash Greenway	Planned	Bike, Walking	1.3 miles
Verdugo Wash	Planned	Bike, Walking	7.3 miles
Arroyo Seco Bikeway	Planned	Bike, Walking	2.5 miles
Rio Hondo River Trail	Existing	Hiking, Mountain Biking, Horseback Riding	15.6 miles
Compton Creek Bike Path	Existing	Bike, Inline Skating, Wheelchair Accessible, Walking	5.1 miles

Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.
* Some trails may also incorporate multi-use segments.

EQUITABLE ACCESS

REGIONAL LOOPS



- Potential Connectivity Loops
- Existing and Proposed Tributary Trails

#	Name	Length
1	Basin Loop	60 miles
2	Lost River Loop	45 miles
3	Palos Verdes Loop	36 miles
4	Highlands Loop	33 miles
5	Marina Loop	30 miles
6	Waterways Loop	30 miles
7	Rio Hondo Loop	28 miles
8	Reservoir Loop	24 miles
9	Valley Loop	22 miles

Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.
* Some trails may also incorporate multi-use segments.

EQUITABLE ACCESS

REGIONAL LOOPS ANALYSIS

Existing Planned

- Multi-Use Trail
- Class I Bike Path
- Class II Bike Path
- Class III Bike Path
- Class IV Bike Path
- Hiking Trails
- Gaps

#	Name	Length
1	Basin Loop	60 miles
2	Lost River Loop	45 miles
3	Palos Verdes Loop	36 miles
4	Highlands Loop	33 miles
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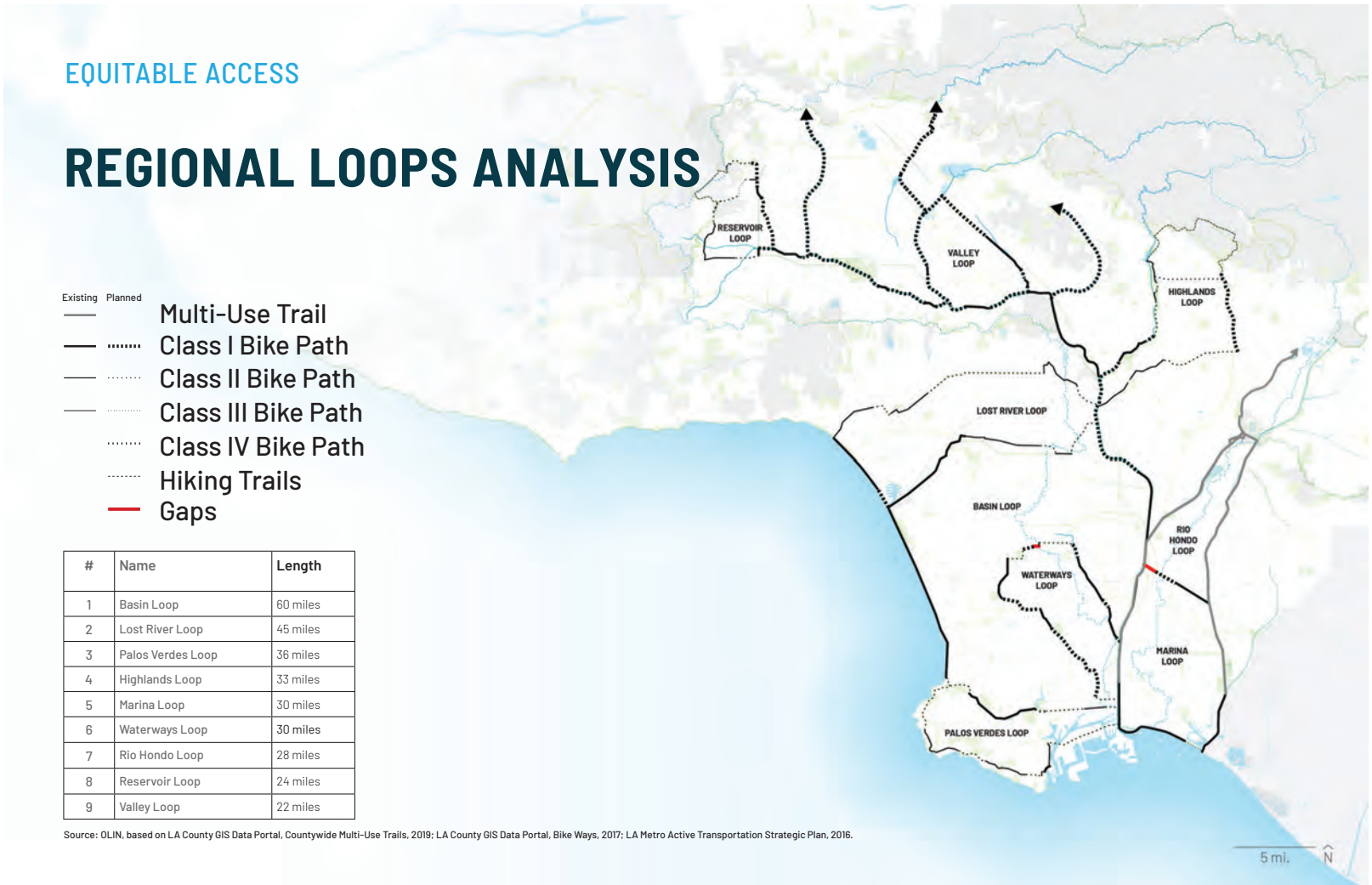
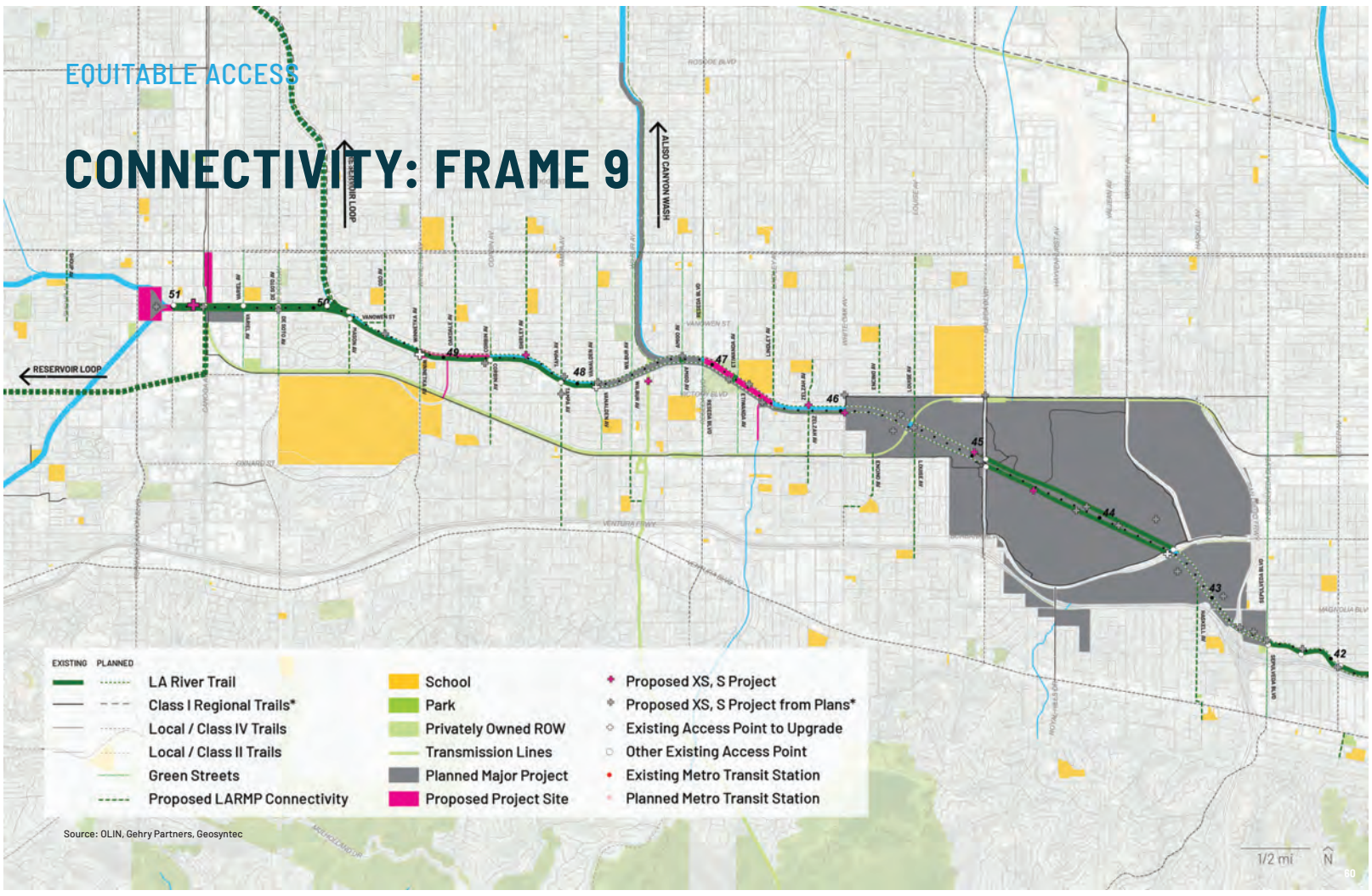


Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.

EQUITABLE ACCESS

CONNECTIVITY: FRAME 9



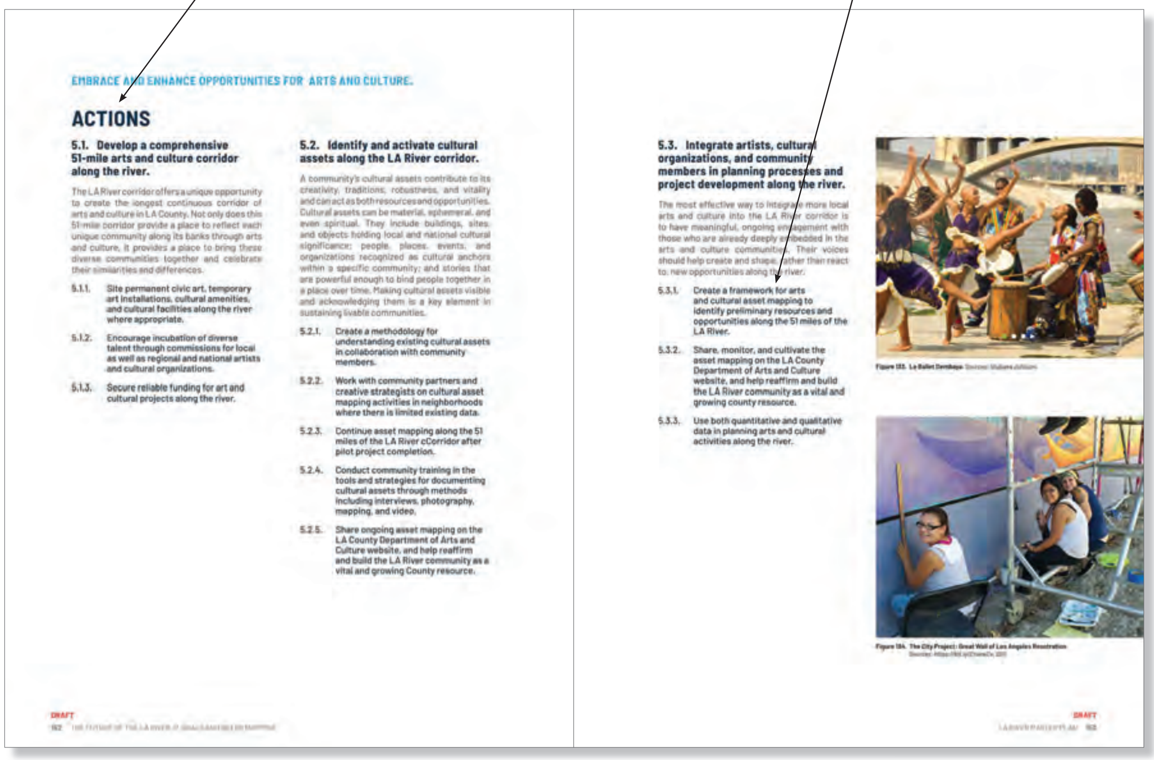
Source: OLIN, Gehry Partners, Geosyntec

GOAL 5: ARTS & CULTURE

Source: OLIN

ACTIONS

METHODS


EMBRACE AND ENHANCE OPPORTUNITIES FOR ARTS AND CULTURE.

ACTIONS

5.1. Develop a comprehensive 51-mile arts and culture corridor along the river.

The LA River corridor offers a unique opportunity to create the longest continuous corridor of arts and culture in LA County. Not only does this 51-mile corridor provide a place to reflect each unique community along its banks through arts and culture, it provides a place to bring these diverse communities together and celebrate their similarities and differences.

5.1.1. Site permanent civic art, temporary art installations, cultural amenities, and cultural facilities along the river where appropriate.

5.1.2. Encourage incubation of diverse talent through commissions for local as well as regional and national artists and cultural organizations.

5.1.3. Secure reliable funding for art and cultural projects along the river.

5.2. Identify and activate cultural assets along the LA River corridor.

A community's cultural assets contribute to its creativity, traditions, robustness, and vitality and can act as both resources and opportunities. Cultural assets can be material, ephemeral, and even spiritual. They include buildings, sites, and objects holding local and national cultural significance; people, places, events, and organizations recognized as cultural anchors within a specific community; and stories that are powerful enough to bind people together in a place over time. Making cultural assets visible and acknowledging them is a key element in sustaining livable communities.

5.2.1. Create a methodology for understanding existing cultural assets in collaboration with community members.

5.2.2. Work with community partners and creative strategists on cultural asset mapping activities in neighborhoods where there is limited existing data.

5.2.3. Continue asset mapping along the 51 miles of the LA River cCorridor after pilot project completion.

5.2.4. Conduct community training in the tools and strategies for documenting cultural assets through methods including interviews, photography, mapping, and video.

5.2.5. Share ongoing asset mapping on the LA County Department of Arts and Culture website, and help reaffirm and build the LA River community as a vital and growing County resource.

5.3. Integrate artists, cultural organizations, and community members in planning processes and project development along the river.

The most effective way to integrate more local arts and culture into the LA River corridor is to have meaningful, ongoing engagement with those who are already deeply embedded in the arts and culture communities. Their voices should help create and shape, rather than react to, new opportunities along the river.

5.3.1. Create a framework for arts and cultural asset mapping to identify preliminary resources and opportunities along the 51 miles of the LA River.

5.3.2. Share, monitor, and cultivate the asset mapping on the LA County Department of Arts and Culture website, and help reaffirm and build the LA River community as a vital and growing county resource.

5.3.3. Use both quantitative and qualitative data in planning arts and cultural activities along the river.

Figure 133. Le Ballet Dembaya

Figure 134. The City Project: Great Wall of Los Angeles Restoration

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HOW CAN THE LARMP HELP?

RECOMMEND NEW STUDIES

- **FILL GAPS IN CULTURAL ASSET MAPPING** (Actions 5.2)

ESTABLISH GUIDING PRINCIPLES

- **CULTIVATE A UNIFIED APPROACH TO ART FOR THE LA RIVER** (Actions 5.1, 5.3, 5.4)

ENCOURAGE STREAMLINED PERMITTING

- **CREATE A FASTER PERMIT PROCESS FOR PERMANENT AND TEMPORARY ART ALONG AND IN THE LA RIVER** (Actions 5.5)

ART ALONG THE LA RIVER SHOULD BE BOTH PERMANENT AND EPHEMERAL

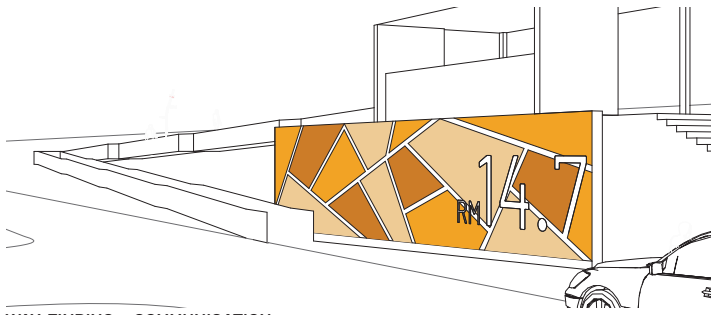
Faces of Elysian Valley by Greenmeme

Source: Greenmeme, http://www.greenmeme.com/RIVERSIDE-ROUNDABOUT, 2017

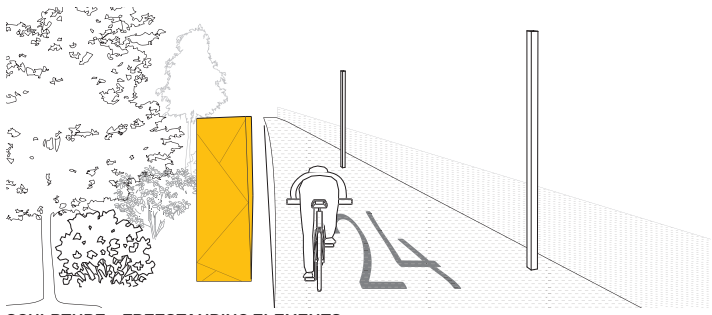
Le Ballet Dembaya Performance

Source: Shabaka Johnson, Le Ballet Dembaya

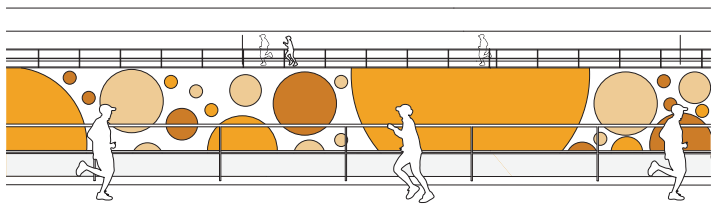
EXAMPLES OF LA RIVER ART



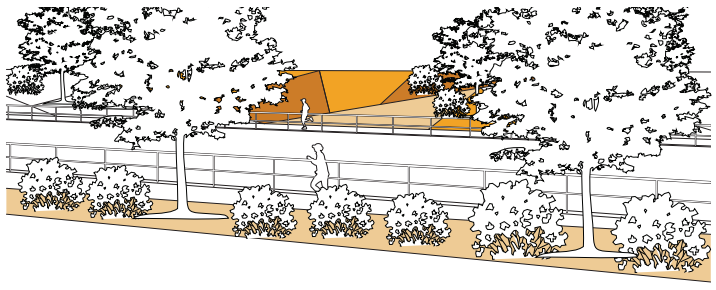
WAY-FINDING + COMMUNICATION



SCULPTURE + FREESTANDING ELEMENTS



MEDIA ART + PROJECTIONS

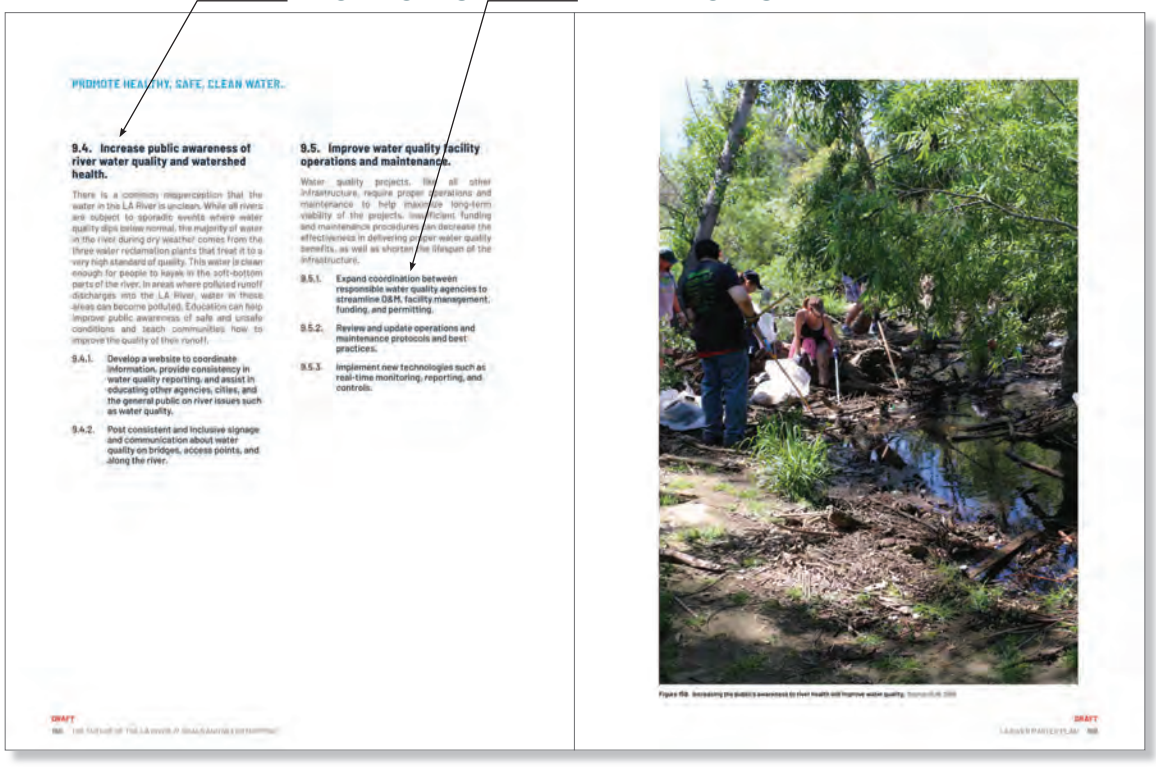


TEMPORARY LAND ART INSTALLATIONS

GOAL 9: WATER QUALITY

Source: OLIN

ACTIONS METHODS



PROMOTE HEALTHY, SAFE, CLEAN WATER.

9.4. Increase public awareness of river water quality and watershed health.

There is a common misperception that the water in the LA River is unclean. While all rivers are subject to sporadic events where water quality dips below normal, the majority of water in the river during dry weather comes from the three water reclamation plants that treat it to a very high standard of quality. This water is clean enough for people to kayak in the soft-bottom parts of the river. In areas where polluted runoff discharges into the LA River, water in these areas can become polluted. Education can help improve public awareness of safe and unsafe conditions and teach communities how to improve the quality of their runoff.

9.4.1. Develop a website to coordinate information, provide consistency in water quality reporting, and assist in educating other agencies, cities, and the general public on river issues such as water quality.

9.4.2. Post consistent and inclusive signage and communication about water quality on bridges, access points, and along the river.

9.5. Improve water quality facility operations and maintenance.

Water quality projects, like all other infrastructure, require proper operations and maintenance to help maximize long-term viability of the projects. Insufficient funding and maintenance procedures can decrease the effectiveness in delivering proper water quality benefits, as well as shorten the lifespan of the infrastructure.

9.5.1. Expand coordination between responsible water quality agencies to streamline O&M, facility management, funding, and permitting.

9.5.2. Review and update operations and maintenance protocols and best practices.

9.5.3. Implement new technologies such as real-time monitoring, reporting, and controls.

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HOW CAN THE LARMP HELP?

PRESCRIBE PROJECT ATTRIBUTES

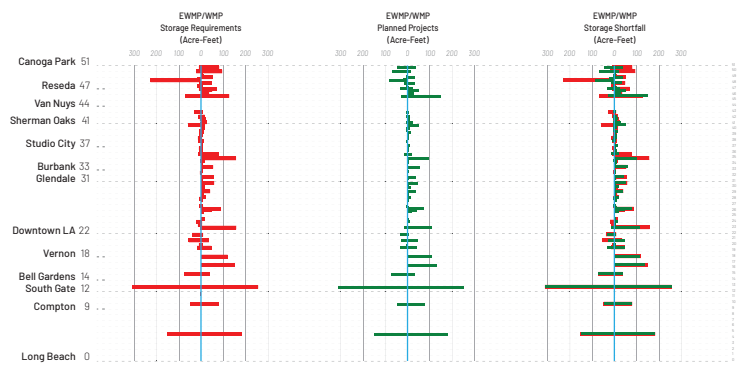
- **INCORPORATE LID TECHNIQUES ACROSS PROJECTS** (Actions 9.1, 9.2, 9.3)
- **PRIORITIZE REGIONAL WATER QUALITY IMPROVEMENTS TO PROJECTS IN AREAS OF GREATEST NEED** (Actions 9.3)

REINFORCE REGIONAL POLICIES

- **DEVELOP DESIGN GUIDELINES THAT REFLECT REGIONAL REQUIREMENTS** (Actions 9.3, 9.5)
- **ENCOURAGE IMPLEMENTATION OF EXISTING WATERSHED MANAGEMENT PLANS** (Actions 9.2, 9.3)

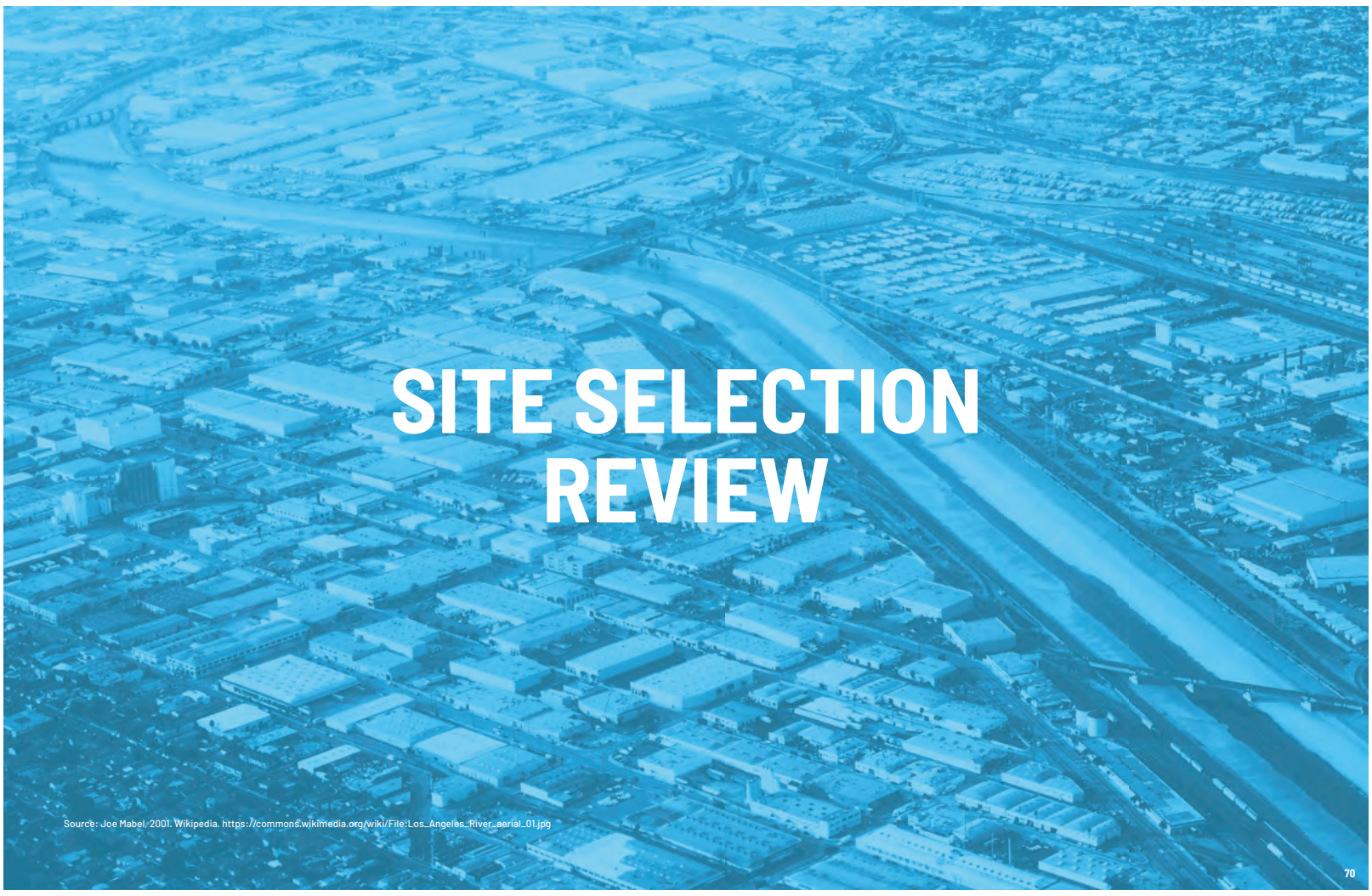
PROJECTS CAN CONTRIBUTE TO EWMP/WMP TARGETS

EWMP/WMP TARGET RULER



Source: ULAR EWMP (2016), https://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/watershed_management/los_angeles/upper_losangeles/20160127/UpperLARiver_mainbody_revEWMP_Jan2016.pdf, LAR UR2 WMP (2015), https://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/watershed_management/los_angeles/upper_reach2/Upper_LA_River_R2_FinalWMP.pdf, LLAR WMP (2017), https://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/watershed_management/los_angeles/lower_losangeles/LLARWMP2017updated.pdf

Source:https://www.flickr.com/photos/healthebay/7153361501/in/album-72157629989023189/

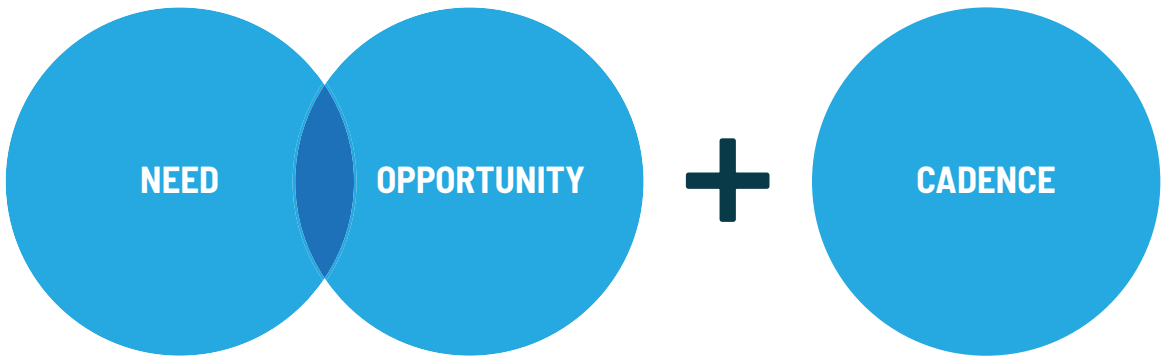


SITE SELECTION REVIEW

Source: Joe Mabel, 2001. Wikipedia. https://commons.wikimedia.org/wiki/File:Los_Angeles_River_aerial_01.jpg

HOW DO WE LOCATE NEW PROJECTS?

Align need, opportunity, and cadence along the LA River Corridor.



SITES OF INTEREST ARE LOCATED AT OVERLAPPING AREAS OF NEED AND OPPORTUNITY

Need

Opportunity

Overlay

Source: OLIN

CADENCE

Confirm projects are distributed along the river equally and vary in scale.

XL
ex: Regional Parks, Water Recharge Area

L
ex: Community Park, Cultural Center

M
ex: Neighborhood Parks, Community Center, Bridges

S
ex: Pocket Parks, Park Nodes, Access Gateways, Restrooms, Pavilions

XS
ex: Pavilions, Lighting, Signage, Benches

OVERLAYS

River Improvement Overlay Zone (LARRMP)

The Los Angeles River Improvement Overlay (RIO) was developed out of the LA River Revitalization Master Plan. It is a 32-mile zoning overlay that establishes an area in which new projects must comply with certain design standards related to three categories: watershed, urban design, and mobility. The RIO is intended to help the city coordinate land use development along the river, enhance the unique qualities of the river, and better serve adjacent communities within the city's boundaries.

Habitat Restoration Zones (ARBOR Study)

The Los Angeles River Ecosystem Restoration Integrated Feasibility Report and its Recommended Plan (also known as the ARBOR Study) present potential alternatives for environmental restoration of 11 mile of the Los Angeles River that include the soft-bottomed Glendale Narrows. The study analyzes the environmental impacts of implementing those alternatives, reviews the process for selecting the best alternative, and concludes with recommendations for project implementation.

Opportunity Zones (LLARRP)

Opportunity zones are comprised of publicly-owned open spaces and other areas with revitalization potential, as determined through the Lower LA River Revitalization Plan. Each opportunity zone is associated with a set of objectives based on existing conditions and context, as well as strategies for achieving those objectives. The LLARRP also details the "opportunity potential" of each zone to address various focus areas of the overall plan, such as water and environment.

- RIO Zone (LARRMP)
- Habitat Restoration Zones (ARBOR Study)
- Opportunity Zones (LLARRP)

Source: OLIN, Geosyntec, based on Lower LA River Revitalization Plan (2017) ARBOR Study (2015), and LA River Revitalization Master Plan (2007).

5 mi. N

SITE SELECTION REVIEW

M, L, XL SITE-BASED PROJECTS

22 PROPOSED PROJECT SITES
54 PLANNED MAJOR PROJECTS

- Proposed Project Sites
- Planned Major Projects

Sources: OLIN, Gehry Partners, Geosyntec

5 mi. N

SITE SELECTION REVIEW

XS, S PROJECTS

43 NEWLY PROPOSED PROJECTS
123 ADDITIONAL PROJECTS FROM PLANS
42 IMPROVED ACCESS POINTS

- XS, S Proposed Projects
- XS, S Projects from Plans*
- Potential Access Points to Upgrade
- Existing Access Points

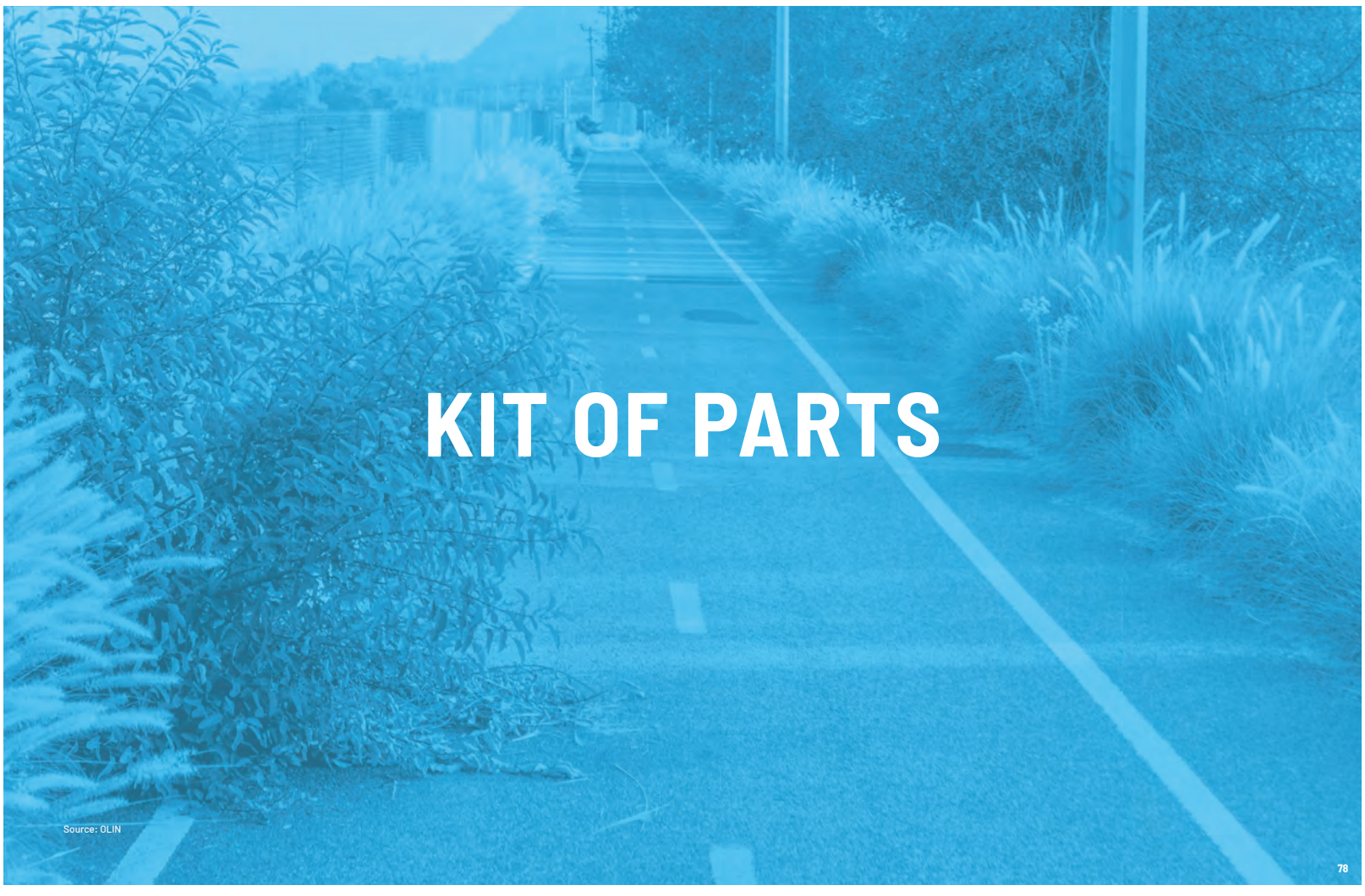
Source: OLIN, Gehry Partners, Geosyntec

*Plans referenced include Lower Los Angeles River Revitalization Plan, Los Angeles River Revitalization Master Plan, and Metro LA River Path Project

5 mi. N

SITES AND NEEDS

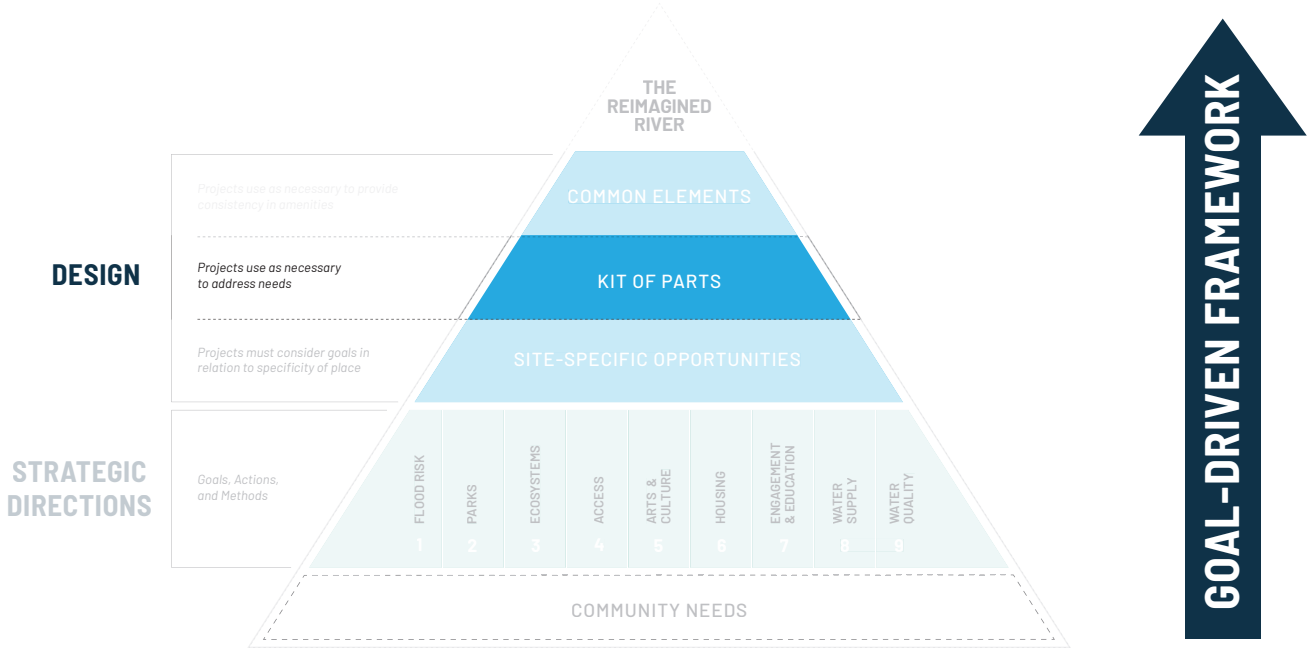
Sources: OLIN, Gehry Partners, Geosyntec



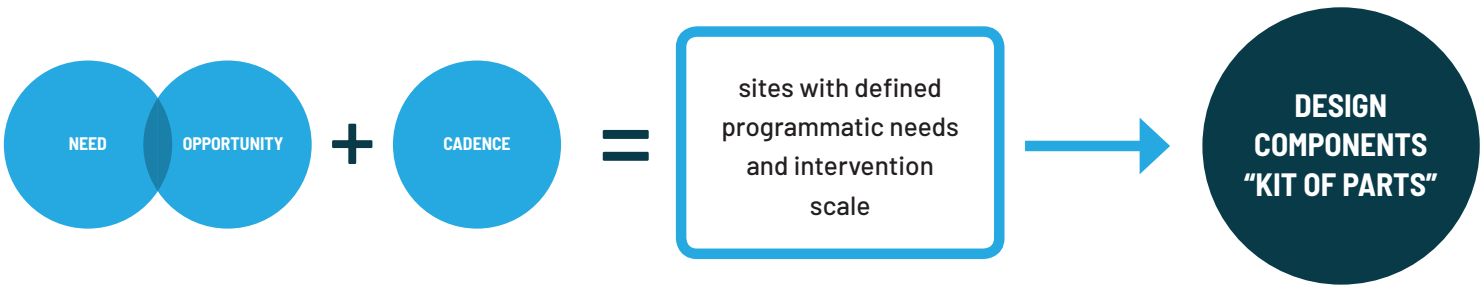
KIT OF PARTS

Source: OLIN

PROJECTS SHOULD BUILD UPON THE GOALS USING THE KIT OF PARTS AND COMMON ELEMENTS



GOAL-DRIVEN DESIGN FRAMEWORK



KIT OF PARTS: CATEGORIES & COMPONENTS

1 FLOODPLAIN RECLAMATION

- Wetland
- Naturalized Bank
- Braided Channel
- Field
- Recreation Field
- Storage (Surface: Reservoir, Lake, Pond)

2 CROSSINGS & PLATFORMS

- Pedestrian Bridge
- Bike Bridge
- Equestrian Bridge
- Multi-use Bridge
- Cantilever
- Platform

3 TRAILS & ACCESS GATEWAYS

- River Gateway
- Pedestrian Trail
- Bike Trail
- Equestrian Trail
- Equestrian Facility
- Multi-use Trail
- Common Elements
- Light Tower / Water Tower
- Lookout
- Boardwalk
- Channel Access
- Vehicular Access
- Underpass and Overpass
- Vegetated Buffer
- Habitat Corridor
- Swale, Rain Garden, BMP

4 CHANNEL MODIFICATIONS

- Terraced Bank
- Check Dam
- Deployable Barrier (Dam / Levee)
- Levee
- Armored Channel
- Storm Drain Daylighting
- Vertical Wall
- Reshape Low Flow
- Channel Smoothing
- Texturizing or Grooving
- Concrete Bottom
- Soft Bottom
- Sediment Removal / Vegetation Conversion
- Bridge Pier / Abutment Removal / Modification / Addition
- Access Ramp

5 DIVERSIONS

- Pump
- Diversion Pipe
- Diversion Channel
- Diversion Tunnel
- Overflow Weir
- Underground Gallery

6 OFF CHANNEL LAND ASSETS

- Urban Agriculture (Orchard, Farm, Nursery, Community Garden)
- Solar Power Generation & Storage
- Composting and Waste Management
- Natural Treatment System
- Wetland
- Recreation Field
- Storage (Surface: Reservoir, Lake, Pond)
- Storage (Subsurface: Reservoir, Cistern, Tank)
- Injection Well
- Mechanical Water Treatment Facility
- Purple Pipe Connection
- Gallery / Dry Well
- Spreading Ground
- Storm Drain Daylighting
- Affordable Housing
- Museum, Gallery, or Other Arts Installation or Institution

KIT OF PARTS: EXAMPLE

NEED	OPPORTUNITY	CADENCE (SCALE)	DESIGN COMPONENT
Flood risk reduction + Water quality + Habitat	Landside RM 11.5 Right bank (Vacant parcel, Publicly owned)	15 acres	Wetland

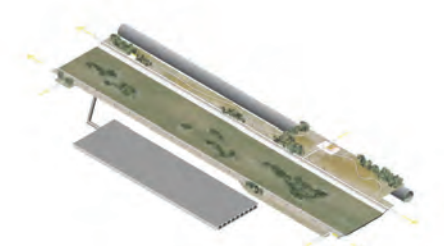
KIT OF PARTS: CATEGORIES-TRAPEZOIDAL CHANNEL

1 FLOODPLAIN RECLAMATION

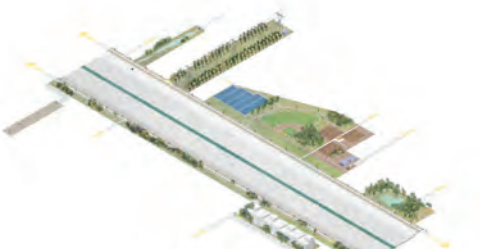
2 CROSSINGS & PLATFORMS

3 TRAILS & ACCESS GATEWAYS

4 CHANNEL MODIFICATIONS



5 DIVERSIONS



6 OFF CHANNEL LAND ASSETS

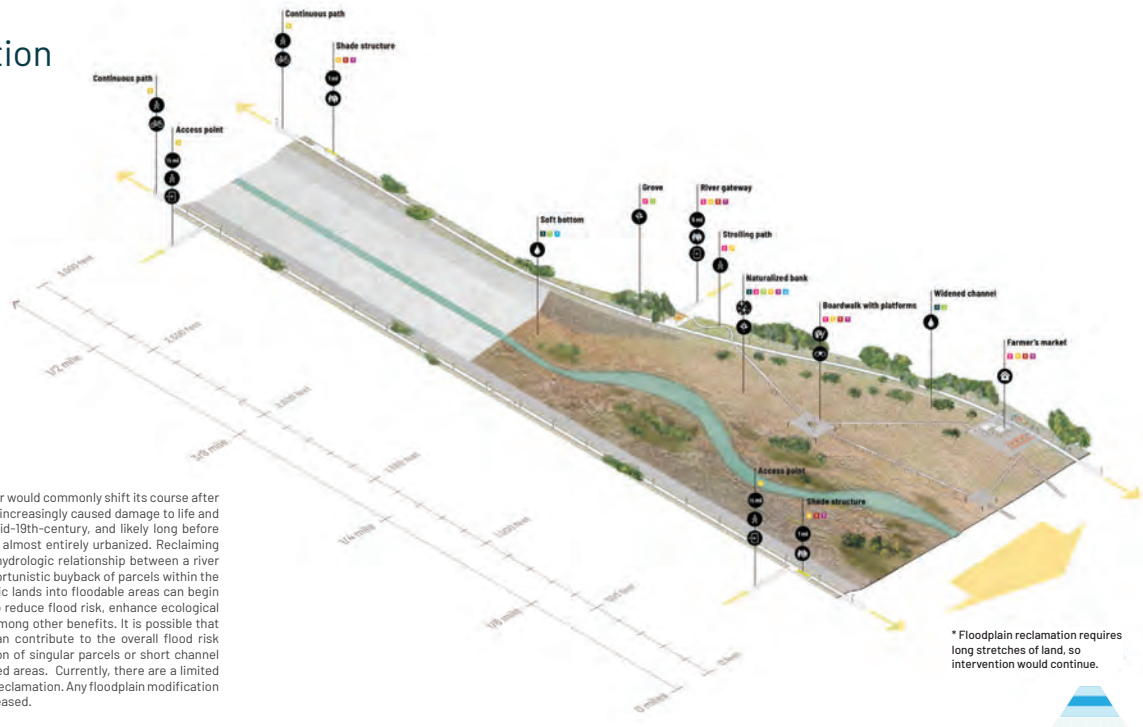
Source: OLIN, Gehry Partners, Geosyntec

KIT OF PARTS: CATEGORIES-TRAPEZOIDAL CHANNEL

Floodplain Reclamation

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
- ARTS & CULTURE
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY

Historically, the LA River had a vast floodplain and the river would commonly shift its course after major floods. As the area's population grew, these floods increasingly caused damage to life and property, and people altered the river as early as the mid-19th-century, and likely long before that. Currently, the historic floodplain of the LA River is almost entirely urbanized. Reclaiming the floodplain will create space for the river where the hydrologic relationship between a river and its floodplain can be reconnected. Strategic and opportunistic buyback of parcels within the floodplain or transitioning adjacent right of ways or public lands into floodable areas can begin to allow for this reconnection, which has the potential to reduce flood risk, enhance ecological function, create park space, and improve water quality among other benefits. It is possible that floodplain reclamation, if completed at large scales, can contribute to the overall flood risk reduction system, but it should be noted that reclamation of singular parcels or short channel lengths has the potential to increase flood risk in localized areas. Currently, there are a limited number of opportunities along the LA River for floodplain reclamation. Any floodplain modification requires hydraulic analysis to ensure flood risk is not increased.



* Floodplain reclamation requires long stretches of land, so intervention would continue.

Source: OLIN, Gehry Partners, Geosyntec

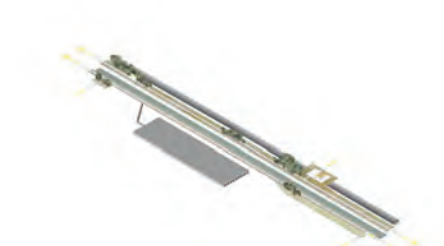
KIT OF PARTS: CATEGORIES-BOX CHANNEL

1 FLOODPLAIN RECLAMATION

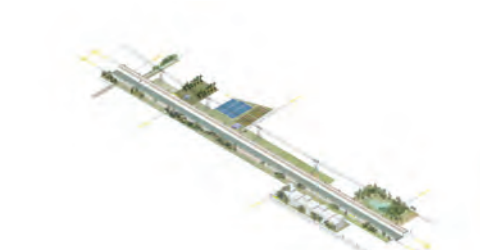
2 CROSSINGS & PLATFORMS

3 TRAILS & ACCESS GATEWAYS

4 CHANNEL MODIFICATIONS



5 DIVERSIONS



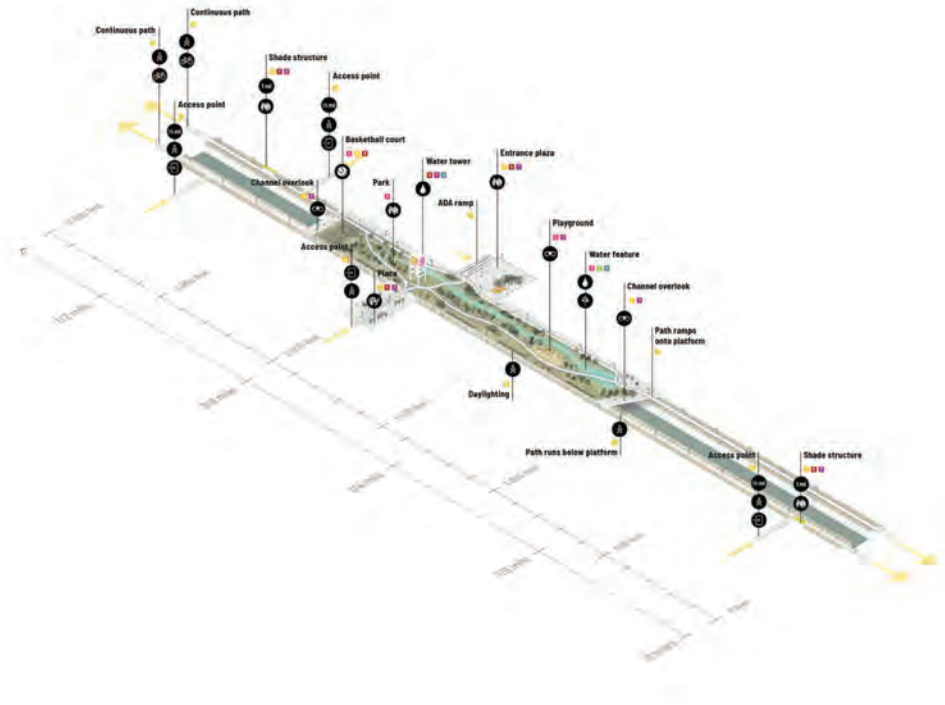
6 OFF CHANNEL LAND ASSETS

Source: OLIN, Gehry Partners, Geosyntec

KIT OF PARTS: CATEGORIES-BOX CHANNEL

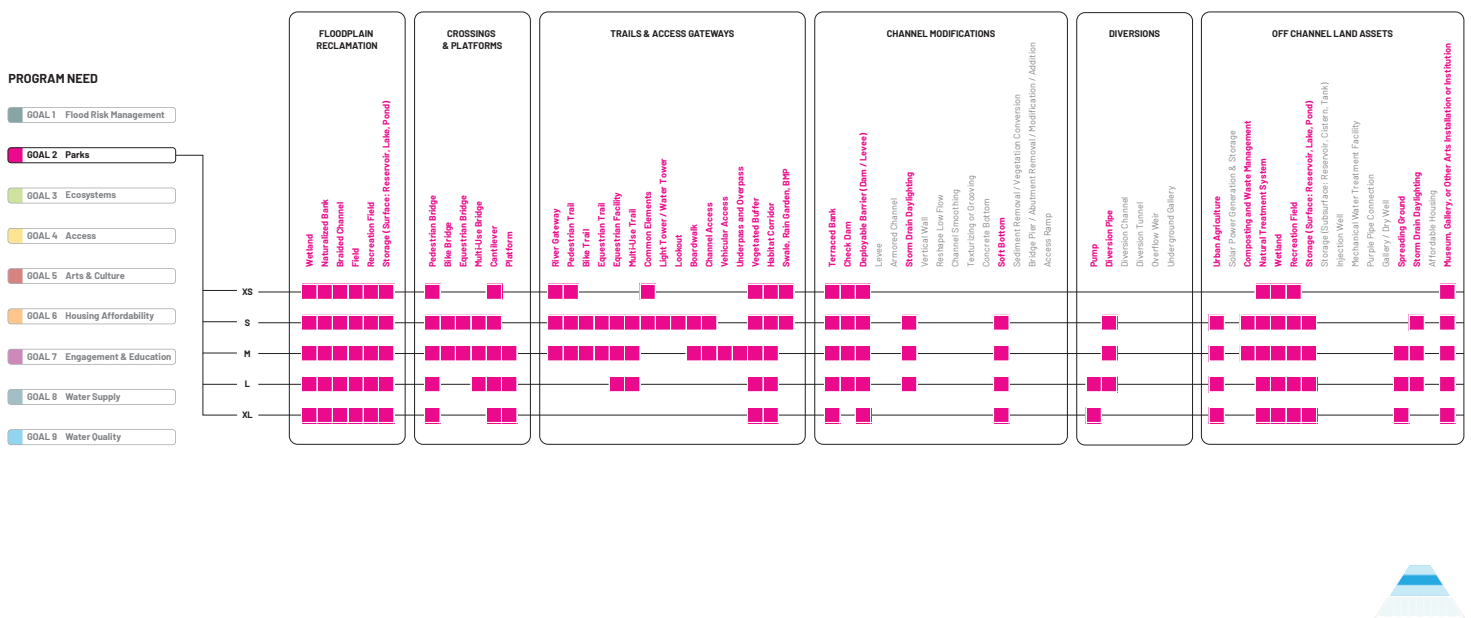
Crossings & Platforms

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
- ARTS & CULTURE
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY



Source: OLIN, Gehry Partners, Geosyntec

KIT OF PARTS FRAMEWORK

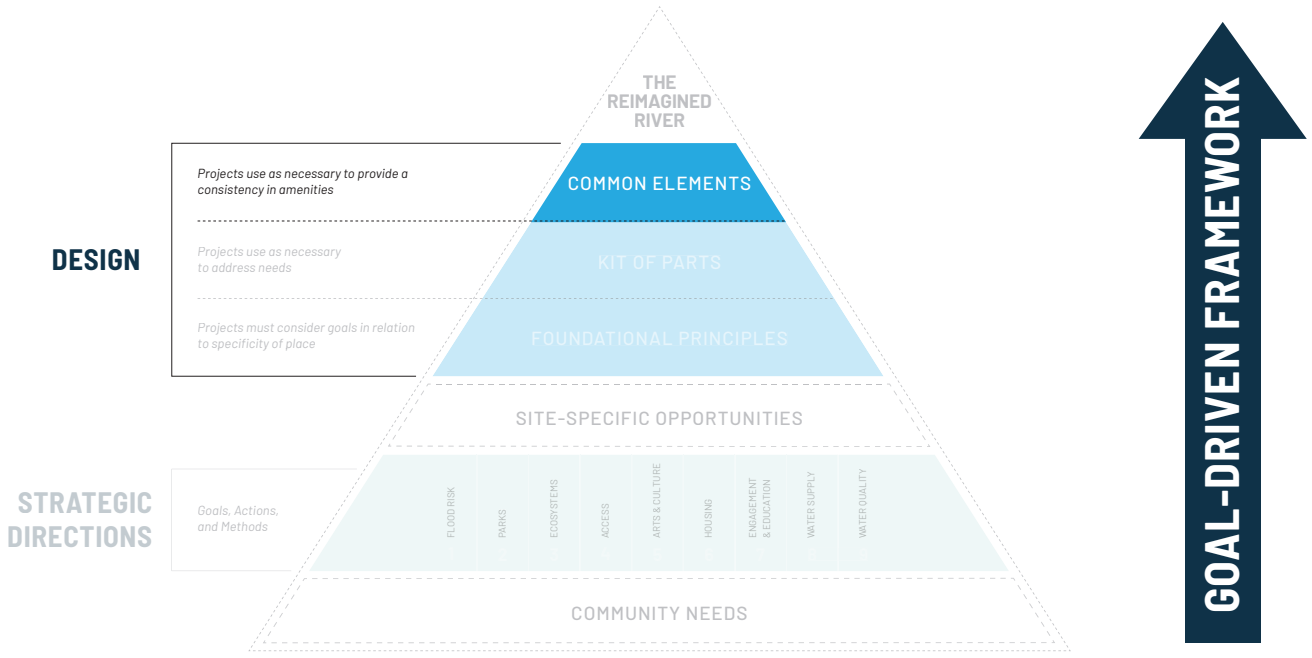


Source: OLIN, Gehry Partners, Geosyntec

COMMON ELEMENTS

Source: OLIN

PROJECTS SHOULD BUILD UPON THE GOALS USING THE KIT OF PARTS AND COMMON ELEMENTS



CURRENT COMMON ELEMENTS

Source: OLIN

CURRENT COMMON ELEMENTS

SEATING

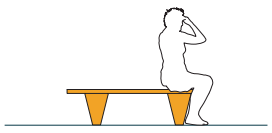
GUARDRAILS AND TRASH RECEPTACLE

ENVIRONMENTAL GRAPHICS

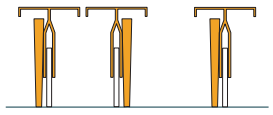
Source: OLIN

INVENTORY OF REPEATED COMMON ELEMENTS

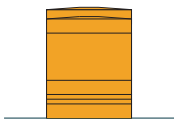
Developed under Design Guidelines



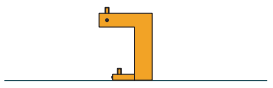
BENCHES



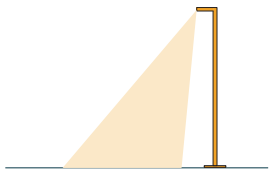
BIKE RACKS



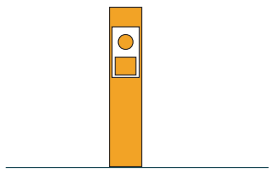
TRASH & RECYCLING



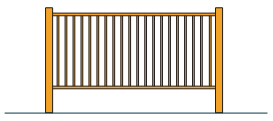
WATER FOUNTAINS



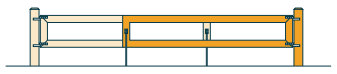
LIGHTING



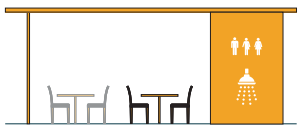
EMERGENCY CALL BOXES



GUARDRAILS



FENCES & GATES



PAVILIONS

HYGIENE FACILITIES

ART

ENVIRONMENTAL GRAPHICS

*Common elements are great opportunities to integrate art

Source: OLIN, Gehry Partners

TYPES OF ELEMENTS

BESPOKE

- Pavilions
- Art Installations
- Interpretive Signage
- Custom Furnishings

CONSISTENT

- Benches
- Light Fixtures
- Wayfinding

FACILITIES AND AMENITIES

River Pavilions and Cadence

SHADE PAVILION
Tier I (every .4-.6 mi)

- SHADED SEATING
- RIVER EDUCATION
- WATER FOUNTAIN
- EMERGENCY CALL BOX
- TRASH & RECYCLING

REST PAVILION
Tier II (every .8-1.2 mi)

TIER I COMPONENTS, PLUS:

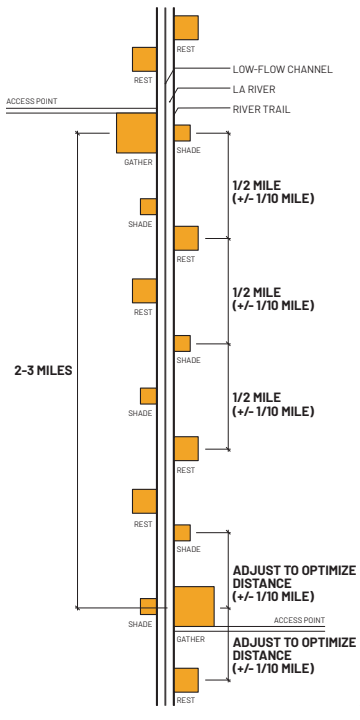
- BATHROOMS
- PICNIC AREA
- CHARGING STATION
- BICYCLE RACKS
- SNACK STATION
- RECREATION AREA OUTDOOR SHOWERS (OPTIONAL)

GATHERING PAVILION
Tier III (every 2-3 miles)

TIER I AND II COMPONENTS, PLUS ONE OR MORE OF THE FOLLOWING:

- BIKE RENTAL/REPAIR
- INDOOR LOCKER ROOM AND SHOWERS
- PUBLIC SAFETY STATION
- MULTI-PURPOSE COMMUNITY ROOM (OPTIONAL)
- COMMUNITY KITCHEN (OPTIONAL)
- SPORTS EQUIPMENT RENTAL (OPTIONAL)

TYPICAL CADENCE



Source: Gehry Partners, OLIN

PAVILION COMPONENTS

Shade Pavilion (Tier I) = A
Rest Pavilion (Tier II) = A+B
Gathering Pavilion (Tier III) = A+B+C

A COMPONENTS

- SHADED SEATING
- RIVER EDUCATION
- DRINKING FOUNTAIN
- EMERGENCY CALL BOX
- TRASH, RECYCLING, AND PET WASTE RECEPTACLES

B COMPONENTS

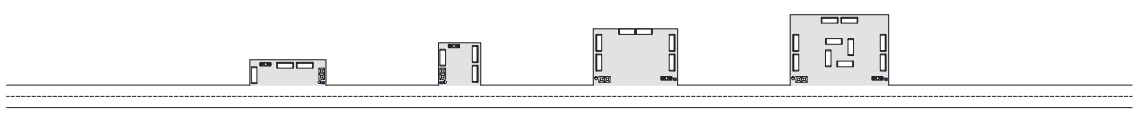
- CHARGING STATION
- BIKE RACK
- SNACK STATION
- PICNIC TABLE
- OUTDOOR SHOWER (ONLY IN RECREATION AREAS)
- BARBECUE
- SINGLE-OCCUPANCY RESTROOM
- MOTHER'S ROOM
- FAMILY RESTROOM

C COMPONENTS

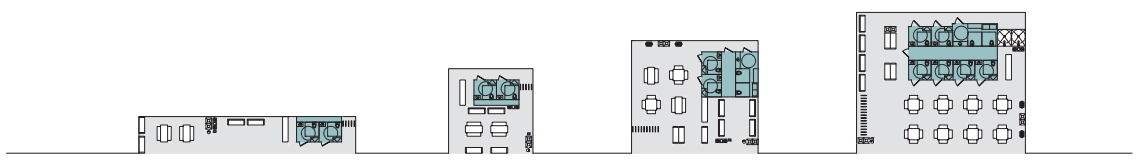
- PUBLIC SAFETY STATION
- LOCKER ROOM
- OFFICES
- CAFE
- BIKE RENTAL AND REPAIR
- SPORTS RENTAL
- MULTI-PURPOSE ROOM / COMMUNITY KITCHEN

Source: Gehry Partners, OLIN

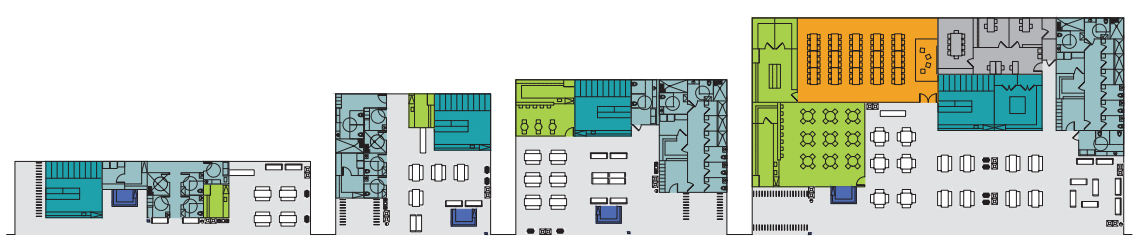
PAVILION CONFIGURATIONS



SHADE PAVILIONS (TIER I)



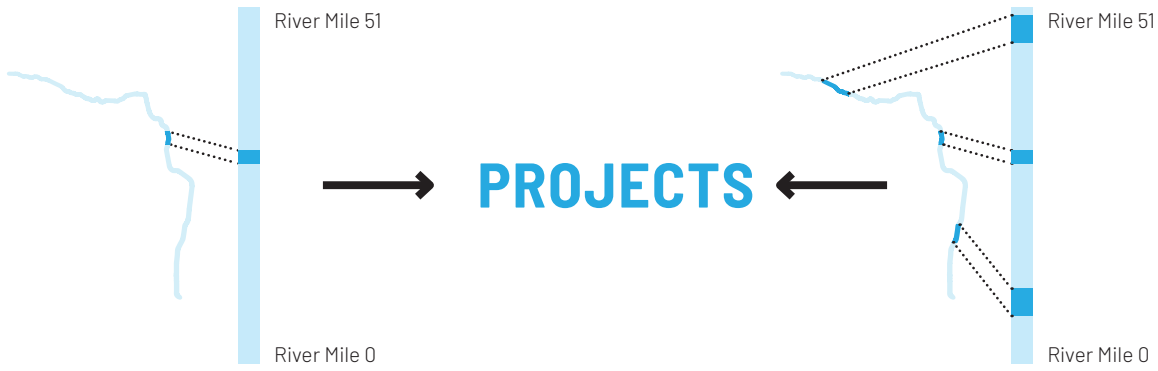
REST PAVILIONS (TIER II)



GATHERING PAVILIONS (TIER III)

Source: Gehry Partners, OLIN

PROJECTS CAN BE SITE OR SYSTEM-BASED



SITE-BASED

SYSTEM-BASED

PROJECT EXAMPLES

SYSTEM-BASED

XL
- LA River Trail
- 1% Flood Risk Reduction Areas
- Regional Groundwater Recharge
- Land Banking for Affordable and Permanent Supportive Housing

SITE-BASED

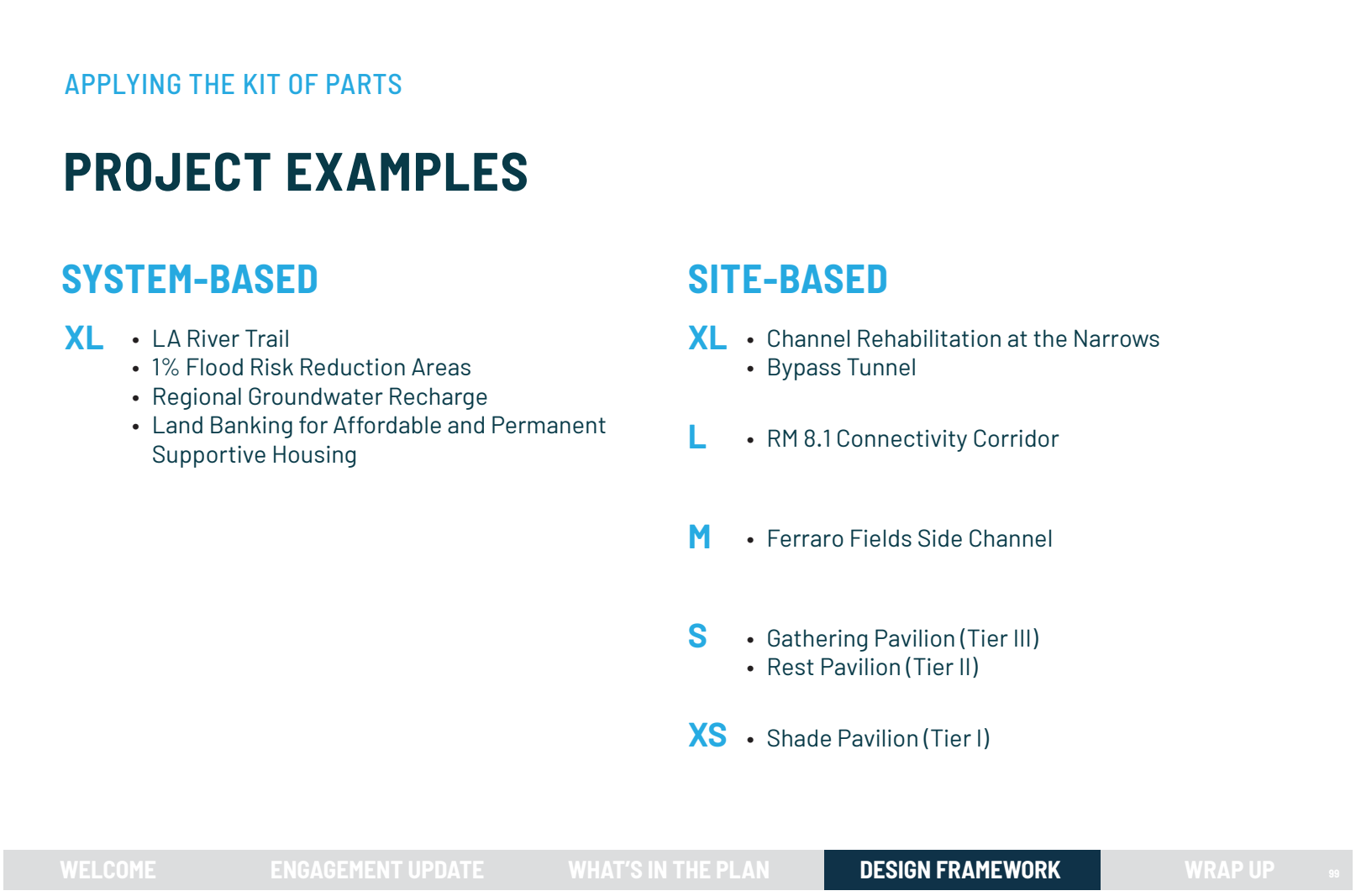
XL
- Channel Rehabilitation at the Narrows
- Bypass Tunnel

L
- RM 8.1 Connectivity Corridor

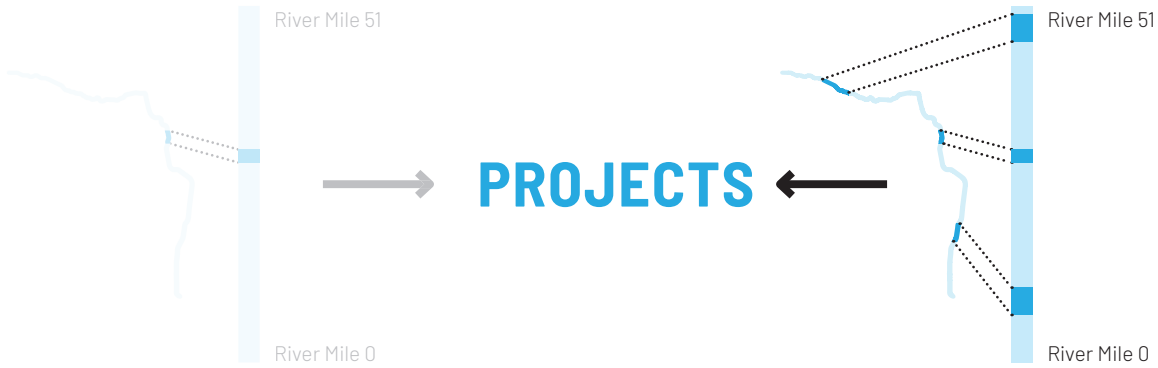
M
- Ferraro Fields Side Channel

S
- Gathering Pavilion (Tier III)
- Rest Pavilion (Tier II)

XS
- Shade Pavilion (Tier I)



SYSTEM-BASED PROJECTS ARE COMPRISED OF MANY SITES WORKING TOGETHER TO ADDRESS NEEDS WITH RIVER-WIDE IMPLICATIONS



PROJECT EXAMPLES

SYSTEM-BASED

XL
- LA River Trail
- 1% Flood Risk Reduction Areas
- Regional Groundwater Recharge
- Land Banking for Affordable and Permanent Supportive Housing

SITE-BASED

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- Bypass Tunnel

L
- RM 8.1 Connectivity Corridor

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- Ferraro Fields Side Channel

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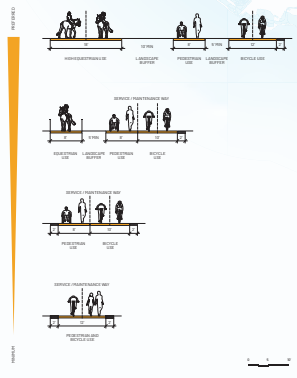
- Gathering Pavilion (Tier III)
- Rest Pavilion (Tier II)

XS
- Shade Pavilion (Tier I)

SYSTEM: 51-MILE RIVER TRAIL

Continuous trail and access points



— Existing LA River Trail
— Planned or Proposed LA River Trail

Source: OLIN, based on City of Los Angeles, LA River Greenway, LA River Access and Points of Interest, 2018

PROJECT EXAMPLES

SYSTEM-BASED

XL
- LA River Trail
- 1% Flood Risk Reduction Areas
- Regional Groundwater Recharge
- Land Banking for Affordable and Permanent Supportive Housing

SITE-BASED

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- Channel Rehabilitation at the Narrows
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- Rest Pavilion (Tier II)

XS
- Shade Pavilion (Tier I)

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

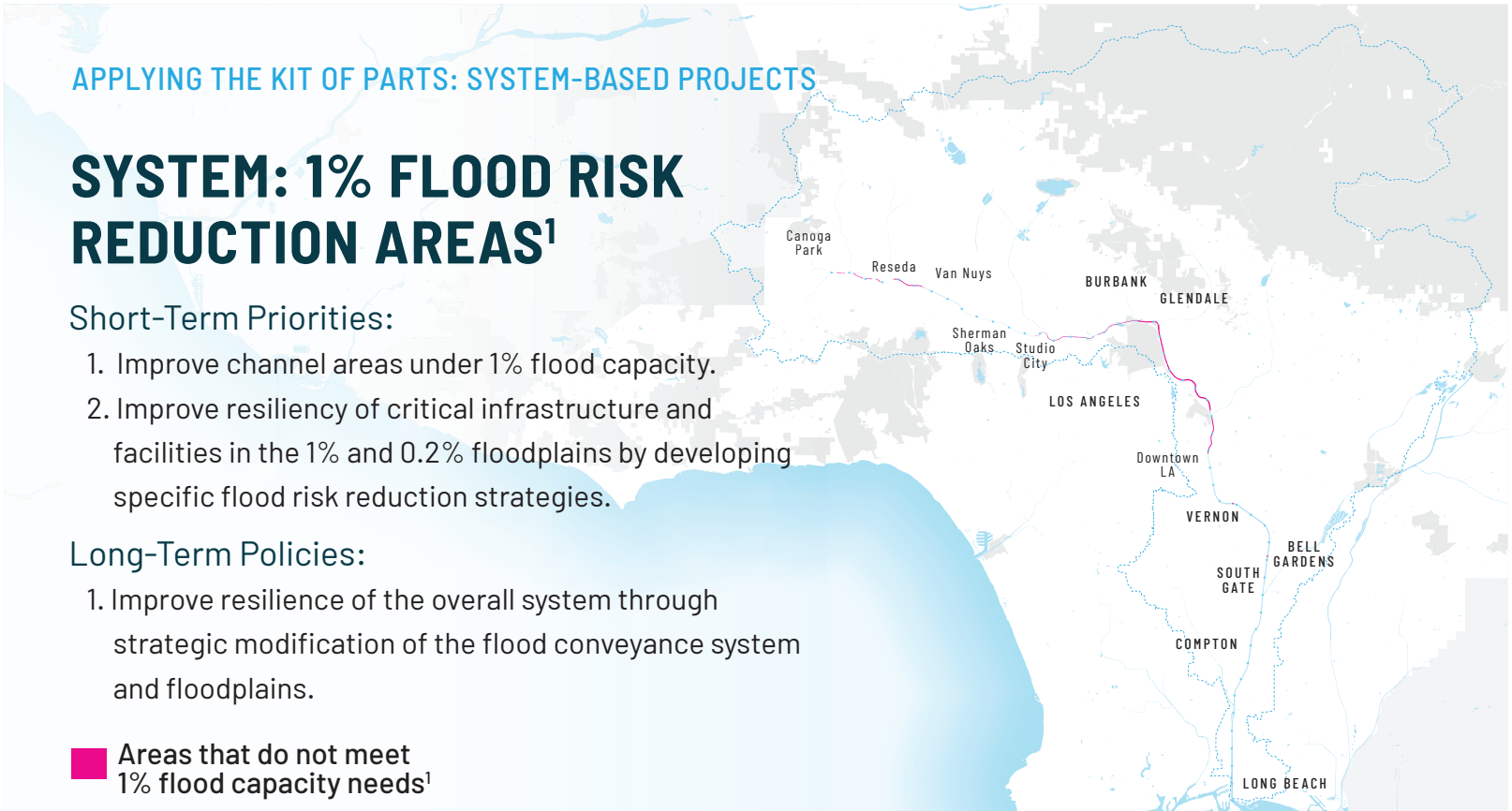
SYSTEM: 1% FLOOD RISK REDUCTION AREAS[1]

Short-Term Priorities:

1. Improve channel areas under 1% flood capacity.
2. Improve resiliency of critical infrastructure and facilities in the 1% and 0.2% floodplains by developing specific flood risk reduction strategies.

