Chapter 2
Project Description

2.1 Introduction

This chapter describes the proposed *2020 LA River Master Plan*. It includes a description of the project location and an overview of the existing environmental setting where the *2020 LA River Master Plan* would be implemented. It presents the objectives[1] and elements of the proposed *2020 LA River Master Plan*, along with a summary of the *2020 LA River Master Plan* Design Guidelines (Design Guidelines; included in Appendix B).

2.2 Project Location and Overview

2.2.1 Regional Location and Right-of-Way

The LA River Watershed covers a land area of 834 square miles. The eastern portion of the watershed spans from the Santa Monica Mountains to the Simi Hills and the western portion spans from the Santa Susana Mountains to the San Gabriel Mountains. As seen on Figure 2-1 (at the end of this chapter), the watershed encompasses and is shaped by the path of the LA River, flowing from river mile 51.0 in Canoga Park within the City of Los Angeles to mile 0 at Long Beach where the river meets the Pacific Ocean. The LA River has evolved from an uncontrolled, meandering river providing a valuable source of water for early inhabitants, to a major flood management system. Channelized to protect lives and property from flooding during the late 19th through the mid-20th centuries, the LA River has largely been separated from the region's social, cultural, and ecological communities. Out of the approximately 4.5 million people who live within the watershed, 1 million live within 1 mile of the river itself. The LA River study corridor (1 mile on each side of the river) passes through 18 local jurisdictions (17 cities and unincorporated County areas) along its 51-mile journey from the Santa Susana Mountains to the Pacific Ocean in Long Beach.

The LA River is a channelized river. Although most of the river length within the channel (bank to bank) is concrete-lined along its sides and bottom, areas of the river near the Estuary, Sepulveda Basin, and the Glendale Narrows have a "soft bottom" (earthen channel) where soil and plants form the bottom of the channel. The other areas of the river have concrete walls forming a rectangular channel, often called a box channel, or a trapezoidal channel formed by levees. The areas immediately adjacent to the top of the channel bank (e.g., the top of the levee in leveed sections) are often used as an access road or recreational trail.[2] As seen on Figure 2-2 (at the end of this chapter), the area outside of the channel is called the "landside" and sometimes includes areas for habitat, recreation, maintenance, or other park amenities. Together the channel, top of levee, and the landside area make up the river right-of-way (ROW). The outside edge of the river ROW is typically referred to as the fenceline in the *2020 LA River Master Plan*.

[1] The *2020 LA River Master Plan* was designated as a Goal Driven Framework. To be consistent with CEQA Section 15124, the *2020 LA River Master Plan* goals are referred to as objectives of the Project in this PEIR.

[2] Rectangular channels of the LA River do not have leveed areas.

The typical LA River ROW includes flood-management structures such as the channel, levees, and access roads, which are primarily maintained by the Los Angeles County Flood Control District (LACFCD) and the United States Army Corps of Engineers (USACE). Currently, LACFCD and USACE each maintain approximately half of the LA River, as seen on Figure 2-3 (at the end of this chapter). Permits for projects along the LA River are issued by these two entities depending on project typology and location. Ownership of the approximately 2,300 acres of land within the LA River ROW varies. LACFCD owns large portions of the ROW, but municipal and private owners also own portions of the ROW. Where municipal or private interests own parcels within the ROW, easements for operations and maintenance exist that authorize LACFCD and USACE to operate and maintain the flood management structures within the ROW.

LACFCD and USACE utilize the LA River ROW to access, operate, and maintain the river's flood-management structures. As part of the process to update the *LA River Master Plan*, the ROW was mapped in greater detail using aerial photography and parcel ownership records. Of the 2,300 acres of land in the ROW, 1,740 acres are within the channel and 560 acres are landside area. Along the river, the width of the ROW varies. Nearly three quarters of the river has a landside area (top of bank to property line) greater than 12 feet wide. However, about 16.5 percent of the river has no landside area (16.5 percent of 102 miles—left and right bank of the 51-mile river), which makes access to the channel for potential recreational or other uses difficult in those areas. The *2020 LA River Master Plan* discusses how potentially underutilized spaces such as utility and railroad ROW could be repurposed to increase access, connectivity, and park space.

2.2.2 Study Area

Although the LA River ROW is confined to its channel, top of levee, and immediately adjacent landside areas (within the fenceline), a larger study area was identified to consider current conditions and potential opportunities up to 1 mile on each side of the river centerline to allow for overall improved access to the river from nearby communities. Therefore, for the purposes of CEQA and consistency with the *2020 LA River Master Plan*, the study area is defined as a 2-mile-wide corridor—1 mile on each side of the river—that follows the centerline of the LA River for its entire 51 miles (Figure 2-4 at the end of this chapter).

2.2.2.1 Potential Location of Subsequent Projects

As described in Chapter 1, *Introduction*, after the *2020 LA River Master Plan* is approved, subsequent project-specific activities (also known as later activities as defined in the 2020 State CEQA Guidelines) identified in the *2020 LA River Master Plan* could be designed, approved, and implemented over time by any one of the 18 jurisdictions tiering from the PEIR. These subsequent projects could be located anywhere in the 2-mile-wide study area, including the river channel (bank to bank), between the top of the levee to the fenceline, or beyond the fenceline (i.e., outside of the river ROW).

2.3 LA River Planning Frames

A series of nine distinct geographical sections, or planning frames, related to jurisdictional, hydraulic, and ecological zones have been identified along the LA River and are included in the *2020 LA River Master Plan*. The use of the frame illustrates how the areas adjacent to a river reach are

critical to understand in planning and implementing a connected and accessible river corridor. As the *2020 LA River Master Plan* is implemented and subsequent projects are designed and proposed for location along the river in the future, the characteristics of each frame would provide useful information on local needs, projects, and programs that reflect the river ROW and adjacent land uses. Each frame is described below, including its channel characteristics, landside ROW characteristics, notable features, and significant design considerations.

The nine planning frames are numbered sequentially, beginning at river mile 0.0 in Frame 1 in the City of Long Beach, where the LA River outfalls to the Pacific Ocean, and ending at river mile 51.0 in Frame 9 in Canoga Park, where the river begins in the City of Los Angeles. These planning frames span 18 local jurisdictions, and a single frame can include one to several jurisdictions.

2.3.1 Frame 1: Estuary

Frame 1 is primarily within the City of Long Beach and extends 4.0 miles from river mile 0.0 to 4.0 (Figure 2-5 at the end of this chapter). This frame is the closest frame to the Pacific Ocean and Port of Long Beach. Small portions of the City of Los Angeles also fall within this frame near its western boundary. This portion of the LA River is characterized by brackish water year-round and is identified as an important bird habitat. The channel in this frame is a leveed, trapezoidal, concrete cross-section with a width of approximately 400 feet and an average channel slope of 0.05 percent. Landside ROW characteristics in this frame are defined as containing east- and west-facing parcels along the levee, with areas that vary from 15 feet to 150 feet wide. The soft channel bottom with year-round water transitions at river mile 3.0 to a concrete-bottom section with hard rip-rap sides and a typical width of 585 feet. The Shoreline Aquatic Park and the Queen Mary are in the Long Beach Port near river mile 0.0; Santa Cruz Park, Golden Park, and Cesar Chavez Park are on the left bank at river mile 0.3 to 0.8, bisected from the river by West Shoreline Drive; and Wrigley Greenbelt is on the left bank of the LA River from river mile 2.9 to 4.0. Frame 1 encompasses approximately 10.79 percent of the total *2020 LA River Master Plan* study area.

2.3.2 Frame 2: South Plain

Frame 2 is in the Cities of Long Beach, Carson, and Compton and unincorporated County areas, and it extends 4.4 miles from river mile 4.0 to 8.4 (Figure 2-6 at the end of this chapter). The channel in this frame is a trapezoidal, concrete-leveed cross-section with an approximate width of 350 feet and an average channel slope of 0.14 percent. This frame has some of the widest ROWs. Industrial and residential development, transmission easements, Interstate 710, and State Route 91 cut into the landside ROW in the northern portion of the frame. The parcels are east- and west-facing parcels along the levee. The landside ROW is widest in the southern portion of the frame, at widths of over 200 feet on each bank. The landside ROW is on average 50 feet wide.

This frame has an important equestrian community that would benefit from an expanded network of equestrian trails. Furthermore, this frame is identified as having freshwater year-round and is an important bird habitat area. Dominguez Gap Wetlands is between river mile 4.8 and 5.8 along the left bank, Compton Creek confluence is at river mile 5.4 along the right bank, and De Forest Park is between river mile 6.8 and 7.5 along the left bank. Frame 2 encompasses approximately 8.66 percent of the total study area of the *2020 LA River Master Plan*.

2.3.3 Frame 3: Central Plain

Frame 3 is in the Cities of Compton, Paramount, Downey, Lynwood, South Gate, and Cudahy, and it extends 5.74 miles from river mile 8.4 to 14.1 (Figure 2-7 at the end of this chapter). Frame 3 is characterized as mostly residential.

The river downstream of Rio Hondo confluence has better than 0.75 percent (133-year) flood capacity. Flows greater than the 0.75 percent event are designed to overtop two weirs downstream of Imperial Highway on the east bank (near river mile 11.4) and near Interstate 105 on the west bank (near river mile 10.7). The channel in this frame is a trapezoidal, concrete-leveed cross-section with an approximate width of 400 feet and an average channel slope of 0.24 percent. The landside ROW in this frame contains both east- and west-facing parcels, and is further limited by industrial and residential development, transmission easements, and Interstate 710 and Interstate 105. It exists for extensive lengths at about 15 feet wide. However, there are large 200-foot-wide tracts of the ROW incorporated into recreational park space (Ralph C. Dills and Hollydale Parks along with portions of the LA River Trail).

