



Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

Draft Environmental Impact Report | April 2019



Prepared for:

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Acronyms and Abbreviations

°C	degree Centigrade
°F	degrees Fahrenheit
µg/m ³	microgram per cubic meter
µPa	microPascals
AA	Assessment Area
AB	Assembly Bill
Accord	Seven Oaks Accord
ACS	American Community Survey
AF	acre-feet
AFY	acre-feet per year
Alliance	Upper Santa Ana River Sustainable Resources Alliance
AMP	Archaeological Monitoring Plan
AMSL	above mean sea level
AP-42	AP-42 Compilation of Air Pollutant Emission Factors
APE	Area of Potential Effects
AQMP	Air Quality Management Plan
ATP	Archaeological Treatment Plan
ATV	all-terrain vehicle
BAMPP	Bat Avoidance, Monitoring, and Protection Plan
Basin	South Coast Air Basin
Basin Plan	Water Quality Control Plan for the Santa Ana River Basin
BAU	business-as-usual
BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practice
BTAC	Basin Technical Advisory Committee
CAA	Clean Air Act
CAAQS	California ambient air quality standards
CAL FIRE	California Department of Forestry and Fire Protection
Cal/OSHA	California Division of Occupational Safety and Health
CalEEMod	California Emissions Estimator Model
Caltrans	California Department of Transportation
CAP	Climate Action Plan
CAPTAC	Comprehensive Agricultural Preserve Technical Advisory Committee
CARB	California Air Resources Board
CCAA	California Clean Air Act

CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CEC	California Energy Commission
CEQA	California Environmental Quality Act
CESA	California Endangered Species Act
CFGF	California Fish and Game Code
CFR	Code of Federal Regulations
cfs	cubic feet per second
CH ₄	methane
CNDDB	California Natural Diversity Database
CNEL	Community Noise Equivalent Level
CNPS	California Native Plant Society
CO	carbon monoxide
CO ₂	carbon dioxide
CO ₂ e	carbon dioxide equivalent
Construction General Permit	General NPDES Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities
CPUC	California Public Utilities Commission
CRAM	California Rapid Assessment Method
CRHR	California Register of Historical Resources
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DPM	diesel particulate matter
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EIC	Eastern Information Center
EIR	Environmental Impact Report
EMFAC2017	Emission Factors 2017
EO	Executive Order
EOP	Emergency Operations Plan
EPA	U.S. Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
ESA	Environmentally Sensitive Area
FEMA	Federal Emergency Management Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act

FIRM	Flood Insurance Rate Map
FMMP	Farmland Mapping and Monitoring Program
FPPA	Farmland Protection Policy Act
FRPP	Farm and Ranch Lands Protection Program
g	gravitational acceleration
GDE	groundwater-dependent ecosystem
GHG	greenhouse gas
GIS	geographic information system
GPS	global positioning system
HazMat	Hazardous Materials
HCP	Habitat Conservation Plan
HMBP	hazardous materials business plan
HOME	Home Investment Partnership Act
HUD	U.S. Department of Housing and Urban Development
Hz	Hertz
in/sec	inches per second
IPCC	Intergovernmental Panel on Climate Change
IRWMP	Integrated Regional Water Management Plan
IS	Initial Study
ITP	incidental take permit
IWMP	integrated weed management plan
JCSD	Jurupa Community Service District
Judgment	Stipulated Judgment in the case of Orange County Water District v. City of Chino, et al., Case No. 117628-County of Orange
kHz	kilohertz
LCFS	Low Carbon Fuel Standard
L _{dn}	day-night sound level
LDV Rule	Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards Rule
L _{eq}	equivalent sound level
L _{max}	maximum sound level
L _{min}	minimum sound level
LST	localized significance threshold
L _v	vibration velocity level
MBTA	Migratory Bird Treaty Act
mg/L	milligrams per liter
MRZ	mineral resource zone
MS4	Municipal Separate Storm Sewer System

MT	metric ton
N ₂ O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAHC	Native American Heritage Commission
NCCP	Natural Communities Conservation Planning
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NMFS	National Marine Fisheries Service
NNL	National Natural Landmarks
NO	nitric oxide
NOP	Notice of Preparation
NO _x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O&M	operation and maintenance
OES	Office of Emergency Services
OHWM	Ordinary High Water Mark
OPR	State Office of Planning and Research
OSHA	Occupational Health and Safety Administration
PCE	tetrachloroethene
PM ₁₀	particulate matter 10 microns or less in diameter
PM _{2.5}	particulate matter 2.5 microns or less in diameter
PMP	Paleontological Monitoring Plan
POL	Path of Life
Porter-Cologne Act	Porter-Cologne Water Quality Control Act
ppm	part per million
PPV	peak particle velocity
PQP	Public/Quasi-Public
PRC	Public Resources Code
proposed project	Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program
RCFD	Riverside County Fire Department
RCRA	Resources Conservation and Recovery Act
rms	root-mean-square
ROG	reactive organic gas
RPS	Renewables Portfolio Standard

RPU	City of Riverside Public Utilities
RRG-CAP	Riverside Restorative Growthprint Climate Action Plan
RTP/SCS	Regional Transportation Plan/Sustainable Communities Strategy
RWQCB	Regional Water Quality Control Board
RWQCP	Riverside Water Quality Control Plant
SARCCUP	Santa Ana River Conservation & Conjunctive Use Program
SB	Senate Bill
SBBA	San Bernardino Basin Area
SBVRUWMP	San Bernardino Valley Regional Urban Water Management Plan
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SGMA	Sustainable Groundwater Management Act
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SKR	Stephens' kangaroo rat
SLF	Sacred Lands File
SO ₂	sulfur dioxide
SRA	Source Receptor Area
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TAC	toxic air contaminant
Tanner Act	Toxic Air Contaminant Identification and Control Act
TBRA	tenant-based rental assistance
TCE	trichloroethene
TCRs	Tribal Cultural Resources
TDS	total dissolved solids
Upper SAR HCP	Upper Santa Ana River Habitat Conservation Plan
US DOT	U.S. Department of Transportation
USACE	U.S. Army Corps of Engineers
USARW	Upper Santa Ana River Watershed
USC	United States Code
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UWMP	Urban Water Management Plan
VA	U.S. Department of Veterans Affairs

Valley District	San Bernardino Valley Municipal Water District
VOC	volatile organic compound
WDR	waste discharge requirement
WEAP	Worker Environmental Awareness Program
Western	Western Municipal Water District of Riverside County
Western Judgment	Western-San Bernardino Judgment
WRCMSHCP	Western Riverside County Multiple Species Habitat Conservation Plan

Executive Summary

ES.1 Introduction

Pursuant to the California Environmental Quality Act (CEQA), San Bernardino Valley Municipal Water District (Valley District), as the lead agency, is proposing to construct and maintain four tributary restoration sites and create a Mitigation Reserve Program along the Upper Santa Ana River in the cities of Riverside and Jurupa Valley and in Riverside County. The four project sites are Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek. The proposed project would re-establish, enhance, rehabilitate, and/or preserve jurisdictional aquatic resource habitat and/or improve conditions for Santa Ana sucker. This would be accomplished by improving conditions in existing channels, excavating new channels, restoring associated floodplain surfaces and habitats, controlling nonnative invasive species, supporting the existing local community environmental education and recreational opportunities at each of the sites, and establishing a Mitigation Reserve Program that would provide opportunities for additional restoration activities on each of the sites.

This Draft Environmental Impact Report (EIR) evaluates the potential environmental impacts associated with the construction and operation of two components that would be implemented by Valley District: the Upper Santa Ana River Tributaries Restoration Project, including four tributary restoration sites referred to as Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek; and creation of a Mitigation Reserve Program. This Draft EIR is intended to serve as an informational document for the public agency decision-makers and the public regarding the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program that compose the proposed project.

ES.2 Background

The proposed project would be located within three jurisdictions: the city of Riverside, the city of Jurupa Valley, and unincorporated areas of Riverside County. The proposed project is an early effort to implement conservation measures of the Upper Santa Ana River Habitat Conservation Plan (HCP). The four restoration sites would be designed to mitigate impacts on endangered and/or threatened species and jurisdictional aquatic resources identified by the Upper Santa Ana River HCP.

The Tributaries Restoration Project and Mitigation Reserve Program Phase I component of the proposed project is a primary component of the Santa Ana River Conservation & Conjunctive Use Program (SARCCUP) Phase 1, funded by a Proposition 84 Grant. SARCCUP is a multi-agency, watershed-wide collaborative program designed to improve the Santa Ana River watershed's water supply resiliency and reliability by implementing various watershed-wide projects for development of additional dry-year yield, reduction of water use, and habitat improvement for sustainable native species population. As a watershed-wide cooperative venture, SARCCUP will allow the regional water managers to combine groundwater resources and water conveyance infrastructure for the benefit of the watershed as a whole.

Valley District developed preliminary restoration designs for five sites in support of a Proposition 84 grant application for the proposed project. Valley District evaluated the selection of five sites that were chosen through preliminary work performed by staff with the Riverside-Corona Resource Conservation District, who are directly familiar with the site's existing conditions and enhancement opportunities, and discussions amongst the Riverside-Corona Resource Conservation District, Valley District, California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service (USFWS). Each site had key attributes that made it a strong candidate for enhancement and providing new Santa Ana sucker habitat, including large tracts of undeveloped land and tributaries with direct connections to the mainstem Santa Ana River. The tributaries will provide opportunities for sucker migration from the mainstem river into new creek habitat where there is refugia and hydrology independent of mainstem river flows. The result was an initial description of site characteristics as well as preliminary designs and cost estimates for features that would restore, enhance, and/or establish Santa Ana sucker habitat. For more details refer to the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* included in **Appendix A** of this Draft EIR.

ES.3 Project Location and Area

The proposed study areas for the Anza Creek and Hidden Valley Creek sites are within the jurisdiction of the cities of Riverside and Jurupa Valley and the County of Riverside (**Figure ES-1**). The Old Ranch Creek study area is within the cities of Riverside and Jurupa Valley. The Lower Hole Creek study area is within the city of Riverside.

The proposed Anza Creek and Old Ranch Creek sites occupy the same overall area on the Santa Ana River's south floodplain about 2 miles downstream of Mount Rubidoux. The Old Ranch Creek site is generally located in the eastern half of the site while the Anza Creek site occupies the western half of the site. Riverside County owns the majority of the sites' land, while some land along the eastern boundary adjacent to the closed Tequesquite landfill is owned by the City of Riverside. Access is available via public right-of-way.

The proposed Lower Hole Creek restoration site is to the west of Van Buren Boulevard and the closed Pedley landfill, south of the Santa Ana River, and north and east of the single-family housing developments located along Lower Hole Creek. The proposed Lower Hole Creek site begins downstream of Jurupa Avenue where the stream passes under the road through a large, newly installed 40-foot concrete box culvert. Lower Hole Creek meets the Santa Ana River at the downstream end. Most of the site is owned by CDFW but the upper 260 feet of the Lower Hole Creek channel and floodplain is owned by the City of Riverside. Additional privately held parcels are located in the southeastern corner of the site and elevated high above the creek. Access is available via public right-of-way.

The proposed Hidden Valley Creek site is on the inside of a meander bend on the south side of the Santa Ana River about 0.75 mile downstream of the Van Buren Boulevard Bridge and the City of Riverside's Regional Water Quality Control Plant. Nearly all of the land at the site is owned by the State of California (CDFW) and has a long history of management for conservation purposes. The State-owned land is managed by Riverside County Parks and Open Space District. Access is available via public right-of-way.

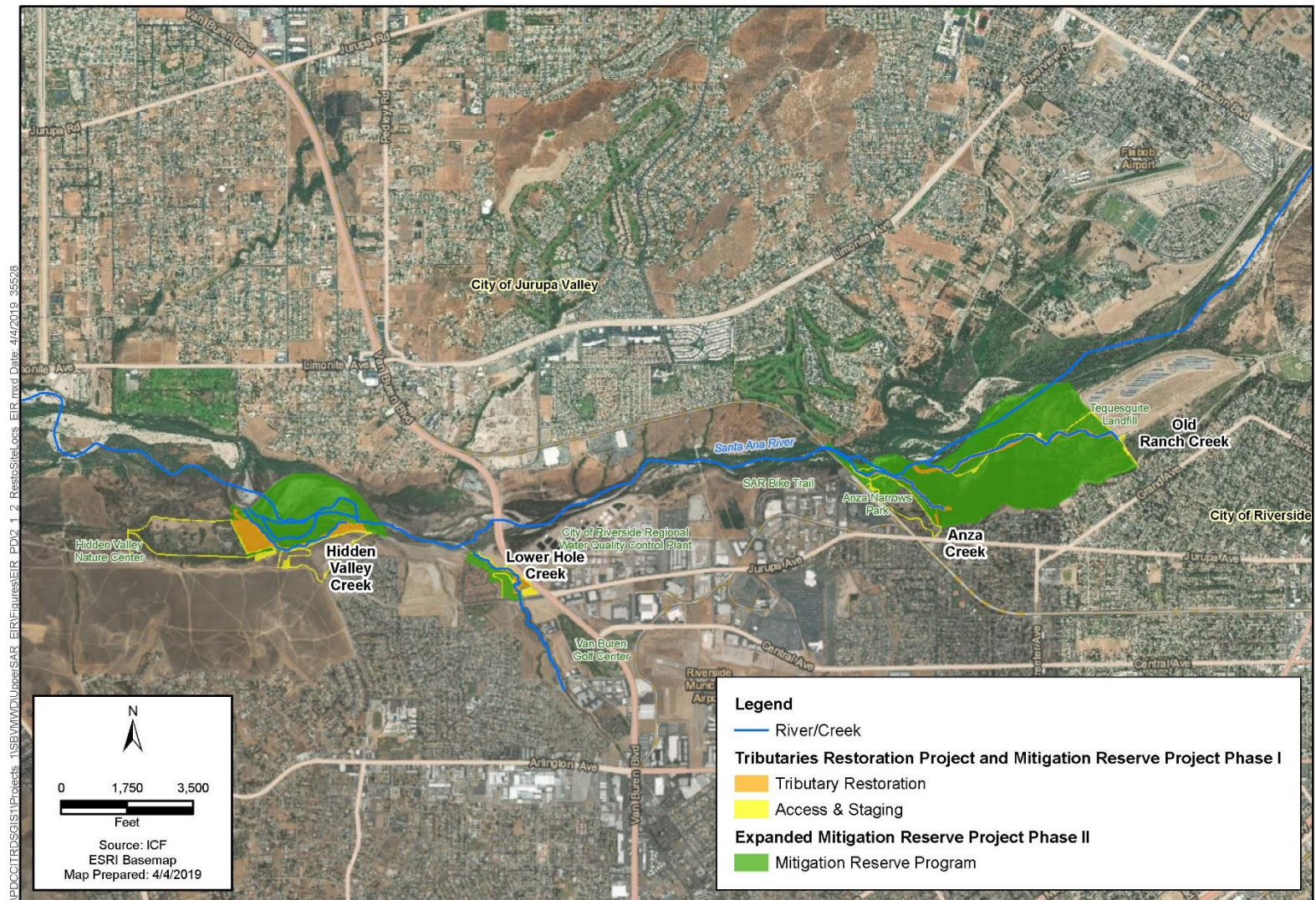


Figure ES-1. Project Location

Table ES-1 shows the project area by local jurisdiction and by project site and project component.

Table ES-1. Project Area by Local Jurisdiction and Proposed Project Component

Project Site	City of Riverside (acreage)	City of Jurupa Valley Area (acreage)	Riverside County Area (acreage)	Total (acreage)
Tributaries Restoration Project and Mitigation Reserve Program Phase I				
Old Ranch	18.8	0.0		18.8
Anza Creek	9.2	-	0.7	9.9
Lower Hole Creek	8.2	-		8.2
Hidden Valley Creek	1.2	-	29.2	30.5
Total	37.3	0.0	29.9	67.3
Expanded Mitigation Reserve Program Phase II				
Old Ranch	144.2	44.9		189.1
Anza Creek	94.4	7.4	4.3	106.1
Lower Hole Creek	11.6			11.6
Hidden Valley Creek	2.8	21.2	80.9	104.8
Total	252.9	73.5	85.2	411.6

ES.4 Project Objectives

The primary objectives of the proposed project are to:

- Create new or improved aquatic habitat for native aquatic species—the federally listed as threatened Santa Ana sucker (*Catostomus santaanae*) and the state species of special concern Arroyo chub (*Gila orcutti*)—in order to improve current status and security of the populations.
- Improve long-term hydrologic function to create and enhance sustaining native fish habitat through activities such as:
 - (1) creating functional spawning and refugia habitat within tributaries hydrologically connected to the mainstem Santa Ana River,
 - (2) preventing backwater habitat from developing within or at the mouth of the tributaries in order to reduce the habitat suitability for nonnative predator fishes,
 - (3) creating hydrologic conditions that promote the availability of appropriate substrate for successful spawning and feeding,
 - (4) creating tributaries with a reliable source of clean water, and
 - (5) restoring the hydrologic connection with historic floodplains to provide additional areas to where overbank flows can spread into riparian zones,

such that the project will enhance and/or create new habitat that results in resource conservation and benefits for other threatened and/or endangered species.

- Promote responsible access and use of public recreation in designated locations along the Upper Santa Ana River.
- Educate the public on responsible use and value of the natural resources on site.
- Maintain ecological value of restored sites for long-term vitality of the sites and secure funding for long-term maintenance.
- Create a Mitigation Reserve Program to create an ecologically functional, self-sustaining mosaic of aquatic and riparian habitats that are resilient to a range of natural disturbances (drought, flood, fire, etc.).
- Provide compensatory mitigation in the form of a Mitigation Reserve Program for future unavoidable adverse impacts on wetlands, waters of the United States and state, riparian habitat, and special-status species that result from activities authorized under Sections 401 and 404 of the Clean Water Act, California's Porter-Cologne Act, Section 1602 of the California Fish and Game Code, the California Endangered Species Act (CESA), and the federal Endangered Species Act (ESA).

ES.5 Project Description

Valley District is proposing to construct and maintain four tributary restoration sites within the cities of Riverside and Jurupa Valley and the County of Riverside. Valley District proposes two components of the proposed project: the Tributaries Restoration Project and the Mitigation Reserve Program. The Tributaries Restoration Project and Mitigation Reserve Program Phase I component of the proposed project totals 67.3 acres while the Expanded Mitigation Reserve Program Phase II component of the proposed project totals 411.6 acres.

ES.5.1 Project Components

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The proposed project restoration sites would be designed to increase the amount and quality of habitat for the Santa Ana sucker and other native species and enhance jurisdictional aquatic resources. The common design features for all of the restoration sites include enhancement/recreation of the existing channel, floodplain creation areas, wood and rock habitat structure design, nonnative vegetation removal, public education, and limiting human disturbance of restored habitat. A more detailed description of the restoration activities and the specific locations can be found in Chapter 2, *Project Description*.