Long-Term Policies:

1. Improve resilience of the overall system through strategic modification of the flood conveyance system and floodplains.



Areas that do not meet 1% flood capacity needs[1]

Footnotes:
1. U.S. Army Corps of Engineers (USACE) Los Angeles District. 1996a, 1996b, 1997a, 1997b, and 1999. Los Angeles County Drainage Area Improvement Projects. Design Analysis Report and Design Memoranda; USACE Los Angeles District. 1991. Los Angeles County Drainage Area (LACDA): Review, Part I Hydrology Technical Report: Base Conditions; USACE: Los Angeles District. 2015. Los Angeles River Ecosystem Restoration Integrated Feasibility Report, Final Feasibility Report and Environmental Impact Statement/ Environmental Impact Report, Appendix E. Table 17: Original Design Discharge and Existing Channel Capacity; USACE. 1953. Design Memorandum No. 1 Hydrology for Los Angeles River Channel, Owensmouth Avenue to Sepulveda Flood Control Basin; Geosyntec analysis using HEC-RAS models (USACE Los Angeles District. 2005. Los Angeles County Drainage Area Upper Los Angeles River and Tujunga Wash HEC-RAS Hydraulic Models).

Source: Geosyntec, OLIN

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

PROJECT EXAMPLES

SYSTEM-BASED

XL
- LA River Trail
- 1% Flood Risk Reduction Areas
- Regional Groundwater Recharge
- Land Banking for Affordable and Permanent Supportive Housing

SITE-BASED

XL
- Channel Rehabilitation at the Narrows
- Bypass Tunnel

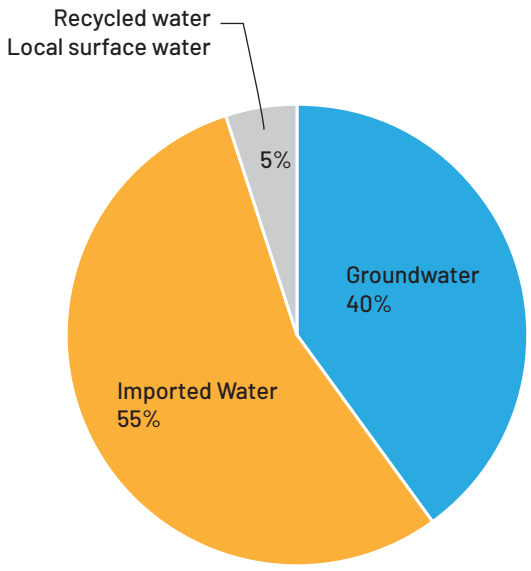
L
- RM 8.1 Connectivity Corridor

M
- Ferraro Fields Side Channel

S
- Gathering Pavilion (Tier III)
- Rest Pavilion (Tier II)

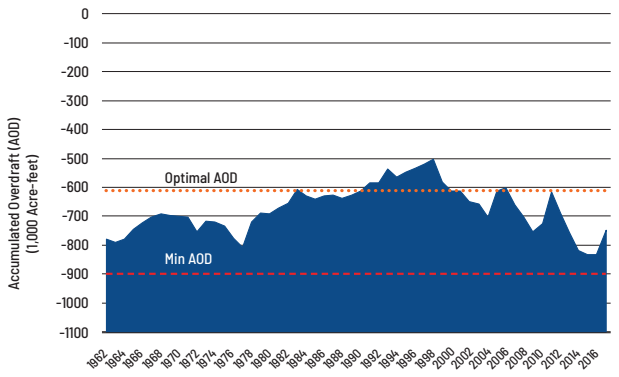
XS
- Shade Pavilion (Tier I)

SYSTEM: REGIONAL GROUNDWATER RECHARGE

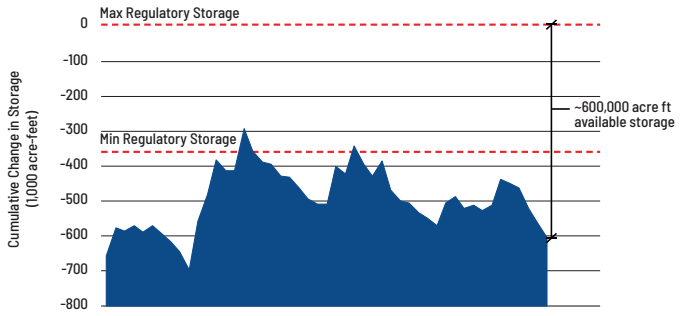


Supply portfolio of the greater Los Angeles Basin

Source: ULARA Annual WatermasterReport, 2015-16 Water Year, December 2017; WRD Engineering and Survey Report, 2018



Cumulative change in storage in the San Fernando Basin



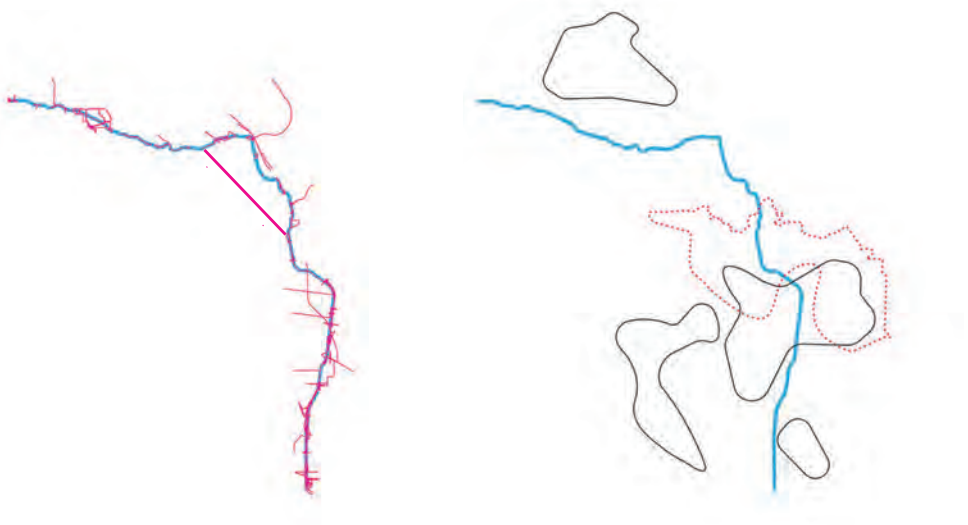
Accumulated Overdraft in the Central Basin and West Coast Basin

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

SYSTEM: REGIONAL GROUNDWATER RECHARGE

Projects along the river can help store water for groundwater recharge

- Capture and recharge flows in the upper watersheds
- Utilize parks and existing and proposed projects/infrastructure as storage
- Diversions from the channel for treatment and recharge can occur between River Miles (RM) 2-20
- Discharge treated brine back into channel for improved bird habitat and estuarine conditions below RM 7



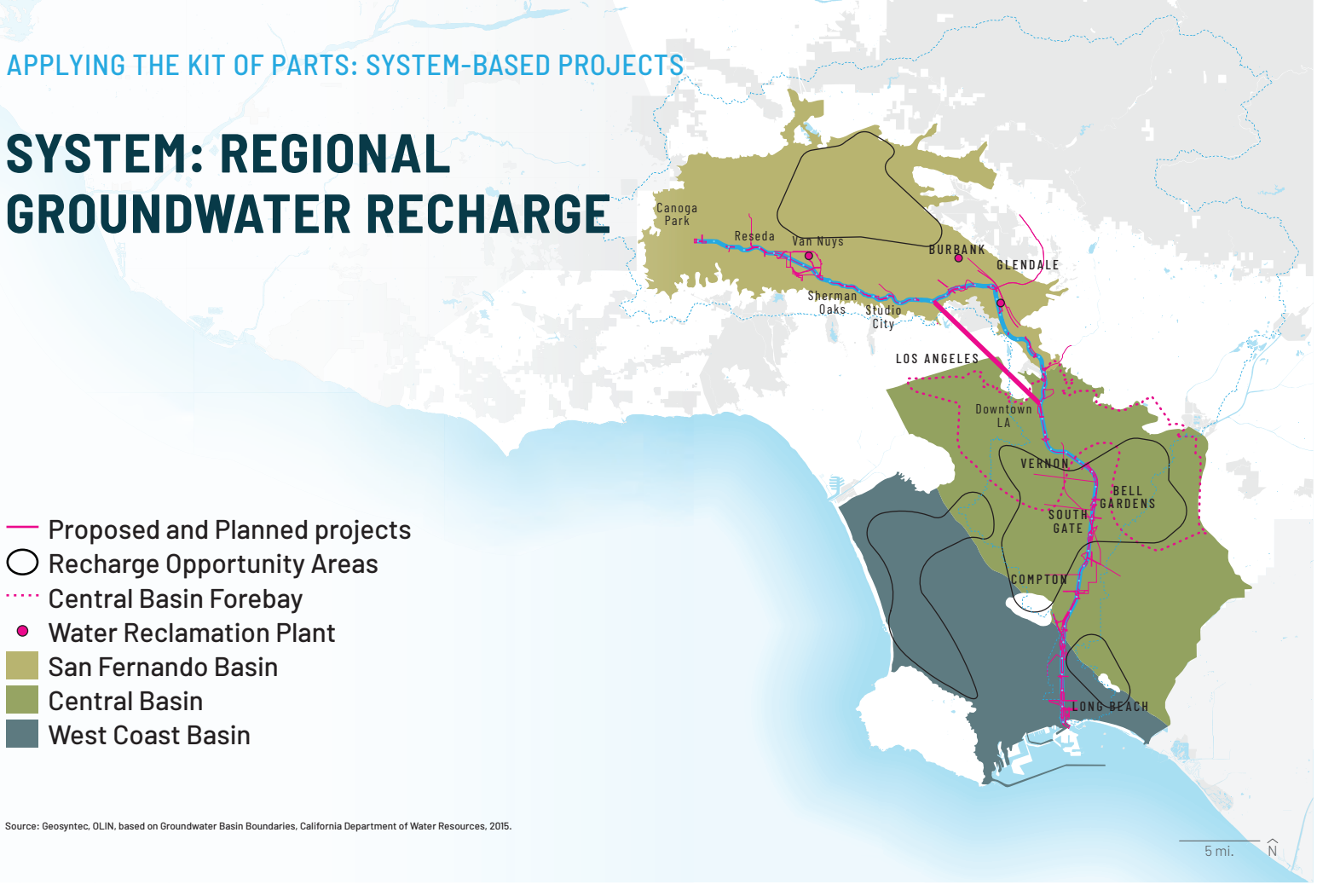
— Proposed and Planned projects
◯ Recharge Opportunity Areas
····· Central Basin Forebay

Projects along the LA River capture and store water → Recharge Opportunity Areas

Source: Geosyntec, OLIN, Gehry Partners

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

SYSTEM: REGIONAL GROUNDWATER RECHARGE



— Proposed and Planned projects
◯ Recharge Opportunity Areas
····· Central Basin Forebay
● Water Reclamation Plant
San Fernando Basin
Central Basin
West Coast Basin

Source: Geosyntec, OLIN, based on Groundwater Basin Boundaries, California Department of Water Resources, 2015.

PROJECT EXAMPLES

SYSTEM-BASED

XL
- LA River Trail
- 1% Flood Risk Reduction Areas
- Regional Groundwater Recharge
- Land Banking for Affordable and Permanent Supportive Housing

SITE-BASED

XL
- Channel Rehabilitation at the Narrows
- Bypass Tunnel

L
- RM 8.1 Connectivity Corridor

M
- Ferraro Fields Side Channel

S
- Gathering Pavilion (Tier III)
- Rest Pavilion (Tier II)

XS
- Shade Pavilion (Tier I)

SYSTEM: AFFORDABLE AND PERMANENT SUPPORTIVE HOUSING

**Identify opportunities for increasing affordable housing*

Source: OLIN, Gehry Partners

WITHIN 1 MILE OF THE LA RIVER, 38,100 HOUSEHOLDS ARE AT RISK

HOUSEHOLDS MAKING UNDER HALF THE AREA MEDIAN INCOME

Making under $35,000

→

38,100 AT-RISK HOUSEHOLDS

←

SEVERELY RENT-BURDENED HOUSEHOLDS

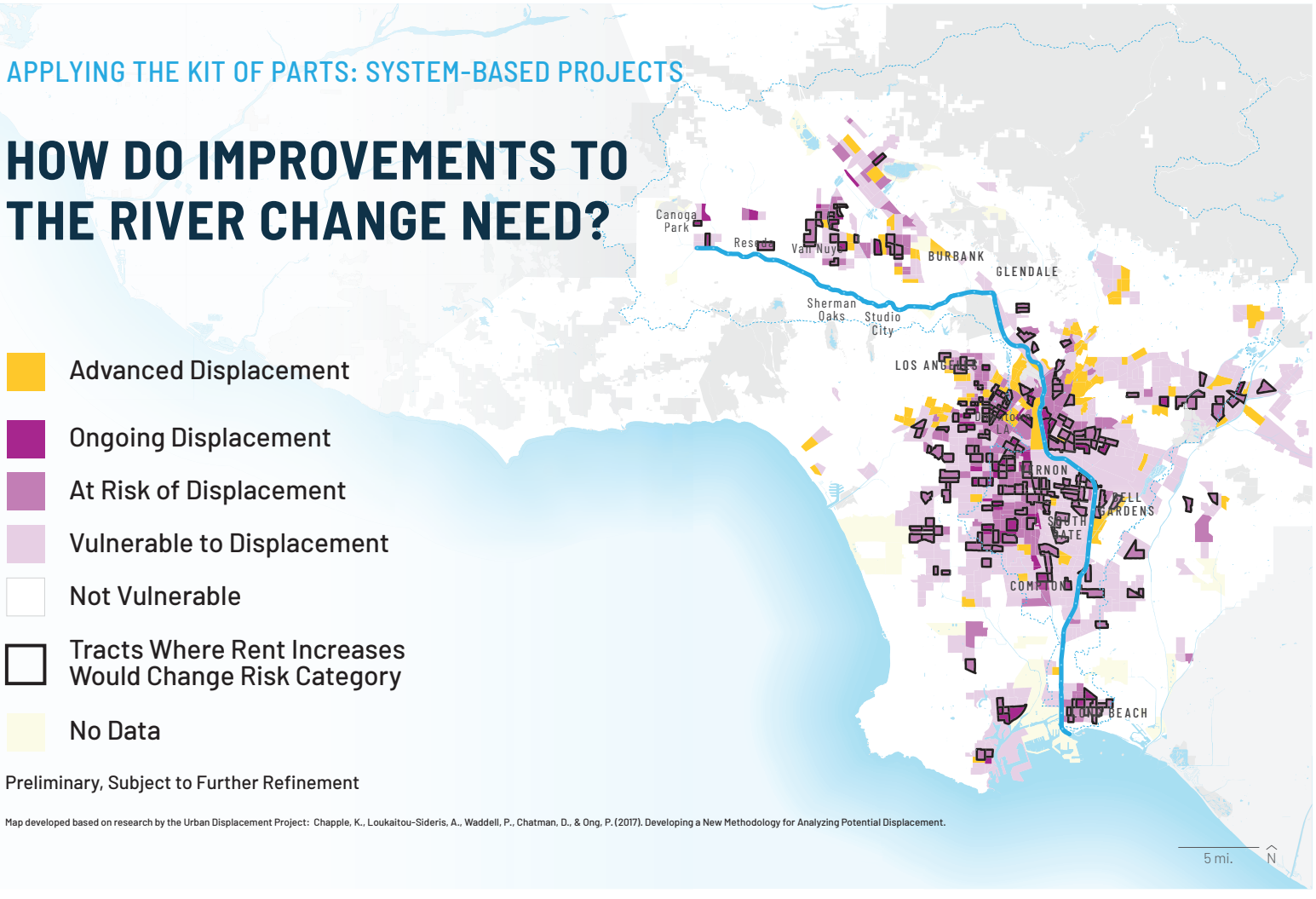
Spending more than 50% of income on rent

Source: U.S. Census Bureau 2012–2016 American Community Survey 5-Year Estimates

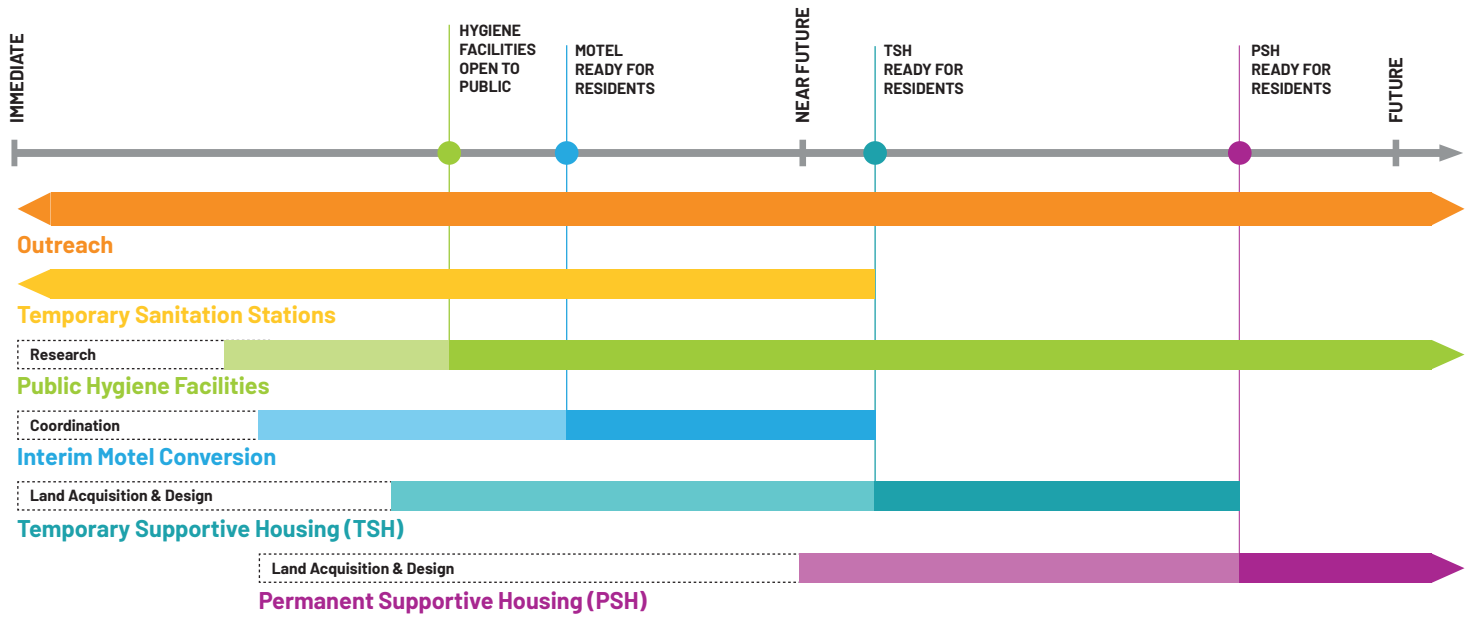
MEASURING DISPLACEMENT RISK

VULNERABLE TO DISPLACEMENT	AT RISK OF DISPLACEMENT	ONGOING DISPLACEMENT	ADVANCED DISPLACEMENT
Areas with a high share of vulnerable households	Low income areas with proven risk factors	Low income areas that are changing quickly	Not currently low income but getting whiter and more expensive
High Percentages of 3 of the Following:	**Vulnerable Plus 2 of the Following:**	• Low Income Area	**NOT a Low Income Area Plus Above Average Growth in:**
• Low-Income Households	• Nearby Rail Station	• Growing Population	• College-Educated Adults
• Non-College-Educated Adults	• High % Pre-1950 Buildings	• Loss of Lower Income Population	• White Population
• Renters	• High Employment Density	• Rents Rising Faster than County Average	• Median Income
• Non-White Households	• Rents Rising Faster than County Average		• Rents

HOW DO IMPROVEMENTS TO THE RIVER CHANGE NEED?



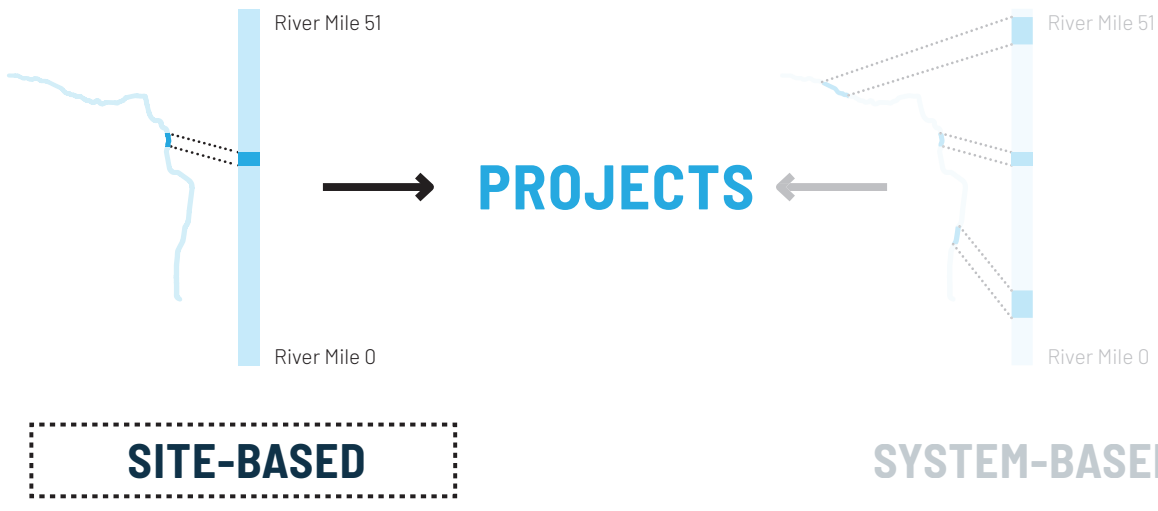
STEPS FOR HOMELESSNESS OUTREACH AND ESTABLISHMENT OF FACILITIES



SITE-BASED PROJECTS

Source: OLIN

SITE-BASED PROJECTS ARE GEOGRAPHICALLY SPECIFIC AND FOCUS ON NEEDS MOST IMMEDIATE TO THE PROJECT AREA



PROJECT EXAMPLES

SYSTEM-BASED

XL
- LA River Trail
- 1% Flood Risk Reduction Areas
- Regional Groundwater Recharge
- Land Banking for Affordable and Permanent Supportive Housing

SITE-BASED

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- Channel Rehabilitation at the Narrows
- Bypass Tunnel

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- RM 8.1 Connectivity Corridor

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- Ferraro Fields Side Channel

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- Gathering Pavilion (Tier III)
- Rest Pavilion (Tier II)

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- Shade Pavilion (Tier I)

PROJECT EXAMPLES

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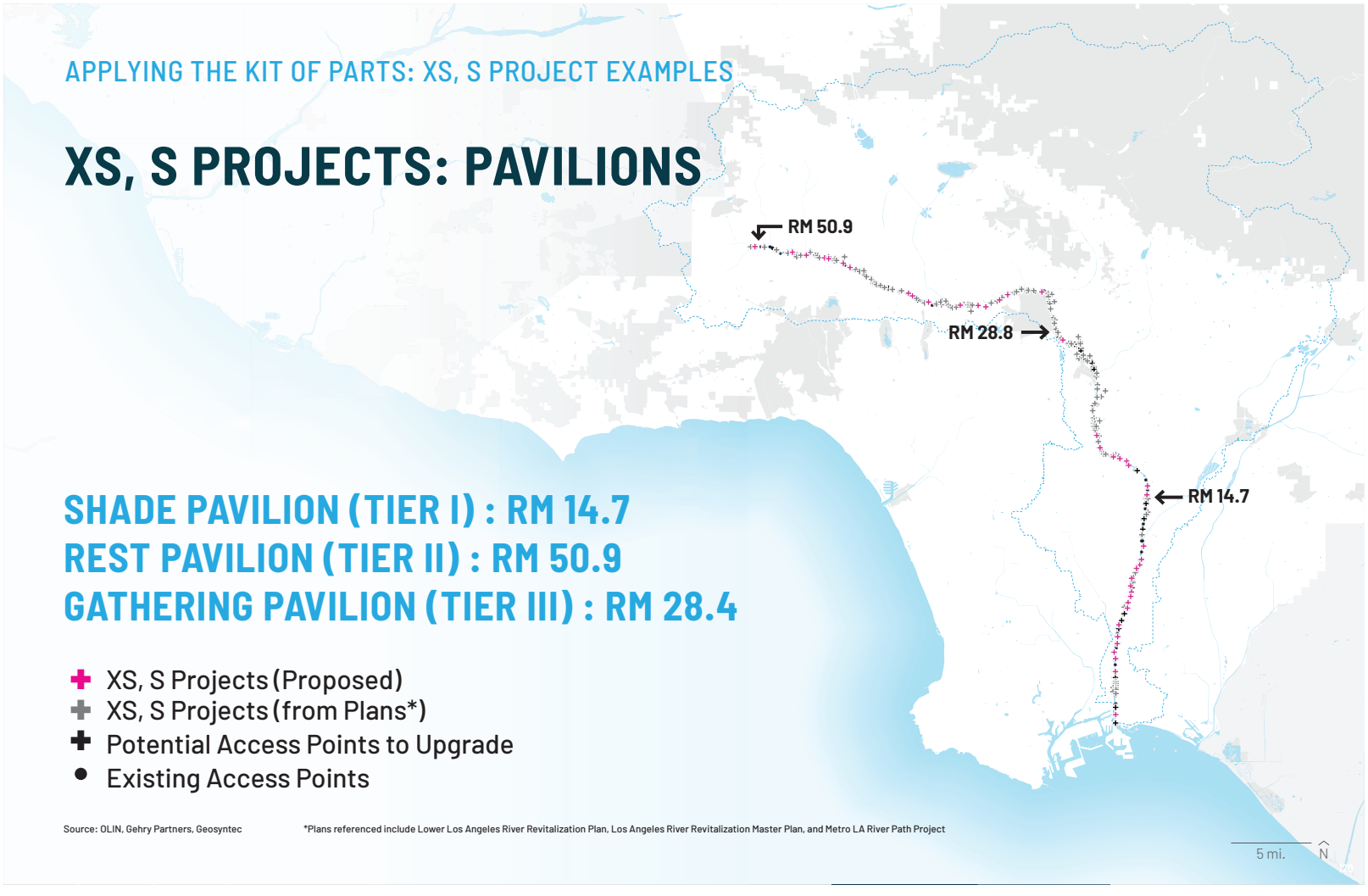
XS
- Shade Pavilion (Tier I)

XS, S PROJECTS: PAVILIONS



SHADE PAVILION (TIER I) : RM 14.7
REST PAVILION (TIER II) : RM 50.9
GATHERING PAVILION (TIER III) : RM 28.4

- XS, S Projects (Proposed)
- XS, S Projects (from Plans*)
- Potential Access Points to Upgrade
- Existing Access Points

Source: OLIN, Gehry Partners, Geosyntec

*Plans referenced include Lower Los Angeles River Revitalization Plan, Los Angeles River Revitalization Master Plan, and Metro LA River Path Project

SHADE PAVILION (TIER I): RM 14.7

PROJECT DESCRIPTION:

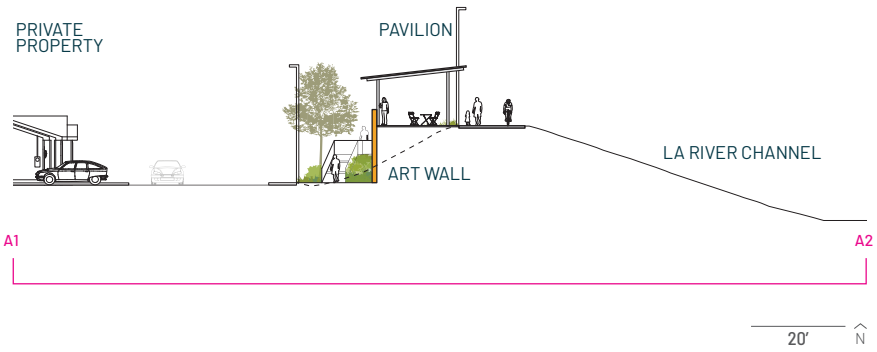
A typical lower river condition with a bike path on top of the levee and a tight and sloped landside area between a frontage street and the bike path.

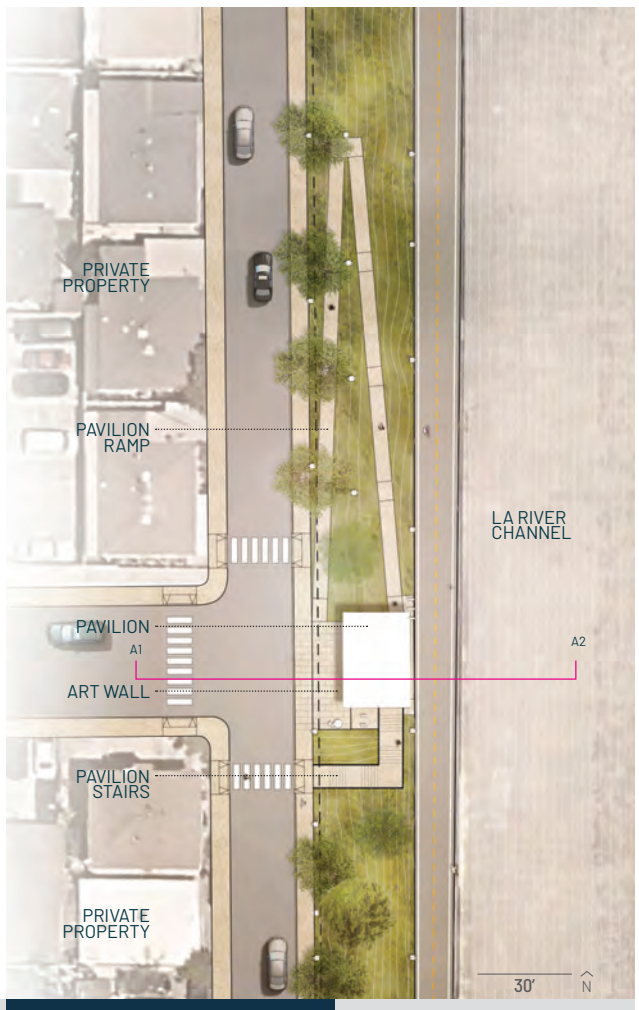
SHADE PAVILION (TYPICAL):

- Same grade as the bike path
- Where possible, centered on adjacent street-ends acting as signage, welcome, and art wall for the adjacent neighborhood
- Denotes an access point with parallel single switchback ramps and stairs added to get down to grade from the levee where needed

Source: OLIN

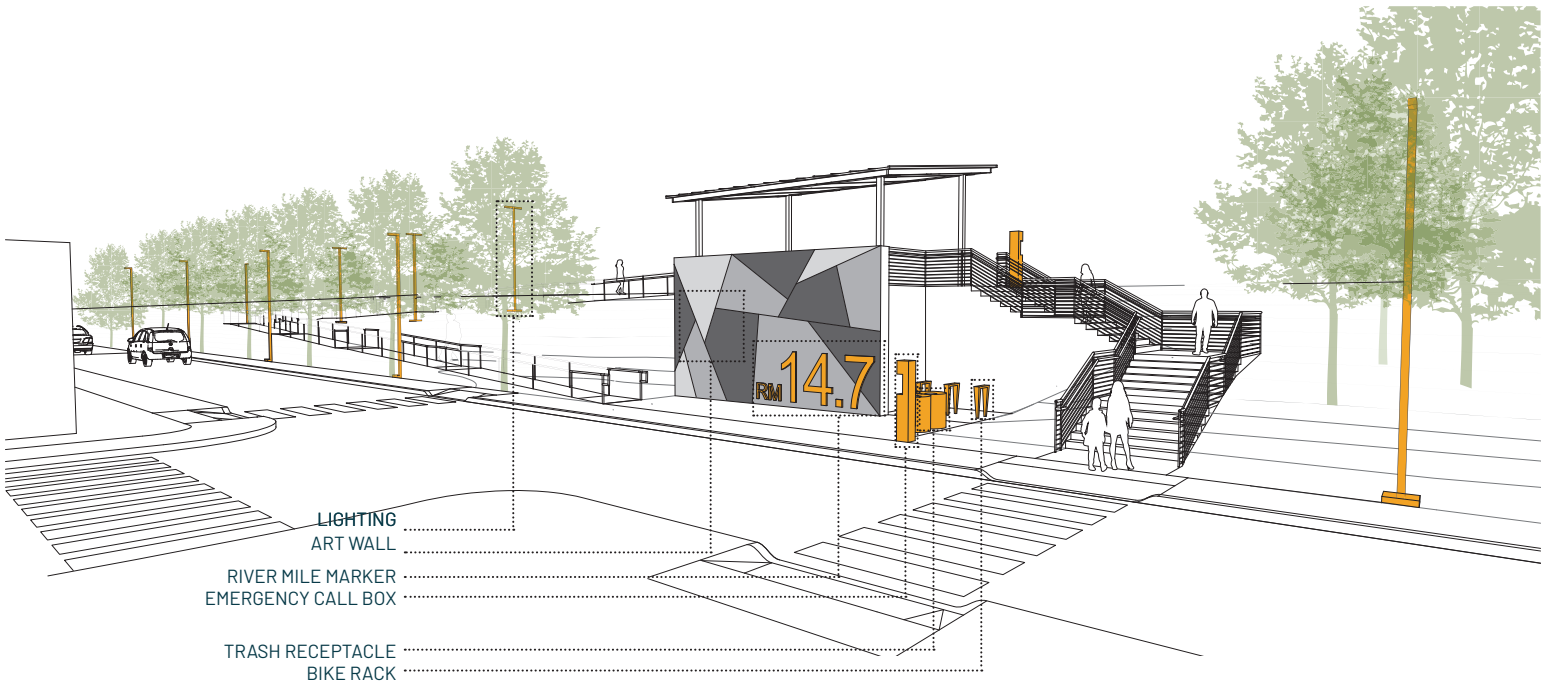
SHADE PAVILION (TIER I): RM 14.7





Source: OLIN

SHADE PAVILION (TIER I): RM 14.7



Source: OLIN

SHADE PAVILION (TIER I): RM 14.7

Source: OLIN

PROJECT EXAMPLES

SYSTEM-BASED

XL
- LA River Trail
- 1% Flood Risk Reduction Areas
- Regional Groundwater Recharge
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SITE-BASED

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- Channel Rehabilitation at the Narrows
- Bypass Tunnel

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- RM 8.1 Connectivity Corridor

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- Rest Pavilion (Tier II)

XS
- Shade Pavilion (Tier I)

REST PAVILION (TIER II): RM 50.9

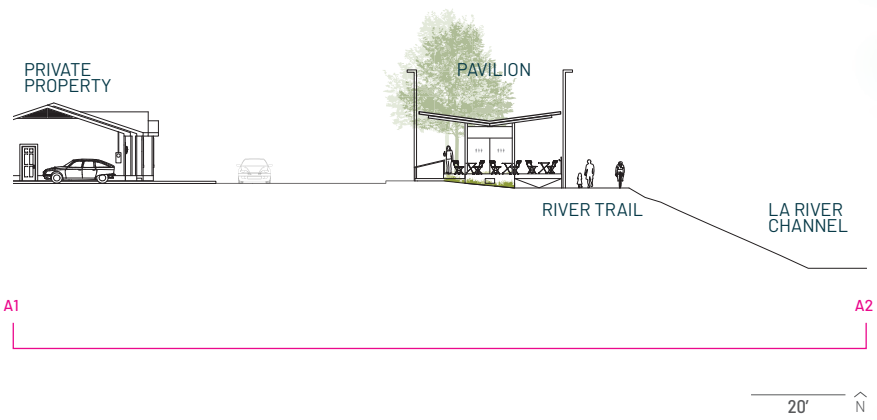
PROJECT DESCRIPTION:

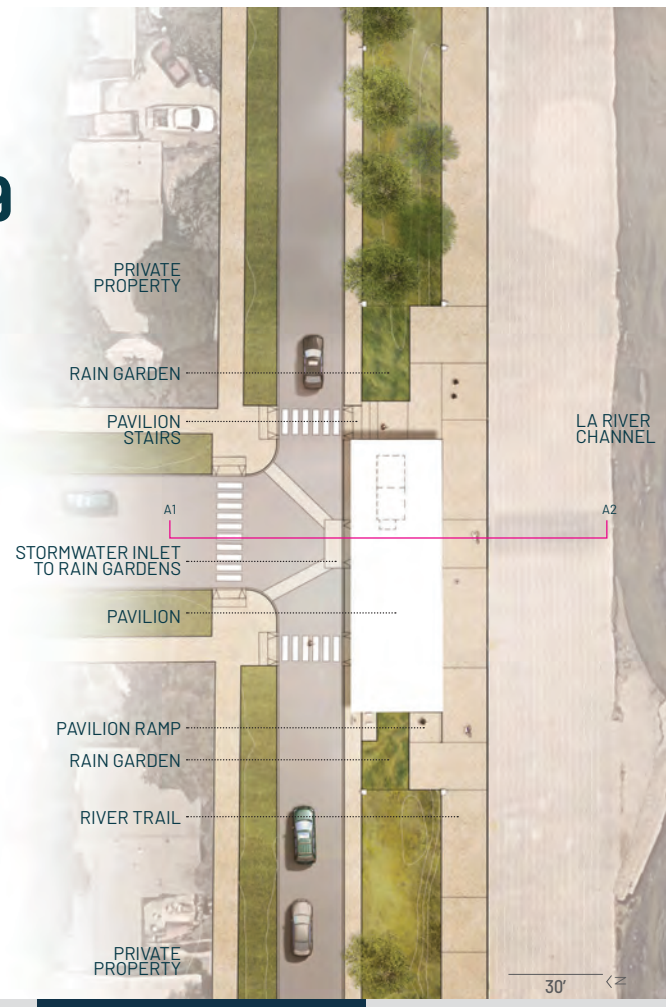
A typical upper river condition in the San Fernando Valley where a street terminates at the river's edge, sending local stormwater flow from the street directly in the river without providing access the adjacent community.

REST PAVILION (TYPICAL):
- Same grade as the bike path
- Where possible, centered on adjacent street-ends acting as signage, welcome, and art wall for the adjacent neighborhood
- Small grade separation provides a buffer between the bike path and the pavilion

Source: OLIN

REST PAVILION (TIER II): RM 50.9





Source: OLIN

REST PAVILION (TIER II): RM 50.9

Source: OLIN

REST PAVILION (TIER II): RM 50.9

Source: OLIN

GATHERING PAVILION (TIER III): RM 28.4

PROJECT DESCRIPTION:

A somewhat unique condition where the existing river trail bridges over a crossing road bridge with oversized piers. This site has the potential to add amenities along the river trail while improving connections to the adjacent community.

RIVER PAVILION A:

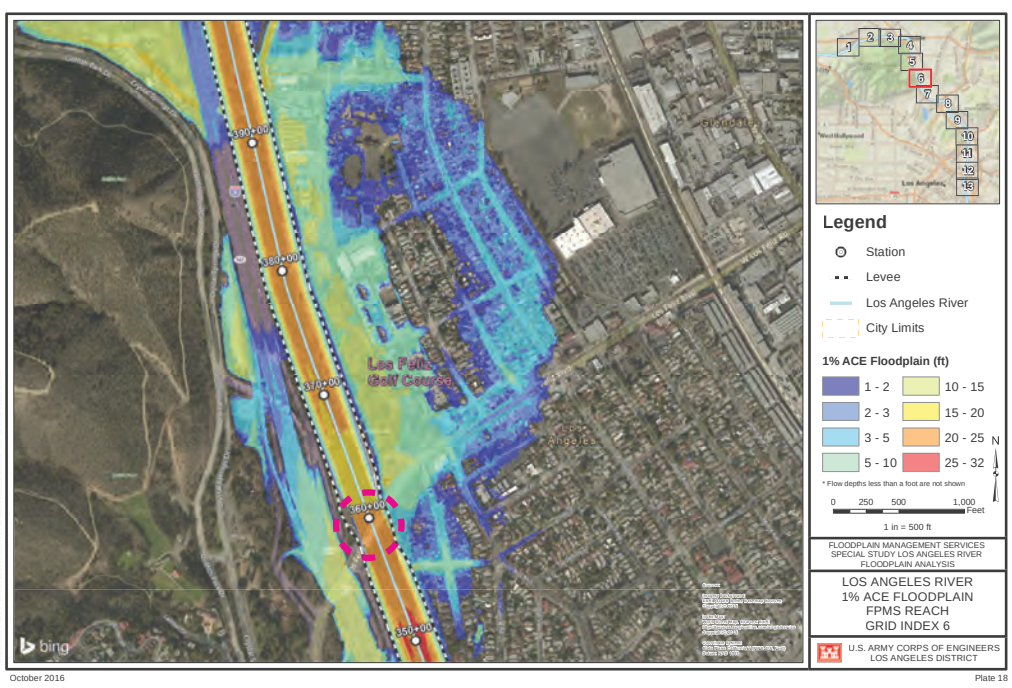
- Multiple pavilions around a central courtyard.
- Buildings shield bike path and courtyard space from adjacent highway on-ramp.

RIVER PAVILION B:

- Additional pavilion spans the bridge piers and the left river bank
- Creates a pedestrian river crossing adjacent to the busy Los Feliz Bridge

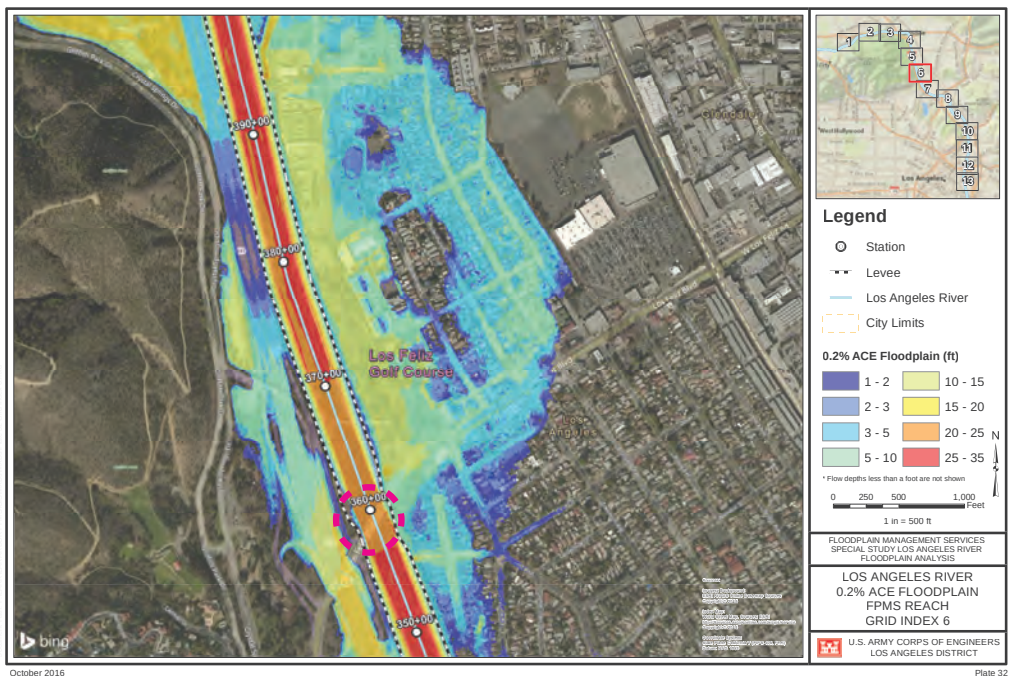
Source: OLIN

USACE ARBOR STUDY 1% FLOOD MAP



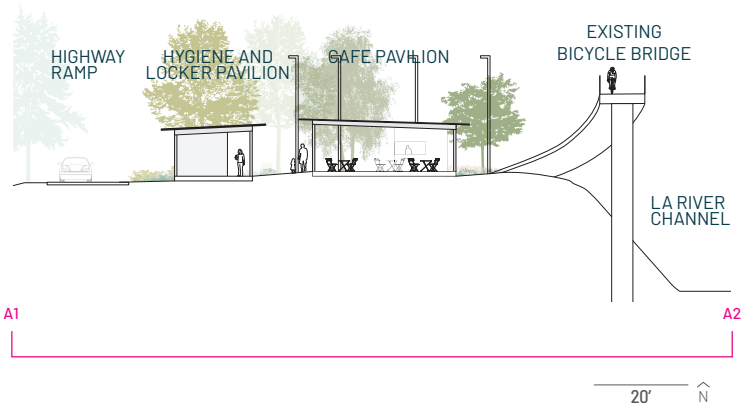
Source: USACE "LA River FPMS Hydraulic Report_FINAL_Plate 18," October 2016

USACE ARBOR STUDY 0.2% FLOOD MAP



Source: USACE "LA River FPMS Hydraulic Report_FINAL_Plate 18," October 2016

GATHERING PAVILION (TIER III-A): RM 28.4



Source: OLIN

GATHERING PAVILION (TIER III-A): RM 28.4

Source: OLIN

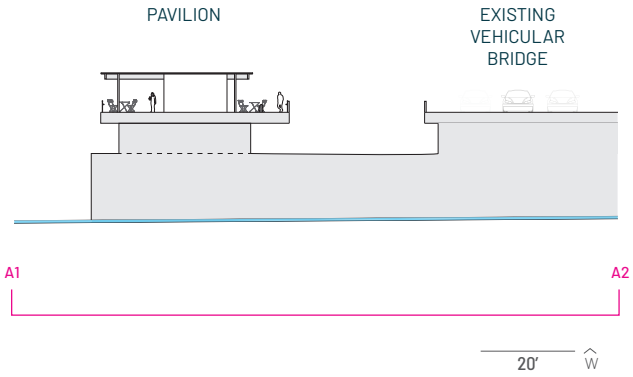
GATHERING PAVILION (TIER III-A): RM 28.4

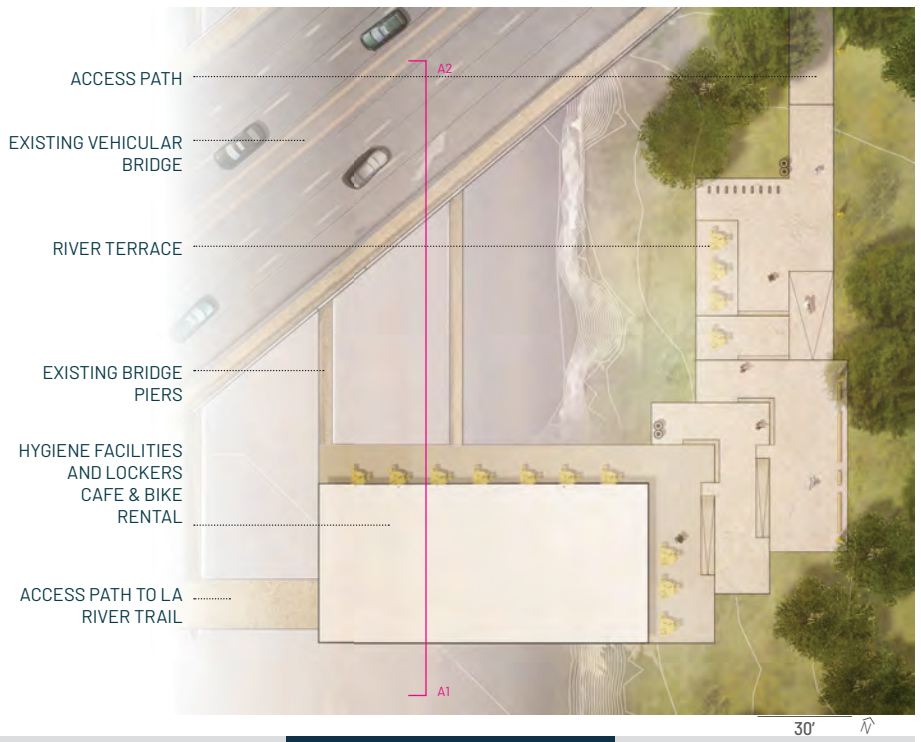
Source: OLIN

GATHERING PAVILION (TIER III-B): RM 28.4

Source: OLIN

GATHERING PAVILION (TIER III-B): RM 28.4





Source: OLIN

GATHERING PAVILION (TIER III-B): RM 28.4

Source: OLIN

PROJECT EXAMPLES

SYSTEM-BASED

XL
- LA River Trail
- 1% Flood Risk Reduction Areas
- Regional Groundwater Recharge
- Land Banking for Affordable and Permanent Supportive Housing

SITE-BASED

XL
- Channel Rehabilitation at the Narrows
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M
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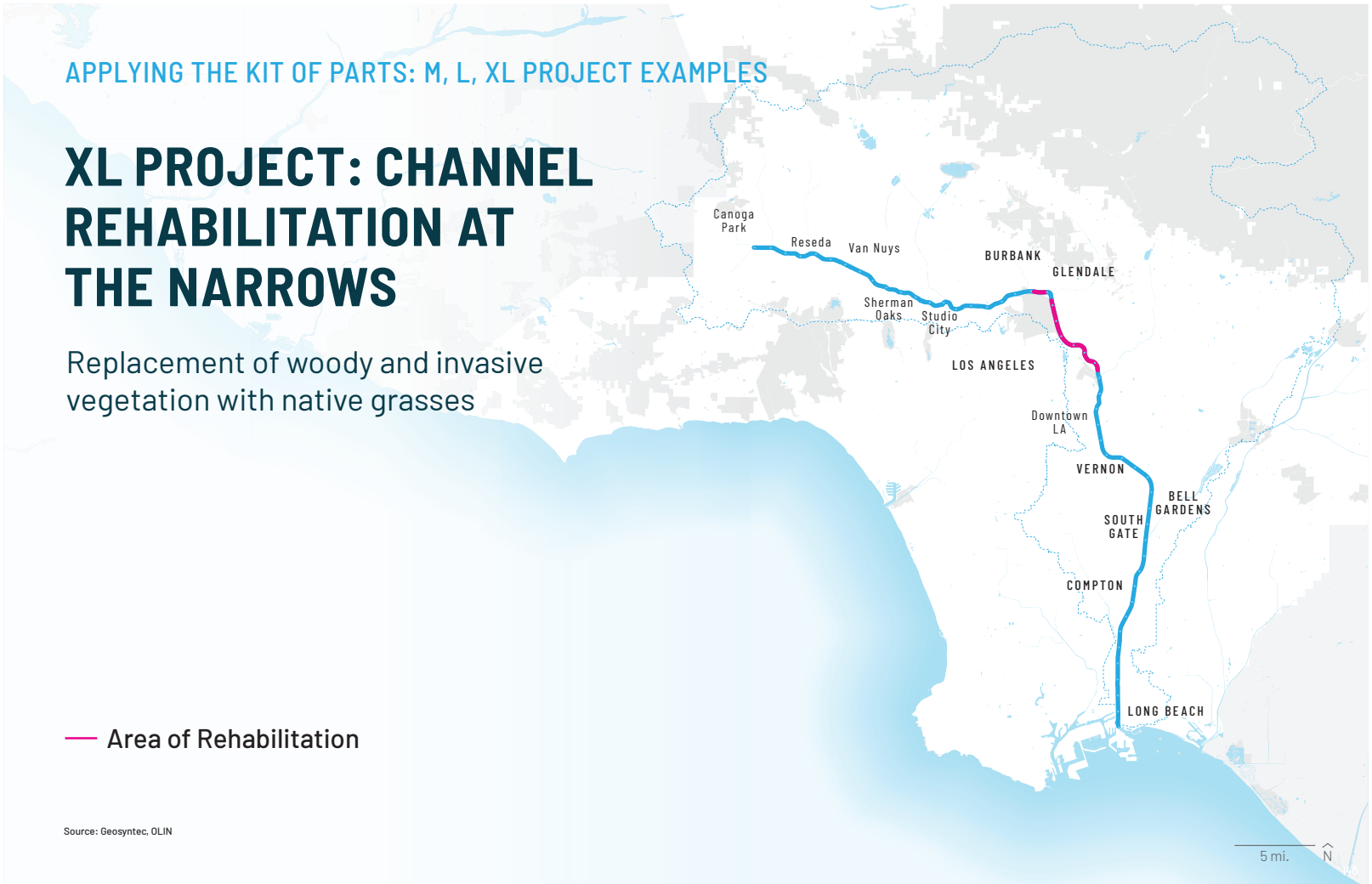
XL PROJECT: CHANNEL REHABILITATION AT THE NARROWS

Replacement of woody and invasive vegetation with native grasses

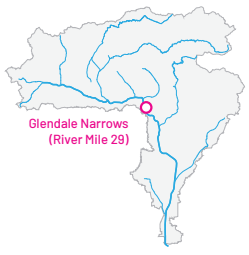


— Area of Rehabilitation

Source: Geosyntec, OLIN

APPLYING THE KIT OF PARTS: M, L, XL PROJECT EXAMPLES

XL PROJECT: CHANNEL REHABILITATION AT THE NARROWS



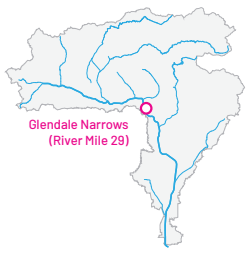
Existing Section: **34,700 cfs capacity**
n = 0.06 (Manning's Equation roughness)

Alternative Section: **78,000 cfs capacity**
n = 0.03 (Manning's Equation roughness)

Source: Geosyntec, OLIN

APPLYING THE KIT OF PARTS: M, L, XL PROJECT EXAMPLES

XL PROJECT: CHANNEL REHABILITATION AT THE NARROWS



Existing Section: **34,700 cfs capacity**
n = 0.06 (Manning's Equation roughness)

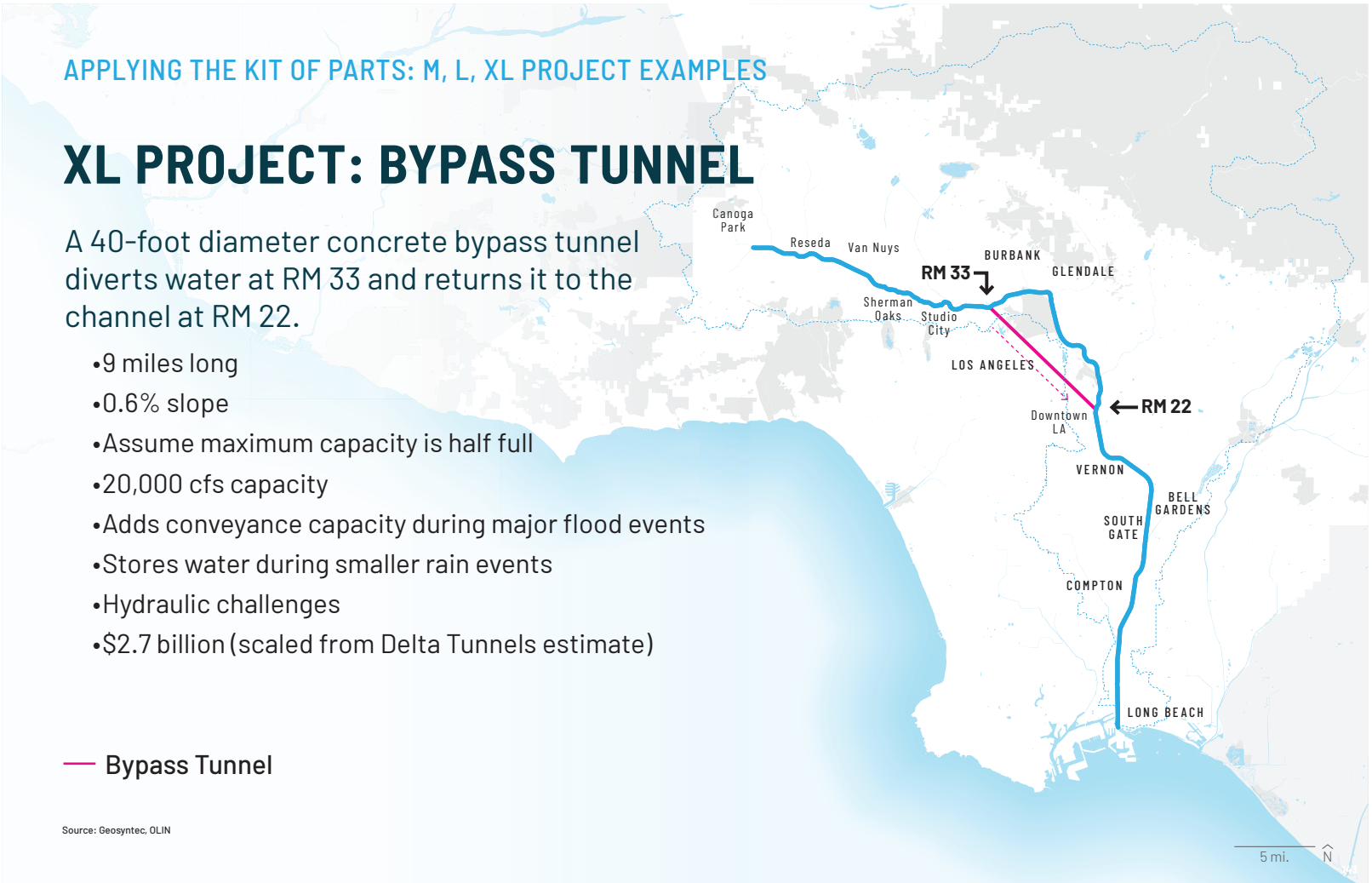
Alternative Section: **78,000 cfs capacity**
n = 0.03 (Manning's Equation roughness)

Source: Geosyntec, OLIN

XL PROJECT: BYPASS TUNNEL

A 40-foot diameter concrete bypass tunnel diverts water at RM 33 and returns it to the channel at RM 22.

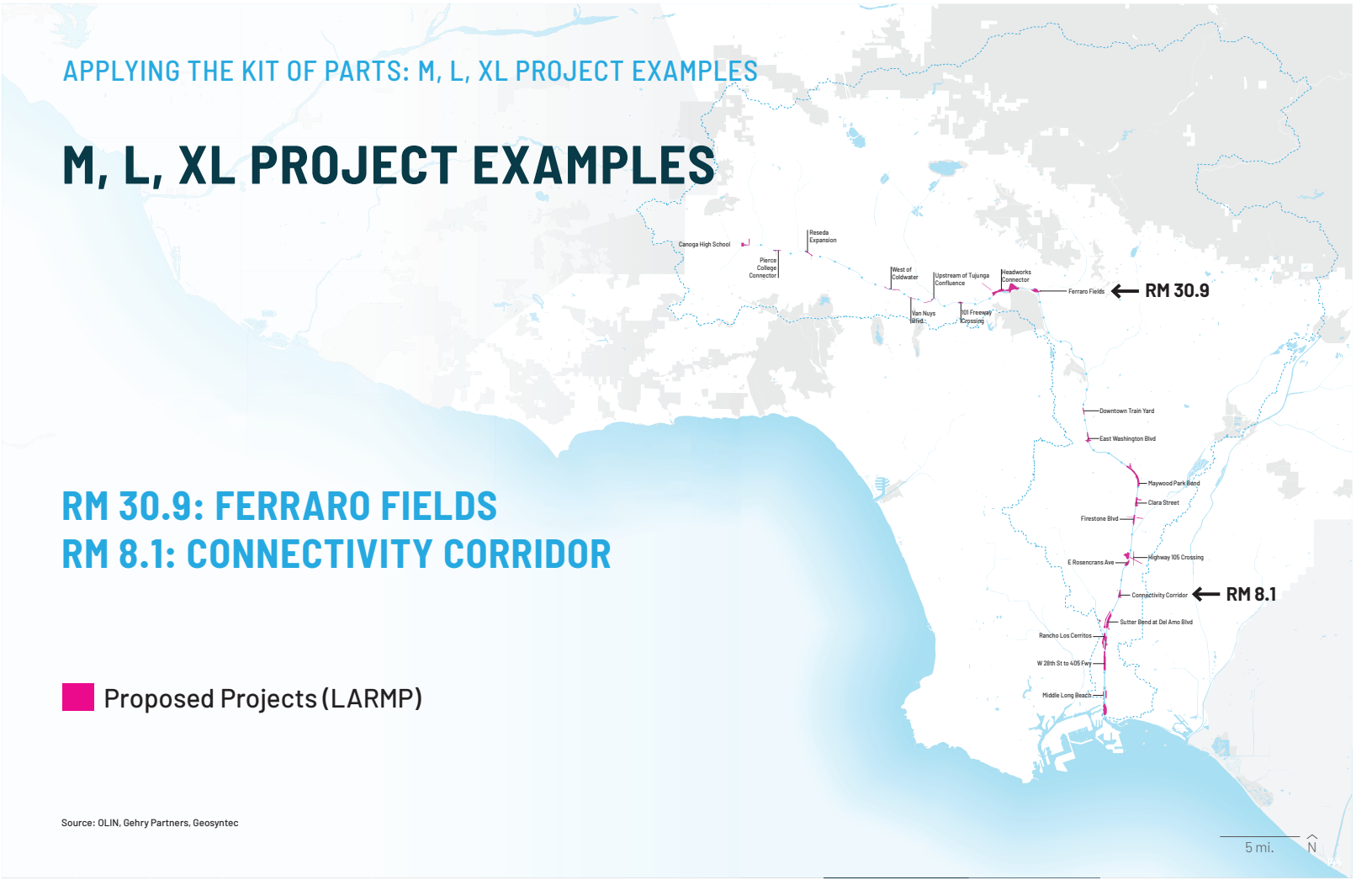
- 9 miles long
- 0.6% slope
- Assume maximum capacity is half full
- 20,000 cfs capacity
- Adds conveyance capacity during major flood events
- Stores water during smaller rain events
- Hydraulic challenges
- $2.7 billion (scaled from Delta Tunnels estimate)



APPLYING THE KIT OF PARTS: M, L, XL PROJECT EXAMPLES

M, L, XL PROJECT EXAMPLES

RM 30.9: FERRARO FIELDS
RM 8.1: CONNECTIVITY CORRIDOR



APPLYING THE KIT OF PARTS: M, L, XL PROJECT EXAMPLES

PROJECT EXAMPLES

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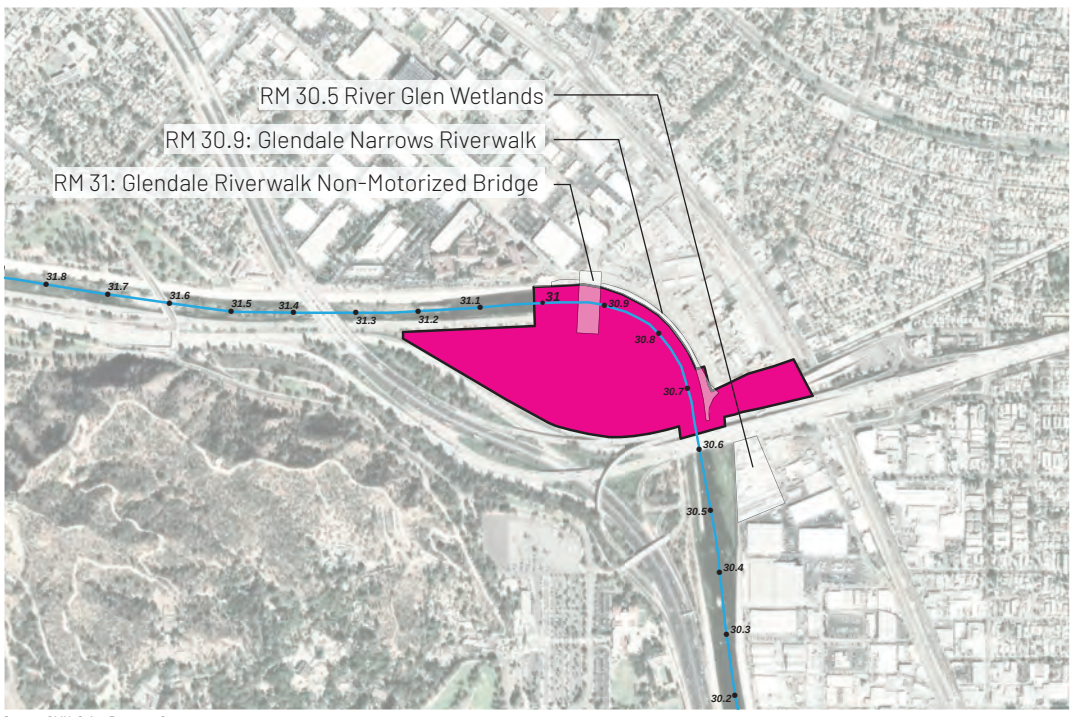
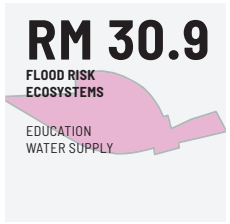
RM 30.9: FERRARO FIELDS SIDE CHANNEL





PROJECT DESCRIPTION:

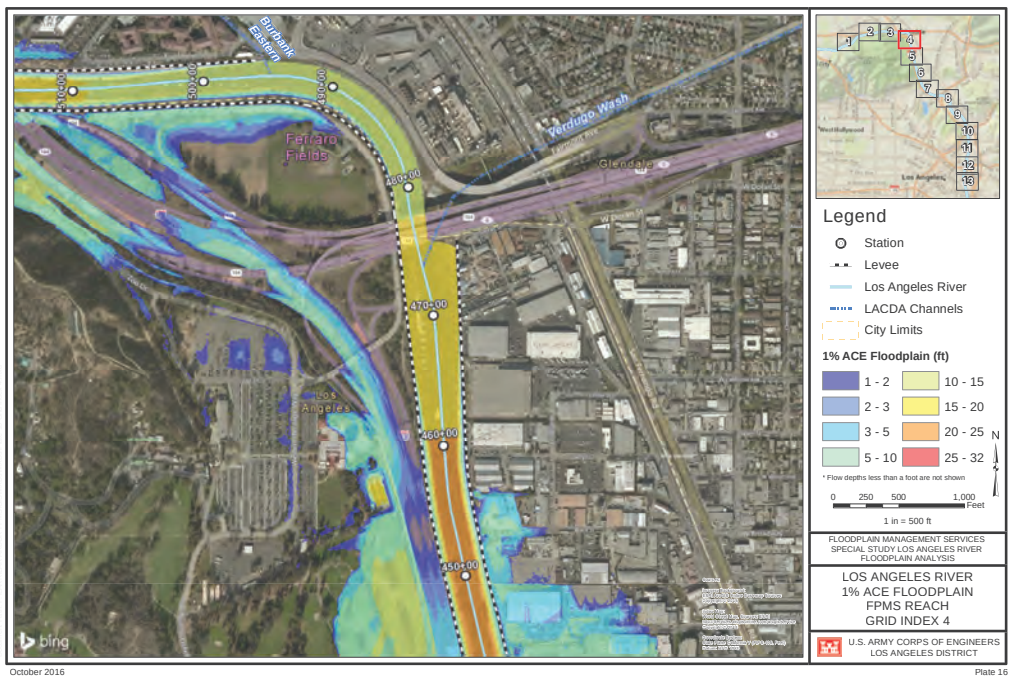
- Maintains existing recreation
- Directs flooding away from neighborhoods and critical infrastructure
- Adds habitat

Proposed Project Site

Planned Major Project

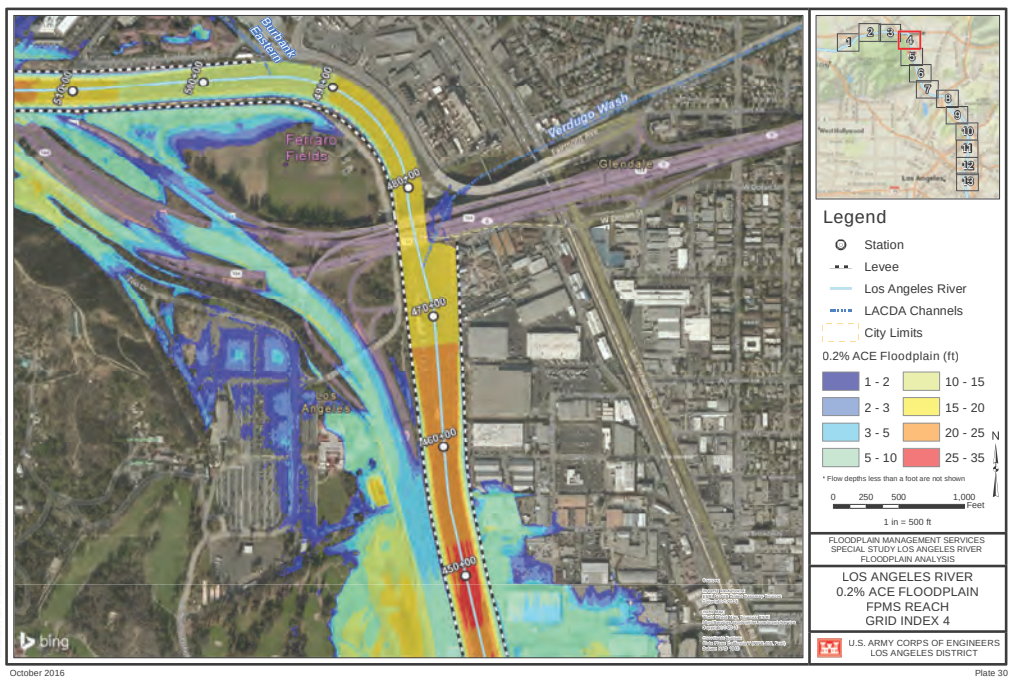
Source: OLIN, Gehry Partners, Geosyntec

USACE ARBOR STUDY 1% FLOOD MAP



Source: USACE "LA River FPMS Hydraulic Report_FINAL_Plate 16", October 2016

USACE ARBOR STUDY 0.2% FLOOD MAP



Source: USACE "LA River FPMS Hydraulic Report_FINAL_Plate 16", October 2016

HYDROLOGY AND HYDRAULICS STUDIES TO REACH THE 1% EVENT CAPACITY

1. Refurbishment
2. Bypass Tunnel
3. Remaining Few Local Needs to Be Addressed

Source: Geosyntec, OLIN

RM 30.9: FERRARO FIELDS SIDE CHANNEL

Source: OLIN, Geosyntec

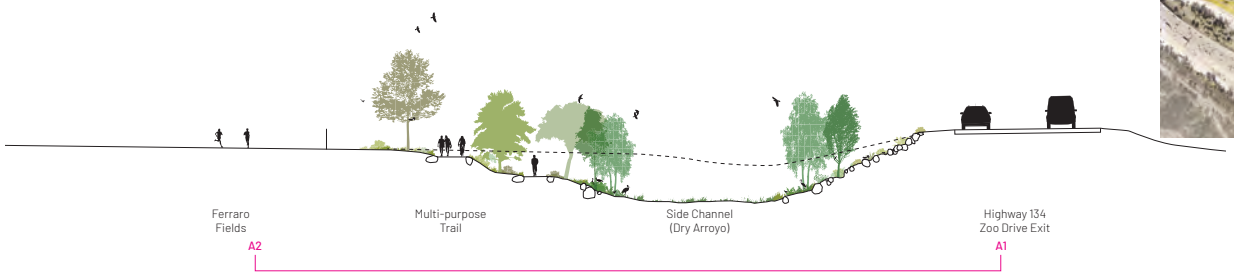
RM 30.9: FERRARO FIELDS SIDE CHANNEL

Site Plan

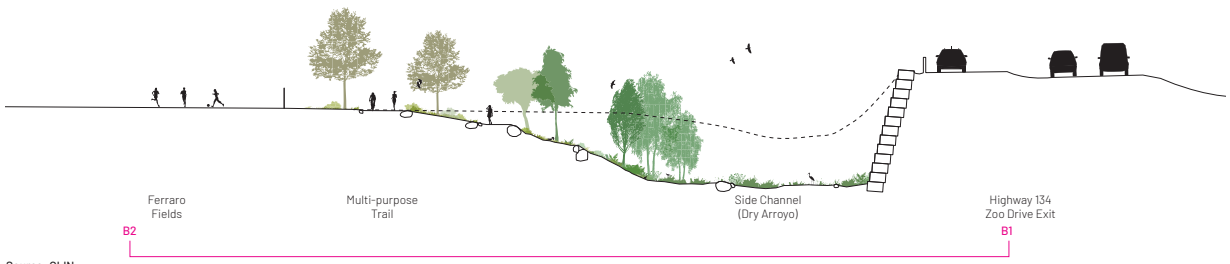
Source: OLIN

RM 30.9: FERRARO FIELDS SIDE CHANNEL

Typical Section at Side Channel



Typical Section at Side Channel with Gabion Embankment



Source: OLIN

20'
N

RM 30.9: FERRARO FIELDS SIDE CHANNEL

Source: OLIN

PROJECT EXAMPLES

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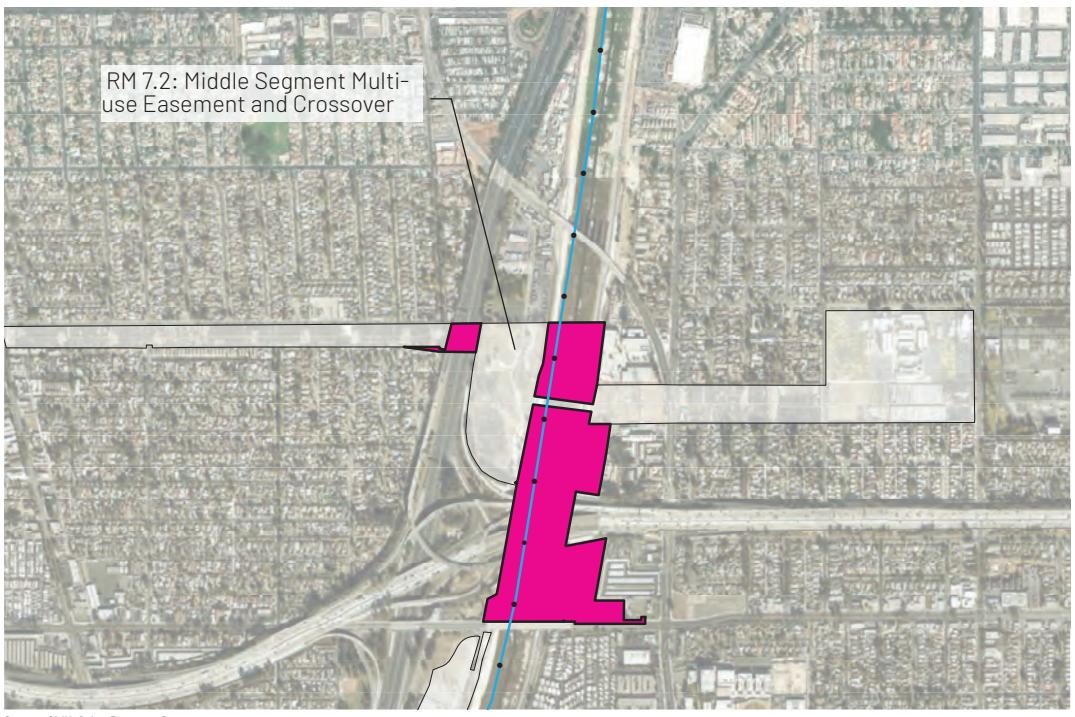
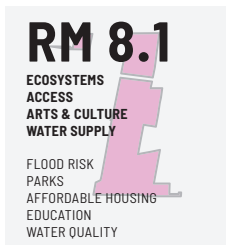


Source: OLIN, Gehry Partners, Geosyntec



PROJECT DESCRIPTION:

Building on an adjacent planned major project which utilizes a large transmission line right-of-way that crosses the LA River, this site offers the potential to expand this connection across the river between with adjacent communities with a multi-benefit platform.