Along the left bank, Ralph C. Dills Park is at river mile 9.5 to 10.0, Hollydale Park is at river mile 11 to 11.5, and the Rio Hondo confluence is at river mile 12.0. Frame 3 encompasses approximately 10.66 percent of the total study area of the *2020 LA River Master Plan*.

2.3.4 Frame 4: North Plain

Frame 4 is in the Cities of Bell Gardens, Bell, Maywood, Vernon, Commerce, and Huntington Park, and it extends 5.36 miles from river mile 14.1 to 19.5 (Figure 2-8 at the end of this chapter). This frame is characterized as primarily industrial with pollution and soil contamination present from heavy industrial use.

Downstream from Arroyo Seco and in Vernon (river mile 18), the flood capacity level is worse than 2 percent and at the Rio Hondo confluences (river mile 12), the flood capacity level is mostly better than 1 percent. The channel in this frame is a concrete-leveed, trapezoidal section that is approximately 415 feet wide from bank to bank at the southernmost end. It transitions to a concrete-entrenched, trapezoidal section and then to a concrete-entrenched, rectangular section at river mile 19 at the northern end, with a width of about 285 feet. The average channel slope in Frame 4 is 0.22 percent. In this frame, industrial development and several adjacent rail lines limit the landside ROW to consistently less than 15 feet. In the northern portion of the frame, there is no landside ROW along the right bank. ROW parcels in this frame are south, east, and west facing. Maywood Riverfront Park is along the right bank from river mile 15.7 to 15.8. Frame 4 encompasses approximately 9.96 percent of the total study area of the *2020 LA River Master Plan*.

2.3.5 Frame 5: Heights

Frame 5 is in the City of Los Angeles and extends 5.0 miles from river mile 19.5 to 24.5 (Figure 2-9 at the end of this chapter). This frame is characterized as densely urban with a high concentration of arts and cultural facilities. Most residential use is concentrated on the east side of the LA River, with industrial, commercial, financial, and civic activities on the west side of the LA River.

Between the Arroyo Seco (river mile 24) and Rio Hondo confluences (river mile 12), the flood capacity level is mostly better than 1 percent. The channel in this frame is an entrenched, concrete,

trapezoidal section with a typical width of 225 feet and an average channel slope of 0.39 percent. In this frame, the landside ROW is typically less than 12 feet wide, widening at the northern edge. It consists of south-, east-, and west-facing parcels. Railroad lines and larger industrial yards run along both sides of the river. This frame contains several former industrial areas where soil contaminants may be present. Los Angeles State Historic Park is along the right bank at river mile 23.5, and Arroyo Secco confluence is at river mile 24.0 where Interstate 110 crosses the LA River. Frame 5 encompasses approximately 8.68 percent of the total study area for the *2020 LA River Master Plan*.

2.3.6 Frame 6: Narrows

Frame 6 is in the Cities of Los Angeles, Burbank, and Glendale and extends 7.5 miles from river mile 24.5 to 32.0 (Figure 2-10 at the end of this chapter). In this frame, the channel contains entrenched, trapezoidal, concrete walls and is primarily soft bottom with the channel bottom, transitioning to concrete for about a half-mile stretch as the river turns a corner just north of the Verdugo Wash confluence.

The Narrows reach (river mile 22 to river mile 33) has known deficiencies exacerbated by the heavy vegetation that has established itself in the soft bottom of the trapezoidal channel. Despite the presence of levees along portions of this reach, the flood capacity level is worse than 2 percent, with many regions having worse than 10 percent flood capacity and as low as 25 percent flood capacity. The typical channel width is approximately 300 feet with 0.40 percent average channel slope. In this frame, the landside ROW ranges between 12 and 30 feet. There are also some gaps in the landside ROW along each bank. It consists of northeast- and southwest-facing parcels. Surface water is present in the channel bottom of this frame year-round due to a high water table and the underlying geology. Soil contaminants may be present at postindustrial sites within this frame.

From river mile 28.5 to 32.0, there is a significant ecological area identified near Griffith Park. This frame has an important equestrian community that would benefit from an expanded network of equestrian trails. Elysian Park is adjacent to the river along the right bank, at approximately river mile 25.0 through 24.5 and the Rio de Los Angeles State Park is along the left bank of the LA River at river mile 25.2 to 26.5. Frame 6 encompasses approximately 15.47 percent of the total study area of the *2020 LA River Master Plan*.

2.3.7 Frame 7: East Valley

Frame 7 is in the Cities of Los Angeles and Burbank and extends 5.8 miles from river mile 32.0 to 37.8 (Figure 2-11 at the end of this chapter). This frame is characterized as highly residential and has an important equestrian community that would benefit from an expanded network of equestrian trails.

From Tujunga confluence to the Narrows (river mile 33), the level of flood capacity is generally better than 2 percent. The channel is concrete-lined and rectangular, with widths ranging from 125 to 130 feet and an average channel slope of 0.62 percent. As the channel narrows in Frame 7, landside ROW increases to 30 to 50 feet with a couple of large parcels that extend 200 to 450 feet into adjacent development. However, there is also approximately a mile on each bank (about 20 percent of the frame) where there is no landside ROW due to Warner Bros. and Universal Studios and the Lakeside Golf Course. The landside ROW parcels in this frame are both north- and south-facing, sometimes on slopes. Tujunga Wash is at river mile 37.5, and the Burbank Channel confluence is at river mile 32. Along the left bank, Warner Bros. Studios is approximately between

river mile 34 and 34.5, and Lakeside Gold Club is between river mile 34.6 and 35.6. Along the right bank, Griffith Park is between river mile 32 and 34.5 and Sennett Canyon and Creek is at river mile 33.5. Frame 7 encompasses approximately 10.03 percent of the total study area of the *2020 LA River Master Plan*.

2.3.8 Frame 8: Mid Valley

Frame 8 is in the City of Los Angeles and extends 5.3 miles from river mile 37.8 to 43.1 (Figure 2-12 at the end of this chapter). Frame 8 contains the Los Angeles communities of Sherman Oaks, Studio City, Toluca Lake–Cahuenga Pass, Van Nuys–North Sherman Oaks, and Encino–Tarzana. From Sepulveda Basin to Tujunga confluence (river mile 38), the channel generally has better than 1 percent flood capacity with a short segment upstream of the Tujunga confluence, where worse than 10 percent (red) flood capacity level is estimated. In this frame, the channel is an entrenched, rectangular-box, concrete channel with a typical width of 60 feet and an average channel slope of 0.31 percent. In this frame, the landside ROW ranges from 30 to 60 feet before terminating at the northwestern edge of the frame where Sepulveda Basin begins. Frame 8 is characterized as highly residential with several greenways from river mile 37.8 to 38.6 along the right bank, from river mile 38.7 to 39.1 along the left bank, and from river mile 39.2 to 39.7 along both the left and right banks. Frame 8 encompasses approximately 10.04 percent of the total study area of the *2020 LA River Master Plan*.

2.3.9 Frame 9: West Valley

Frame 9 is in the City of Los Angeles and extends 7.9 miles from river mile 43.1 to 51.0 (Figure 2-13 at the end of this chapter). Frame 9 contains the Los Angeles communities of Encino–Tarzana, Reseda–West Van Nuys, and Canoga Park–Winnetka–Woodland Hills–West Hills. The channel upstream of Sepulveda Basin (river mile 51.0 to river mile 46.0) mostly has a mixture of 2 percent (yellow) and 1 percent (green) flood capacity levels, with a few locations with worse than 2 percent (orange) channel capacity level, likely due to local constrictions from bridges. The channel in this frame begins as a soft-bottom channel with riparian edges at Sepulveda Basin, and it transitions to an entrenched, trapezoidal, concrete channel at mile 45.5, with a typical width of 180 feet. At river mile 51.0, the channel transitions to an entrenched, concrete, box channel with a typical width of approximately 60 feet and an average channel slope of 0.25 percent. In this frame, the landside ROW ranges from 20–30 feet with a few larger tracts in the western portion of Canoga Park that are closer to 40–50 feet in width. The eastern soft-bottom portion of the river channel has no landside ROW in Sepulveda Basin for approximately 2 miles (about 25 percent of the frame). Generally, surface water in the channel portions of this frame is insignificant, except during rain events. This frame is characterized as highly residential.

Aliso Canyon Wash confluence occurs at river mile 47.3, Browns Canyon Wash confluence occurs at river mile 49.8, and Bell Creek confluence occurs at river mile 51.0. On the right bank, Reseda Park is between river mile 46.6 and 47.0. Frame 9 encompasses approximately 15.71 percent of the total study area of the *2020 LA River Master Plan*.

2.4 2020 LA River Master Plan Objectives

The 2020 LA River Master Plan has the following nine objectives (referred to as "goals" in the *2020 LA River Master Plan*), which are summarized in Chapter 1 of this PEIR:

1. Reduce flood risk and improve resiliency.
2. Provide equitable, inclusive, and safe parks, open space, and trails.
3. Support healthy connected ecosystems.
4. Enhance opportunities for equitable access to the river corridor.
5. Embrace and enhance opportunities for arts and culture.
6. Address potential adverse impacts on housing affordability and people experiencing homelessness.[3]
7. Foster opportunities for continued community engagement, development, and education.
8. Improve local water supply reliability.
9. Promote healthy, safe, clean water.

The *2020 LA River Master Plan* is based on a goal-driven framework that ensures that the plan's recommendations are closely tied to their potential to achieve the broader *2020 LA River Master Plan*'s nine objectives. This was achieved through a comprehensive evaluation of criteria identified in the plan's existing conditions inventory and analysis for assessing each goal along the 51 miles of the LA River, subsequently identifying areas of general to very high need relative to that goal. The plan's strategic directions are a framework built around the plan's nine goals, each of which is an active priority for the future of the river and is explained by rationale that weaves together analysis and community input gathered throughout the *2020 LA River Master Plan* process.