Enhancement/Recreation of the Existing Channel

Portions of the Old Ranch Creek and Hidden Valley Creek restoration sites do not currently have an existing channel, or have a poorly defined channel, and thus would require new channel construction. Each new channel would have a morphology that is sustainable with the controlling physical processes and that meets Santa Ana sucker habitat requirements. In general, the enhanced or newly constructed channels would create conditions necessary for Santa Ana sucker sustainability, such as diversity in flow depths and velocities, diversity in substrate size without excessive fine sediment accumulation, intermittent areas of shading and cover provided by

vegetation on overhanging banks, and open canopy with appropriate substrate to promote algal growth and sucker feeding. A coarse channel liner composed of a sorted mixture of cobble, gravel, and fine sediment would be constructed under the bed of the new channel in specified reaches to limit water infiltration into the sandy and silty soils at the site, thereby limiting channel flow loss and maintaining flow depths and velocities in the new channel. The new channels would include sections constructed with pool and riffle morphology to create the topographic and hydraulic diversity necessary to sustain different habitats. Gravel would be added to new riffle sections and other areas that would have sufficient flow velocities to maintain suitable coarse substrate for Santa Ana sucker habitat. Many habitat features included in the stream design have been developed based on reference reaches currently occupied by Santa Ana sucker with similar influencing variables such as channel morphology, gradient, water supply, and riparian cover. This includes reference reach work that was performed for this project on the East Fork San Gabriel River and Haines Creek, a tributary to the Big Tujunga River with a similar urban, low-gradient setting as the tributary restoration sites.

Floodplain Creation Areas

The proposed project would include floodplain construction in channel reaches where the channel is incised and the banks are tall, oversteepened, and unstable. Construction of new floodplains would allow flood water that is currently confined to spill out of the channel, thereby reducing the flow's energy and reducing the potential for future channel incision and bank erosion. Floodplain construction would also create the hydrologic conditions necessary to support certain native riparian species that cannot exist in upland environments. The new floodplain would be constructed by excavating the ground adjacent to the channel to lower the elevation of the top of the channel's bank and increase the frequency with which flood water would be able to spill out of the channel and overbank onto the new floodplain.

Wood and Rock Habitat Structure Design

All of the restoration site designs include construction of wood and rock structures to add immediate habitat to the enhancement sites. Several structures have been designed specifically for the restoration project, and would be appropriately sized for the small channels in which they would be constructed. The objective of the wood and rock structures is to create a flow obstruction that would alter hydraulics in a manner necessary to keep sand from accumulating on the gravel substrate in the vicinity of the structure. The structures would also provide deeper pools and overhang for cover for Santa Ana suckers.

One instream woody material structure would be constructed for approximately every 200 feet of channel to aid in diversifying hydraulic conditions that would create and sustain habitat complexity at each of the restoration sites.

Nonnative Vegetation Removal

A goal of the proposed project is to create new riparian areas composed of native vegetation, as identified previously. However, currently some of the nonnative vegetation provides beneficial shade to aquatic life in the creeks and to terrestrial species, and it may be important to preserve some nonnative plants that are identified as important sources of existing shade or roosting habitat, or that are providing bank stability until newly planted vegetation becomes established. Future design work will include a detailed tree survey of native and nonnative trees. The results of the

survey will be discussed with CDFW and USFWS to develop a plan and schedule for nonnative tree removal. Some of the tall nonnative trees that may provide roosting habitat, such as the nonnative palms, may be treated with herbicide to kill the tree but leave the roosting habitat intact.

Public Education

The proposed project would include improvements for public education and outreach that would either enhance, or be developed in partnership with, the existing educational programs such as the City of Riverside Parks and Recreation Department and the Riverside County Parks staff at the Hidden Valley Nature Center. Community education opportunities proposed at all project sites include interpretive trails and signage promoting natural resource protection and native species conservation.

The Lower Hole Creek site currently supports a short trail along the eastern side that offers an opportunity to create a short trail with educational signage along the path and perhaps a picnic area near an existing grove of mature trees. However, the site is not currently used by the general public and safety issues associated with the homeless encampments are a high concern. If safety can be improved, Lower Hole Creek could be used for community outreach, with outdoor activities and seating, due to its easy accessibility to both the stream channel and adjacent floodplain native communities.

Martha McLean-Anza Narrows Park is directly adjacent to the Anza Creek site. Restoration of the Anza Creek site presents an opportunity to improve public access to the Anza Creek site from the adjacent park to reduce damage to vegetation and the channel integrity. Implementation of improvements at Martha McLean-Anza Narrows Park would occur in cooperation with the City of Riverside Parks and Recreation Department to facilitate safer public access while educating the public about responsible recreational use of the river. The goal of the improvements would be to enhance safe site access for recreational purposes and promote the protection of ecological resources.

Limiting Human Disturbance of Restored Habitat

The tributary restoration sites are highly disturbed, with trash dumping, frequent unauthorized human trails, and semi-permanent transient encampments. Measures would be implemented for successful management of the restored habitat to prevent or minimize habitat degradation by controlling human visitation and disturbance in appropriate ways, including eliminating intensive riparian corridor usage by permanent encampments, trash dumping, and off-road vehicle use and unintended social trails that degrade vegetation and disturb wildlife, including Santa Ana sucker. Managing human access to maintain appropriate levels and areas of visitation would require public education and collaboration with partner agencies and local stakeholders. City of Riverside Public Works staff currently patrol areas along the Santa Ana River approximately twice per week; however, additional patrols would be required to keep the transient populations from rebuilding structures and creating new encampment sites that could impair restored habitats and water quality for fish species. Part of the proposed approach for long-term maintenance for restoration success is deterrence and prevention rather than continued cleanup and removal of items caused by human disturbance. Valley District proposes to fund two full-time County of Riverside Parks and Open Space District ranger positions to patrol the project sites along the tributaries and Santa Ana River plus part-time maintenance staff. The cost of patrol and maintenance of these sites would be included in the long-term endowment set up for management of the restoration sites, in perpetuity.

Regular monitoring and onsite patrol presence of uniformed County Parks officers would deter homeless individuals from building or rebuilding semi-permanent structures in the project areas once they have been removed as part of the restoration activities.

Construction Activities

As part of the project, construction would primarily involve removing vegetation and altering existing ground elevations within the restoration sites to establish the proposed habitat distribution. Construction equipment would be brought to the restoration sites via existing access roads. Large equipment would be transported during off-peak traffic to minimize traffic congestion. Construction of the restoration sites would involve the use of a variety of heavy construction equipment on site. The majority of the equipment and vehicles would be associated with the intensive earthwork. Large construction equipment including backhoes, compactors, excavators, haul trucks, and rollers would be used during the construction phase of the proposed project. Following completion of construction activities, equipment would be demobilized and removed from the sites via the same route. To the extent practicable, temporary impact areas would be situated within disturbed areas such as access/maintenance roads and nearby trails. Temporary construction areas would also have controlled access to maintain public safety during construction. Staging areas, access routes, and other temporarily disturbed areas located within sensitive vegetation areas would be decompacted, revegetated, and restored to preconstruction conditions or as specified in the approved site plans and related construction documents. **Figure ES-2** shows the proposed temporary and permanent construction impacts areas and the staging and access areas for the Tributaries Restoration Project and Mitigation Reserve Program Phase I.

Long-Term Maintenance

Disturbed areas would be planted as appropriate to facilitate habitat establishment and recovery, and monitoring would occur to ensure success and inform adaptive management actions. The restoration sites would be monitored for physical characteristics, plant establishment, and sensitive species use after completion of construction. Short-term restoration monitoring (post-construction) would occur immediately following construction for a period of 5 to 10 years, to ensure that the habitat meets defined success criteria consistent with regulatory agency permitting requirements. A detailed monitoring program would be developed during the final design and permitting phase of the project and would identify the specific performance criteria that include adaptive management and that would be implemented for several years post-project to determine the level of success of the project. Post-construction monitoring of the restoration sites would be designed to document achievement of project goals and objectives, including success of revegetation efforts and functional stream hydrology, and use of the site by sensitive species. Post-construction monitoring would also be conducted through park ranger patrol of the project sites and other areas along the Santa Ana River to deter unauthorized human disturbances, including garbage disposal and homeless encampments, from disturbing and destroying restoration sites and to promote responsible public access. Furthermore, these restoration projects are meant to complement and provide benefit to a larger regional strategy to improve the long-term quality and function of riparian and riverine areas along the Santa Ana River. Therefore, in order to ensure the permanent benefits to the river and its native species are maintained, a non-wasting endowment would be established to ensure adequate funds for continued monitoring and maintenance of the sites in perpetuity.



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Mitigation Reserve Program Phases I and II

The Mitigation Reserve Program Phases I and II would result in the development of a combined mitigation/ conservation bank and an advance Permittee-responsible mitigation credit program, as shown on **Figure ES-3**. Anza Creek and Old Ranch Creek would be entitled as two separate sites under a single mitigation/conservation bank, while Lower Hole Creek and Hidden Valley Creek would be a stand-alone advance Permittee-responsible mitigation credit program overseen by CDFW. The latter two project sites would not be part of the formal mitigation/conservation bank because they are primarily located on land owned by CDFW, which does not allow for a mitigation/conservation bank on its lands. Valley District, or its designated representative, would be the mitigation/conservation bank sponsor and would be responsible for installing, maintaining, and monitoring the mitigation/ conservation bank sites at Anza Creek and Old Ranch Creek. Valley District or its designee would be the mitigation/conservation bank owners. In addition to the mitigation/conservation bank sponsor, a long-term habitat manager would be responsible for managing the sites in perpetuity and an endowment holder would be responsible for distributing funds associated with long-term management. Upon mitigation/conservation bank closure, the mitigation/conservation bank is proposed to be managed in perpetuity by Valley District or its designated representative. Valley District would be the advance Permittee-responsible mitigation credit program sponsor and would be responsible for installing, maintaining, and monitoring the advance mitigation credit program projects at Lower Hole Creek and Hidden Valley Creek. U.S. Army Corps of Engineers (USACE), CDFW, USFWS, Regional Water Quality Control Board (RWQCB), and possibly the U.S. Environmental Protection Agency would be signatories to the mitigation/conservation bank, while CDFW would be the signatory for the advance Permittee-responsible mitigation credit program, with the potential involvement of the other resource agencies.

An advance Permittee-responsible mitigation credit project would be a form of Permittee-responsible compensatory mitigation constructed in advance of a permitted impact on waters of the state and possibly the United States. Even if compensatory mitigation activities are themselves authorized by a permit, establishing compensatory mitigation in advance of the impacts does not create any presumption or guarantee that a proposed future impact will be authorized, or that the advance compensatory mitigation will be considered adequate and/or suitable mitigation for any specific future project. Mitigation values may be generated on an “advance mitigation” basis by establishing an advance mitigation site designed to compensate for future expected impacts. Alternatively, advance mitigation can also be combined with concurrent mitigation required by a federal, state, or local permit, where the concurrent mitigation site provides additional area beyond the immediate mitigation requirements, and/or the site provides additional functions in excess of what is required for the permitted impact.

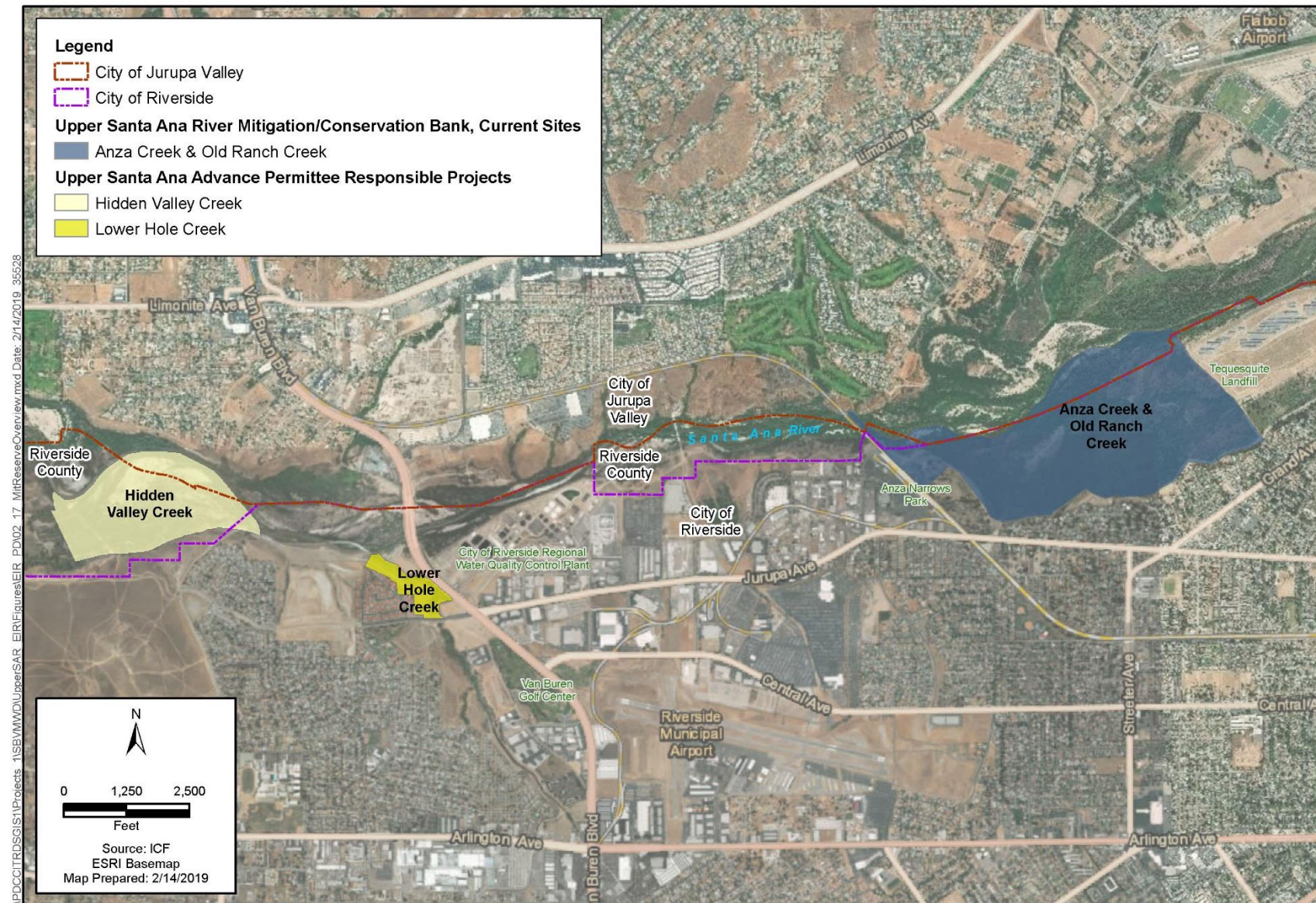


Figure ES-3. Mitigation Reserve Program Phases I and II

Valley District is anticipating the need for (1) compensatory aquatic resource mitigation to ensure that its water management activities are in compliance with environmental regulations that protect aquatic resources, and (2) endangered species habitat restoration to help implement future water projects being developed. The proposed Mitigation Reserve Program sites would provide sites for mitigation credits to be obtained for waters of the United States and state, as well as credits for species covered or that may be covered by the California Endangered Species Act and federal Endangered Species Act, including Santa Ana sucker, arroyo chub, western pond turtle (*Actinemys pallida*), two-striped garter snake (*Thamnophis hammondi*), least Bell's vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-breasted chat (*Icteria virens*), California gnatcatcher (*Polioptila californica californica*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and Santa Ana River woolly-star (*Eriastrum densifolium*). Water management activities may also result in impacts on aquatic resources under the jurisdiction of USACE, RWQCB, and CDFW. Establishing the Mitigation Reserve Program would allow mitigation to be implemented prior to impacts, thus reducing temporal loss and aggregating mitigation into one larger area, thereby increasing the overall functions and services of the mitigation.

The Mitigation Reserve Program would have two phases. Phase I is the Tributaries Restoration Project described above. Phase II is the second component of the proposed project and includes development of an Expanded Mitigation Reserve Program described further below.

Expanded Mitigation Reserve Program Phase II

In addition to the various Tributaries Restoration Project and Mitigation Reserve Program Phase I components proposed for the four project sites as described above, other restoration activities have been considered for each site for inclusion in the Expanded Mitigation Reserve Program Phase II. These additional restoration opportunities were identified in the *Opportunities and Constraints for Tributary Restoration Sites Report* included in **Appendix B**. The scope of the Expanded Mitigation Reserve Program Phase II activities to be undertaken by Valley District may expand, depending on such factors as future assessments of habitat improvement needs and the availability of additional funding. Such potential expansions of activity could consist of more intense habitat restoration activities on the project sites evaluated in this EIR. It is not possible at this time to specifically identify where or when potential expansions of activity may occur; as such, expansions would depend on actions that may be taken in the future by other agencies, such as funding decisions by resource agencies. A more detailed description of the proposed Expanded Mitigation Reserve Program Phase II activities can be found in Chapter 2, *Project Description*.

Long-Term Management Plan

Management of the Mitigation Reserve Program is essential to ensure a mitigation program continues to provide high-quality habitat, and is key to the success of a mitigation or conservation bank. The purpose of the long-term management plan is to ensure the Mitigation Reserve Program property is managed, monitored, and maintained in perpetuity for its natural resource values. The long-term management plan establishes objectives, priorities, tasks, and reporting requirements. Management actions are tailored to achieve desired outcomes for the covered species and habitat, and must be designed to adapt to changing environmental factors (adaptive management).

The Mitigation Reserve Program sites would be protected through recordation of a real estate instrument such as a conservation easement, deed restriction, or restrictive covenant that would be

placed on the property title and obligate the Mitigation Reserve Program sponsor or its successor to maintain the sites as natural open space in perpetuity. The protection mechanism would ensure that the Mitigation Reserve Program sites are protected for the primary purpose of maintaining natural aquatic resource functions and services. The Mitigation Reserve Program sponsor would fund the long-term management and monitoring of the Mitigation Reserve Program sites by establishing a financial instrument such as a non-wasting endowment or other approved mechanism for the purposes of fulfilling the long-term responsibilities described in the long-term management plan.

ES.6 Summary of Impacts

Table ES-1 presents a summary of the impacts and mitigation measures identified for the proposed project. The complete impact statements and mitigation measures are presented in Chapter 3, *Impact Analysis*. The level of significance for each impact was determined using significance criteria (thresholds) developed for each category of impacts; these criteria are presented in the appropriate sections of Chapter 3. Significant impacts are those adverse environmental impacts that meet or exceed the significance thresholds; less-than-significant impacts would not exceed the thresholds.

Table ES-1 indicates the measures that will avoid, minimize, or otherwise reduce significant impacts to a less-than-significant level. As stated in Chapter 1, *Introduction*, this Draft EIR evaluates the impacts related to implementing the Tributaries Restoration Project and Mitigation Reserve Program Phase I at a project-specific level and evaluates the Expanded Mitigation Reserve Program Phase II component of the proposed project at a programmatic level given the additional restoration opportunities at each of the sites have not been fully developed at the construction level of detail. The analysis in Chapter 3 separates the two distinct project components and provides conclusion statements and mitigation, as applicable, for each project component. However, for Table ES-1, the impact summary includes the worst-case level of impact and specific project impacts have been noted accordingly.