Proposed Project Site

Planned Major Project

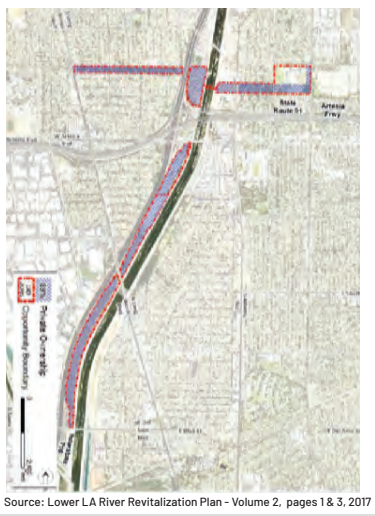
800'

PLANNED MAJOR PROJECT

LOWER LA RIVER REVITALIZATION PLAN

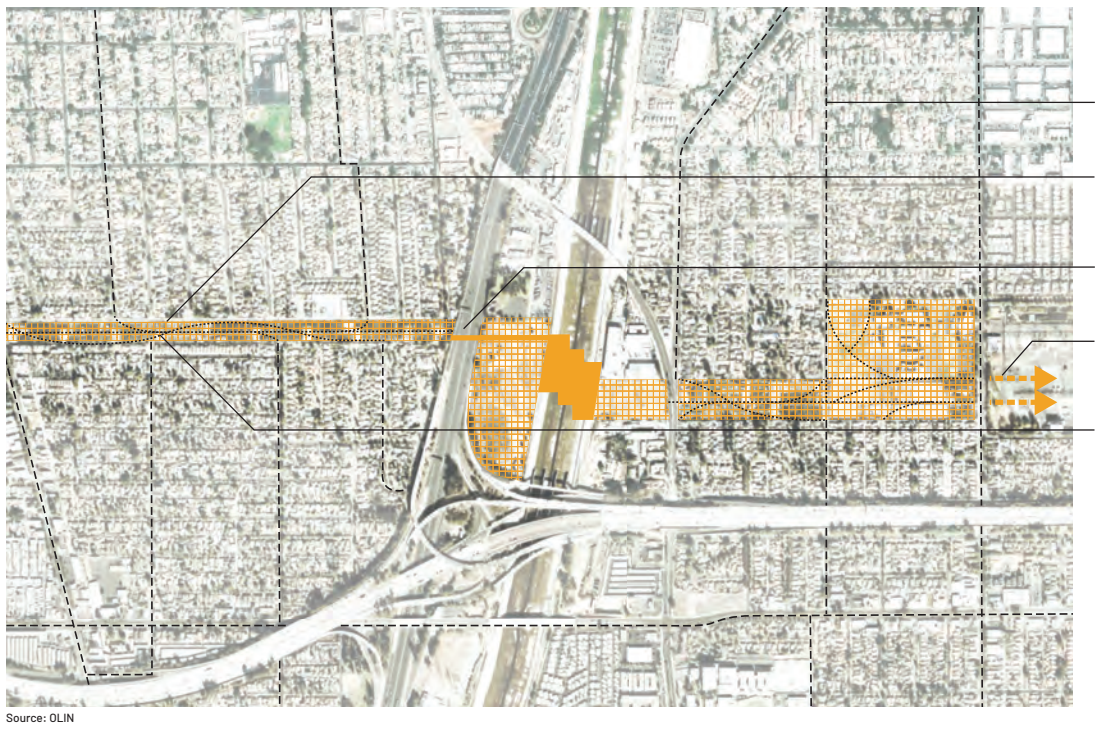
MIDDLE SEGMENT CROSSOVER AND MULTI-USE EASEMENT PROJECT SUMMARY

"The northern Crossover section of this project area provides a strong opportunity for a visual and physical east-west connection between the surrounding neighborhoods and the river..." (pg 777)



Source: Lower LA River Revitalization Plan - Volume 2, pages 1 & 3, 2017

RM 8.1: CONNECTIVITY CORRIDOR

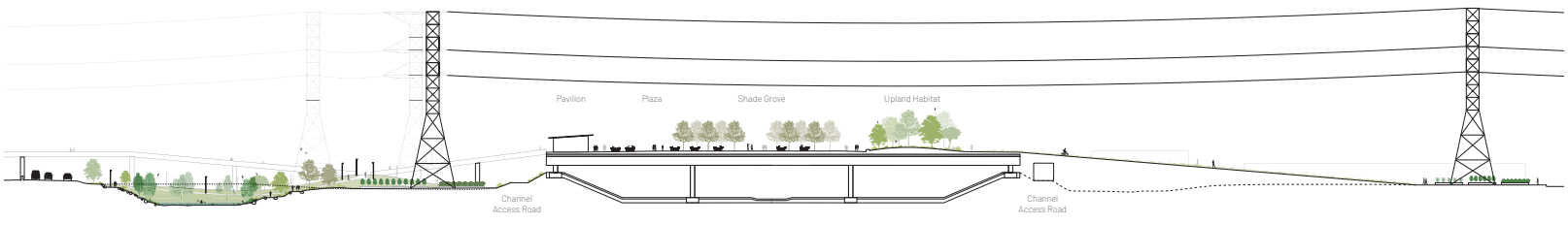


Source: OLIN

RM 8.1: CONNECTIVITY CORRIDOR

Source: OLIN

RM 8.1: CONNECTIVITY CORRIDOR



Wetland | Access Ramps (Beyond) Nursery (Under Transmission Lines) | Platform at LA River Channel | Access Incline | Nursery Leases (Under Transmission Lines)

A1 — A2

Source: OLIN

40'

RM 8.1: CONNECTIVITY CORRIDOR

Source: OLIN

APPLYING THE KIT OF PARTS: M, L, XL PROJECT EXAMPLES

Source: OLIN

APPLYING THE KIT OF PARTS: M, L, XL PROJECT EXAMPLES

MASTER PLAN CONNECTIVITY

Overall vision of regional connections anchored by the LA River.

- Potential Project Site
- Planned Major Project
- Existing Class I Trails
- Proposed or Planned Class I Trails
- Transmission Line Right-of-Way
- Proposed Regional Loops
- Continuous Los Angeles River Trail

Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.

5 mi. N

APPLYING THE KIT OF PARTS: LA RIVER MASTER PLAN

MASTER PLAN

Source: OLIN, Gehry Partners, Geosyntec

5 mi. N

PUBLIC COMMENT OPTIONS

- **Verbal comments**
  - Speakers to be called in order of speaker cards submitted (optional)
  - Up to 15 minutes total for the Public Comment item
  - Total time per person will depend on number of speaker cards received
- **Comment cards**
- **Email comments to LARiver@dpw.lacounty.gov**

Source: OLIN

Important Upcoming Dates:

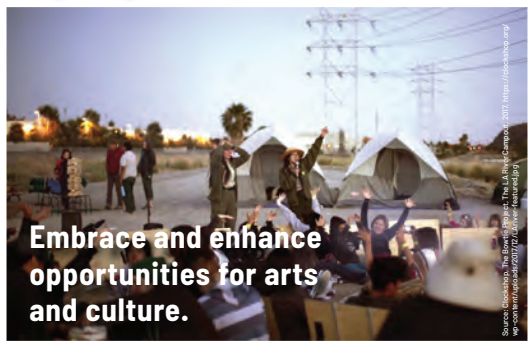
- Community Meeting (Canoga Park) - October 15, 2019
- Community Meeting (North Long Beach) - October 16, 2019
- Community Meeting (Central Los Angeles) - October 17, 2019
- Steering Committee Meeting #8 - December 12, 2019

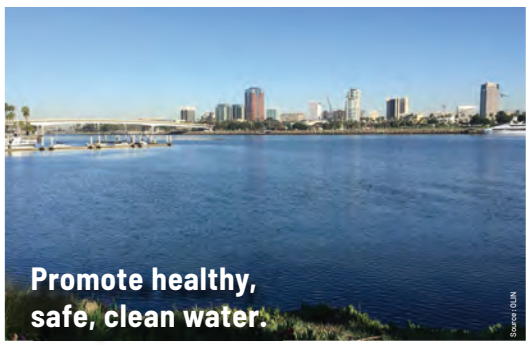
INPUT, QUESTIONS, IDEAS?
Contact Genevieve Osmeña at (626) 458-4322
or LARiver@dpw.lacounty.gov

LA RIVER MASTER PLAN

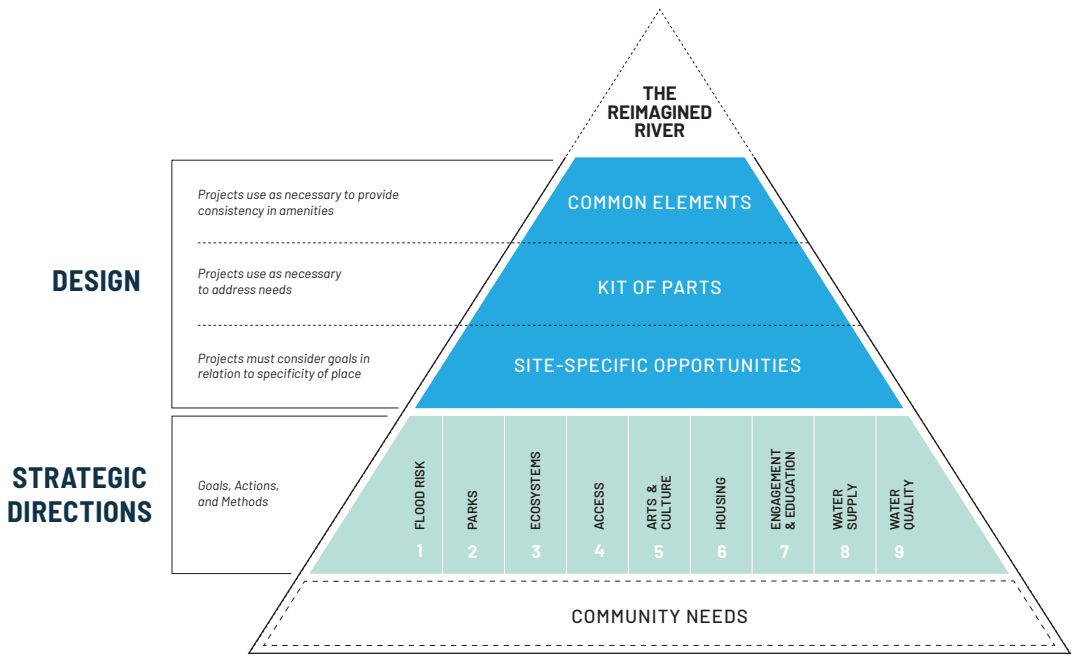
LARiverMasterPlan.org

APPENDIX



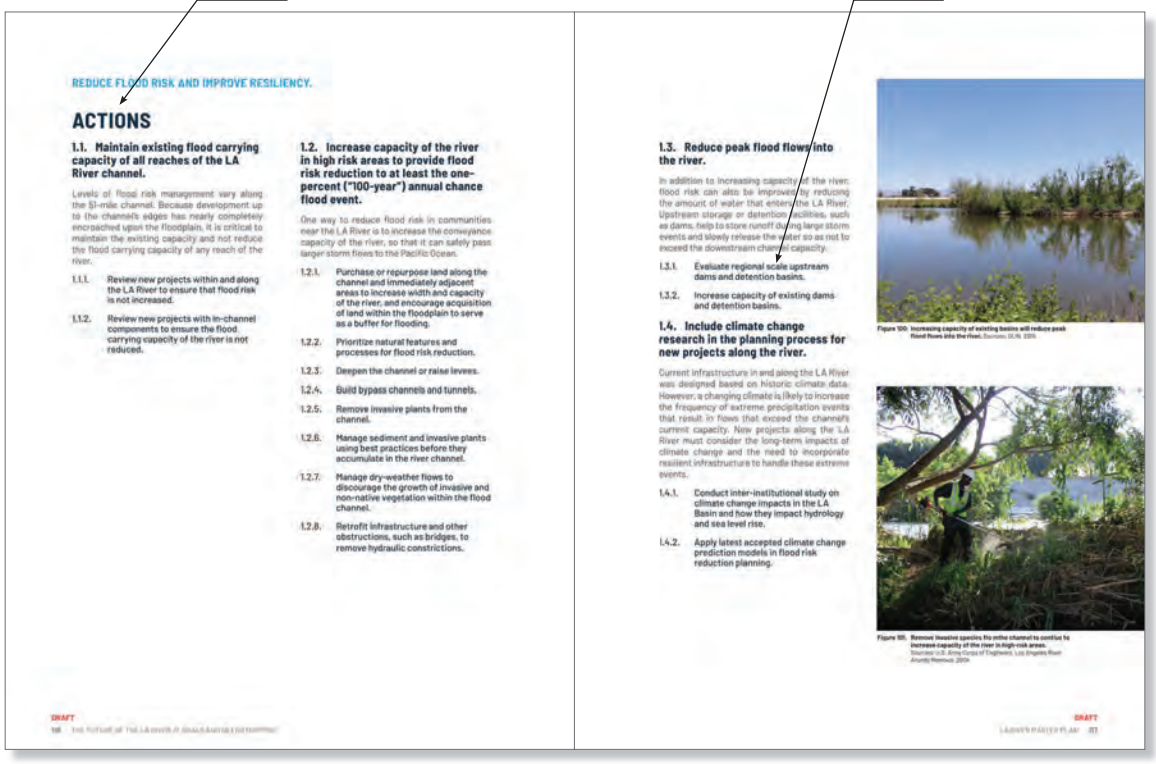


PROJECTS SHOULD BUILD UPON THE GOALS USING THE KIT OF PARTS AND COMMON ELEMENTS



ACTIONS

METHODS



REDUCE FLOOD RISK AND IMPROVE RESILIENCY.

ACTIONS

1.1. Maintain existing flood carrying capacity of all reaches of the LA River channel.

Levels of flood risk management vary along the 51-mile channel. Because development up to the channel's edges has nearly completely encroached upon the floodplain, it is critical to maintain the existing capacity and not reduce the flood carrying capacity of any reach of the river.

1.1.1. Review new projects within and along the LA River to ensure that flood risk is not increased.

1.1.2. Review new projects with in-channel components to ensure the flood carrying capacity of the river is not reduced.

1.2. Increase capacity of the river in high risk areas to provide flood risk reduction to at least the one-percent ("100-year") annual chance flood event.

One way to reduce flood risk in communities near the LA River is to increase the conveyance capacity of the river, so that it can safely pass larger storm flows to the Pacific Ocean.

1.2.1. Purchase or repurpose land along the channel and immediately adjacent areas to increase width and capacity of the river, and encourage acquisition of land within the floodplain to serve as a buffer for flooding.

1.2.2. Prioritize natural features and processes for flood risk reduction.

1.2.3. Deepen the channel or raise levees.

1.2.4. Build bypass channels and tunnels.

1.2.5. Remove invasive plants from the channel.

1.2.6. Manage sediment and invasive plants using best practices before they accumulate in the river channel.

1.2.7. Manage dry-weather flows to discourage the growth of invasive and non-native vegetation within the flood channel.

1.2.8. Retrofit infrastructure and other obstructions, such as bridges, to remove hydraulic constrictions.

1.3. Reduce peak flood flows into the river.

In addition to increasing capacity of the river, flood risk can also be improved by reducing the amount of water that enters the LA River. Upstream storage or detention facilities, such as dams, help to store runoff during large storm events and slowly release the water so as not to exceed the downstream channel capacity.

1.3.1. Evaluate regional scale upstream dams and detention basins.

1.3.2. Increase capacity of existing dams and detention basins.

1.4. Include climate change research in the planning process for new projects along the river.

Current infrastructure in and along the LA River was designed based on historic climate data. However, a changing climate is likely to increase the frequency of extreme precipitation events that result in flows that exceed the channel's current capacity. New projects along the LA River must consider the long-term impacts of climate change and the need to incorporate resilient infrastructure to handle these extreme events.

1.4.1. Conduct inter-institutional study on climate change impacts in the LA Basin and how they impact hydrology and sea level rise.

1.4.2. Apply latest accepted climate change prediction models in flood risk reduction planning.

Figure 100. Increasing capacity of existing basins will reduce peak flood flows into the river. Source: DLN, 2015.

Figure 101. Remove invasive species fro mthe channel to contiue to increase capacity of the river in high-risk areas. Source: U.S. Army Corps of Engineers, Los Angeles River Ecosystem Restoration, 2004.

DRAFT

HOW CAN THE LARMP HELP?

DO NO HARM

- **MAINTAIN EXISTING CHANNEL CAPACITY** (Actions 1.1, 1.6)
- **NEW PROJECTS SHOULD NOT REDUCE CAPACITY** (Actions 1.1, 1.6, 1.7)

IMPROVE CAPACITY

- **WHERE POSSIBLE, REDUCE FLOOD RISK BY INCREASING THE CHANNEL'S CONVEYANCE CAPACITY** (Actions 1.1, 1.6)

REDUCE PEAK FLOOD FLOWS

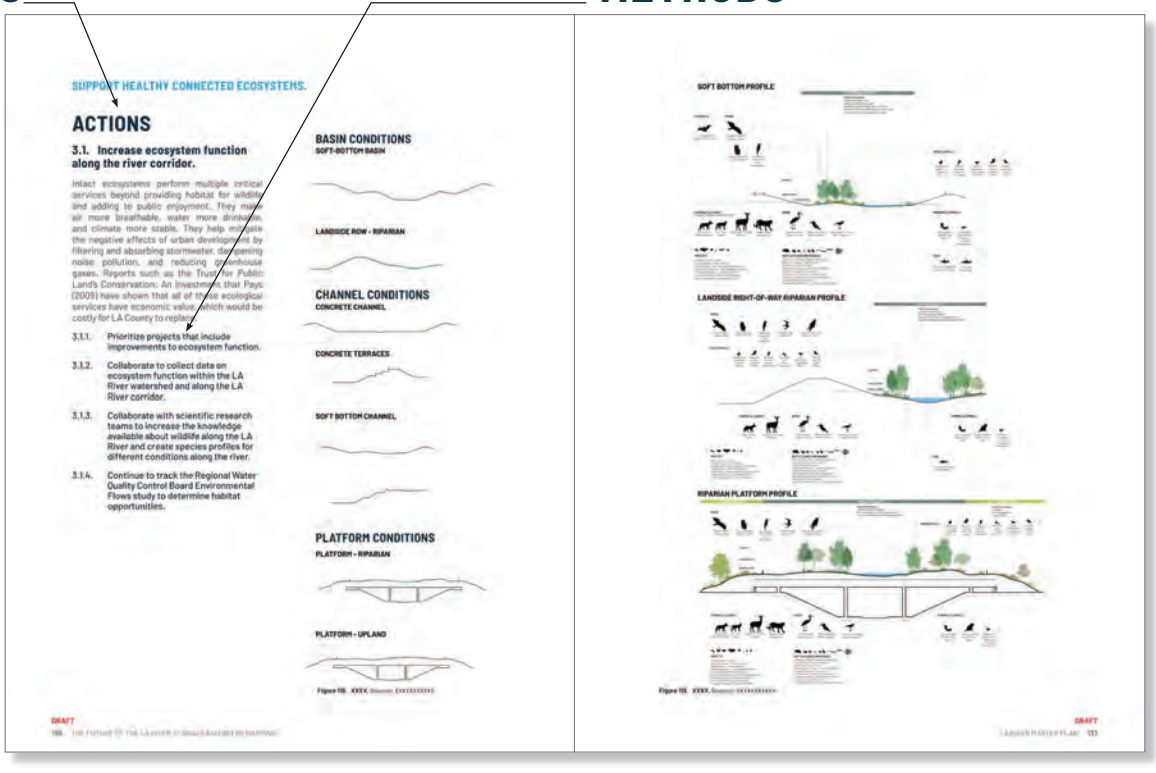
- **REDUCE WATER ENTERING THE LA RIVER CHANNEL THROUGH UP-STREAM STORAGE AND DETENTION** (Actions 1.2)

INCLUDE CLIMATE CHANGE RESEARCH

- **NEW PROJECTS SHOULD CONSIDER THE IMPACTS OF CLIMATE CHANGE TO CREATE A MORE RESILIENT INFRASTRUCTURE** (Actions 1.3)

ACTIONS

METHODS



SUPPORT HEALTHY CONNECTED ECOSYSTEMS.

ACTIONS

3.1. Increase ecosystem function along the river corridor.

Intact ecosystems perform multiple critical services beyond providing habitat for wildlife and adding to public enjoyment. They make air more breathable, water more drinkable, and climate more stable. They help mitigate the negative effects of urban development by filtering and absorbing stormwater, dampening noise pollution, and reducing greenhouse gases. Reports such as the Trust for Public Land's Conservation: An Investment that Pays (2009) have shown that all of these ecological services have economic value, which would be costly for LA County to replace.

3.1.1. Prioritize projects that include improvements to ecosystem function.

3.1.2. Collaborate to collect data on ecosystem function within the LA River watershed and along the LA River corridor.

3.1.3. Collaborate with scientific research teams to increase the knowledge available about wildlife along the LA River and create species profiles for different conditions along the river.

3.1.4. Continue to track the Regional Water Quality Control Board Environmental Flows study to determine habitat opportunities.

BASIN CONDITIONS

SOFT-BOTTOM BASIN

LANDSIDE ROW - RIPARIAN

CHANNEL CONDITIONS

CONCRETE CHANNEL

CONCRETE TERRACES

SOFT BOTTOM CHANNEL

PLATFORM CONDITIONS

PLATFORM - RIPARIAN

PLATFORM - UPLAND

SOFT BOTTOM PROFILE

LANDSIDE RIGHT-OF-WAY RIPARIAN PROFILE

RIPARIAN PLATFORM PROFILE

DRAFT

HOW CAN THE LARMP HELP?

DO NO HARM

- **MAINTAIN EXISTING CHANNEL CAPACITY** (Actions 1.1, 1.6)
- **NEW PROJECTS SHOULD NOT REDUCE CAPACITY** (Actions 1.1, 1.6, 1.7)

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INCLUDE CLIMATE CHANGE RESEARCH

- **NEW PROJECTS SHOULD CONSIDER THE IMPACTS OF CLIMATE CHANGE TO CREATE A MORE RESILIENT INFRASTRUCTURE** (Actions 1.3)

HOW CAN THE LARMP HELP?

RECOMMEND NEW STUDIES

- **DEVELOP METHODOLOGY FOR EVALUATING ECOSYSTEM FUNCTION ALONG THE LA RIVER** (Actions 3.1, 3.6)
- **FILL GAPS IN SCIENTIFIC RESEARCH ON WILDLIFE ALONG THE LA RIVER** (Actions 3.2, 3.6)

ESTABLISH BIODIVERSITY PROFILES

- **ADOPT NATIVE PLANT COMMUNITY SPECIES LISTS** (Actions 3.2)
- **CREATE PROFILES OF HABITAT AND SPECIES THAT ARE SUPPORTED IN THE VARIOUS SECTIONS OF THE LA RIVER** (Actions 3.1, 3.2)

UNDERSTANDING ECOSYSTEM FUNCTION

Functioning Ecosystem: A dynamic complex of plant, animal, and microorganism communities and their non-living environment that exhibits biological and chemical activities characteristic for its type, regardless of whether the system visually looks like a natural system.

Ecosystem Function: The biological, geochemical and physical processes that take place or occur within an ecosystem. These processes often benefit human needs directly or indirectly. For example: providing shade, carbon sequestration, or filtering pollutants.

Source: Convention on Biological Diversity https://www.cbd.int/convention/articles/default.shtml?a=cbd-02; Issues in Ecology, Ecological Society of America https://www.esa.org/wp-content/uploads/2013/03/issue4.pdf

LARMP DESIGN GUIDELINES NATIVE PLANT LISTS

- ALLUVIAL FAN SAGE SCRUB
- CHAPARRAL
- COASTAL SAGE SCRUB
- COAST LIVE OAK WOODLAND
- CA WALNUT WOODLAND
- VALLEY OAK WOODLAND
- SYCAMORE RIPARIAN WOODLAND
- COAST LIVE OAK FOREST
- COTTONWOOD-WILLOW RIPARIAN FOREST
- DESERT SCRUB
- CLIMATE ADAPTED SHADE TREES


Platanus racemosa


Quercus agrifolia


Clematis ligusticifolia


Frangula californica ssp. californica


Mimulus aurantiacus


Salvia mellifera

LARMP DESIGN GUIDELINES NATIVE PLANT LISTS

PLANTING LIST KEY

APPLICATIONS

+ Enhances biodiversity, and provides habitat - especially for key indicator species for each community

^ Mature tree canopy, provides significant shade for pedestrians

***** Tolerates heat

~ Tolerates flooding

! Useful for soil/bank stabilization

o Additional moderate to high levels of irrigation required if existing groundwater or riparian conditions are not available

SUN EXPOSURE

FS Full sunlight

FS/PS Full Sunlight to Partial Sunlight

PS Part Shade

PS/FS Part Shade to Full Shade

OCCURANCE IN NATURAL COMMUNITIES

Dominant Visually dominant in the mature landscape; usually refers to trees or large shrubs.

Subdominant Visually subdominant.

Frequent Refers to the numerical proportion of the species in the landscape. Especially in the case of grasses and herbaceous species, this category may indicate much higher numbers of individual plants than the dominant category, but these species do not dominate the casual vista.

Occasional Refers to plants that occur occasionally in the designated plant community.

BLOOM SEASON

W Winter

SP Spring

SU Summer

F Fall

SOUTHERN COTTONWOOD-WILLOW RIPARIAN FOREST

SPECIES		SITING + PERFORMANCE					DESCRIPTIVE FEATURES													
BOTANICAL NAME	COMMON NAME	FRAMES FOR BEST PERFORMANCE	CONSTRUCTED CONTEXTS	APPLICATIONS	SUN EXPOSURE	SETBACK FROM PAVEMENT (FEET)	PLANT FORM	WATER USE (WUCOLS IV)	MATURE HEIGHT (FEET)	MATURE WIDTH (FEET)	SHORTLIST PLANT	USACE NATIVE PLANT LIST	SEED LLA TARGET LIST	OCCURANCE IN COMMUNITY	OFTEN AVAILABLE IN CA	POLLINATOR HABITAT	BLOOM COLOR	BLOOM SEASON			
SHRUBS																		W	SP	SU	F
Baccharis salicifolia	Mulefat	1-5; 6-9 with irrigation	F, G	+^	All	3	S	H	4-8	6-10	X	X		Occasional	X	Bees, Butterflies	White/Pink/White	X	X	X	X
Pluchea sericea	Arrow weed	1-9	F, G	o	FS	3	S	M	6-8	6+	X			Occasional	X		Pink		X	X	
Rhus aromatica	Fragrant sumac	1-9	A, B, C	+	FS / PS	4	S-D	L	3-5	4-8		X		Frequent - Occasional		Birds	Yellow/Cream		X		

PLANT PALETTE SELECTION IS HEAVILY DEPENDENT ON THE EXISTING CONDITIONS OF CHANNELIZATION (ENTRENCHED OR LEVEED), NATIVE OR IMPORTED SOIL CONDITIONS, ACCESS TO WATER, SUN EXPOSURE AMOUNT OF SHADE, RIGHTS-OF-WAY WIDTH VARIATIONS AND ADJACENT LAND USES.

CONSTRUCTED CONTEXTS

A Steep slopes, fast draining, thin soil profile

B Steep slopes, fast draining, thin soil profile (North-facing)

C Level slope or terrace, fast draining with drier soils

D Planting bed and soils surrounded by paving. Drier soils, hotter than usual ambient temperatures

E Level slope or terrace, fast draining with intermittently flooded soils

F Low-lying alluvial or gravelly soils that are seasonally flooded

G Low-lying alluvial soils or gravelly soils with regular access to water

PLANT FORM

T Tree

D Deciduous

S Shrub

SC Succulent

G Grass

GC Groundcover

P Perennial

V Vine

WATER USE

WUCOLS: Estimates water needs based on the latest prevailing legislation. These water use categories used to develop hydrozone plans and submitting permitting applications. See https://ucanr.edu/sites/WUCOLS/ for more information.

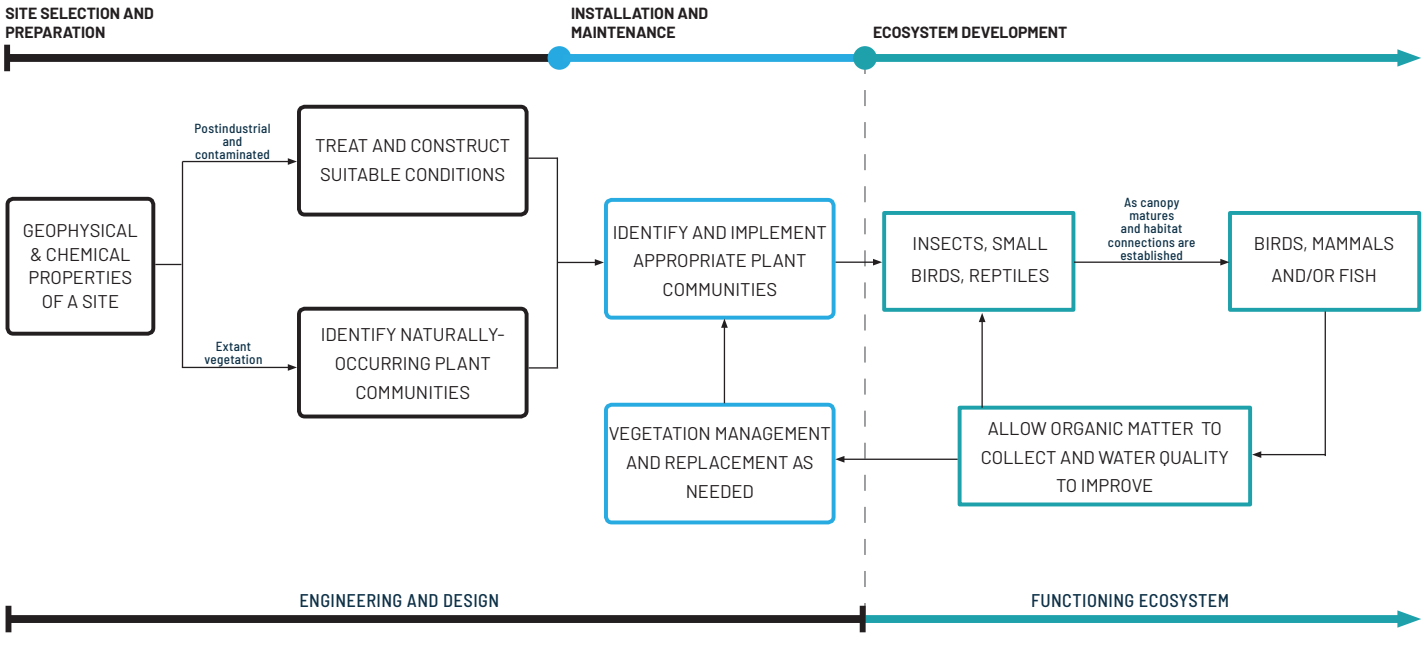
VL Very low

L Low

M Medium

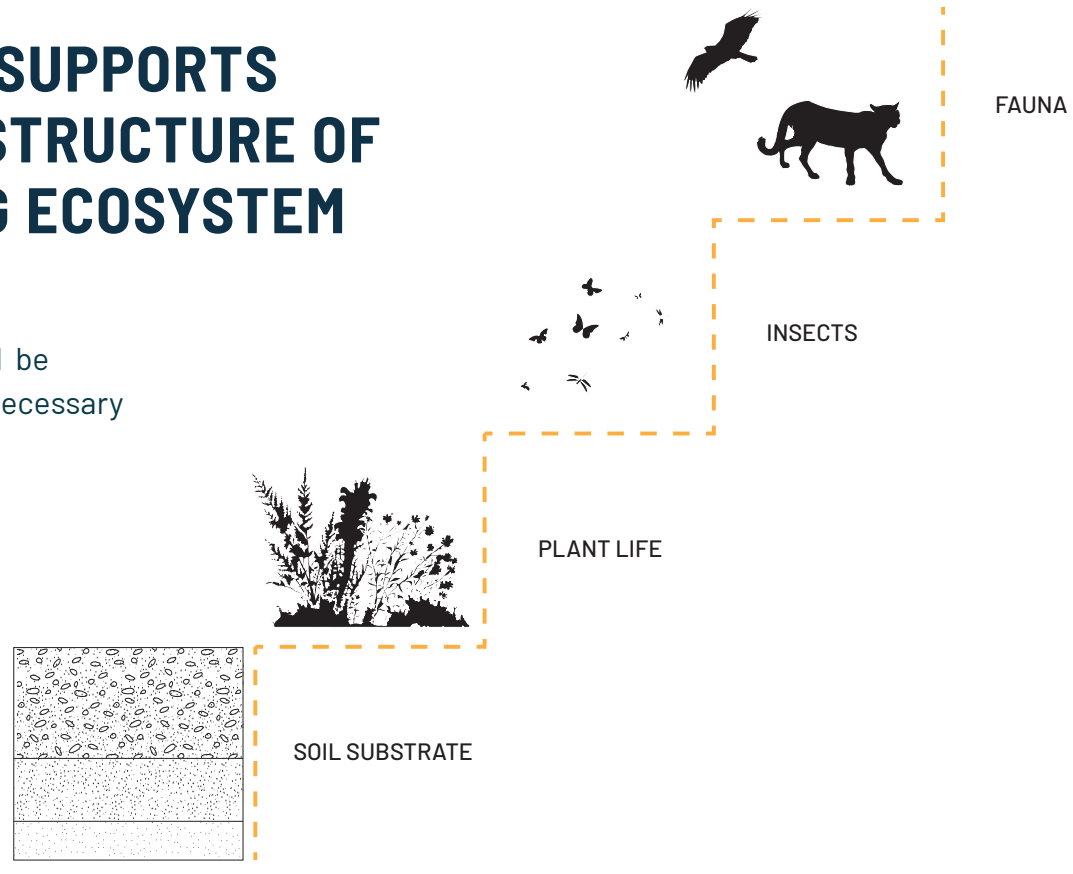
H High

CREATING BIODIVERSITY PROFILES



HEALTHY SOIL SUPPORTS THE LIFE AND STRUCTURE OF A FUNCTIONING ECOSYSTEM

- Contaminated soils should be evaluated and treated as necessary



HEALTHY CONNECTED ECOSYSTEMS

BIODIVERSITY PROFILES - INDEX

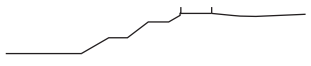
CHANNEL CONDITIONS

CONCRETE CHANNEL

SOFT BOTTOM CHANNEL

CONCRETE TERRACES

RIPARIAN RAMP



LANDSIDE ROW - UPLAND

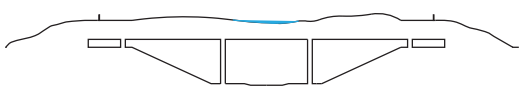
BASIN CONDITIONS

SOFT-BOTTOM BASIN

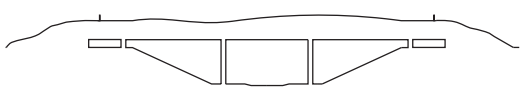
LANDSIDE ROW - RIPARIAN

PLATFORM CONDITIONS

PLATFORM - RIPARIAN

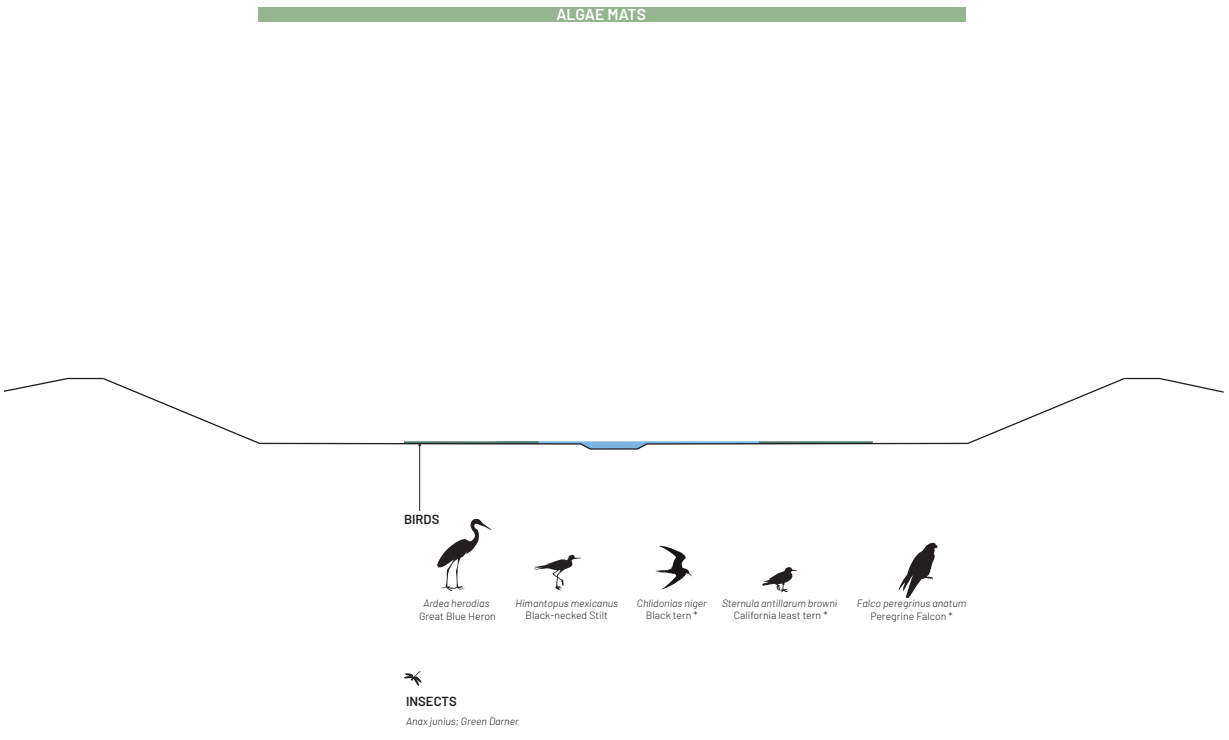


PLATFORM - UPLAND



HEALTHY CONNECTED ECOSYSTEMS

CONCRETE CHANNEL BIODIVERSITY PROFILE



* Endangered or threatened species at state or federal level

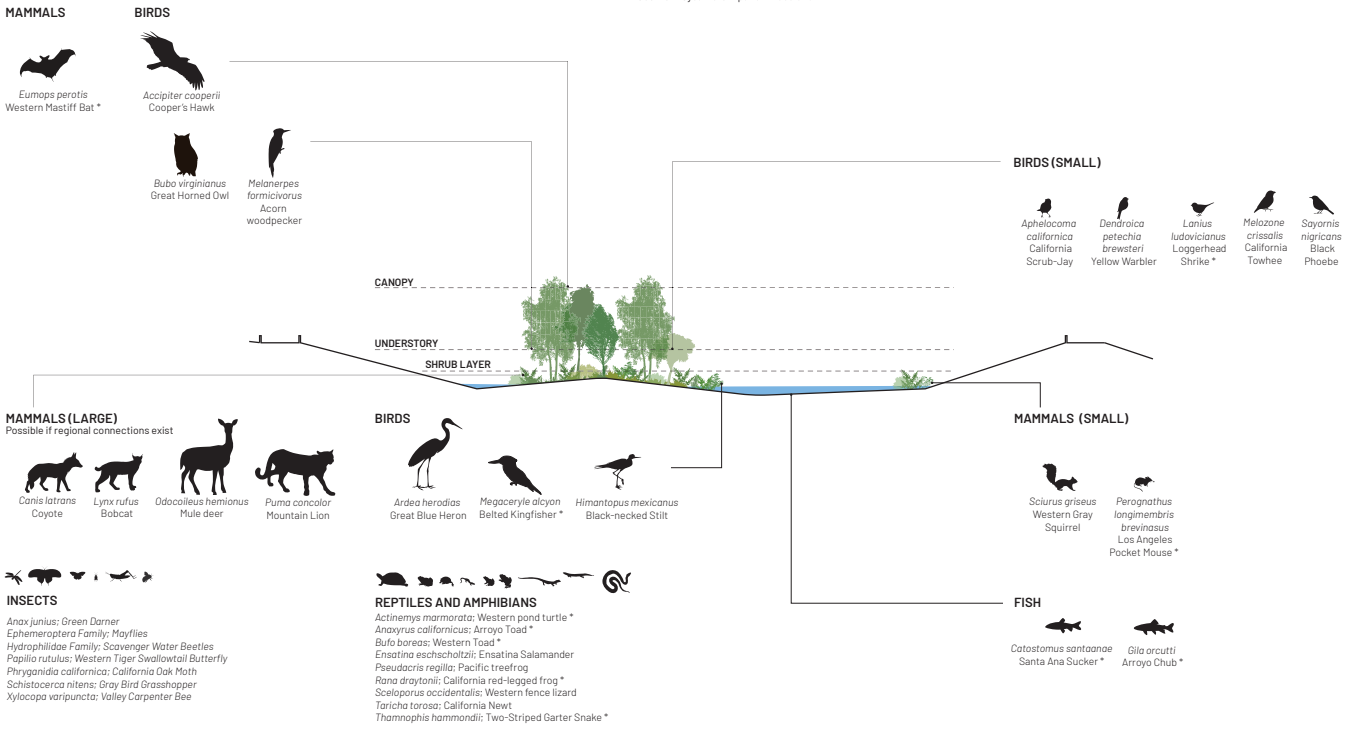
0' 20' 40' 80'

HEALTHY CONNECTED ECOSYSTEMS
SOFT-BOTTOM CHANNEL BIODIVERSITY PROFILE

RIPARIAN HABITAT

Plant Communities
Alluvial Fan Sage Scrub
California Walnut Woodland
Southern Coast Live Oak Riparian Forest
Southern Cottonwood-Willow Riparian Forest
Southern Sycamore Riparian Woodland

***NO SECTION ALONG THE LA RIVER WITH THIS CONDITION CURRENTLY MEETS FLOOD MANAGEMENT DESIGN CAPACITY.**



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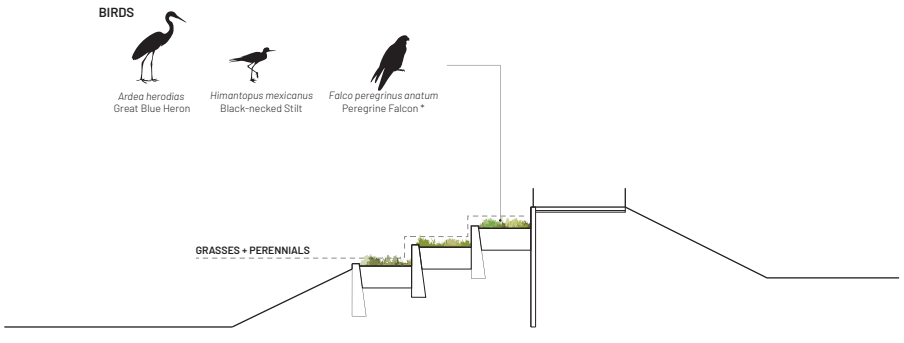
0' 20' 40' 80'

HEALTHY CONNECTED ECOSYSTEMS
CONCRETE TERRACES BIODIVERSITY PROFILE

UPLAND HABITAT

Plant Communities
Chaparral (grasses and perennials only)
Coastal Sage Scrub (grasses and perennials only)
Desert Scrub (grasses and perennials only)



INSECTS

Anax junius; Green Darner
Danaus plexippus; Monarch butterfly
Dasymutilla sackenii; Golden Velvet Ant
*Glaucopsyche lygdamus palaverdesensis; Palos Verdes Blue Butterfly **
Leptotes marina; Marine Blue Butterfly
Pogonomyrmex californicus; California harvester ant
Schistocerca nitens; Gray Bird Grasshopper
Tenebrionidae Family; Darkling beetle

REPTILES AND AMPHIBIANS

Phrynosoma blainvillii; Blainville's Horned Lizard *
Sceloporus occidentalis; Western fence lizard

* Endangered or threatened species at state or federal level

0' 5' 10' 20'

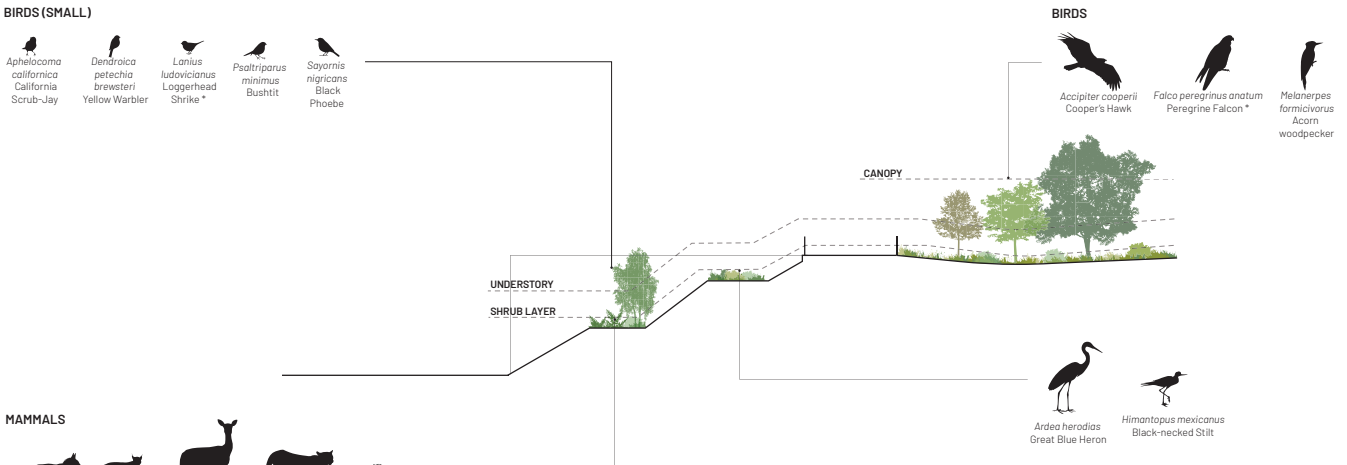
HEALTHY CONNECTED ECOSYSTEMS
CHANNEL UPLAND-RIPARIAN RAMP BIODIVERSITY PROFILE

RIPARIAN HABITAT

Plant Communities
Southern Coast Live Oak Riparian Forest

UPLAND HABITAT

Plant Communities
California Walnut Woodland
Chaparral
Coast Live Oak Woodland
Coastal Sage Scrub



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Leptotes marina; Marine Blue Butterfly
Phryganidia californica; California Oak Moth
Pogonomyrmex californicus; California harvester ant
Schistocerca nitens; Gray Bird Grasshopper
Tenebrionidae Family; Darkling beetle
Xylocopa varipuncta; Valley Carpenter Bee

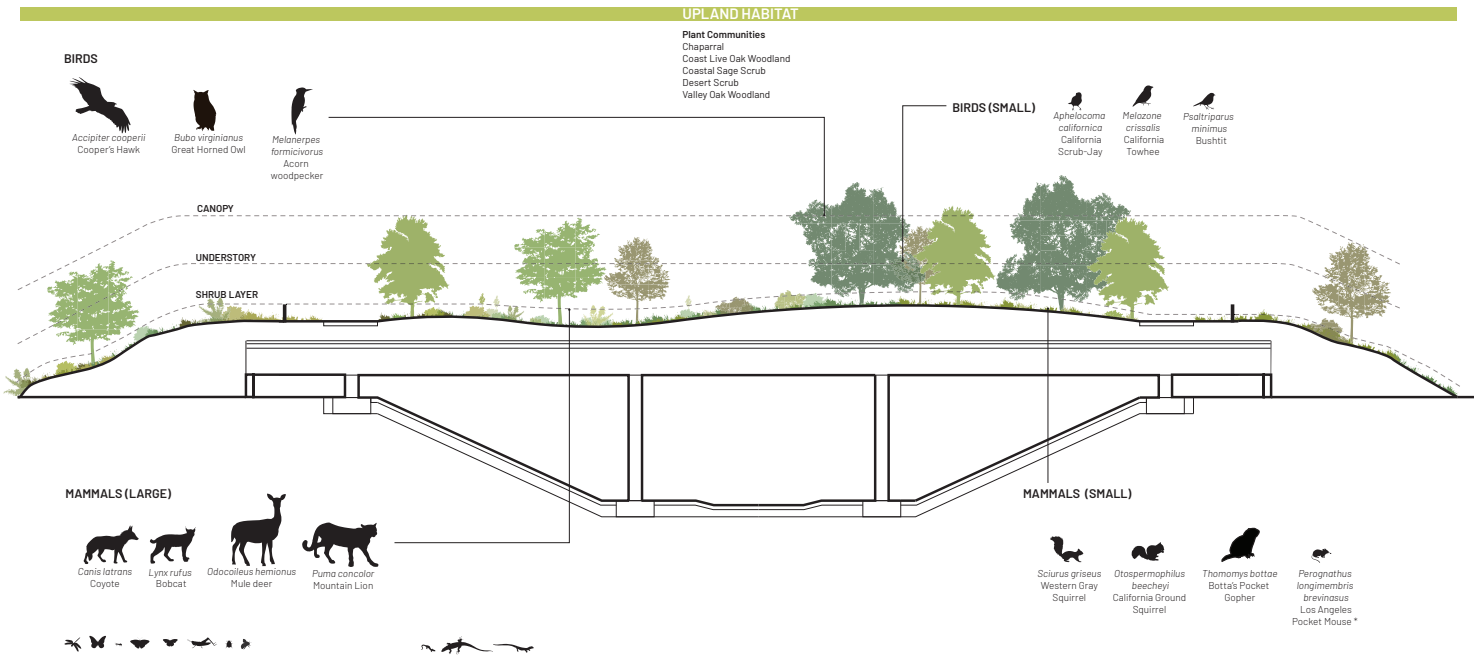
REPTILES AND AMPHIBIANS

Bufo boreas; Western Toad *
Ensatina eschscholtzii; Ensatina Salamander
Pseudacris regilla; Pacific treefrog
Rana draytonii; California red-legged frog *
Sceloporus occidentalis; Western fence lizard
Taricha torosa; California Newt
Thamnophis hammondii; Two-Striped Garter Snake *

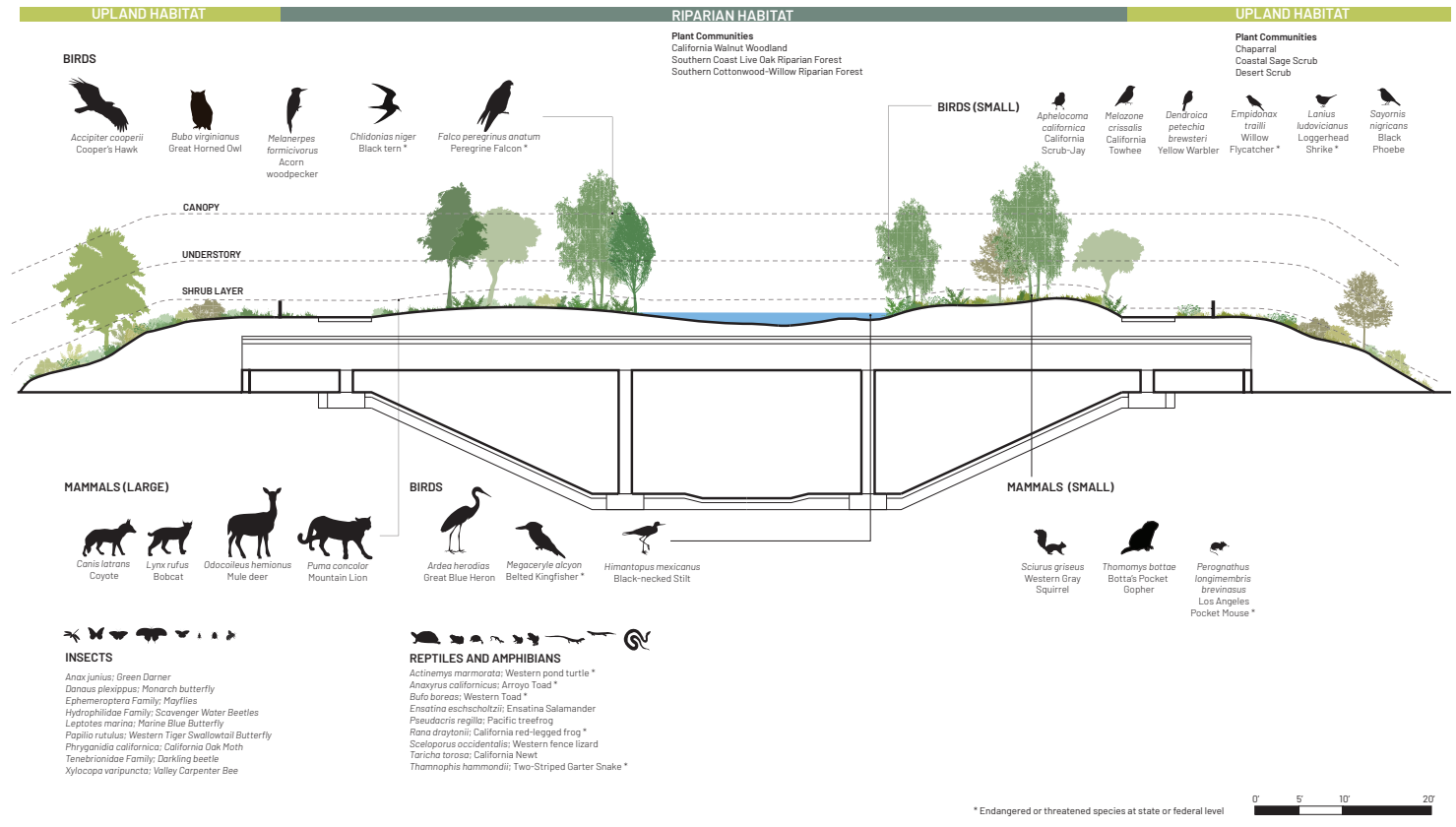
* Endangered or threatened species at state or federal level

0' 5' 10' 20'

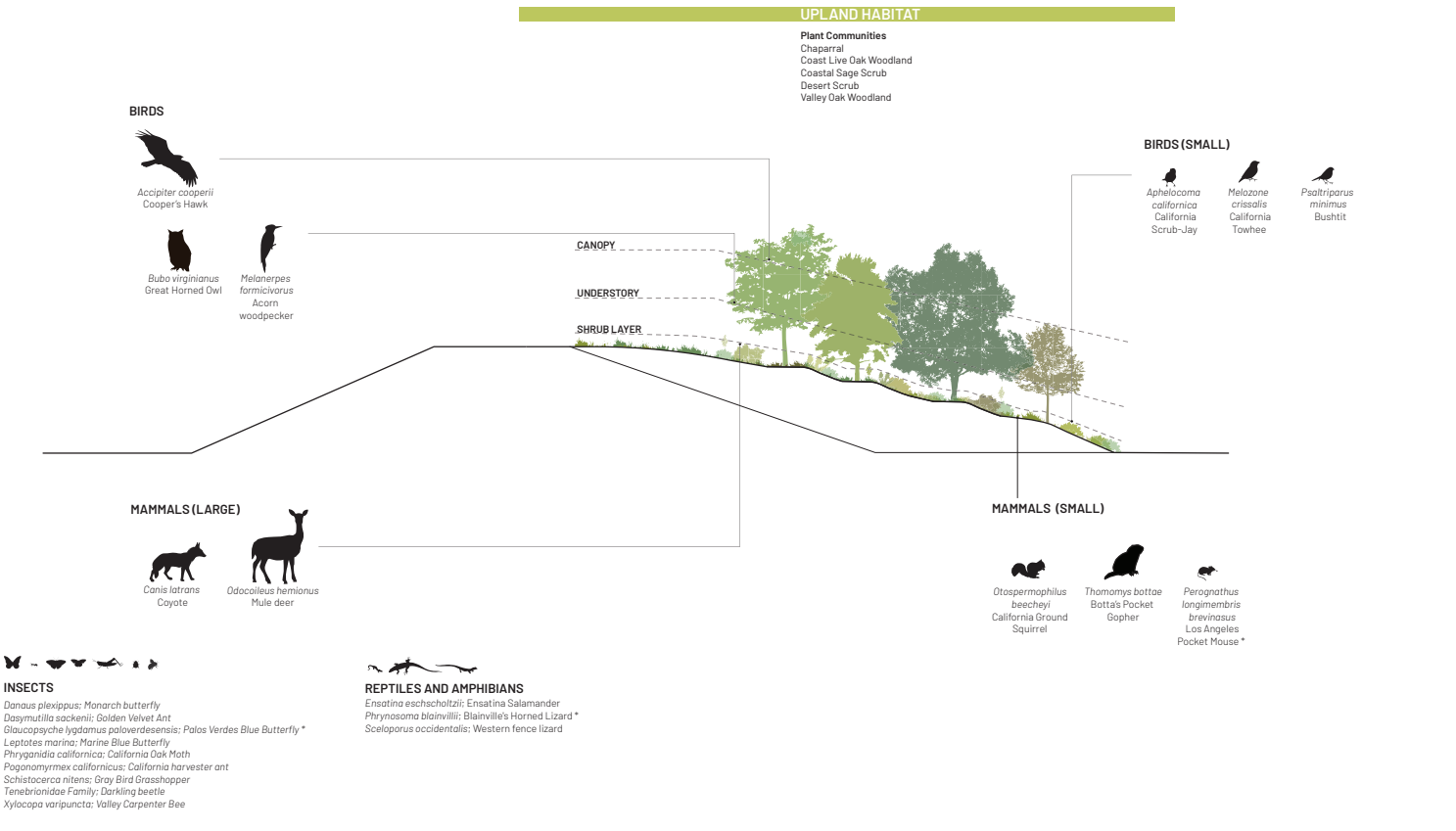
HEALTHY CONNECTED ECOSYSTEMS
UPLAND PLATFORM BIODIVERSITY PROFILE



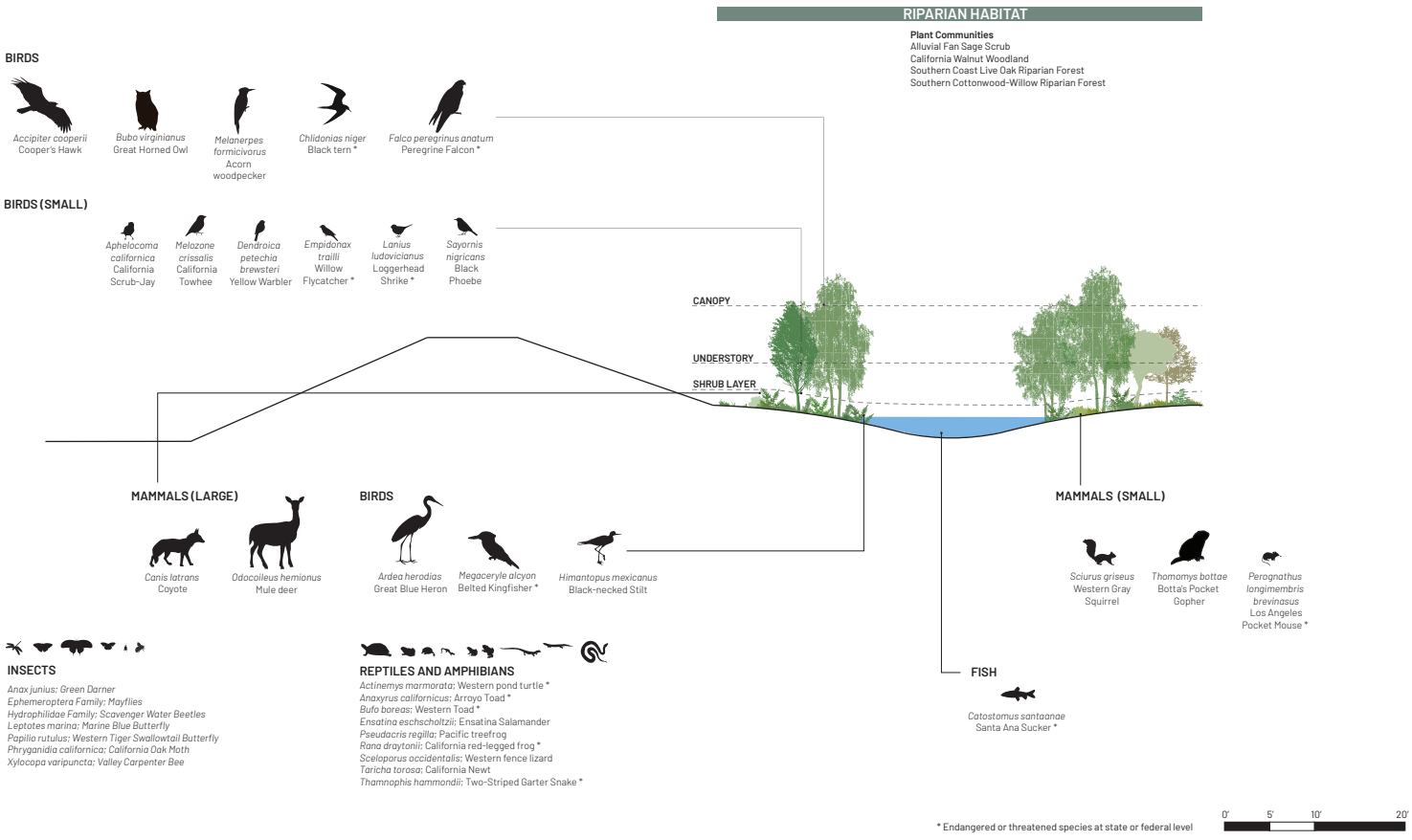
HEALTHY CONNECTED ECOSYSTEMS
RIPARIAN PLATFORM BIODIVERSITY PROFILE



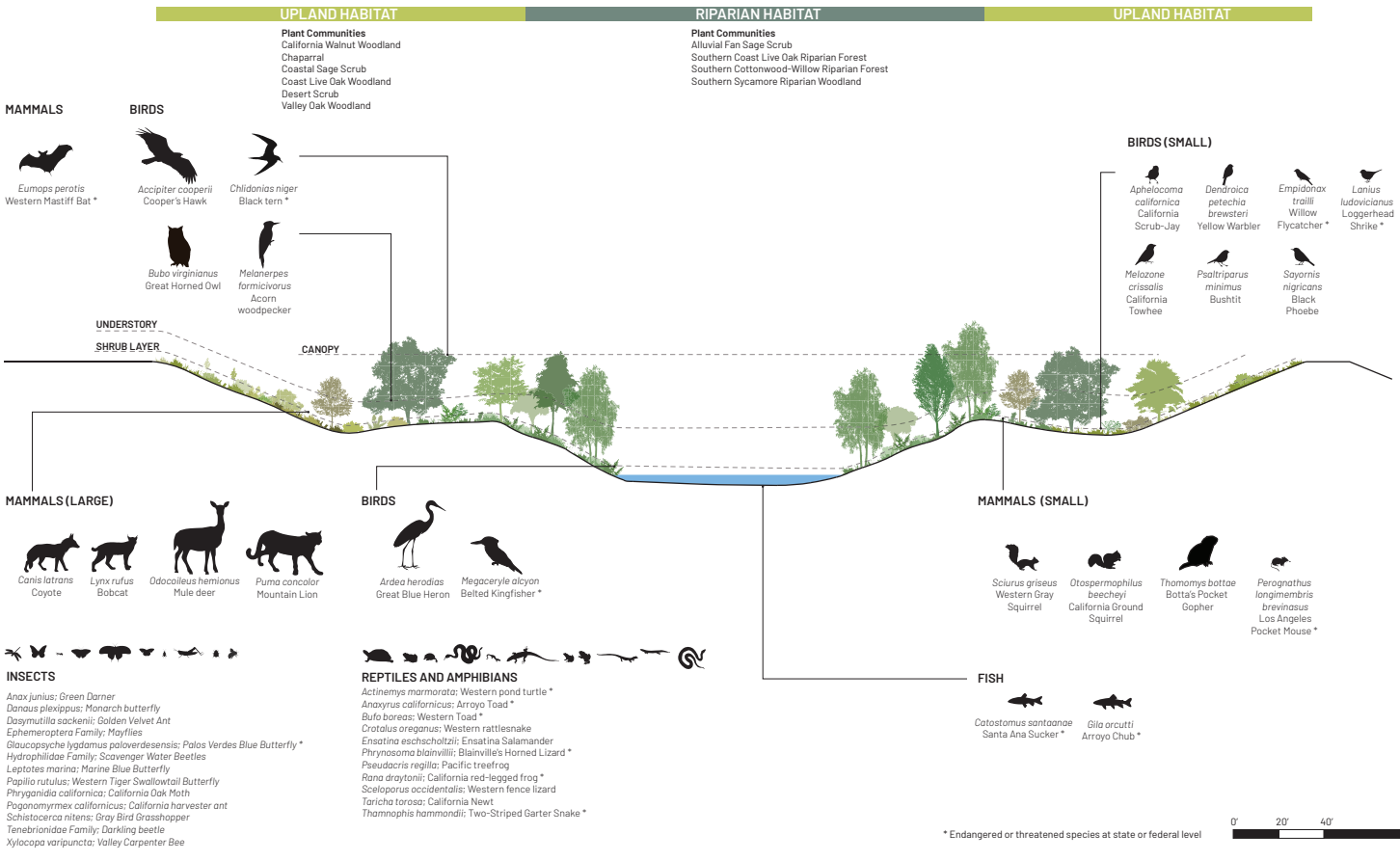
HEALTHY CONNECTED ECOSYSTEMS
UPLAND LANDSIDE ROW BIODIVERSITY PROFILE



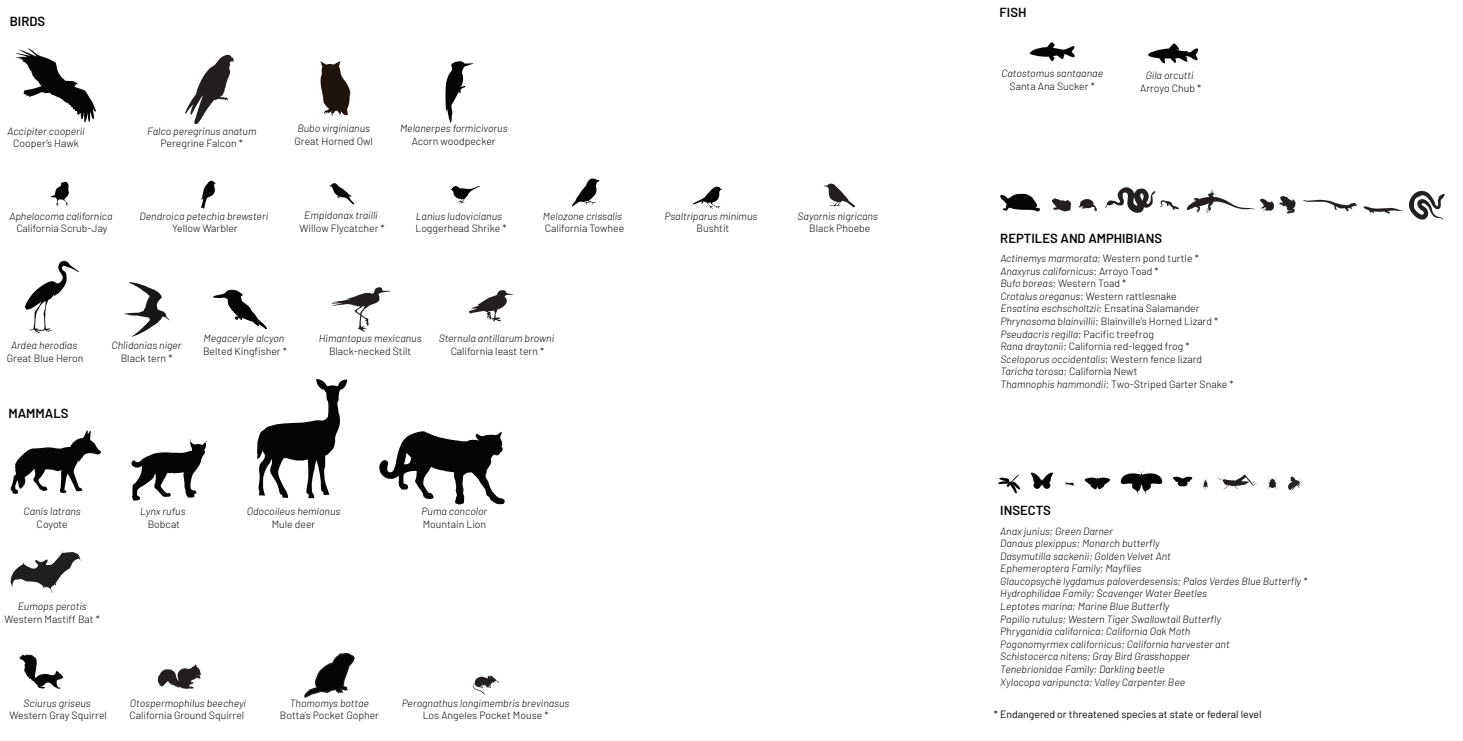
HEALTHY CONNECTED ECOSYSTEMS
UPLAND RIPARIAN ROW BIODIVERSITY PROFILE



HEALTHY CONNECTED ECOSYSTEMS
SOFT-BOTTOM BASIN BIODIVERSITY PROFILE

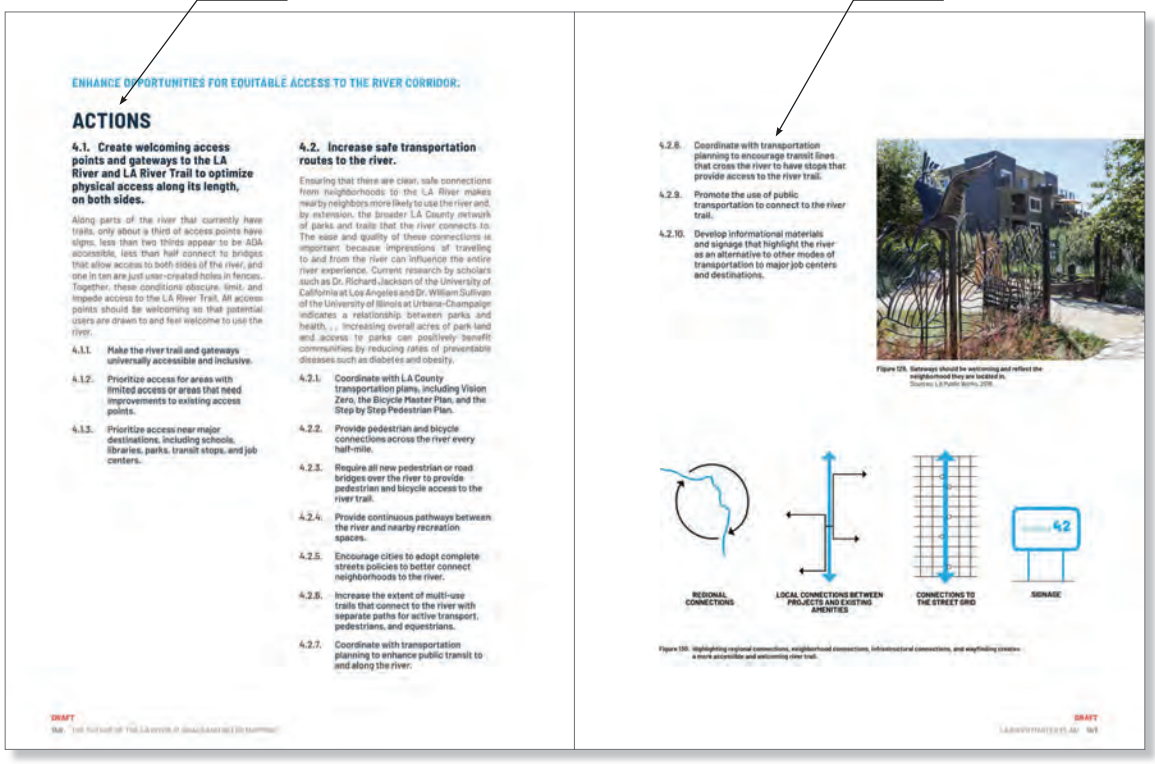


BIODIVERSITY PROFILES - WILDLIFE OVERVIEW



ACTIONS

METHODS



ENHANCE OPPORTUNITIES FOR EQUITABLE ACCESS TO THE RIVER CORRIDOR.