2.5 Proposed Project—2020 LA River Master Plan

The *2020 LA River Master Plan* is intended to be a visionary and practical document for all 18 local jurisdictions within the study area. The *2020 LA River Master Plan*'s framework begins with community needs and aims to provide guidance and resources for jurisdictions to implement subsequent projects in the study area. Rather than requiring one set of fixed solutions for all 51 miles, the *2020 LA River Master Plan* allows for a consistent approach throughout the study area but with frame-specific identity within the greater whole. Ecology, habitat, and art reflect the physiography and culture of an individual frame of the river. Other elements, such as signage, access points, and lighting, were developed to ensure a consistent approach to connectivity, wayfinding, and equitable access. In all cases, the adjacent communities are considered for improvements along the river corridor to have the appropriate scale and feel for the neighborhood.

[3] The aim of the *2020 LA River Master Plan*'s objective 6, "Address potential adverse impacts on housing affordability and people experiencing homelessness," is to maintain strategies for supporting continuing housing affordability in LA River–adjacent communities. Therefore, the use of "impacts" in objective 6 is distinct from the use of "impacts" under CEQA where, per State CEQA Guidelines Section 15358 (b), impacts analyzed under CEQA must be related to a physical change in the environment.

In addition to common elements that projects need to include, to achieve the nine objectives, the *2020 LA River Master Plan* proposes six categories of project improvements, or "kit of parts" (KOP), consisting of infrastructure and urban river design typologies that illustrate the range of possible strategies that the proponents of subsequent projects, including the County, can use along the river. The six KOP categories are:

- Trails and Access Gateways
- Channel Modifications
- Crossings and Platforms
- Diversions
- Floodplain Reclamation
- Off-Channel Land Assets

Each of these six KOP categories includes a recommended collection of design components and can be implemented individually or in any combination as subsequent projects, as driven by the local jurisdiction's needs, funding, and policy decisions.

In addition to the KOP categories with related design components, the *2020 LA River Master Plan* includes a series of smaller common elements that include site furnishings, amenities, and facilities. These include consistent lighting, drinking fountains, places to sit along the river, river pavilions, and cafés that are intended to contribute to habitability of the river environs; promote safety, accessibility, and legibility; and build a cohesive identity of the river corridor.

The *2020 LA River Master Plan* also includes Design Guidelines (summarized below in Section 2.5.2 and included in their entirety as Appendix B.2) that have been developed as a framework to support the development of specific design and technical solutions for subsequent projects to be implemented under the *2020 LA River Master Plan* while presenting a unified, cohesive identity along the 51-mile connected open space corridor and promoting best practices and resiliency. The County intends to adopt these Design Guidelines, along with the *2020 LA River Master Plan*.

Table 2-1 shows the six KOP categories and their respective multi-benefit design components included in the *2020 LA River Master Plan*. It also notes the applicability of the smaller common elements and Design Guidelines across the multi-benefit design components, as needed under future subsequent projects.

Table 2-1. Proposed Project: 2020 LA River Master Plan—Six Categories of the Kit of Parts with Design Components

Kit of Parts	KOP Category 1: Trails and Access Gateways	KOP Category 2: Channel Modifications	KOP Category 3: Crossings and Platforms	KOP Category 4: Diversions	KOP Category 5: Floodplain Reclamation	KOP Category 6: Off-Channel Land Assets
Multi-Benefit Design Components	River gateway	Terraced bank	Pedestrian bridge	Diversion pipe	Side channel	Urban agriculture
	Pedestrian trail	Check dam	Bike bridge	Side channel	Wetland	Solar power
	Bike trail	Levee	Equestrian bridge	Pump	Naturalized bank	Composting
	Equestrian trail	Armored channel	Multi-use bridge	Diversion channel	Braided channel	Natural treatment system
	Equestrian facility	Storm drain daylighting	Cantilever	Diversion tunnel	Field	Wetland
	Multi-use trail	Vertical wall	Platform	Overflow weir	Recreation field	Recreation field
	Light tower/water tower	Channel smoothing	Habitat/Wildlife bridge	Underground gallery	Storage (surface)	Surface storage
	Lookout	Texturizing or grooving		Storm drain interceptors		Subsurface storage
	Boardwalk	Concrete bottom		Wetland		Injection well
	Channel access	Soft bottom/ concrete removal				Water treatment facility
	Vehicular access	Sediment removal				Purple pipe connection
	Underpass and overpass	Bridge pier modification				Dry well
	Vegetated buffer	Access ramp				Spreading ground
	Habitat corridor	Reshape low flow				Storm drain daylighting
		Deployable barrier				Affordable housing
						Art and culture facility
	Common Elements and Design Guidelines, Including Best Management Practices					

Note: The multi-benefit design components can be implemented individually or in combination with others as subsequent projects under the *2020 LA River Master Plan*. Subsequent projects could be sited in the LA River channel (bank to bank), between the top of the levee to the fenceline, or beyond the fenceline (i.e., outside of the river ROW) but within the *2020 LA River Master Plan* 2-mile-wide study area along the 51-mile LA River.

2.5.1 Elements of the 2020 LA River Master Plan and Their Organization for CEQA

To inform decision-making in a comprehensive manner, this PEIR includes the analysis of the potential environmental impacts from implementation of the *2020 LA River Master* Plan based on the following groupings:

- Two "typical projects" that have been identified based on the availability of construction and operations scenario assumptions from Public Works along with relatively detailed design concepts for these projects being described in the *2020 LA River Master Plan*
    - Common Elements Typical Project
    - Multi-Use trails and Access Gateways Typical Project
- Six KOP categories
- Overall implementation, which examines the entirety of the *2020 LA River Master Plan* that would be implemented over a 25-year horizon period

The two Typical Projects are analyzed in greater detail in this PEIR than the other elements. The six KOP categories and related design components—as well as the *2020 LA River Master Plan* in its entirety—are analyzed qualitatively at a program level.

2.5.1.1 Typical Projects

This PEIR analyzes two Typical Projects that are most likely to be proposed throughout the 51-mile-long corridor: Common Elements Typical Project and Multi-Use Trails and Access Gateways Typical Project. The Typical Projects could be sited between the top of levee and the fenceline at any location in the study area. The analysis of these Typical Projects assumes that no in-channel disturbance would occur under these Typical Projects.

Common Elements Typical Project

The Common Elements Typical Project includes the following elements: pavilions, cafés, hygiene facilities, restrooms, benches, emergency call boxes, water fountains, trash and recycling, bike racks, environmental graphics, lighting, planting, stairs/ramps, guardrails, fences and gates, stormwater best management practices (BMPs), and art/performance spaces (Figure 2-14 at the end of this chapter). In the Common Elements Typical Project, it is assumed these elements could be implemented individually or in any combination at a given site with a size of up to an area of 3 acres or along 1 mile (extra small/small project size). For purposes of the CEQA analysis, it is assumed that the Common Elements Typical Project includes implementation of all 17 elements at a given location and could attract up to 500 visitors.

As described in the *2020 LA River Master Plan*, pavilions are an important common element and are organized in three tiers based on the number and type of amenities. Tier I pavilions are the smallest of the pavilions. They provide shade and seating options along the length of the river, in addition to drinking fountains, waste disposal, and an emergency call box. Tier II pavilions offer enhanced facilities and amenities beyond the baseline Tier I pavilions, and additionally include restrooms, bike racks, picnic tables, charging stations, and vending machines, with optional barbecues and outdoor

showers. Tier III pavilions are the largest of the pavilions and can serve as significant hubs for programming and activity. Tier III pavilions included all Tier I and Tier II amenities in addition to a café, indoor showers, lockers, public safety station, bike rental and repair, equipment rental, multi-purpose rooms, community kitchens, and management offices. For additional context on the Tier III pavilion and its components, see Figure 2-15, Figure 2-16, and Figure 2-17 (at the end of this chapter), which show an artist's rendering, example layout plan, and example configuration of a Tier III pavilion. The analysis of the Common Element Typical Project in this PEIR assumes the most extensive footprint of a Tier III pavilion, which includes the amenities of Tier I and Tier II pavilions.

The common elements under the *2020 LA River Master Plan* would provide safety, comfort, and wayfinding. The need for common elements would be determined by spacing at set intervals along the LA River. They would be implemented as needed under subsequent projects under the *2020 LA River Master Plan* to address the overall cadence of amenities along the river. It is anticipated that the Tier III pavilions would occur every 2 to 3 miles along the river. The Tier I and Tier II pavilions would potentially be placed every 0.5 mile while being spaced to optimize distance. Appendix B.2, Design Guidelines, includes a detailed description of common elements.

Multi-Use Trails and Access Gateways Typical Project

The Multi-Use Trails and Access Gateways Typical Project (Figure 2-18 at the end of this chapter) would include a continuous path for multiple uses—such as bike trails, equestrian trails, and pedestrian trails—and easy-to-find and welcoming access gateways for access to the river. This typical project is informed by KOP Category 1, Trails and Access Gateways, and includes some of its design components (i.e., pedestrian trail, equestrian trail, bike trail, multi-use trail, vegetated buffer, and river gateway; see Table 2-1) for which the County could make reasonable and informed construction and operations assumptions.