Table ES-2. Summary of Impacts and Mitigation Measures

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
Agricultural Resources			
Impact AG-1: Conversion of Important Farmland to nonagricultural use. Existing land uses associated with the project sites would remain unchanged and there is no current or planned agricultural production. The proposed project would not result in conversion of existing agricultural land to non-agricultural land or convert existing Farmland of Local Importance, and impacts would be less than significant.	Less than significant	No mitigation necessary	Less than significant
Air Quality			
Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan. The project would comply with all applicable regulatory standards (e.g., South Coast Air Quality Management District [SCAQMD] Rule 403, Fugitive Dust) as required by SCAQMD. The project would not result in significant air quality impacts, and no mitigation measures are required to reduce emissions. As such, the project meets the Air Quality Management Plan consistency criterion. As the proposed project would be consistent with applicable SCAQMD and Southern California Association of Governments policies, impacts would be less than significant.	Less than significant	No mitigation necessary	Less than significant
Impact AQ-2: Violate any air quality standard or substantially contribute to an existing or projected air quality violation. Construction activities would not result in regional or localized emissions exceeding SCAQMD thresholds. Short-term, long-term, and in perpetuity maintenance activities would not result in regional or localized emissions exceeding SCAQMD thresholds. Therefore, the project would not contribute a	Less than significant	No mitigation necessary	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
significant level of air pollution such that regional or local air quality would be degraded, and the impact would be less than significant.			
<p>Impact AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors). Construction and maintenance activities would not result in regional emissions exceeding SCAQMD thresholds. Therefore, impacts of the project would not be cumulatively considerable, and this impact would be less than significant.</p>	Less than significant	No mitigation necessary	Less than significant
<p>Impact AQ-4: Expose sensitive receptors to substantial pollutant concentrations. Given site characteristics and limited duration of exposure, construction activities would not expose sensitive receptors to substantial diesel particulate matter concentrations or health risks in excess of SCAQMD thresholds. Maintenance activities would not introduce any new substantial stationary or mobile sources of diesel particulate matter emissions. Implementation of the project would not result in localized violations of the health-protective federal or California ambient air quality standards, and, as such, would not expose sensitive receptors to significant pollutant concentrations or health effects. This impact would be less than significant.</p>	Less than significant	No mitigation necessary	Less than significant
<p>Impact AQ-5: Generate objectionable odors affecting a substantial number of people. Construction, operational, and maintenance activities would not result in nuisance odors affecting a substantial number of people, as odor impacts would be intermittent and</p>	Less than significant	No mitigation necessary	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
temporary and would dissipate rapidly as a function of distance. This impact would be less than significant.			
Biological Resources			
<p>Impact BIO-1: Potential to have an adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.</p> <p>Impact BIO-1.1: Construction-related Direct Impacts on Special-status Species. Temporary construction and operation effects could potentially affect special-status species and/or their associated habitat, including sensitive wetland and riparian habitat. During construction, these impacts would include temporary habitat loss and degradation, fragmentation, interference with foraging/feeding behavior, interference with migration and reproduction, and direct injury or mortality. Long-term impacts are anticipated to be largely beneficial due to creation, re-establishment, and enhancement of aquatic, wetland, riparian, and upland habitats, although some habitats currently suitable for specific special-status species may be converted to other high-quality native habitat types as the habitat restoration progresses in time. Nonetheless, the species that are expected to benefit from the project are generally present and/or are expected to be present in greater density and distribution following project restoration. Direct impacts including physical injury, physiological impairment, or mortality of special-status plant or wildlife species as a result of construction and operational activities would be potentially significant. Implementation of mitigation measures BIO-1 through BIO-17 (for the Tributaries Restoration Project and Mitigation Reserve Program Phase I) and BIO-18 through</p>	Potentially significant	<p>Mitigation Measure BIO-1: Consult with Agencies Regarding ESA and CESA Permitting. The ESA provides regulatory protection for species listed as “threatened” or “endangered.” The Tributaries Restoration Project and Mitigation Reserve Program Phase I shall obtain federal and state incidental take authorization as necessary for all federally listed species identified as potentially being adversely affected from the construction, operations, and/or maintenance of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. The project shall require a permit from USACE in order to construct within waters of the United States. As required by Section 7 of the ESA, USACE analyzes the potential direct, indirect, and cumulative effects associated with the proposed project and makes determinations on each federally protected species that may be affected. We anticipate that USACE will likely initiate consultation with USFWS in order to receive a Biological Opinion and incidental take coverage for least Bell’s vireo, Santa Ana sucker, and potentially Santa Ana River woolly-star, as adverse impacts on these species may be unavoidable. Therefore, formal consultation shall occur between the federal action agency, USACE, and USFWS in order to ensure the Tributaries Restoration Project and Mitigation Reserve Program Phase I is not likely to jeopardize the continued existence of any threatened or endangered species or result in the adverse modification of critical habitat. USFWS will issue a Biological Opinion, including terms and conditions, which shall then be included as terms and conditions of the USACE permit issued to the Applicant, Valley District. These terms and conditions</p>	Less than significant

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<p>BIO-24 (for the Expanded Mitigation Reserve Program Phase II) would reduce these impacts to a less-than-significant level.</p>		<p>may include, for example, ensuring that an authorized and approved biological monitor is in place during construction and that any incidental take in excess of the authorized amount stated in the Biological Opinion is reported immediately to USFWS. The mitigation measures included in this EIR are intended to avoid and minimize harm to the species and will be included in the application to USACE and in the Biological Assessment submitted to USFWS for consultation.</p> <p>In order to receive incidental take coverage for the state-listed species for least Bell's vireo and potentially Santa Ana River woolly-star, it is anticipated that the Biological Opinion will provide the description and mitigation measures required for CDFW to issue a consistency determination, which states that the federal incidental take authorization is "consistent" with CESA under CFGC Section 2080.1. <u>Alternatively, CDFW may wish to issue a CESA Incidental Take Permit to the project.</u> Expected terms and conditions may address take avoidance, habitat restoration and conservation, construction monitoring, and project operations for federally listed species identified or expected to occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits.</p> <p>Mitigation Measure BIO-2: Conduct Pre-Construction Biological Clearance Surveys to Avoid or Minimize Direct Impacts on Special-status Terrestrial Species from Construction Activities. To avoid or minimize direct impacts on special-status species from construction activities, a qualified biologist approved by USFWS and/or CDFW shall conduct preconstruction clearance surveys at all Tributaries Restoration Project and Mitigation Reserve Program Phase I sites for special-status species prior to any ground-disturbing and/or dewatering activities. During these surveys, the biologist</p>	

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		<p>shall inspect the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites prior to earthwork or other disturbance for any special-status wildlife species listed in Table 3.3-3 and prepare a list of species observed and record their activity before and during construction. Prior to construction each day, biological construction monitors will sweep survey at a reconnaissance level all areas scheduled for construction to confirm that special-status species are not present. Any species found shall be captured and relocated to an approved location in consultation with USFWS and/or CDFW by a biologist having appropriate permits, if required, and in compliance with regulatory permits and authorizations issued.</p> <p>Mitigation Measure BIO-3: Conduct Preconstruction Nesting Bird Surveys Within 300 Feet of the Limits of Disturbance. Vegetation clearing within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance shall be completed prior to bird nesting season to the maximum extent possible. Impacts on nesting birds will be avoided through the implementation of preconstruction surveys, ongoing monitoring, and, if necessary, establishment of minimization measures. Specific avoidance and minimization measures for nesting birds methods may include specific procedures as recommended by the CDFW and detailed below.</p> <p>BIO-3.1: Designated Biologist and Survey Protocols – Valley District shall designate a biologist experienced in: identifying local and migratory bird species; conducting bird surveys using appropriate survey methodology (e.g., Ralph et al. 1993 and USFWS and/or CDFW-accepted species-specific survey protocols, available here: https://www.wildlife.ca.gov/conservation/survey-protocols); nesting surveying techniques, recognizing</p>	

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		<p>breeding and nesting behaviors, locating nests and breeding territories, and identifying nesting stages and nest success (e.g., Martin and Geupel 1993); determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures.</p> <p>BIO-3.2: Pre-construction Surveys – Surveys shall be conducted by the designated biologist at the appropriate time of day/night, during appropriate weather conditions, no more than 3 days prior to the initiation of project activities. Surveys shall encompass all suitable areas including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the property, density and complexity of the habitat, number of survey participants, and survey techniques employed; and shall be sufficient to ensure the data collected are complete and accurate. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nest locations and nesting behavior (e.g., copulation, carrying of food or nest materials, nest building, removal of fecal sacks, flushing suddenly from atypically close range, agitation, aggressive interactions, feigning injury or distraction displays, or other behaviors).</p> <p>If a nest is suspected, but not confirmed, the designated biologist shall establish a disturbance-free buffer until additional surveys can be completed, or until the location can be inferred based on observations. Surveyors shall not risk failure of the nest to determine the exact location or status and will make every effort to limit the nest to potential predation as a result of the survey/monitoring efforts (e.g., limit number of surveyors, limit time spent at/near the nest, scan the site for potential nest</p>	

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		<p>predators before approaching, immediately depart nest area if indicators of stress or agitation are displayed).</p> <p>If a nest is observed, but thought to be inactive, the designated biologist shall monitor the nest for 1 hour (4 hours for raptors during the non-breeding season) prior to approaching the nest to determine status. The designated biologist shall use their best professional judgment regarding the monitoring period and whether approaching the nest is appropriate. Results of pre-construction surveys shall be provided to CDFW.</p> <p>BIO-3.3: Establishment of Buffers – When an active nest is confirmed, the designated biologist shall immediately establish a conservative buffer surrounding the nest based on their best professional judgment and experience. The buffer shall be delineated to ensure that its location is known by all persons working within the vicinity, but shall not be marked in such a manner that it attracts predators. Once the buffer is established, the designated biologist shall document baseline behavior, stage of reproduction, and existing site conditions, including vertical and horizontal distances from proposed work areas, visual or acoustic barriers, and existing level of disturbance. Following documentation of baseline conditions, the designated biologist may choose to make adjustments to the buffer based on site characteristics, stage of reproduction, and types of project activities proposed at/near that location. The designated biologist shall monitor the nest at the onset of project activities and at the onset of any changes in project activities (e.g., increase in number or type of equipment, change in equipment usage) to determine the efficacy of the buffer. If the designated biologist determines that project activities may be causing an</p>	

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		<p>adverse reaction, the designated biologist shall adjust the buffer accordingly.</p> <p>BIO-3.4: Deterrents – Valley District, under the direction of the designated biologist, may also take steps to discourage nesting on the project site, including moving equipment and materials daily, covering material with tarps or fabric, and securing all open pipes and construction materials. The designated biologist shall ensure that none of the materials used pose an entanglement risk to birds or other species.</p> <p>BIO 3.5: Reporting – The designated biologist shall be responsible for providing summary reports, where relevant, to CDFW no less than once weekly regarding the nesting species identified on site, discovery of any of new nests, the status/outcome of any previously identified nest, buffer distances established for each nest, and any adjustments made to established buffers. If the project results in the abandonment of, or damage to, a nest, CDFW shall be notified within 24 hours</p> <p>Mitigation Measure BIO-4: Conduct Pre-construction Surveys for Coastal California Gnatcatcher <u>within 500 Feet of the Limits of Disturbance</u>. A qualified biologist shall conduct preconstruction surveys for coastal California gnatcatcher no more than 7 days prior to the start of ground-disturbing activities if work would occur between February 15 and August 31. Surveys for coastal California gnatcatcher shall be conducted in suitable habitat within 500 feet of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance. If a breeding territory or nest is confirmed, USFWS shall be notified and, in coordination with USFWS, an exclusionary buffer shall be established around the nest. Construction activities in occupied coastal California gnatcatcher habitat shall be</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p><u>monitored</u> by a USFWS-approved qualified biologist at a frequency specified by USFWS. Unless otherwise authorized by USFWS, no proposed activities shall occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I established buffer until it is determined by the qualified biologist that the young have left the nest.</p> <p>Mitigation Measure BIO-5: Conduct Pre-construction Surveys for Least Bell's Vireo Within 500 Feet of the Limits of Disturbance. A qualified biologist shall conduct preconstruction surveys for least Bell's vireo no more than 7 days prior to the start of ground-disturbing activities if work is to occur between March 15 and August 31. Surveys for least Bell's vireo shall be conducted in suitable habitat within 500 feet of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance. If a breeding territory or nest is confirmed, USFWS <u>and</u> CDFW shall be notified and, in coordination with USFWS <u>and</u> CDFW, an exclusionary buffer shall be established around the nest. Construction activities in occupied least Bell's vireo habitat shall be monitored by <u>an</u> USFWS-approved qualified biologist at a frequency specified by USFWS <u>and</u> CDFW. Unless otherwise authorized by USFWS <u>and</u> CDFW, no proposed activities shall occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I established buffer until it is determined by the qualified biologist that the young have left the nest.</p> <p>Mitigation Measure BIO-6: Conduct Protocol Preconstruction Western Burrowing Owl Surveys Within 500 Feet of the Limits of Disturbance. Vegetation clearing within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance shall be completed during the non-nesting</p>	

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		<p>season to the extent feasible. If ground-disturbing activities or removal of any trees, shrubs, or any other suitable nesting or foraging habitat are scheduled within the western burrowing owl nesting season (February 1 to August 31), a protocol preconstruction clearance survey for western burrowing owl shall be conducted in accordance with CDFW guidelines. If potential western burrowing owl burrows are found during non-nesting season, the occupiable areas of those burrows will be examined, with a burrow scope if needed, and collapsed if not occupied. If active burrows are found during nesting season, an avoidance buffer shall be established through consultation with CDFW and in accordance with CDFW guidelines and remain around the occupied nest(s) until all young have fledged and the nest is confirmed by the qualified biologist to be no longer active. If active burrows are found outside of the nesting season, then CDFW will be consulted for avoidance and minimization methods. Specific avoidance and minimization measures for burrowing owl may include the following procedures as recommended by CDFW and detailed below.</p> <p>BIO 6.1: Habitat Assessments – Burrowing owl habitat assessments, surveys, impact assessments, and associated reports shall be completed. Methodology shall follow the recommendations and guidelines provided within the Staff Report on Burrowing Owl Mitigation (CDFW 2012).</p> <p>Prior to the initiation of project activities, a burrowing owl habitat assessment shall be conducted by a biologist knowledgeable of burrowing owl habitat, ecology, and field identification of the species and burrowing owl sign and in accordance with the Staff Report on Burrowing Owl Mitigation. The assessment shall consist of walking all areas subject to project activities and adjoining areas</p>	

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		<p>within 150 meters (approximately 500 feet). If no suitable habitat is found on site (i.e., if the site is completely covered in chaparral habitat, cement, or asphalt), no additional surveys are necessary. A report summarizing the results of the habitat assessment shall be submitted to CDFW.</p> <p>BIO 6.2: Surveys – If suitable habitat is found on site within areas subject to project activities, burrowing owl surveys shall be conducted by a qualified biologist in accordance with the Staff Report on Burrowing Owl Mitigation. As such, the Designated Biologist(s) shall conduct four survey visits: (1) at least one site visit between February 15 and April 15, and (2) a minimum of three survey visits, at least 3 weeks apart between April 15 and July 15, with at least one visit after June 15.</p> <p>BIO 6.3: CDFW Coordination – If breeding season surveys confirm occupied burrowing owl habitat in or adjoining areas subject to project activities, Valley District shall contact CDFW and conduct an impact assessment, in accordance with the Staff Report on Burrowing Owl Mitigation, prior to commencing project activities, to assist in the development of avoidance, minimization, and mitigation measures.</p> <p>Mitigation Measure BIO-7A: Conduct Preconstruction Surveys and Minimization Measures Within the Limits of Disturbance for Sensitive Mammal Species. No greater than 48 hours prior to initiation of ground disturbance, including vegetation-clearing activities, within suitable habitat, the limits of disturbance shall be surveyed for sensitive mammal species, including northwestern San Diego pocket mouse, SKR, San Diego black-tailed jackrabbit, San Diego desert woodrat, and Los Angeles pocket mouse.</p>	

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		<p>If sensitive mammal species are observed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance and do not self-relocate out of the area by the start of scheduled construction, a qualified biologist may opt to relocate the species to a suitable area out of the construction impact zone. Any capture and relocation shall occur in coordination with USFWS and/or CDFW and be implemented by a biologist having appropriate permits, if required, and in compliance with regulatory permits and authorizations issued.</p> <p>Mitigation Measure BIO-7B: Conduct Preconstruction Surveys Within the Limits of Disturbance for Sensitive Bat Species. To mitigate for potential construction-related impacts on special-status bats and maternity roosts during construction activities, the following measures shall be implemented prior to the commencement of construction activities at all Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. A combination, as required by specific site conditions, of habitat suitability assessments, acoustic surveys of habitat around construction sites, nighttime surveys, maternity colony assessments, and exit counts shall be used to survey the area that may be directly or indirectly affected by the Tributaries Restoration Project and Mitigation Reserve Program Phase I. Avoidance and minimization measures for bats may include specific procedures as recommended by CDFW and detailed below.</p> <p>BIO-7B.1: Roosting Habitat Suitability Assessment – Prior to commencement of project activities, a CDFW-approved bat biologist shall conduct a bat roosting habitat suitability assessment of the structures and trees that may be removed, altered, or indirectly affected by the proposed project activities. As bats may utilize dense</p>	

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		<p>tree canopies, snags, rock crevices, or built structures over creeks/water, these habitat types shall be surveyed. Foraging areas and specific flight routes to those foraging areas shall be documented, as well.</p> <p>If bat roosting habitat is detected during the pre-construction surveys, Valley District will implement a Bat Protection Plan. All contractors, subcontractors, and employees shall also comply with these measures and it shall be the responsibility of the Permittee to ensure compliance. Valley District shall submit to CDFW for review and approval a Bat Avoidance, Monitoring, and Protection Plan (BAMPP). The BAMPP shall include project-specific avoidance and minimization measures to ensure that impacts on bats are avoided or minimized. The BAMPP shall be created and be implemented by the CDFW-approved bat biologist. The BAMPP shall include: monitoring protocols, survey timing and duration, procedures and frequency of direct reporting to CDFW, and project-specific avoidance and minimization measures that consider, but are not necessarily limited to, project phasing and timing; installation and monitoring of exclusionary materials, where and when appropriate; monitoring of project-related noise, vibration, and lighting; and installation of buffers.</p> <p>BIO-7B.2: Nighttime Surveys – Any locations identified as suitable bat roosting habitat by the CDFW-approved bat biologist shall be subject to additional nighttime surveys during the summer months (i.e., June–August) to determine the numbers and bat species using the roost(s). The information collected during these additional surveys shall be used by the CDFW-approved bat biologist to develop species-specific measures to minimize impacts on roosting bats. The surveys shall be conducted by the CDFW-approved bat biologist using an appropriate combination of structure inspection,</p>	