ACTIONS

4.1. Create welcoming access points and gateways to the LA River and LA River Trail to optimize physical access along its length, on both sides.

Along parts of the river that currently have trails, only about a third of access points have signs, less than two thirds appear to be ADA accessible, less than half connect to bridges that allow access to both sides of the river, and one in ten are just user-created holes in fences. Together, these conditions obscure, limit, and impede access to the LA River Trail. All access points should be welcoming so that potential users are drawn to and feel welcome to use the river.

4.1.1. Make the river trail and gateways universally accessible and inclusive.

4.1.2. Prioritize access for areas with limited access or areas that need improvements to existing access points.

4.1.3. Prioritize access near major destinations, including schools, libraries, parks, transit stops, and job centers.

4.2. Increase safe transportation routes to the river.

Ensuring that there are clear, safe connections from neighborhoods to the LA River makes nearby neighbors more likely to use the river and, by extension, the broader LA County network of parks and trails that the river connects to. The ease and quality of these connections is important because impressions of travelling to and from the river can influence the entire river experience. Current research by scholars such as Dr. Richard Jackson of the University of California at Los Angeles and Dr. William Sullivan of the University of Illinois at Urbana-Champaign indicates a relationship between parks and health, . . . Increasing overall acres of park land and access to parks can positively benefit communities by reducing rates of preventable diseases such as diabetes and obesity.

4.2.1. Coordinate with LA County transportation plans, including Vision Zero, the Bicycle Master Plan, and the Step by Step Pedestrian Plan.

4.2.2. Provide pedestrian and bicycle connections across the river every half-mile.

4.2.3. Require all new pedestrian or road bridges over the river to provide pedestrian and bicycle access to the river trail.

4.2.4. Provide continuous pathways between the river and nearby recreation spaces.

4.2.5. Encourage cities to adopt complete streets policies to better connect neighborhoods to the river.

4.2.6. Increase the extent of multi-use trails that connect to the river with separate paths for active transport, pedestrians, and equestrians.

4.2.7. Coordinate with transportation planning to enhance public transit to and along the river.

4.2.8. Coordinate with transportation planning to encourage transit lines that cross the river to have stops that provide access to the river trail.

4.2.9. Promote the use of public transportation to connect to the river trail.

4.2.10. Develop informational materials and signage that highlight the river as an alternative to other modes of transportation to major job centers and destinations.

Figure 129. Gateways should be welcoming and reflect the neighborhood they are located in.
Source: LA Public Works, 2019.

REGIONAL CONNECTIONS

LOCAL CONNECTIONS BETWEEN PROJECTS AND EXISTING AMENITIES

CONNECTIONS TO THE STREET GRID

SIGNAGE

Figure 130. Highlighting regional connections, neighborhood connections, infrastructural connections, and wayfinding creates a more accessible and welcoming river trail.

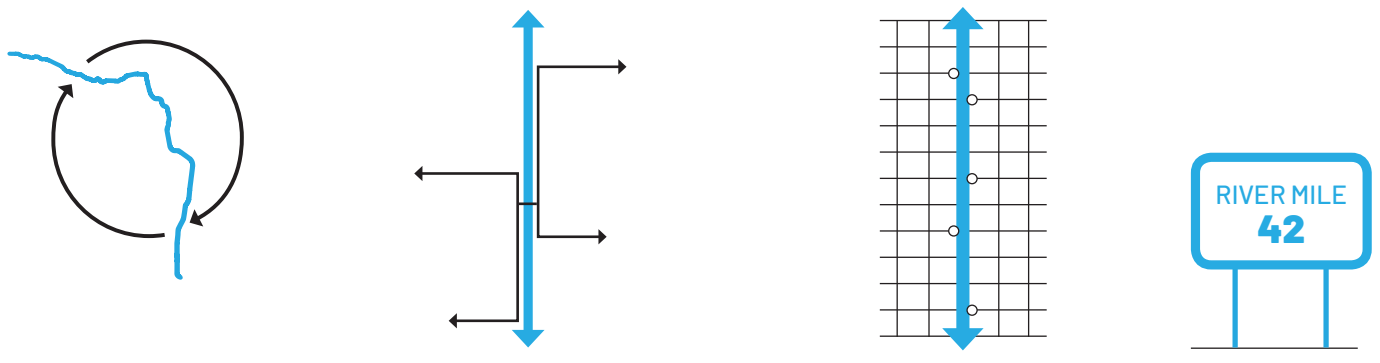
DRAFT

DRAFT

HOW CAN THE LARMP HELP?

REGIONAL CONNECTIONS	LOCAL CONNECTIONS BETWEEN PROJECTS AND EXISTING AMENITIES	CONNECTIONS TO THE STREET GRID	SIGNAGE
• **INCREASE THE EXTENT OF MULTI-USE TRAILS THAT CONNECT TO THE RIVER** (Action 4.2)	• **PRIORITIZE ACCESS NEAR MAJOR DESTINATIONS OR AREAS THAT NEED IMPROVEMENTS TO EXISTING ACCESS POINTS** (Action 4.1)	• **ENCOURAGE THE DEVELOPMENT OF SAFE ROUTES TO THE RIVER** (Action 4.1)	• **MAKE THE TRAIL AND GATEWAYS UNIVERSALLY ACCESSIBLE AND INCLUSIVE** (Action 4.1) • **DEVELOP INFORMATIONAL MATERIALS AND SIGNAGE** (Action 4.2)

HOW CAN THE LARMP HELP?



REGIONAL CONNECTIONS
(Actions 4.2)

LOCAL CONNECTIONS BETWEEN PROJECTS AND EXISTING AMENITIES
(Actions 4.1)

CONNECTIONS TO THE STREET GRID
(Actions 4.1)

SIGNAGE
(Actions 4.1, 4.2)

MAJOR REGIONAL TRAILS

Existing and Planned Class I Bike Paths and/or Multi-Use Trails*

- Existing Regional Trails
- Existing Local Trails
- Planned Trails
- Transmission Line Right-of-Way

Major Existing Regional Trails

#	Name	Uses	Length
1	LA River Trail	Bike, Horseback Riding, Wheelchair Accessible, Walking	30 miles
2	San Gabriel River Trail	Hiking, Mountain Biking, Horseback Riding, Walking	37.8 miles
3	Orange Line	Bike, Inline Skating, Wheelchair Accessible, Walking	32.9 miles
4	Schabarum-Skyline Trail	Hiking, Mountain Biking, Horseback Riding	29.9 miles
5	Rio Hondo River Trail	Hiking, Mountain Biking, Horseback Riding, Walking	15.6 miles
6	The Strand (Marvin Braude Bike Trail)	Bike, Inline Skating, Wheelchair Accessible, Walking	11.5 miles
7	Coyote Creek Bikeway	Bike, Inline Skating, Wheelchair Accessible, Walking	9.5 miles
8	Ballona Creek Bike Path	Hiking, Mountain Biking, Walking	6.7 miles
9	Santa Anita Wash Trail	Hiking, Mountain Biking, Horseback Riding	6.5 miles
10	San Fernando Road Bike Path	Bike, Inline Skating, Wheelchair Accessible, Walking	5.7 miles
11	Palos Verdes Drive N	Bike, Walking	4.8 miles
12	Whittier Greenway	Bike, Inline Skating, Wheelchair Accessible, Walking	4.7 miles
13	Shoreline Beach	Bike, Inline Skating, Wheelchair Accessible, Walking	4.1 miles

Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.
* Some Class I bike paths may also incorporate multi-use segments.

5 mi. N

EQUITABLE ACCESS

TRIBUTARY TRAILS

Existing and Planned Class I Bike Paths that extend from the LA River and up its major tributaries.*

- Existing Tributary Trails
- Planned Tributary Trails
- Continuous LA River Trail

Existing and Planned Tributary Trails

Name	Status	Uses	Length
Aliso Canyon Creek	Planned	Bike, Walking	6.6 miles
Pacoima Wash Greenway	Planned	Bike, Walking	7.1 miles
Tujunga Wash Greenway	Planned	Bike, Walking	1.3 miles
Verdugo Wash	Planned	Bike, Walking	7.3 miles
Arroyo Seco Bikeway	Planned	Bike, Walking	2.5 miles
Rio Hondo River Trail	Existing	Hiking, Mountain Biking, Horseback Riding	15.6 miles
Compton Creek Bike Path	Existing	Bike, Inline Skating, Wheelchair Accessible, Walking	5.1 miles

Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.
* Some trails may also incorporate multi-use segments.

ALISO CANYON WASH
PACOIMA WASH
TUJUNGA WASH
VERDUGO WASH
ARROYO SECO
RIO HONDO
COMPTON CREEK

5 mi. N

EQUITABLE ACCESS

REGIONAL LOOPS

Building from existing and planned trails along the LA River and its tributaries, these conceptual loops connecting primarily of Class I and II bike paths to suggest how the river corridor could serve as the backbone to regional active transit and recreation networks.*

- Potential Connectivity Loops
- Existing and Proposed Tributary Trails

#	Name	Length
1	Basin Loop	60 miles
2	Lost River Loop	45 miles
3	Palos Verdes Loop	36 miles
4	Highlands Loop	33 miles
5	Marina Loop	30 miles
6	Waterways Loop	30 miles
7	Rio Hondo Loop	28 miles
8	Reservoir Loop	24 miles
9	Valley Loop	22 miles

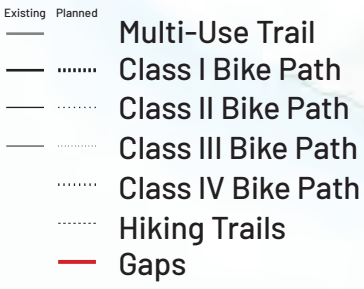
Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.
* Some trails may also incorporate multi-use segments.

RESERVOIR LOOP
VALLEY LOOP
HIGHLANDS LOOP
LOST RIVER LOOP
BASIN LOOP
RIO HONDO LOOP
WATERWAYS LOOP
MARINA LOOP
PALOS VERDES LOOP

5 mi. N

REGIONAL LOOPS ANALYSIS

Detailed breakdown of existing and proposed trail types that comprise regional loops.



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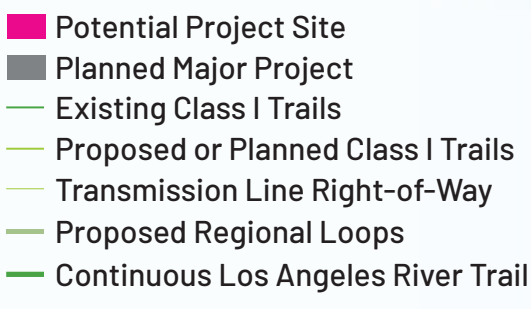
Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.

EQUITABLE ACCESS

MASTER PLAN CONNECTIVITY

Overall vision of regional connections anchored by the LA River.

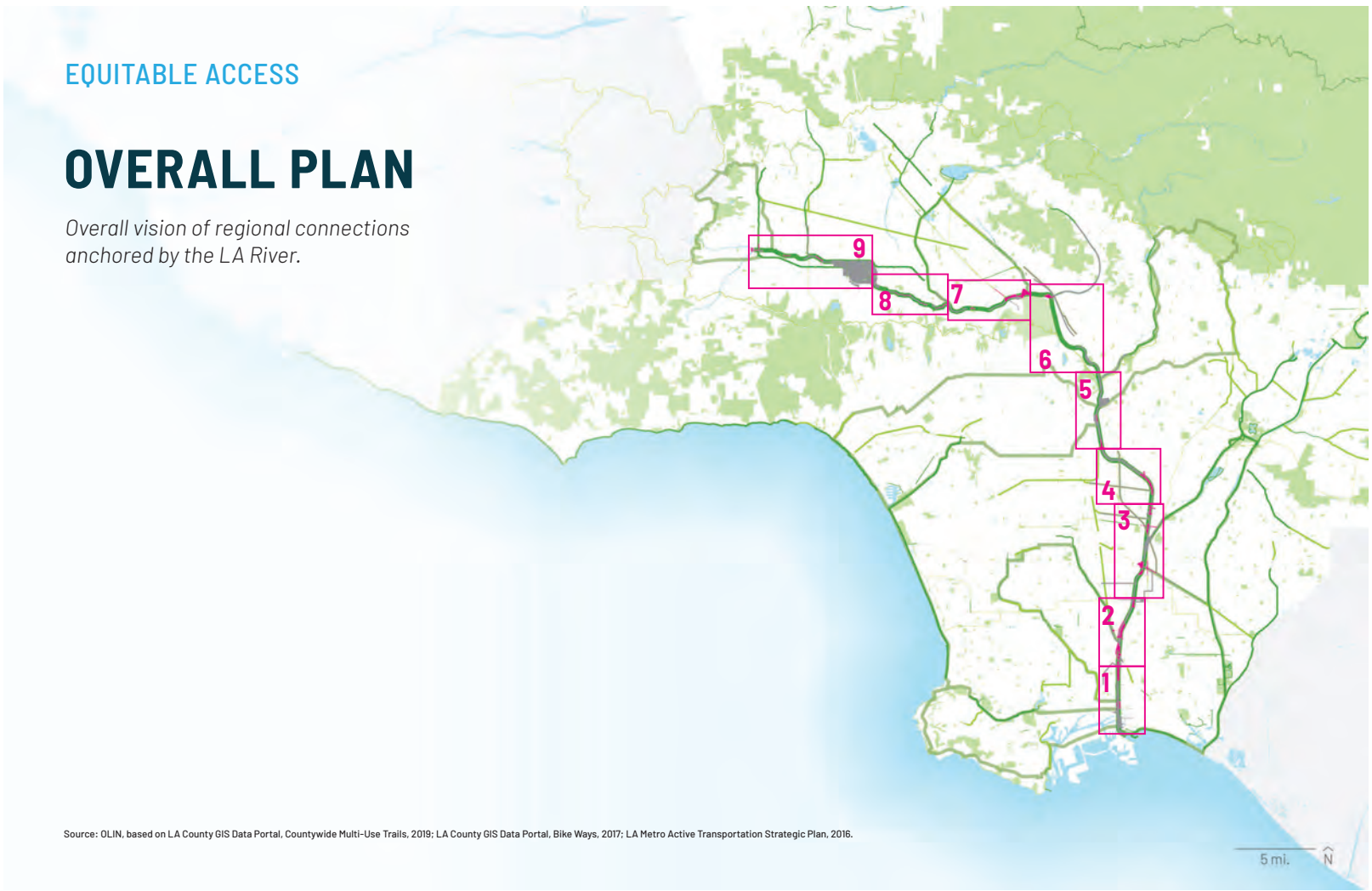


Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.

EQUITABLE ACCESS

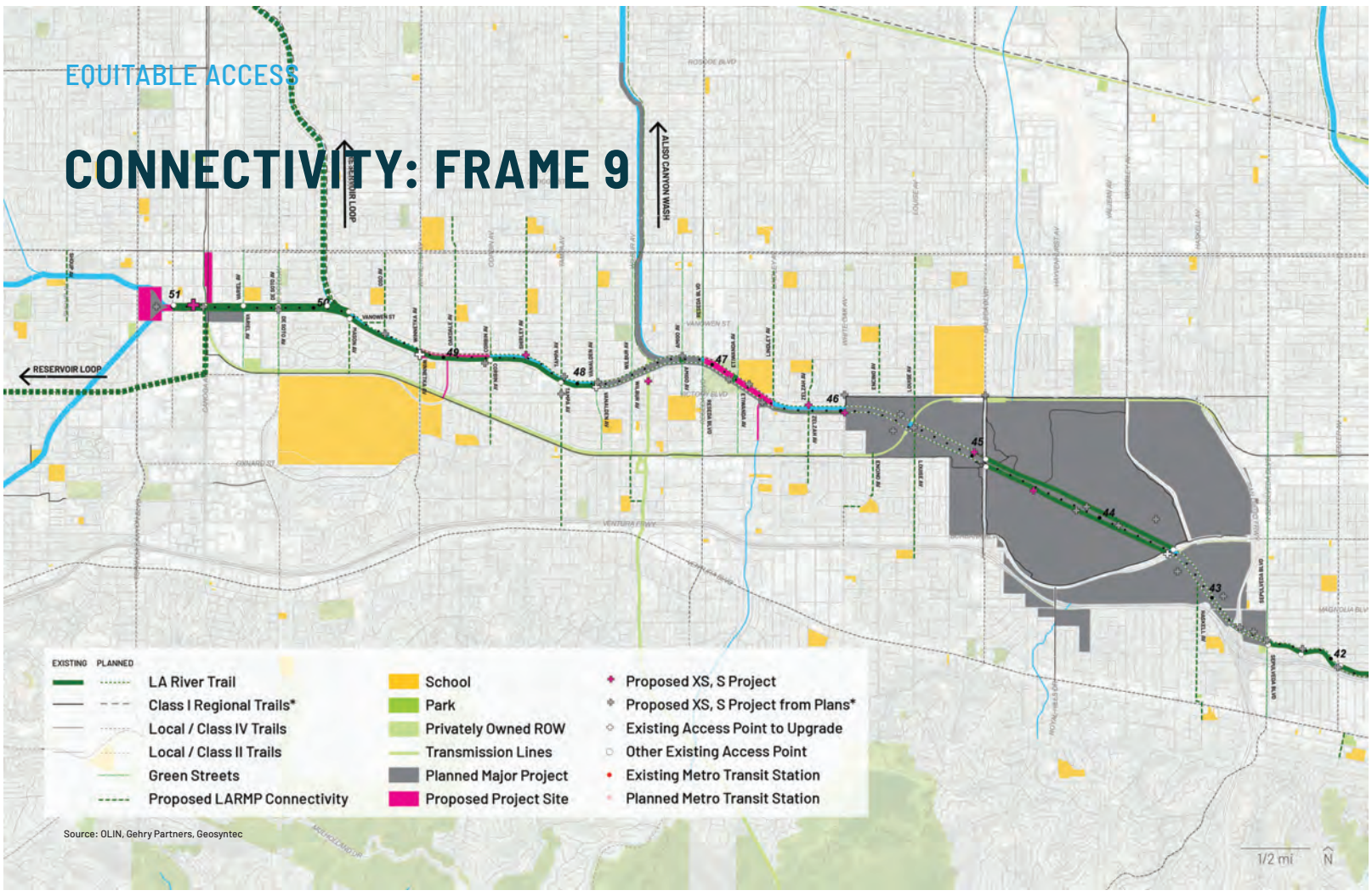
OVERALL PLAN

Overall vision of regional connections anchored by the LA River.



Source: OLIN, based on LA County GIS Data Portal, Countywide Multi-Use Trails, 2019; LA County GIS Data Portal, Bike Ways, 2017; LA Metro Active Transportation Strategic Plan, 2016.

CONNECTIVITY: FRAME 9



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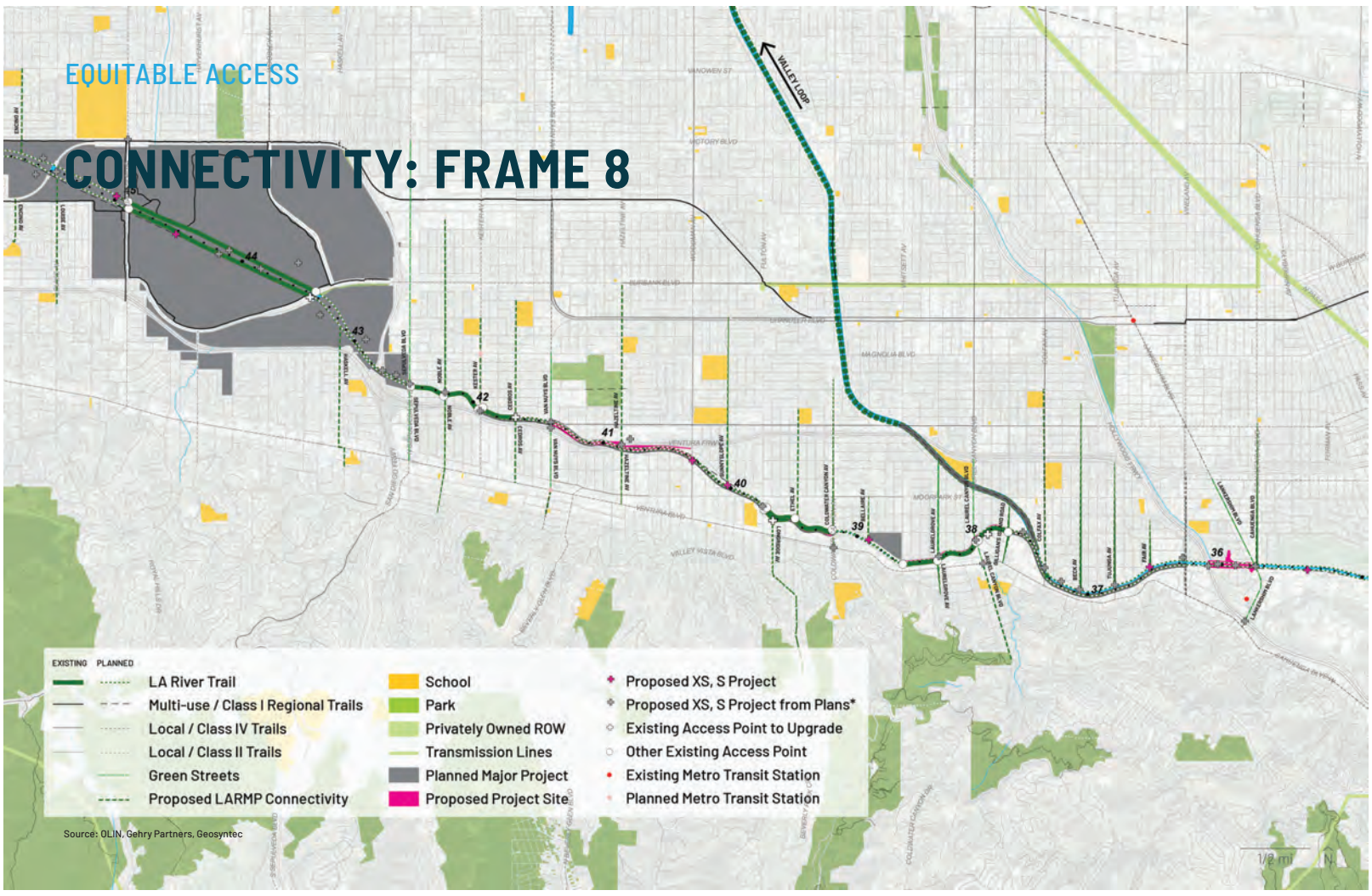
CONNECTIVITY: FRAME 8



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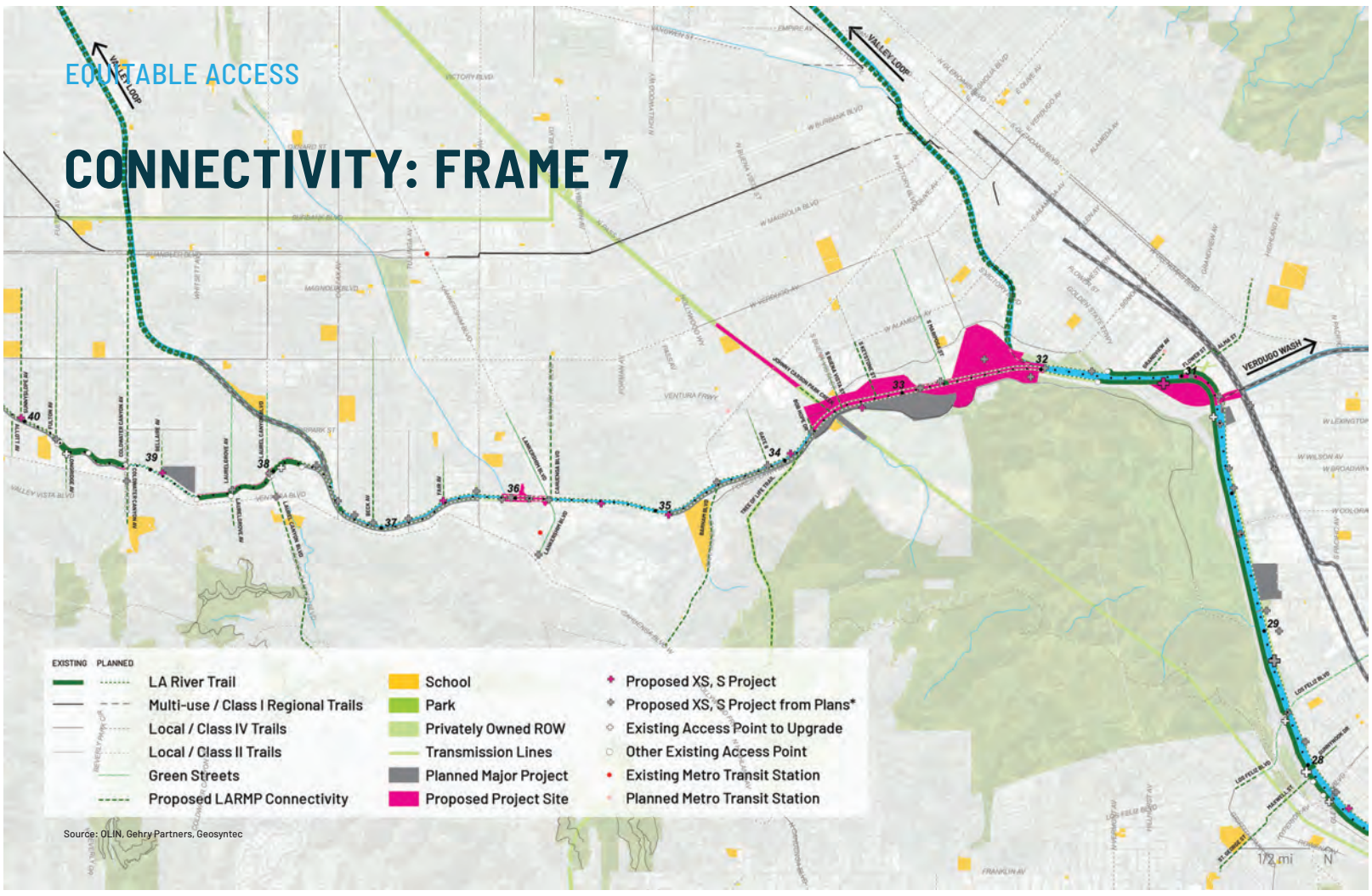
CONNECTIVITY: FRAME 7



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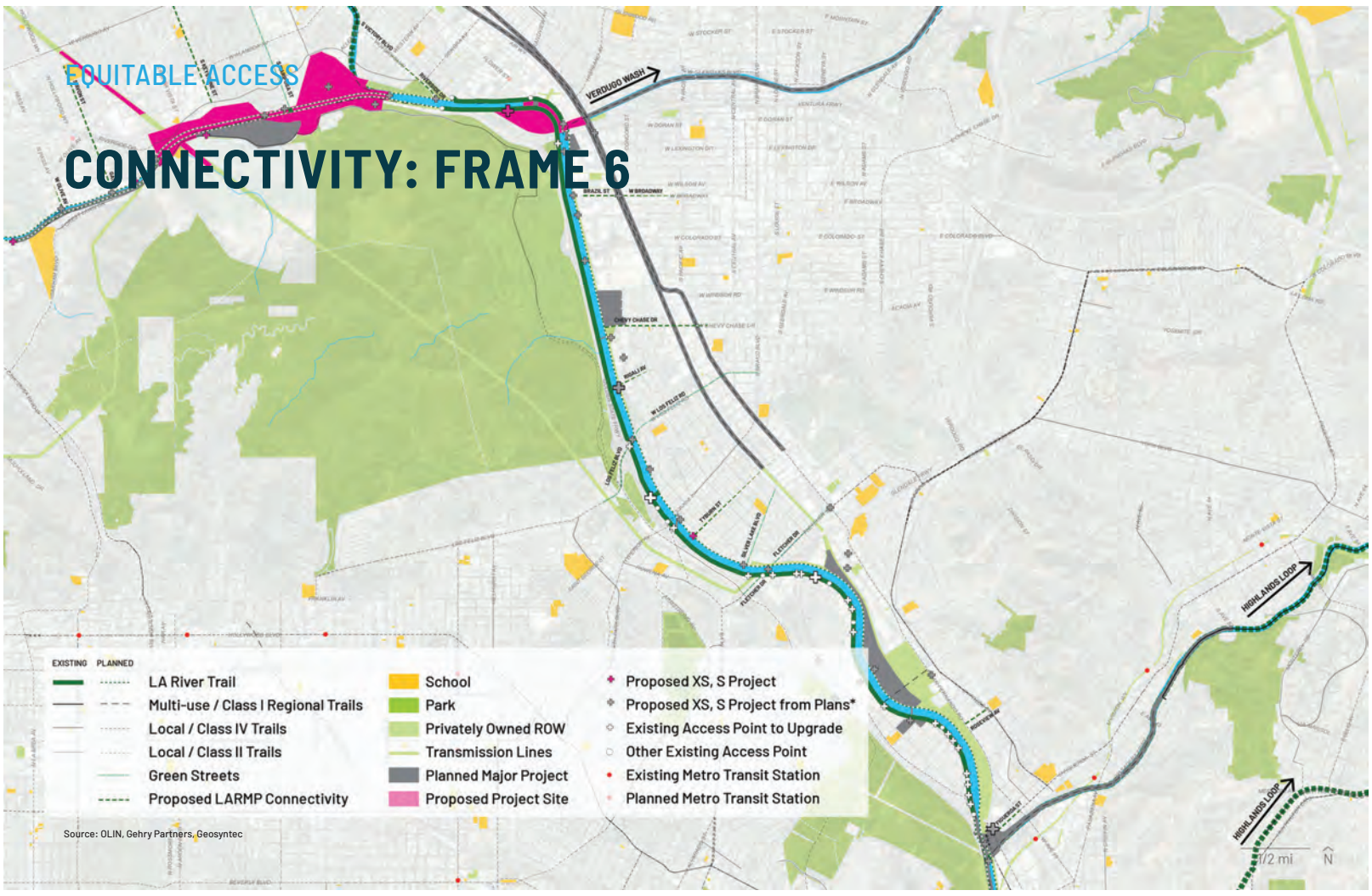
CONNECTIVITY: FRAME 6



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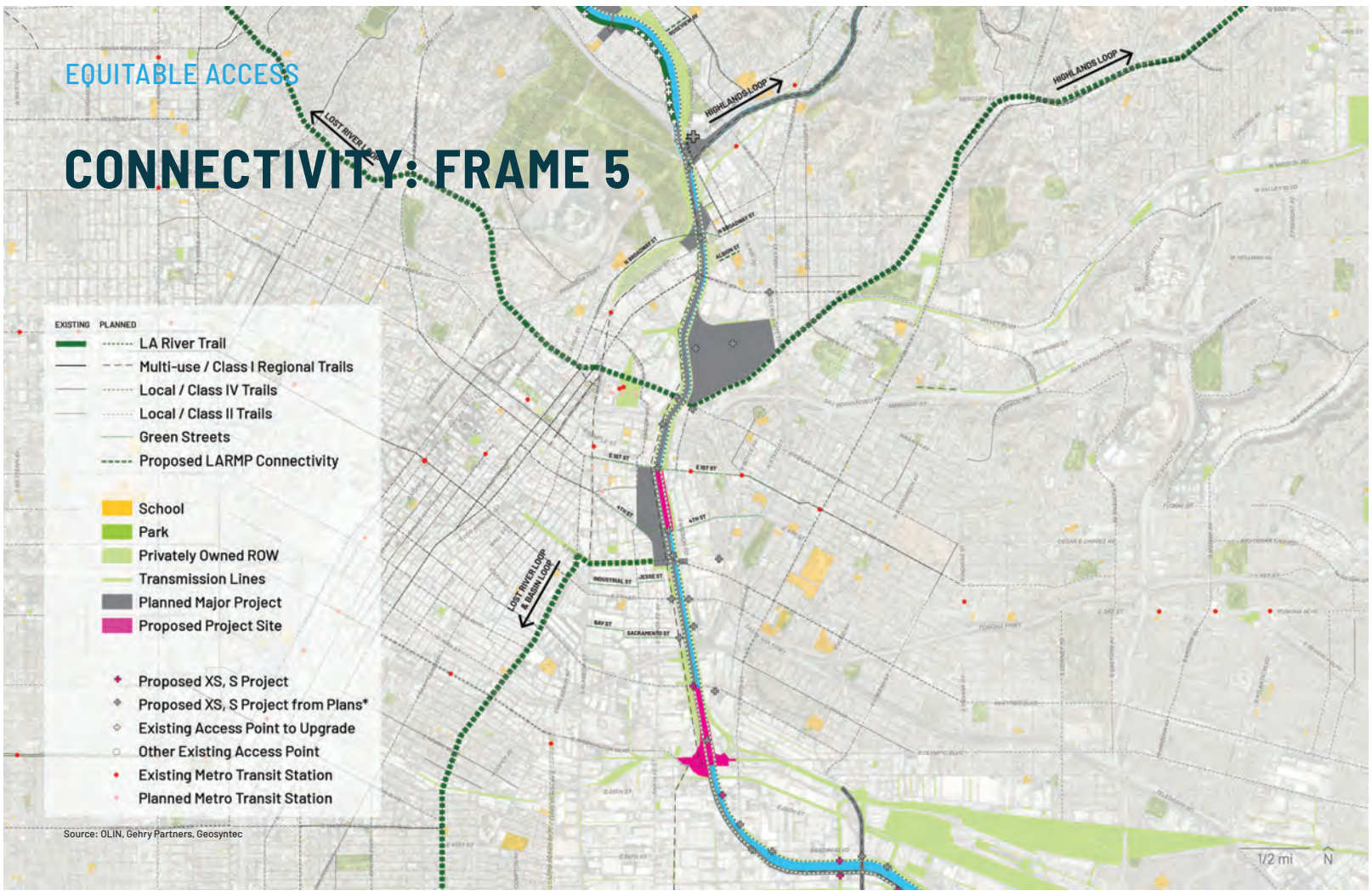

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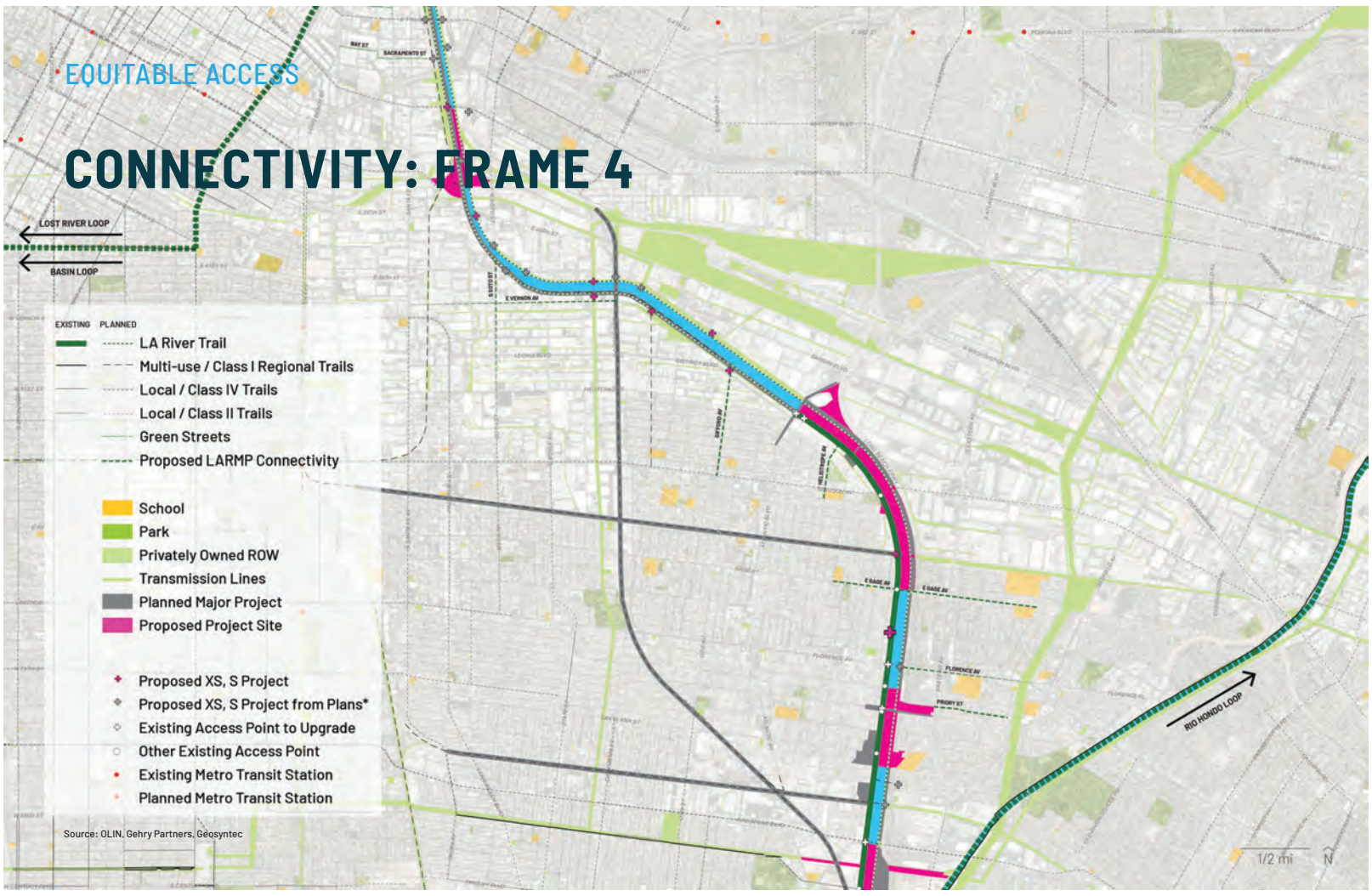
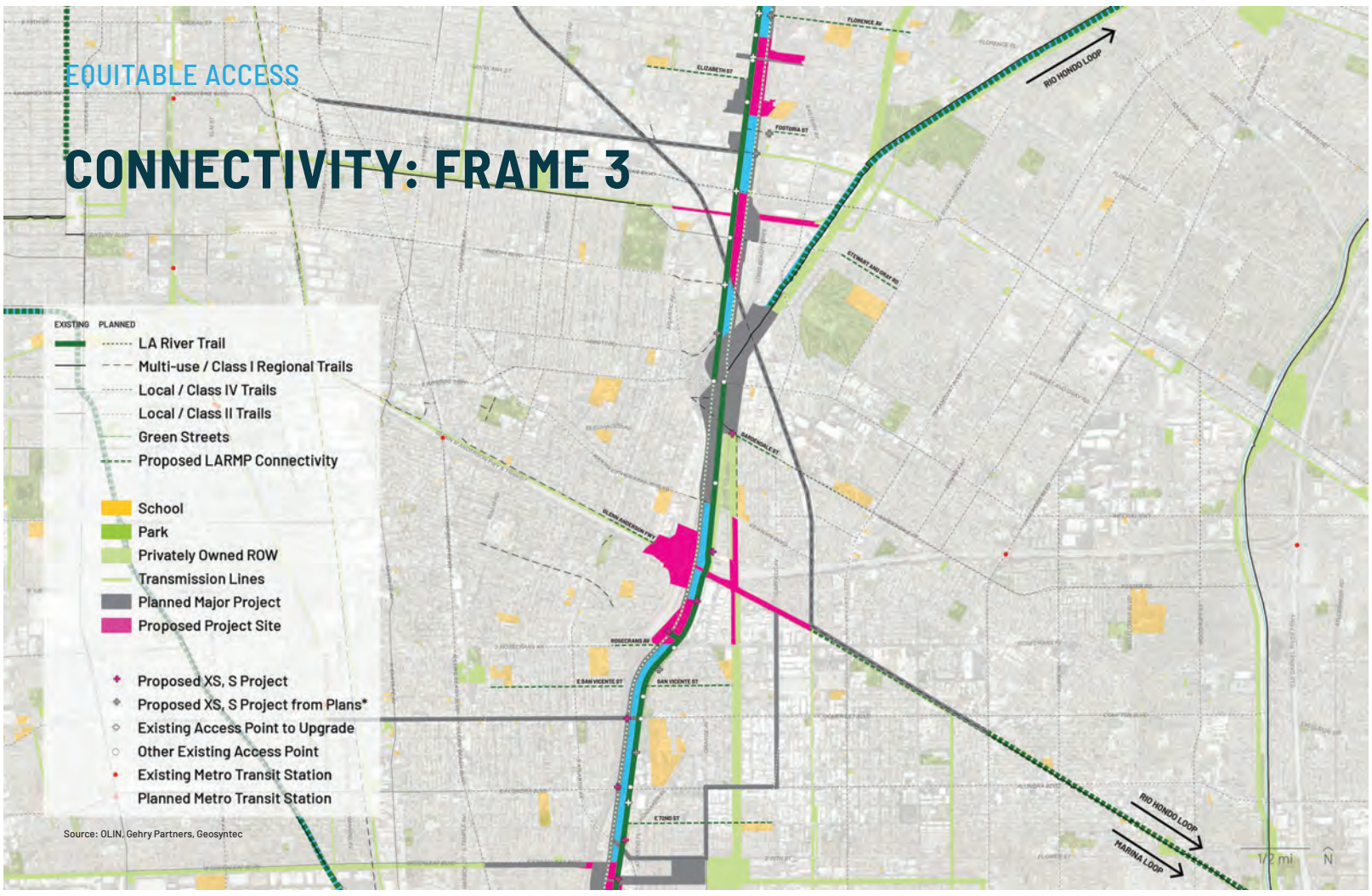
CONNECTIVITY: FRAME 4



CONNECTIVITY: FRAME 3



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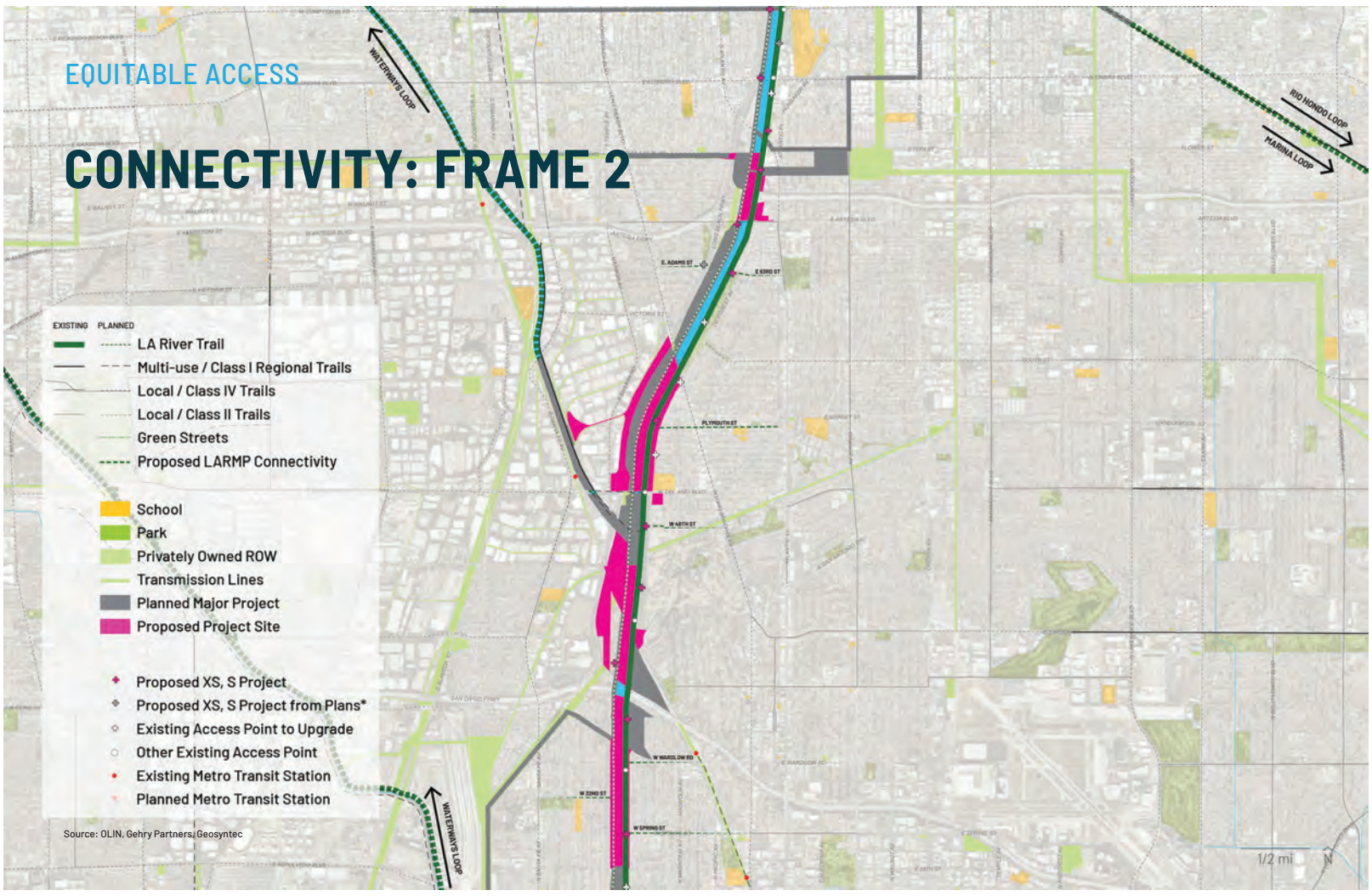
CONNECTIVITY: FRAME 2



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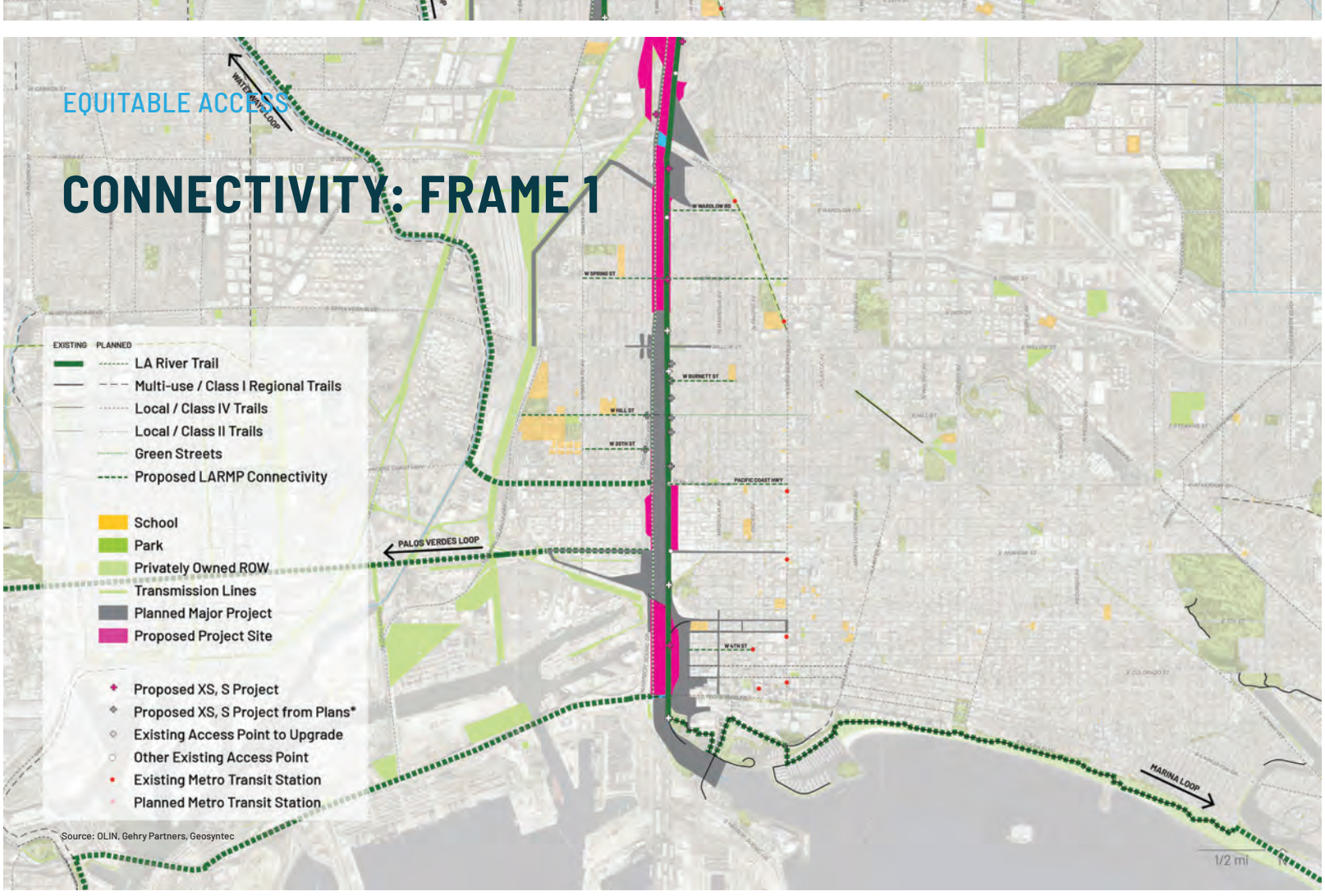
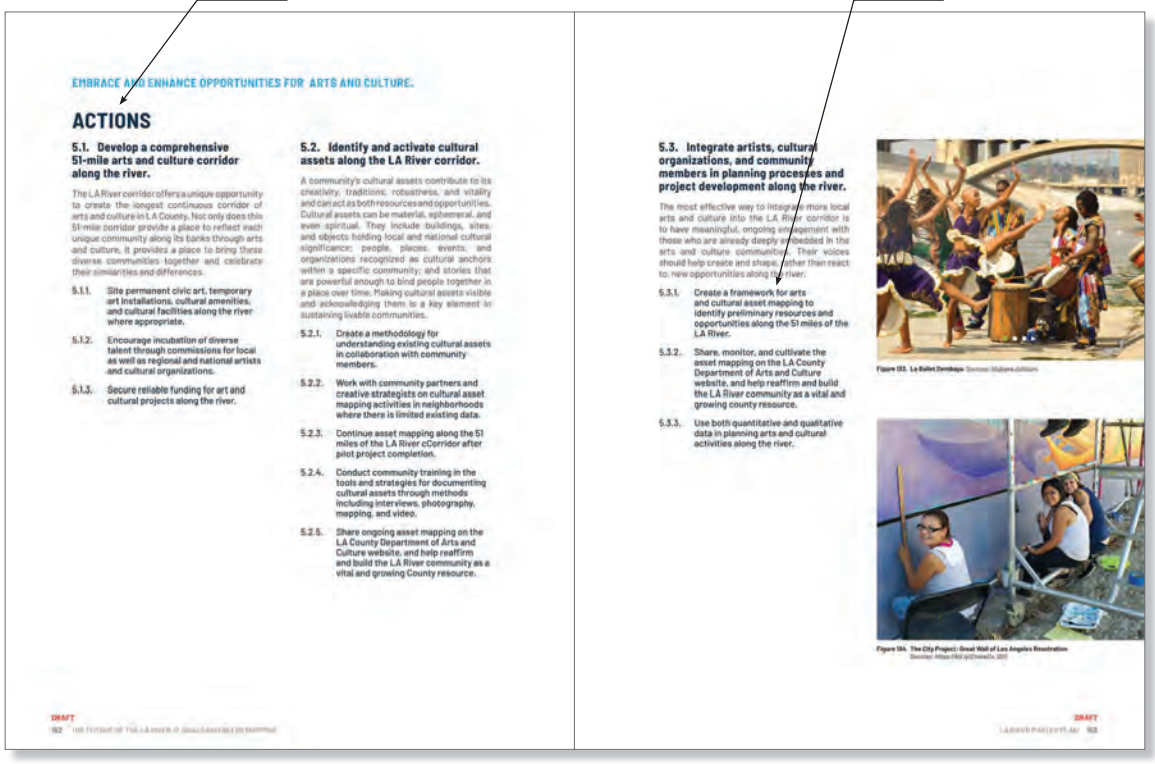
CONNECTIVITY: FRAME 1



ACTIONS

METHODS



EMBRACE AND ENHANCE OPPORTUNITIES FOR ARTS AND CULTURE.

ACTIONS

5.1. Develop a comprehensive 51-mile arts and culture corridor along the river.

The LA River corridor offers a unique opportunity to create the longest continuous corridor of arts and culture in LA County. Not only does this 51-mile corridor provide a place to reflect each unique community along its banks through arts and culture, it provides a place to bring these diverse communities together and celebrate their similarities and differences.

5.1.1. Site permanent civic art, temporary art installations, cultural amenities, and cultural facilities along the river where appropriate.

5.1.2. Encourage incubation of diverse talent through commissions for local as well as regional and national artists and cultural organizations.

5.1.3. Secure reliable funding for art and cultural projects along the river.

5.2. Identify and activate cultural assets along the LA River corridor.

A community's cultural assets contribute to its creativity, traditions, robustness, and vitality and can act as both resources and opportunities. Cultural assets can be material, ephemeral, and even spiritual. They include buildings, sites, and objects holding local and national cultural significance; people, places, events, and organizations recognized as cultural anchors within a specific community; and stories that are powerful enough to bind people together in a place over time. Making cultural assets visible and acknowledging them is a key element in sustaining livable communities.

5.2.1. Create a methodology for understanding existing cultural assets in collaboration with community members.

5.2.2. Work with community partners and creative strategists on cultural asset mapping activities in neighborhoods where there is limited existing data.

5.2.3. Continue asset mapping along the 51 miles of the LA River cCorridor after pilot project completion.

5.2.4. Conduct community training in the tools and strategies for documenting cultural assets through methods including interviews, photography, mapping, and video.

5.2.5. Share ongoing asset mapping on the LA County Department of Arts and Culture website, and help reaffirm and build the LA River community as a vital and growing County resource.

5.3. Integrate artists, cultural organizations, and community members in planning processes and project development along the river.

The most effective way to integrate more local arts and culture into the LA River corridor is to have meaningful, ongoing engagement with those who are already deeply embedded in the arts and culture communities. Their voices should help create and shape, rather than react to, new opportunities along the river.

5.3.1. Create a framework for arts and cultural asset mapping to identify preliminary resources and opportunities along the 51 miles of the LA River.

5.3.2. Share, monitor, and cultivate the asset mapping on the LA County Department of Arts and Culture website, and help reaffirm and build the LA River community as a vital and growing county resource.

5.3.3. Use both quantitative and qualitative data in planning arts and cultural activities along the river.

HOW CAN THE LARMP HELP?

RECOMMEND NEW STUDIES

- **FILL GAPS IN CULTURAL ASSET MAPPING** (Actions 5.2)

ESTABLISH GUIDING PRINCIPLES

- **CULTIVATE A UNIFIED APPROACH TO ART FOR THE LA RIVER** (Actions 5.1, 5.3, 5.4)

ENCOURAGE STREAMLINED PERMITTING

- **CREATE A FASTER PERMIT PROCESS FOR PERMANENT AND TEMPORARY ART ALONG AND IN THE LA RIVER** (Actions 5.5)

ART ALONG THE LA RIVER SHOULD BE BOTH PERMANENT AND EPHEMERAL

Faces of Elysian Valley by Greenmeme

Source: Greenmeme, http://www.greenmeme.com/RIVERSIDE-ROUNDABOUT, 2017

Le Ballet Dembaya Performance

Source: Shabaka Johnson, Le Ballet Dembaya

FLEXIBILITY

AS INFRASTRUCTURE CHANGES AND ADAPT, OPPORTUNITIES FOR ART EVOLVE TOO

Source: IX Art Park, https://owonderful.files.wordpress.com/2014/05/img_1355.jpg

INTEGRATION

ART CAN BE CREATED IN EVERY ASPECT OF A PROJECT (ECOLOGY, WATER, FURNISHINGS)

Example of land art temporarily integrated into a site before park construction.

Source: Lauren Bon - Not a Cornfield; //www.flickr.com/photos/notacornfield/, Accessed 05/08/18

EQUITY

ARTS AND CULTURE SHOULD BE BY AND FOR ALL

Source: "building: a simulacrum of power" by Rafa Esparza, 2014. The Bowtie Project, https://clockshop.org/project/bowtie/, Accessed 06/11/19

Source: KCET Departures, Leo Limon 11, 2010

INCUBATION

ART PROGRAMS AND ARTIST RESIDENCIES SUPPORT LOCAL TALENT AND YOUTH

Source: "Tzolk'in" by Beatriz Cortez, 2018, The Bowtie Project, https://clockshop.org/project/bowtie/, Accessed 06/11/19

Source: LACMA art camp, 2016, https://unframed.lacma.org/2016/12/05/creative-winter-break, Accessed 06/12/2019.

ARTS & CULTURE

ENGAGEMENT

ARTS AND CULTURE SHOULD ENGAGE WITH LOCAL ARTISTS, CITIES, AND OTHER ENTITIES

Source: SELA Arts Festival 2018; OLIN

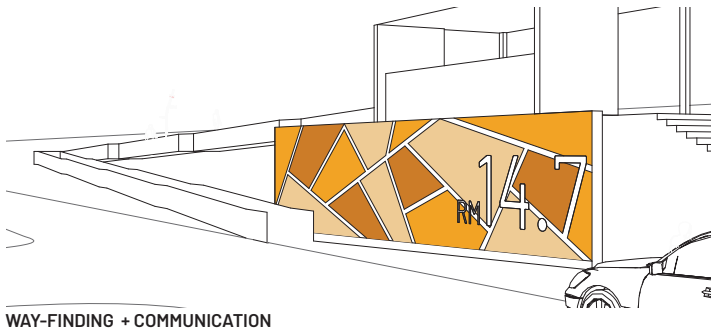
ARTS & CULTURE

SPECIFICITY OF PLACE

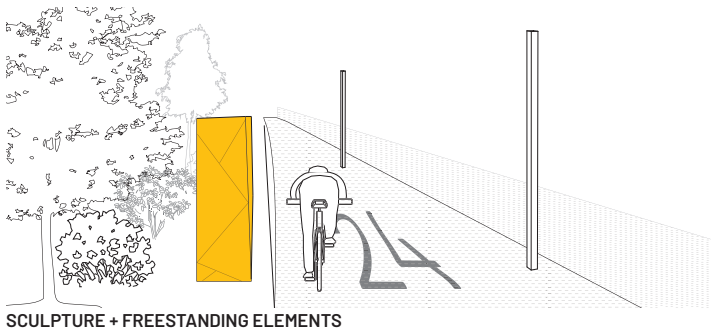
LA RIVER ART SHOULD REFLECT ITS SITE, HISTORY, AND CULTURE

Source: OLIN

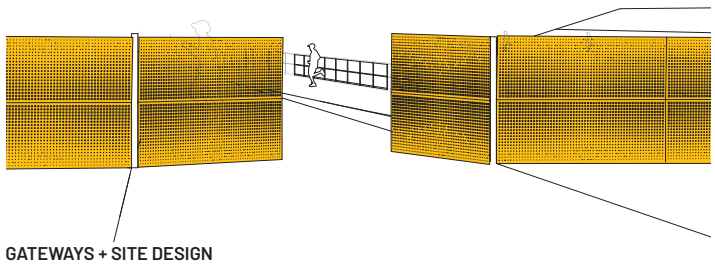
EXAMPLES OF PERMANENT LA RIVER ART



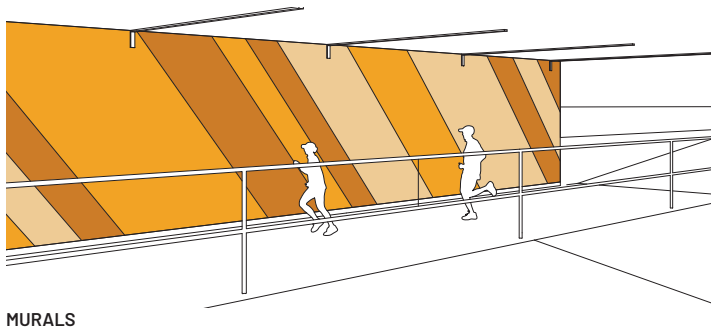
WAY-FINDING + COMMUNICATION



SCULPTURE + FREESTANDING ELEMENTS

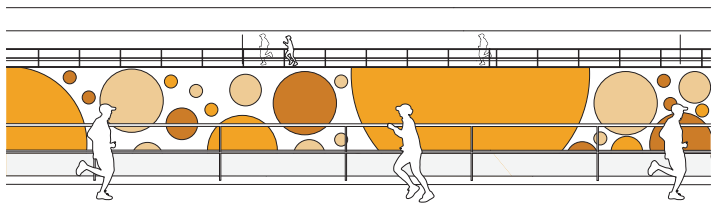


GATEWAYS + SITE DESIGN

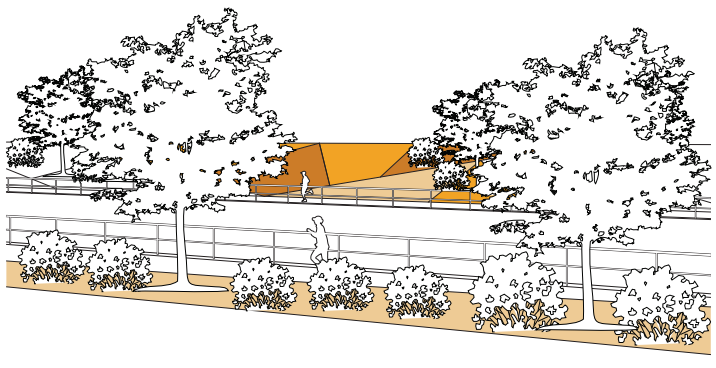


MURALS

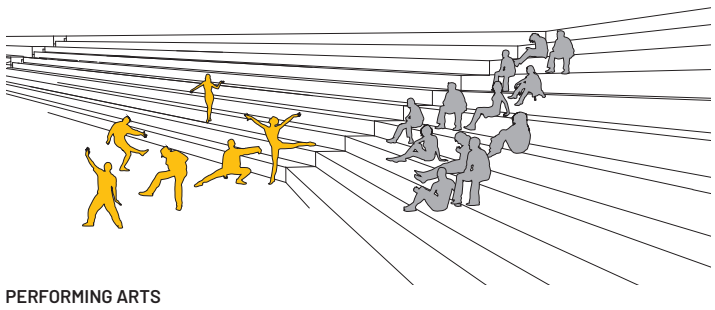
EXAMPLES OF EPHEMERAL LA RIVER ART



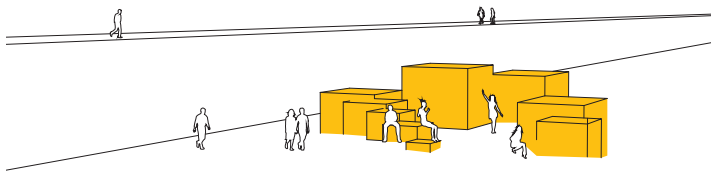
MEDIA ART + PROJECTIONS



TEMPORARY LAND ART INSTALLATIONS



PERFORMING ARTS



PORTABLE SCULPTURES OR PAINTINGS

ACTIONS

METHODS

PROMOTE HEALTHY, SAFE, CLEAN WATER.

9.4. Increase public awareness of river water quality and watershed health.

There is a common misperception that the water in the LA River is unclean. While all rivers are subject to sporadic events where water quality dips below normal, the majority of water in the river during dry weather comes from the three water reclamation plants that treat it to a very high standard of quality. This water is clean enough for people to kayak in the soft-bottom parts of the river. In areas where polluted runoff discharges into the LA River, water in these areas can become polluted. Education can help improve public awareness of safe and unsafe conditions and teach communities how to improve the quality of their runoff.

9.4.1. Develop a website to coordinate information, provide consistency in water quality reporting, and assist in educating other agencies, cities, and the general public on river issues such as water quality.

9.4.2. Post consistent and inclusive signage and communication about water quality on bridges, access points, and along the river.

9.5. Improve water quality facility operations and maintenance.

Water quality projects, like all other infrastructure, require proper operations and maintenance to help maximize long-term viability of the projects. Insufficient funding and maintenance procedures can decrease the effectiveness in delivering proper water quality benefits, as well as shorten the lifespan of the infrastructure.

9.5.1. Expand coordination between responsible water quality agencies to streamline O&M, facility management, funding, and permitting.

9.5.2. Review and update operations and maintenance protocols and best practices.

9.5.3. Implement new technologies such as real-time monitoring, reporting, and controls.

HOW CAN THE LARMP HELP?