The *2020 LA River Master Plan* aims to connect to other trails and paths along the length of the river to create a mobility network across Los Angeles County for cyclists, pedestrians, and equestrians, and intends to accommodate as many user types as safely as possible. When feasible with the availability of ample ROW space, dedicated passageways for each user group would be given with buffers in between the trails. The trails would be linear and designed for active transport, with the bicycle trails along the entirety of the river being designed to meet California Department of Transportation (Caltrans) Class I minimum standards with a design speed of 20 miles per hour. For safety, clear environmental graphics and striping would be included.

Access gateways, like the river gateway shown on Figure 2-18 (at the end of this chapter), would include signage directing usage of the multi-use trails and would call attention to the river through clear visual markers. It is anticipated that access gateways would be placed along the river where major access points, adjacent programming, and LA River communities intersect. All gateways would include ample lighting for security, Americans with Disabilities Act (ADA) accessibility, and environmental graphics and signage.

As analyzed in this PEIR, the Multi-Use Trails and Access Gateways Typical Project consists of an approximately 5-mile-long and 40-foot-wide multi-use trail composed of a 6-foot pedestrian trail with 2-foot-wide buffers on either side, an 8-foot two-way bicycle path with a 2-foot buffer, an 8-foot vegetated buffer, and a 12-foot equestrian trail (Figure 2-19 at the end of this chapter). For subsequent projects, actual trail widths would be dictated by their expected usage and informed by the site conditions. A river gateway that announces access to the trails is also included in this Typical

Project (Figure 2-18 at the end of this chapter). It is expected that a Multi-Use Trails and Access Gateways Typical Project could attract up to 1,000 visitors.

2.5.1.2 Kit of Parts (KOP)

The 2020 LA River Master Plan's KOP categories are a recommended collection of multi-benefit design components organized within six major infrastructure and urban river typologies. Each KOP category includes a set of design components (Table 2-1) that would help achieve one or more project goals. The wide-ranging functions, characteristics, and complexity of the KOP categories and their respective design components—along with the lack of specific sites or detailed design information—make it particularly challenging to make informed assumptions about reasonable construction and operations scenarios for these elements of the *2020 LA River Master Plan*. Accordingly, the six KOP categories are qualitatively analyzed at a high level in this PEIR (State CEQA Guidelines Section 15168).

Under the *2020 LA River Master Plan*, the multi-benefit design components can be implemented individually or in combination with other design components as subsequent projects under the *2020 LA River Master Plan*. The specific location (in-channel/off-channel, frame, etc.) and design details of these subsequent projects would depend on numerous factors, including the proponent of subsequent projects, the implementing party, community needs, policy decisions, and availability of funding. Once site-specific and project-specific details are available for the subsequent projects informed by the multi-benefit design components of the six KOP categories, additional CEQA analysis would be required before subsequent projects can be implemented.

KOP Category 1: Trails and Access Gateways

Improving trails and access points along the LA River corridor is critical for successfully transforming the river into 51 miles of continuous open space that is universally accessible, safe, and comfortable for all. Trails and increased access can improve connectivity between communities along the river; connect people to parks, open space, and other amenities; and improve health outcomes through exercise, exposure to nature, and social gatherings.

In addition to the design components specified in the Multi-Use Trails and Access Gateways Typical Project (Section 2.5.1.1), the following design components could be constructed under KOP Category 1: equestrian facilities, light towers, water towers, lookouts, boardwalks, channel access points, vehicular access for maintenance and operations, underpasses and overpasses, and habitat corridor.

Typical cross-sections of trails and access gateways are shown on Figure 2-20 at the end of this chapter (the figure shows select design components under this KOP category). Design components under this KOP category could serve a range of functions, including recreational and ecological uses. Examples of recreational uses include a continuous path serving multiple purposes and include pedestrian trails, bike trails, equestrian trails, easy-to-find and welcoming access gateways, and a series of amenities for public use, such as shade structures and play fields. Examples of ecological uses include habitat corridors, planted vegetated buffers used to separate high-traffic zones from low-traffic zones, and connections between large areas of habitat to provide sufficient habitat for wide-ranging animal species.

KOP Category 2: Channel Modifications

The existing LA River channel comprises 13 different channel configurations that vary in shape, width, and depth. Some sections have a rectangular section with vertical sides, while other segments are trapezoidal with tapered sides. Historically, modifications to the channel have primarily been made to increase the capacity of the channel. In some areas of the LA River, modifying the existing channel could be advantageous for flood risk, access, and/or ecological function. Channel modifications may include terracing the banks, constructing dams or deployable barriers, modifying the channel for erosion protection, and redirecting water flow. Other channel modifications include changing the materiality of the channel (e.g., adding or removing concrete depending on capacity requirements). Depending on the channel modification implemented, benefits may include improving access and safety, making places for people and habitat, and improving channel capacity to reduce flood risk. Any channel modification requires hydraulic analysis to ensure flood risk is not increased.

The following design components could be constructed under KOP Category 2: terraced bank, check dams and deployable barriers, levees, armored channels/vertical walls, daylighted storm drains, removed/added concrete, bridge pier modifications, channel texturing/grooving/smoothing, and installation of access ramps.

Typical cross-sections of channel modifications are shown on Figure 2-21 at the end of this chapter (the figure shows select design components under this KOP category). Design components under this KOP category could serve a range of functions, including flood management, recreational uses, and ecological uses. Examples of recreational and ecological uses include amphitheaters, small planting trays, parks, wildlife ramps, and wetland terraces. Examples of flood management uses include channel smoothing/texturing/grooving, concrete bottom, and replacement of underground drainage pipes with storm drain daylighting.

KOP Category 3: Crossings and Platforms

Given its width and length, the LA River channel can separate communities and be an obstacle for connectivity. Crossings can connect existing or proposed communities or assets on one side of the river with existing or proposed communities or assets on the other side of the river. Crossings and platforms would typically include multi-use bridges for pedestrian, bike, and equestrian access, , and they would connect communities to nearby parks and community facilities. Platforms are wider than crossings and can create space for parks, recreation, and habitats above the channel in addition to providing cross-river connectivity. Platforms can also host a range of habitat typologies, including riparian and upland conditions, and can allow for wildlife migration. Crossings and platforms can connect people to the river, creating new spaces for gathering and panoramic views of the river and surroundings. Any channel modifications required for crossing and platforms would require hydraulic analysis to ensure flood risk is not increased.

The following design components could be constructed under KOP Category 3: bridges (pedestrian, bike, equestrian, habitat/wildlife, and multi-use), cantilevers, and platforms.

A typical cross-section of crossings and platforms is shown on Figure 2-22 at the end of this chapter (the figure shows select design components under this KOP category). Examples of recreational uses for this KOP category include recreational fields, parks, and channel overlooks. Examples of ecological uses include water features and connections for habitat communities.

KOP Category 4: Diversions

Historically, water flow in the LA River has varied greatly based on seasonal rainfall and groundwater conditions, and diversions for flooding and irrigation were common. Today, water flows in the LA River are highly engineered with dams, reservoirs, and spreading grounds regulating wet-weather events, while dry-weather flows consist mostly of treated wastewater discharged from water reclamation plants. Any modification to the LA River channel or its water flow requires hydraulic analysis to ensure flood risk is not increased and to consider the downstream impacts of altering the flow rate on other uses of the water, such as ecosystem function.

The following design components could be constructed under KOP Category 4: pumps, diversion pipe/tunnel/channel, overflow weirs, underground gallery, side channel, storm drain interceptors, and wetlands. Typical cross-sections of diversions are shown on Figure 2-23 at the end of this chapter (the figure shows select design components under this KOP category).

In addition to reducing flood risk and benefiting local water supply reliability, diversions can also provide opportunities for treatment and reuse of water for groundwater recharge, habitat features, or recreational opportunities during smaller storm events, or in the dry season when flows are reduced. Examples of recreational uses include side channels that can provide for flood management during storm events and educational purposes during dry events.

KOP Category 5: Floodplain Reclamation

Historically, the LA River had a vast floodplain and the river would commonly shift its course after major floods. In the 1930s, USACE channelized the river and replaced the shifting floodplain to prevent further flooding. This ultimately allowed for future development and urbanization. Currently, the historic floodplain of the LA River is almost entirely developed. Any floodplain modification requires hydraulic analysis to ensure flood risk is not increased. Floodplain reclamation in the LA River include wetlands, naturalized banks, braided channels, fields, storage, and side channels. Typical cross-sections of floodplain reclamation are shown on Figure 2-24 at the end of this chapter (the figure shows select design components under this KOP category).

Currently, there are a limited number of opportunities along the LA River for floodplain reclamation at any scale, and all the opportunities identified in the *2020 LA River Master Plan*'s opportunity analysis only allow for small-scale reclamation that would not have a role in flood-risk reduction but could have significant benefits for ecosystem function. Due to development and urbanization in the watershed, large-scale floodplain reclamation is not currently feasible without resulting in significant impacts on existing residents, businesses, transportation corridors, and other vital infrastructure.

Reclaiming the floodplain would reconnect the hydrologic relationship between the river and its floodplain, which has the potential to enhance ecological function, create park space, and improve water quality, among other benefits. Examples of recreational uses include boardwalk platforms and a farmer's market. Examples of ecological uses include a naturalized bank and a wider channel for decreased flood risk to support habitat communities.

KOP Category 6: Off-Channel Land Assets

Given some of the limitations of what can be located within the LA River ROW, off-channel land assets can be used for projects that are essential to the *2020 LA River Master Plan* but cannot be

located in the channel or adjacent ROW. In the KOP category, off-channel land assets refer to projects that would exist beyond the fenceline (Figure 2-2 at the end of this chapter). Off-channel land assets combined with ROW improvements can further ensure projects are multi-benefit, addressing multiple needs. Off-channel land assets include affordable housing, cultural centers, urban agriculture/composting, water storage, water treatment facilities, dry wells, spreading grounds, purple pipe connections, storm drain daylighting, injection wells, solar panels, fields, and parks.