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		<p>sampling, exit counts, and acoustic surveys. If bats are found using any structures or trees within the project area, the biologist shall identify the bats to the species level and evaluate the colony to determine its size and significance.</p> <p>The bat survey shall include: (1) the exact location of all roosting sites (location shall be adequately described and drawn on a map); (2) the number of bats present at the time of visit (count or estimate); (3) the names of each species of bat present (including how the species was identified); (4) the location, amount, and distribution of all bat guano described and pinpointed on a map; and (5) the type of roost, i.e., a night roost (resting at night while out feeding) versus a day roost (resting during the day), clearly stated. The results of the pre-construction bat surveys shall be submitted to CDFW for review.</p> <p>BIO-7B.3: Maternity Colonies Avoidance and Minimization – If the presence of a maternity colony is confirmed within a structure (e.g., bridge, culvert) during the maternity season survey and activities involving combustion engines and/or night lighting is deemed necessary during the recognized bat maternity season (April 1 through August 31), avoidance and minimization measures including the designation of buffers shall be developed and submitted to CDFW for review.</p> <p>BIO-7B.4 Establishment of Buffer – If any previously undiscovered roosting bats are discovered during project activities, all work shall stop on, under, around, or within an appropriate buffer as determined by the CDFW-approved bat biologist.</p> <p>To avoid disturbance of maternity-roosting bats during project-related activities, work activities within a predetermined buffer distance of the maternity roost sites shall avoid the recognized bat maternity season</p>	

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		<p>(April 1 through August 31) unless concurrence otherwise has been received from CDFW. The buffer distance shall be determined by a CDFW-approved bat biologist and shall be based upon which bat species are found to compose the maternity colony, because different bat species are known to have different tolerance levels for certain construction activities. Project activities shall not occur at structures housing a maternity colony of bats during the recognized bat breeding season unless concurrence is received from CDFW.</p> <p>Mitigation Measure BIO-8: Conduct Preconstruction Surveys Within the Limits of Disturbance for Sensitive Terrestrial Reptile Species. Not greater than 48 hours prior to initiation of ground disturbance, the work area shall be surveyed for sensitive terrestrial reptile species, including southwestern pond turtle, California legless lizard, California glossy snake, coastal whiptail, red-diamond rattlesnake, coast horned lizard, and coast patch-nosed snake. If a sensitive reptile species is observed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance, those reptiles shall be captured and relocated to an approved location in consultation with USFWS and/or CDFW by a biologist having appropriate permits, if required, and in compliance with regulatory permits and authorizations issued.</p> <p>Mitigation Measure BIO-9: Conduct Preconstruction Surveys Within the Limits of Disturbance for Special-status Plant Species. During the appropriate blooming period up to 1 year prior to initiation of ground disturbance, the work area shall be surveyed to confirm the presence/absence of special-status plant species, including: Santa Ana woolly-star, smooth tarplant, Parry's spineflower, snake cholla, paniculate tarplant, many-stemmed dudleya, Southern California black</p>	

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		<p>walnut, Coulter's goldfield, Robinson's pepper-grass, chaparral ragwort, San Bernardino aster, as well as WRCMSHCP narrow endemic species <u>Brand's star phacelia</u>, <u>San Diego ambrosia</u>, <u>Brand's phacelia</u>, and <u>San Miguel savory</u>. Surveys shall be conducted in accordance with CNPS and CDFW rare plant survey guidelines and shall be conducted during the flowering period when each species is most readily identifiable, if necessary. A botanist shall determine the blooming period for each species and verify blooming during the growing season by visiting a reference site as necessary to observe if the target species is flowering or otherwise identifiable. A species-specific survey may be required for each special-status plant depending upon the blooming period.</p> <p>Any special-status plant populations shall be mapped. If the presence of any special-status plant species is confirmed, a copy of the survey results shall be forwarded to USFWS and CDFW. If individuals of a sensitive plant species are observed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance, then prior to ground disturbance, the individuals shall be flagged and/or mapped for avoidance. If impacts on non-listed species are unavoidable, minimization measures shall be addressed within a 5-year onsite restoration mitigation and monitoring program developed and implemented for the Tributaries Restoration Project and Mitigation Reserve Program Phase I. If impacts on listed plant species are unavoidable, USFWS and/or CDFW shall be consulted prior to proceeding with the project. The following restoration success criteria shall be required.</p> <ol style="list-style-type: none"> 1. Establishment of restoration site(s) within the Tributaries Restoration Project and Mitigation Reserve Program Phase I, where plant restoration shall occur. The restoration site shall include a 	

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		<p>restoration mitigation and monitoring program detailing: (1) a clear description of the restoration activities to be completed, including: (a) any recontouring, (b) methods for de-compacting soils, (c) a planting/seeding plan and plant/seed palette, and (d) an irrigation plan; (2) a comprehensive monitoring and maintenance plan, including: (a) a detailed monitoring and maintenance schedule, (b) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced or allowed to sustain within the restoration areas, (c) success standards (e.g., survival, native plant establishment, diversity, nonnative cover), (d) locations of permanent photo stations, and (e) adaptive management measures; (3) graphics and accompanying geographic information system (GIS) shapefiles of the restoration areas; and (4) a contingency plan (e.g., purchase of additional mitigation credits, mitigation at a different offsite location) in the event that the restoration areas do not meet success criteria.</p> <p>2. Seed collection/salvage, if feasible.</p> <p>3. A qualified botanist will identify and submit for approval an appropriate plant palette and restoration methodology compatible with the specific affected special-status species. Mitigation sites could include existing habitats in the Tributaries Restoration Project and Mitigation Reserve Program Phase I of the same vegetation community type, depending on site conditions and locations of special-status plants found.</p> <p>4. Topsoil salvage and reapplication.</p> <p>Mitigation Measure BIO-10: Designate a Qualified Biologist(s) to Ensure Compliance with Avoidance</p>	

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		<p>and Minimization Measures. A USFWS-approved qualified biologist(s) with knowledge of least Bell's vireo, coastal California gnatcatcher, Santa Ana sucker, and their habitats shall function as a biological monitor. Prior to initiating Tributaries Restoration Project and Mitigation Reserve Program Phase I activities, the name(s) and resumes of all prospective biological monitors shall be submitted to the appropriate USFWS and CDFW offices. The biological monitor shall ensure compliance with the Tributaries Restoration Project and Mitigation Reserve Program Phase I avoidance and minimization measures. The qualified biologist shall be present on site during construction within and adjacent to occupied least Bell's vireo habitat to ensure that avoidance and minimization measures are in place according to specifications, and shall monitor construction within the vicinity of the least Bell's vireo and coastal California gnatcatcher territories at a frequency necessary to ensure that avoidance and minimization measures are properly followed. The qualified biologist shall report any non-compliance within 24 hours to USFWS.</p> <p>The qualified biologist shall be familiar with other special-status species known, or having the potential to occur, at the restoration sites and shall be present during construction activities involving initial ground disturbance, dewatering, and vegetation removal. If a special-status species is observed within the limits of disturbance, the biologist shall have authority to stop work in order to prevent harm to the individual. The individual animal shall be allowed to leave the site of its own volition; however, should the biologist determine this is not possible, the individual shall be relocated outside of the Tributaries Restoration Project and</p>	

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		<p>Mitigation Reserve Program Phase I by the qualified biologist.</p> <p>Mitigation Measure BIO-11: Conduct Preconstruction Surveys for Special-Status Semi-Aquatic Species. Prior to construction activity, a qualified biologist familiar with the special-status species, including southwestern pond turtle, two-striped gartersnake, and south coast gartersnake, and approved by USFWS and/or CDFW, shall conduct a preliminary survey of the affected water body and surrounding suitable habitat, noting habitat present and any special-status semi-aquatic species. If special-status species are present, they shall be captured and relocated by a qualified biologist. A Capture and Relocation Plan shall be prepared, which shall include requirements for qualified biologists, methods for special-status semi-aquatic species capture, requirements for any information to be collected for captured special-status semi-aquatic species, procedures for temporary containment and transport of captured special-status semi-aquatic species, details for approved release locations for special-status semi-aquatic species, and periodic and final reporting requirements for all relocated special-status semi-aquatic species.</p> <p>Mitigation Measure BIO-12: Conduct Preconstruction Surveys Within the Limits of Disturbance for Special-Status Aquatic Species. Prior to construction activity, a USFWS-approved Authorized Biologist (i.e., a biologist approved by USFWS and qualified to survey for and evaluate impacts on specific listed special-status species) familiar with the special-status species, including Santa Ana sucker and arroyo chub, and approved by USFWS and CDFW, shall conduct a preliminary survey of the affected water body and surrounding suitable habitat, noting habitat present and any special-status fishes. If special-status species are present, a capture and</p>	

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		<p>relocation plan shall be implemented to safely relocate these species (see mitigation measure BIO-13). This plan shall include requirements for qualified biologists, methods for special-status aquatic species capture, requirements for any information to be collected for captured special-status aquatic species, procedures for temporary containment and transport of captured special-status aquatic species, details for approved release locations for special-status aquatic species, and periodic and final reporting requirements for all relocated special-status aquatic species.</p> <p>Mitigation Measure BIO-13: Develop a Tributaries Restoration Project and Mitigation Reserve Program Phase I-Specific Dewatering, Diversion, and Aquatic/Semi-aquatic Species Rescue Plan (Dewatering Plan). Prior to dewatering activities, a dewatering plan including site-specific measures shall be developed and submitted to USFWS and CDFW for approval. Dewatering structures may include the use of sand bag, Port-a-dams, water bladder dams, K-rails, or driven sheet metal coffer dams. USFWS and CDFW shall review the proposed water diversion method, to approve the plan or provide the requirements for that approval. Valley District shall not commence dewatering of a stream/diversion of water without explicit approval from CDFW. A qualified biologist, familiar with the special-status species, and approved by USFWS and CDFW, shall be present during implementation of the dewatering plan. The plan shall include the following standard measures for the avoidance and minimization of impacts on special-status species resulting from dewatering activities.</p> <ul style="list-style-type: none"> • Dewater aquatic habitat that shall be disturbed or removed 15 days prior to the initiation of construction activities to allow time for construction areas to dry 	