PRESCRIBE PROJECT ATTRIBUTES

- **INCORPORATE LID TECHNIQUES ACROSS PROJECTS** (Actions 9.1, 9.2, 9.3)
- **PRIORITIZE REGIONAL WATER QUALITY IMPROVEMENTS TO PROJECTS IN AREAS OF GREATEST NEED** (Actions 9.3)

REINFORCE REGIONAL POLICIES

- **DEVELOP DESIGN GUIDELINES THAT REFLECT REGIONAL REQUIREMENTS** (Actions 9.3, 9.5)
- **ENCOURAGE IMPLEMENTATION OF EXISTING WATERSHED MANAGEMENT PLANS** (Actions 9.2, 9.3)

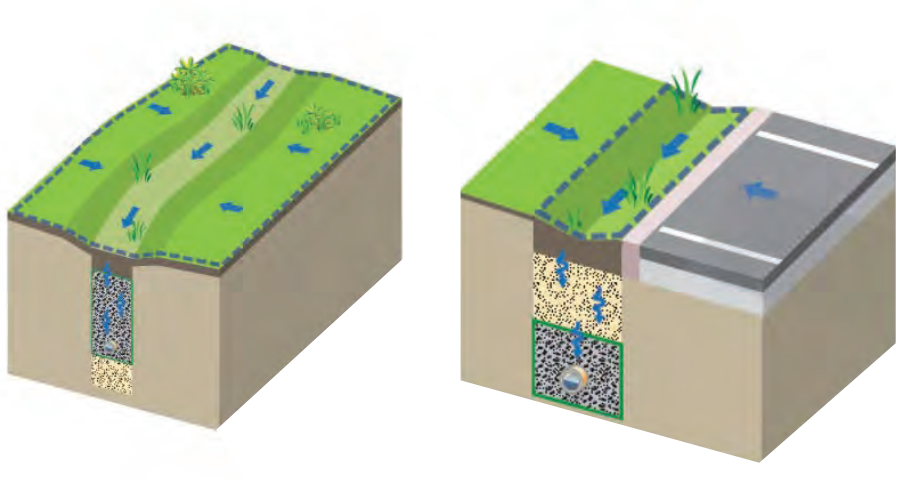
WATER QUALITY IMPROVEMENTS SHOULD BE CONSISTENTLY IMPLEMENTED WITHIN THE LA RIVER WATERSHED AND ALONG THE CHANNEL ITSELF

- Projects themselves will meet water quality requirements.
- Approved watershed plans to improve regional requirements need support in some locations more than others.
- Local or state government can assist with funding, such as Measure W

Source: Flickr User Los Angeles District, LA River, 2013

LOCAL WATER SUPPLY

INCLUDE LOW IMPACT DEVELOPMENT (LID) ELEMENTS IN ALL PROJECTS



Source: Geosyntec

REGIONAL WATER QUALITY

INCLUDE ABOVE AND UNDERGROUND RETENTION AND CISTERNS

Source: Geosyntec

NATURE-BASED SOLUTIONS

EXPAND ON EXAMPLES LIKE THE DOMINGUEZ GAP WETLANDS

Source: OLIN

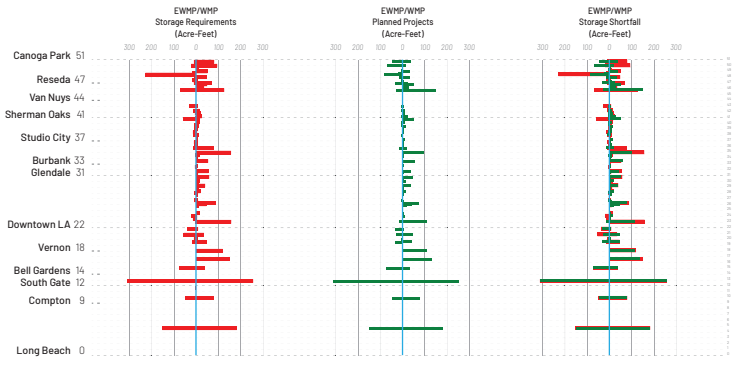
WISE WATER RESOURCE MANAGEMENT

USE TREATED WATER BENEFICIALLY

Source: The Metropolitan Water District of Southern California, Water Recycling, http://www.mwdh2o.com/PDF_In_The_Community/3.4.3_Water_Recycling_Just_Doing.pdf

PROJECTS CAN CONTRIBUTE TO EWMP/WMP TARGETS

EWMP/WMP TARGET RULER



Source: ULAR EWMP (2016), https://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/watershed_management/los_angeles/upper_losangeles/20160127/UpperLARiver_mainbody_revEWMP_Jan2016.pdf, LAR UR2 WMP (2015), https://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/watershed_management/los_angeles/upper_reach2/Upper_LA_River_R2_FinalWMP.pdf, LLAR WMP (2017), https://www.waterboards.ca.gov/losangeles/water_issues/programs/stormwater/municipal/watershed_management/los_angeles/lower_losangeles/LLARWMP2017updated.pdf

Source:https://www.flickr.com/photos/healthebay/7153361501/in/album-72157629989023189/

SITE SELECTION REVIEW

Source: Joe Mabel. 2001. Wikipedia. https://commons.wikimedia.org/wiki/File:Los_Angeles_River_aerial_01.jpg

MASTER PLAN RULER

Source: OLIN, Gehry Partners, Geosyntec
*Plans referenced include Lower Los Angeles River Revitalization Plan, Los Angeles River Revitalization Master Plan, and Metro LA River Path Project

OVERLAYS

River Improvement Overlay Zone (LARRMP)

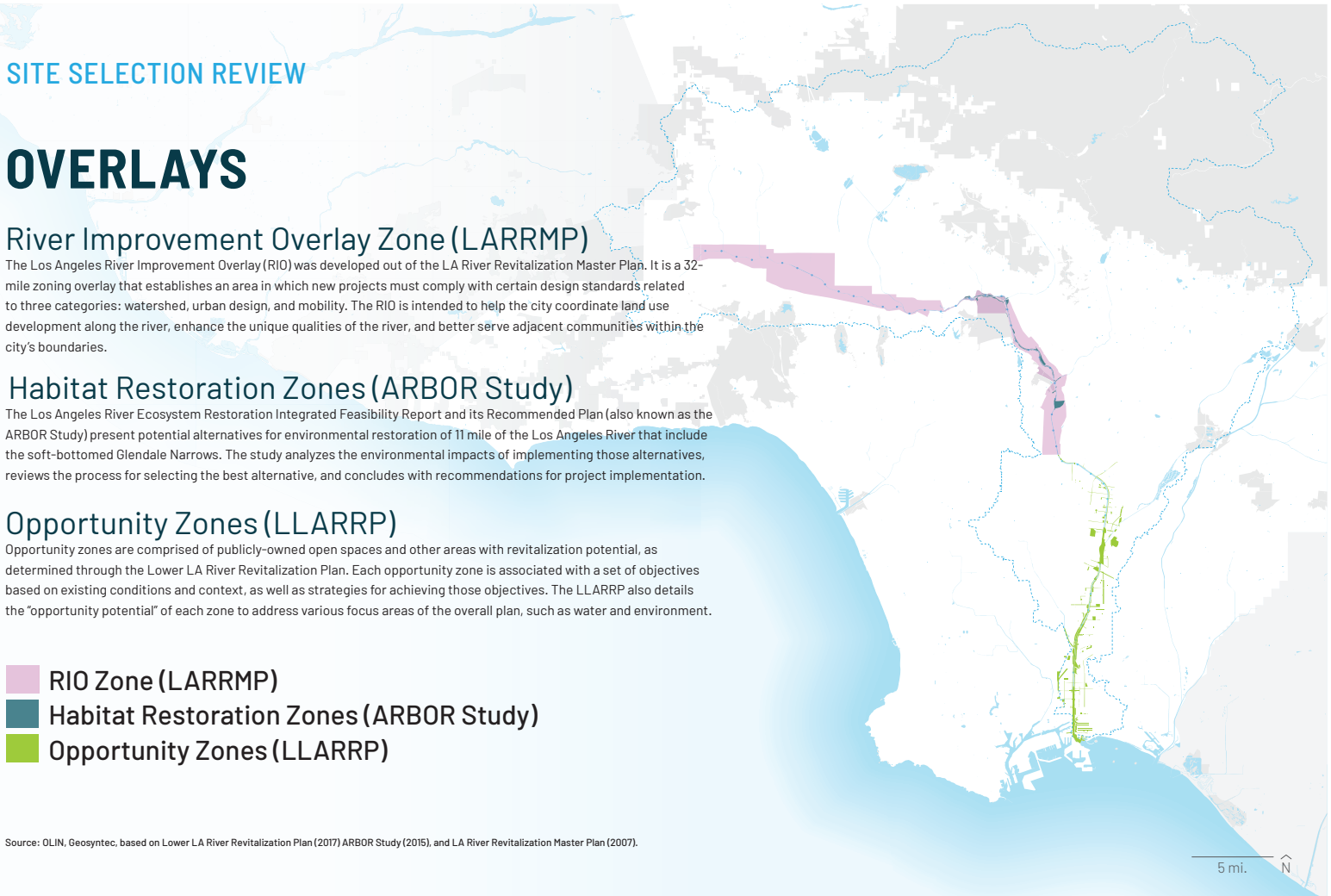
The Los Angeles River Improvement Overlay (RIO) was developed out of the LA River Revitalization Master Plan. It is a 32-mile zoning overlay that establishes an area in which new projects must comply with certain design standards related to three categories: watershed, urban design, and mobility. The RIO is intended to help the city coordinate land use development along the river, enhance the unique qualities of the river, and better serve adjacent communities within the city's boundaries.

Habitat Restoration Zones (ARBOR Study)

The Los Angeles River Ecosystem Restoration Integrated Feasibility Report and its Recommended Plan (also known as the ARBOR Study) present potential alternatives for environmental restoration of 11 mile of the Los Angeles River that include the soft-bottomed Glendale Narrows. The study analyzes the environmental impacts of implementing those alternatives, reviews the process for selecting the best alternative, and concludes with recommendations for project implementation.

Opportunity Zones (LLARRP)

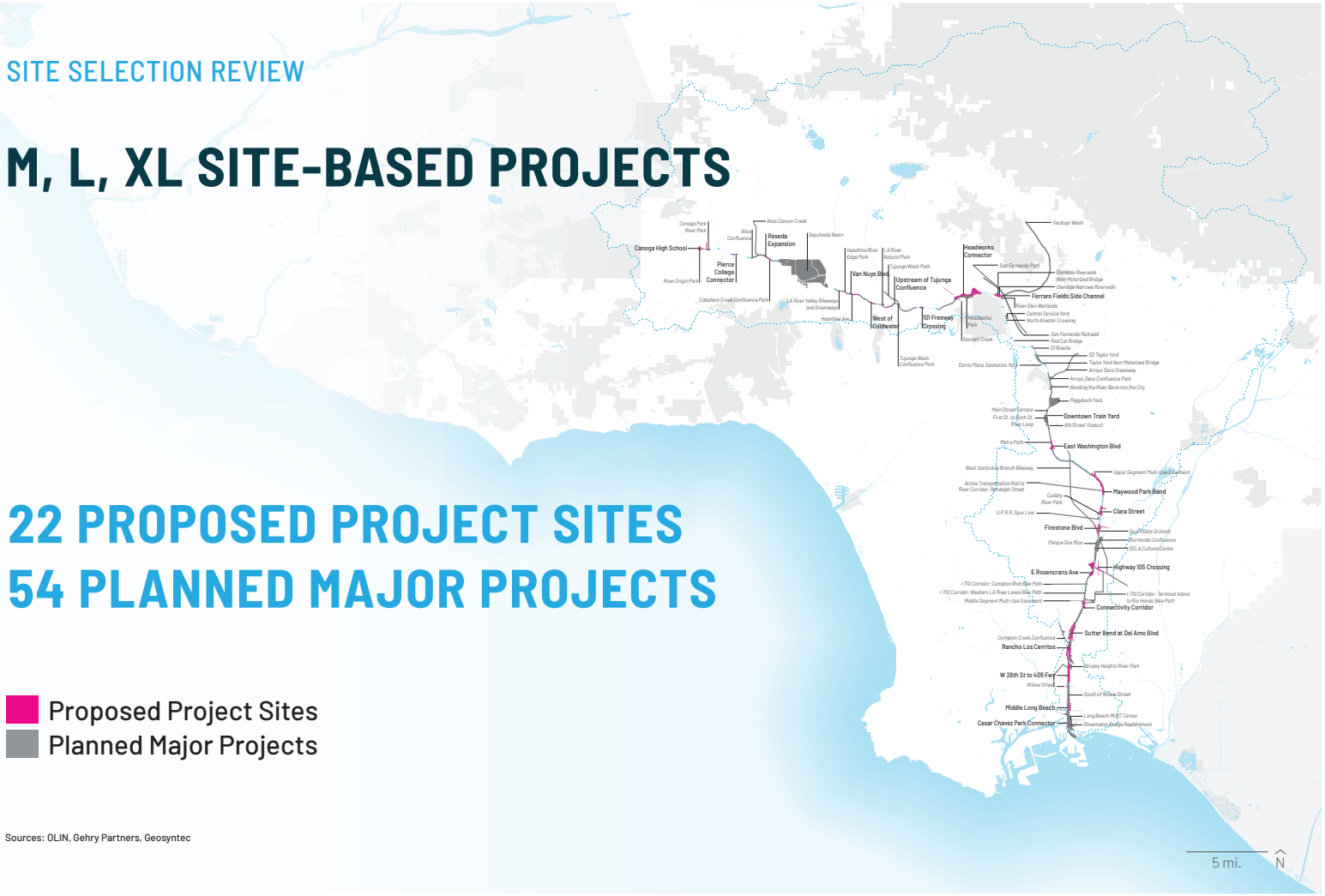
Opportunity zones are comprised of publicly-owned open spaces and other areas with revitalization potential, as determined through the Lower LA River Revitalization Plan. Each opportunity zone is associated with a set of objectives based on existing conditions and context, as well as strategies for achieving those objectives. The LLARRP also details the "opportunity potential" of each zone to address various focus areas of the overall plan, such as water and environment.



Source: OLIN, Geosyntec, based on Lower LA River Revitalization Plan (2017) ARBOR Study (2015), and LA River Revitalization Master Plan (2007).

M, L, XL SITE-BASED PROJECTS

22 PROPOSED PROJECT SITES
54 PLANNED MAJOR PROJECTS



Sources: OLIN, Gehry Partners, Geosyntec

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: LARRMP

RM 51.1

River Origin Park

Frame 9

Los Angeles

M / 6.7 acres

Land Ownership:
97% Public (Non-County), 1% Privately Owned, 1% County Owned, 1% Unclassified

Congressional District: 30

Supervisor District: 3

Council District: 27

State Senate: 27

State Assembly: 3

Planned Major Project: LARRMP

RM 50.6

Canoga Park River Park

Frame 9

Los Angeles

M / 16.5 acres

Land Ownership:
40% Privately Owned, 22% County Owned, 21% Unclassified, 17% Public (Non-County)

Congressional District: 30

Supervisor District: 3

Council District: 3

State Senate: 27

State Assembly: 45

Planned Major Project: City of LA Bureau of Engineering

RM 47.8

LA River Valley Bikeways and Greenway

Frame 9, 8, 7

Los Angeles, Burbank

XL / 12.98 miles

Land Ownership:
38% County, 37% Public (Non-County), 16% Private, 9% Unclassified

Congressional District: 28, 30

Supervisor District: 3, 5

Council District: 2, 3, 4, 5, 6

State Senate: 18, 25, 26, 27

State Assembly: 43, 45, 46

Planned Major Project: LA City Mobility Plan

RM 47.5

Aliso Canyon Creek

Frame 49

Los Angeles

M / 2.2 miles

Land Ownership:
73% Public (Non-County), 13% Private, 8% Unclassified, 6% County

Congressional District: 30

Supervisor District: 3

Council District: 3, 12

State Senate: 27

State Assembly: 45

Planned Major Project: LARRMP

RM 47.4

Aliso Creek Confluence Park / Reseda River Loop

Frame 9

Los Angeles

M / 26.9 acres

Land Ownership:
66% County Owned, 21% Privately Owned, 13% Unclassified

Congressional District: 30

Supervisor District: 3

Council District: 3

State Senate: 27

State Assembly: 45

Source: OLIN, Geosyntec, Gehry Partners

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: LARRMP, MRCA

RM 46.5

Caballero Creek Confluence Park

Frame 9

Los Angeles

M / 1.5 acres

Land Ownership:
80% Public (Non-County), 20% County Owned

Congressional District: 30

Supervisor District: 3

Council District: 3

State Senate: 27

State Assembly: 45

Planned Major Project: LARRMP

RM 44

Sepulveda Basin

Frame 9

Los Angeles

XL / 1884.2 acres

Land Ownership:
100% Public (Non-County)

Congressional District: 30

Supervisor District: 3

Council District: 6

State Senate: 27

State Assembly: 45

Planned Major Project: LARRMP

RM 41.2

Hazeltine River Edge Park

Frame 8

Los Angeles

M / 3.5 acres

Land Ownership:
51% Unclassified, 43% County Owned, 6% Privately Owned

Congressional District: 30

Supervisor District: 3

Council District: 4

State Senate: 18

State Assembly: 46

Planned Major Project: LARRMP

RM 40.9

Hazeltine Avenue

Frame 8

Los Angeles

M / 1.1 acres

Land Ownership:
91% Unclassified, 9% County Owned

Congressional District: 30

Supervisor District: 3

Council District: 4

State Senate: 18

State Assembly: 46

Planned Major Project: Save LA River Open Space

RM 38.8

LA River Natural Park

Frame 8

Los Angeles

M / 17.2 acres

Land Ownership:
94% Privately Owned, 6% Public (Non-County)

Congressional District: 30

Supervisor District: 3

Council District: 2

State Senate: 18

State Assembly: 46

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: LARRMP

RM 37.6

Tujunga Wash Confluence Park

Frame 7

Los Angeles

M / 1.4 acres

Land Ownership:
100% Privately Owned

Congressional District: 30

Supervisor District: 3

Council District: 2

State Senate: 18

State Assembly: 46

Planned Major Project: LA City Mobility Plan

RM 37.5

Tujunga Wash Path

Frame 7, 8

Bell, Maywood, Huntington Park, Vernon

M / 1.3 miles

Land Ownership:
50% County, 29% Private, 21% Unclassified

Congressional District: 30

Supervisor District: 3

Council District: 2, 4

State Senate: 18

State Assembly: 46

Planned Major Project: FoLAR, NE Trees, MRCA

RM 33.5

Sennett Creek

Frame 7

Los Angeles

M / 16.7 acres

Land Ownership:
54% Public (Non-County), 31% Private, 15% Unclassified

Congressional District: 28

Supervisor District: 3

Council District: 4

State Senate: 25

State Assembly: 43

Planned Major Project: LARRMP, ARBOR Study

RM 33

Headworks Park

Frame 7

Los Angeles

L / 52.8 acres

Land Ownership:
83% Public (Non-County), 17% Unclassified

Congressional District: 28

Supervisor District: 3

Council District: 4

State Senate: 25

State Assembly: 43

Planned Major Project: LARRMP

RM 31

Glendale Riverwalk Non-Motorized Bridge

Frame 6

Los Angeles

M / 2.2 acres

Land Ownership:
82% Public (Non-County), 13% Unclassified, 5% County Owned

Congressional District: 28

Supervisor District: 3

Council District: 4

State Senate: 25

State Assembly: 43

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: City of Glendale

RM 30.8

Glendale Narrows Riverwalk

Frame 6

Los Angeles

M / 2.1 acres

Land Ownership:
59% Public (Non-County), 38% County, 2% Private, 1% Unclassified

Congressional District: 28

Supervisor District: 3,5

Council District: 4

State Senate: 25

State Assembly: 43

Planned Major Project: Glendale Bike Plan

RM 30.7

San Fernando Railroad

Frame 6

Los Angeles, Glendale

M / 4.5 miles

Land Ownership:
69% Private, 27% County, 4% Unclassified

Congressional District: 28

Supervisor District: 5

Council District: 13

State Senate: 25

State Assembly: 43

Planned Major Project: Burbank Bicycle Master Plan

RM 30.65

San Fernando Path

Frame 6

Los Angeles, Glendale, Burbank

L / 5.5 miles

Land Ownership:
100% Unclassified

Congressional District: 28

Supervisor District: 3, 5

Council District: 13

State Senate: 25

State Assembly: 43

Planned Major Project: Glendale Bike Plan

RM 30.6

Verdugo Wash

Frame 6

Glendale

L / 7.3 miles

Land Ownership:
41% County, 28% Private, 24% Public (Non-County), 7% Unclassified

Congressional District: 28

Supervisor District: 5

Council District: n/a

State Senate: 25

State Assembly: 43

Planned Major Project: LARRMP, ARBOR Study

RM 30.5

River Glen Wetlands

Frame 6

Los Angeles

M / 4.6 acres

Land Ownership:
91% Privately Owned, 9% Unclassified

Congressional District: 28

Supervisor District: 3

Council District: 13

State Senate: 25

State Assembly: 43

Source: OLIN, Geosyntec, Gehry Partners

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: City of LA

RM 29.3

Central Service Yard

Frame 6

Los Angeles

M / 26.1 acres

Land Ownership:
100% Public (Non-County)

Congressional District: 28

Supervisor District: 3

Council District: 13

State Senate: 25

State Assembly: 43

Planned Major Project: City of LA Bureau of Engineering

RM 29.1

North Atwater Crossing

Frame 6

Los Angeles

L / 0.7 acres

Land Ownership:
100% Public (Non-County)

Congressional District: 28

Supervisor District: 3

Council District: 4, 13

State Senate: 25

State Assembly: 43

Planned Major Project: City of LA Bureau of Engineering

RM 27.7

Red Car Bridge

Frame 6

Los Angeles

M / 0.9 acres

Land Ownership:
77% County Owned, 15% Unclassified, 8% Public (Non-County)

Congressional District: 28

Supervisor District: 3

Council District: 4, 13

State Senate: 25

State Assembly: 51

Planned Major Project: ARBOR Study, State Parks, The Nature Conservancy

RM 26.2

G1 Bowtie

Frame 6

Los Angeles

M / 20.4 acres

Land Ownership:
93% Public (Non-County), 7% Privately Owned

Congressional District: 28

Supervisor District: 1

Council District: 1

State Senate: 24

State Assembly: 51

Planned Major Project: LARRMP, ARBOR Study

RM 25.6

G2 Taylor Yard

Frame 6

Los Angeles

L / 41.6 acres

Land Ownership:
100% Privately Owned

Congressional District: 28

Supervisor District: 1

Council District: 1

State Senate: 24

State Assembly: 51

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: LARRMP

RM 25.3

Dorris Place Sanitation Yard

Frame 6

Los Angeles

L / 7.5 acres

Land Ownership:
87% Public (Non-County), 12% Privately Owned, 1% Unclassified

Congressional District: 28

Supervisor District: 1

Council District: 13

State Senate: 24

State Assembly: 51

Planned Major Project: LARRMP

RM 25.2

Taylor Yard Non-Motorized Bridge

Frame 6

Los Angeles

L / 0.9 acres

Land Ownership:
78% Public (Non-County), 22% Privately Owned

Congressional District: 28

Supervisor District: 1

Council District: 13

State Senate: 24

State Assembly: 51

Planned Major Project: Metro

RM 24.5

Metro Path

Frame 4, 5

Los Angeles, Vernon

L / 7.9 miles

Land Ownership:
47% Public (Non-County), 36% County, 13% Private

Congressional District: 34, 40

Supervisor District: 1

Council District: 1, 14

State Senate: 24, 33

State Assembly: 51, 53

Planned Major Project: LARRMP, ARBOR Study, MRCA

RM 24.1

Arroyo Seco Confluence

Frame 5

Los Angeles

M / 22.3 acres

Land Ownership:
37% Public (Non-County), 54% Unclassified, 7% Private, 2% County

Congressional District: 34

Supervisor District: 1

Council District: 1

State Senate: 24

State Assembly: 51

Planned Major Project: Arroyo Seco Foundation

RM 24

Arroyo Seco Greenway

Frame 45

Los Angeles

M / 2.5 miles

Land Ownership:
73% Public (Non-County), 25% Unclassified, 1% County

Congressional District: 34

Supervisor District: 1

Council District: 1

State Senate: 24

State Assembly: 51

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: Lauren Bon and the Metabolic Studio

RM 23.5

Bending the River Back into the City

Frame 5

Los Angeles

M / 21.7 acres

Land Ownership:
41% Public (Non-County), 27% Private, 21% County, 11% Unclassified

Congressional District: 34

Supervisor District: 1

Council District: 1

State Senate: 24

State Assembly: 51

Planned Major Project: ARBOR Study

RM 23.2

Main Street Terrace

Frame 5

Los Angeles

L / 1.5 acres

Land Ownership:
100% Public (Non-County)

Congressional District: 34

Supervisor District: 1

Council District: 1

State Senate: 24

State Assembly: 51

Planned Major Project: LARRMP, ARBOR Study

RM 22.6

Piggyback Yard

Frame 5

Los Angeles

XL / 162.4 acres

Land Ownership:
97% Private, 2% Unclassified, 1% County

Congressional District: 34

Supervisor District: 1

Council District: 14

State Senate: 24

State Assembly: 51

Planned Major Project: LARRMP

RM 21.5

First Street to Sixth Street River Loop

Frame 5

Los Angeles

L / 63.5 acres

Land Ownership:
58% County, 25% Private, 8% Public (Non-County), 9% Unclassified

Congressional District: 34

Supervisor District: 1

Council District: 14

State Senate: 24

State Assembly: 53

Planned Major Project: City of LA

RM 21.1

6th Street Viaduct

Frame 5

Los Angeles

M / 6.5 acres

Land Ownership:
37% Unclassified, 29% Private, 28% Public (Non-County), 6% County

Congressional District: 35

Supervisor District: 1

Council District: 14

State Senate: 24

State Assembly: 53

Source: OLIN, Geosyntec, Gehry Partners

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: Gateway Cities Strategic Transportation Plan

RM 18.2

West Santa Ana Branch Bikeway

Frame 3, 4

Bell, Huntington Park, Downey, Cudahy, South Gate, Paramount, Vernon, Maywood

L / 9.8 miles

Land Ownership:
78% Public (Non-County), 14% County, 5% Unclassified, 3% Private

Congressional District: 40, 44

Supervisor District: 1, 4

Council District: n/a

State Senate: 32, 33

State Assembly: 53, 58, 63

Planned Major Project: LLARRP

RM 16.2

Upper Segment Multi-use Easement and Atlantic Blvd Area

Frame 4

Vernon, Bell

L / 61.4 acres

Land Ownership:
66% Public (Non-County), 14% Private, 14% Unclassified, 6% County

Congressional District: 40

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 53, 63

Planned Major Project: Metro ATSP

RM 15.3

Active Transportation Rail to River Corridor: Randolph Street

Frame 4

Bell, Maywood, Huntington Park, Vernon

M / 3.9 miles

Land Ownership:
54% Privately, 44% Unclassified, 2% Public (Non-County)

Congressional District: 40

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 53, 59, 63

Planned Major Project: LLARRP

RM 13.9

Cudahy River Park

Frame 3

Cudahy

M / 32 acres

Land Ownership:
51% Public (Non-County), 29% Privately, 18% Unclassified, 2% County

Congressional District: 40

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 63

Planned Major Project: South Bay Master Bike Plan, City of South Gate - One Step Closer to the LA River

RM 13.5

U.P.R.R. Spur Line

Frame 3

South Gate, Cudahy

M / 3 miles

Land Ownership:
97% Private, 3% Unclassified

Congressional District: 40, 44

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 59, 63

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: TPL, City of South Gate, LLARRP, RMC

RM 12.7

South Gate Orchard

Frame 3

South Gate

L / 27.8 acres

Land Ownership:
56% Public (Non-County), 29% Private, 10% County, 5% Unclassified

Congressional District: 44

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 63

Planned Major Project: City of South Gate - One Step Closer to the LA River

RM 12

Parque Dos Rios

Frame 3

South Gate

M / 6.9 acres

Land Ownership:
100% Private

Congressional District: 44

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 63

Planned Major Project: Metro

RM 11.9

I-710 Corridor Bike Path Project: Western LA River Levee Bike Path

Frame 2

Long Beach, Lynwood, Compton, Paramount

XL / 11.6 miles

Land Ownership:
68% County, 18% Private, 9% Unclassified, 5% Public (Non-County)

Congressional District: 40, 44, 47

Supervisor District: 2, 4

Council District: n/a

State Senate: 33, 35

State Assembly: 63, 64, 70

Planned Major Project: LLARRP, LACDPW

RM 11.8

Rio Hondo Confluence

Frame 3

South Gate

XL / 164.6 acres

Land Ownership:
38% Private, 33% Public (Non-County), 16% County, 13% Unclassified

Congressional District: 44

Supervisor District: 1, 2

Council District: n/a

State Senate: 33

State Assembly: 63

Planned Major Project: LLARRP, RMA

RM 11.7

SELA Cultural Center

Frame 3

South Gate

M / 10 acres

Land Ownership:
98% County, 2% Unclassified

Congressional District: 44

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 63

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: Metro

RM 10.4

I-710 Corridor Bike Path Project: Terminal Island to Rio Hondo

Frame 1, 2, 3

Long Beach, Paramount, Compton, South Gate

L / 5.9 miles

Land Ownership:
60% Unclassified, 27% Private, 10% Public (Non-County), 3% County

Congressional District: 40, 44, 47

Supervisor District: 1, 2, 4

Council District: n/a

State Senate: 33, 35

State Assembly: 63, 64, 70

Planned Major Project: Metro

RM 9.4

I-710 Corridor Bike Path Project: Compton Blvd

Frame 3

Compton, Paramount

M / 2.2 miles

Land Ownership:
100% Unclassified

Congressional District: 40, 44

Supervisor District: 4

Council District: n/a

State Senate: 33, 35

State Assembly: 63, 64

Planned Major Project: LLARRP

RM 7.2

Middle Segment Multi-use Easement and Crossover

Frame 2

Long Beach, Unincorporated

L / 148.1 acres

Land Ownership:
80% Private, 10% Public (Non-County), 6% County, 4% Unclassified

Congressional District: 44

Supervisor District: 4

Council District: n/a

State Senate: 33, 35

State Assembly: 63, 64

Planned Major Project: LLARRP

RM 5.5

Compton Creek Confluence Area

Frame 2

Long Beach

L / 87.9 acres

Land Ownership:
52% County, 44% Private, 4% Unclassified

Congressional District: 44, 47

Supervisor District: 2, 4

Council District: n/a

State Senate: 33, 35

State Assembly: 64

Planned Major Project: Long Beach Riverlink, LLARRP

RM 4.4

Wrigley Heights River Park

Frame 2

Long Beach

L / 63.7 acres

Land Ownership:
60% Private, 25% County, 10% Unclassified, 5% Public (Non-County)

Congressional District: 44, 47

Supervisor District: 4

Council District: n/a

State Senate: 33

State Assembly: 70

Source: OLIN, Geosyntec, Gehry Partners

PLANNED MAJOR PROJECTS: M, L, XL

Planned Major Project: LLARRP

RM 2.9

Willow Street

Frame 1

Long Beach

M / 11.8 acres

Land Ownership:
98% Unclassified, 1% Public (Non-County), 1% Private

Congressional District: 47

Supervisor District: 4

Council District: n/a

State Senate: 33, 35

State Assembly: 70

Planned Major Project: LLARRP

RM 1.6

South of Willow Street

Frame 1

Long Beach

XL / 258.7 acres

Land Ownership:
62% County, 26% Unclassified, 12% Private

Congressional District: 47

Supervisor District: 4

Council District: n/a

State Senate: 33, 35

State Assembly: 70

Planned Major Project: City of Long Beach

RM 0.9

Long Beach Municipal Urban Stormwater Treatment

Frame 1

Long Beach

M / 8.2 acres

Land Ownership:
68% Public (Non-County), 12% County, 11% Private, 9% Unclassified

Congressional District: 47

Supervisor District: 4

Council District: n/a

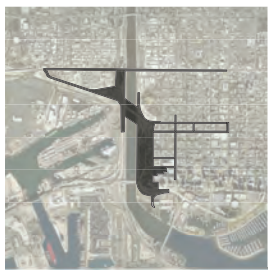
State Senate: 33

State Assembly: 70

Planned Major Project: I-710 Corridor Improvement Project

RM 0.7

Shoemaker Bridge Replacement



Frame 1

Long Beach

XL / 179.9 acres

Land Ownership:
54% Unclassified, 26% Public (Non-County), 11% County, 9% Private

Congressional District: 47

Supervisor District: 4

Council District: n/a

State Senate: 33

State Assembly: 70

Source: OLIN, Geosyntec, Gehry Partners

POTENTIAL PROJECT SITES: M, L, XL

LARMP Proposed Project

RM 51

Canoga High School

Frame 9

Los Angeles

L / 44.4 acres

Land Ownership:
56% Public (Non-County), 41% County, 3% Unclassified

Congressional District: 30

Supervisor District: 3

Council District: 3

State Senate: 27

State Assembly: 45

LARMP Proposed Project

RM 48.9

Pierce College Connector

Frame 9

Los Angeles

M / 13.9 acres

Land Ownership:
86% County, 10% Public (Non-County), 4% Private

Congressional District: 30

Supervisor District: 3

Council District: 3

State Senate: 27

State Assembly: 45

LARMP Proposed Project

RM 46.8

Reseda Expansion

Frame 9

Los Angeles

L / 19 acres

Land Ownership:
87% County, 13% Unclassified

Congressional District: 30

Supervisor District: 3

Council District: 3

State Senate: 27

State Assembly: 45

LARMP Proposed Project

RM 40.8

Van Nuys Blvd

Frame 8

Los Angeles

M / 19.6 acres

Land Ownership:
57% County, 41% Unclassified, 2% Private

Congressional District: 30

Supervisor District: 3

Council District: 4

State Senate: 10

State Assembly: 46

LARMP Proposed Project

RM 39.4

West of Coldwater

Frame 8

Los Angeles

M / 7.6 acres

Land Ownership:
94% County, 6% Unclassified

Congressional District: 30

Supervisor District: 3

Council District: 2

State Senate: 10

State Assembly: 46

Sources: OLIN, Gehry Partners, Geosyntec

POTENTIAL PROJECT SITES: M, L, XL

LARMP Proposed Project

RM 38.2

Upstream from Tujunga Confluence

Frame 8

Los Angeles

M / 15.7 acres

Land Ownership:
81% County, 19% Unclassified

Congressional District: 30

Supervisor District: 3

Council District: 2

State Senate: 10

State Assembly: 46

LARMP Proposed Project

RM 35.9

101 Freeway Crossing

Frame 7

Los Angeles

M / 11.5 acres

Land Ownership:
60% County, 22% Unclassified, 18% Private

Congressional District: 30

Supervisor District: 3

Council District: 2

State Senate: 10

State Assembly: 46

LARMP Proposed Project

RM 32.8

Headworks Connector

Frame 7

Los Angeles

XL / 225.7 acres

Land Ownership:
68% Public (Non-County), 30% Unclassified, 1% Private, 1% County

Congressional District: 28, 30

Supervisor District: 3, 5

Council District: 4

State Senate: 25

State Assembly: 43

LARMP Proposed Project

RM 30.9

Ferraro Fields

Frame 6

Los Angeles

L / 52.2 acres

Land Ownership:
77% Public (Non-County), 14% Unclassified, 9% County

Congressional District: 28

Supervisor District: 3, 5

Council District: 4

State Senate: 25

State Assembly: 43

LARMP Proposed Project

RM 21.6

Downtown Train Yard

Frame 5

Los Angeles

M / 15.1 acres

Land Ownership:
80% Public (Non-County), 20% County

Congressional District: 34

Supervisor District: 1

Council District: 14

State Senate: 24

State Assembly: 53

Sources: OLIN, Gehry Partners, Geosyntec

POTENTIAL PROJECT SITES: M, L, XL

LARMP Proposed Project

RM 19.9

East Washington Blvd

Frame 5

Los Angeles

L / 45.6 acres

Land Ownership:
63% Public (Non-County), 20% Private, 12% Unclassified, 5% County

Congressional District: 34

Supervisor District: 1

Council District: 14

State Senate: 24

State Assembly: 53

LARMP Proposed Project

RM 15.8

Maywood Park Bend

Frame 4

Maywood

L / 126.7 acres

Land Ownership:
72% County, 11% Public (Non-County), 9% Private, 8% Unclassified

Congressional District: 40

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 53, 63

LARMP Proposed Project

RM 14.1

Clara Street

Frame 3

Cudahy

L / 54.7 acres

Land Ownership:
60% County, 23% Public (Non-County), 10% Unclassified, 7% Private

Congressional District: 40

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 63

LARMP Proposed Project

RM 12.9

Firestone Blvd

Frame 3

South Gate

L / 56 acres

Land Ownership:
52% County, 26% Public (Non-County), 16% County, 6% Unclassified

Congressional District: 44

Supervisor District: 1

Council District: n/a

State Senate: 33

State Assembly: 63

LARMP Proposed Project

RM 10.5

Highway 105

Frame 3

Paramount

L / 105.9 acres

Land Ownership:
54% Unclassified, 20% Private, 16% Public (Non-County), 10% County

Congressional District: 40, 44

Supervisor District: 4

Council District: n/a

State Senate: 33

State Assembly: 63

Sources: OLIN, Gehry Partners, Geosyntec

SITE SELECTION REVIEW

POTENTIAL PROJECT SITES: M, L, XL

LARMP Proposed Project

RM 10.2

E Rosecrans Ave

Frame 3

Paramount

M / 34.4 acres

Land Ownership:
42% Private, 38% County, 20% Unclassified

Congressional District: 40

Supervisor District: 4

Council District: n/a

State Senate: 33

State Assembly: 63

LARMP Proposed Project

RM 8.1

Connectivity Corridor

Frame 2

Long Beach

M / 39.7 acres

Land Ownership:
58% County, 33% Private, 5% Public (Non-County), 4% Unclassified

Congressional District: 44

Supervisor District: 4

Council District: n/a

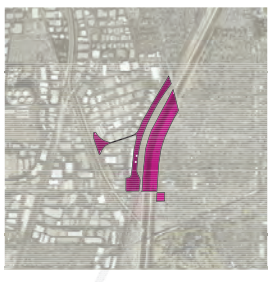
State Senate: 33, 35

State Assembly: 63, 64

LARMP Proposed Project

RM 6.3

Sutter Bend at Del Amo Blvd



Frame 2

Long Beach

L / 141 acres

Land Ownership:
64% County, 30% Unclassified, 4% Private, 2% Public (Non-County)

Congressional District: 44

Supervisor District: 2, 4

Council District: n/a

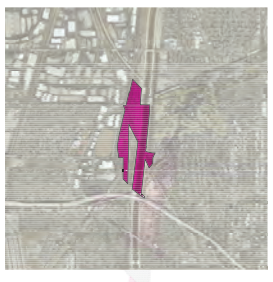
State Senate: 33, 35

State Assembly: 64

LARMP Proposed Project

RM 5.1

W 47th St / Rancho Los Cerritos



Frame 2

Long Beach

L / 117.8 acres

Land Ownership:
62% County, 35% Private, 2% Unclassified, 1% Public (Non-County)

Congressional District: 44, 47

Supervisor District: 4

Council District: n/a

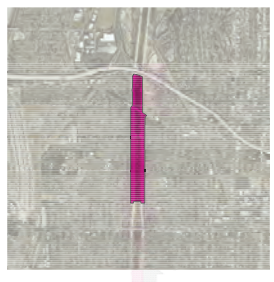
State Senate: 33

State Assembly: 70

LARMP Proposed Project

RM 3.7

W 28th St to 405 Freeway



Frame 1

Long Beach

L / 97.4 acres

Land Ownership:
97% County, 3% Unclassified

Congressional District: 47

Supervisor District: 4

Council District: n/a

State Senate: 33, 35

State Assembly: 70

Sources: OLIN, Gehry Partners, Geosyntec

SITE SELECTION REVIEW

POTENTIAL PROJECT SITES: M, L, XL

LARMP Proposed Project

RM 1.7

Middle Long Beach

Frame 1

Long Beach

M / 39.9 acres

Land Ownership:
40% Private, 28% County, 22% Unclassified, 10% Public (Non-County)

Congressional District: 47

Supervisor District: 4

Council District: n/a

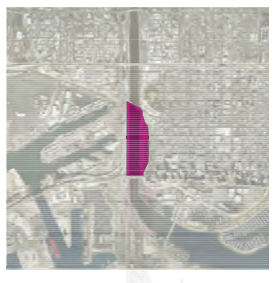
State Senate: 33

State Assembly: 70

LARMP Proposed Project

RM 0.6

Cesar Chavez Park Connector



Frame 1

Long Beach

L / 81.4 acres

Land Ownership:
64% County, 20% Public (Non-County), 12% Private, 4% Unclassified

Congressional District: 47

Supervisor District: 4

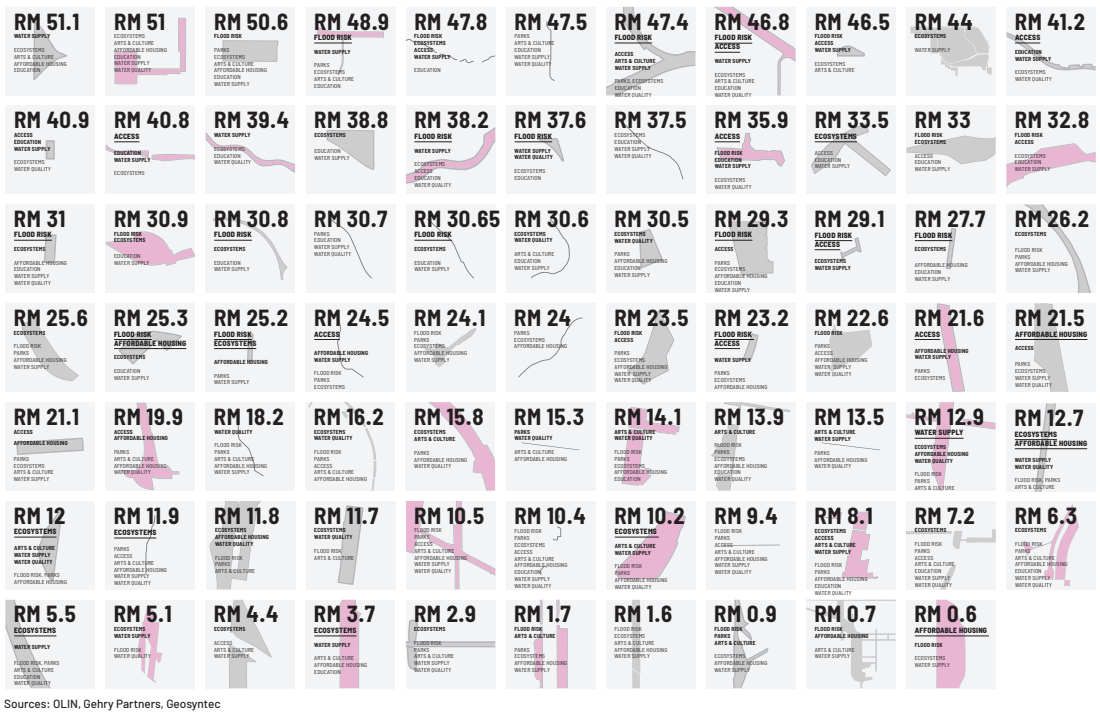
Council District: n/a

State Senate: 33

State Assembly: 71

Sources: OLIN, Gehry Partners, Geosyntec

SITES AND NEEDS



Sources: OLIN, Gehry Partners, Geosyntec

XS, S PROJECTS

43 NEWLY PROPOSED PROJECTS
123 ADDITIONAL PROJECTS FROM PLANS
42 IMPROVED ACCESS POINTS

- XS, S Proposed Projects
- XS, S Projects from Plans*
- Potential Access Points to Upgrade
- Existing Access Points

Source: OLIN, Gehry Partners, Geosyntec

*Plans referenced include Lower Los Angeles River Revitalization Plan, Los Angeles River Revitalization Master Plan, and Metro LA River Path Project

5 mi. N

XS, S PROJECTS INDEX

RM	Name	Approx. Location	Los Angeles River Revitalization Master Plan	Lower LA River Revitalization Plan	Metro LA River Path Project	LA River Master Plan Update	Status
51	Project 2: Canoga Park High School Outdoor Classroom	Canoga Park High School	x				Conceptual
50.85	Bassett St & Alabama Ave	Bassett St & Alabama Ave				x	n/a
50.78	Project 5: Canoga Park Regional Gateway	Bassett St & Canoga Ave	x				Conceptual
50.24	De Soto Ave South	De Soto Ave South	x				TBD
49.44	Project 18: Acquisition of Property between Oso Avenue and Vanowen Street	Archwood St & Oso Ave	x				Conceptual
48.7	Project 22: Acquisition of Property between Corbin Avenue and the River	Corbin Ave, north of Hamlin St	x				Conceptual
48.41	Shirley Ave & Kittridge St	Shirley Ave & Kittridge St				x	n/a
48.1	Project 24: Acquisition of Property at Tampa Avenue and the River	Tampa Ave, north of LA River	x				Conceptual
48.09	Project 23: Tampa Avenue and Victory Boulevard Enhanced Intersection	Victory Blvd & Tampa Ave	x				Conceptual
47.85	Vanalden Avenue Pocket Park	Vanalden Ave, north of LA River	x				TBD
47.5	Aliso Connector	Aliso Connector				x	n/a
47.22	Project 32: Amigo Avenue Pocket Park	Amigo Ave, north of LA River	x				TBD
46.84	Project 37: Reseda Park River Park Buffer	Etiwanda Ave at Reseda High School	x				Conceptual
46.7	Project 40: Reseda High School Outdoor Classroom	Etiwanda Ave at Reseda High School	x				Conceptual
46.56	Project 43: Caballero Creek Non-Motorized Bridge	Caballero Creek Confluence	x				In Design
46.22	Zelzah Ave & Duncan St	Zelzah Ave & Duncan St				x	n/a
45.97	Project 44: White Oak Avenue and Victory Boulevard Enhanced Intersection	Victory Blvd & White Oak Ave	x				Conceptual
45.97	White Oak Ave & LA River	White Oak Ave & LA River				x	n/a
45.59	Project 46: Encino Velodrome Wetlands Park	West of Sepulveda Basin	x				TBD
45.58	LA River Veteran Tribute Park	South of Victory Blvd, north of Sepulveda Basin	x				Complete or in Design / Planning
45.45	Project 48: Orange Line Bridge Non-Motorized Bridge	Southern Railroad and LA River, north of Sepulveda Basin	x				TBD
45.05	Project 51: Sepulveda Basin Regional Gateway	Victory Blvd & Balboa Blvd	x				TBD
44.99	West of Balboa Blvd	West of Balboa Blvd				x	n/a
44.5	Balboa & Encino Golf Course	Balboa & Encino Golf Course				x	n/a
44.17	Sepulveda Basin Boating	South of Woodley Lakes Golf Course	x				Complete or in Design / Planning

Source: OLIN, Geosyntec, Gehry Partners

XS, S PROJECTS INDEX

RM	Name	Approx. Location	Los Angeles River Revitalization Master Plan	Lower LA River Revitalization Plan	Metro LA River Path Project	LA River Master Plan Update	Status
44.11	Project 53: Sepulveda Basin River Park Buffer	Balboa & Encino Golf Course	x				TBD
43.85	Project 57: Sepulveda Basin Non-Motorized Bridge	West of Burbank Blvd, south of Woodley Ave	x				TBD
43.61	Project 54: Sepulveda Basin Wetlands	West of Burbank Blvd, south of Woodley Ave	x				TBD
43.32	Project 56: Hjelte to Dam Wetlands Park	Encino Creek Confluence	x				TBD
42.94	Project 58: Sepulveda Spillway Park	North of San Diego Fwy & Ventura Fwy Intersection	x				TBD
42.7	Project 59: 405 Underpass	San Diego Fwy & LA River	x				TBD
42.6	Project 63: Castle Family Park	Otsego St & Sepulveda Blvd	x				TBD
42.49	Project 61: Sepulveda Boulevard River Bridge	Valley Heart Dr & Sepulveda Blvd	x				TBD
42.22	Noble Ave	Noble Ave	x				TBD
41.92	Project 64: Kester Avenue under 101 Freeway Portal	Valley Heart Dr & Kester Ave	x				Conceptual
41.41	Van Nuys Boulevard River Bridge	Riverside Dr & Van Nuys Blvd	x				TBD
41.4	Van Nuys Boulevard under 101 Freeway Portal	Riverside Dr & Van Nuys Blvd	x				Conceptual
40.86	Project 74: 101 Underpass	Ventura Fwy & Hazeltine Ave	x				TBD
40.8	Fashion Square River Park	NE of Ventura Fwy & Hazeltine Ave	x				Conceptual
40.34	Valleyheart Dr & Woodman Ave	Valleyheart Dr & Woodman Ave				x	n/a
40.03	Valleyheart Dr & Sunnyslope Ave	Valleyheart Dr & Sunnyslope Ave				x	n/a
39.74	Project 77: Moorpark Street Local Gateway	Bloomfield St & Fulton Ave	x				Conceptual
39.17	Project 80: Ventura Boulevard and Coldwater Canyon Boulevard Enhanced Intersection	Ventura Blvd & Coldwater Canyon Ave	x				Conceptual
38.91	Bellaire Ave & Valleyheart Dr	Bellaire Ave & Valleyheart Dr				x	n/a
38.35	Project 83: Laurelgrove Avenue Pocket Park	Valleyheart Dr & Laurelgrove Ave	x				Conceptual
38.1	Project 92: Ventura Boulevard and Laurel Canyon Boulevard Enhanced Intersection	Ventura Blvd & Laurel Canyon Blvd	x				Conceptual
38.03	Project 86: Laurel Canyon Boulevard River Bridge	Laurel Canyon Blvd & LA River	x				Conceptual
37.67	Project 93: CBS Studios Underpass	Tujunga Wash Confluence at Studio City	x				TBD
37.38	Colfax Ave North	Colfax Ave North	Recommended underpass				TBD
37.2	Project 91: Colfax Avenue Outdoor Classroom	Kelsey St	x				Conceptual

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

XS, S PROJECTS INDEX

RM	Name	Approx. Location	Los Angeles River Revitalization Master Plan	Lower LA River Revitalization Plan	Metro LA River Path Project	LA River Master Plan Update	Status
37.06	Project 99: Beck Avenue Local Gateway	Beck Ave	Recommended underpass				Conceptual
36.79	Tujunga Ave North	Tujunga Ave North	Recommended bridge crossing requiring minor improvement				TBD
36.51	Dilling St & Fair Avenue	Dilling St & Fair Avenue				x	n/a
36.27	Vineland Ave North	Vineland Ave North	x				TBD
36.09	Project 100: 101 Freeway Underpass at Weddington Park	Hollywood Fwy & LA River	x				Conceptual
36.02	Project 101: Weddington Park Expansion with Non-Motorized Bridge	Tujunga Wash Confluence near South Weddington Park	x				Conceptual
35.9	Project 102: Weddington Park Regional Gateway	Brookview Dr & Caratwright Ave	x				Conceptual
35.82	Lankershim Boulevard and Cahuenga Boulevard Enhanced Intersection	Hollywood Fwy & Lankershim Blvd	x				Conceptual
35.76	Project 107: Lankershim Boulevard River Bridge	Lankershim Blvd & LA River	x				Conceptual
35.39	Universal Studios West	Universal Studios West				x	n/a
34.9	Universal Studios	Universal Studios				x	n/a
34.5	Olive Ave North	Olive Ave North	Recommended underpass				TBD
34.12	Warner Brothers Studio	Warner Brothers Studio	Recommended underpass				TBD
33.94	Valleyheart Dr	Valleyheart Dr				x	n/a
33.71	Project 111: Bob Hope Drive Non-Motorized Bridge	Bob Hope Dr	x				Conceptual
33.29	Forest Lawn Cemetery	Forest Lawn Cemetery				x	n/a
32.86	Project 119: 134 Freeway Underpass / Overpass at Spreading Grounds	Ventura Fwy W & LA River	x				Conceptual
32.71	Project 121: South Mariposa Street Pocket Park	Valleyheart Dr & Mariposa St	x				Conceptual
32.38	Burbank Equestrian Center	Los Angeles Equestrian Center at Griffith Park	x				TBD
32.06	Project 118: Griffith Park River Park Buffer	Between Ventura Fwy & Zoo Dr	x				Conceptual
31.97	Project 117: Burbank Western Channel Non-Motorized Bridge	Burbank Western Channel Confluence	x				Conceptual
31.64	Riverside Dr North	Riverside Dr North	x				TBD

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

XS, S PROJECTS INDEX

RM	Name	Approx. Location	Los Angeles River Revitalization Master Plan	Lower LA River Revitalization Plan	Metro LA River Path Project	LA River Master Plan Update	Status
31.12	Ferraro Fields	Ferraro Fields				x	n/a
30.68	Project 133: River Glen Opportunity Area Outdoor Classroom	Verdugo Wash Confluence, north of Ventura Fwy	x				Conceptual
30.56	Project 127: Doran Street and San Fernando Road Enhanced Intersection	Ventura Fwy & San Fernando Rd	x				Conceptual
30.49	Project 131: River Glen Non-Motorized Bridge	Verdugo Wash Confluence	x				Conceptual
30.17	Project 137: Brazil Street Paseo	Brazil Street	x				Conceptual
30.06	Project 135: Brazil Street and San Fernando Road Enhanced Intersection	Brazil St & San Fernando Rd	x				Conceptual
30.03	Electronics Street Paseo	Electronics Pl	x				Conceptual
29.71	Project 142: Colorado Boulevard Non-Motorized Park	SE of Colorado St Fwy & Golden State Fwy Intersection	x				Conceptual
29.13	Project 145: North Atwater Park (River Vista Expansion)	West of North Atwater Park	x				Open to Public
28.96	Equestrian Center	Rigali Ave	x				TBD
28.77	Rigali Ave	Rigali Ave	Proposed Los Feliz Equetrian / Non-Motorized Bridge				TBD
28.39	Project 149: Los Feliz Boulevard River Bridge	Los Feliz Blvd & LA River	x				Conceptual
28.15	Project 150: Legion Lane Park	Legion Ln	x				Conceptual
27.71	Red Car Park	Ferncroft Rd & Glendale Blvd	x				Open to Public
27.56	Ferncroft Rd & Tyburn St	Ferncroft Rd & Tyburn St				x	n/a
27.13	Project 153: Silver Lake Boulevard Pocket Park	Silver Lake Blvd	x				Conceptual
26.94	Project 156: Fletcher Drive River Bridge	Fletcher Dr & LA River	x				Conceptual
26.58	Project 154: Fletcher Avenue and San Fernando Road Enhanced Intersection	Fletcher Dr & San Fernando Rd	x				Conceptual
26.45	Project 160: Edward Avenue Paseo	San Fernando Rd & Media Center Dr	x				Conceptual
26.42	Project 163: Media Center Drive Paseo	Media Center Dr	x				Conceptual
25.89	Project 168: Newell Street under 5 Freeway Portal	Newell St under Golden State Fwy	x				Conceptual
25.74	Project 172: Riverside Park	Between Landa St and Riverside Dr	x				Conceptual
25.72	Project 169: Blimp Street Paseo	Blimp St & Blake Ave	x				Conceptual
25.71	Project 167: Taylor Yard Outdoor Classroom	Perlita Ave, east of LA River	x				Complete or in Design / Planning

Source: OLIN, Geosyntec, Gehry Partners

XS, S PROJECTS INDEX

RM	Name	Approx. Location	Los Angeles River Revitalization Master Plan	Lower LA River Revitalization Plan	Metro LA River Path Project	LA River Master Plan Update	Status
25.29	Project 174: Dorris Place Pocket Park	Dorris Pl & Crystal St	x				TBD
25.18	Project 178: San Fernando Road and Elm Street Enhanced Intersection	Elm St & San Fernando Rd	x				Conceptual
24.19	Project 183: Confluence Park	Figueroa St & San Fernando Rd	x				Open to Public
24.11	Project 182: Railroad Bridge Underpass/Overpass	Figueroa St & Santa Fe Railway	x				Conceptual
24	Project 186: Elysian Park Non-Motorized Bridge	Arroyo Seco Confluence	x				Conceptual
23.5	Project 194: Cornfields Non-Motorized Bridge	North of Spring St & LA River	x				TBD
23.23	Main St West	Main St West	Recommended underpass				TBD
23.22	Project 205: North Main Street under 5 Freeway Portal	Main St & Golden State Fwy	x				Conceptual
22.9	Project 209: Mission Yard River Park	North of Mission Rd	x				Complete or in Design / Planning
22.68	Project 208: Mission Yard River Loop	Lamar St	x				Complete or in Design / Planning
22.33	Project 210: East Side Soccer Fields Complex	Mission Rd & Cesar E Chavez Ave	x				Conceptual
22.31	Union Station	Cesar E. Chavez Ave & Keller St			x		Conceptual
22.11	Project 212: Commercial Street Pocket Park	Commercial St & Santa Fe Railroad	x				Conceptual
21.8	Project 215: First Street River Bridge	1st St & LA River	x				Conceptual
21.35	Project 218: Fourth Street River Bridge	4th St & LA River	x				Conceptual
21.17	Project 226: Downtown / Industrial Non-Motorized Bridge	North of 6th St & LA River	x				Conceptual
21.06	Project 228: Hollenbeck Park / Inex Street Paseo	6th St & Clarence St	x				Conceptual
20.85	7th Street East	7th Street & Mission Road			x		Conceptual
20.85	7th Street / Jesse St. Park	7th Street & LA River / Santa Fe Railway			x		Conceptual
20.64	Project 232: Seventh Street River Park	Mission Rd	x				Conceptual
20.59	Project 235: Bay Street and Sacramento Street Pocket Park	Sacramento St & Santa Fe Railroad	x				Conceptual
20.24	Olympic Blvd & Santa Fe Railway	Olympic Blvd & Santa Fe Railway				x	n/a
20.16	Project 236: Rio Vista Blufftop Park	Olympic Blvd & Rio Vista Ave	x				Conceptual
19.84	Project 239: Crown River Gateway and Ecological Park	West of Perrino Pl at LA River	x				Conceptual

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

XS, S PROJECTS INDEX

RM	Name	Approx. Location	Los Angeles River Revitalization Master Plan	Lower LA River Revitalization Plan	Metro LA River Path Project	LA River Master Plan Update	Status
19.43	26th St West of Soto St	26th St West of Soto St				x	n/a
19.17	Soto St	Soto St		102 - Soto Street, opportunity to improve river crossing			TBD
18.99	Bandini Blvd West	Bandini Blvd West		103 - Bandini Boulevard, opportunity to improve crossing			TBD
18.85	Bandini Blvd, northeast of LA River	Bandini Blvd, northeast of LA River		103 - Bandini Boulevard, opportunity to improve crossing			TBD
18.34	Bandini Islands	Bandini Islands				x	n/a
18.33	Vernon Ave & Union Pacific Railroad	Vernon Ave & Union Pacific Railroad				x	n/a
18.18	Downey Rd North	Downey Rd North		104 - Downey Road, opportunity to improve crossing			TBD
18.01	Bandini Blvd, north of LA River	Bandini Blvd, north of LA River		121 - Bandini WQ / Riverside Park			TBD
17.88	Charter St & Santa Fe Railway	Charter St & Santa Fe Railway				x	n/a
17.42	Bandini Blvd, west of Atlantic Interchange	Bandini Blvd, west of Atlantic Interchange				x	n/a
17.19	District Blvd & Gifford Avenue	District Blvd & Gifford Avenue				x	n/a
15.32	Casitas Ave & Randolph St	Casitas Ave & Randolph St				x	n/a
14.75	Southall Lane & River Dr	Southall Lane & River Dr				x	n/a
14.52	Florence Ave, east of Long Beach Fwy	Florence Ave, east of Long Beach Fwy		Gateway			TBD
13.69	Fostoria St & Jaboneria Rd	Fostoria St & Jaboneria Rd		67 - Shull Park, separated from river by 710, potential for environmental remediation			TBD

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

XS, S PROJECTS INDEX

RM	Name	Approx. Location	Los Angeles River Revitalization Master Plan	Lower LA River Revitalization Plan	Metro LA River Path Project	LA River Master Plan Update	Status
13.53	Long Beach Fwy & Southern Pacific Railroad	Long Beach Fwy & Southern Pacific Railroad		145 - Greenway opportunity along Southern Pacific Transportation Railway			TBD
13.53	Jaboneria Rd & Southern Pacific Railroad	Jaboneria Rd & Southern Pacific Railroad	Trail access point	x			TBD
12.23	Blumont Rd	Blumont Rd		Multi-use bridge with emergency access			TBD
11.54	Gardendale St at Hollydale Park	Gardendale St at Hollydale Park				x	n/a
10.7	Cloverlawn Dr	Cloverlawn Dr				x	n/a
10.35	De Bie Dr & Orane Ave	De Bie Dr & Orane Ave				x	n/a
10.05	Whitehall Way & LA River	Whitehall Way & LA River				x	n/a
9.82	San Juan St at Ralph C. Dills Park	San Juan St at Ralph C. Dills Park		64 - Compton Golf Course and Park, extend green area to school, add multi-use trail with access pts			TBD
9.38	Somerset Blvd at Long Beach Fwy	Somerset Blvd at Long Beach Fwy				x	n/a
9.15	Dominguez High School	Dominguez High School		64 - Extend green area to include school, provide multi-use trail with access points at each street			TBD
8.89	Alondra Blvd & Long Beach Fwy	Alondra Blvd & Long Beach Fwy				x	n/a
8.53	71st St, west of Atlantic Pl	71st St, west of Atlantic Pl				x	n/a
8.25	68th St & Atlantic Ave	68th St & Atlantic Ave				x	n/a
7.83	Artesia Blvd at Long Beach Fwy	Artesia Blvd at Long Beach Fwy				x	n/a
7.51	63rd St & De Forest Ave	63rd St & De Forest Ave				x	n/a

Source: OLIN, Geosyntec, Gehry Partners

XS, S PROJECTS INDEX

RM	Name	Approx. Location	Los Angeles River Revitalization Master Plan	Lower LA River Revitalization Plan	Metro LA River Path Project	LA River Master Plan Update	Status
7.44	Adams St & White Ave, at Coolidge Park	Adams St & White Ave, at Coolidge Park		22 - Gateway, Coolidge Park accessible only from neighborhood, walled toward freeway side			TBD
6.33	Market St	Market St				x	n/a
5.55	48th St & Virginia Vista Ct	48th St & Virginia Vista Ct				x	n/a
5.12	Virginia Vista Ct	Virginia Vista Ct				x	n/a
4.57	NAME TBD	NAME TBD				x	n/a
4.18	Baker St	Baker St				x	n/a
3.36	Spring St & De Forest Ave	Spring St & De Forest Ave				x	n/a
2.72	25th St & De Forest Ave	25th St & De Forest Ave		Multi-use path access point, low flow channel crossing			TBD
2.59	Burnett St & De Forest Ave	Burnett St & De Forest Ave		Multi-use path access - vol 1 p. 99			TBD
2.5	23rd St & De Forest Ave	23rd St & De Forest Ave		Multi-use path access - vol 1 p. 99			TBD
2.36	Hill St West	Hill St West		88 - Multi-use bridge to provide pedestrian / bike access over river and freeways			TBD
2.34	Hill St East	Hill St East		88 - Multi-use bridge to provide pedestrian / bike access over river and freeways			TBD
2.23	21st St & De Forest Ave	21st St & De Forest Ave		Multi-use path access - vol 1 p. 99			TBD

Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

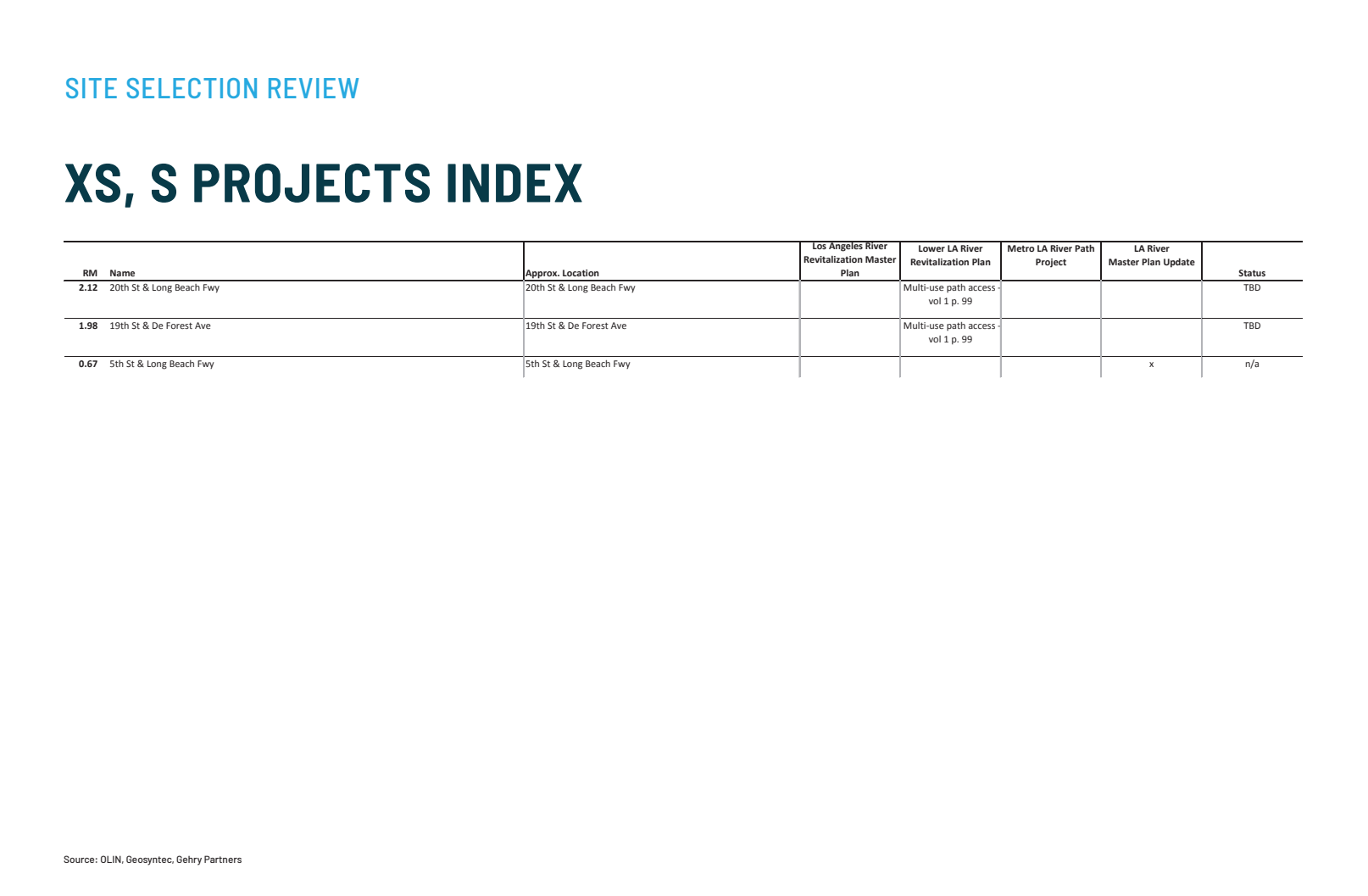
XS, S PROJECTS INDEX

RM	Name	Approx. Location	Los Angeles River Revitalization Master Plan	Lower LA River Revitalization Plan	Metro LA River Path Project	LA River Master Plan Update	Status
2.12	20th St & Long Beach Fwy	20th St & Long Beach Fwy		Multi-use path access - vol 1 p. 99			TBD
1.98	19th St & De Forest Ave	19th St & De Forest Ave		Multi-use path access - vol 1 p. 99			TBD
0.67	5th St & Long Beach Fwy	5th St & Long Beach Fwy				x	n/a