Typical cross-sections off-channel land assets are shown on Figure 2-25 at the end of this chapter (the figure shows select design components under this KOP category). Off-channel land assets combined with ROW improvements can further ensure projects are multi-benefit, addressing multiple needs. Examples of recreational uses include a playground, recreational field, and arts and culture facilities. Examples of ecological uses include orchards, composting centers, community gardens, and ponds.

2.5.1.3 Overall 2020 LA River Master Plan Implementation

The *2020 LA River Master Plan* includes up to 107 potential projects ranging in size from extra-small (less than 1 acre) to extra-large (150+ acres/10+ miles) that would be implemented over the 25-year horizon period to meet the *2020 LA River Master Plan*'s nine objectives. These would include the two Typical Projects (Common Elements Typical Project and Multi-Use Trails and Access Gateways Typical Project) that would be constructed at a specified cadence, or spacing, along the river to ensure equitable distribution of facilities throughout the 51-mile-long corridor and help improve access and safety; and additional subsequent projects from the KOP categories' multi-benefit design components. These elements together compose the entirety of the *2020 LA River Master Plan*.

These 107 potential projects are identified in the *2020 LA River Master Plan* in addition to several other planned proposed projects included in other LA River published plans (such as the *2007 LA River Revitalization Master Plan*, the *LA River Ecosystem Restoration Integrated Feasibility Report* and its *Recommended Plan – ARBOR Study*, and the *2017 Lower LA River Revitalization Plan*). The *2020 LA River Master Plan* analyzed parcels that could provide opportunities to site the 107 potential projects, and completed an opportunities and constraints analysis at sites along the corridor taking into account the LA River ROW, adjacent land assets, and underlying geophysical conditions. The proposed final implementation of these potential 107 subsequent projects, including specific location (planning frame, in-channel [bank to bank]/off-channel [outside of bank]), design, and timing would depend on many factors that are currently unknown at this time. These factors include, but are not limited to, the proponent of subsequent projects, the implementing party, local community needs, policy decisions, timing of proposed implementation, and availability of funding. Accordingly, this PEIR presents a program-level analysis of the *2020 LA River Master Plan* and its components that does not include any site-specific or project-specific analysis.

As shown in Table 2-2, for the 107 projects, it is expected that most of them (85) would be extra-small and small projects (up to 3 acres/1 mile in size), followed by 10 medium projects (3 to 40 acres/5 miles in size), 11 large projects (40 to 150 acres/10 miles in size), and 1 extra-large projects (150+ acres/10+ miles in size).

Table 2-2. 2020 LA River Master Plan: Subsequent Project Size Distribution

Size	Number of Projects Proposed under the 2020 LA River Master Plan PEIR	Project Element
Extra-Small/Small (up to 3 acres/1 mile)	43 (extra small) and 42 (small)	Primarily Multi-Use Trails and Access Gateways; Crossings and Platforms (such as a pedestrian bridge); Channel Modifications; and/or Off-Channel Land Assets
Medium (3 to 40 acres/5 miles)	10	All 6 KOP categories are applicable
Large (40 to 150 acres/10 miles)	11	All 6 KOP categories are applicable
Extra-Large (150+ acres/10+ miles)	1	All 6 KOP categories are applicable
Total	**107**	

2.5.2 2020 LA River Master Plan Design Guidelines

The proposed Design Guidelines (included as Appendix B.2 to this draft PEIR and described above) were developed as a framework to support the specific design and technical solutions for projects to be implemented under the *2020 LA River Master Plan* while presenting a unified, cohesive identity along the 51-mile connected open space corridor and promoting best practices and resiliency. The Design Guidelines would ensure a standard for design for projects at all scales and help define the LA River corridor. Rather than requiring one set of fixed solutions for all 51 miles, these guidelines promote a consistent approach with frame-specific identity within the greater whole. The Design Guidelines are intended to provide flexibility for site-specific needs while reflecting neighboring communities' cultural identities and the diverse and shared identities of Los Angeles County.

The Design Guidelines are organized into four chapters that focus on access and mobility; environmental graphics; ecology, habitat, and planting; and facilities and amenities. The components and key features of these four Design Guidelines chapters, as relevant to the analysis in this PEIR, are summarized below. Design Guidelines for the *2020 LA River Master Plan* are attached to this PEIR as Appendix B.2 and include a detailed description of the Design Guidelines along with a checklist at the end of each chapter that details the technical requirements.

While a majority of the proposed Design Guidelines are not described as mandatory requirements, select Design Guidelines (such as those related to access points, gateways, maintenance buffers and clearances, emergency access, lighting, and monitoring and maintenance plans) are described as requirements (through the use of "must" and "shall") rather than recommendations under the *2020 LA River Master Plan*. Accordingly, this PEIR assumes that the *2020 LA River Master Plan* will be implemented consistent with these required Design Guidelines. Similarly, it is assumed that all subsequent projects under the *2020 LA River Master Plan* would be implemented in accordance with the required Design Guidelines by implementing agencies (Los Angeles County or the 17 cities). For the purposes of the impact analysis presented in Chapter 3 of this PEIR, compliance with these required Design Guidelines is assumed and factored into the impact analysis and CEQA determination for the *2020 LA River Master Plan*.

With respect to the remaining recommended (and not required) Design Guidelines, the PEIR does not assume that the *2020 LA River Master Plan* will be implemented in compliance with these recommended Design Guidelines, as they are not presented as requirements. Therefore, the recommended Design Guidelines are not factored into the impact analysis and CEQA determination for the *2020 LA River Master Plan* in Chapter 3 of this PEIR. However, recommended Design Guidelines that are relevant to environmental resources analyzed in Chapter 3 are disclosed in the impact analysis discussion. Design Guidelines that are not relevant to the environmental analysis or are recommended (i.e. not required) are not anticipated to result in significant impacts. All subsequent projects as proposed by implementing agencies would be required to consider the later activity in the context of the PEIR and its findings, including application of all Design Guidelines to the extent that they are proposed for incorporation into the project.

Implementation of all Design Guidelines must be consistent with prevailing building codes and relevant regulations and permits.

2.5.2.1 Access and Mobility

A primary goal of the proposed Project is to create 51 miles of connected open space with equitable access, including trails, gateways, and access points. The Access and Mobility chapter of the Design Guidelines provides dimensional and material guidelines for multi-modal trails connecting to and along the LA River and includes ROW scenarios, gateways, and bridges, among other aspects, related to access and mobility. The ROW width along the LA River ranges from very narrow (less than 12 feet) to extra-large (more than 12 feet). These widths are key considerations for design and location of trails along the LA River. Currently, there is not a connected 51-mile trail along either bank of the LA River. Along one bank, there are gaps in the LA River Trail in the San Fernando Valley and downtown Los Angeles, which are being respectively planned and studied by the City of Los Angeles and the Los Angeles County Metropolitan Transportation Authority. Once these gaps are filled, there would be a continuous 51-mile-long LA River Trail along the LA River. Different segments of the trail occur on the two sides of the river, but there is no continuous access or a trail along both banks. Trails along both sides would need to be planned for in the future.

The LA River Trail implemented under the *2020 LA River Master Plan* is envisioned to connect to other trails and paths along the length of the river to create a mobility network across the County for cyclists, pedestrians, and equestrians. The LA River Trail should aim to accommodate as many user types as safely possible. Additionally, operations and maintenance vehicles to must have adequate access the ROW to enable these essential functions to be performed. The various trail conditions along the LA River should be designed with their intended use in mind. Table 2-3 highlights the key features in the Access and Mobility chapter of the Design Guidelines, including the key technical requirements listed in the Access and Mobility checklist, that are relevant to the analysis in this PEIR. For a detailed description of all Access and Mobility Design Guidelines and the full checklist, see Appendix B.2.

Table 2-3. Access and Mobility Design Guidelines: Key Features

Component	Key Features
Multi-Use Trails	
The LA River Trail should connect to other trails along the length of the river to create a network of trails across the County that accommodates as many user types, such as cyclists, pedestrians, and equestrians, as safely as possible. A variety of trail types could be designed with separated uses (equestrian, pedestrian, and bicycle), adjacent uses (pedestrian and bicycle), or combined uses (pedestrian and bicycle).	As on Figure 2-19 (at the end of this chapter), the typical cross-section of a multi-use trail would include an 8- to 12-foot equestrian path, two 4-foot-wide bicycle trails with 2-foot shoulders, and a 4- to 6-foot pedestrian path. The multi-use trail would be designed to give each user group a dedicated passageway with vegetated buffers, dividers, and shoulders in between the trails. • All trails should be sloped at a maximum of 2% away from the river to encourage drainage. • Where feasible, all trails should be sloped into a vegetated area that is designed to collect, retain, and infiltrate stormwater runoff. • Bicycle trails are encouraged, but not required to be designed to meet Caltrans Class I minimum standards with a design speed of 20 miles per hour. • Where possible, equestrian trails should be kept separate from other trails. Other multi-use trails may include combinations of the equestrian, bicycle, and pedestrian path with variations in vegetated buffers and/or dividers, or they can include shared trails between the equestrian, pedestrian, and bicycle uses. Multi-use trails can be designed in different ways depending on available width. Ideally, equestrians would be separated from pedestrians and bicyclists with a buffer. Channel configurations and ROW conditions along the LA River vary through each frame, and range in size from extra-large (greater than 12 feet) to very narrow (less than 12 feet), which would affect the design and locations of trails.
Paving Materials	
When possible, these "ideal" surfaces should be used; however, all design conditions, material thicknesses/ assemblies, and colors should be reviewed by design professionals for site-specific considerations.	The typical multi-use trails would be paved with concrete, asphalt, stone fines and decomposed granite, compacted earth, or permeable paving. • Low volatile organic compound, warm-mix asphalt should be used. • Dark surfacing, such as black asphalt, should be avoided along the trail because of urban heat island effect.
Fences, Guardrails, Railings, and Gates	
Use of the river corridor for public activities requires a re-evaluation of fencing in terms of function, aesthetics,	• The appropriate type of fencing is based on the proposed recreational uses and adjacent elements.