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		<p>and management of any deficiencies in the dewatering effort. If complete dewatering is not possible, potential snake prey (i.e., fish and tadpoles) shall be removed so that snakes and other wildlife are not attracted to the construction area.</p> <ul style="list-style-type: none"> • Prior to dewatering, blocking nets or other fish barriers shall be installed at the upstream and downstream extents of the reach to be dewatered to prevent aquatic species from entering. • All aquatic species shall be removed by a team of qualified biologists as the stream is dewatered. Native species shall be relocated to nearby suitable habitat downstream of the project sites. Nonnative species shall be sacrificed. • Pumps used for flow diversion shall be appropriately screened to prevent entrainment of all life stages of aquatic and semi-aquatic species. • Diversion outflow structures shall be appropriately placed and silt screens, settling ponds, and other equipment shall be used to minimize erosion, sediment deposition, and increased turbidity at the site of outflow. • Draw-down rates shall be implemented to maintain water quality, reduce crowding of fish, and prevent stranding. • Water quality shall be regularly monitored during dewatering to ensure conditions are sufficient for aquatic life. • Other measures shall be implemented to ensure minimal mortality associated with relocation or holding of captured individuals. <p>The dewatering plan shall also specify the following:</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<ul style="list-style-type: none"> The removal methods shall be implemented so as to minimize potential injury or mortality to native fish. All captured native fish shall be placed in ice chests filled with Santa Ana River water. The ice chest shall be kept shaded and aerated at all times. The water temperature in the ice chests and condition of captured native fish shall be closely monitored. Any native fish removed from the site shall be relocated in suitable habitat downstream of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. When handling native fish, the hands of all participants shall be free of sunscreen, lotion, and insect repellent. The qualified biologist shall submit a report to USFWS and CDFW identifying the number of any native fish that were relocated and other measures that were taken to minimize impacts on native fish. The report shall be submitted to USFWS and CDFW no more than 60 days following capture and relocation activities. <p>If a southwestern pond turtle nest is found, a 100-foot no-disturbance buffer zone shall be established around the nest using flagging, fencing, and/or signage as appropriate. No construction activities shall occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I established buffer until a qualified biologist has determined that the nest is not in use. If an active southwestern pond turtle nest is found, the turtle nest shall be relocated by a qualified biologist, in consultation with CDFW, and in accordance with the aquatic species rescue plan for the project. If a southwestern pond turtle is observed at any time before or during construction, it shall be left alone to move out of the area on its own or may be relocated by a qualified biologist to a suitable aquatic habitat outside of the Tributaries Restoration Project and Mitigation Reserve Program Phase I; translocation of turtles can only be</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>performed in consultation with CDFW, and by an individual possessing a valid scientific collecting permit.</p> <p>Mitigation Measure BIO-14: Develop a Nesting Bird Management Plan. Construction is likely to occur during nesting bird season. Therefore, the Tributaries Restoration Project and Mitigation Reserve Program Phase I shall develop a nesting bird management plan in consultation with USFWS and CDFW. Approval by both USFWS and CDFW are required before the plan can be implemented. The nesting bird management plan shall include measures, some of which may have been detailed above, and an adaptive management program to avoid and minimize impacts on special-status and MBTA- or CFGC-protected bird species during nesting periods. The qualified biologist shall notify USFWS and CDFW of all Tributaries Restoration Project and Mitigation Reserve Program Phase I-related bird injuries or mortalities within 48 hours of discovery and shall follow the agencies' recommended actions, if any. This plan shall include a description of all federal, state, and local nesting bird policies, biologist qualifications, roles and responsibilities, definitions of active and inactive nest, survey requirements, active nest avoidance, nest buffer reductions, guidelines for working within nest buffers, notification and documentation, inactive nest management, and periodic and final reporting requirements.</p> <p>Mitigation Measure BIO-15: Delineate Limits or Require Use of GPS-based exclusionary Technology on Construction Equipment to Prevent Encroachment of Construction Activities into Environmentally Sensitive Areas. Before the start of construction activities, including establishment of staging areas, vegetation clearing, and/or grading activities, environmentally sensitive areas shall be mapped and</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>either delineated with flagging or stakes, or the contractor shall be required to use global positioning system (GPS)-based exclusionary technology, along the limits of disturbance at each tributary restoration site to prevent access into non-Tributaries Restoration Project and Mitigation Reserve Program Phase I areas. The limits of work shall be inspected during construction by a qualified biological monitor at a frequency necessary to ensure that protective measures are intact and construction activities are not encroaching into environmentally sensitive areas. Environmentally sensitive area fencing shall be inspected daily by the authorized biologist(s) or project construction personnel working under the direction of the authorized biologist(s). The authorized biologist(s) shall personally inspect the fencing no less than once per week. Environmentally sensitive area fencing shall be maintained in good working order for the duration of project activities.</p> <p>Mitigation Measure BIO-16: Implement Best Management Practices. The contractor will implement the following Best Management Practices (BMPs) during construction activities to protect aquatic habitat and other sensitive natural communities that provide habitat for special-status species.</p> <ul style="list-style-type: none"> • Reduce the risk of wildfire ignition using spark arresters. • Limit personnel activities, vehicles, equipment, and construction materials to the designated work area. • Confine the ingress and egress of construction equipment and personnel to designated access points. Prohibit cross-country travel by vehicles and equipment. 	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • Leave no open trenches or holes overnight without covering, fencing, or providing escape ramps with a minimum 3:1 slope. If trenches are not covered, they shall be inspected for trapped wildlife by a qualified biologist or biological monitor. Animals found shall be captured and moved to the nearest safe location outside the construction area. • Develop an integrated weed management plan (IWMP) to minimize the potential introduction of new weeds and to control the spread of weeds resulting from ground disturbance. The IWMP shall be developed within the first year following issuance of the ITP and shall be reviewed and approved by the Wildlife Agencies. The IWMP shall include biologist qualifications, roles, and responsibilities; definitions of noxious weeds and invasive plants; pre-construction, construction, and operations phase weed control methods; and periodic and final reporting requirements. • Maintain adequate fire suppression capability in active construction areas including having a water tender on site in active construction areas during periods of high fire danger. A water truck or water buffalo with adequate hoses for fire control shall be maintained on the site during all habitat-clearing and construction activities during fire season. • Implement litter control measures. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness of the area to opportunistic predators. • Limit vehicle speeds to 15 miles per hour except on paved roads with posted speed limits. If work must take place at night, the speed limit shall be 10 miles per hour. 	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<ul style="list-style-type: none"> • Conduct new construction during the daylight hours to the extent feasible. • Confine the construction site disturbances to the smallest practical area, considering topography, placement of facilities, location of Covered Species habitat, public health and safety, and other limiting factors, and use previously disturbed areas to the extent possible. • Use secondary containment devices such as drip pans under stationary engines, such as compressors, generators, light plants, etc., to prevent any leakage from entering runoff or receiving waters. • Inspect all construction equipment for leaks and regularly maintain such equipment to avoid soil contamination. Leaks shall be fixed or the equipment shall be taken out of service until the leak is fixed. Smears of petroleum products shall be cleaned prior to use. • Clean up any hazardous waste or spills immediately and dispose at an offsite location that receives the required grade of hazardous waste. • Store spill kits capable of containing hazardous spills on site. <p>Mitigation Measure BIO-17: Implement a Worker Environmental Awareness Training. Prior to construction, a Worker Environmental Awareness Program (WEAP) shall be implemented for work crews by a qualified biologist(s). Training materials and briefings shall include, but not be limited to, discussion of ESA and CESA, the consequences of noncompliance with Tributaries Restoration Project and Mitigation Reserve Program Phase I permitting requirements, identification and values of special-status plant and wildlife species and sensitive natural plant community habitats, fire</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>protection measures, hazardous substance spill prevention, and containment measures.</p> <p>Mitigation Measure BIO-18: Consult with Agencies Regarding ESA and CESA Permitting Needed for Expanded Mitigation Reserve Program Phase II Restoration Activities. The Expanded Mitigation Reserve Program Phase II shall obtain federal and state incidental take authorization as necessary for all federally listed species identified as potentially being adversely affected by construction, operations, and/or maintenance within the Expanded Mitigation Reserve Program Phase II limits of disturbance. Implementation of the Upper Santa Ana Wash Plan HCP is expected to provide coverage for federally listed and/or state-listed species when it is approved. Specific Expanded Mitigation Reserve Program Phase II projects that predate the approval of the Upper Santa Ana Wash Plan HCP shall require Valley District to initiate Section 7 consultation with the appropriate federal agency for the purpose of insuring that the specific Expanded Mitigation Reserve Program Phase II projects are not likely to jeopardize the continued existence of any threatened or endangered species identified within the Expanded Mitigation Reserve Program Phase II project limits of disturbance, or result in the destruction or adverse modification of critical habitat for these species within the limits of disturbance. Expected terms and conditions may address take avoidance, habitat restoration and conservation, construction monitoring, and project operations for federally listed species identified or expected to occur within the Expanded Mitigation Reserve Program Phase II limits. Furthermore, those specific Expanded Mitigation Reserve Program Phase II projects that predate the approval of the Upper Santa Ana Wash Plan HCP and result in a take of a state-only</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>listed species identified within the project limits shall require Valley District to apply for a take permit under Section 2081(b). Expected terms and conditions may address take avoidance, habitat restoration and conservation, construction monitoring, and project operations for state-listed species identified or expected to occur within the Expanded Mitigation Reserve Program Phase II limits.</p> <p>Mitigation Measure BIO-19: Conduct Pre-Construction Biological Clearance Surveys to Avoid or Minimize Direct Impacts on Special-Status Wildlife and Plants From Construction Activities. To avoid or minimize direct impacts on special-status species from construction activities, a qualified biologist approved by USFWS and/or CDFW shall conduct appropriate preconstruction clearance surveys of the specific projects of the Expanded Mitigation Reserve Program Phase II for special-status bird species—including nesting bird surveys, coastal California gnatcatcher surveys, least Bell's vireo surveys, western burrowing owl surveys—special-status mammal species, special-status terrestrial reptile species, special-status semi-aquatic species, and special-status native plants and narrow endemic plants prior to any ground-disturbing activities.</p> <p>Mitigation Measure BIO-20: Designate a Qualified Biologist. A USFWS qualified biologist with knowledge of special-status species and their habitats that may be affected by the construction activities shall function as a biological monitor. The qualified biologist shall ensure compliance with the avoidance and minimization measures of the Expanded Mitigation Reserve Program Phase II.</p> <p>Mitigation Measure BIO-21: Develop a Nesting Bird Management Plan. To address potential conflicts</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>between construction activities and the activities of nesting birds in the specific projects of the Expanded Mitigation Reserve Program Phase II, the project shall develop a nesting bird management plan in consultation with USFWS and CDFW. Approval by both USFWS and CDFW is required before the plan is implemented. This plan shall include a description of all federal, state, and local nesting bird policies, biologist qualifications, roles and responsibilities, definitions of active and inactive nest, survey requirements, active nest avoidance, nest buffer reductions, guidelines for working within nest buffers, notification and documentation, inactive nest management, and periodic and final reporting requirements.</p> <p>Mitigation Measure BIO-22: Delineate Limits or Require Use of GPS-Based Exclusionary Technology on Construction Equipment to Prevent Encroachment of Construction Activities into Environmentally Sensitive Areas. Before the start of construction activities, including establishment of staging areas, vegetation clearing, and/or grading activities, environmentally sensitive areas shall be mapped and either delineated with flagging or stakes or the contractor shall be required to use GPS-based exclusionary technology along the specific projects of the Expanded Mitigation Reserve Program Phase II limits of disturbance to prevent access into non-project areas. The limits of work shall be inspected during construction by a qualified biological monitor at a frequency necessary to ensure that protective measures are intact and construction activities are not encroaching into environmentally sensitive areas. Environmentally sensitive area fencing shall be inspected daily by the authorized biologist(s) or project construction personnel working under the direction of the authorized</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>biologist(s). The authorized biologist(s) shall personally inspect the fencing no less than once per week. Environmentally sensitive area fencing shall be maintained in good working order for the duration of project activities.</p> <p>Mitigation Measure BIO-23: Implement Best Management Practices to Avoid or Minimize Construction-Related Spills or Leaks of Toxic Substances. The contractor will implement the following BMPs during construction activities to protect aquatic habitat and other sensitive natural communities that provide habitat for special-status species:</p> <ul style="list-style-type: none"> • Reduce the risk of wildfire ignition using spark arresters. • Limit personnel activities, vehicles, equipment, and construction materials to the designated work area. • Confine the ingress and egress of construction equipment and personnel to designated access points. Prohibit cross-country travel by vehicles and equipment. • Leave no open trenches or holes overnight without covering, fencing, or providing escape ramps with a minimum 3:1 slope. If trenches are not covered, they shall be inspected for trapped wildlife by a qualified biologist or biological monitor. Animals found shall be captured and moved to the nearest safe location outside the construction area. • Develop an IWMP to minimize the potential introduction of new weeds and to control the spread of weeds resulting from ground disturbance. The IWMP shall be developed within the first year following issuance of the ITP and shall be reviewed and approved by the Wildlife Agencies. The IWMP shall include biologist qualifications, roles, and 	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>responsibilities; definitions of noxious weeds and invasive plants; pre-construction, construction, and operations phase weed control methods; and periodic and final reporting requirements.</p> <ul style="list-style-type: none"> • Maintain adequate fire suppression capability in active construction areas, including having a water tender on site in active construction areas during periods of high fire danger. A water truck or water buffalo with adequate hoses for fire control shall be maintained on the site during all habitat-clearing and construction activities during fire season. • Implement litter control measures. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness of the area to opportunistic predators. • Limit vehicle speeds to 15 miles per hour except on paved roads with posted speed limits. If work must take place at night, the speed limit shall be 10 miles per hour. • Conduct new construction during the daylight hours to the extent feasible. • Confine the area of construction site disturbances to the smallest practical area, considering topography, placement of facilities, location of Covered Species habitat, public health and safety, and other limiting factors, and locate sites in previously disturbed areas to the extent possible. • Use secondary containment devices such as drip pans under stationary engines, such as compressors, generators, light plants, etc. to prevent any leakage from entering runoff or receiving waters. • Inspect all construction equipment for leaks and maintain equipment regularly to avoid soil contamination. Leaks shall be fixed or the equipment 	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>Impact BIO-1.2: Construction-related indirect impacts on special-status species. Effects on special-status aquatic species related to increased suspended sediment and turbidity would be short term and minor and are considered to be less than significant. The temporary loss of aquatic habitat due to dewatering during construction would be less than significant. However, indirect impacts on special-status species as a result of construction-related noise, dust, and vibration would be potentially significant. Implementation of mitigation measure BIO-25 would reduce construction related indirect impacts on special-status species from noise, dust, and vibration impacts to a less-than-significant level.</p>	Potentially significant	<p>shall be taken out of service until the leak is fixed. Smears of petroleum products shall be cleaned prior to use.</p> <ul style="list-style-type: none"> • Clean up any hazardous waste or spills immediately and dispose of at an offsite location that receives the required grade of hazardous waste. • Store spill kits capable of containing hazardous spills on site. <p>Mitigation Measure BIO-24: Implement a Worker Environmental Awareness Training. Prior to construction, a WEAP shall be implemented for work crews by a qualified biologist(s). Training materials and briefings shall include but not be limited to discussion of ESA and CESA, the consequences of noncompliance with specific Expanded Mitigation Reserve Program Phase II project permitting requirements, identification and values of special-status plant and wildlife species and sensitive natural plant community habitats, fire protection measures, hazardous substance spill prevention, and containment measures.</p> <p>Mitigation Measure BIO-25: Implement Best Management Practices to Avoid or Minimize Impacts on Special-Status Species From Construction- and Operations-Related Impacts. To avoid noise impacts on special-status species from construction and operations activities, the Tributaries Restoration Project and Mitigation Reserve Program Phase I shall include measures necessary to reduce construction noise levels to comply with local noise ordinances. All heavy equipment shall install and maintain mufflers or other noise-reducing features. A biological monitor shall monitor at the edge of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance or areas not cleared of vegetation to ensure</p>	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>Impact BIO-1.3: Indirect Impacts on Special-Status Species Resulting from Habitat Modifications. Habitat improvements at each site would result in temporary impacts on native vegetation communities, nonnative and invasive vegetation communities, and other land cover types, including open water, disturbed habitat, and urban/developed areas. Indirect impacts on special-status species resulting from habitat modifications would be considered potentially significant. With implementation of mitigation measures BIO-1 through BIO-17 (for the Tributaries Restoration Project and Mitigation Reserve Program Phase I) and BIO-18 through BIO-24 (for the Expanded Mitigation Reserve Program Phase II), indirect impacts from habitat modifications would be avoided and/or minimized to a less-than-significant level. By design, the project would: increase</p>	Potentially significant	<p>noise levels do not result in a disruption to nesting birds. If construction noise is negatively affecting nesting birds (e.g., a discernable negative change in behavior is observed, such as nest flushing or adults not returning to the nest with prey) then work shall cease in the immediate area until adequate controls such as noise barriers can be established to reduce noise levels. Noise barriers may include temporary noise blankets or noise shrouds. If construction noise may affect nesting birds, it may be most effective to construct noise barriers well prior to February 15, the start of the nesting season, to ensure construction delays do not occur. All noise barriers shall be constructed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance.</p> <p>To control fugitive dust, active construction and operations areas shall be watered regularly to control dust and minimize impacts on adjacent vegetation.</p> <p>Mitigation measures BIO-1 through BIO-24</p>	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
the amount and quality of habitat for the Santa Ana sucker and other sensitive native species and enhance jurisdictional aquatic resources, restore existing channels and existing floodplain tributaries, enhance existing riparian and floodplain habitats, limit human disturbance, and control nonnative invasive species.		Mitigation measure BIO-16	
<p>Impact BIO-2: Potential to result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS. Although the proposed project would result in a net gain in riparian habitat or other sensitive habitat types for the long term, construction would cause the temporary loss or degradation of habitat potentially used by native species. Approximately 0.55 acre of native vegetation communities and approximately 31.26 acres of native vegetation communities are expected to be temporarily degraded through construction activities for the Tributaries Restoration Project and Mitigation Reserve Program Phase I and this impact would be significant. Implementation of mitigation measures BIO-16 and BIO-26 would reduce this impact to less-than-significant levels. Implementation of mitigation measure BIO-27 would reduce the Expanded Mitigation Reserve Program Phase II impacts resulting from any adverse effects on any riparian habitat or other sensitive natural community to less-than-significant levels.</p>	Potentially significant	<p>Mitigation Measure BIO-26: Restore Temporarily Affected Riparian Habitat or Other Sensitive Natural Communities. Prior to any ground disturbances a site-specific revegetation plan shall be prepared by a qualified restoration ecologist that includes a description of existing conditions for each area, disturbances, site preparation, revegetation methods, maintenance and monitoring criteria, performance standards, and adaptive management practices. The plan shall identify cover standards that shall be developed for each plant community target, and cover values established for each layer (shrub, herb, and/or tree layers). The restoration plan shall include a restoration mitigation and monitoring program detailing: (1) a clear description of the restoration activities to be completed, including: (a) any recontouring, (b) methods for de-compacting soils, (c) a planting/seeding plan and plant/seed palette, and (d) an irrigation plan; (2) a comprehensive monitoring and maintenance plan, including: (a) a detailed monitoring and maintenance schedule, (b) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced or allowed to sustain within the restoration areas, (c) success standards (e.g., survival, native plant establishment, diversity, nonnative cover), (d) locations of permanent photo stations, and (e) adaptive management measures; (3) graphics and accompanying GIS shapefiles of the restoration areas;</p>	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>and (4) a contingency plan (e.g., purchase of additional mitigation credits, mitigation at a different offsite location) in the event that the restoration areas do not meet success criteria. Revegetation shall be implemented immediately following construction activities to ensure no permanent net loss of sensitive habitats would occur. Seeds and container stock shall be from regional stock.</p> <p>Mitigation Measure BIO-27: Restore Temporarily Affected Riparian Habitat or Other Sensitive Natural Communities. Prior to any ground disturbances a site-specific revegetation plan shall be prepared by a qualified restoration ecologist that includes a description of existing conditions for each area, disturbances, compensation mitigation, site preparation, revegetation methods, maintenance and monitoring criteria, performance standards, and adaptive management practices. The plan shall identify cover standards that shall be developed for each plant community target, and cover values established for each layer (shrub, herb, and/or tree layers). The restoration plan shall include a restoration mitigation and monitoring program detailing: (1) a clear description of the restoration activities to be completed, including: (a) any recontouring, (b) methods for de-compacting soils, (c) a planting/seeding plan and plant/seed palette, and (d) an irrigation plan; (2) a comprehensive monitoring and maintenance plan, including: (a) a detailed monitoring and maintenance schedule, (b) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced or allowed to sustain within the restoration areas, (c) success standards (e.g., survival, native plant establishment, diversity, nonnative cover), (d) locations of permanent photo stations, and (e) adaptive management measures; (3) graphics and accompanying GIS shapefiles of the restoration areas; and (4) a</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		contingency plan (e.g., purchase of additional mitigation credits, mitigation at a different offsite location) in the event that the restoration areas do not meet success criteria. Revegetation shall be implemented immediately following construction activities to ensure no permanent net loss of sensitive habitats would occur. Seeds and container stock shall be from regional stock.	
Impact BIO-3: Potential to result in a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (e.g., marshes, vernal pools, coastal wetlands) through direct removal, filling, hydrological interruption, or other means. The proposed project may adversely affect wetland and non-wetland waters of the U.S. and state and CDFW jurisdictional resources by direct modification (i.e., restoration and creation) of these habitats. This direct impact would be considered potentially significant. With implementation of mitigation measure BIO-28, adverse effects on federally protected wetlands, non-wetland waters, and state waters (riparian and streambed) would result in a net increase in area as well as functions and values within state and federal jurisdiction following restoration activities. Therefore, this impact would be reduced to a less-than-significant level with mitigation.	Potentially significant	Mitigation Measure BIO-28: Obtain Clean Water Act Section 404 and 401 Authorization and California Fish and Game Code Section 1600 et seq. Authorization. The Tributaries Restoration Project and Mitigation Reserve Program Phase I shall require authorization from USACE pursuant to Section 404 of the CWA, the RWQCB pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act, and from CDFW pursuant to Section 1602 of the CFGC, as a result of temporary and permanent impacts on jurisdictional aquatic resources. Authorizations from these agencies shall be obtained prior to construction. Terms and conditions may include: compensatory mitigation requirements, aquatic life movement requirements, spawning area requirements, migratory bird breeding area requirements, water flow management requirements, 100-year floodplain requirements, soil erosion and sediment control requirements, water quality requirements, and pre-construction notification and coordination requirements.	Less than significant
Impact BIO-4: Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impendence of the use of native wildlife nursery sites. Impacts from the project on the movement of native resident or migratory fish or wildlife species or with established native resident	Potentially significant	Mitigation measures BIO-2 through BIO-9, BIO-11, BIO-12, BIO-19, BIO-26, and BIO-28	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>or migratory wildlife corridors, and the impedance of the use of native wildlife nursery sites, would be considered significant. Implementation of mitigation measures BIO-2 through BIO-9, BIO-11 and BIO-12, BIO-19, BIO-26, and BIO-28 would avoid or minimize environmental effects on migratory fish, wildlife species, established wildlife corridors, and native wildlife nursery sites. Overall, the project would increase the quantity and quality of aquatic habitat, native riparian habitat, native scrub habitat, and grassland habitat, thereby increasing the functions and values related to breeding and connectivity for wildlife movement through the sites and within the larger Santa Ana River floodplain.</p>	Potentially significant	Mitigation measures BIO-2 through BIO-9, BIO-11, BIO-12, BIO-18 through BIO-23, BIO-25, BIO-26, and BIO-28	Less than significant
<p>Impact BIO-5: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan. The project sites are within the boundaries of the Western Riverside County Multiple Species Habitat Conservation Plan and portions are within the Stephens' Kangaroo Rat HCP. The proposed project is intended to align with the provisions, goals, and objectives of these HCPs as well as the draft Upper Santa Ana River HCP. The proposed project would be consistent with these adopted plans and is expected to provide a net improvement to stream, wetland, riparian, scrub, and grassland habitat quality. Implementation of mitigation measures BIO-2 through BIO-9, BIO-11 and BIO-12, BIO-18 through BIO-23, BIO-25, BIO-26, and BIO-28 and compliance with city/county policies would ensure compliance with the goals of the HCPs for the region and would reduce impacts to a less-than-significant level.</p>			
Cultural Resources			