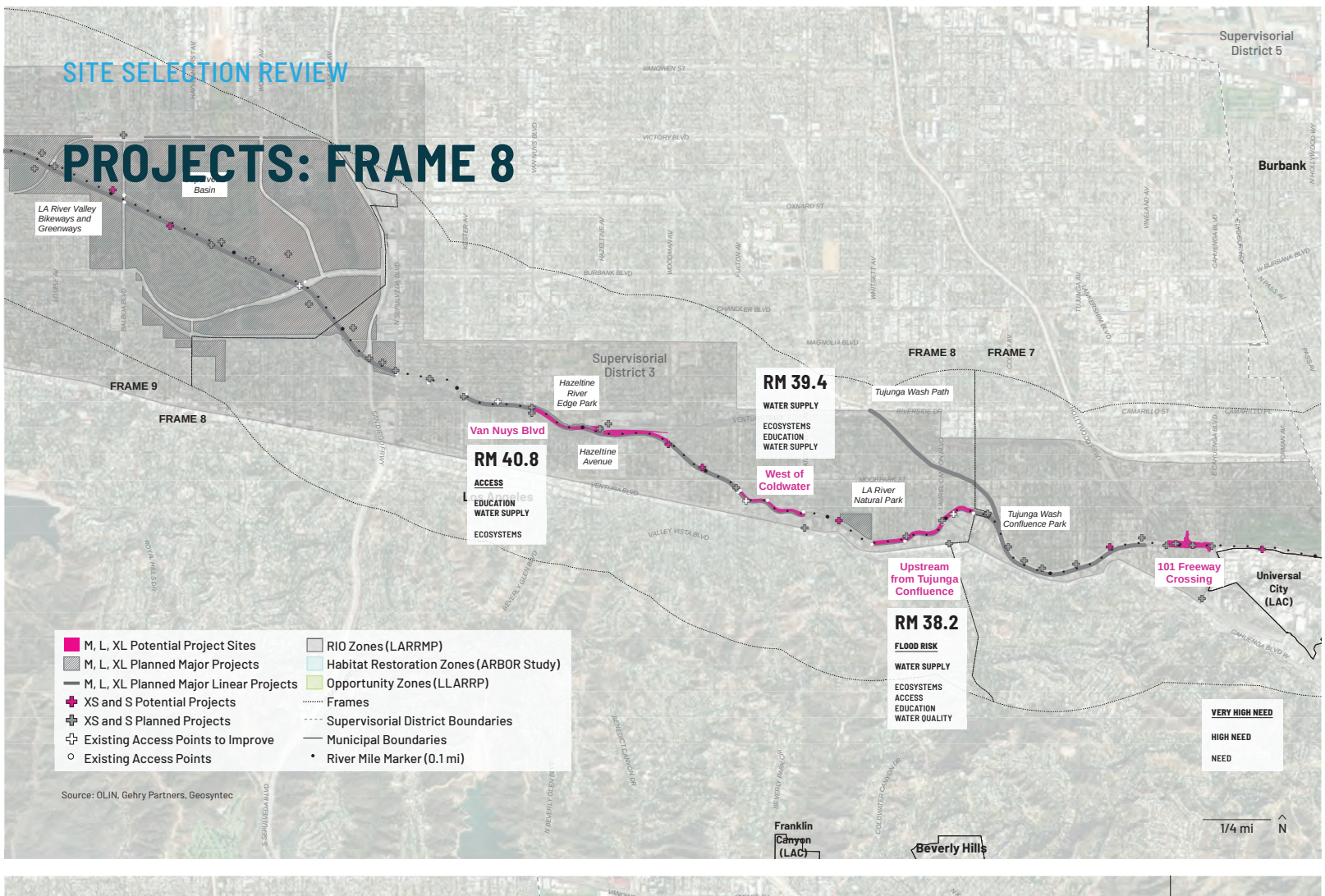
Source: OLIN, Geosyntec, Gehry Partners

SITE SELECTION REVIEW

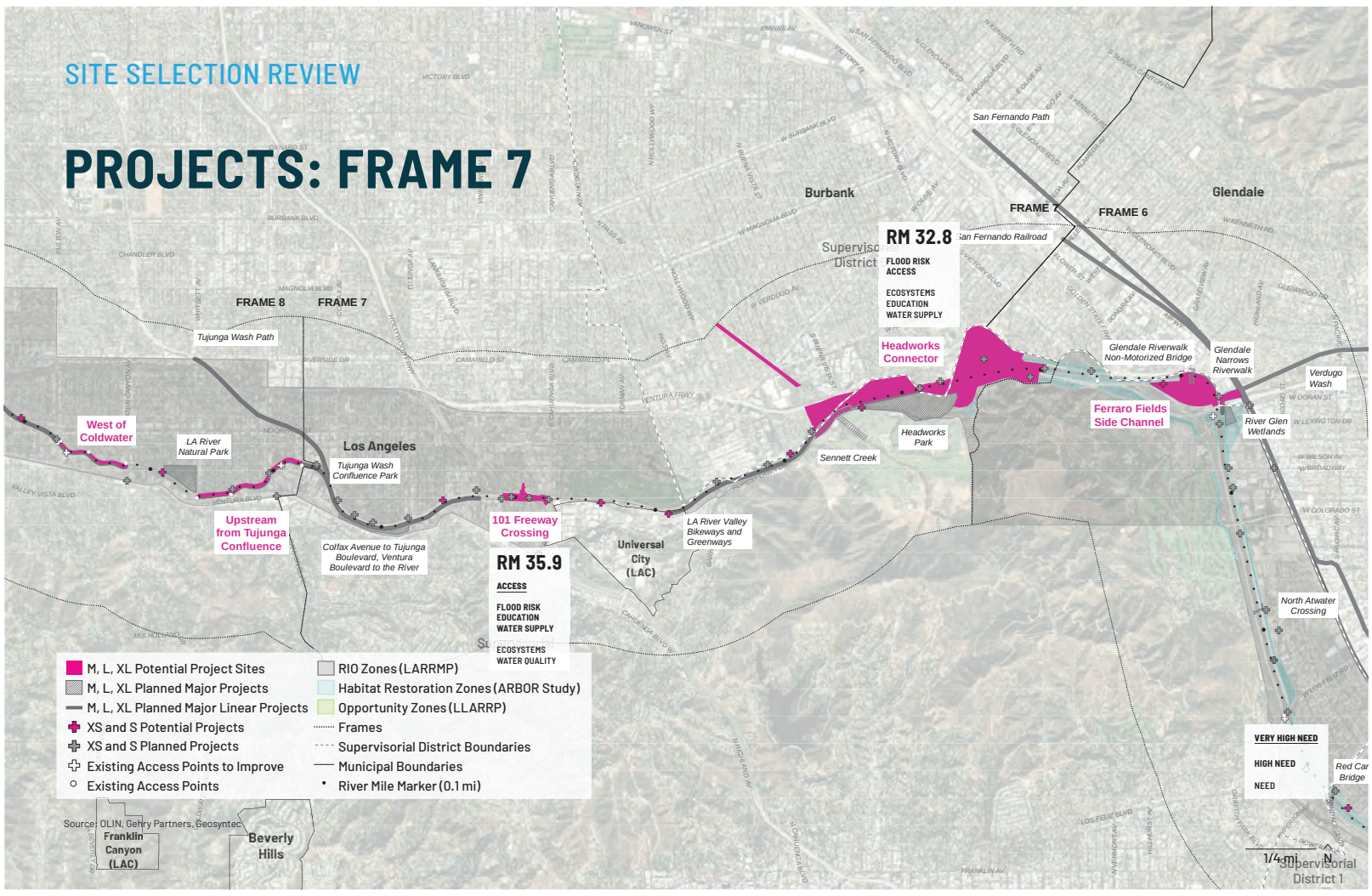
PROJECTS: FRAME 9



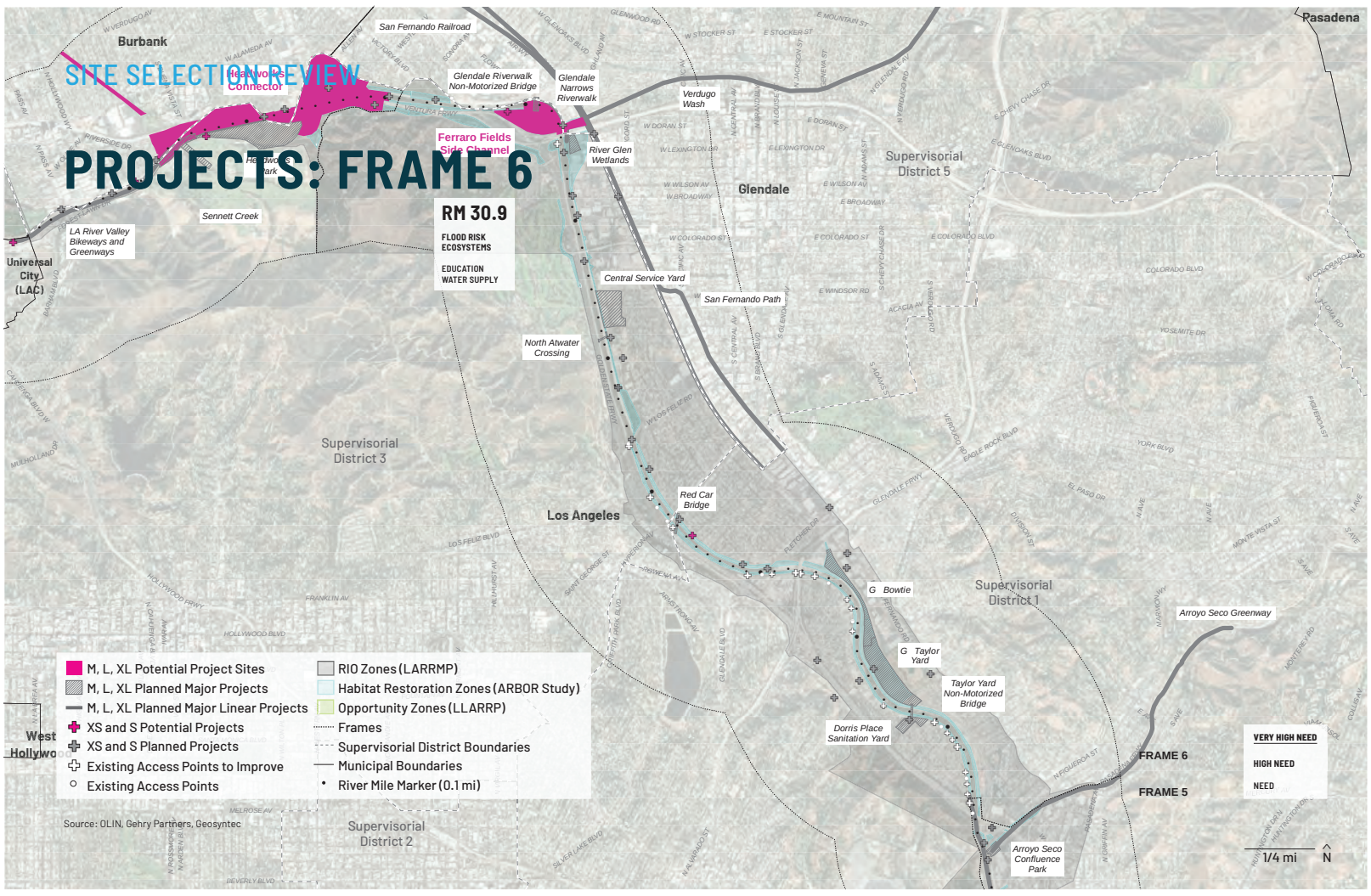
PROJECTS: FRAME 8



PROJECTS: FRAME 7

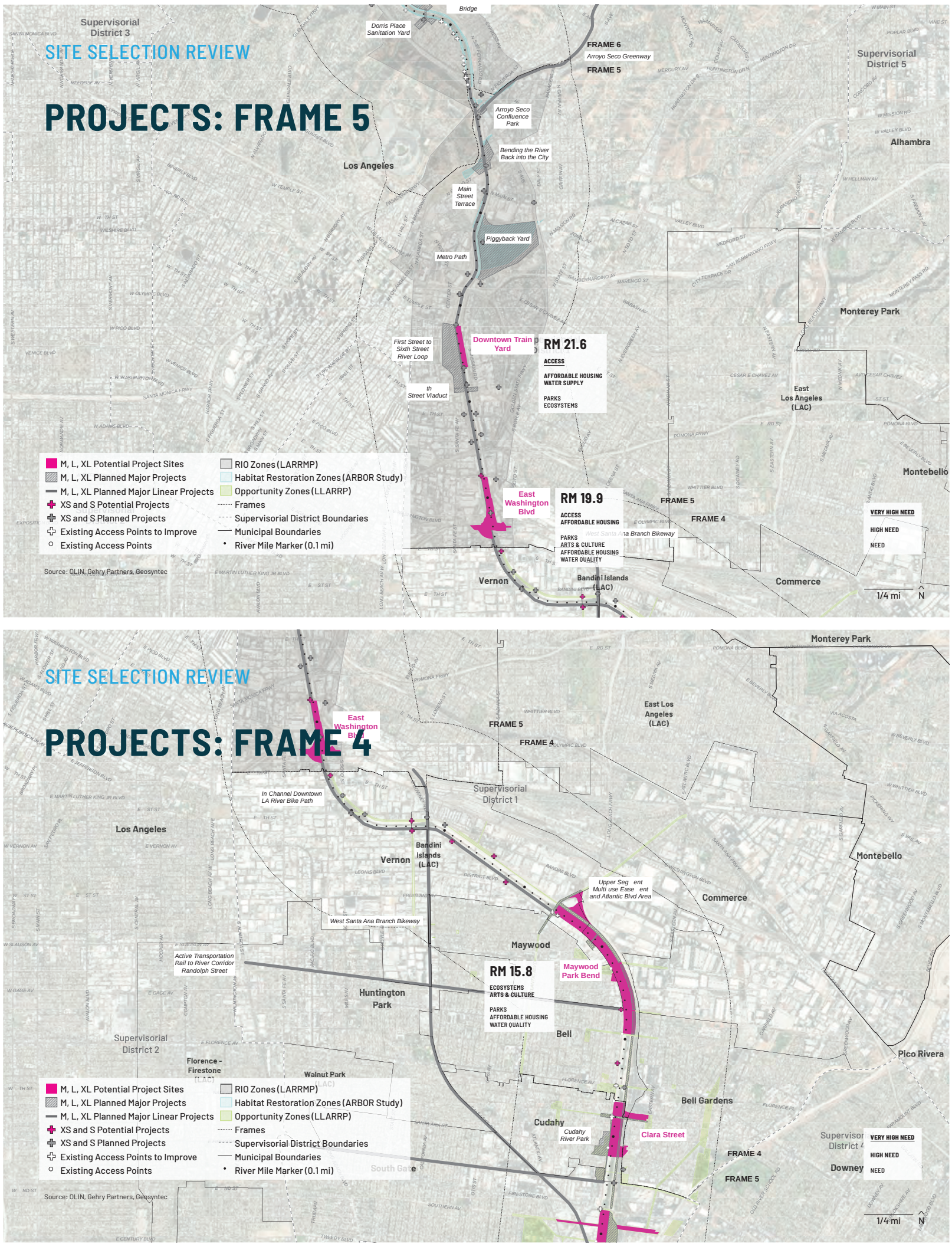


PROJECTS: FRAME 6



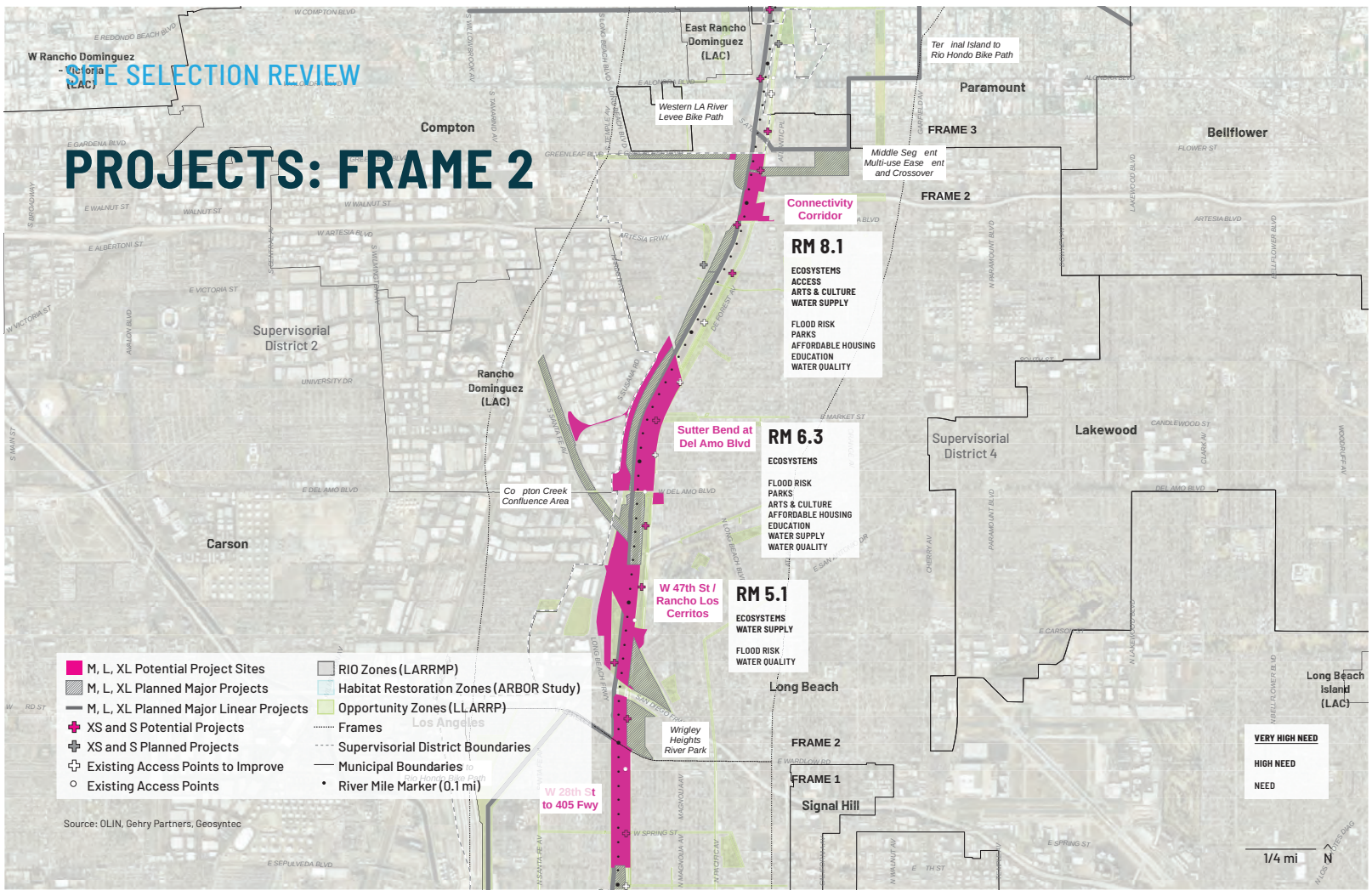
SITE SELECTION REVIEW

PROJECTS: FRAME 5



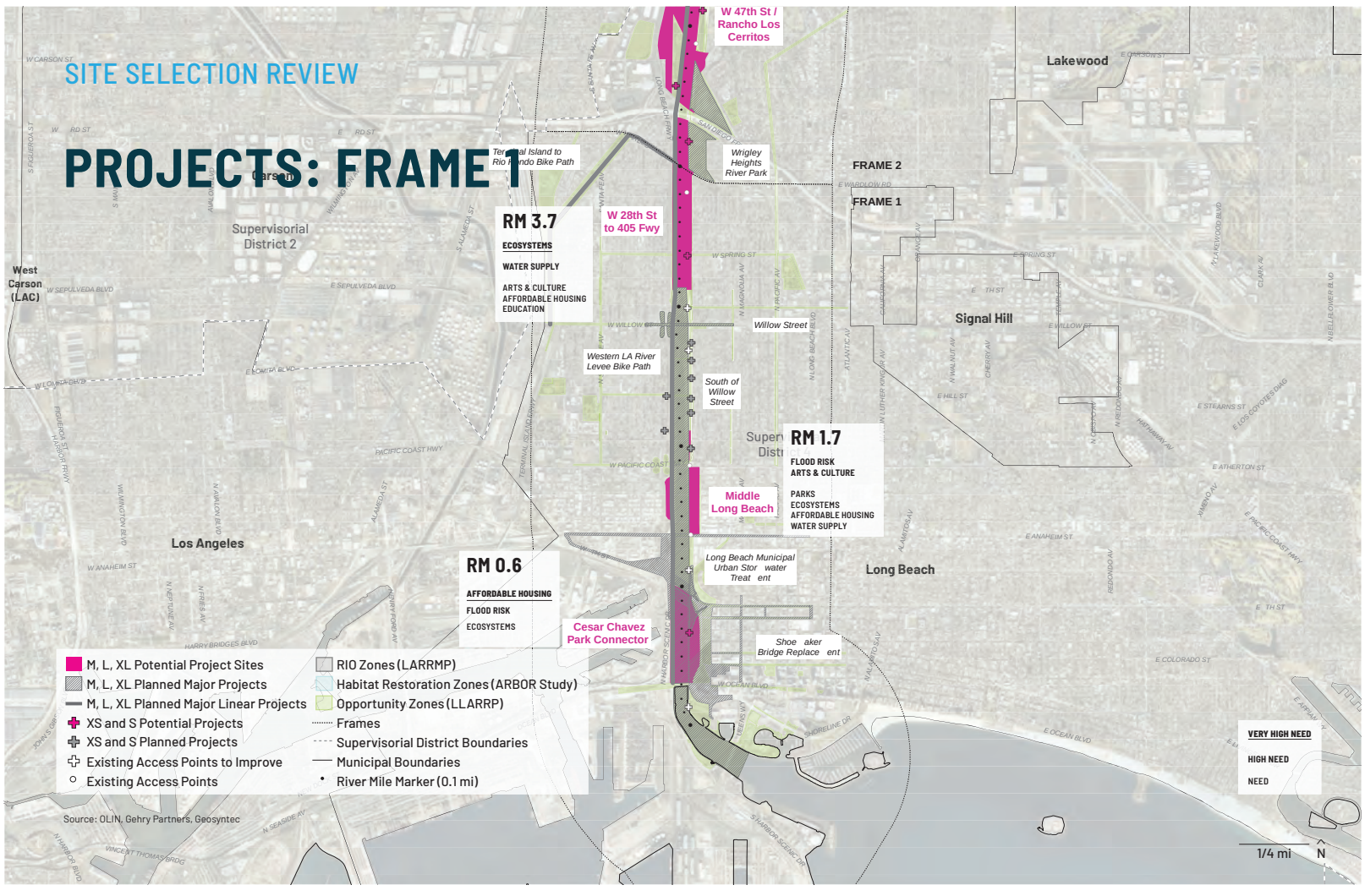
SITE SELECTION REVIEW

PROJECTS: FRAME 2



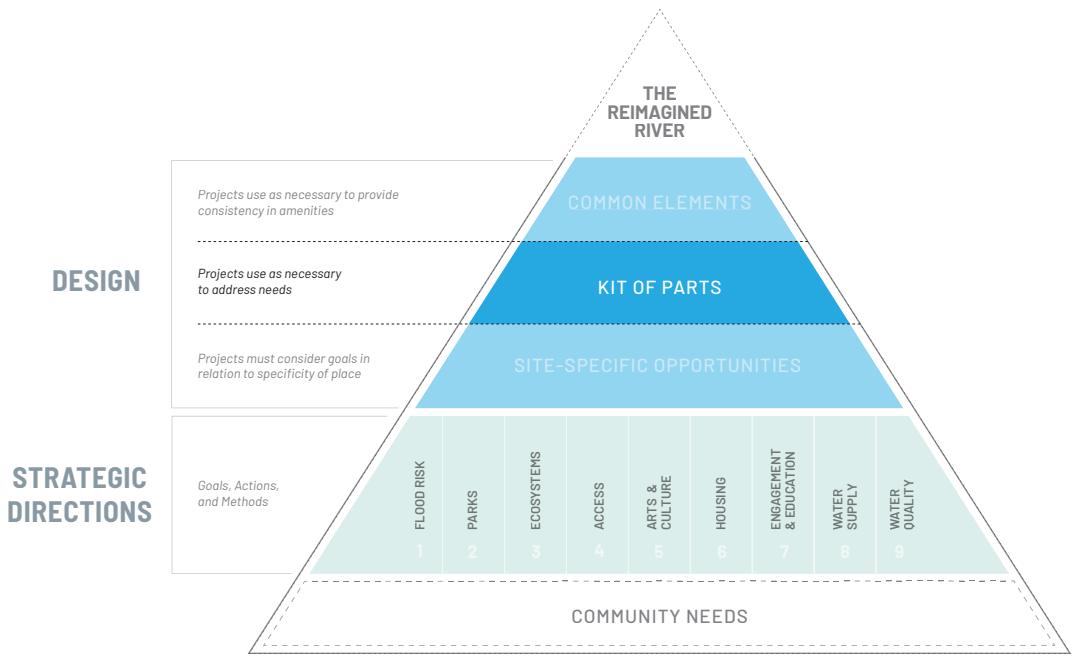
SITE SELECTION REVIEW

PROJECTS: FRAME 1



KIT OF PARTS

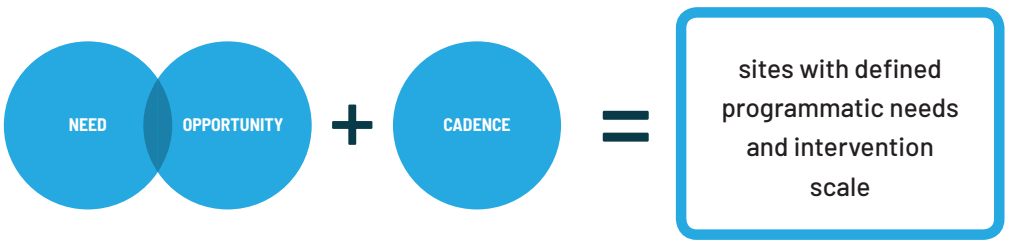
PROJECTS SHOULD BUILD UPON THE GOALS USING THE KIT OF PARTS AND COMMON ELEMENTS



GOAL-DRIVEN DESIGN FRAMEWORK

KIT OF PARTS

GOAL-DRIVEN DESIGN FRAMEWORK



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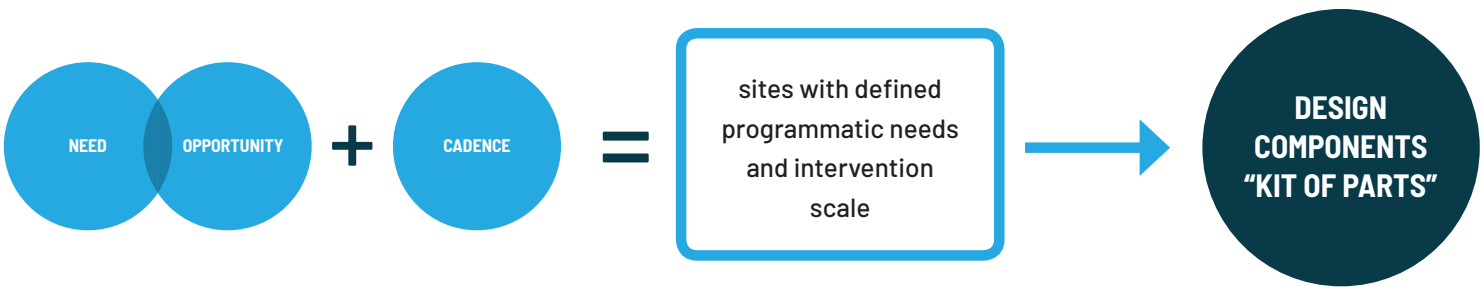
GOAL-DRIVEN DESIGN FRAMEWORK



KIT OF PARTS: CATEGORIES

1 FLOODPLAIN RECLAMATION

2 CROSSINGS & PLATFORMS

3 TRAILS, ACCESS GATEWAYS, AND PAVILIONS

4 CHANNEL MODIFICATIONS

5 DIVERSIONS

6 OFF CHANNEL LAND ASSETS

KIT OF PARTS: CATEGORIES & COMPONENTS

1 FLOODPLAIN RECLAMATION

- Wetland
- Naturalized Bank
- Braided Channel
- Field
- Recreation Field
- Storage (Surface: Reservoir, Lake, Pond)

2 CROSSINGS & PLATFORMS

- Pedestrian Bridge
- Bike Bridge
- Equestrian Bridge
- Multi-use Bridge
- Cantilever
- Platform

3 TRAILS & ACCESS GATEWAYS

- River Gateway
- Pedestrian Trail
- Bike Trail
- Equestrian Trail
- Equestrian Facility
- Multi-use Trail
- Common Elements
- Light Tower / Water Tower
- Lookout
- Boardwalk
- Channel Access
- Vehicular Access
- Underpass and Overpass
- Vegetated Buffer
- Habitat Corridor
- Swale, Rain Garden, BMP

4 CHANNEL MODIFICATIONS

- Terraced Bank
- Check Dam
- Deployable Barrier (Dam / Levee)
- Levee
- Armored Channel
- Storm Drain Daylighting
- Vertical Wall
- Reshape Low Flow
- Channel Smoothing
- Texturizing or Grooving
- Concrete Bottom
- Soft Bottom
- Sediment Removal / Vegetation Conversion
- Bridge Pier / Abutment Removal / Modification / Addition
- Access Ramp

5 DIVERSIONS

- Pump
- Diversion Pipe
- Diversion Channel
- Diversion Tunnel
- Overflow Weir
- Underground Gallery

6 OFF CHANNEL LAND ASSETS

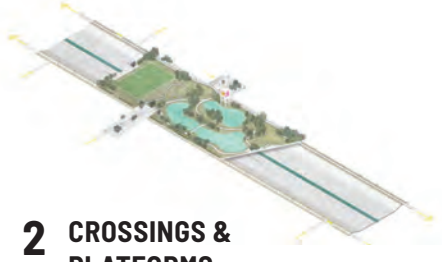
- Urban Agriculture (Orchard, Farm, Nursery, Community Garden)
- Solar Power Generation & Storage
- Composting and Waste Management
- Natural Treatment System
- Wetland
- Recreation Field
- Storage (Surface: Reservoir, Lake, Pond)
- Storage (Subsurface: Reservoir, Cistern, Tank)
- Injection Well
- Mechanical Water Treatment Facility
- Purple Pipe Connection
- Gallery / Dry Well
- Spreading Ground
- Storm Drain Daylighting
- Affordable Housing
- Museum, Gallery, or Other Arts Installation or Institution

KIT OF PARTS: EXAMPLE

NEED	OPPORTUNITY	CADENCE (SCALE)	DESIGN COMPONENT
Flood risk reduction + Water quality + Habitat	Landside RM 11.5 Right bank (Vacant parcel, Publicly owned)	15 acres	Wetland

KIT OF PARTS: TRAPEZOIDAL CHANNEL

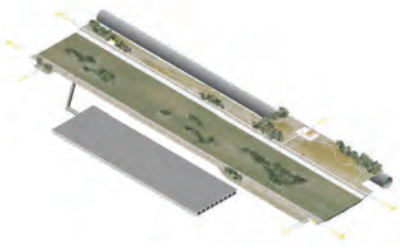
1 FLOODPLAIN RECLAMATION



2 CROSSINGS & PLATFORMS

3 TRAILS & ACCESS GATEWAYS

4 CHANNEL MODIFICATIONS



5 DIVERSIONS

6 OFF CHANNEL LAND ASSETS

Source: OLIN, Gehry Partners, Geosyntec

KIT OF PARTS

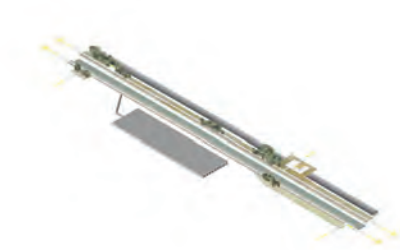
KIT OF PARTS: BOX CHANNEL

1 FLOODPLAIN RECLAMATION

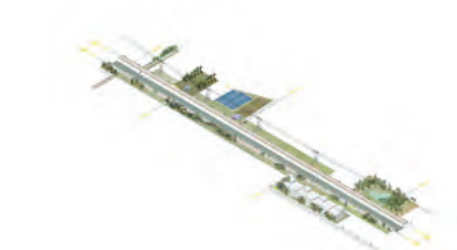
2 CROSSINGS & PLATFORMS

3 TRAILS & ACCESS GATEWAYS

4 CHANNEL MODIFICATIONS



5 DIVERSIONS



6 OFF CHANNEL LAND ASSETS

Source: OLIN, Gehry Partners, Geosyntec

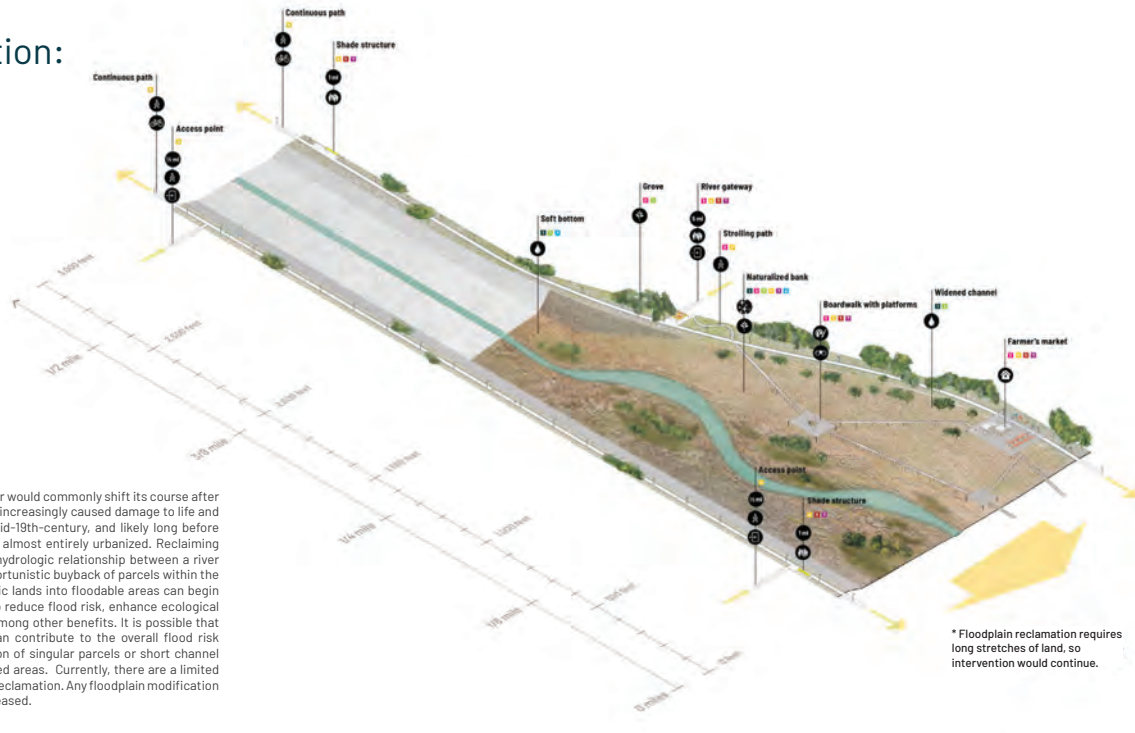
KIT OF PARTS

KIT OF PARTS

Floodplain Reclamation: Trapezoidal Channel

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
- ARTS & CULTURE
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY

Historically, the LA River had a vast floodplain and the river would commonly shift its course after major floods. As the area's population grew, these floods increasingly caused damage to life and property, and people altered the river as early as the mid-19th-century, and likely long before that. Currently, the historic floodplain of the LA River is almost entirely urbanized. Reclaiming the floodplain will create space for the river where the hydrologic relationship between a river and its floodplain can be reconnected. Strategic and opportunistic buyback of parcels within the floodplain or transitioning adjacent right of ways or public lands into floodable areas can begin to allow for this reconnection, which has the potential to reduce flood risk, enhance ecological function, create park space, and improve water quality among other benefits. It is possible that floodplain reclamation, if completed at large scales, can contribute to the overall flood risk reduction system, but it should be noted that reclamation of singular parcels or short channel lengths has the potential to increase flood risk in localized areas. Currently, there are a limited number of opportunities along the LA River for floodplain reclamation. Any floodplain modification requires hydraulic analysis to ensure flood risk is not increased.



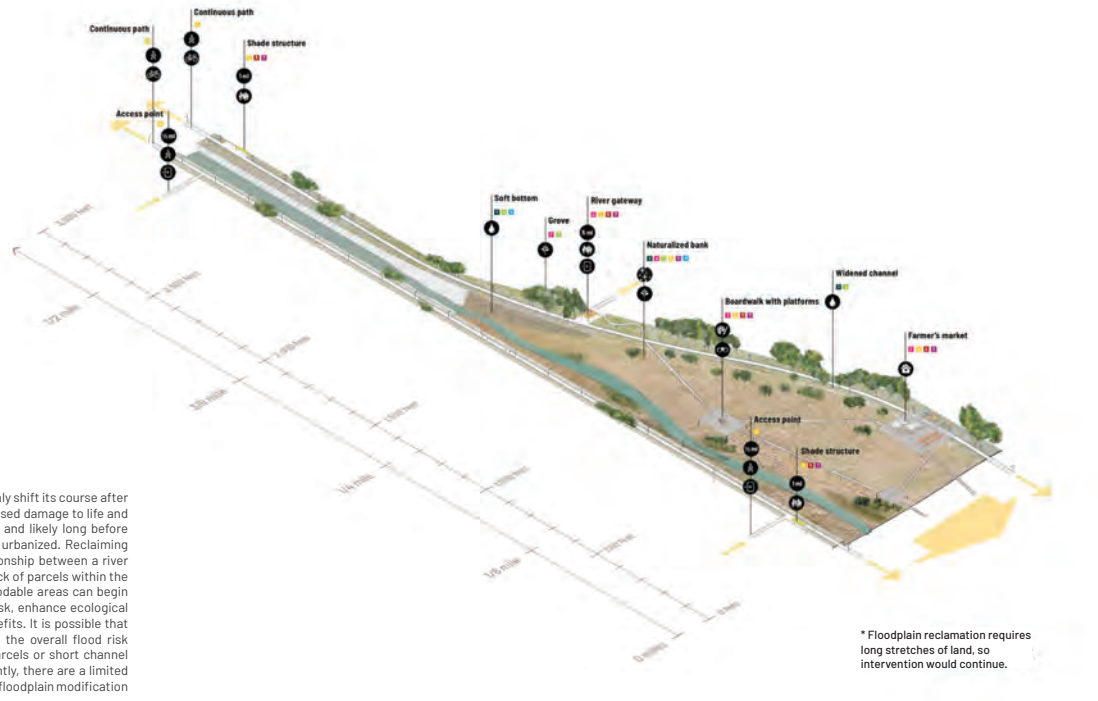
* Floodplain reclamation requires long stretches of land, so intervention would continue.

Source: OLIN, Gehry Partners, Geosyntec

KIT OF PARTS

Floodplain Reclamation: Box Channel

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
- ARTS & CULTURE
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY



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Source: OLIN, Gehry Partners, Geosyntec

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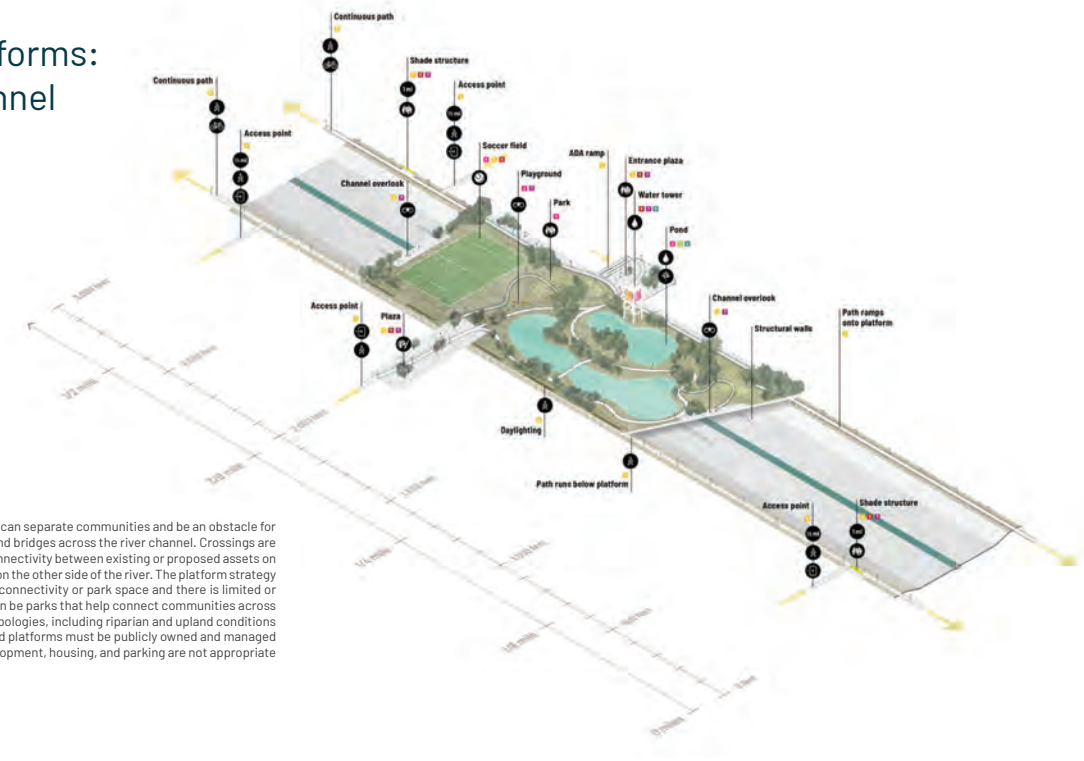
Crossings & Platforms: Trapezoidal Channel

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
- ARTS & CULTURE
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY



Given its width and length, the LA River channel can separate communities and be an obstacle for connectivity. Crossings and platforms create land bridges across the river channel. Crossings are most effective where there is a high need for connectivity between existing or proposed assets on one side of the river and communities or assets on the other side of the river. The platform strategy is most effective when there is a high need for connectivity or park space and there is limited or nonexistent landside right-of-way. Platforms can be parks that help connect communities across the river, but can also host a range of habitat typologies, including riparian and upland conditions and allow for wildlife migration. All crossings and platforms must be publicly owned and managed as publicly accessible open space. Private development, housing, and parking are not appropriate uses for platform areas.

Source: OLIN, Gehry Partners, Geosyntec

KIT OF PARTS

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Crossings & Platforms: Box Channel

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
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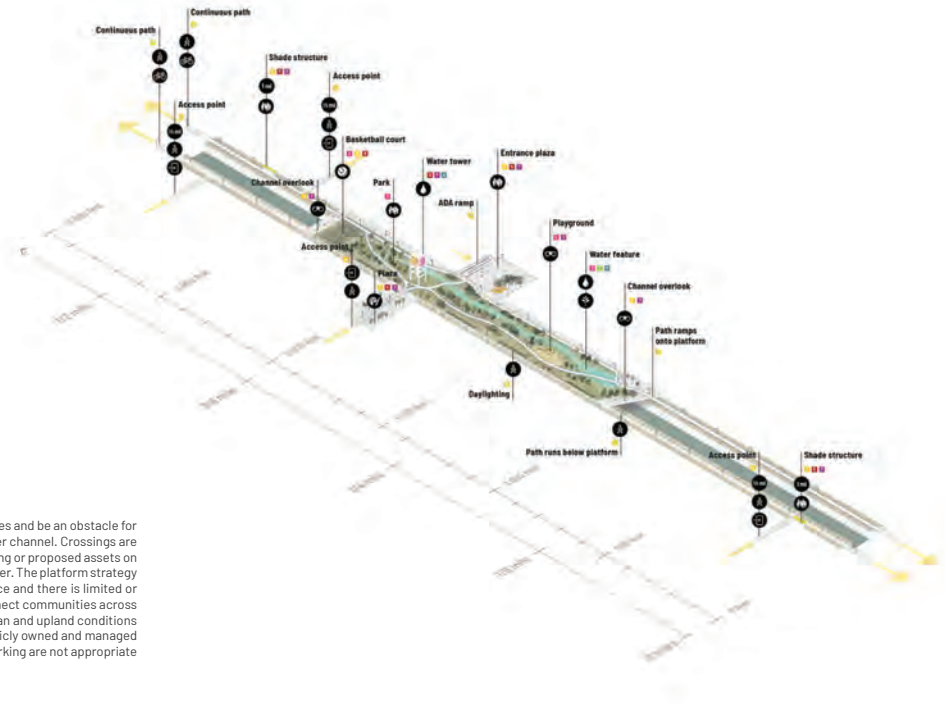
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY



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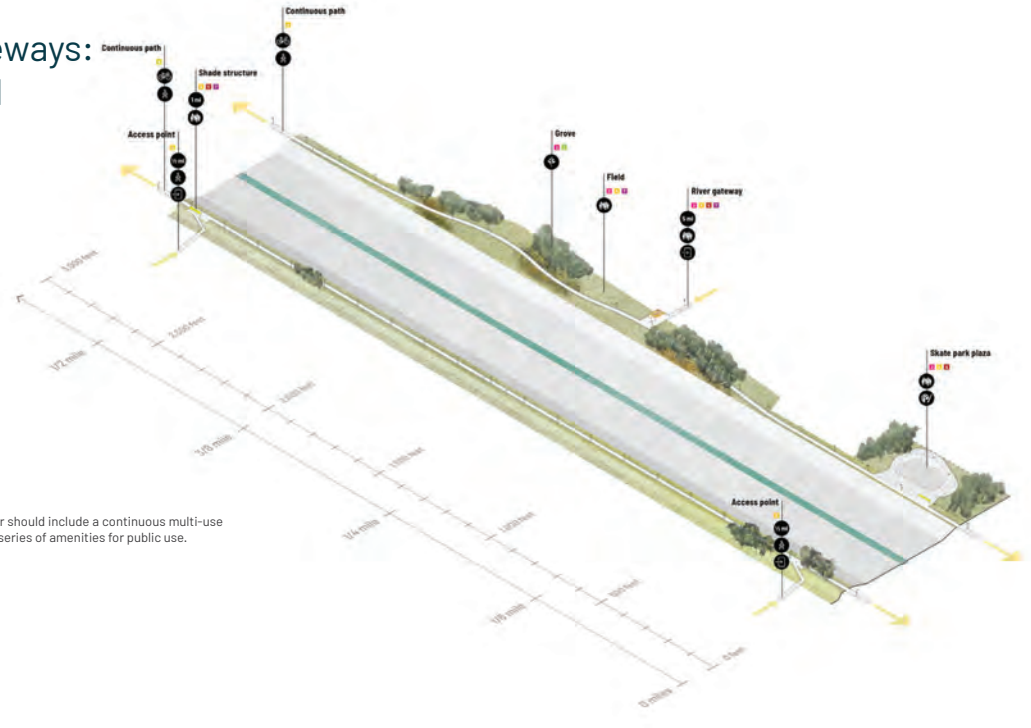
KIT OF PARTS

Trails & Access Gateways: Trapezoidal Channel

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
- ARTS & CULTURE
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY



The most basic condition along any frame of the LA River should include a continuous multi-use trail, easy to find and welcoming access gateways, and a series of amenities for public use.

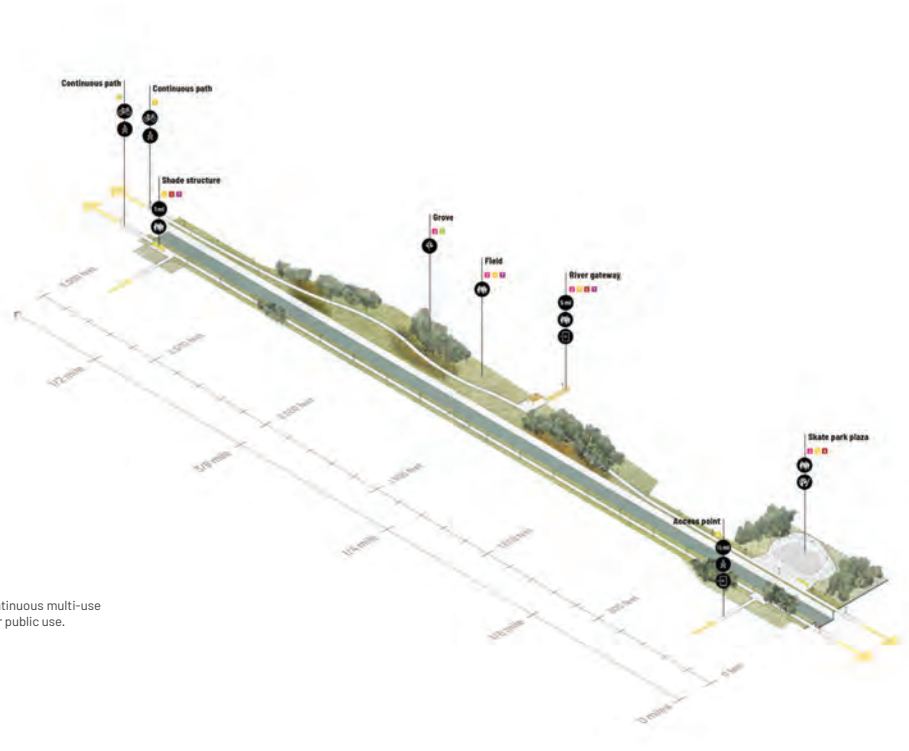
Source: OLIN, Gehry Partners, Geosyntec

KIT OF PARTS

KIT OF PARTS

Trails & Access Gateways: Box Channel

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
- ARTS & CULTURE
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY



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Channel Modifications: Trapezoidal Channel

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
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- ARTS & CULTURE
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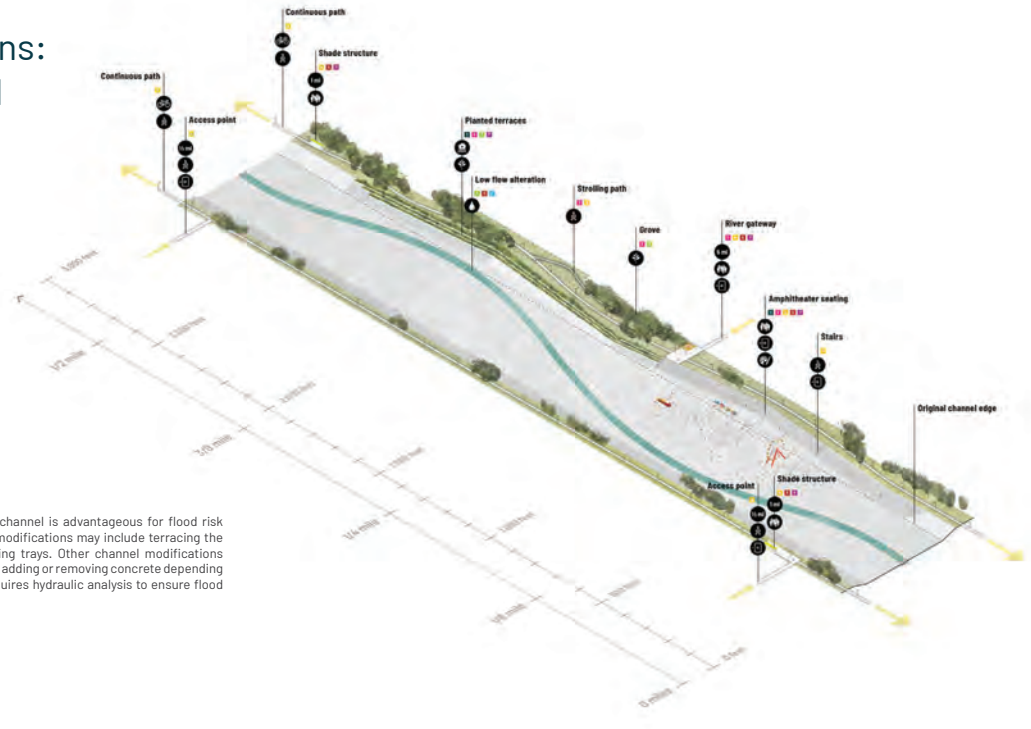

In some areas of the LA River, modifying the existing channel is advantageous for flood risk reduction, access, and/or ecological function. Channel modifications may include terracing the banks to provide stairs, amphitheaters, or small planting trays. Other channel modifications include changing the material of the channel, for example, adding or removing concrete depending on capacity requirements. Any channel modification requires hydraulic analysis to ensure flood risk is not increased.

Source: OLIN, Gehry Partners, Geosyntec

KIT OF PARTS

Channel Modifications: Box Channel

- FLOOD RISK REDUCTION
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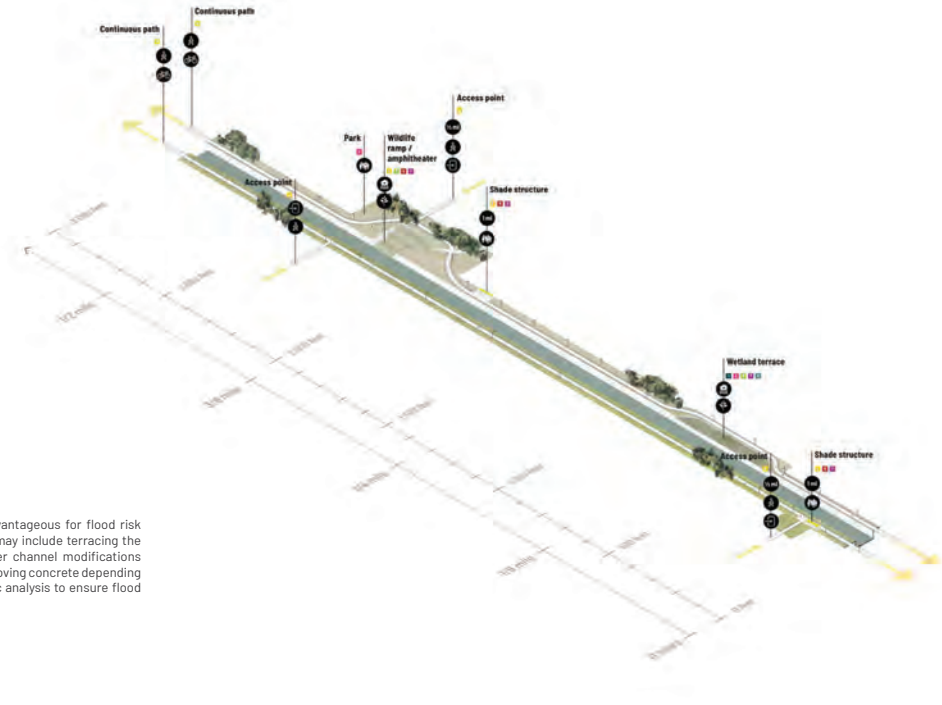

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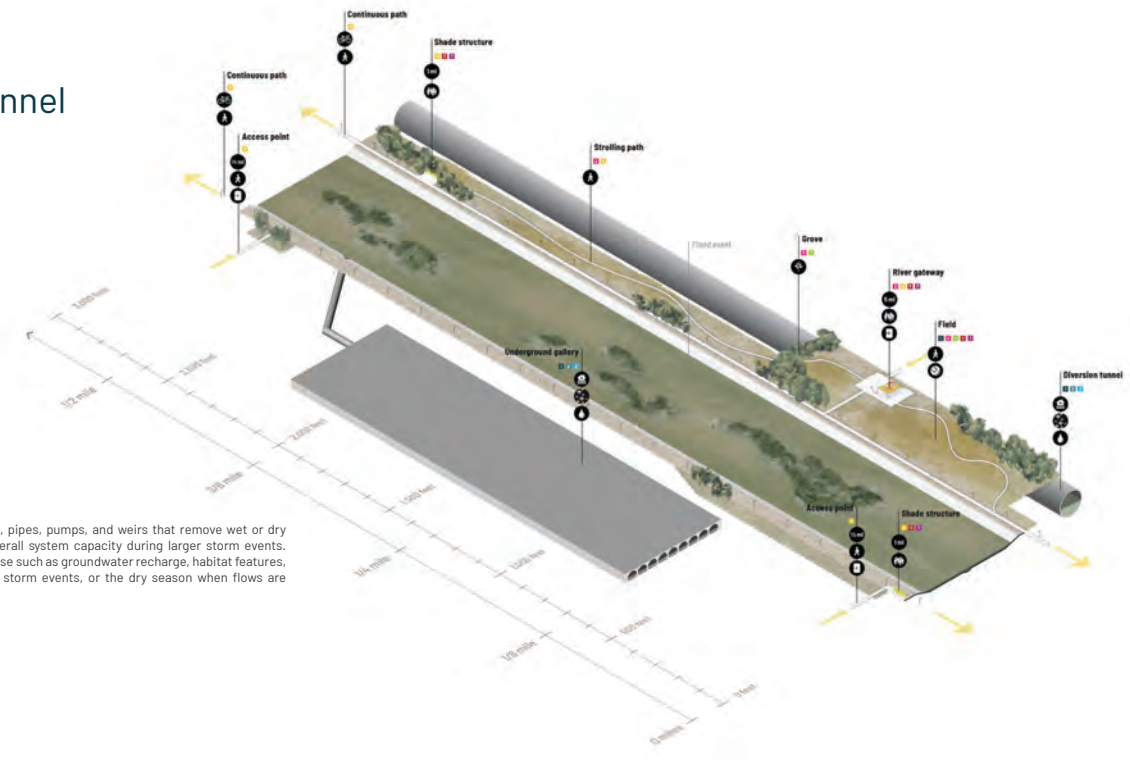
Diversions: Trapezoidal Channel

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
- ARTS & CULTURE
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY



Diversions include elements such as tunnels, pipes, pumps, and weirs that remove wet or dry weather flows from the river to increase overall system capacity during larger storm events. Diversions can also provide treatment and reuse such as groundwater recharge, habitat features, or recreational opportunities during smaller storm events, or the dry season when flows are reduced.

Source: OLIN, Gehry Partners, Geosyntec

KIT OF PARTS

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Diversions: Box Channel

- FLOOD RISK REDUCTION
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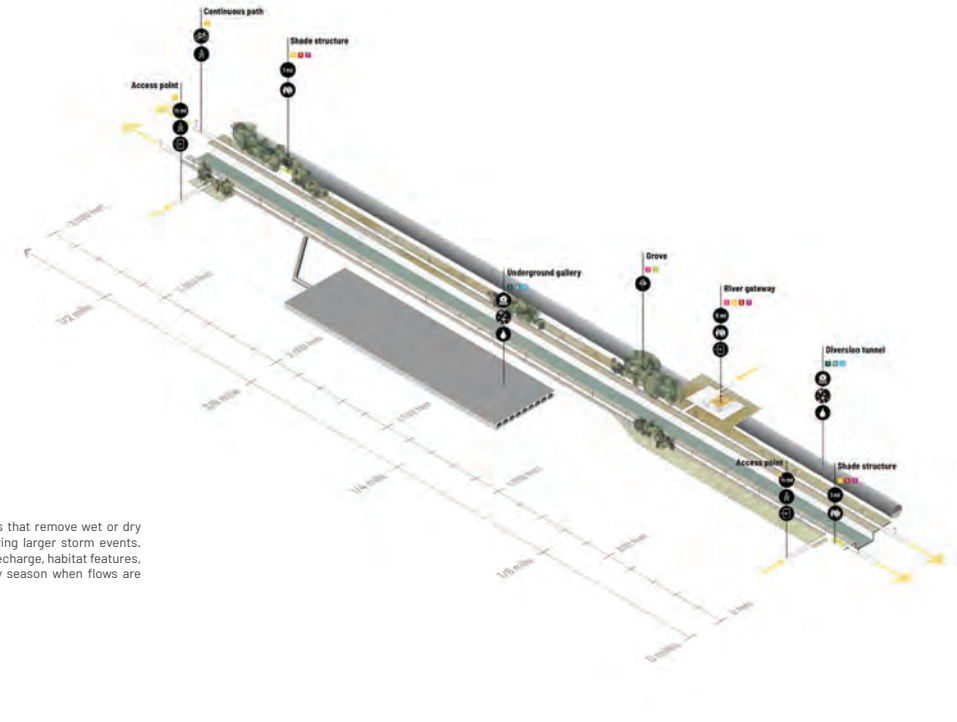

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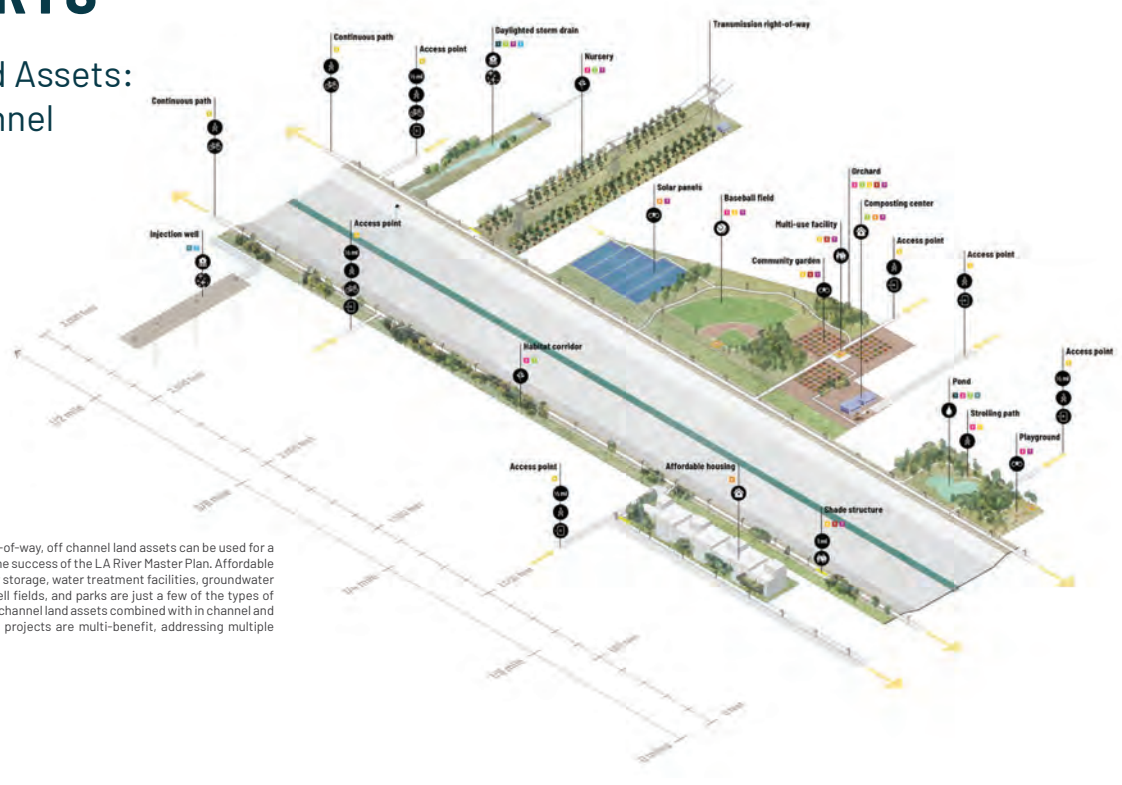
KIT OF PARTS

Off Channel Land Assets: Trapezoidal Channel

- FLOOD RISK REDUCTION
- PARKS
- ECOSYSTEMS
- ACCESS
- ARTS & CULTURE
- HOUSING AFFORDABILITY
- EDUCATION
- WATER SUPPLY
- WATER QUALITY



In addition to elements within the LA River right-of-way, off channel land assets can be used for a series of projects that are essential to support the success of the LA River Master Plan. Affordable housing, cultural centers, plant nurseries, water storage, water treatment facilities, groundwater recharge spreading grounds and/or injection well fields, and parks are just a few of the types of elements that can exist within this category. Off channel land assets combined with in channel and right-of-way improvements can further ensure projects are multi-benefit, addressing multiple needs.

Source: OLIN, Gehry Partners, Geosyntec

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Off Channel Land Assets: Box Channel

- FLOOD RISK REDUCTION
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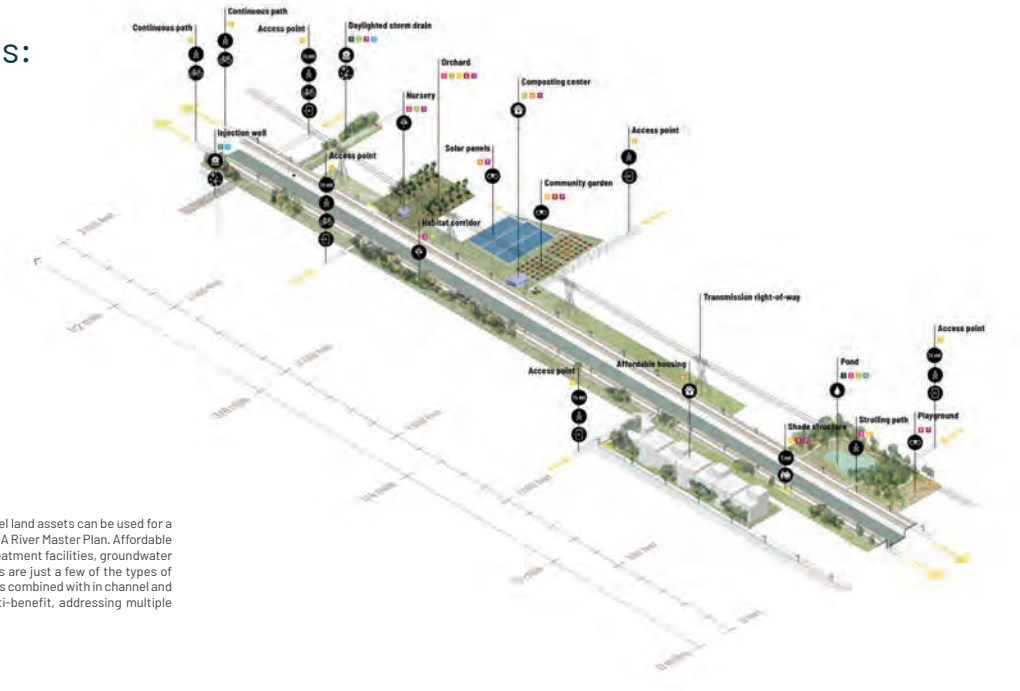

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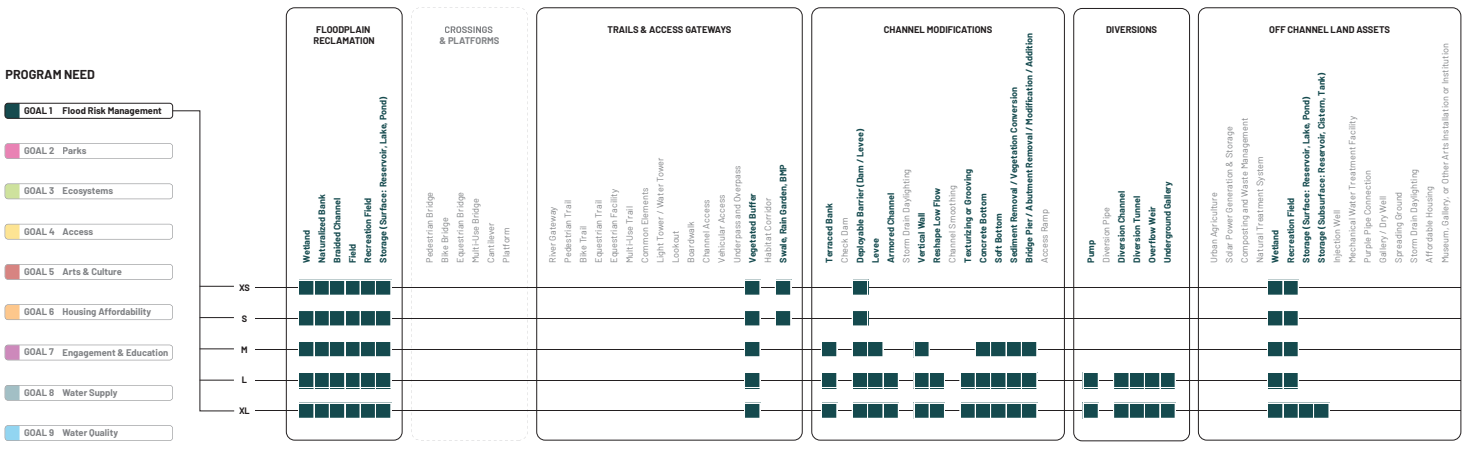

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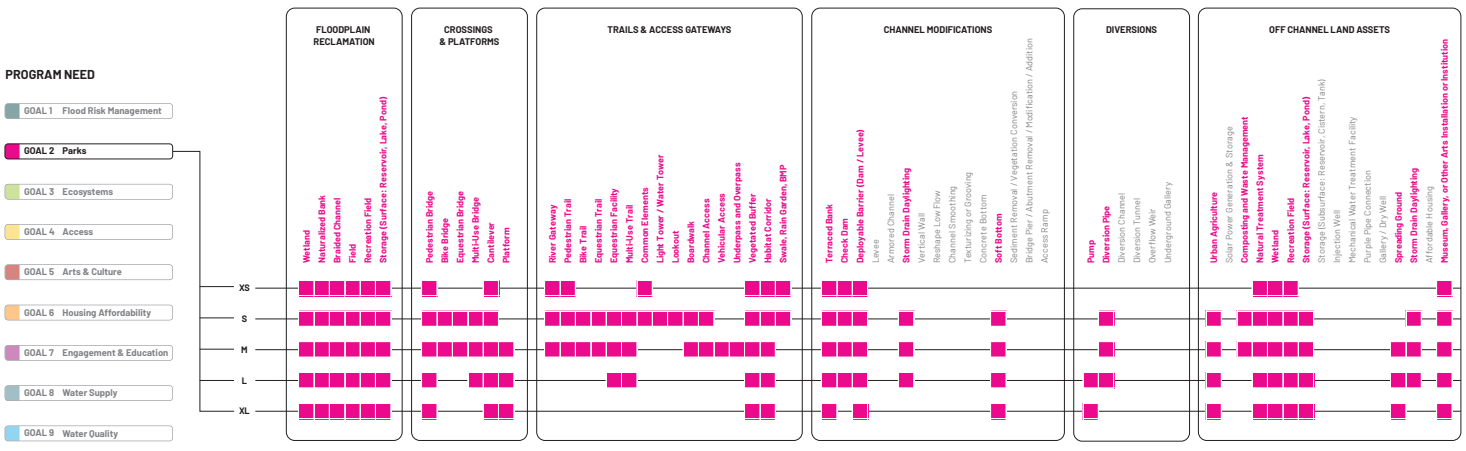

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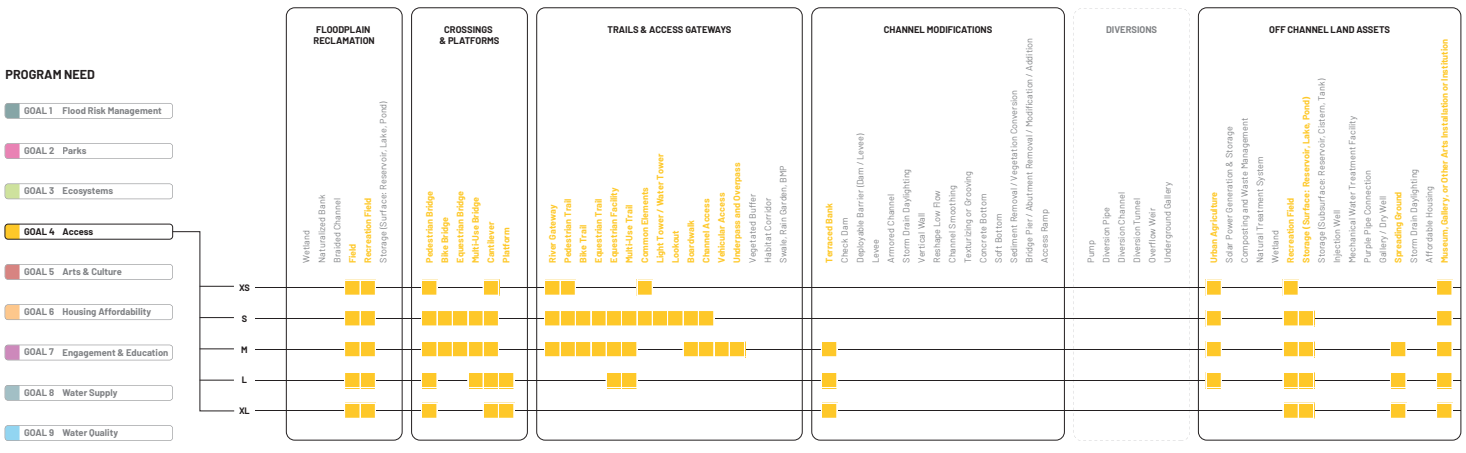

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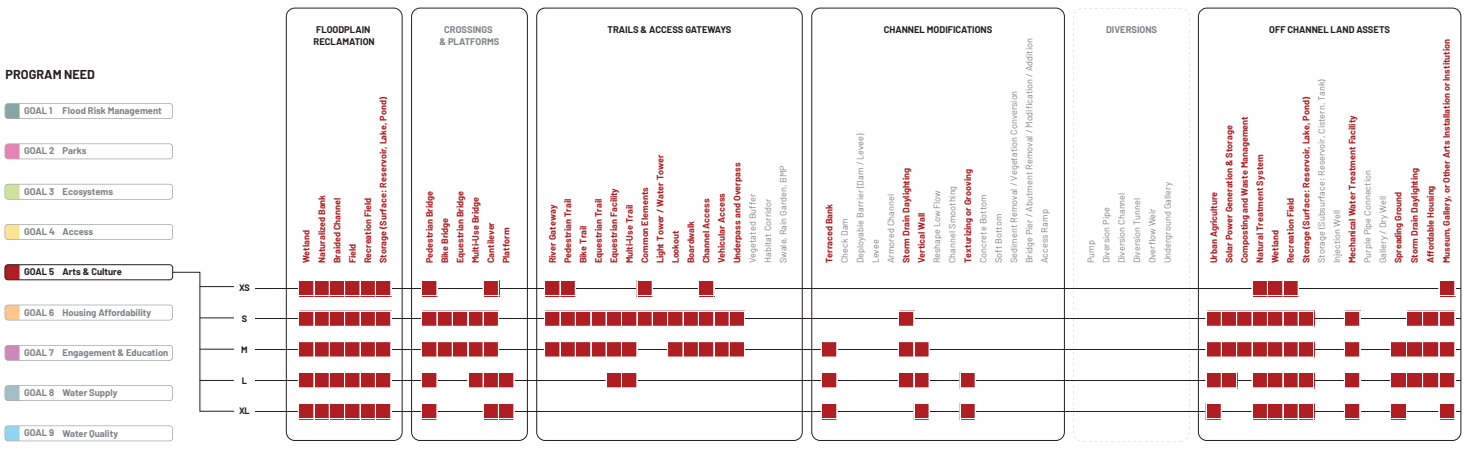

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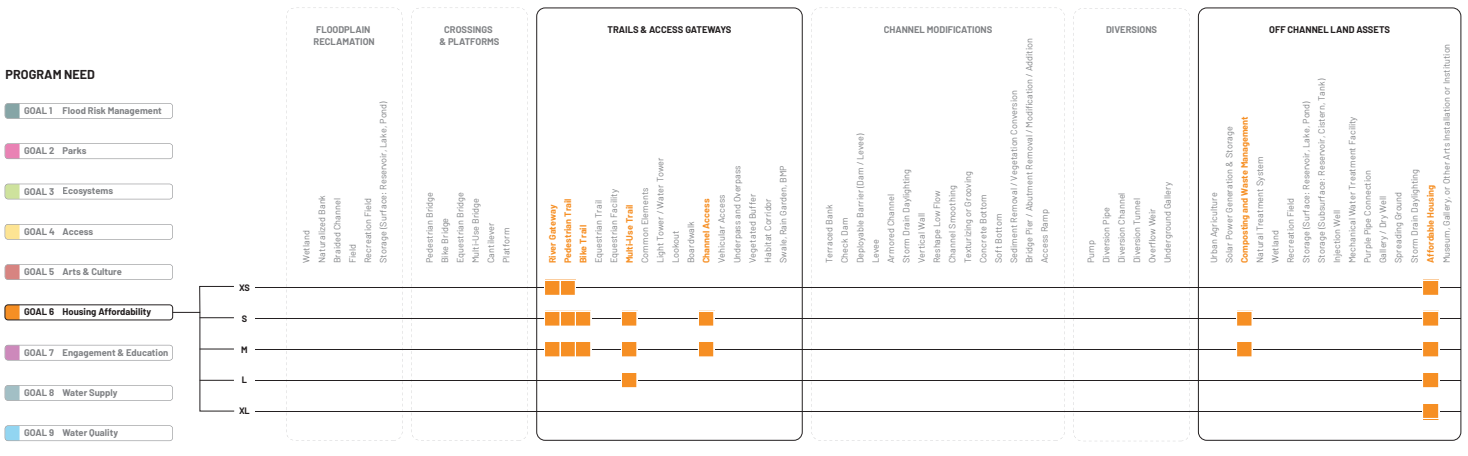

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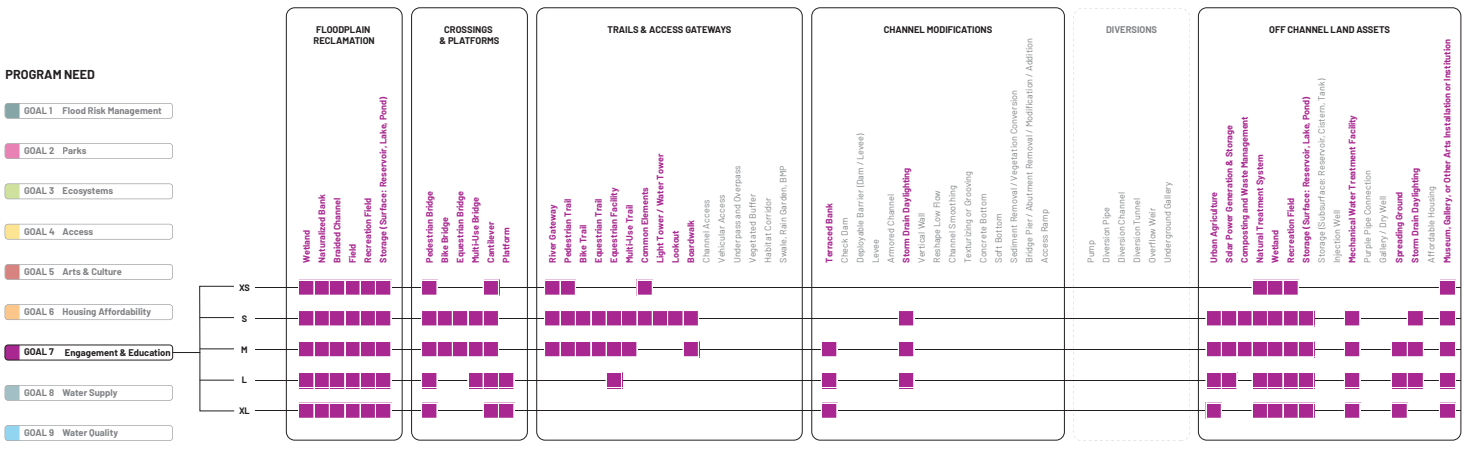

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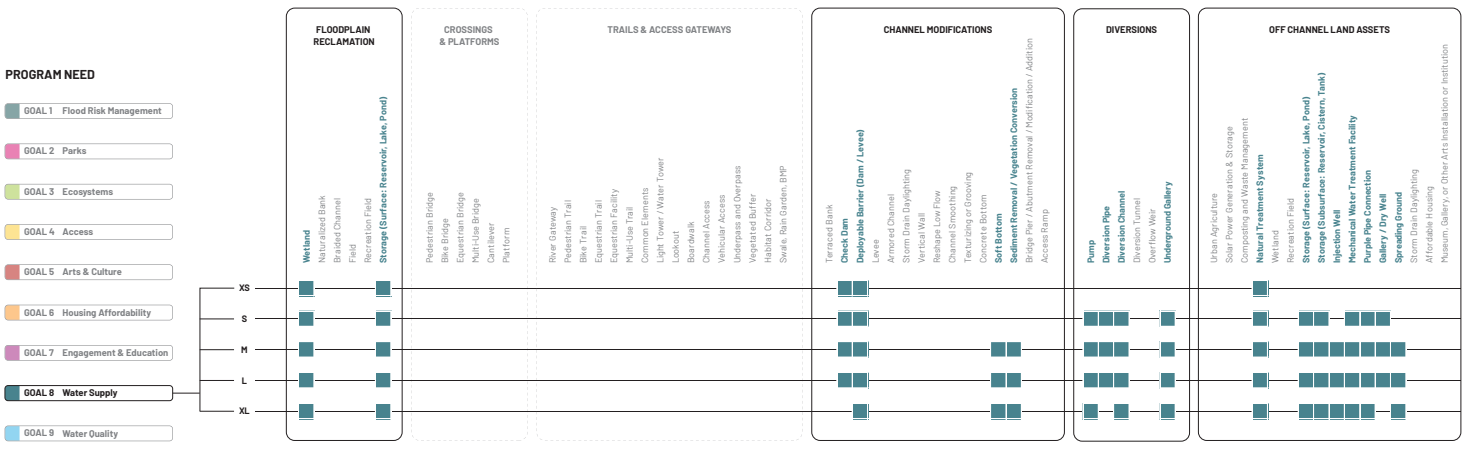

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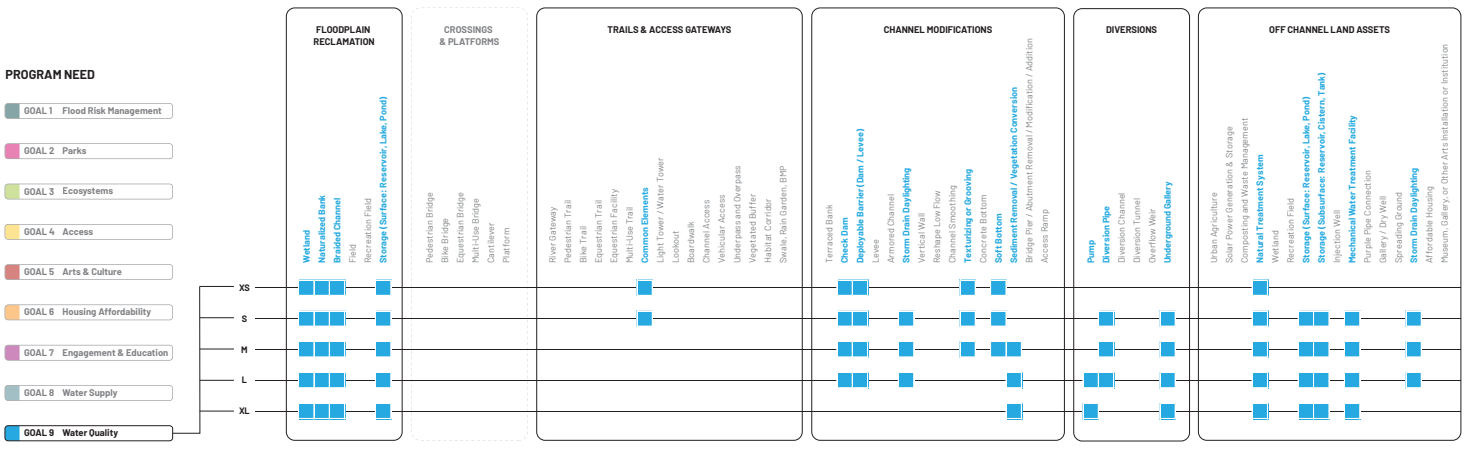