Component	Key Features
and the perception of safety vs. real hazard	• Reduction of fencing would rely on the reduction of public hazards, the implementation of other types of buffers and barriers, and a safety/warning notification system. • Gates may be used for public safety and to prohibit access during flood conditions. • Vehicular and pedestrian gates must have the ability to close and lock.
Gateways	
Gateways are placed along the river at key locations where major access points, adjacent programming, and LA River communities intersect and, depending on the conditions and amenities, can exist at three different scales.	• All gateway points must include: ○ ADA accessibility ○ Lighting ○ Signage
Bridges	
Bridges should be implemented, where feasible, to connect all users to the river and adjacent neighborhoods; therefore, trail intersections should be carefully considered in the design of bridges to ensure seamless circulation between different kinds of users.	• Pedestrian, equestrian, and bicycle bridges should be designed to be a minimum of 12 feet wide. • When possible, all bridges should be designed to not exceed a maximum slope of 5% on main paths of egress. • Clear safety striping and environmental graphics to be present warning trail users of a bridge crossing and trail intersections. • Bridge paths of travel should be connected to appropriate multi-use trails (i.e., when building an equestrian bridge, users should be connected to an equestrian trail). • All bridge proposals should be studied for hydraulic impacts on the flood capacity of the channel and shall not obstruct flows during a 1% annual chance storm event.
Underpasses	
Trails that run parallel to the river may pass under existing or proposed bridge crossings.	• Minimum of 10 feet clearance at underpass. • Lighting must be added to provide visibility. • Underpasses should be designed to incorporate stormwater collection/ treatment before release into the channel where feasible (tight ROWs may prohibit this). • The slope of the trail at any underpass or overpass should be between 2% and 5%, while not exceeding 8%. • A guardrail or railing may be needed to separate users from the river.

2.5.2.2 Environmental Graphics

The proposed Environmental Graphics Guidelines for the *2020 LA River Master Plan* have been developed with a common set of values for their design and proposed use. These guidelines create a framework for consistent wayfinding and promote a unique identity for the LA River. They aim to be accessible to all. Legibility and graphic clarity are important across all environmental graphics. Sign designs have a simple, timeless aesthetic while allowing for community expression and art at gateways and other special locations. Furthermore, environmental graphics can be integrated with architecture, art, and design rather than just consisting of standalone signs. Wayfinding to the LA River from bike routes and pedestrian streets is also crucial for directing people to the river itself. The sequence and placement of these signs and graphics should avoid sign clutter. Information conveyed through environmental graphics should be deliberately curated as pedestrians or cyclists approach and enter the LA River ROW.

The Environmental Graphics Design Guidelines chapter includes a matrix that describes parameters (ADA font and size, contrast, language, universal design, Native American place names, and references) for different types of graphics, such as informational, regulatory, confirmation, directional, mile markers, pavement markings, interpretive signs and displays, and large-scale icon graphics. All environmental graphics share common design features such as the terminology for the "LA River," the heron logo and icon, the use of open-source Barlow font, and the recommended background color with white for effective contrast. Accessibility, legibility, and compliance with the ADA (where applicable) are baseline criteria to be followed by environmental graphics. Furthermore, symbols for amenities or trails should be consistent across all environmental graphics and should follow the symbols used for the Federal Highway Administration's Manual on Uniform Traffic Control Devices (MUTCD), if one exists for the amenity depicted.

Table 2-4 below highlights the key features in the Environmental Graphics chapter of the Design Guidelines, including the key technical requirements listed in the Environmental Graphics checklist, that are relevant to the analysis in this PEIR. For a detailed description of all Environmental Graphics Design Guidelines and the full checklist, see Appendix B.2.

Table 2-4. Environmental Graphics Design Guidelines: Key Features

Component	Key Features*
Informational	
Informational signs are used to inform visitors about a place and include park entry signs and other non-regulatory signs.	• Signs should be placed near primary access points and be visible from the street or trail and would have an anti-graffiti film overlay.
Regulatory	
Regulatory signs are used to alert users to rules and regulations within LA River parks or multi-use trails. They are also used to warn park and trail users of dangerous conditions or to inform bicyclists and drivers of regulations and upcoming conditions.	• Signs are typically placed at or near park entrances or access points and would have an anti-graffiti film overlay. Certain regulatory sign placement would need to follow uniform traffic standards and MUTCD guidelines. • Signs indicating flood danger should be placed along the channel itself or at other appropriate locations.

Component	Key Features*
	• All rules and regulations should always be bilingual (language dependent on the neighborhood and could be Spanish, Chinese, Korean, Russian, etc.).
Confirmation	
Confirmation signs inform users that they are on the correct route or alerts users to an upcoming turn. This information can include distances or time to destination or the LA River.	• Signs should be at access points, which could be key locations close or on the LA River, and would have an anti-graffiti film overlay. • Amenity symbols should be MUTCD standard symbols whenever available.
Interpretive	
Interpretive signs and displays are used to educate users. These may include topics such as geomorphology and engineering of the river, ecological restoration, water supply, water quality, natural history of Los Angeles, Native American place markers and traditions, or cultural history of local neighborhoods. Typically, they would be found in LA River parks or at access points to the river and trails.	• Signs should be placed along trail lookouts, gateways, access points, pocket parks, and within major projects themselves. Placement would depend on the education context. • Signs are encouraged to be bilingual (language dependent on the neighborhood and could be Spanish, Chinese, Korean, Russian, etc.).
Directional	
Directional signs are used to alert travelers to the location of the river, multi-use trails, and river parks. They serve an important wayfinding function and would set traffic patterns to and from the river.	• Signs should be placed along streets and at intersections that cater to pedestrians and cyclists and would have an anti-graffiti film overlay.
Mile Markers	
Mile markers are a new and important signage type to the LA River. A cohesive system of mile numbering along the LA River unifies all 51 miles and helps users identify their location along river trails. The mile numbering system would strengthen public safety by allowing people to easily locate themselves along the river for emergency responders.	• Mile markers, with anti-graffiti overlay, should be placed every half mile, facing both directions of travel along the trail on the landside of the trail. • Signs should be sandwiched on a pole so that the mile marker is legible from both directions of travel.
Pavement Markings	
Pavement markings occur on the pavement of multi-use trails along the LA River and demarcate the distance from the outfall into the ocean (river mile 0.0) to the headwaters (river mile 51.0).	• Pavement marking must be incorporated at every mile on all paved paths along the LA River trail, including bikeways and multi-use trails. • Pavement markings would be on the ground of the trail, would face both directions of travel, and would occur every mile. Tick on edges of trail would occur every 1/10 mile.

Note: * The sign site specifications and installation within each component may have additional variation based on the type of sign.

The LA River travels through many diverse neighborhoods. Primary languages spoken by adjacent neighborhoods must be considered when creating bilingual environmental graphics.

Languages such as, but not limited to, Spanish, Chinese, Khmer, Tagalog, Russian, or Korean are all examples of languages that can be used for translations of environmental graphics. Symbols and clear graphic design can also be used for communication without the need for translations.

2.5.2.3 Ecology, Habitat, and Planting

Despite being highly urbanized, the LA River watershed is within one of the world's most diverse Mediterranean ecosystems. The river's capacity to support biological activity is determined by hydrological conditions, channel shape, and connectivity to adjacent biodiversity hotspots upland from the river. The Design Guidelines for ecology and planting are thus guided by the unique biodiversity of the region and characteristics of the river's distinct frames. Additionally, elements of the river's former ecology can be reintroduced where appropriate to reestablish many of the rare and riparian and upland ecosystems that have been lost to urbanization; however, the resilience of these native ecosystems to hydrological or climate changes should be considered and planting palettes may be augmented and adaptively managed. The following summarizes the guidelines for the design and installation of planting along the LA River and provides guidance for planting setbacks and buffers, planting along levee and floodwalls, and channel modifications, among other aspects related to the creation of habitats and functioning ecosystems.

Table 2-5 below highlights the key features in the Ecology, Habitat, and Planting chapter of the Design Guidelines, including the key drawing and specification technical requirements listed in the Ecology, Habitat, and Planting checklists that are relevant to the analysis in this PEIR. In addition to the design and technical specifications requirements, all projects along the LA River are required to develop a 3-year monitoring and maintenance program prior to start of construction. The maintenance program begins on completion of the last day of the planting operation and emphasizes proper application of supplemental water, replacement planting, and weed management to achieve an increased rate of vegetation establishment and growth. The monitoring and maintenance program to be established is to provide for regular inspections and decisions regarding weed management, supplemental irrigation, and additional planting actions. For a detailed description of all Ecology, Habitat, and Planting Design Guidelines and the full drawing and specification technical requirements and maintenance program checklists, see Appendix B.2.

Table 2-5. Ecology, Habitat, and Planting Design Guidelines: Key Features

Component	Key Features
LA River Planting	
LA River Planting allows for creation of habitats and functioning ecosystems.	To ensure success in habitat and planting projects along the LA River, design considerations must include everything from site preparation to sourcing plant material to maintenance post installation. These guidelines put forward the following values for projects along the river: • Plant species appropriate to the planning frame of the proposed Project.