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>Impact CUL-1: Substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines. Ground-disturbing activities associated with the Tributaries Restoration Project and Mitigation Reserve Program Phase I may result in the discovery of previously unidentified historical resources. One historical-period built environment resource (P-33-003361) is located within the Expanded Mitigation Reserve Program Phase II study area. With implementation of mitigation measures CUL-1 and CUL-2 (for the Tributaries Restoration Project and Mitigation Reserve Program Phase I and the Expanded Mitigation Reserve Program Phase II) and CUL-3 (for the Expanded Mitigation Reserve Program Phase II), impacts would be reduced to a less-than-significant level.</p>	Potentially significant	<p>Mitigation Measure CUL-1: Retain a Qualified Archaeologist. The applicant shall retain a qualified archaeologist, defined as an archaeologist who meets the Secretary of the Interior's Standards for professional archaeology, to carry out all mitigation measures related to archaeological and historical-period resources. The qualified archaeologist shall work under the direction of a qualified archaeological Principal Investigator.</p> <p>Mitigation Measure CUL-2: Unanticipated Discoveries. If an above-surface artifact, cultural resources of potential significance, or archaeological deposit of potential significance is discovered, the qualified archaeologist shall have the authority to temporarily halt construction activities within 25 feet of the find and shall be given reasonable time to map its location with a global positioning system device and recover the item. If buried cultural resources of potential significance are discovered inadvertently during ground-disturbing activities, work shall be temporarily halted in the area and within 50 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the lead agency. If the find is prehistoric or Native American in origin, consultation with local Native American tribes who have expressed interest regarding the project shall be undertaken. The Principal Investigator will notify the lead agency to discuss the significance determination and shall also submit a letter to the lead agency indicating whether additional mitigation is required. If the discovery is determined to be not significant in consultation with the lead agency, work will be permitted to continue in the area. If, in consultation with the lead agency, a discovery is determined to be significant, a mitigation plan shall be</p>	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>prepared and carried out in accordance with state and federal guidelines. If the resource cannot be avoided, a data recovery plan shall be developed to ensure collection of sufficient information to address archaeological and historical-period research questions, with results presented in a technical report describing field methods, materials collected, and conclusions. The qualified archaeologist shall treat recovered items in accordance with current professional standards by properly proveniencing, cleaning, analyzing, researching, reporting, and curating them in a collection facility meeting the Secretary of the Interior's Standards as promulgated in 36 CFR 79.</p> <p>Mitigation Measure CUL-3: Avoidance of Significant Historical Resource through Establishment of Environmentally Sensitive Areas (ESAs). Impacts on significant historical resources and/or archaeological resources identified in Table 3.4-3 and Table 3.4-4 should be avoided through establishing fencing around the boundaries of these known resources and delineating these locations as ESAs. The placement of protective fencing can include a buffer beyond the known boundaries of archaeological or historical sites to account for potentially unknown buried resources. Buffers of 25 feet have been recommended for sites P-33-000621, P-33-000622, P-33-03361, and P-33-009652. Due to conditions surrounding the sites, a 10-foot buffer is recommended for P-33-000127 and no buffer is recommended for site P-33-000884. Worker training should include language to the effect that ESAs must be avoided and cannot be entered on foot or with heavy equipment. Reasonable signage indicating the fenced area is an ESA should be posted. Should sacred objects or objects of religious importance to Native American groups be identified, consultation with local Native</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>Impact CUL-2: Substantial adverse change in the significance of an archaeological resources as defined in Section 15064.5 of the State CEQA Guidelines. Seven previously recorded archaeological sites are located within the Tributaries Restoration Project and Mitigation Reserve Program Phase I study areas and would be affected by ground disturbance associated with this work. Twelve previously recorded archaeological resources and two newly discovered isolated artifacts are located within the Expanded Mitigation Reserve Program Phase II study area. Implementation of mitigation measures CUL-1 and CUL-3 would provide further evaluation regarding onsite archaeological resources. If it is determined that avoidance is not possible, then mitigation measures CUL-2, CUL-4, and CUL-5 would be implemented to lessen the significance of impacts.</p>	Potentially significant	<p>American tribes who have expressed interest regarding the project shall be undertaken and those materials should be preserved in place to the extent feasible to maintain the critical relationship between built environment resources and archaeological artifacts and their archaeological context.</p> <p>Mitigation measures CUL-1, CUL-2, and CUL-3</p> <p>Mitigation Measure CUL-4: Provide Archaeological and Native American Monitoring and Prepare Archaeological Monitoring Plan. If avoidance is not feasible, and if project-related ground disturbance is anticipated to occur at archaeological sites identified in Tables 3.4-3 and 3.4-4, a qualified archaeologist shall be present to monitor the ground-disturbing activity. If ground-disturbing activities are to proceed at prehistoric archaeological sites, a Native American monitor shall be retained in addition to an archaeologist. The Native American monitor, if required, should be affiliated with a local Native American tribe. Prior to the commencement of ground-disturbing activity, an Archaeological Monitoring Plan (AMP) shall be developed to guide archaeological monitoring work during ground-disturbing activities. The AMP shall detail and emphasize training for construction workers and qualifications necessary for archaeological monitors. The AMP must also detail the locations where archaeological monitoring will take place and the depths of excavation that will require monitoring. The AMP must include roles and responsibilities for cultural resources staff and contact information for any Archaeological Principal Investigator, archaeological and Native American monitors, and appropriate management staff.</p> <p>The AMP must detail monitoring procedures, discovery protocols, general procedures for documenting and</p>	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>recovering archaeological materials, artifact identification, repository institution identification, associated repository fees, guidelines for preparing the archaeological monitoring, and mitigation final report. The AMP must also include protocols for communication and response should an unanticipated discovery be made at times that archaeological monitors are not present. The AMP must require attendance by construction personnel at a preconstruction meeting led by either the Principal Investigator or qualified archaeologist in which the Principal Investigator or qualified archaeologist will explain the anticipated likelihood for encountering archaeological resources, what resources may be discovered, and the methods that will be employed if such a resource is discovered. The AMP must include an example proposed letter regarding transfer of salvaged materials to an appropriate museum curation facility, an example daily monitoring report form, and all other pertinent archaeological resources recordation and analysis forms. Should unanticipated discoveries be made during archaeological monitoring, then the unanticipated discoveries protocol described in CUL-2 will be enacted. In the event of an unanticipated discovery of human remains, the archaeological monitor will follow the unanticipated discovery protocols (CUL-6) described below.</p> <p>Mitigation Measure CUL-5: Development and implementation of an Archaeological Treatment Plan (ATP). To evaluate archaeological sites for which information regarding the potential for listing in the NRHP or CRHR is not available due to a lack of data on the full vertical and horizontal extents and the archaeological integrity of the site, the lead agency shall develop an Archaeological Treatment Plan (ATP) prior to ground-disturbing activities that describes methods and</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>Impact CUL-3: Significant impact if it would disturb any human remains, including those interred outside of formal cemeteries. The proposed project could unearth, expose, or disturb previously unknown human remains. Implementation of mitigation measure CUL-6 provides a plan if human remains are found, which would reduce impacts to less-than-significant levels.</p>	Potentially significant	<p>procedures for conducting subsurface excavations to determine the vertical and horizontal extents of an archaeological site. Development of the ATP should include consultation with local Native American tribes who have expressed interest regarding the project. Implementation of such a plan may include mechanical and/or manual excavations to provide data on the cultural constituents at the site and the depositional context of such materials (if found to exist). These data can be used to determine the integrity of the site and to make a formal evaluation based on the eligibility criteria set forth in CEQA and Section 106 of the National Historic Preservation Act for inclusion in the CRHR and NRHP. The ATP should define the parameters of archaeological testing at the site, and the extent of excavation and analysis of any materials recovered. The ATP must also include guidelines for treatment and curation of any materials recovered during the testing process. Following implementation of the ATP, a technical report describing the methods and results of archaeological testing and formal evaluations of the archaeological sites and recommendations for further treatment shall be completed.</p> <p>Mitigation Measure CUL-6: Human Remains and Associated or Unassociated Funerary Objects. The discovery of human remains is always a possibility during ground-disturbing activities; if human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, all work within 50 feet of the find shall be halted until the remains have been evaluated by the county coroner, and appropriate action taken in</p>	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		coordination with the NAHC, in accordance with Section 7050.5 of the California Health and Safety Code or, if the remains are Native American, Section 5097.98 of the PRC. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant. The most likely descendant shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.	
Geology, Soils, and Paleontological Resources			
Impact GEO-1: Direct or indirect destruction of a unique paleontological resource or site or unique geologic feature. There is the potential for deeper excavations to have the potential to affect unique (significant) paleontological resources. Mitigation measures PALEO-1 and PALEO-2 would be implemented to ensure that the proposed project would result in less-than-significant impacts on unique paleontological resources or sites or unique geologic features.	Potentially significant	Mitigation Measure GEO-1: Retain a Qualified Paleontologist and Develop a Paleontological Monitoring Plan (PMP). The applicant shall retain a qualified paleontologist defined as a paleontologist who meets the requirements as a Principal Investigator/ Project Paleontologist per the guidelines of the Society of Vertebrate Paleontologists. The Principal Investigator/ Project Paleontologist will review any paleontological finds encountered during monitoring and provide input for significance determinations and procedures for recovery (if necessary). A Paleontological Monitoring Plan (PMP) shall be developed by the qualified paleontologist prior to the start of ground-disturbing activities and paleontological monitoring. The PMP shall detail and emphasize training for construction workers and qualifications necessary for paleontological monitors. The plan will also detail the locations where paleontological monitoring will take place (Lower Hole Creek, southeastern portion of Hidden Valley Creek, and southern Anza Creek/Old Ranch Creek sites) and the depths of excavation that will require monitoring (deeper than 9 feet). The PMP will include	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>contact information for the Principal Investigator/Project Paleontologist, paleontological monitors, and appropriate management staff.</p> <p>The PMP will detail procedures for collecting macro to micro fossils; general procedures for recovered specimens and specimen identification, repository institution identification and associated repository fees, and permits for collecting; and guidelines for preparing the paleontological monitoring and mitigation final report. The PMP will also include protocols for communication and response should an unanticipated discovery be made at times that paleontological monitors are not present. The PMP will require attendance at a preconstruction meeting led by a Qualified Principal Investigator/Project Paleontologist. The Project Paleontologist will explain the likelihood for encountering paleontological resources, what resources may be discovered, and the methods that will be employed if anything is discovered (who to call, construction diversion away from the find, etc.). The PMP will include an example letter regarding donating salvaged fossils to an appropriate museum repository, an example of a daily monitoring report form, and an example of a paleontological training acknowledgement form.</p> <p>Mitigation Measure GEO-2: Provide Paleontological Monitoring. Paleontological monitoring will be conducted by a paleontological monitor that meets the qualifications set forth by the Society of Vertebrate Paleontology (SVP) as a Paleontological Resource Monitor. Oversight of paleontological monitoring and recovery of any fossils will be conducted by a professional paleontologist that meets the requirements</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
		<p>as a Principal Investigator, Project Paleontologist per the guidelines of the SVP.</p> <p>Paleontological monitoring will be conducted under the direction of the Paleontological Principal Investigator/Project Paleontologist. Paleontological monitors will record observations on a daily monitoring report form and will notify the Principal Investigator/Project Paleontologist immediately upon the identification of a paleontological resource (fossil) during monitoring. The paleontological monitors shall be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitoring efforts can be reduced or ended based upon field conditions, site assessment, and professional judgment of the Paleontological Principal Investigator/Project Paleontologist.</p> <p>The monitor shall have authority to temporarily divert grading away from exposed fossils in order to professionally and efficiently recover the fossil specimens and collect associated data. All efforts to avoid delays in project schedules shall be made. To prevent construction delays, paleontological monitors shall be equipped with the necessary tools for the rapid removal of fossils and retrieval of associated data. This equipment shall include handheld global positioning system receivers, digital cameras, and cell phones, as well as a tool kit with specimen containers, matrix sampling bags, field labels, field tools (awls, hammers, chisels, shovels, etc.), and plaster kits. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis.</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
Greenhouse Gas Emissions		<p>Fossils collected, if any, shall be transported to a paleontological laboratory for processing where they shall be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological curation facility (such as the Western Science Center).</p> <p>Following analysis, a Report of Findings with an appended itemized inventory of specimens shall be prepared. The report and inventory, when submitted to the appropriate lead agency along with confirmation of the curation of recovered specimens into an established, accredited museum repository, shall signify completion of the program to mitigate impacts on paleontological resources.</p>	
<p>Impact GHG-1: Generation of greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment. Because project emissions would not exceed SCAQMD's bright-line screening threshold or be inconsistent with state plans, greenhouse gas (GHG) emissions produced by the project would not result in a significant impact.</p>	Less than significant	No mitigation necessary	Less than significant
<p>Impact GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases. Because GHG reduction measures are typically designed for reducing GHG emissions associated with human elements (e.g., building energy consumption, vehicle travel, landfill waste), the GHG reduction measures are largely not applicable to the project. Therefore, the project would not conflict with implementation of regional plans enacted to reduce GHG emissions.</p>	Less than significant	No mitigation necessary	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
Hazards and Hazardous Materials			
<p>Impact HAZ-1: Creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Construction-related hazardous materials would be used during construction of the proposed project, including fuel, solvents, chemicals, and oils, and these substances could be released in small amounts. Upon completion of the proposed project, operation and maintenance would not require the use of substantial quantities of hazardous materials. No significant hazard to the public or environment through release of hazardous materials is likely as a result of restoration work or program implementation.</p>	Less than significant	No mitigation necessary	Less than significant
Hydrology and Water Quality			
<p>Impact HYD-1: Substantial depletion of groundwater supplies or substantial interference with groundwater recharge. The implementation of groundwater wells and withdrawal of up to 4,501 acre-feet per year would not result in substantial depletion of groundwater supplies from the Riverside-Arlington groundwater basin or San Bernardino Basin Area. The proposed project would also not result in substantial interference with groundwater recharge because most of the pumped groundwater would ultimately be infiltrated back into the watershed. The Expanded Mitigation Reserve Program Phase II component would not result in the need for additional groundwater supplies and would not result in a substantial interference with groundwater recharge. Therefore, impacts would be less than significant.</p>	Less than significant	No mitigation necessary	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
Impact HYD-2: Substantial alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on site or off site. Activities associated with the proposed project would not result in substantial alteration of existing drainage patterns or lead to erosion or siltation on site or off site as compared to existing conditions; therefore, impacts would be less than significant.	Less than significant	No mitigation necessary	Less than significant
Impact HYD-3: Substantial alteration of existing drainage patterns in a manner that would result in flooding on site or off site. During construction, the drainage pattern of the site or area may be temporarily altered and could result in local onsite and temporary flooding. However, implementation of the Stormwater Pollution Prevention Plan would reduce the potential for flooding on site/off site as a result of altering existing drainage patterns. Following construction and other ground-disturbing activities such as floodplain enhancement, drainage patterns would be restored and improved. Therefore, impacts would be less than significant.	Less than significant	No mitigation necessary	Less than significant
Impact HYD-4: Placement of structures that would impede or redirect floodflows within a 100-year flood hazard area. While the project areas are within the 100-year flood hazard area of the Santa Ana River, the proposed bank stabilization and habitat structure construction on the tributaries and mitigation areas would have a negligible or positive effect on the Santa Ana River 100-year flood hazard area. Because the proposed project would not result in the placement of structures that would impede or redirect flood flows within a 100-year flood hazard area, impacts would be less than significant.	Less than significant	No mitigation necessary	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
Impact HYD-5: Exposure of people or structures to significant risk involving flooding, including flooding as a result of the failure of a levee or dam. The primary flood risk in the area is the Santa Ana River and the proposed project would have a negligible or positive impact on Santa Ana River flood risk. Therefore, the proposed project would not expose people or structures to significant risk involving flooding, including flooding as a result of the failure of a levee or dam, and impacts would be less than significant.	Less than significant	No mitigation necessary	Less than significant
Impact HYD-6: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan. The proposed project would not introduce any new pollutant sources that could degrade water quality within the Santa Ana River or its tributaries. The proposed project would comply with local stormwater and grading and erosion control ordinances, and the Construction General Permit. The proposed project would not result in a substantial interference with groundwater recharge, and the project would utilize groundwater for surface flow in the channels and then the water would be returned to the mainstem Santa Ana River to flow downstream. The project would not conflict with or obstruct implementation of a sustainable groundwater management plan, and impacts would be less than significant.	Less than significant	No mitigation necessary	Less than significant
Noise			
Impact NOI-1: Exposure of persons to or generation of noise levels in excess of applicable standards. The primary sources of noise associated with the project are construction, maintenance activities, and operation of onsite groundwater wells. Construction work associated with the proposed project would comply with all	Potentially significant	Improvement Measure NOI-1: Construction and Maintenance Noise Minimization and Notification. In order to minimize disruption and potential annoyance during project construction and maintenance, the project sponsor should implement the following construction and maintenance activity noise minimization measures:	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>requirements under the City of Riverside Municipal Code, City of Jurupa Valley Municipal Code, and Riverside County Code with respect to noise standards. There would be no impacts related to the short-term noise associated with construction of the proposed project. Improvement measure IM-NO-1 is suggested to further reduce noise emitted by construction and maintenance equipment and to schedule high noise-producing activities appropriately.</p> <p>The only permanent noise sources that would potentially be introduced as a result of the project would be groundwater well pumps at Old Ranch Creek and Hidden Valley Creek (one well at each site). No exemptions for pump noise would apply for receptors located in the city of Riverside, and the City's operational noise limits would apply. Groundwater pump noise levels are anticipated to exceed nighttime noise standards by up to 8 dB at the closest homes to the south of the potential groundwater well at Hidden Valley Creek. The noise levels are also anticipated to exceed nighttime noise standards by up to 2 dB at the closest homes to the south of the potential groundwater well at Old Ranch Creek. Implementation of mitigation measure NOI-1 would reduce groundwater well pump noise impacts to a less-than-significant level.</p>		<p>(a) Maintain all mechanized equipment to be used at the project site in good working order.</p> <p>(b) Ensure that all mechanized equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.</p> <p>(c) Mechanized equipment shall be operated only when necessary, and shall be switched off when not in use.</p> <p>(d) Schedule high noise-producing activities during times when they would be least likely to interfere with the noise-sensitive activities of the neighboring land uses, when possible.</p> <p>(e) Provide advance notification to surrounding land uses disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period.</p> <p>(f) The construction contractor shall provide the name and telephone number of an onsite construction liaison. If construction noise is found to be intrusive to the community (complaints are received), the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem.</p> <p>The lead agency may choose to impose improvement measure IM-NO-1 on the proposed project as a condition of project approval.</p> <p>Mitigation Measure NOI-1: Reduce Groundwater Well Pump Noise to Comply with the City of Riverside Municipal Code. This mitigation measure would only apply if the groundwater wells are utilized by the project. If either the Hidden Valley Creek or Old Ranch Creek groundwater wells are eliminated from the project, then their associated noise impact would also be eliminated</p>	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
Impact NOI-2: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels. Heavy construction equipment would generate groundborne vibration that could affect nearby structures or residents. Vibration impacts with respect to human annoyance and potential building damage would be less than significant for the Tributaries Restoration Project and Mitigation Reserve Program Phase I.	Potentially significant	<p>and this mitigation measure would no longer be necessary for the eliminated location(s). In the event that the groundwater pumps are included as part of the project, they must be designed and installed to ensure that their operation complies with the City of Riverside's noise limits at the closest residential receptors. This may be achieved using one or more of the following methods:</p> <p>(a) Specify a well design at Hidden Valley Creek that limits combined pump and motor noise levels to a total sound pressure of 100 dBA or less at a distance of 1 meter, and a well design at Old Ranch Creek that limits combined pump and motor noise levels to a total sound pressure of 106 dBA or less at a distance of 1 meter. Techniques for achieving these specifications may include, but are not limited to:</p> <ul style="list-style-type: none"> • Selecting quieter pumps and motors. • Shielding pumps and motors with noise barriers or enclosures. The design of such shielding should be based on final location details and pump/motor noise data; or <p>(b) Provide an acoustical study based on final plans and pump/motor noise data that demonstrates compliance with the City's noise ordinance; or</p> <p>(c) Restrict pump operation to the daytime hours of 7:00 a.m. to 10:00 p.m. in order to avoid the affected nighttime hours.</p> <p>Mitigation Measure NOI-2: Implement Measures to Avoid Groundborne Vibration. Implement the following measures to avoid groundborne vibration impacts at the nearby residential structures.</p> <p>(a) During all construction and maintenance activities, avoid the use of full-size earthmoving equipment (e.g., excavators, graders, backhoes) within 9 feet of any building or 52 feet of any habitable structure</p>	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>Maintenance and operational impacts would be less than construction impacts. The impact would be greater for the Expanded Mitigation Reserve Program Phase II because a few buildings are inside the impact distances for human annoyance. As a result, impacts at these locations would be potentially significant and implementation of the avoidance measures in mitigation measure NOI-2 would reduce the impact to less-than-significant levels.</p>		<p>(auxiliary buildings such as garages, sheds, etc. are not considered to be habitable structures).</p> <p>(b) During all construction and maintenance activities, avoid the use of loaded trucks on rough terrain within 8 feet of any building or 45 feet of any habitable structure (auxiliary buildings such as garages, sheds, etc. are not considered to be habitable structures). Alternately, loaded trucks shall use paved roads or travel at low speeds (10 miles per hour or less) on properly maintained dirt roads.</p> <p>(c) During all construction and maintenance activities, avoid the operation of small earthmoving equipment (e.g., skid steers, mini excavators, bobcats) within 1 foot of any building or 3 feet of any habitable structure (auxiliary buildings such as garages, sheds, etc. are not considered to be habitable structures).</p> <p>(d) If the avoidance distances specified in (a), (b), or (c) above cannot be observed, then additional steps shall be taken on a project-by-project basis to reduce impacts. These steps may include, but are not limited to:</p> <ul style="list-style-type: none"> ○ Notification and coordination with potentially affected residents to provide advance notice of potential groundborne vibration, including the dates and times when it may occur. ○ Site-specific analyses that include additional details such as specific soil conditions, specific equipment to be used, and details of the potentially affected structure(s) (e.g., age, conditions). ○ Assessment by a qualified structural or geotechnical engineer to determine if there are any risks to buildings from the vibration. If the engineer identifies any potential risks, it may be 	