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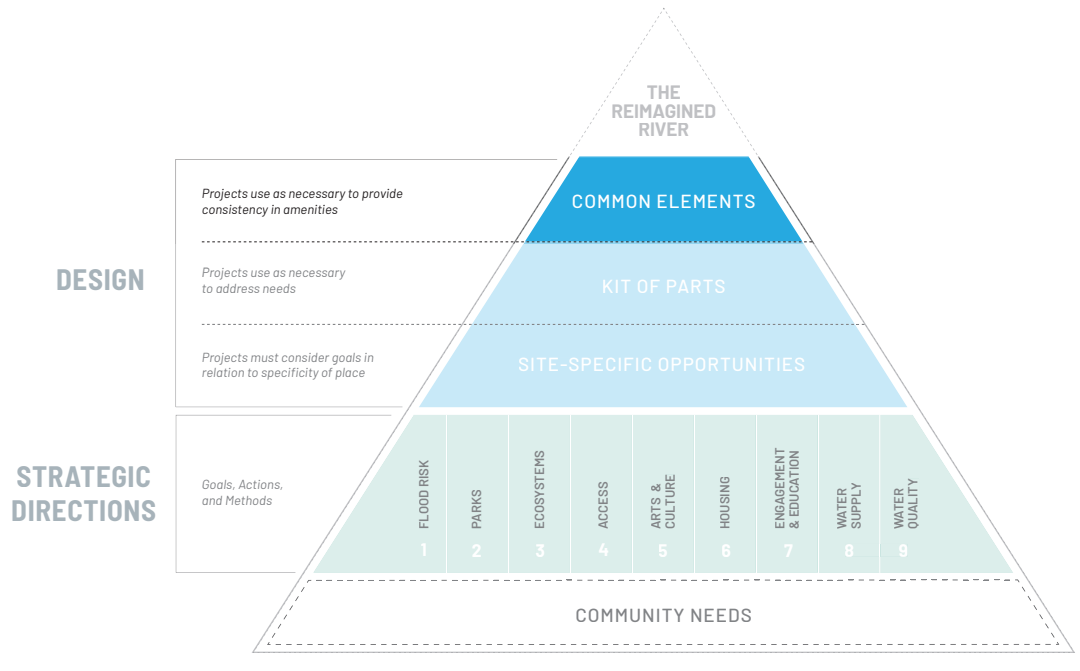


CURRENT COMMON ELEMENTS

Source: OLIN

CURRENT COMMON ELEMENTS

SEATING

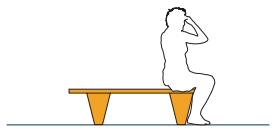
GUARDRAILS AND TRASH RECEPTACLE

ENVIRONMENTAL GRAPHICS

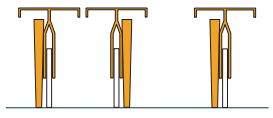
Source: OLIN

INVENTORY OF REPEATED COMMON ELEMENTS

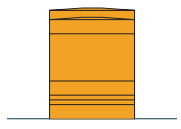
Developed under Design Guidelines



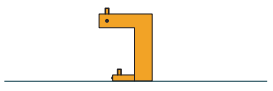
BENCHES



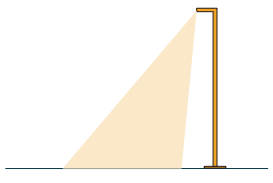
BIKE RACKS



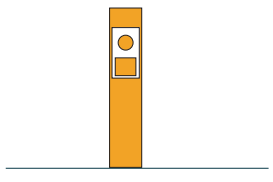
TRASH & RECYCLING



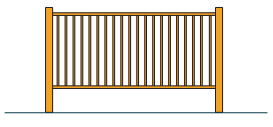
WATER FOUNTAINS



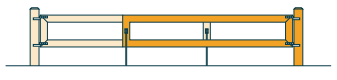
LIGHTING



EMERGENCY CALL BOXES



GUARDRAILS



FENCES & GATES

PAVILIONS

HYGIENE FACILITIES

ART

ENVIRONMENTAL GRAPHICS

Source: OLIN, Gehry Partners

TYPES OF ELEMENTS

BESPOKE

- Pavilions
- Art Installations
- Interpretive Signage
- Custom Furnishings

CONSISTENT

- Benches
- Light Fixtures
- Wayfinding

FACILITIES AND AMENITIES

River Pavilions and Cadence

SHADE PAVILION
Tier I (every .4-.6 mi)

- SHADED SEATING
- RIVER EDUCATION
- WATER FOUNTAIN
- EMERGENCY CALL BOX
- TRASH & RECYCLING

REST PAVILION
Tier II (every .8-1.2 mi)

TIER I COMPONENTS, PLUS:

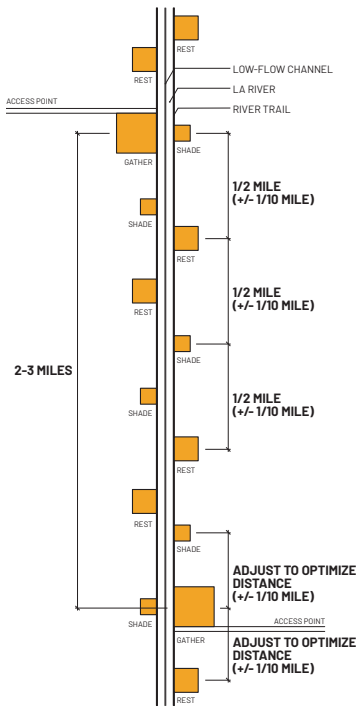
- BATHROOMS
- PICNIC AREA
- CHARGING STATION
- BICYCLE RACKS
- SNACK STATION
- RECREATION AREA OUTDOOR SHOWERS (OPTIONAL)

GATHERING PAVILION
Tier III (every 2-3 miles)

TIER I AND II COMPONENTS, PLUS ONE OR MORE OF THE FOLLOWING:

- BIKE RENTAL/REPAIR
- INDOOR LOCKER ROOM AND SHOWERS
- PUBLIC SAFETY STATION
- MULTI-PURPOSE COMMUNITY ROOM (OPTIONAL)
- COMMUNITY KITCHEN (OPTIONAL)
- SPORTS EQUIPMENT RENTAL (OPTIONAL)

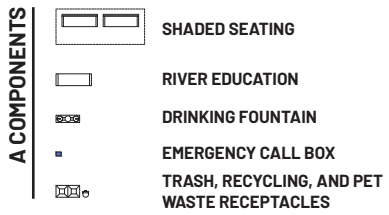
TYPICAL CADENCE

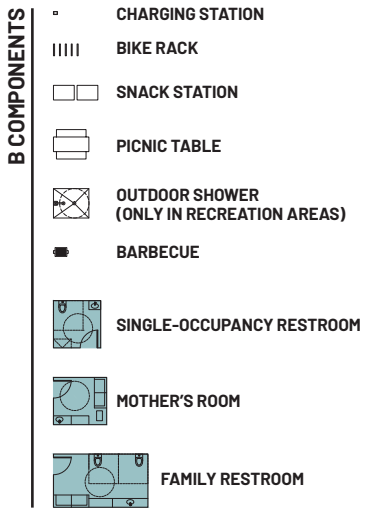


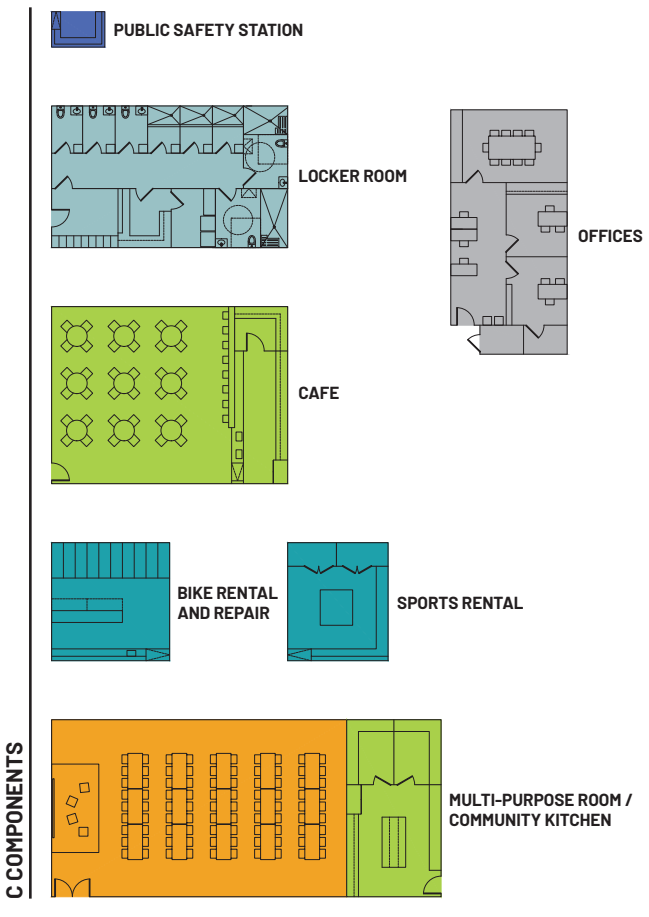
Source: Gehry Partners, OLIN

PAVILION COMPONENTS

Shade Pavilion (Tier I) = A
Rest Pavilion (Tier II) = A+B
Gathering Pavilion (Tier III) = A+B+C

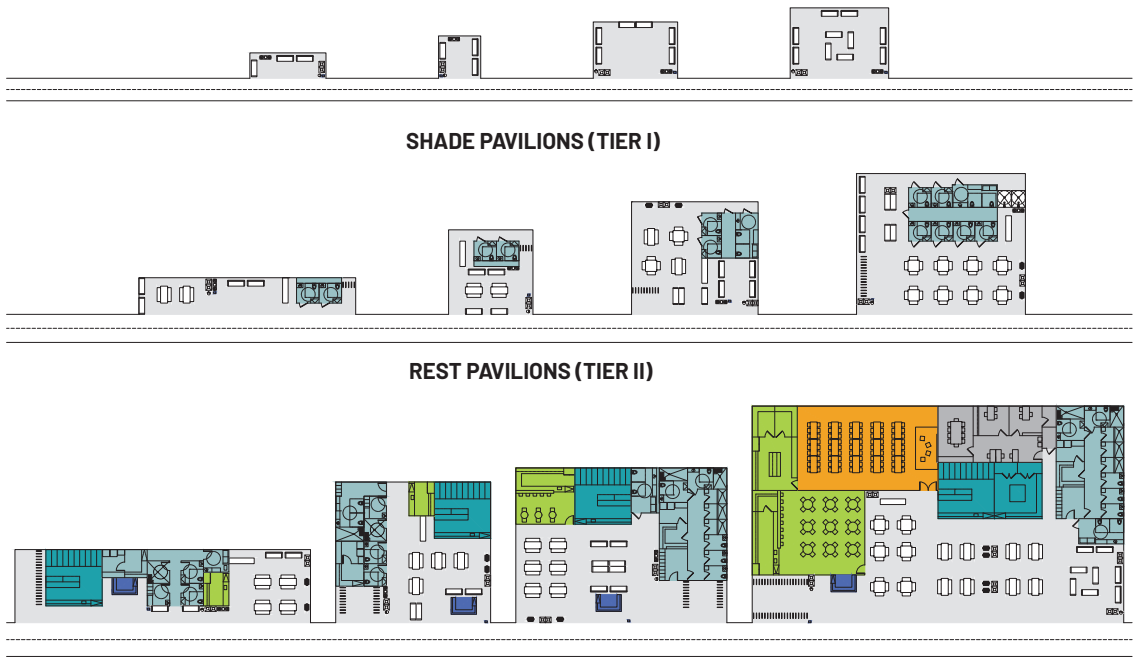






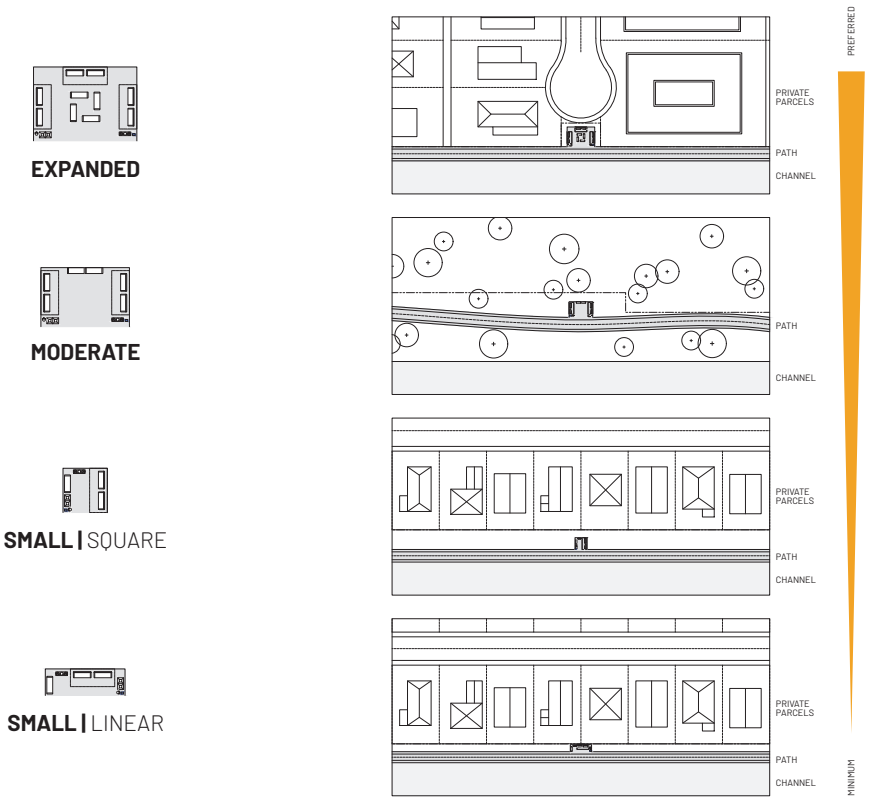
Source: Gehry Partners, OLIN

PAVILION CONFIGURATIONS



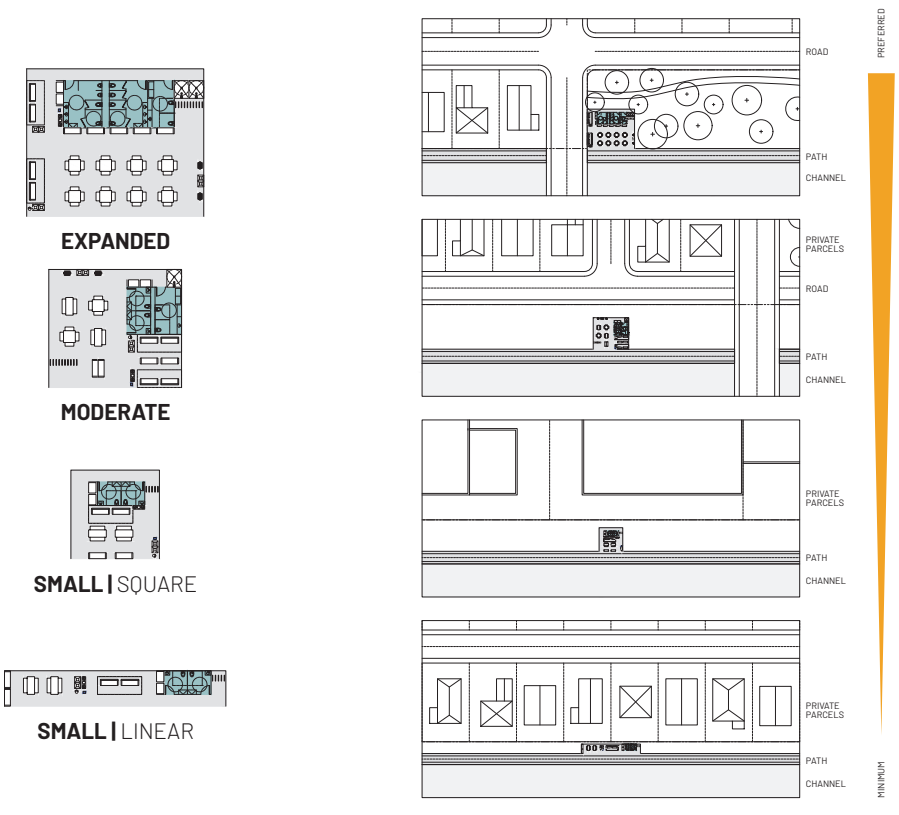
Source: Gehry Partners, OLIN

SHADE PAVILIONS (TIER I)



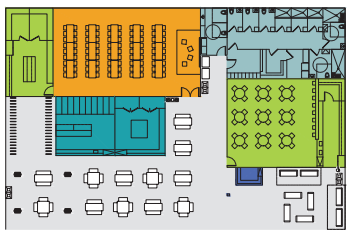
Source: Gehry Partners, OLIN

REST PAVILIONS (TIER II)

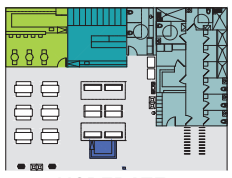


Source: Gehry Partners, OLIN

GATHERING PAVILIONS (TIER III)

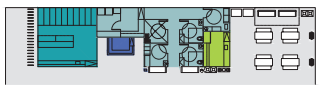


EXPANDED

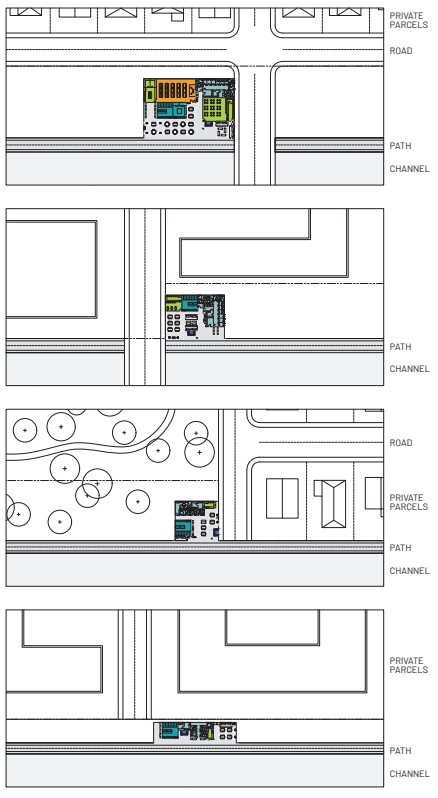


MODERATE

SMALL | SQUARE

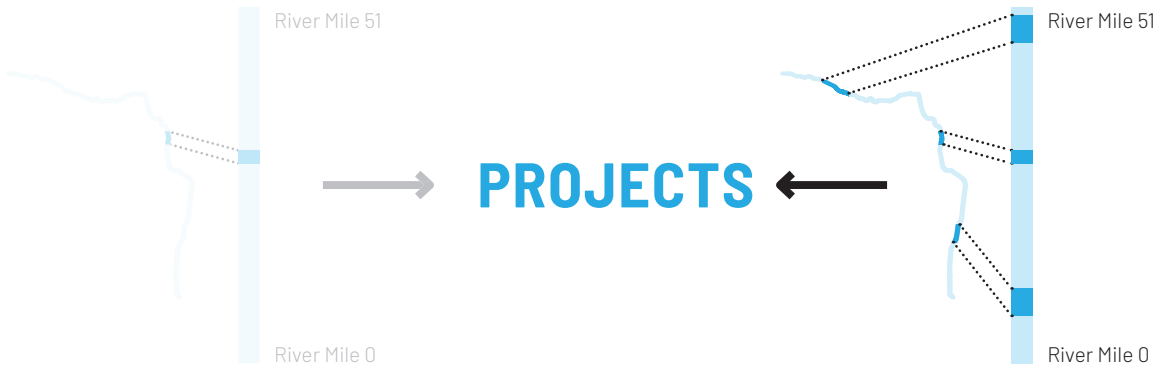


SMALL | LINEAR



Source: Gehry Partners, OLIN

SYSTEM-BASED PROJECTS ARE COMPRISED OF MANY SITES WORKING TOGETHER TO ADDRESS NEEDS WITH RIVER-WIDE IMPLICATIONS



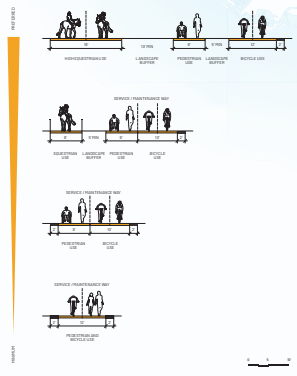
SITE-BASED

SYSTEM-BASED

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

SYSTEM: 51-MILE RIVER TRAIL

Continuous trail and access points



— Existing LA River Trail
— Planned or Proposed LA River Trail

Source: OLIN, based on City of Los Angeles, LA River Greenway, LA River Access and Point sof Interest, 2018

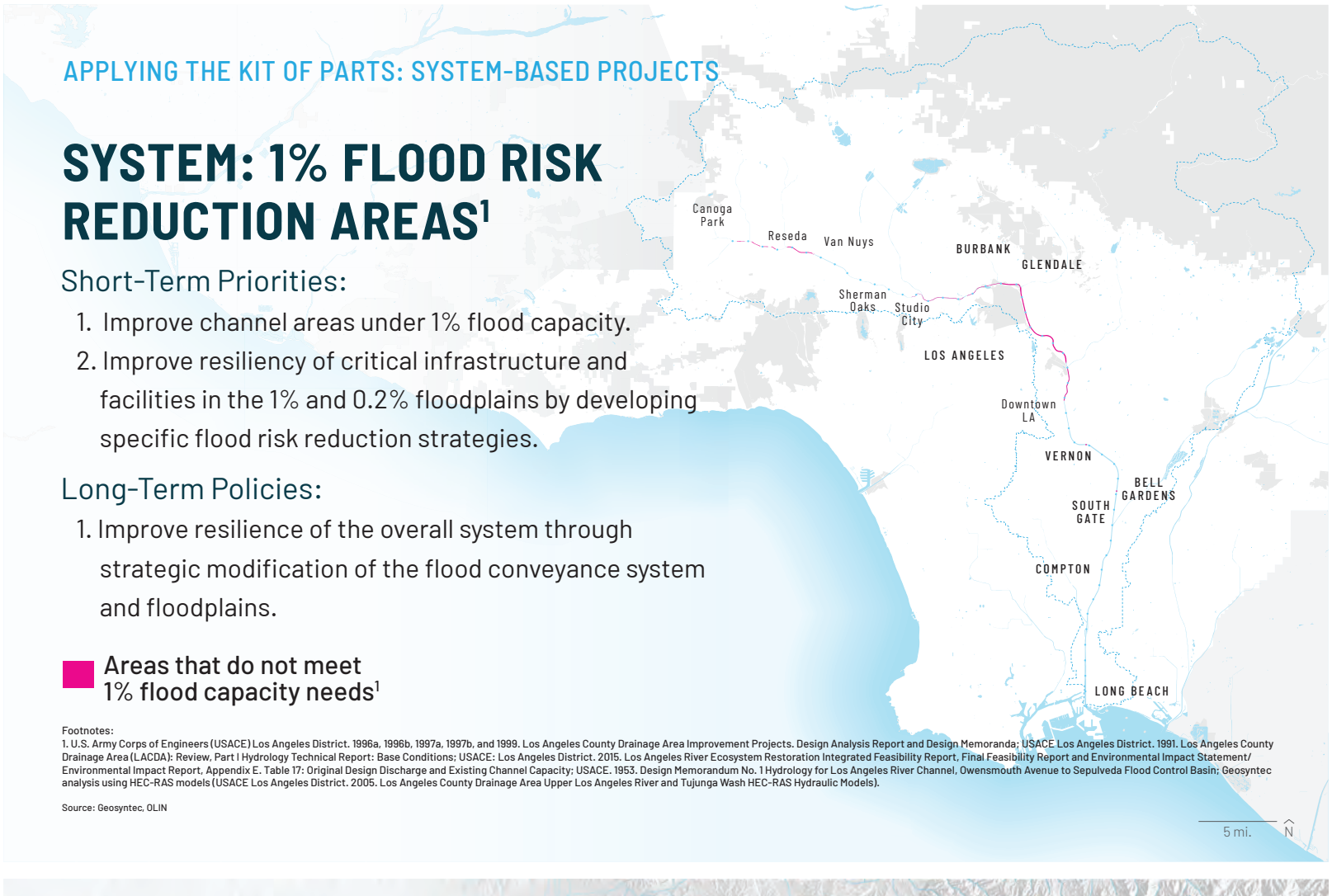
SYSTEM: 1% FLOOD RISK REDUCTION AREAS[1]

Short-Term Priorities:

1. Improve channel areas under 1% flood capacity.
2. Improve resiliency of critical infrastructure and facilities in the 1% and 0.2% floodplains by developing specific flood risk reduction strategies.

Long-Term Policies:

1. Improve resilience of the overall system through strategic modification of the flood conveyance system and floodplains.



Areas that do not meet 1% flood capacity needs[1]

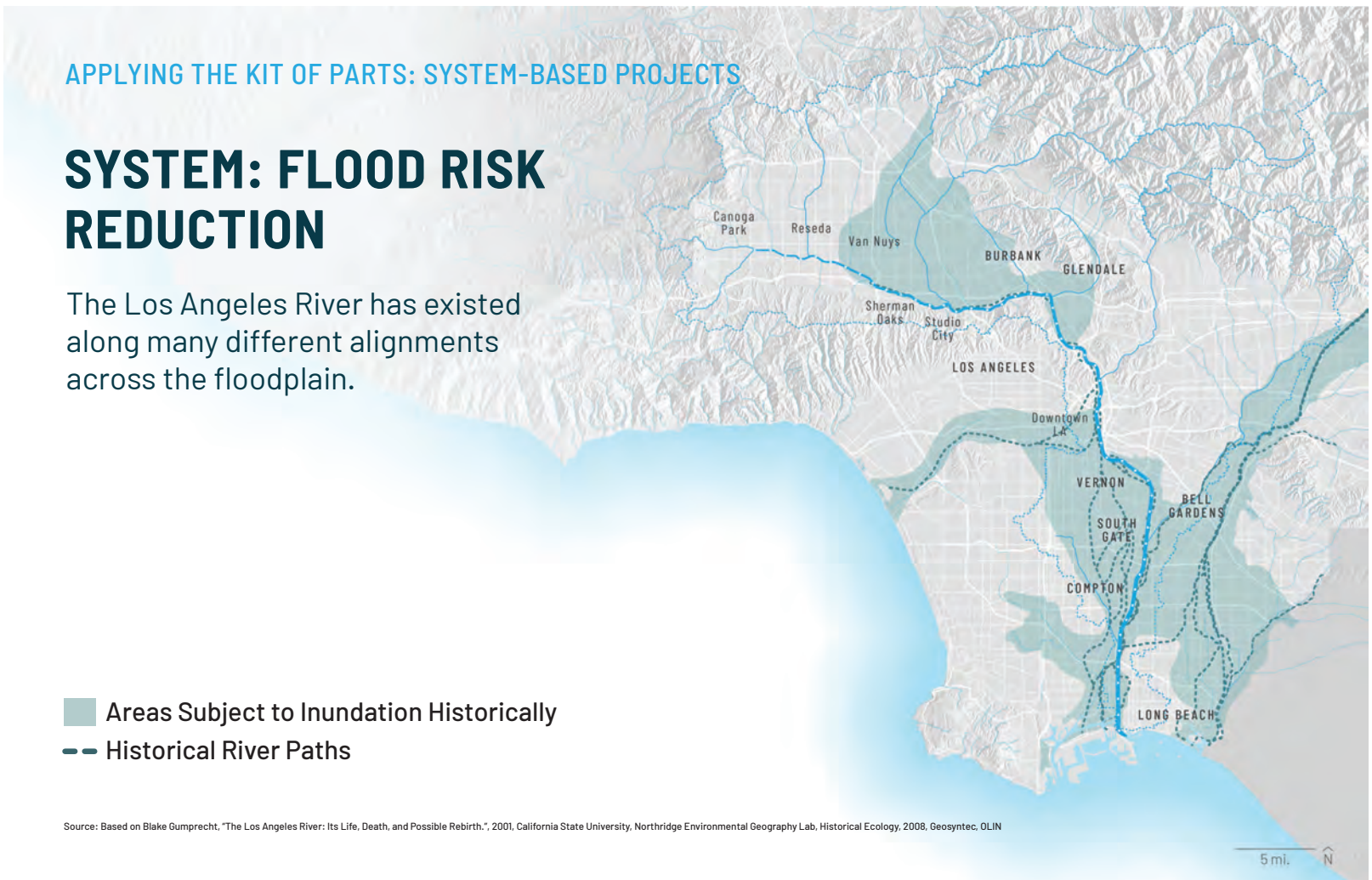
Footnotes:
1. U.S. Army Corps of Engineers (USACE) Los Angeles District. 1996a, 1996b, 1997a, 1997b, and 1999. Los Angeles County Drainage Area Improvement Projects. Design Analysis Report and Design Memoranda; USACE Los Angeles District. 1991. Los Angeles County Drainage Area (LACDA): Review, Part I Hydrology Technical Report: Base Conditions; USACE: Los Angeles District. 2015. Los Angeles River Ecosystem Restoration Integrated Feasibility Report, Final Feasibility Report and Environmental Impact Statement/ Environmental Impact Report, Appendix E. Table 17: Original Design Discharge and Existing Channel Capacity; USACE. 1953. Design Memorandum No. 1 Hydrology for Los Angeles River Channel, Owensmouth Avenue to Sepulveda Flood Control Basin; Geosyntec analysis using HEC-RAS models (USACE Los Angeles District. 2005. Los Angeles County Drainage Area Upper Los Angeles River and Tujunga Wash HEC-RAS Hydraulic Models).

Source: Geosyntec, OLIN

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

SYSTEM: FLOOD RISK REDUCTION

The Los Angeles River has existed along many different alignments across the floodplain.



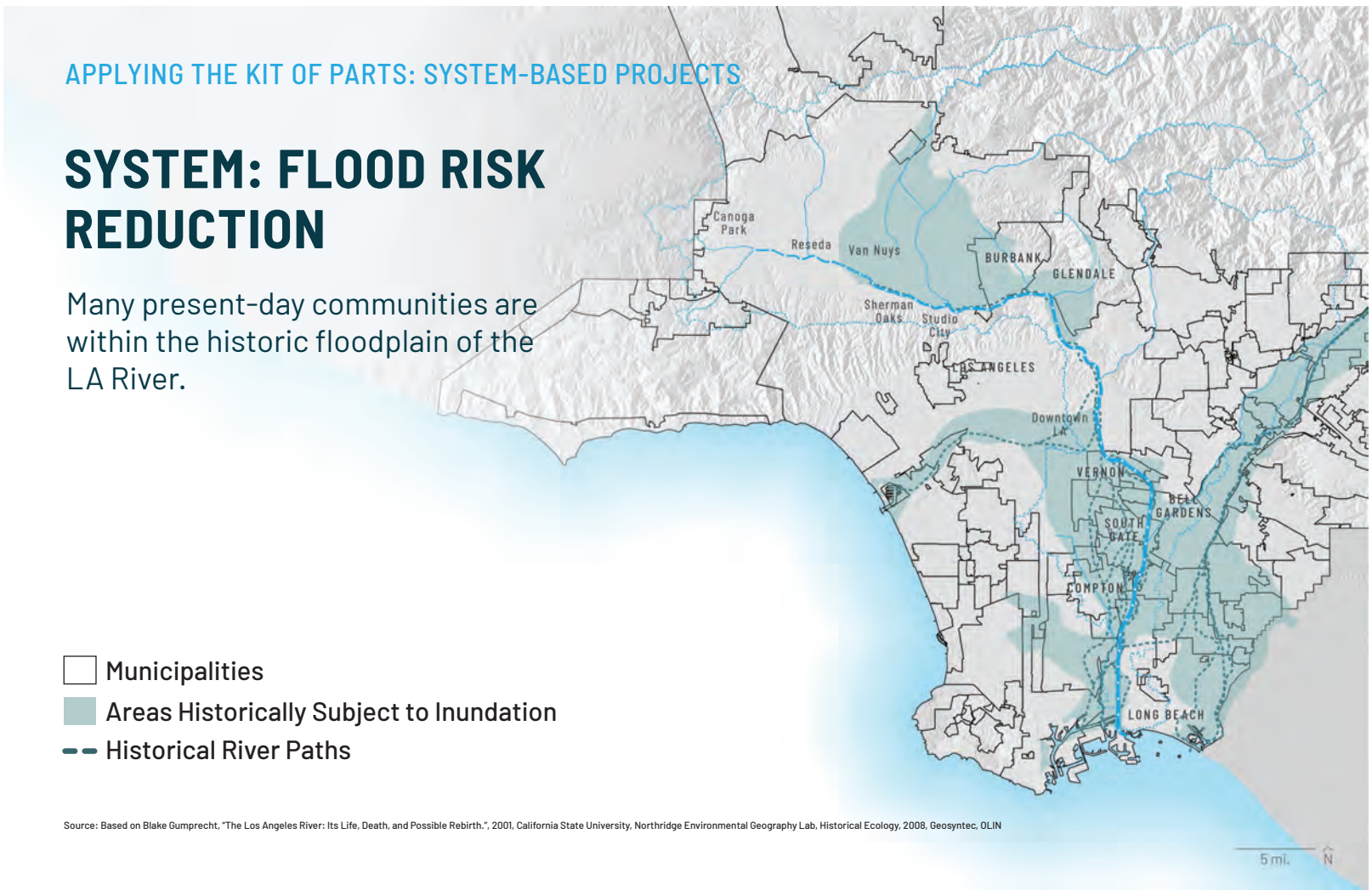
Areas Subject to Inundation Historically
Historical River Paths

Source: Based on Blake Gumprecht, "The Los Angeles River: Its Life, Death, and Possible Rebirth.", 2001, California State University, Northridge Environmental Geography Lab, Historical Ecology, 2008, Geosyntec, OLIN

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

SYSTEM: FLOOD RISK REDUCTION

Many present-day communities are within the historic floodplain of the LA River.



Municipalities
Areas Historically Subject to Inundation
Historical River Paths

Source: Based on Blake Gumprecht, "The Los Angeles River: Its Life, Death, and Possible Rebirth.", 2001, California State University, Northridge Environmental Geography Lab, Historical Ecology, 2008, Geosyntec, OLIN

CHANNEL CAPACITY[1]

Annual Chance of Exceedance
- 10% or Worse
- 2% or Worse
- 1% or Worse
- 1% or Better

Footnotes:
1. U.S. Army Corps of Engineers (USACE) Los Angeles District. 1996a, 1996b, 1997a, 1997b, and 1999. Los Angeles County Drainage Area Improvement Projects. Design Analysis Report and Design Memoranda; USACE Los Angeles District. 1991. Los Angeles County Drainage Area (LACDA): Review, Part I Hydrology Technical Report: Base Conditions; USACE: Los Angeles District. 2015. Los Angeles River Ecosystem Restoration Integrated Feasibility Report, Final Feasibility Report and Environmental Impact Statement/ Environmental Impact Report, Appendix E. Table 17: Original Design Discharge and Existing Channel Capacity; USACE. 1953. Design Memorandum No. 1 Hydrology for Los Angeles River Channel, Owensmouth Avenue to Sepulveda Flood Control Basin; Geosyntec analysis using HEC-RAS models (USACE Los Angeles District. 2005. Los Angeles County Drainage Area Upper Los Angeles River and Tujunga Wash HEC-RAS Hydraulic Models).

Source: Geosyntec, OLIN

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

HYDRAULIC FLOOD SYSTEM

- Spreading Grounds
- Flood Control Basins
- Storm Drains
- Streams and Channels

Source: LA County GIS Portal

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

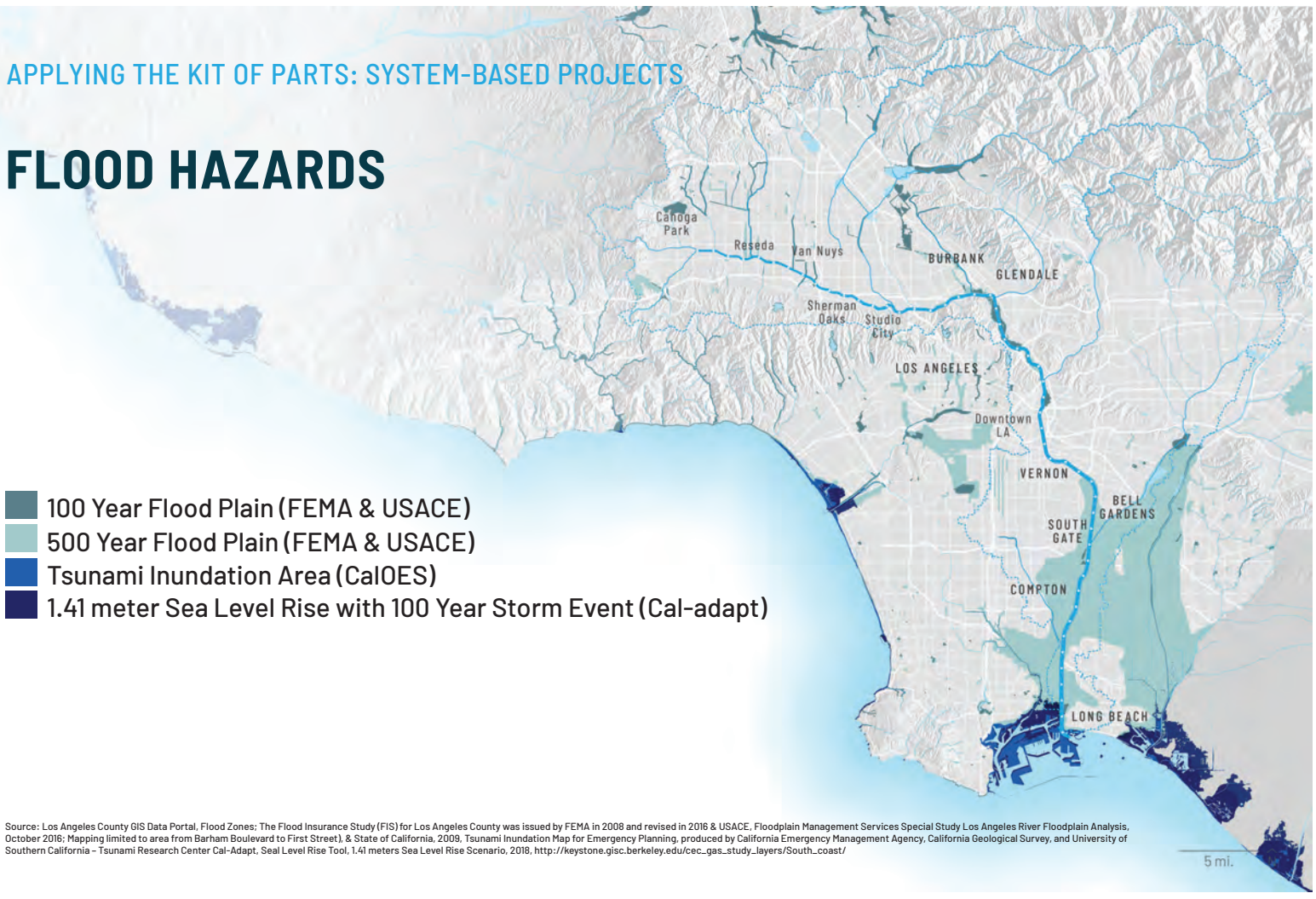
A VARIED CHANNEL

LA RIVER HISTORY: NORTH FIGUEROA BRIDGE AT ARROYO SECO 1938

After this bridge was washed out, this section of the channel was built to 0.2% flood capacity to protect this critical infrastructure.

Source: Los Angeles Public Library, 1938 from Boyle Heights

FLOOD HAZARDS



- 100 Year Flood Plain (FEMA & USACE)
- 500 Year Flood Plain (FEMA & USACE)
- Tsunami Inundation Area (CalOES)
- 1.41 meter Sea Level Rise with 100 Year Storm Event (Cal-adapt)

Source: Los Angeles County GIS Data Portal, Flood Zones; The Flood Insurance Study (FIS) for Los Angeles County was issued by FEMA in 2008 and revised in 2016 & USACE, Floodplain Management Services Special Study Los Angeles River Floodplain Analysis, October 2016; Mapping limited to area from Barham Boulevard to First Street), & State of California, 2009, Tsunami Inundation Map for Emergency Planning, produced by California Emergency Management Agency, California Geological Survey, and University of Southern California – Tsunami Research Center Cal-Adapt, Seal Level Rise Tool, 1.41 meters Sea Level Rise Scenario, 2018, http://keystone.gisc.berkeley.edu/cec_gas_study_layers/South_coast/

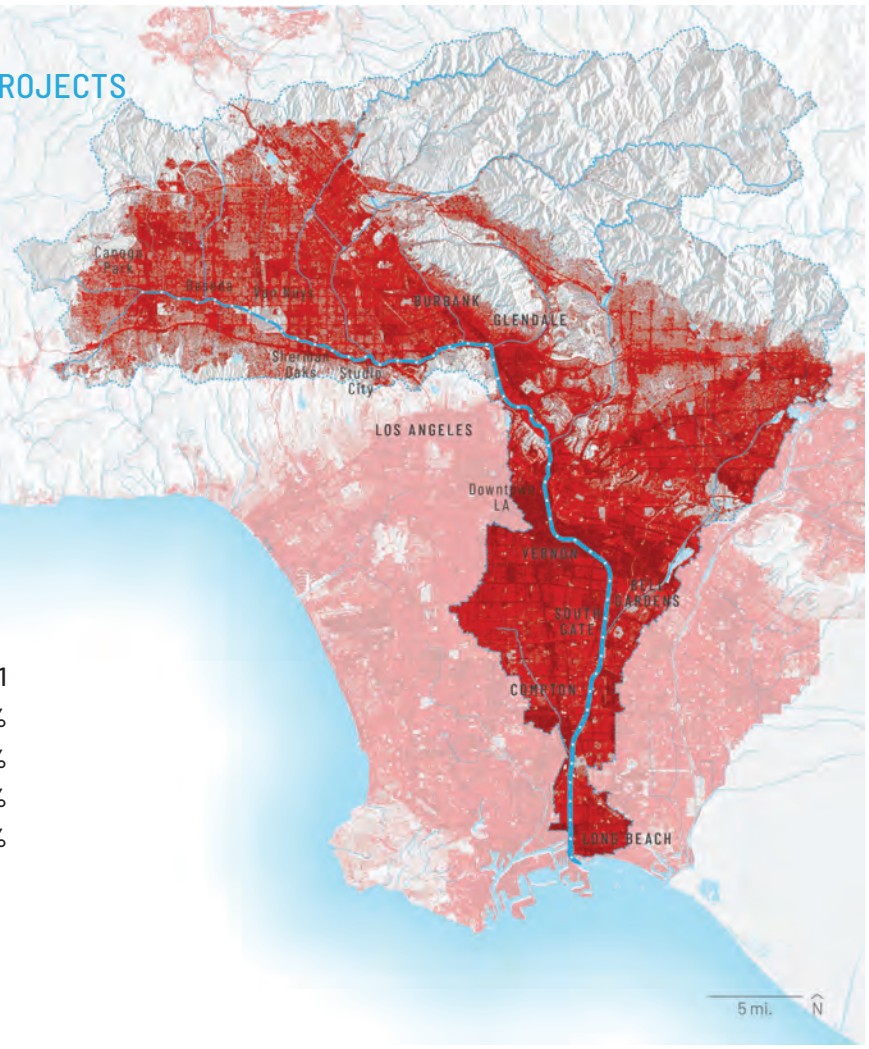
FLOOD HAZARDS & CRITICAL FACILITIES & INFRASTRUCTURE

- Disaster and Emergency Operations Centers
- Police and Fire Stations
- Medical Facilities
- Schools
- Hazardous Facilities
- 100 Year Floodplain (FEMA & USACE)
- 500 Year Floodplain (FEMA & USACE)
- Tsunami Inundation Area (CalOES)
- 1.41 meter Sea Level Rise with 100 Year Storm Event (Cal-adapt)
- Evacuation Routes
- Transmission Lines
- Passenger Rail
- Wastewater Treatment Plants
- Oil and Gas Facilities
- Electric Power Facilities
- Transit Facilities
- Bridges
- Freeway Exits

Source: Los Angeles County GIS Data Portal, Points of Interest, 2016 & Los Angeles County GIS Data Portal, Disaster Routes, 1998 & California Department of Transportation, California Rail Network, 2013 & EPA, FRS Geospatial Data, 2018 & State of California Energy Commission, California Electric Transmission Line, 2018 & California Department of Conservation, All Wells, 2018 & Los Angeles County GIS Data Portal, Flood Zones; The Flood Insurance Study (FIS) for Los Angeles County was issued by FEMA in 2008 and revised in 2016 & USACE, Floodplain Management Services Special Study Los Angeles River Floodplain Analysis, October 2016; Mapping limited to area from Barham Boulevard to First Street), & State of California, 2009, Tsunami Inundation Map for Emergency Planning, produced by California Emergency Management Agency, California Geological Survey, and University of Southern California – Tsunami Research Center Cal-Adapt, Seal Level Rise Tool, 1.41 meters Sea Level Rise Scenario, 2018, http://keystone.gisc.berkeley.edu/cec_gas_study_layers/South_coast/

NEARLY ALL OF THE LA RIVER CORRIDOR IS DEVELOPED

Given the current density of urbanization, it is not reasonable to reinstate the historic LA River floodplain.



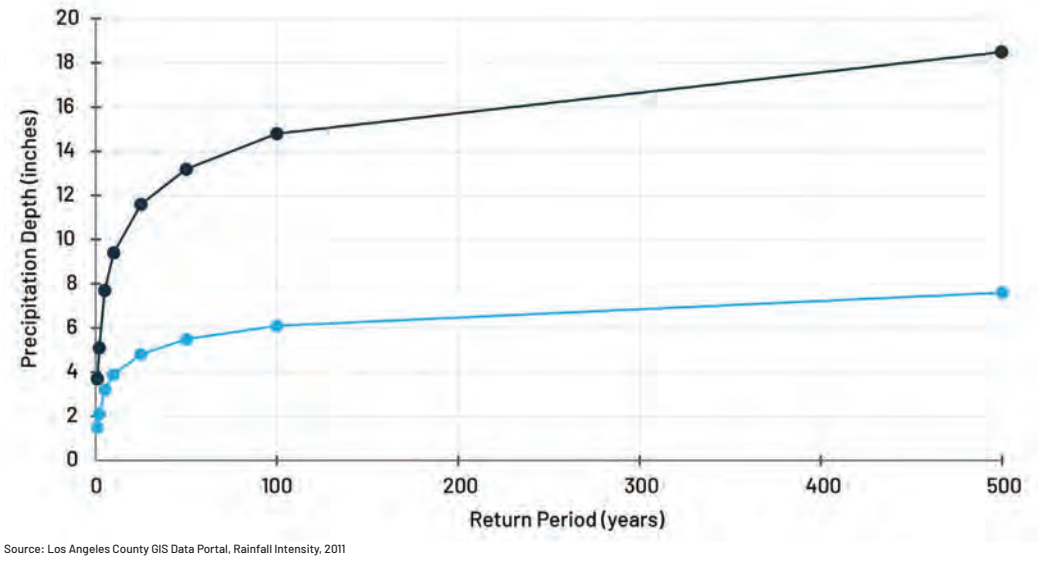
Developed Land Cover of the LA River Watershed	2011
Developed, Open Space	10.4%
Developed, Low Intensity	15.8%
Developed, Medium Intensity	26.3%
Developed, High Intensity	9.2%

Source: National Land Cover Database 2011

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

STORM RETURN PERIODS

24-hour Precipitation Depth versus Return Period



Mt. Wilson

Los Angeles - USC

Source: Los Angeles County GIS Data Portal, Rainfall Intensity, 2011

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

EXTREME EVENTS HAPPEN

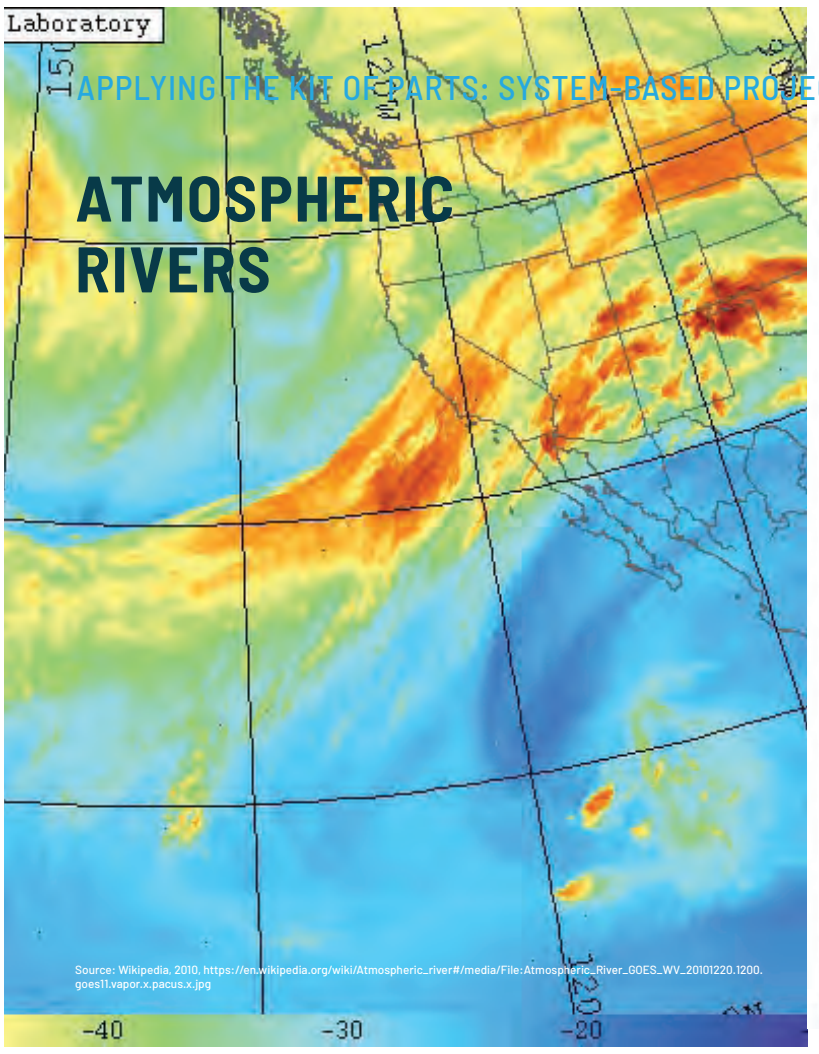
SUPERSTORM SANDY

Source: Jolliffe, R., Flickr User, 2012, https://flic.kr/p/dpcGmB

HURRICANE HARVEY

Source: Chandler, J., Flickr User, 2017, https://flic.kr/p/Y487SD

ATMOSPHERIC RIVERS



Source: Wikipedia, 2010. https://en.wikipedia.org/wiki/Atmospheric_river#/media/File:Atmospheric_River_GOES_WV_20101220.1200.goes11.vapor.x.pacus.x.jpg

Los Angeles Times

MONDAY, FEBRUARY 18, 2019

latimes.com

CHILDREN play at the Whittier Narrows Recreation Area. Officials with the U.S. Army Corps of Engineers say that the 60-year-old Whittier Narrows Dam could fail in the event of a very large, very rare storm.

This could leave us all wet

California's 'other big one' — a mega-storm of biblical scope — could swamp cities in the L.A. Basin, experts say

By Louis Sahagun

Scientists call it California's "other big one," and they say it could cause three times as much damage as a major earthquake ripping along the San Andreas fault.

Although it might sound absurd to those who still recall five years of withering drought and mandatory water restrictions, researchers and engineers warn that California may be due for rain of biblical proportions — or what experts call an ARkStorm.

This rare mega-storm — which some say is rendered all the more inevitable because of climate change — would last for weeks and send more than 15 million people fleeing as floodwaters inundated cities and formed lakes in the Central Valley and Mojave Desert, according to the U.S. Geological Survey. Officials estimate the structural and economic damage from an ARkStorm (for Atmospheric River 1,000) would amount to more than $725 billion statewide.

In heavily populated areas of the Los Angeles Basin, epic runoff from the San Gabriel Mountains could rapidly overwhelm a flood control dam on the San Gabriel River and unleash floodwaters from Pico Rivera to Long Beach, according to a recent analysis by the U.S. Army Corps of Engineers.

In a series of recent public hearings, corps officials told residents that the 60-year-old Whittier Narrows Dam no longer met the agency's tolerable-risk guidelines and could fail in the event of a very large, very rare storm, such as the one that devastated California more than 150 years ago.

Specifically, federal engi- [See Mega-storm, A10]

Whittier Narrows Dam

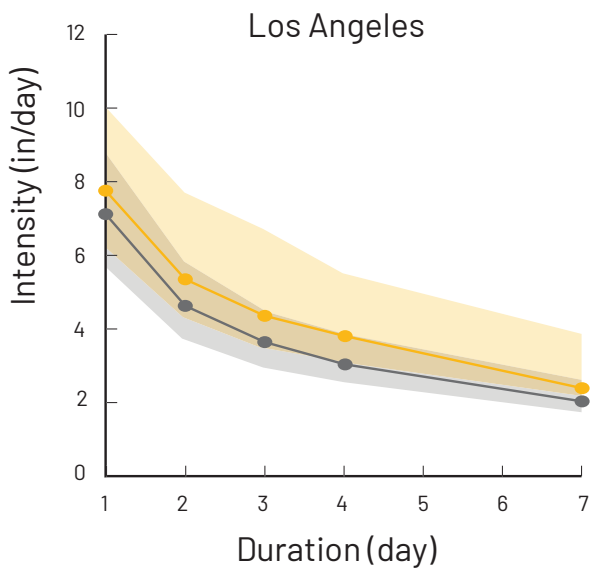
Source: Sahagun, L. LA Times. February 2019, https://www.latimes.com/local/california/la-me-ln-mega-storm-dam-failure-20190218-story.html

ELECTION 2020

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

CLIMATE CHANGE

Current rainfall design frequencies may underestimate future climate conditions.



RCP 4.5 (2055-2099)
90% CI

Current IDFs (1950-1999)
90% CI

RCP = Representative Concentration Pathways

IDF = Intensity-Duration-Frequency

CI = Confidence Interval

RCP4.5 = Greenhouse gas concentrations continue upward until about mid-2040s and then plateau.

Source: Modified from AghaKouchak, Amir, Elisa Ragno, Charlotte Love, and Hamed Moftakhari. (University of California, Irvine). 2018. Projected changes in California's precipitation intensity-duration-frequency curves. California's Fourth Climate Change Assessment, California Energy Commission. Publication Number: CCCA4-CEC-2018-005, Geosyntec, OLIN

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

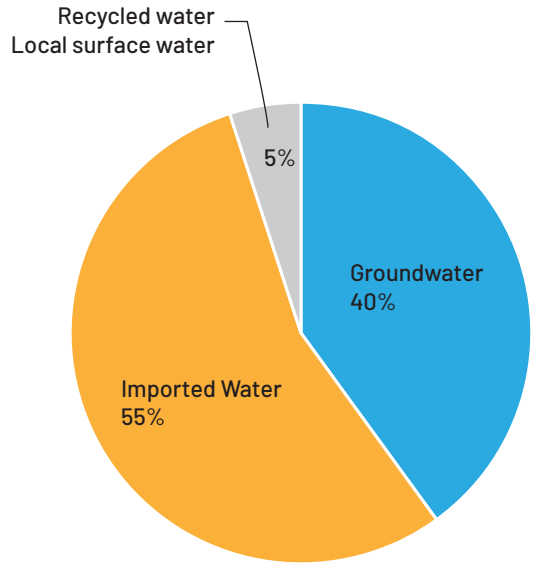
HISTORICAL WETLAND ECOLOGY (1870)

Long-term strategic modifications of the flood conveyance system and floodplain reclamation should be informed by the locations of historical wetlands and floodplains.

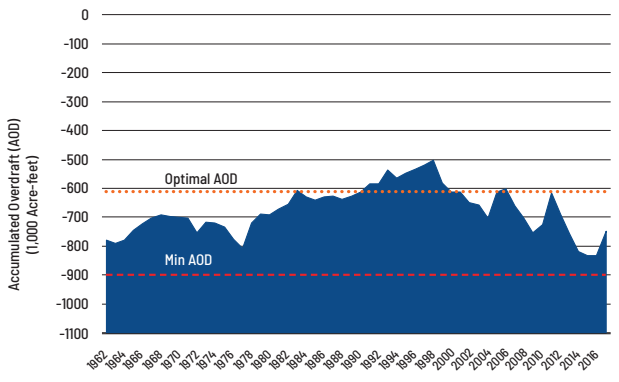
Historical Wetlands
Current Wetlands
Historical and Current Wetlands
Historical Floodplain

Source: Adapted from: Charles Rairdan, 1998. Regional restoration goals for wetland resources in the Greater Los Angeles Drainage Area: A landscape-level comparison of recent historic and current conditions using Geographical Information Systems. Dissertation. UCLA

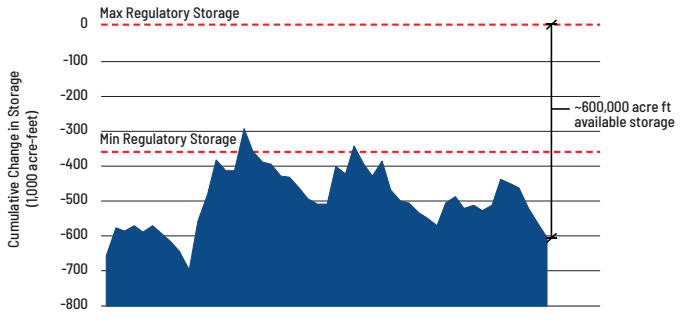
SYSTEM: REGIONAL GROUNDWATER RECHARGE



Supply portfolio of the greater Los Angeles Basin



Cumulative change in storage in the San Fernando Basin



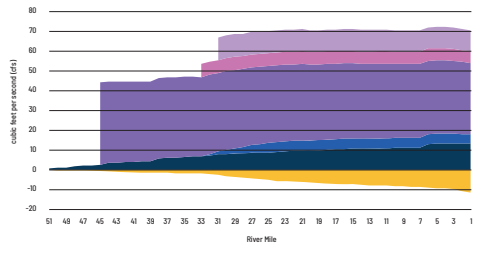
Accumulated Overdraft in the Central Basin and West Coast Basin

Source: ULARA Annual WatermasterReport, 2015-16 Water Year, December 2017; WRD Engineering and Survey Report, 2018

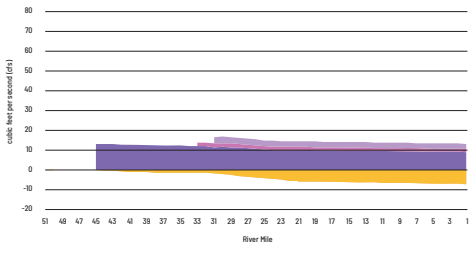
APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

ESTIMATED EXISTING AND POSSIBLE FUTURE DRY WEATHER FLOW AT MOUTH:

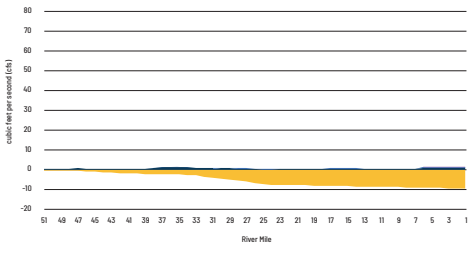
Estimated Existing: 51,000 acre-feet per year



Plausible Future: 10,000 acre-feet per year



Possible Future: 1,000 acre-feet per year



Upwelling
Incidental Urban Runoff
Evapotranspiration
LAG WRP
Burbank WRP
DC Tillman WRP

DC Tillman WRP
Evapotranspiration
LAG WRP
Burbank WRP

Upwelling
Incidental Urban Runoff
Evapotranspiration

Source: Adapted from OneWater LA 2040 Plan, Geosyntec

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

WET WEATHER FLOWS AT MOUTH

Average Volume of Wet Weather Events:

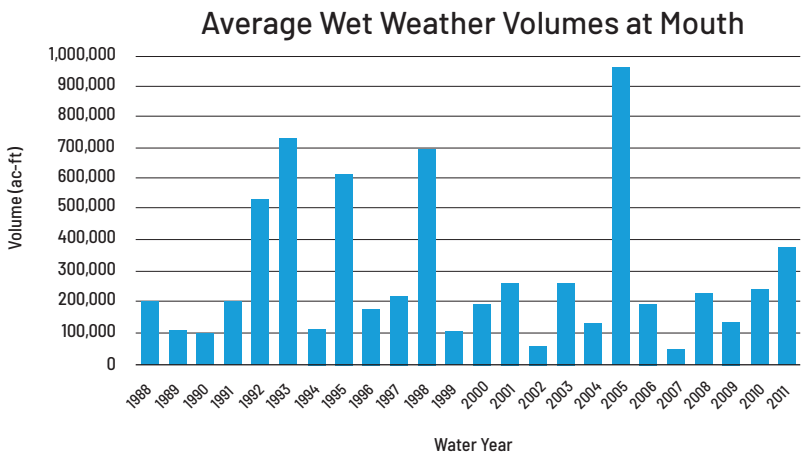
280,000 acre-feet

Wettest Year - 2005:

950,000 acre-feet

Driest Year - 2007

50,000 acre-feet



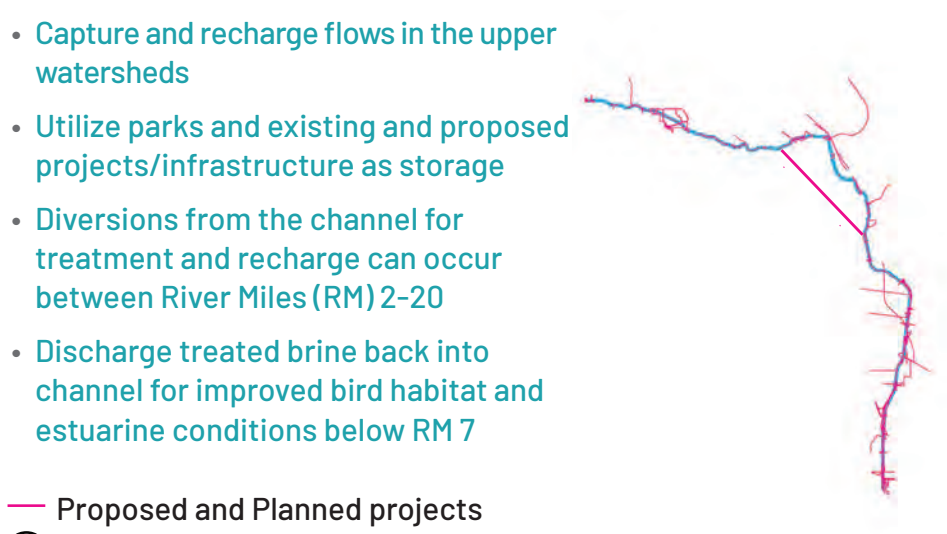
Note: Flow volumes are calculated from Los Angeles County Watershed Model. Comparison of modeled flow volumes with USGS gage 11103000 at Los Angeles River above Long Beach for the period of available overlapping record (WY1989 - WY1992) indicates modeled annual flow volumes are typically within approximately 1% of measured annual flow volumes (LACDPW, 2010, Figure 84).

Source: LACDPW, 2010, Los Angeles County Watershed Model Configuration and Calibration —Part I: Hydrology,
LADWP, 2015, Stormwater Capture Master Plan, August 2015. Prepared by Geosyntec

SYSTEM: REGIONAL GROUNDWATER RECHARGE

Projects along the river can help store water for groundwater recharge

- Capture and recharge flows in the upper watersheds
- Utilize parks and existing and proposed projects/infrastructure as storage
- Diversions from the channel for treatment and recharge can occur between River Miles (RM) 2-20
- Discharge treated brine back into channel for improved bird habitat and estuarine conditions below RM 7



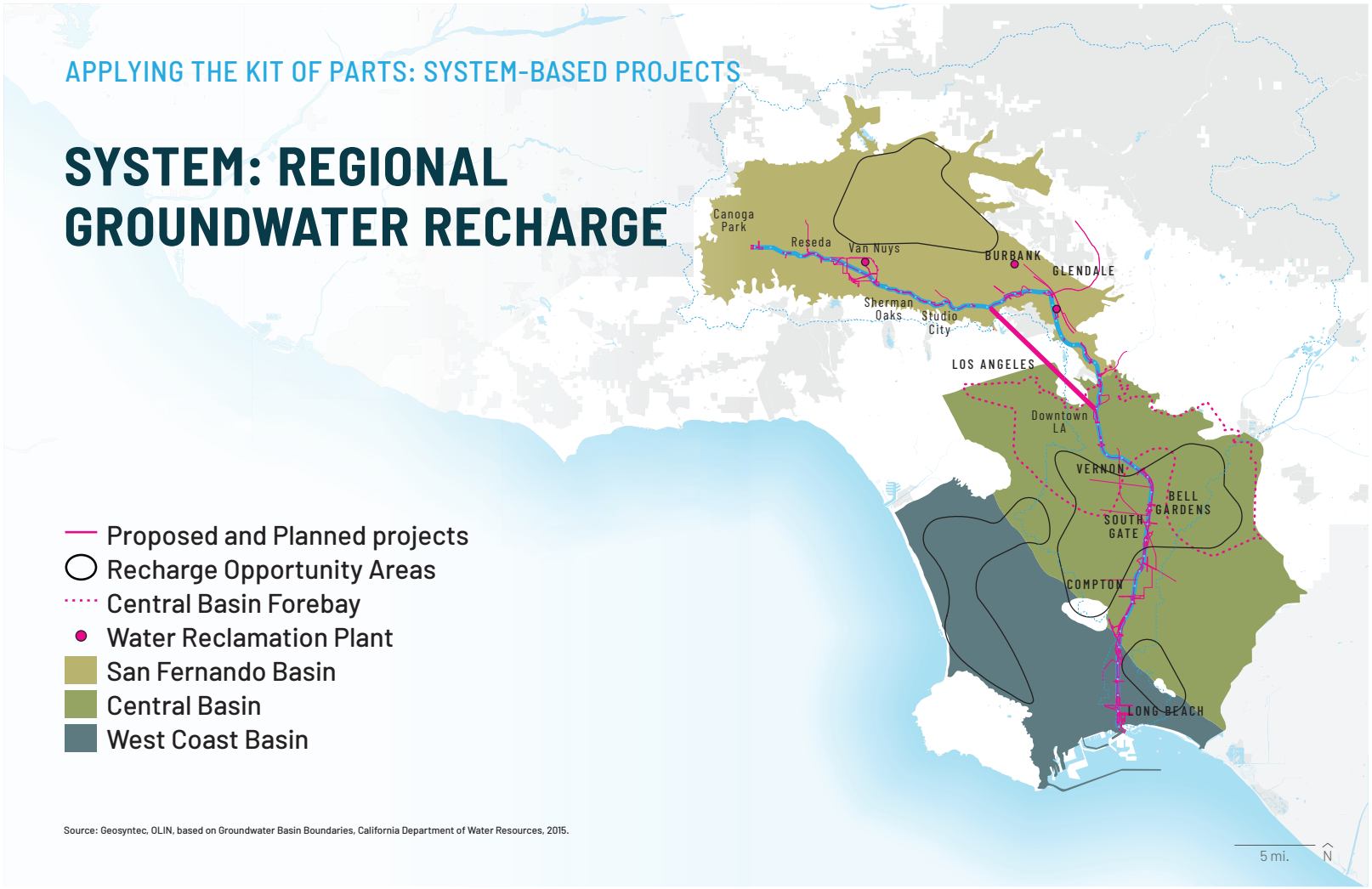
Projects along the LA River capture and store water → Recharge Opportunity Areas

— Proposed and Planned projects
◯ Recharge Opportunity Areas
····· Central Basin Forebay

Source: Geosyntec, OLIN, Gehry Partners

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

SYSTEM: REGIONAL GROUNDWATER RECHARGE



— Proposed and Planned projects
◯ Recharge Opportunity Areas
····· Central Basin Forebay
● Water Reclamation Plant
San Fernando Basin
Central Basin
West Coast Basin

Source: Geosyntec, OLIN, based on Groundwater Basin Boundaries, California Department of Water Resources, 2015.

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

SYSTEM: AFFORDABLE AND PERMANENT SUPPORTIVE HOUSING

**Identify opportunities for increasing affordable housing*

Source: OLIN, Gehry Partners

WITHIN 1 MILE OF THE LA RIVER, 38,100 HOUSEHOLDS ARE AT RISK

HOUSEHOLDS MAKING UNDER HALF THE AREA MEDIAN INCOME

Making under $35,000

→

38,100 AT-RISK HOUSEHOLDS

←

SEVERELY RENT-BURDENED HOUSEHOLDS

Spending more than 50% of income on rent

Source: U.S. Census Bureau 2012–2016 American Community Survey 5-Year Estimates

FOR EXAMPLE, IF WE WERE TO TARGET 15% OF EXISTING AT-RISK HOUSEHOLDS

DISPLACEMENT RISK IS MOST PERVASIVE BETWEEN DOWNTOWN LA AND LONG BEACH

Preliminary, Subject to Further Refinement

Map developed based on research by the Urban Displacement Project: Chapple, K., Loukaitou-Sideris, A., Waddell, P., Chatman, D., & Ong, P. (2017). Developing a New Methodology for Analyzing Potential Displacement.

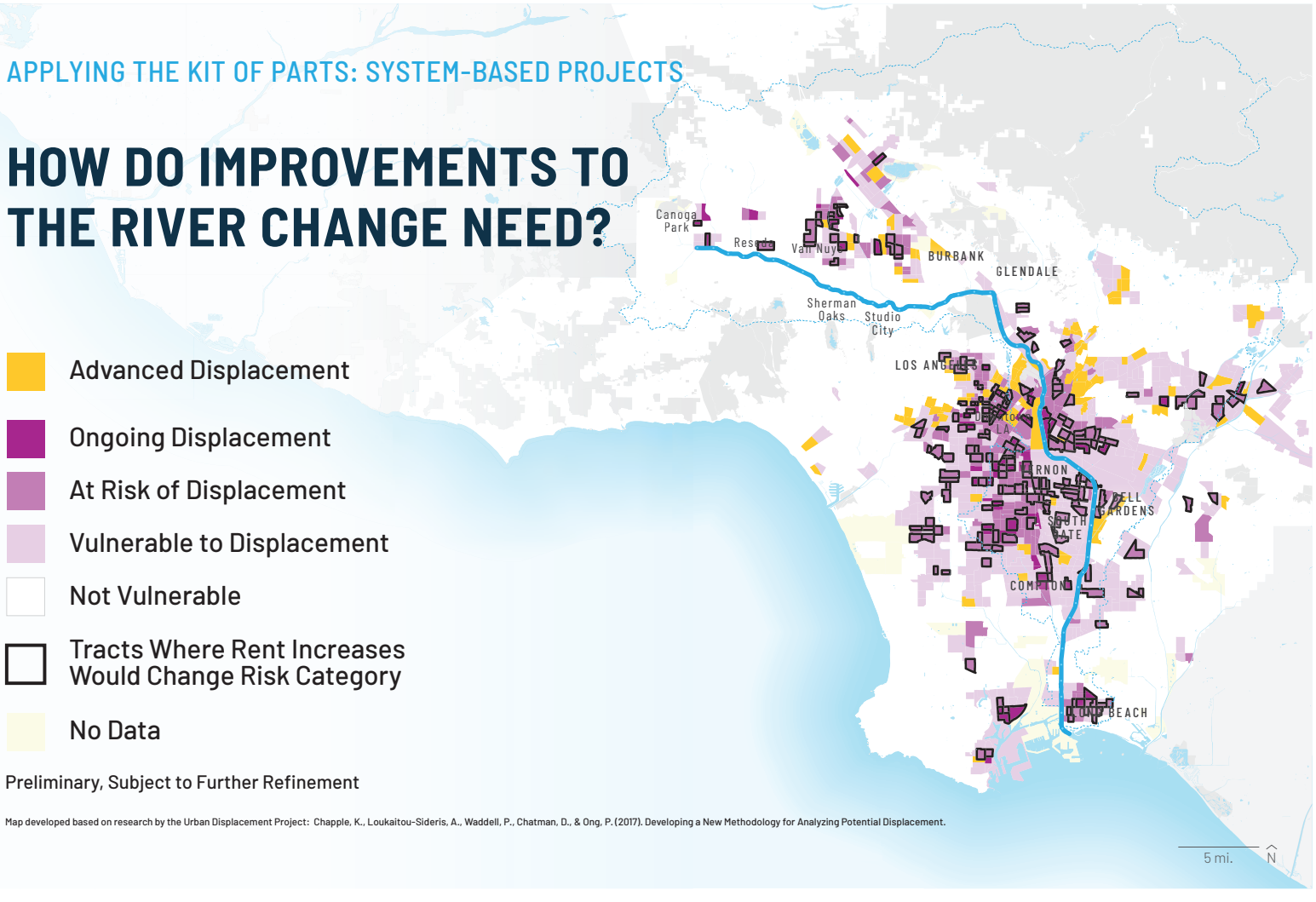
MEASURING DISPLACEMENT RISK

VULNERABLE TO DISPLACEMENT	AT RISK OF DISPLACEMENT	ONGOING DISPLACEMENT	ADVANCED DISPLACEMENT
Areas with a high share of vulnerable households	Low income areas with proven risk factors	Low income areas that are changing quickly	Not currently low income but getting whiter and more expensive
High Percentages of 3 of the Following:	**Vulnerable Plus 2 of the Following:**		**NOT a Low Income Area Plus Above Average Growth in:**
• Low-Income Households	• Nearby Rail Station	• Low Income Area	• College-Educated Adults
• Non-College-Educated Adults	• High % Pre-1950 Buildings	• Growing Population	• White Population
• Renters	• High Employment Density	• Loss of Lower Income Population	• Median Income
• Non-White Households	• Rents Rising Faster than County Average	• Rents Rising Faster than County Average	• Rents

Criteria developed based on research by the Urban Displacement Project: Chapple, K., Loukaitou-Sideris, A., Waddell, P., Chatman, D., & Ong, P. (2017). Developing a New Methodology for Analyzing Potential Displacement.