Component	Key Features
	• Provide successional development of plantings into communities of plants that are ultimately best suited to the conditions of their environment. • Provide a continuous native tree and plant corridor along the river with linkages to riparian habitat and upland areas near the river. • Support nurseries and organizations that specifically collect and propagate indigenous native plant species for planting along the river corridor. • Achieve healthy soil biology, not just chemistry, by providing the critical foundation for each stage of succession that would ultimately host a sound ecological system. • Eradicate invasive exotics and deter the use of exotics that provide little or no habitat value. • Encourage the use of permeable paving solutions, filtration, and percolation of rainwater, and on-site water retention/detention to mitigate/eliminate water pollution and to reduce runoff. • Consider the resilience of the LA River system and the future effects of climate change in project planning and design. • Ensure there is a maintenance plan for the installed landscape that is appropriate to the needs of the planted species. • Provide opportunities for artwork through habitat creation and planting. • Ensure planting densities consider the safety of pedestrians, joggers, and cyclists by providing sufficient line-of-sight clearance, especially at access points and trail intersections, and do not shield light sources along trails. • Productive landscapes (i.e., urban agriculture) should have strong ties to the community and community organizations and would provide access to fresh food sources. If urban agriculture is included in the planting plans of the site, those specific areas do not need to meet native planting requirements. • Additional information on planting strategies and plant communities is available in Appendix B.2.
Tree and Shrub Planting	
The landscape architect should keep in mind the species and communities that probably existed along project river reaches and determine whether those species can still thrive within the constraints now existing along the river ROW.	• Plant species appropriate to the planning frame of the proposed Project; refer to Appendix B.2 for further specifications and planting list. • Do not plant aggressive exotic plant species or any other species listed as invasive by the California Native Plant Council.

Component	Key Features
	• Eradicate all existing invasive plant species on site. Existing, non-invasive, exotic species may be retained until senescence then replaced with appropriate native plants. • Plant material quantities and handling standards must comply with the latest version of the American Standard for Nursery Stock (ANSI Z60.1) published by the American Horticulture Industry Association. • Planting in the LA River channel should only occur where excess hydraulic capacity is confirmed. • Irrigation supply and system components would comply with the County's Low Impact Development Manual, County water sources, conservation standards, and current California Green Building Standards Code. • Use recycled or reclaimed water for irrigation where possible. Analyze total dissolved salts from the sources to confirm plant types.
Setbacks and Buffers	
Setback requirements for plantings are necessary for the maintenance of the function of the LA River as a flood channel. Additionally, plantings can serve as a buffer along the river corridor.	• All new proposed projects must comply with the setback and buffer guidelines. • Follow the Limited Landscape Management Zone requirements (17-foot setback from the channel wall) for maintenance and emergency vehicle clearance. • Follow the most recent USACE guidelines for Vegetation Free Zone (15-foot setback). • New proposed projects should aim to create bioswales or treatment basins to collect stormwater runoff. BMPs are described in further detail below.
Planting along Levees and Floodwalls	
Planting along flood channels must consider strategies that do not compromise the level of flood risk reduction provided by the structures.	• Follow the most recent USACE Guidelines for Landscape Planting and Vegetation Management at Levees, Floodwalls, Embankment Dams, and Appurtenant Structures (ETL 1110-2-583, or the most current publication) to ensure structure's integrity. • Deploy BMPs to capture stormwater where possible.
Maintenance Buffers and Clearance	
Maintenance vehicles require adequate access and space to maneuver in order to service the flood channel.	• All maintenance vehicles must have ingress/egress clearance at all times. • Alterations or design of service roads must meet County approval. • Allow 40-foot centerline turning radius for truck ingress and egress from arterial streets. • Comply with all setback requirements. • Consult with appropriate utility company if working in a utility easement or ROW.

Component	Key Features
Best Management Practices (BMPs)	
BMPs help capture, convey, and infiltrate stormwater during a rain event and may include rain gardens, swales, infiltration strips, and infiltration trenches.	• Project sites should be studied to identify optimal locations and possible grading actions to increase capture and retention of rainfall to help sustain the growth of native plantings. • Soils should be suitable for infiltration. • BMPs should be sized appropriately with respect to the tributary drainage areas. • Pre-treatment BMPs to remove solids, sediments, trash, and debris are critical and recommended. • All BMPs require regular maintenance to avoid debris and obstructions for long-term success. • More information on BMPs is available in the Public Works Low Impact Development Standards Manual.
Channel Modifications	
Designers are encouraged to create innovative designs to integrate ecological function and programming into the channel edge condition; however, modifications should not increase flood risk and would be subject to permit requirements and hydraulic feasibility modeling.	• Channel modifications should not result in an increased level of flood risk to the properties surrounding community. • Qualified engineers would need to thoroughly evaluate the hydraulic and flood risk impacts of any proposed channel modification. • Trapezoidal channel: wide-stepped terraces for planting or terracing with hardscape steps and amphitheater seating can be evaluated. • Rectangular channel: A larger terrace can be created for planting, or the wall of the rectangular channel can open to allow for a ramp to enter the channel. • Platform: an open space option that can be considered with a high need for connectivity to a park space and limited or nonexistent landside ROW but cannot be considered over soft-bottom portions of the channel or in the estuary.
Site Preparation and Soils	
The landscape architect or planting designer should use the soil analysis results to determine the plant palette.	• All existing soils should be tested to verify they are free of contaminants and debris and have the capacity to support adequate nutrients, drainage, and structure for a given planting design. If soils are contaminated, create a remediation plan. • Test samples of salvaged on-site topsoil, all plant mix materials, and organic material components that are intended to be used for planting soil mixes and final mixes by an independent Soil and Plant Testing Laboratory acceptable to the landscape architect and in accordance with the current standards of the Soil Science Society of America. All reports would be sent to the landscape architect for approval.

Component	Key Features
Maintenance Best Practices	
Project proponents would be required to prepare a 3-year monitoring and maintenance program for all plantings.	• The monitoring and maintenance program would designate who would oversee all short- and long-term maintenance actions and would define a performance schedule that identifies actions needed to improve planting success. • Long-term water usage is discouraged but supplemental irrigation to sustain new plantings is discretionary. • All irrigation supply and system components would comply with the County's Low Impact Development Manual, County water sources, conservation standards, and current California Green Building Standards Code. • Trimming, pruning, and removal of plants is to be done under the guidance of a qualified native plant specialist. • Refer to the County's Weed Management Area Best Management Practices for Vegetation Management (revised December 2015) for weeding and supplemental mulching maintenance practices.
Slope Stabilization and Erosion Management	
During and after construction, exposed slopes should be treated to avoid dust and sediment erosion.	• Slope stabilization techniques include geo-grid matting, erosion control matting, and hydroseeding. • These techniques are meant to be deployed along the landside ROW only because they would not be able to withstand the flood water velocities in channel. • Armoring the landside of levees would reduce the risk of levee failure under extreme overtopping events and provides increased resiliency to flooding.
Wildfire Management	

Planting projects should not increase fire risk.	• For larger projects or those that interface with a wildlife area, indicate wildfire breaks on the site plan.
	• Wildfire mitigation strategies for native habitats along the LA River should focus on eliminating invasive species, creating fuel breaks, and reducing fuel load where possible. The following can be considered as best practices:
	  ○ Remove invasive, nonnative species during chaparral seeding or transplanting to aid in the establishment, survival, and recovery of native chaparral communities.
	  ○ Prune dead plant material and remove plant debris to reduce fuel load. Pruning methods should maintain the natural form of trees and shrubs.
	  ○ Consider spacing of canopy trees and large shrubs far enough to reduce the spread of fire.
	  ○ Maintain vertical separation between lower and upper fuel layers.

Component	Key Features
	○ Minimize grasses and forbs, cut to four inches tall when they brown. ○ Reduce fuel load through mowing or machinery, grazing by animals such as goats,(NRCS Code 528), pruning (NRCS Code 660), removal, chipping, masticating, and/or sparingly through prescribed burning (NRCS Code 338).

NRCS = Natural Resources Conservation Service

2.5.2.4 Facilities and Amenities

Facilities and amenities along the LA River promote a sense of place and belonging along the river corridor. They not only draw people to the river, but also encourage them to stay for longer periods of time to enjoy the river with comfort and safety. These amenities—ranging from large pavilions (Tier III pavilions) that can be a notable community resource to a single bench or drinking fountain (Tier I pavilion)—are meant to be used by all people, including commuters, recreational users, nearby residents, and persons experiencing homelessness. Pavilions situated along the LA River would house numerous facilities and amenities, forming a network of programs and activities to support a continuous and unified experience along the LA River Trail and serve as an asset for river users and river-adjacent communities. Excellent design of these amenities and facilities, regular maintenance, and installation at regular intervals along the river corridor would ensure consistency and encourage regular use by communities along the LA River.

The development of river pavilions should incorporate water, environmental, construction, and social best practices. Examples include, but are not limited to, California's Title 24 Part 6 Building Energy Efficiency Standards, United States Green Building Council's Leadership in Energy and Environmental Design, United States Department of Energy Better Buildings Initiative, Energy Star, Dark Sky, Cradle-to-Cradle, and Green Globes, among many others. Table 2-6 below highlights additional best practices and presents key features in the Facilities and Amenities chapter of the Design Guidelines, including the technical requirements listed in the Facilities and Amenities checklist, that are relevant to the analysis in this PEIR. For a detailed description of all Facilities and Amenities Design Guidelines and the full checklist, see Appendix B.2.