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>Impact NOI-3: Generation of a substantial permanent increase in existing ambient noise levels in the project vicinity. Construction and maintenance activities would be temporary or periodic and, as such, would not cause any permanent increase in existing ambient noise levels. The only permanent noise sources that would potentially be introduced as a result of the project would be a groundwater well at Old Ranch Creek and/or Hidden Valley Creek. The analysis indicates that noticeable noise increases with groundwater well noise levels exceeding local ordinance standards would occur during nighttime hours at receivers 2 and 11. The impact at these locations would be potentially significant.</p>	Potentially significant	<p>prudent to survey (including photographing and/or videotaping) the potentially affected buildings in order to provide a record of the existing conditions before construction.</p> <ul style="list-style-type: none"> ○ If considered appropriate by the structural/geotechnical engineer, tests, observations, or monitoring should be performed on site during the construction activities to ensure the structural stability of the buildings. This may include vibration measurements obtained inside or outside of the buildings. <p>Mitigation measure NOI-1</p>	Less than significant
<p>Impact NOI-4: Creation of a substantial temporary or periodic increase in existing ambient noise levels in the project vicinity. As discussed in Impact NOI-1 above, construction work associated with the proposed project would comply with all requirements under the City of Riverside Municipal Code, City of Jurupa Valley Municipal Code, and Riverside County Code with respect to noise standards for any construction work occurring within each respective jurisdiction. Periodic maintenance</p>	Less than significant	Improvement measure IM-NO-1	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>activities would be carried out using a mix of hand tools and/or construction equipment such as backhoes. Because this activity would be similar to the original construction activity, but on a much-reduced scale, average noise levels and the associated noise increases would be less than construction. Maintenance work would be temporary and would be conducted only within the daytime hours permitted by the applicable local noise ordinances and subject to any permitting requirements therein. The impact during maintenance activities would be less than significant.</p>			
Population and Housing			
<p>Impact POP-1: Displacement of a substantial number of existing housing units, necessitating the construction of replacement housing elsewhere. The proposed project is not expected to affect population and housing, as this project would not include removal or construction of any permanent residences. Relocation of transient individuals, removal of homeless encampments, and cleanup of remaining refuse would be coordinated among the County of Riverside, City of Riverside Office of Homeless Solutions, and City of Jurupa Valley prior to construction of the proposed project. Therefore, impacts would be less-than-significant.</p>	Less than significant	No mitigation necessary	Less than significant
<p>Impact POP-2: Displacement of a substantial number of people, necessitating the construction of replacement housing elsewhere. The proposed project would not result in the displacement of homeless encampments in order to conduct and maintain tributary restoration sites and implement projects associated with the Mitigation Reserve Program because the relocation of transient individuals and removal of homeless encampments would occur prior to construction by local jurisdictions. Construction of replacement housing units</p>	Less than significant	No mitigation necessary	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
elsewhere is unlikely, as the displaced homeless population would be transitioned into suitable residences by existing local agency homeless programs and services prior to construction. Therefore, impacts would be less than significant.			
Recreation			
Impact REC-1: Increased use of existing recreational facilities, resulting in substantial physical deterioration. Improvements to the proposed project sites would result in an increase in recreational use by the public. This increase in recreational use would be considered an overall benefit to the community and would not result in substantial physical deterioration of any parks or recreational facilities. Therefore, impacts would be less than significant.	Less than significant	No mitigation necessary	Less than significant
Impact REC-2: Construction or expansion of recreational facilities that might have an adverse physical effect on the environment. The proposed project would involve restoration of degraded parks and recreational facilities within the County of Riverside and the cities of Riverside and Jurupa Valley, which would be considered an overall benefit to the community and would not result in adverse effects on the environment. Therefore, impacts would be less than significant.	Less than significant	No mitigation necessary	Less than significant
Tribal Cultural Resources			
Impact TCR-1: Potential to cause a substantial adverse change in the significance of a tribal cultural resource with cultural value to a California Native American tribe and that is listed or eligible for listing in the California Register of Historical Resources or in a local register of historical resources as defined in Public Resources Code section 5020.1(k). While no tribal cultural resources (TCRs) were identified through	Potentially significant	Mitigation measures CUL-1, CUL-2, CUL-3, CUL-4, and CUL-5. Mitigation Measure TCR-1: Protection of P-33-000884 (CA-RIV-884). Based on recommendations from consultation with a representative of the Morongo Tribe of Mission Indians, TCR-1 would be implemented prior to project-related ground disturbance to protect archaeological site P-33-000884. Because P-33-000884	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
<p>Assembly Bill 52 consultation or through a search of the records held by the Native American Heritage Commission, one archaeological site was identified within the project area that has cultural value to a California Native American tribe and is potentially eligible for inclusion in the California Register of Historical Resources. Mitigation measure TCR-1 is proposed to preserve and protect the site as much as is feasible. Mitigation measures CUL-1 and CUL-2 would be implemented to avoid impacts on this resource to the maximum extent feasible. While avoidance of the resources (known and unknown) is the preferred method of treatment, if avoidance of the resource and any unknown TCRs associated with it is not feasible, then mitigation measures CUL-3, CUL-4, and CUL-5 would be implemented. Therefore, impacts would be reduced to a less-than-significant level with mitigation.</p>	Potentially significant	<p>has already been damaged by vandalism, additional protective measures are necessary to preserve this site. Protective measures can include, but are not limited to, the placement of protective fencing surrounding the feature and/or the planting of repellent plant species such as poison oak to prevent further vandalism of the site.</p>	Less than significant
<p>Impact TCR-2: Potential to cause a substantial adverse change in the significance of a tribal cultural resource with cultural value to a California Native American tribe and that is a resource determined by the lead agency to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. Because the proposed project would involve ground disturbance adjacent to the resource, it is possible that the project could cause a substantial adverse impact on buried archaeological deposits associated with this site (if they exist). Mitigation measure TCR-1 is proposed to both preserve and protect the site as much as is feasible. Implementation of mitigation measure CUL-4 would provide for archaeological and Native American monitoring. Mitigation measure CUL-5 relates to the treatment of unanticipated discoveries during the monitoring process. Mitigation measure CUL-6 involves the treatment of</p>	Potentially significant	<p>Mitigation measures TCR-1, CUL-1, CUL-2, CUL-3, CUL-4, CUL-5 and CUL-6.</p>	Less than significant

Impact Statement	Level of Significance	Mitigation Measure	Level of Significance After Mitigation
human remains or associated or unassociated funerary objects that may be uncovered during ground-disturbing activities for the proposed project. With implementation of these mitigation measures, impacts would be reduced to a less-than-significant level.			
Utilities and Service Systems			
Impact UT-1: Construction of new water or wastewater treatment facilities or expansion of existing facilities, with the potential to cause significant environmental effects. The proposed project would not require expansion of existing water facilities, as Valley District has existing water supplies and water infrastructure to support the implementation of the proposed project and water exchange with Riverside Public Utilities. There would be no need for alterations to water treatment infrastructure, service would not be required from a facility that has insufficient capacity, and the project would not cause an exceedance of available capacity from existing water treatment facilities. Therefore, impacts on water supply would be less than significant.	Less than significant	No mitigation necessary	Less than significant
Impact UT-2: Creation of a need for new or expanded entitlements or resources for sufficient water supply. Valley District has enough water supplies in the San Bernardino Basin Area to exchange the groundwater anticipated to be used by the proposed project within the Riverside Public Utilities service area. Therefore, impacts on water supply from the groundwater wells would be less than significant.	Less than significant	No mitigation necessary	Less than significant

ES.6.1 Significant and Unavoidable Impacts

As required by §15126.2 (b) of the State CEQA Guidelines, an EIR must identify any significant environmental effects that cannot be avoided if the proposed project is implemented. After conducting environmental analyses for each of the environmental issues identified in Appendix G of the State CEQA Guidelines, it was determined that the proposed project would not result in significant and unavoidable adverse environmental impacts.

ES.7 Project Alternatives

An EIR must describe a range of reasonable alternatives to the proposed project or alternative project locations that could feasibly attain most of the basic project objectives and would avoid or substantially lessen any of the significant environmental impacts to the proposed project. The alternatives analysis must include the “No Project Alternative” as a point of comparison. The No Project Alternative includes existing conditions and reasonably foreseeable future conditions that would exist if the proposed project were not approved (State CEQA Guidelines §15126.6). In Chapter 7, *Alternatives Analysis*, this Draft EIR evaluates two build tributaries restoration and mitigation program alternatives and a No Project Alternative. The first build alternative is the Proposed Project Plus Evans Creek Site and the second restoration alternative is the Reduced Proposed Project Alternative (Removal of the Mitigation Reserve Program). The goal for evaluating these alternatives is to identify alternatives that would avoid or lessen the significant environmental effects of the project, while attaining most of the project objectives. As provided in §15126.6(d) of the State CEQA Guidelines, the significant effects of these alternatives are identified in less detail than the analysis of the proposed project.

ES.7.1 Description of Project Alternatives

Three alternatives were selected for detailed analysis.

- Alternative A: No Project
- Alternative B: Proposed Project Plus Evans Creek Site
- Alternative C: Reduced Proposed Project Alternative (Removal of the Mitigation Reserve Program)

Alternative A: No Project Alternative

An analysis of the No Project Alternative is required under State CEQA Guidelines §15126.6(e). According to §15126.6(e)(2) of the State CEQA Guidelines, the “no project” analysis must discuss “what is reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.”

The No Project Alternative represents a “no build” scenario in which the proposed project would not be constructed or operated. It assumes that the proposed restoration components of the four project sites would not be implemented and no project components would be constructed. Under the No Project Alternative, the project sites would continue to be degraded and would not support Santa Ana sucker habitat or connect with the Santa Ana River. There would be no creation and

enhancement of channels and floodplains, and the project sites would continue to be dominated by nonnative species. Any site cleanup effort would occur sporadically and when funding is available or when disturbance and destruction of the sites along the Santa Ana River cause them to become so degraded as to require emergency cleanup. The No Project Alternative would not improve the condition of the Upper Santa Ana River habitat and water quality, and these challenges noted previously within the upper Santa Ana River watershed would continue.

Alternative B: Proposed Project Plus Evans Creek Site Alternative

In addition to the four restoration sites described in Chapter 2, *Project Description*, an additional site, Evans Creek, would be considered as an alternative for implementation of greater restoration activities, as described further below. The Proposition 84 grant provides funding to construct the four sites (Old Ranch Creek, Anza Creek, Hole Creek, and Hidden Valley Creek) identified by the proposed project. The restoration work proposed at Evans Creek was not included in the Proposition 84 grant application, as there was not sufficient funding for this additional site, and this and other sites were not included in the evaluation of the proposed project.

The Evans Creek site covers approximately 65 acres in the city of Riverside's Fairmount Park and is the farthest upstream on the Santa Ana River of the restoration sites proposed as a part of the project. The land at the site is owned by the City of Riverside. The Evans Creek site was burned in a homeless encampment fire in 2017 and provides an opportunity for restoration and enhancement. The Evans Creek site was previously evaluated as part of the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* (Appendix A of this EIR). Improvements at Evans Creek would include a new groundwater well and pump, new riparian corridor, new bank, channel bed complexity and rock and woody structures, fish passage, new channel, and recreational and educational amenities for Fairmount Park.

This alternative would involve all elements of the proposed project, both the Tributaries Restoration Project and Mitigation Reserve Program, and the addition of the Evans Creek site as a fifth tributaries restoration site, utilizing similar construction and operational elements as the proposed project. This alternative is being considered to include additional restoration opportunities on an existing disturbed site along the Santa Ana River.

Alternative C: Reduced Proposed Project Alternative (Removal of the Mitigation Reserve Program)

This alternative would remove other restoration opportunities associated with the mitigation and conservation bank, also known as the Mitigation Reserve Program, from the proposed project. This alternative would involve including only the Upper Santa Ana River Tributaries Restoration Project as a project component, which includes the smaller project area of 67.3 acres in comparison to the Mitigation Reserve Program area, which includes 411.16 acres that would be removed from consideration in this alternative. The Tributaries Restoration Project and Mitigation Reserve Program Phase I component of the proposed project restoration sites would be designed to increase the amount and quality of habitat for the Santa Ana sucker and other native species and enhance jurisdictional aquatic resources; restoration of existing channels and an existing floodplain tributary; enhancements to existing riparian and floodplain habitats; limiting of human disturbance; and control of nonnative invasive species. The four restoration sites are Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek. The Mitigation Reserve Program, which is

evaluated at a programmatic level, is considered for removal with this alternative to result in a smaller project area, which could reduce project environmental impacts.

ES.7.2 Environmentally Superior Alternative

CEQA requires the identification of an environmentally superior alternative (State CEQA Guidelines §15126.6(a) and (e)(2)). The environmentally superior alternative is the alternative that would result in the least damage to the environment. Based on the analysis presented in Chapter 3, *Impact Analysis*, and Chapter 7, *Alternatives Analysis*, the environmentally superior alternative is Alternative A (No Project/No Build); however, project objectives would not be met with this alternative. Pursuant to §15126.6(e)(2) of the State CEQA Guidelines, if the environmentally superior alternative is the “no project” alternative, then the EIR must also identify another environmentally superior alternative among the list of alternatives. Impacts would be greater than those of the No Project Alternative but still less than the proposed project with implementation of Alternative C (Reduced Proposed Project Alternative: Removal of the Mitigation Reserve Program). Alternative C would be the only build alternative that meets the majority of the project objectives. Alternative B (Proposed Project Plus Evans Creek Site) would provide for a greater level of restoration, but would also have the largest impacts in comparison to the proposed project and its alternatives due to the expanded area that would be included in the Alternative B project footprint and additional construction activity that would be associated with implementation of Alternative B in comparison to the proposed project and its alternatives. However, it would also have the greatest beneficial impacts on the watershed due to the increased restoration. Alternative B would meet all project objectives and would provide additional restoration of areas near the Santa Ana River. With Alternative B, the environmental constraints would be reduced with the additional restoration of the site plus the addition of new recreational activities and opportunities. Without this alternative, any site cleanup effort at the Evans Creek site would occur sporadically and when funding is available or when disturbance and destruction of the sites along the Santa Ana River cause them to become so degraded as to require emergency cleanup. The Valley District Board of Directors is considering approval of Alternative B, which includes the proposed project. Table ES-3 includes a summary comparison of the proposed project and its alternatives.

Table ES-3. Summary of Comparison of Alternatives Impacts

Environmental Issue Area	Proposed Project	Alternative A No Project/ No Build	Alternative B Proposed Project Plus Evans Creek Site	Alternative C Reduced Proposed Project Alternative
Agricultural and Forestry Resources	Less than Significant	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project (but less than significant)	Reduced Impact Compared to Proposed Project
Air Quality	Less than Significant	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project (but less than significant)	Reduced Impact Compared to Proposed Project

Environmental Issue Area	Proposed Project	Alternative A No Project/ No Build	Alternative B Proposed Project Plus Evans Creek Site	Alternative C Reduced Proposed Project Alternative
Biological Resources	Less than Significant with Mitigation	Reduced (Temporary Impacts) Compared to the Proposed Project but No Beneficial Impacts From Restoration	Greater (Temporary Impacts) Compared to the Proposed Project (but less than significant); and Greater Beneficial Impacts Due to Increased Restoration	Reduced (Temporary Impacts) Compared to the Proposed Project but Fewer Beneficial Impacts From Restoration
Cultural Resources	Less than Significant with Mitigation	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project	Reduced Impact Compared to Proposed Project
Geology, Soils and Paleontological Resources	Less than Significant with Mitigation	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project (but less than significant)	Reduced Impact Compared to Proposed Project
Greenhouse Gases	Less than Significant	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project (but less than significant)	Reduced Impact Compared to Proposed Project
Hazards and Hazardous Materials	Less than Significant	Reduced (Temporary Impacts) Compared to Proposed Project	Greater (Temporary Impacts) Compared to Proposed Project (but less than significant)	Reduced (Temporary Impacts) Compared to Proposed Project
Hydrology and Water Quality	Less than Significant	Reduced (Temporary Impacts) Compared to Proposed Project	Greater (Temporary Impacts) Compared to Proposed Project (but less than significant) and Greater Beneficial Impacts Due to Increased Restoration	Reduced (Temporary Impacts) Compared to Proposed Project
Noise	Less than Significant with Mitigation	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project	Reduced Impact Compared to Proposed Project

Environmental Issue Area	Proposed Project	Alternative A No Project/ No Build	Alternative B Proposed Project Plus Evans Creek Site	Alternative C Reduced Proposed Project Alternative
Population and Housing	Less than Significant	Similar Impact Compared to Proposed Project but No Site Monitoring Benefits	Similar Impact Compared to Proposed Project (but less than significant) and Greater Beneficial Impacts for Site Monitoring	Similar Impact Compared to Proposed Project
Recreation	Less than Significant	Reduced (Temporary Impacts) Compared to Proposed Project but No Beneficial Recreation Impacts	Greater (Temporary Impacts) Compared to Proposed Project (but less than significant) and Greater Beneficial Impacts on Recreation	Reduced (Temporary Impacts) Compared to Proposed Project
Tribal Cultural Resources	Less than Significant with Mitigation	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project	Reduced Impact Compared to Proposed Project
Utilities and Service Systems	Less than Significant	Reduced Impact Compared to Proposed Project but No Water Supply Benefits	Greater Impact Compared to Proposed Project (but less than significant) and Greater Water Supply Benefits	Reduced Impact Compared to Proposed Project

ES.8 Potential Areas of Controversy/Issues to be Resolved

Pursuant to §15123(b)(2) of the State CEQA Guidelines, a lead agency is required to include areas of controversy raised by agencies and the public during the public scoping process in the EIR. Areas of controversy have been identified for the proposed project based on comments received on the Notice of Preparation during the 30-day public review period and comments expressed by interested stakeholders throughout the process. Issues of concern involved the following resource areas: cultural and tribal resources, biological resources, water resources availability, air quality, greenhouse gases, cumulative effects, recreational uses and access within the Santa Ana River area, long-term restoration success, and homeless encampments.

ES.9 How to Comment on this Draft EIR

In accordance with State CEQA Guidelines §15105, the Draft EIR ~~has been~~^{was} submitted to the California Governor's Office of Planning and Research State Clearinghouse for review by state agencies and, as such, is available for public review and comment for a ~~45~~⁵⁴-day review period. The Draft EIR or a Notice of Availability ~~has been~~^{was} circulated to federal, state, and local agencies and interested parties, who may wish to review and issue comments on its contents. All written comments ~~should be~~^{were} directed to:

Valley District

Heather Dyer, Senior Water Resources Project Manager
380 East Vanderbilt Way, San Bernardino, CA 92408
Email: uppersarrestoration@icf.com

During the ~~45~~⁵⁴-day review period, Valley District ~~will conduct~~^{ed} ~~one~~^{two} public meetings open to the general public to answer questions and receive oral comments on the Draft EIR. The meetings ~~were~~^{will be} held at the following locations, dates, and times:

Wednesday, May 15, 2019

4 p.m.-6 p.m.

San Bernardino Valley Municipal Water District
380 East Vanderbilt Way
San Bernardino, CA 92408

Monday, June 10, 2019

6 p.m.-8 p.m.

Hidden Valley Nature Center
11401 Arlington Ave
Riverside, CA 92505

Wednesday, May 15, 2019

~~4:00 p.m.-6:00 p.m.~~

~~San Bernardino Valley Municipal Water District~~
~~380 East Vanderbilt Way~~
~~San Bernardino, CA 92408~~

All written comments received on the Draft EIR ~~will be~~^{were} responded to and included in the Final EIR. ~~Comments on the Draft EIR must be received by 5:00 p.m. on the last day of the 45-day review period unless Valley District grants an extension. Refer to the Final EIR for a summary of the comments received.~~

1.1 Introduction

The San Bernardino Valley Municipal Water District (Valley District), as the lead agency, is proposing the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program (proposed project) in the cities of Riverside and Jurupa Valley and in Riverside County (**Figure 1-1, Regional Location**). The proposed project has two components that would be implemented by Valley District: the four Santa Ana River tributaries restoration (Tributaries Restoration Project) and a Mitigation Reserve Program. The restoration sites included in the Tributaries Restoration Project, from east to west, are Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek (**Figure 1-2, Project Sites**).