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

HOW DO IMPROVEMENTS TO THE RIVER CHANGE NEED?



Preliminary, Subject to Further Refinement

Map developed based on research by the Urban Displacement Project: Chapple, K., Loukaitou-Sideris, A., Waddell, P., Chatman, D., & Ong, P. (2017). Developing a New Methodology for Analyzing Potential Displacement.

APPLYING THE KIT OF PARTS: SYSTEM-BASED PROJECTS

MEASURING DISPLACEMENT RISK

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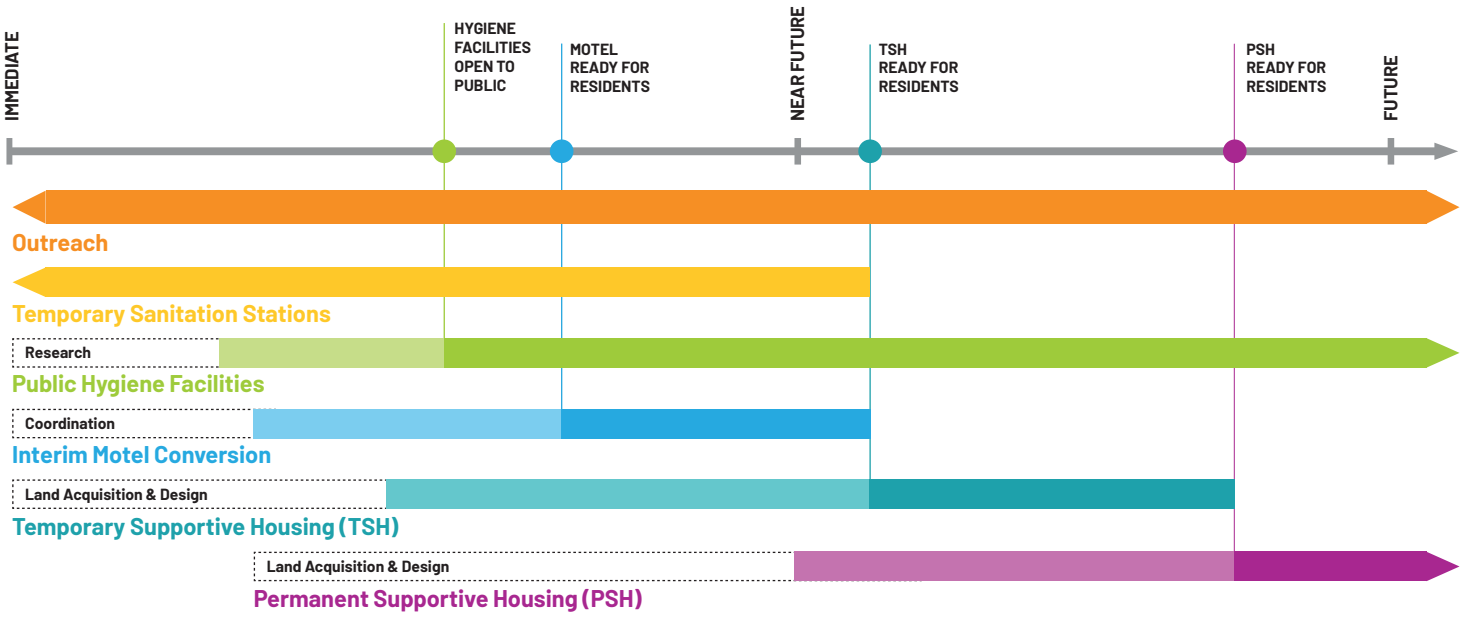
• Non-White Households	• Rents Rising Faster than County Average	• Rents Rising Faster than County Average	• Rents

STEPS FOR HOMELESSNESS OUTREACH AND ESTABLISHMENT OF FACILITIES



HOW MANY PERMANENT SUPPORTIVE HOUSING UNITS SHOULD BE ALONG THE RIVER, AND WHERE SHOULD THEY GO?

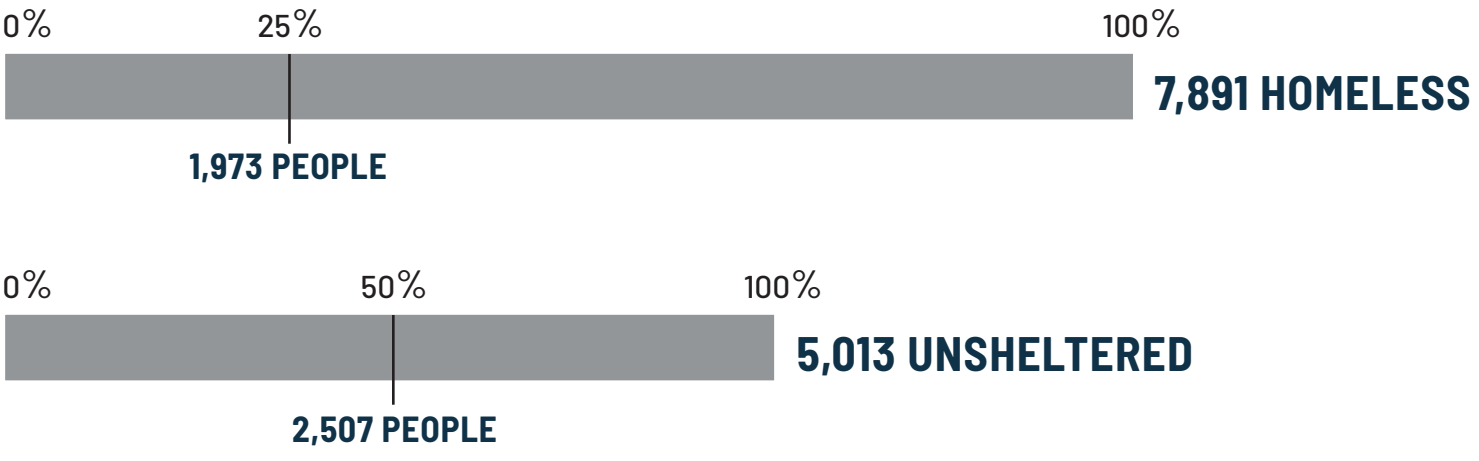
TARGET NUMBER OF UNITS = **NUMBER OF CHRONICALLY HOMELESS**

25%
of the overall homeless population

50%
of the unsheltered homeless population

Source: United Way of Greater Los Angeles, Home for Good

ESTIMATES OF THE CHRONICALLY HOMELESS POPULATION WITHIN 1 MILE OF THE LA RIVER



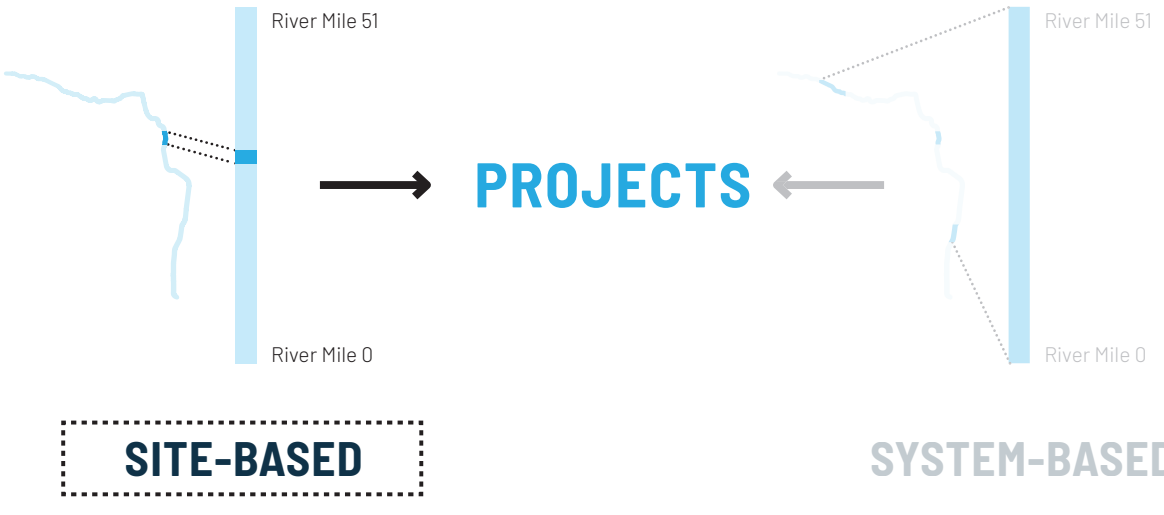
TARGET: 2,200 UNITS

Source: OLIN

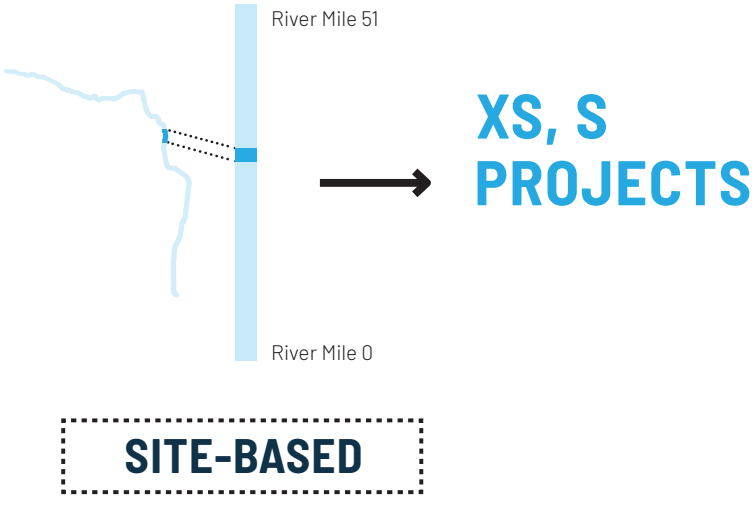
ADDITIONAL CONSIDERATIONS FOR SITING PERMANENT SUPPORTIVE HOUSING

	ACCESS	NEARBY USES	RESOURCES	OTHER
PURSUE	• Near existing and future public transportation • Good pedestrian and bike access (sidewalks, bike lanes, and trails) • Near major streets and intersections • Vehicular access	• Employment opportunities • Commercial and retail • Potential of adjacent or nearby parcels to develop in the future	• Public services • Public health and medical facilities • Religious institutions • Public resources like schools and parks in cases of family or youth supportive housing	• Shape and proportions of site conducive to development
AVOID	• Dead-ends and cul-de-sacs • Direct exposure to major thoroughfares and vehicular intersections	• Nested within a residential neighborhood • Adjacent to multiple residential neighborhoods • Environmental nuisances (power lines, contaminated sites, and noxious smells)		

WITHIN THE LA RIVER MASTER PLAN, PROJECTS ENCOMPASS A COMBINATION OF SITE-SPECIFIC AND SYSTEM-ORIENTED STRATEGIES

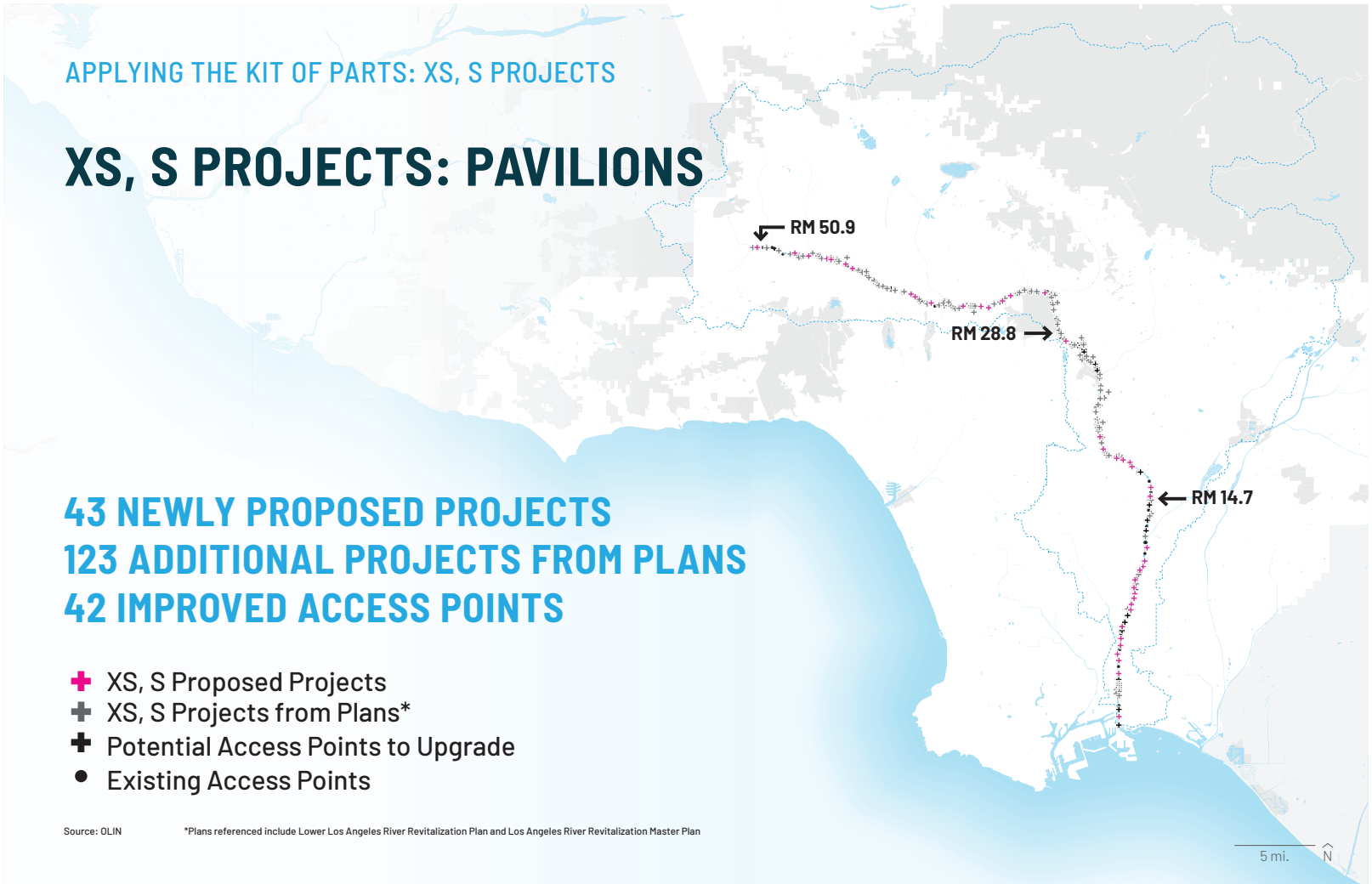


SITE-BASED PROJECTS ARE GEOGRAPHICALLY SPECIFIC AND FOCUS ON NEEDS MOST IMMEDIATE TO THE PROJECT AREA



- Pavilions
- Access Gateways
- Pocket Parks
- Lighting
- Benches

XS, S PROJECTS: PAVILIONS



43 NEWLY PROPOSED PROJECTS
123 ADDITIONAL PROJECTS FROM PLANS
42 IMPROVED ACCESS POINTS

- XS, S Proposed Projects
- XS, S Projects from Plans*
- Potential Access Points to Upgrade
- Existing Access Points

Source: OLIN

*Plans referenced include Lower Los Angeles River Revitalization Plan and Los Angeles River Revitalization Master Plan

APPLYING THE KIT OF PARTS: XS, S PROJECTS

SHADE PAVILION (TIER I): RM 14.7

PROJECT DESCRIPTION:

A typical lower river condition with a bike path on top of the levee and a tight and sloped landside area between a frontage street and the bike path.

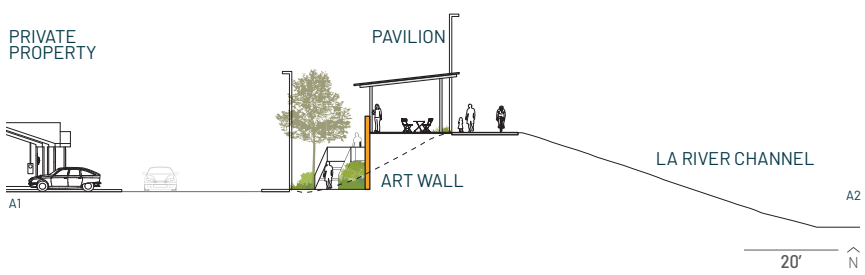
SHADE PAVILION (TYPICAL):

- Same grade as the bike path
- Where possible, centered on adjacent street-ends acting as signage, welcome, and art wall for the adjacent neighborhood
- Denotes an access point with parallel single switchback ramps and stairs added to get down to grade from the levee where needed

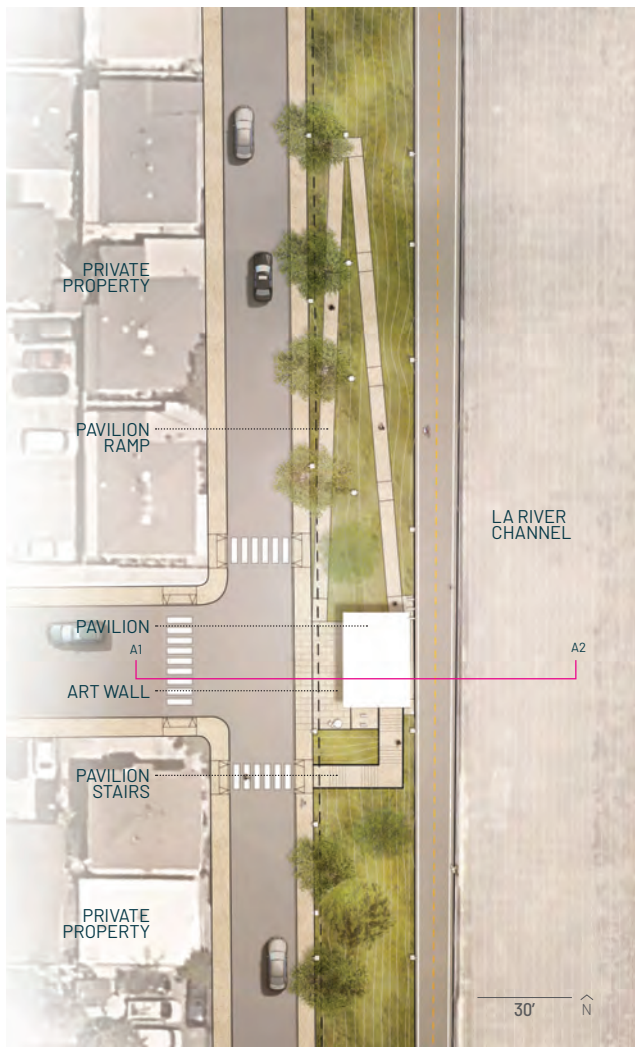
Source: OLIN

APPLYING THE KIT OF PARTS: XS, S PROJECTS

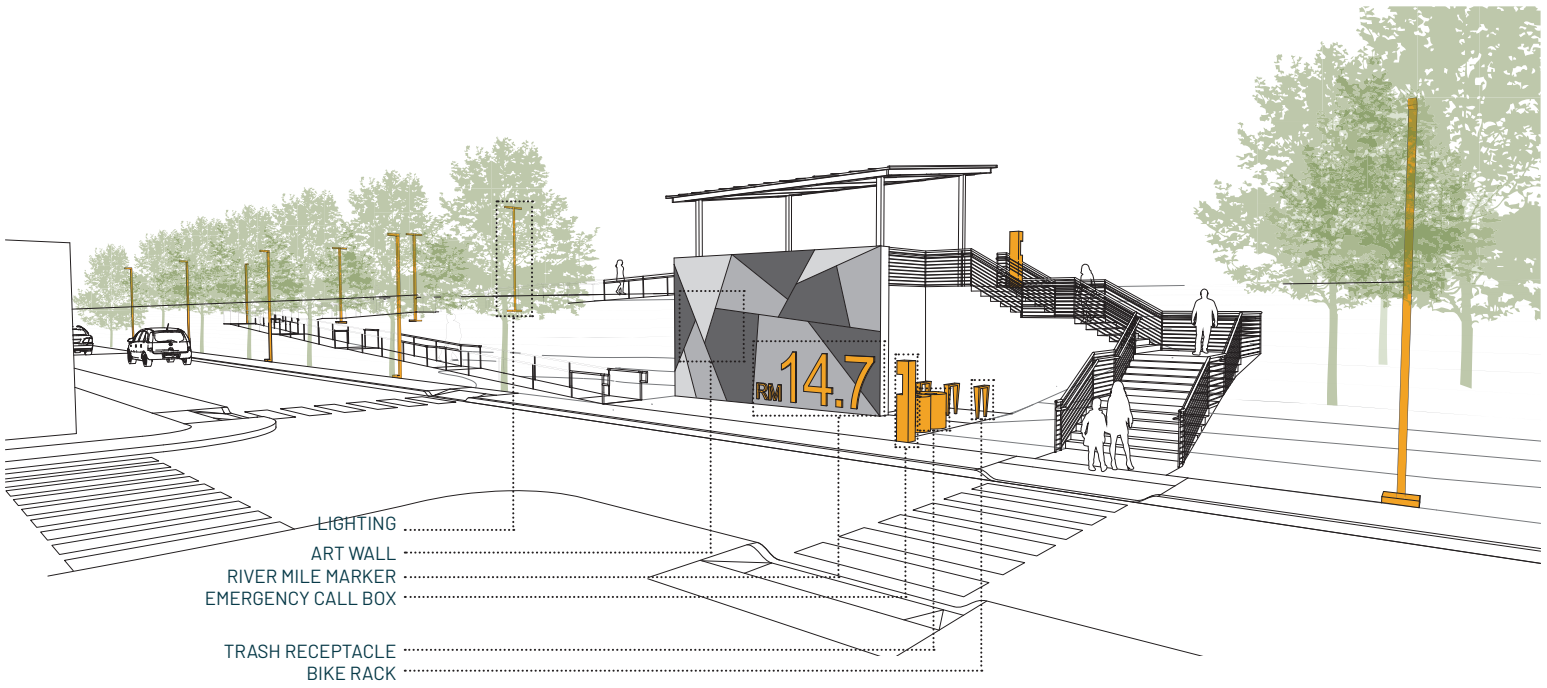
SHADE PAVILION (TIER I): RM 14.7



Source: OLIN



SHADE PAVILION (TIER I): RM 14.7



Source: OLIN

APPLYING THE KIT OF PARTS: XS, S PROJECTS

SHADE PAVILION (TIER I): RM 14.7

Source: OLIN

APPLYING THE KIT OF PARTS: XS, S PROJECTS

REST PAVILION (TIER II): RM 50.9

PROJECT DESCRIPTION:

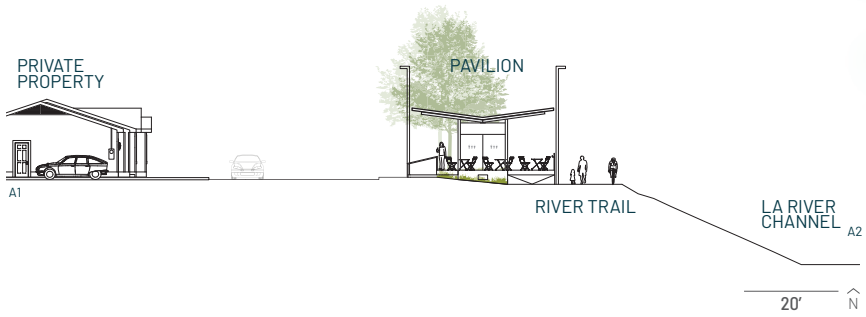
A typical upper river condition in the San Fernando Valley where a street terminates at the river's edge, sending local stormwater flow from the street directly in the river without providing access the adjacent community.

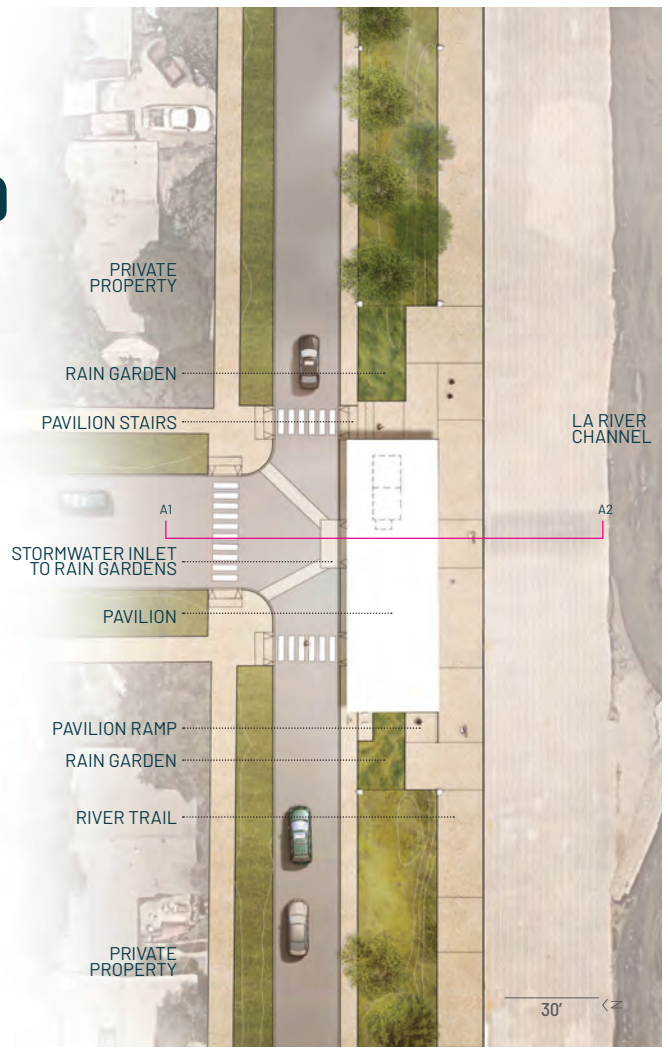
REST PAVILION (TYPICAL):

- Same grade as the bike path
- Where possible, centered on adjacent street-ends acting as signage, welcome, and art wall for the adjacent neighborhood
- Small grade separation provides a buffer between the bike path and the pavilion

Source: OLIN

REST PAVILION (TIER II): RM 50.9





Source: OLIN

APPLYING THE KIT OF PARTS: XS, S PROJECTS

REST PAVILION (TIER II): RM 50.9

Source: OLIN

APPLYING THE KIT OF PARTS: XS, S PROJECTS

REST PAVILION (TIER II): RM 50.9

Source: OLIN

GATHERING PAVILION (TIER III): RM 28.4

PROJECT DESCRIPTION:

A somewhat unique condition where the existing river trail bridges over a crossing road bridge with oversized piers. This site has the potential to add amenities along the river trail while improving connections to the adjacent community.

RIVER PAVILION A:

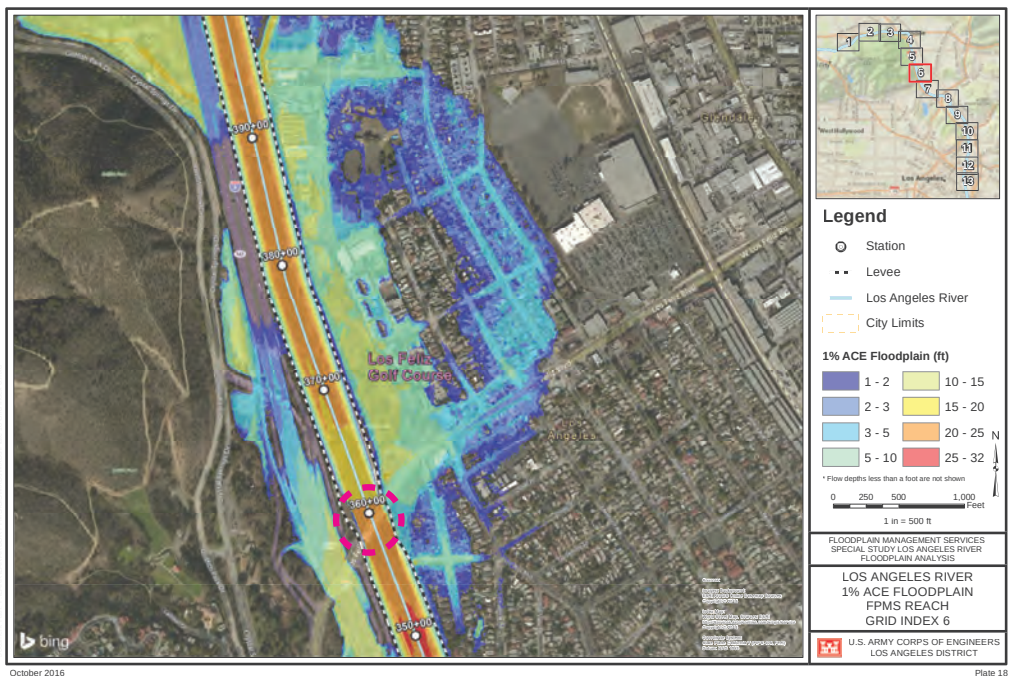
- Multiple pavilions around a central courtyard.
- Buildings shield bike path and courtyard space from adjacent highway on-ramp.

RIVER PAVILION B:

- Additional pavilion spans the bridge piers and the left river bank
- Creates a pedestrian river crossing adjacent to the busy Los Feliz Bridge

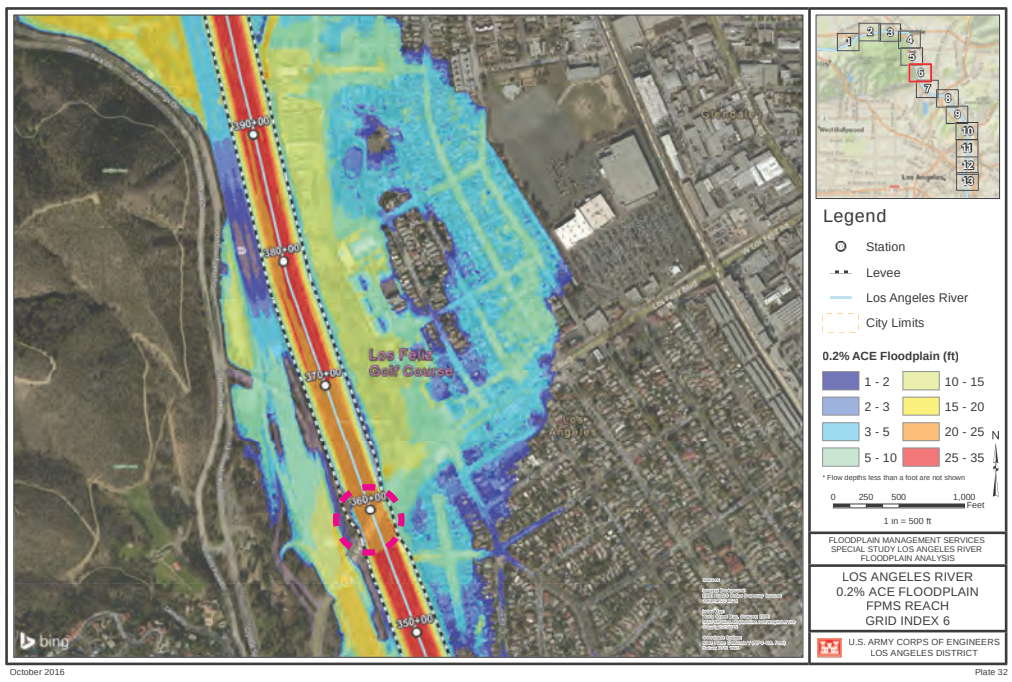
Source: OLIN

USACE ARBOR STUDY 1% FLOOD MAP



Source: USACE "LA River FPMS Hydraulic Report_FINAL_Plate 18," October 2016

USACE ARBOR STUDY 0.2% FLOOD MAP



Source: USACE "LA River FPMS Hydraulic Report_FINAL_Plate 18," October 2016

GATHERING PAVILION (TIER III-A): RM 28.4

Source: OLIN

APPLYING THE KIT OF PARTS: XS, S PROJECTS

GATHERING PAVILION (TIER III-A): RM 28.4

Source: OLIN

APPLYING THE KIT OF PARTS: XS, S PROJECTS

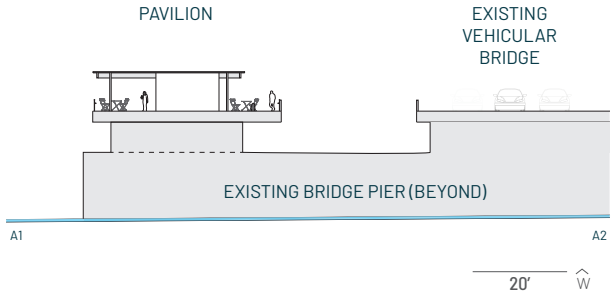
GATHERING PAVILION (TIER III-A): RM 28.4

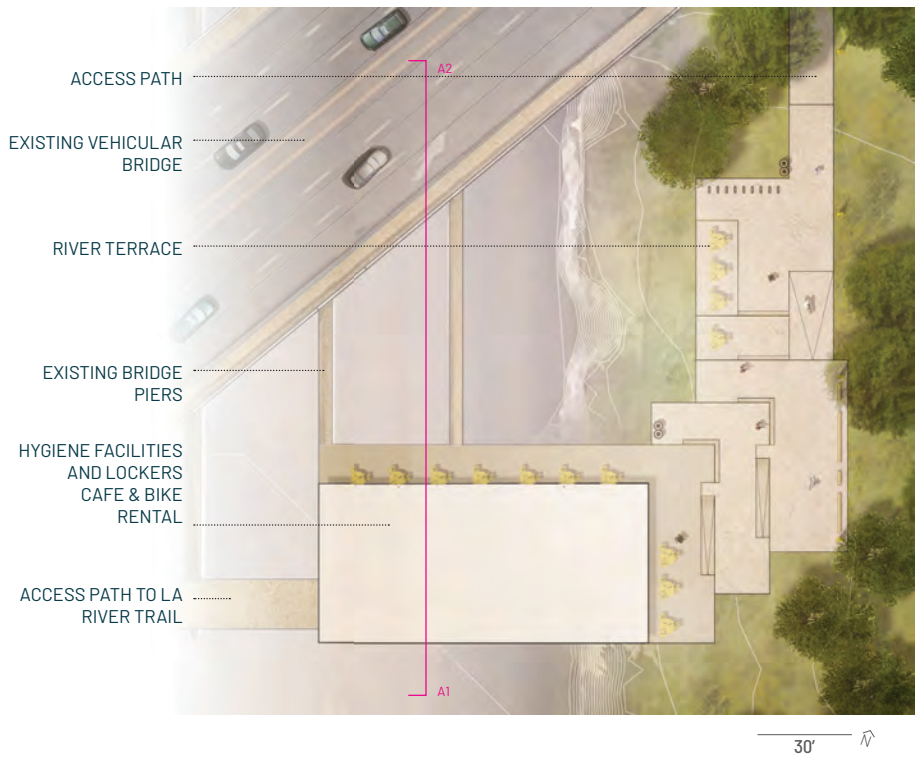
Source: OLIN

GATHERING PAVILION (TIER III-B): RM 28.4

Source: OLIN

GATHERING PAVILION (TIER III-B): RM 28.4



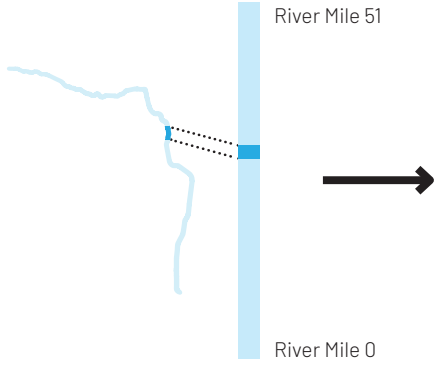


Source: OLIN

GATHERING PAVILION (TIER III-B): RM 28.4

Source: OLIN

SITE-BASED PROJECTS ARE GEOGRAPHICALLY SPECIFIC, FOCUSING ON NEEDS MOST IMMEDIATE TO THE PROJECT AREA



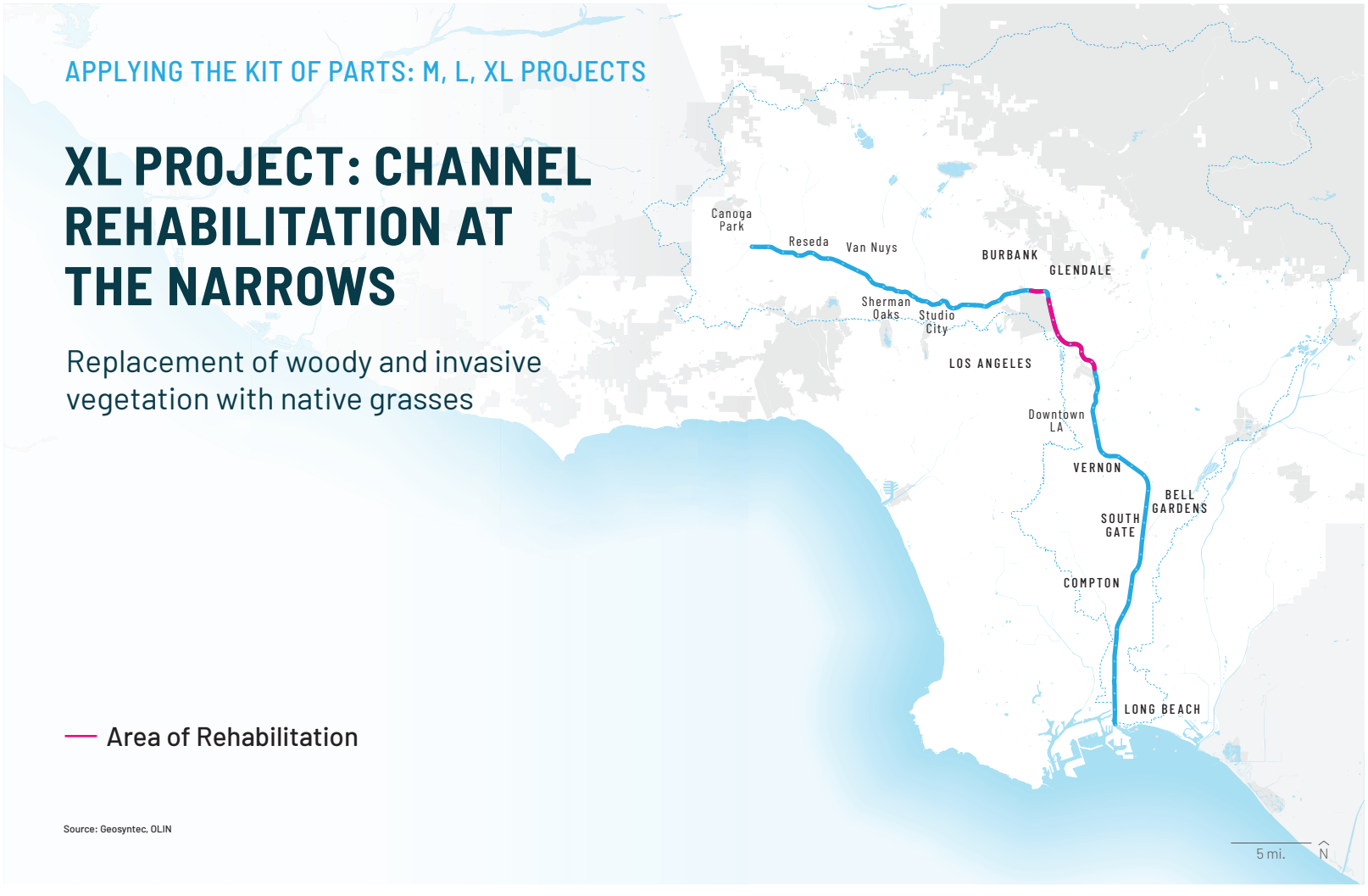
SITE-BASED

M, L, XL PROJECTS

- Neighborhood Parks
- Cultural Centers
- Regional Parks
- Bridges
- Recharge Areas

XL PROJECT: CHANNEL REHABILITATION AT THE NARROWS

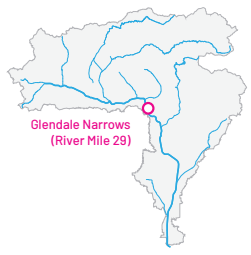
Replacement of woody and invasive vegetation with native grasses



— Area of Rehabilitation

Source: Geosyntec, OLIN

XL PROJECT: CHANNEL REHABILITATION AT THE NARROWS

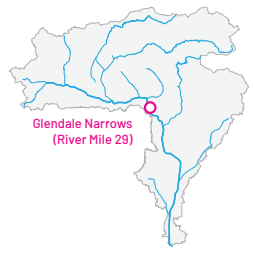


Existing Section: **34,700 cfs capacity**
n = 0.06 (Manning's Equation roughness)

Alternative Section: **78,000 cfs capacity**
n = 0.03 (Manning's Equation roughness)

Source: Geosyntec, OLIN

XL PROJECT: CHANNEL REHABILITATION AT THE NARROWS



Existing Section: **34,700 cfs capacity**

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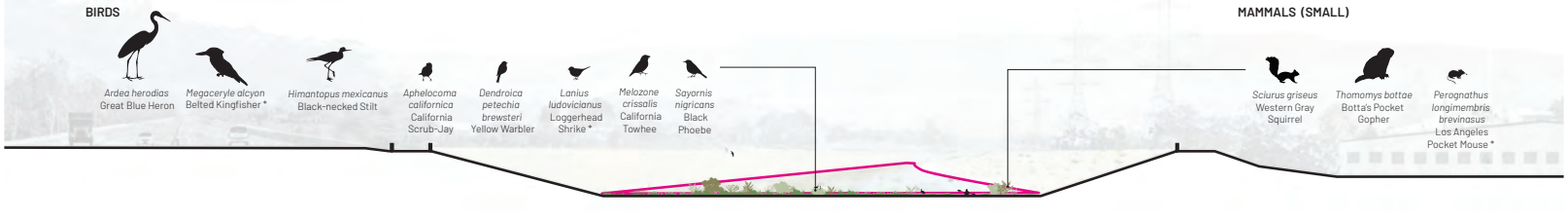


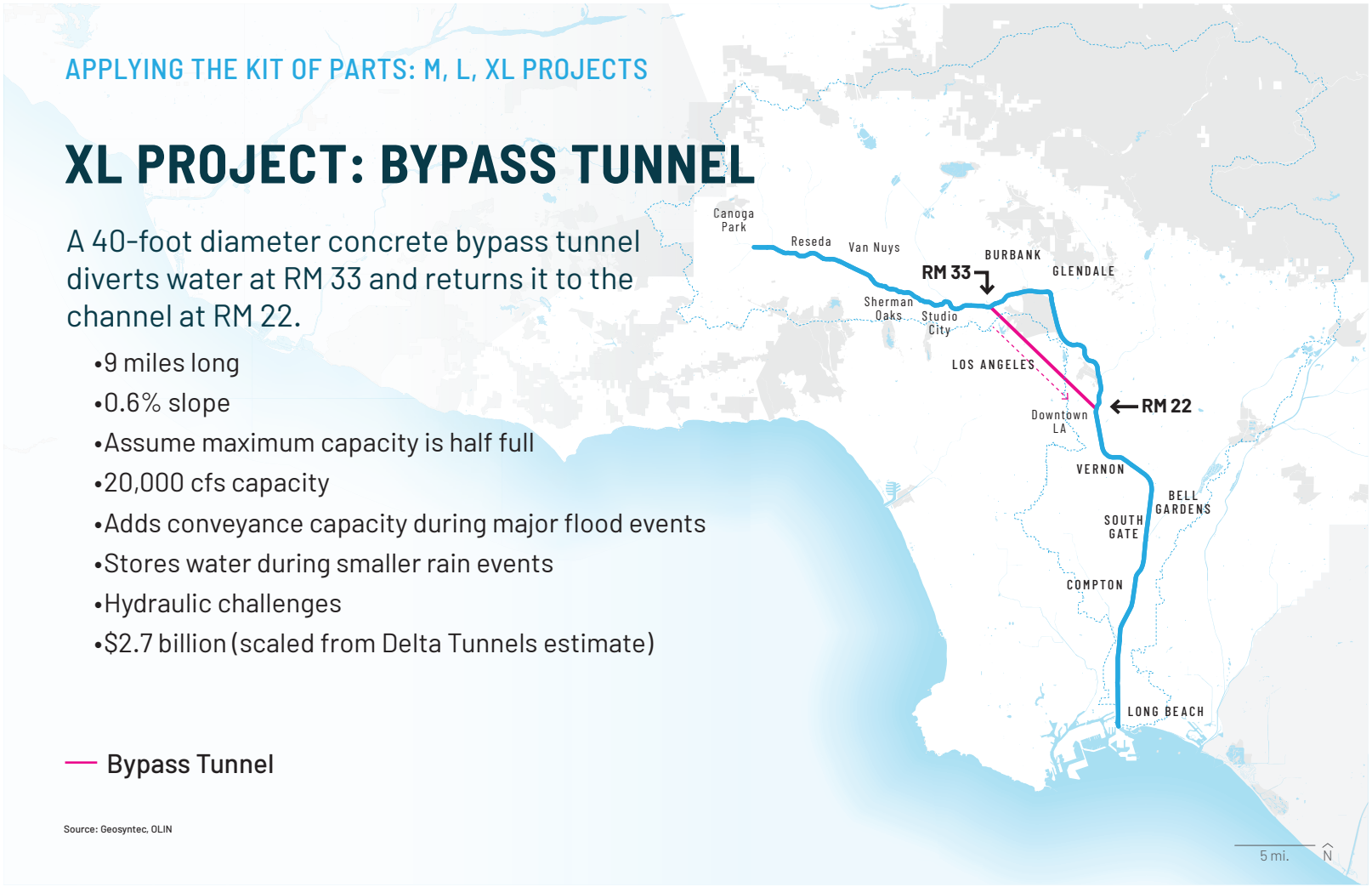
Source: Geosyntec, OLIN

APPLYING THE KIT OF PARTS: M, L, XL PROJECTS

XL PROJECT: BYPASS TUNNEL

A 40-foot diameter concrete bypass tunnel diverts water at RM 33 and returns it to the channel at RM 22.

- 9 miles long
- 0.6% slope
- Assume maximum capacity is half full
- 20,000 cfs capacity
- Adds conveyance capacity during major flood events
- Stores water during smaller rain events
- Hydraulic challenges
- $2.7 billion (scaled from Delta Tunnels estimate)

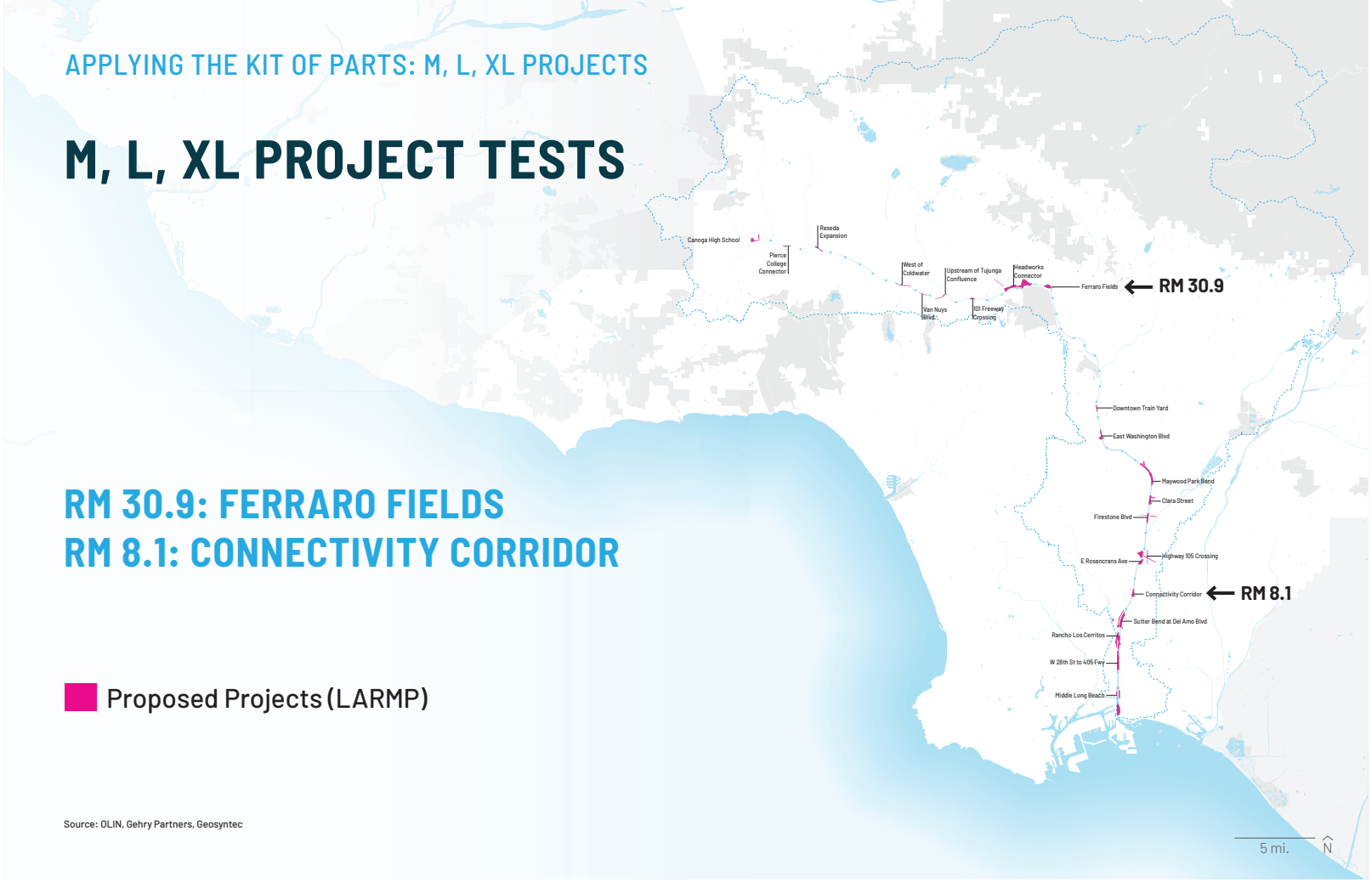


Source: Geosyntec, OLIN

APPLYING THE KIT OF PARTS: M, L, XL PROJECTS

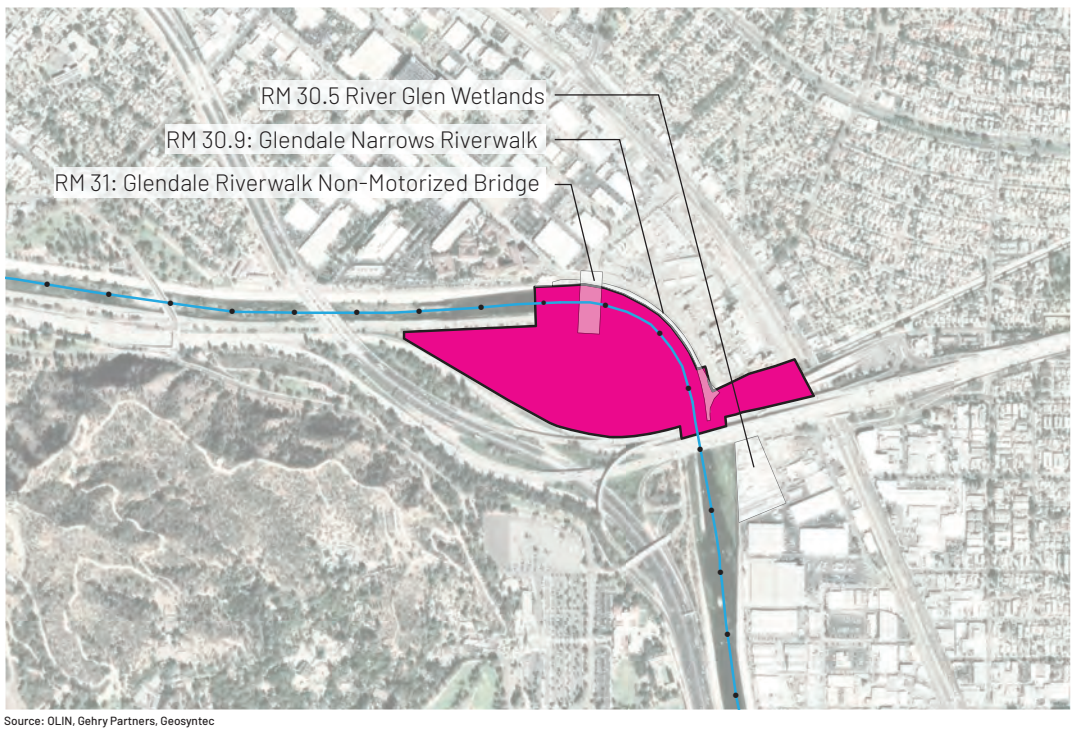
M, L, XL PROJECT TESTS

RM 30.9: FERRARO FIELDS
RM 8.1: CONNECTIVITY CORRIDOR

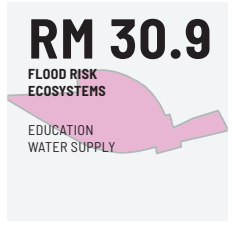


Source: OLIN, Gehry Partners, Geosyntec

RM 30.9: FERRARO FIELDS SIDE CHANNEL



Source: OLIN, Gehry Partners, Geosyntec



PROJECT DESCRIPTION:

- Maintains existing recreation
- Directs flooding away from neighborhoods and critical infrastructure
- Adds habitat

Proposed Project Site

Planned Major Project

800'

N

APPLYING THE KIT OF PARTS: M, L, XL PROJECTS

RM 30.9: FERRARO FIELDS SIDE CHANNEL

Potential channel overtopping locations

Surface water flows on the 134, under the 5, and is released into the side channel

Side Channel

Floodwall/Median Wall between the eastbound and westbound lanes of the 134

Water flows back into the LA River

Floodwall

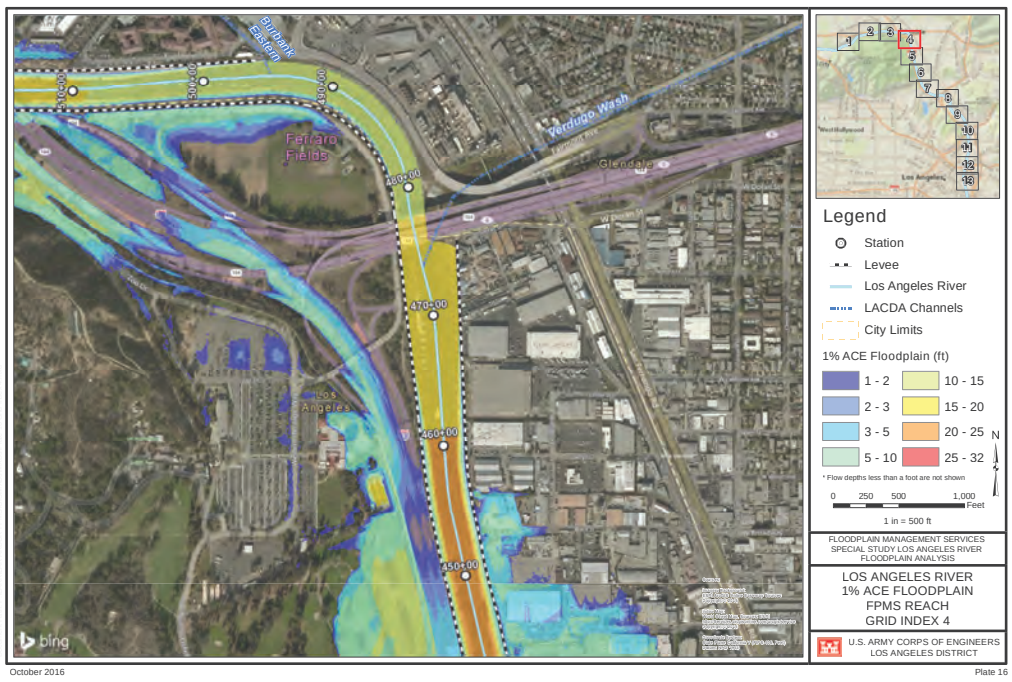
Surface Water Flows On

Bypass

Source: OLIN, Geosyntec

APPLYING THE KIT OF PARTS: M, L, XL PROJECTS

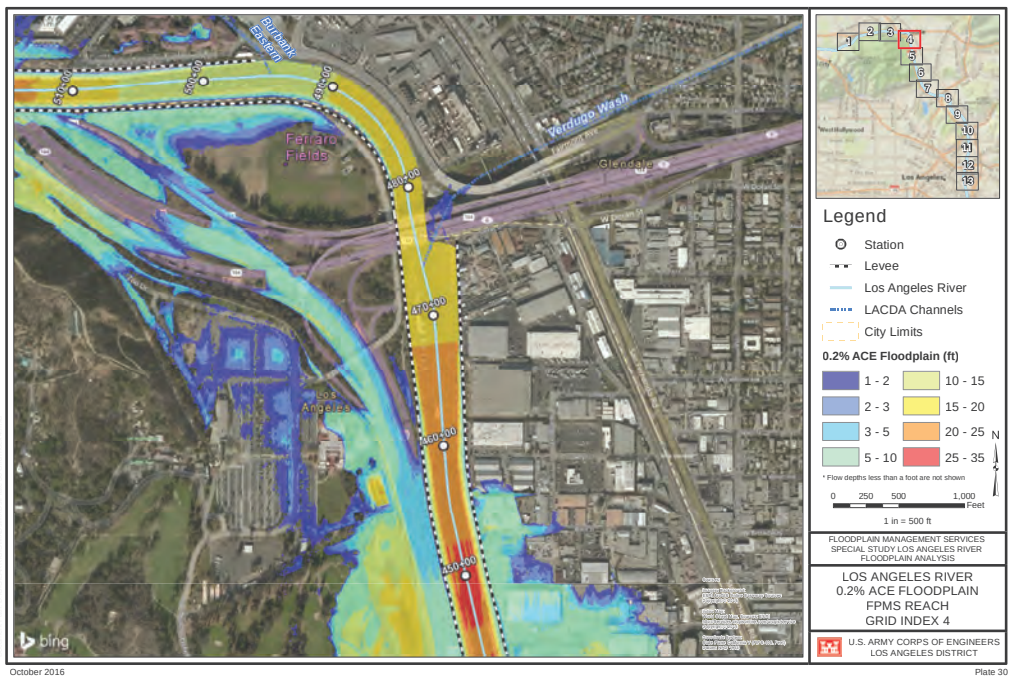
USACE ARBOR STUDY 1% FLOOD MAP



Source: USACE "LA River FPMS Hydraulic Report_FINAL_Plate 16", October 2016

USACE ARBOR STUDY 0.2% FLOOD MAP

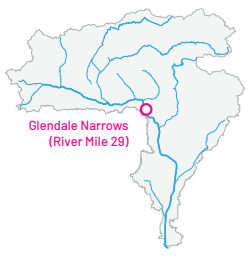
Floodplain Analysis



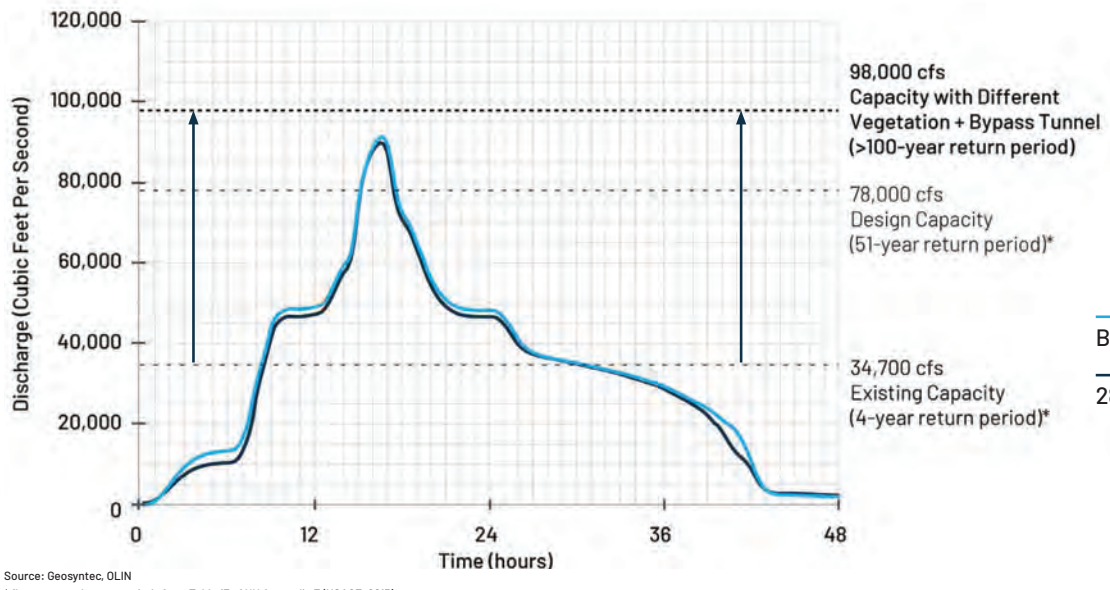
Source: USACE "LA River FPMS Hydraulic Report_FINAL_Plate 16", October 2016

REFURBISHMENT + BYPASS + EWMP 2037

Remove invasives, remove sediment, maintain channel, optional native grasses, build bypass, 28% impervious surface reduction



Hydrograph: Glendale Narrows, River Mile 29



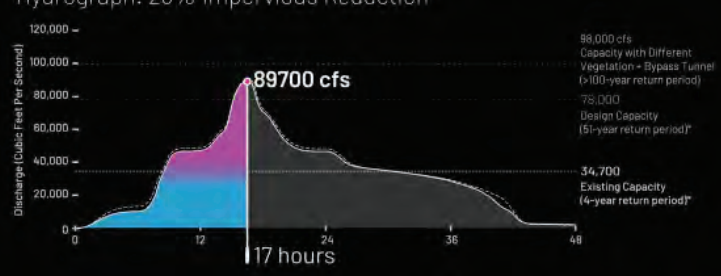
Source: Geosyntec, OLIN
* flow rates and return periods from Table 17 of HH Appendix E (USACE, 2015)

HEC-HMS
MANNING'S
HEC-RAS

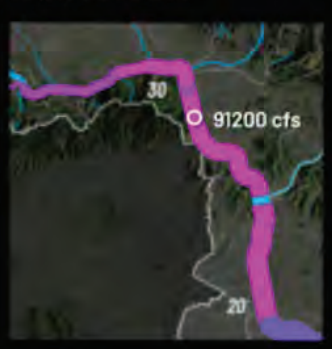
INCREASING CAPACITY: 100-YEAR STORM EVENT

HEC-HMS Model:
Glendale Narrows (River Mile 29)

Hydrograph: 28% Impervious Reduction



Baseline Imperviousness



28% Imperviousness Reduction

28% Imperviousness Reduction + Refurbishment

28% Imperviousness Reduction + Refurbishment + Bypass Tunnel

Geosyntec, OLIN

Note: Width of river represents flow, not floodway width

RM 30.9: FERRARO FIELDS SIDE CHANNEL

Source: OLIN, Geosyntec

APPLYING THE KIT OF PARTS: M, L, XL PROJECTS

RM 30.9: FERRARO FIELDS SIDE CHANNEL

Site Plan

Source: OLIN

400'

APPLYING THE KIT OF PARTS: M, L, XL PROJECTS

RM 30.9: FERRARO FIELDS SIDE CHANNEL

Typical Section at Side Channel

Source: OLIN

20'

RM 30.9: FERRARO FIELDS SIDE CHANNEL

Typical Section at Side Channel with Gabion Embankment

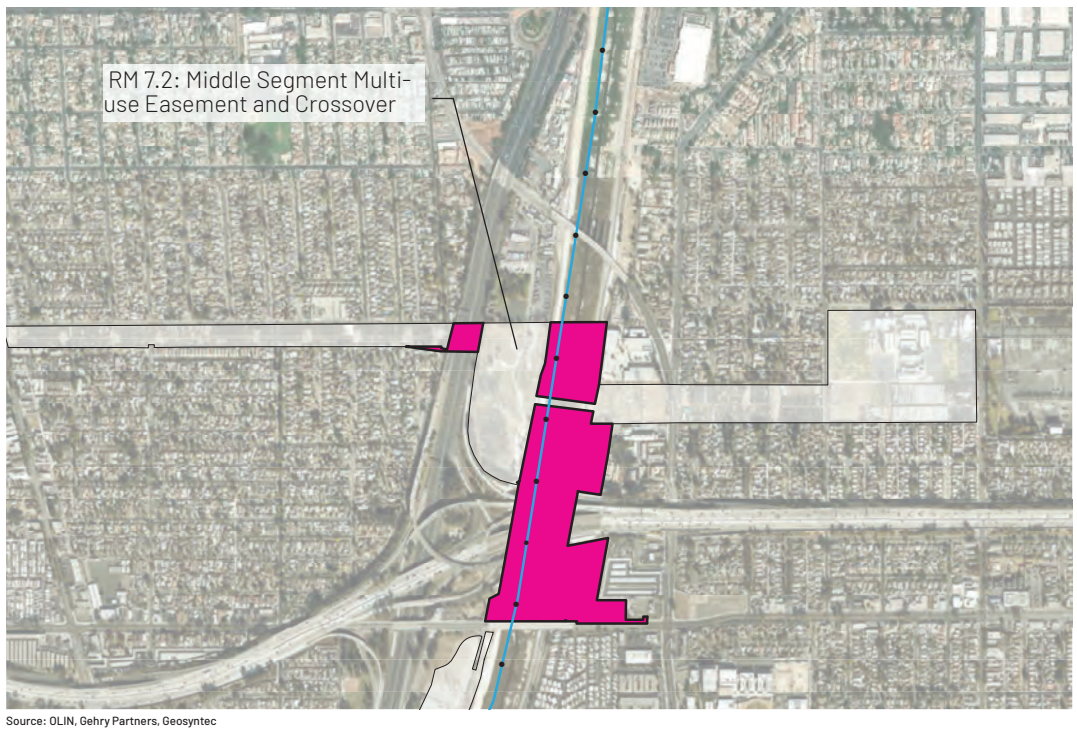
Source: OLIN

20'

RM 30.9: FERRARO FIELDS SIDE CHANNEL

Source: OLIN

RM 8.1: CONNECTIVITY CORRIDOR



Source: OLIN, Gehry Partners, Geosyntec

RM 8.1

ECOSYSTEMS
ACCESS
ARTS & CULTURE
WATER SUPPLY

FLOOD RISK
PARKS
AFFORDABLE HOUSING
EDUCATION
WATER QUALITY

PROJECT DESCRIPTION:

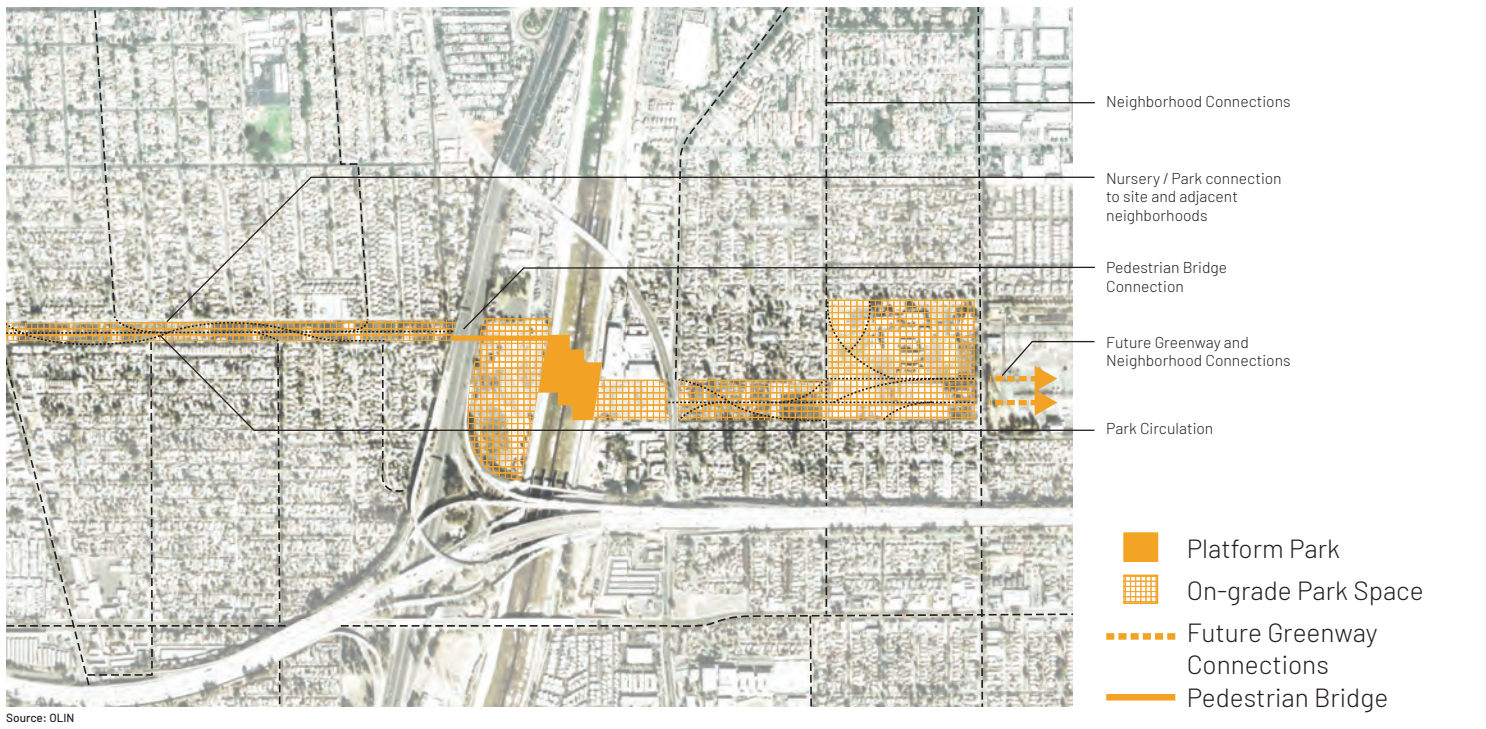
Building on an adjacent planned major project which utilizes a large transmission line right-of-way that crosses the LA River, this site offers the potential to expand this connection across the river between with adjacent communities with a multi-benefit platform.

Proposed Project Site

Planned Major Project

800'

RM 8.1: CONNECTIVITY CORRIDOR



Source: OLIN

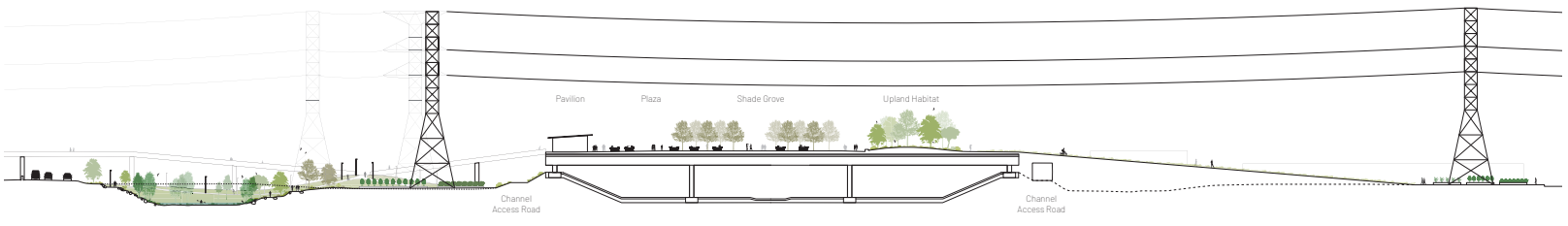
APPLYING THE KIT OF PARTS: M, L, XL PROJECTS

RM 8.1: CONNECTIVITY CORRIDOR

Source: OLIN

APPLYING THE KIT OF PARTS: M, L, XL PROJECTS

RM 8.1: CONNECTIVITY CORRIDOR



Wetland | Access Ramps (Beyond) Nursery (Under Transmission Lines) | Platform at LA River Channel | Access Incline | Nursery Leases (Under Transmission Lines)

A1 — A2

Source: OLIN

40'
N

RM 8.1: CONNECTIVITY CORRIDOR

Source: OLIN

APPLYING THE KIT OF PARTS: M, L, XL PROJECTS

Source: OLIN