Table 2-6. Facilities and Amenities Design Guidelines: Key Features

Component	Key Features
Pavilions	
A network of pavilions along the LA River should adhere to a cadence that optimizes an equitable distribution of facilities and amenities for river users and river-adjacent communities.	• Shade pavilions/Tier I (baseline): ○ Occupancy ranges from 5 to 20 occupants depending on compact, linear, square, moderate, and expanded design. ○ Shade pavilions must include shade structure and seating, river education display, drinking fountain, emergency call box, litter and recycling receptacles, and pet waste station. ○ Tier I pavilions may occur more frequently along the LA River (ideally alternating every 0.5 mile along both sides of the river, where feasible, with Tier II pavilions). • Rest pavilions/Tier II: ○ Occupancy ranges from 20 to 50 occupants, depending on compact, linear, square, moderate, and expanded design. ○ Rest pavilions must include everything in the shade pavilions (Tier I) plus the following: single-occupancy restrooms/basic sanitation facilities, charging station, bike racks (number based on occupancy and local codes), snack station, and picnic tables. ○ Tier II pavilions may occur more intermittently at an appropriate cadence (ideally alternating every 0.5 mile along both sides of the river, where feasible, with Tier I pavilions) • Gathering pavilions/Tier III pavilions: ○ Occupancy ranges from 50 to 500 occupants, depending on compact, linear, square, moderate, and expanded design. ○ Gathering pavilions must include everything in the shade pavilions (Tier I) and rest pavilions (Tier II) plus the following: locker rooms/enhanced sanitation facilities, public safety station, and cafés. ○ On-site staff, river rangers, and or/police rangers should be incorporated to serve and support river users. ○ Tier III pavilions should be located every 2 to 3 miles on either side of the river in conjunction with river gateway access points. • All river pavilions (Tier I, II, and III): ○ The finished floor elevation should be above the 1% storm event; however, if this is not feasible, other locations or making the facility floodable (i.e., the area can flood without causing permanent damage to any of the structures or amenities) should be considered. ○ Comply with the current ADA Standards for Accessible Design; state and county requirements, such as California's Title 24 Part 6 Building Energy Efficiency Standards; and local building codes, zoning regulations, and parking requirements. ○ For safety, optimize lighting at night, provide emergency call boxes at the entry of pavilions, and ensure first aid kits and defibrillators are available.

Component	Key Features
Pavilion Best Practices	
The development of river pavilions should incorporate water, environmental, construction, and social best practices.	• Water ○ Follow County and/or local jurisdictional Low-Impact Development Standards. ○ On-site water retention, detention, and filtration. ○ Capture 100% of on-site rainfall for the 85% rain event. ○ Greywater and rainwater reuse. ○ Low-flow water fixtures. • Energy and Environment ○ Use renewable energy sources (solar, wind, and water). ○ Optimize building orientation for solar exposure, diffused daylight, and passive ventilation. ○ High thermal performance. ○ Energy efficient appliances. ○ Pollution reduction. • Materiality ○ Locally sourced, recycled, and recyclable materials with low embodied energy. ○ High-albedo roof and paving materials to mitigate heat gain. ○ Green roof and pervious paving. • Construction/Operations and Maintenance ○ Recycle construction waste. ○ Reduce dust and mitigate other nuisances during construction. ○ Green cleaning and integrated building management. ○ Regularly monitor building systems and optimize usage. • Social ○ Provide universal access to all communities and users. ○ Avoid physical deterrents. ○ Provide spaces for socialization. ○ Promote public engagement with areas for large gatherings.
Common Elements	
Common elements are driven by cadence, either required at all project sites or at set intervals along the LA River Trail.	Where feasible, all projects must provide: • Benches and seating • Bike racks • Litter and recycling receptacles • Drinking fountains • Lighting • Emergency call boxes Use graffiti-deterrent finishes where possible.

2.5.3 Project Phasing, Construction, Operations/Maintenance Scenarios

Construction of subsequent projects, as approved subsequently by proposing agencies, under the *2020 LA River Master Plan* would occur over a 25-year horizon period for the *2020 LA River Master Plan* through 2045 and could extend beyond it. The precise timing for later activities (i.e., subsequent proposed projects) over this timeframe is not known, as they are dependent on several factors, such as securing necessary funding, implementing party, community needs, and detailed design considerations.

The construction and operations/maintenance scenarios for the two Typical Projects (Common Elements Typical Project and Multi-Use Trails and Access Gateways Typical Project) are described below and have been developed based on assumptions made by Public Works related to construction equipment, phasing, duration, typical operations/maintenance activities, etc.

2.5.3.1 Construction Scenarios

Common Elements Typical Project

Project construction for a Common Elements Typical Project would begin as soon as 2021 and would continue for 10 months. The work would be accomplished over six phases to minimize disruption to existing operations and the community. Construction would involve up to 20 construction workers per day and may include excavators, dump trucks, backhoes, utility trucks, paving machines, loaders, and small cranes. Construction would occur Monday through Friday with 8-hour days and would comply with local noise regulations. No construction activities would occur outside of permitted hours. Project construction would involve a total area of approximately 3 acres. Due to the program nature of the proposed Project, staging areas cannot be determined at this time. However, it can be reasonably assumed that staging areas would occur on LACFCD ROW.

Construction would generally proceed in the following phases over the 10-month construction schedule:

- Phase I: Demolition
- Phase II: Site Preparation
- Phase III: Grading
- Phase IV: Building Construction
- Phase V: Paving
- Phase VI: Architectural Coating

Multi-Use Trails and Access Gateways Typical Project

Project construction would begin as soon as 2021 and would continue for 20 months. The work would be accomplished over six phases to minimize existing trail operation and the community. Construction would involve 5 to 10 construction workers per day and may include excavators, dump trucks, backhoes, motor graders, hydraulic impact hammers, forklifts, paving machines, and truck-mounted cranes. Construction would occur Monday through Friday with 8-hour days and would comply with local noise regulations. No construction activities would occur outside of permitted

hours. Project construction would involve a total area of approximately 24 acres. Based on the anticipated construction phasing, the average daily construction disturbance area would not exceed 0.5 acre per day. Due to the program nature of the proposed Project, staging areas cannot be determined at this time. However, it can be reasonably assumed that staging areas would occur on LACFCD ROW.

Construction would generally proceed in the following phases over the 20-month construction schedule:

- Phase I: Demolition
- Phase II: Site Preparation
- Phase III: Grading
- Phase IV: Building Construction
- Phase V: Paving
- Phase VI: Planting

Overall 2020 LA River Master Plan Implementation—Construction of Subsequent Projects

Subsequent projects from the six KOP categories and their multi-benefit design components would be developed in the future. The specific location (in-channel/off-channel, frame, etc.) in the study area and design details of these subsequent projects would depend on numerous factors, including proponent of subsequent projects, the implementing party, community needs, policy decisions, and availability of funding. Site-specific and project-specific design details of subsequent projects would determine their construction schedules and would ultimately be driven by the County's needs or the needs of any other jurisdictions implementing these projects under the *2020 LA River Master Plan*. Accordingly, construction schedules for subsequent projects are not yet known and would be described in future CEQA documentation.

2.5.3.2 Operations Scenarios

Common Elements Typical Project

The Common Elements Typical Project operations and maintenance could start as early as 2022. Regular maintenance is essential to preserve the upkeep of these facilities. In their implementation across the river, it is essential to consider materials that are durable, easily cleaned, and vandal-resistant, lessening long-term maintenance costs. Furthermore, it is important to regularly operate and surveil them to deter people from misappropriating their use, such as discouraging persons experiencing homelessness from lingering in them for long periods of time. The *2020 LA River Master Plan* requires the development of pavilion-specific maintenance plans and schedules that require frequent and special attention to prevent vandalism and ensure proper use of facilities. Maintenance activities for the Common Design Typical Project include trash/litter control, facilities cleaning, inspection, landscape trimming, water and irrigation system maintenance, and rodent control.

The Common Elements Typical Project would offer refuge to river users and river-adjacent communities and reflect the same aspiration of enhancing visitors' experience of the river as the

2020 LA River Master Plan at large. The *2020 LA River Master Plan* describes water, environmental, and social BMPs that should be considered when developing and operating a Common Elements Typical Project. As described in the *2020 LA River Master Plan*, pavilions include BMPs that should not result in demanding energy and water usage, result in environmental nuisances, or create inaccessible facilities and amenities. Pavilions can serve as an example of varying best practices and help propel the LA River into a future of access, equity, and resiliency. Regular operation of a Common Elements Typical Project would include up to 500 visitors per day. Operation of a Common Elements Typical Project would also include 10 full-time employees per day.

Multi-Use Trails and Access Gateways Typical Project

Multi-Use Trails and Access Gateways Typical Project operations and maintenance could start as early as 2022. Due to the use of multi-use trails and access gateways, inspection of trails, shade structures, river access gateways and recreational facilities would be conducted weekly. Maintenance duties would also include operating trail facilities, clearing and maintaining trails, and responding to community inquiries. Weed control and litter control would occur weekly, and rodent control would occur as needed. Landscaping and planting activities would occur at different yearly frequencies. Tree trimming would occur every 2 to 3 years, shrubbery/vine trimming would occur every year, ground cover trimming would occur twice a year, and ornamental grass trimming would occur once a year. Maintenance machinery that would be used include 4x4 trucks, excavators, hand-held machinery, and potentially dump trucks.

Operation of a Multi-Use Trails and Access Gateways Typical Project would attract a variety of users, including pedestrians, bicyclists, and equestrians. A Multi-Use Trails and Access Gateways Typical Project could expect up to 1,000 users per day and would have 3 full-time employees per day.

Overall 2020 LA River Master Plan Implementation—Operation and Maintenance of Subsequent Projects

Similar to the discussion for the construction scenarios of subsequent proposed projects under the *2020 LA River Master Plan*, operations and maintenance scenarios for these projects would be described in future CEQA documentation once details related to design, location, and operations of these projects are determined.