Valley District has identified conservation measures to improve existing conditions for endangered and threatened species along the Santa Ana River and offset future potential impacts. To initiate implementation of these conservation measures, Valley District proposes the development of four restoration sites and a Mitigation Reserve Program along the Santa Ana River in Riverside County. Initial funding for construction of these four restoration sites is available from five local water agencies: Eastern Municipal Water District, Inland Empire Utilities Agency, Orange County Water District, Western Municipal Water District, and Valley District with additional funding contributed through a regional Proposition 84 grant awarded to the five agencies. The grant award is administered by the Santa Ana Watershed Project Authority and has a project deadline of September 2021.

The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I (which is further described below) would improve the ecological condition of habitat for Santa Ana sucker and jurisdictional aquatic resources by restoring existing channels, creating new channels, restoring the associated floodplain, enhancing the existing riparian and floodplain habitats, and controlling nonnative invasive species. The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I would also provide support for the existing local community environmental education and recreational opportunities.

The proposed project would also include implementation of a Mitigation Reserve Program, which would account for and track the development of mitigation value “credits” and application of those values to future project permit requirements. The purpose of the Mitigation Reserve Program is to develop a common understanding and legal framework for the conservation/mitigation values created by Valley District through the restoration activities. Phase I of the Mitigation Reserve Program would create conservation and mitigation credits based on the ecological values established within the four tributaries footprints and the native riparian buffer zone, which currently have funding and would be constructed by 2021 at each of the project sites. The first component of the project—the Tributaries Restoration Project and Mitigation Reserve Program Phase I—has been sufficiently developed to a level of certainty that it is ready for detailed environmental impact analysis associated with its implementation. Therefore, the Tributaries Restoration Project and Mitigation Reserve Program Phase I is analyzed in this Draft Environmental Impact Report (EIR) at a project level. Development of the Mitigation Reserve Program Phase I is

primarily an accounting exercise and development of legal agreements that will formalize the conservation/mitigation values created by the proposed project as recognized by the environmental regulatory agencies (U.S. Army Corps of Engineers, California Department of Fish and Wildlife, Regional Water Quality Control Board, and U.S. Fish and Wildlife Service [USFWS]).

There is an opportunity to expand the Mitigation Reserve Program, referred to as “Expanded Mitigation Reserve Program Phase II,” by implementing additional restoration activities beyond the footprint of this proposed project (tributaries and 100-foot native riparian buffer) to implement additional restoration opportunities and develop more mitigation credit reserves. However, no construction funding is currently secured for the expanded restoration opportunities and no timeline has been set at this time for implementing additional restoration associated with the Expanded Mitigation Reserve Program Phase II. The Expanded Mitigation Reserve Program Phase II is still in the conceptual stage of development for individual expanded restoration opportunities at each of the sites, and is being considered for implementation following completion of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. This Draft EIR evaluates the Expanded Mitigation Reserve Program Phase II only at a program level given the restoration opportunities at each of the sites have not been fully developed at the construction level of detail. Chapter 2, *Project Description*, provides detailed descriptions of the construction and operation of the proposed project components.

To the extent feasible, this EIR is intended to cover such additional activities that may be implemented in the future under the Expanded Mitigation Reserve Program Phase II. At the time of implementation of restoration activities under the Expanded Mitigation Reserve Program Phase II, Valley District will evaluate whether further California Environmental Quality Act (CEQA) analysis is required pursuant to provisions of State CEQA Guidelines §§15162 through 15164; depending on the scope of the activities and the resulting impacts, Valley District may determine that the restoration activities under the Expanded Mitigation Reserve Program Phase II require no further analysis under CEQA because there are no additional impacts, or Valley District may prepare an addendum, subsequent or supplemental EIR, or other appropriate CEQA document to evaluate any additional impacts prior to approving or implementing restoration activities under the Expanded Mitigation Reserve Program Phase II.

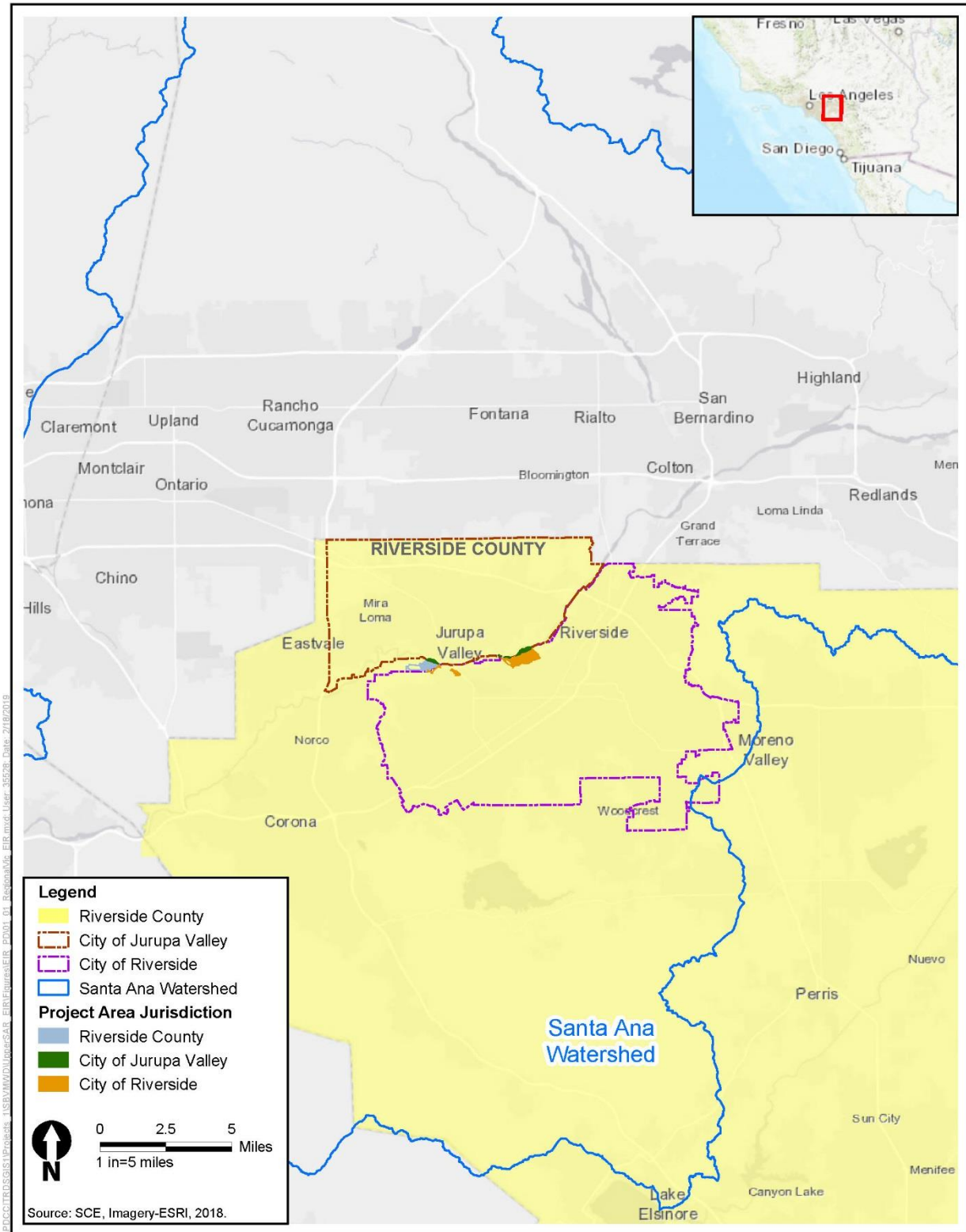


Figure 1-1. Regional Location

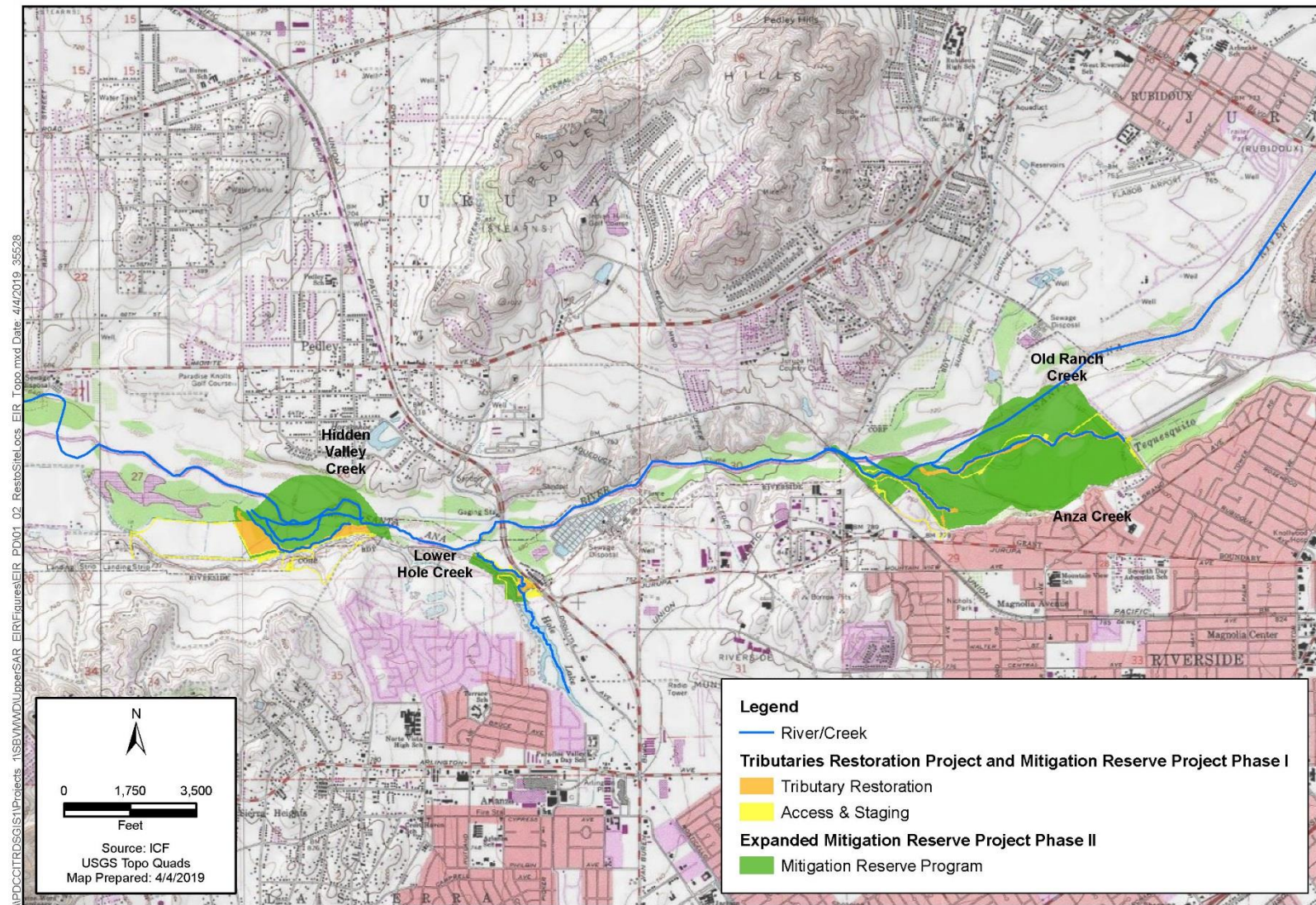


Figure 1-2. Project Sites

1.2 Purpose of the Environmental Impact Report

Valley District has determined that an EIR is necessary to evaluate the impacts of the proposed project. Valley District prepared this Draft EIR to provide the public, trustee agencies, and responsible agencies with information about the potential effects on the local environment associated with the implementation of the proposed project. This Draft EIR has been prepared in compliance with CEQA of 1970 (as amended), codified at California Public Resources Code Sections 21000 et seq., and the State CEQA Guidelines in the California Code of Regulations, Title 14, Division 6, Chapter 3. As described in §15121(a) of the State CEQA Guidelines, this Draft EIR is intended to serve as an informational document for public agency decision-makers. Accordingly, this Draft EIR has been prepared to identify and disclose the significant environmental effects of the proposed project, identify mitigation measures to minimize potentially significant effects, and consider reasonable project alternatives.

The environmental impact analyses in this Draft EIR are based on a variety of sources, including agency consultation, technical studies, and field surveys. The proposed project is based on information provided in the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* (2015) included in **Appendix A**, the detail in the *Opportunities and Constraints for Tributary Restoration Sites Report* (2018) included in **Appendix B**, and the *30 Percent Design for Upper Santa Ana River Tributaries* (2018) included in **Appendix C**.

1.3 Valley District

Valley District was formed in 1954 as a regional water supply agency with a service area that covers about 353 square miles and a population of about 695,000 in southwestern San Bernardino County. Its enabling act includes a broad range of powers to provide water, as well as wastewater and stormwater disposal, recreation, and fire protection services. Valley District is a water wholesaler, delivering imported and local water supplies to water retailers within its service area. Valley District contracts with the State Water Project to provide imported water to the region and also manages groundwater storage within its boundaries, which include the cities and communities of San Bernardino, Colton, Loma Linda, Redlands, Rialto, Bloomington, Highland, East Highland, Mentone, Grand Terrace, and Yucaipa. In addition to relying upon water deliveries from its State Water Project contract, which is used to provide supplemental water within its service area, Valley District has pursued development of additional local surface water resources in an effort to increase water supply reliability for its customers.

1.3.1 Project Setting

Valley District's service area encompasses a large portion of the upper Santa Ana River watershed. The Santa Ana River watershed is the largest coastal stream system in Southern California, encompassing dozens of water districts, local jurisdictions, and other stakeholders with an interest in the management of water supply resources (e.g., storage, conveyance, treatment, flood protection, recreation) and sustainable stewardship (e.g., water quality and biological resource protection) of the watershed. Many of these entities have participated in integrated regional watershed management coordination efforts in the Upper Santa Ana River watershed since the 1960s.

Since the 1970s, the natural hydrogeomorphology of the Upper Santa Ana River watershed has changed dramatically, beginning with flood control construction and maintenance activities led by the U.S. Army Corps of Engineers and its local sponsors, including large levee systems and construction of the Seven Oaks Dam in the 1990s and early 2000s. Historically, these and other projects have resulted in legal actions to address water rights allocation and natural resource protection. In addition, several water district agencies in the Upper Santa Ana River watershed engaged in lawsuits over the USFWS's 2010 expansion of designated critical habitat for the Santa Ana sucker. In this complex atmosphere with many competing needs, environmental regulatory compliance has become one of the most challenging aspects of managing and developing water resources in the Upper Santa Ana River watershed. Simultaneously, water management agencies are experiencing increasing pressure on water supply due to increased population and reduced water reliability due to various climate conditions such as long-term drought, decreased snow pack, and large yet infrequent storm events. The Santa Ana River has been the subject of many important water use and water rights agreements, judicial orders, judgments, and accords dating back to the early 20th century.

In an effort to develop long-term solutions for the many interrelated objectives of the watershed, recent cooperative planning initiatives among the water districts and stakeholders have resulted in a comprehensive vision for sustainable stewardship and watershed management. The Upper Santa Ana River Sustainable Resources Alliance (Alliance) is a consortium of 11 local public agencies currently collaborating to develop a comprehensive environmental compliance program in addition to local water supply projects. The Alliance has expanded its environmental compliance efforts beyond special-status species to include aquatic resources permitting and compensatory mitigation for resources affected by its water management activities. The comprehensive environmental compliance program includes the following components:

- Development and implementation of the Upper Santa Ana River Habitat Conservation Plan (Upper SAR HCP) to provide regional habitat protection, promote habitat restoration and recovery, and provide take coverage for endangered and/or threatened species under the federal and California Endangered Species Acts for water supply and management activities
- Development of the Mitigation Reserve Program, which will include a Santa Ana River Conservation Bank, approved Advanced Permittee-Responsible Mitigation Projects, or other mitigation delivery methods to offset potential impacts on species, regulated aquatic and other resources from future potential water management activities
- Development of an environmental compliance framework to facilitate project-specific environmental review and permitting requirements for future water management projects

The Alliance referenced above is a collaborative effort among the water resource agencies of the Santa Ana River watershed in partnership with USFWS, California Department of Fish and Wildlife, and several other government agencies and stakeholder organizations, led by Valley District. The purpose of the Alliance and the Upper SAR HCP is to facilitate efficient and comprehensive environmental compliance by the water resource agencies for future water projects that will maintain a secure and reliable supply of water for the region while also preserving and maintaining the ecological function of the river. The Alliance concentrates its conservation efforts on the river and its tributaries that provide habitat for a diversity of unique and rare species in the watershed, including the Santa Ana sucker (*Catostomus santaanae*), while also supporting responsible public use of the open spaces and public education on the value of a healthy riverine ecosystem. The Upper SAR HCP and the associated EIR prepared for the Upper SAR HCP will provide a comprehensive

explanation on how species and their habitats will be protected and managed in the future and will provide information regarding the regulatory permitting needed, including any incidental take permits by the water resource agencies under federal and state regulations to maintain, operate, and improve their water resource infrastructure.

Valley District has initiated the proposed project for natural resource conservation and mitigation benefits that would facilitate expedited identification and commitment to compensatory mitigation options and conservation measures that can be used to obtain necessary permits for future water management activities. It is anticipated that implementation of the proposed project will support the conservation strategy of the Upper SAR HCP. However, regardless of the implementation status of the Upper SAR HCP, Valley District has identified independent value and utility in the implementation of conservation measures associated with the proposed project to offset impacts on endangered and threatened species and jurisdictional aquatic resources along the Santa Ana River that is separate from the value and utility of the Upper SAR HCP. To initiate implementation of these conservation measures that will support the conservation strategy of the Upper SAR HCP, Valley District proposes the development of the proposed project. The proposed project will go forward regardless of whether the Upper SAR HCP is ever approved, and the successful implementation of the proposed project does not depend on the Upper SAR HCP. Additionally, the Upper SAR HCP is not a reasonably foreseeable consequence of the activities associated with the proposed project and the Upper SAR HCP would not likely change the scope or nature of the proposed project or its environmental effects. The environmental effects of the Upper SAR HCP will be considered in a future environmental document prepared pursuant to CEQA.

1.3.2 Lead Agency

For this project, Valley District is the lead agency under CEQA and the proponent of the project. CEQA requires lead agencies to consider potential environmental effects that may occur with implementation of a project and to avoid or substantially lessen significant effects on the environment when feasible. When a project may have a significant effect on the environment, the agency with primary responsibility for carrying out or approving the project (the lead agency) is required to prepare an EIR.

Other federal, state, and local agencies are involved in the review and approval of the proposed project, including trustee and responsible agencies under CEQA. Under CEQA, a trustee agency is a state agency that has jurisdiction by law over natural resources that are held in trust for the people of the state of California. Also, under CEQA, a responsible agency is a state or local agency other than the lead agency that has legal responsibility for carrying out or approving a project or elements of a project (Public Resources Code Section 21069). Responsible and trustee agencies are consulted by the CEQA lead agency to ensure the opportunity for input and also review and comment on the Draft EIR. Responsible agencies may also use the CEQA document in their decision-making.

Several agencies would require permits, approvals, and/or consultation in order for Valley District to implement various elements of the proposed project, including the U.S. Army Corps of Engineers, USFWS, Federal Emergency Management Agency, California Department of Fish and Wildlife, Regional Water Quality Control Board, State Historic Preservation Office, Riverside-Corona Resource Conservation District, County of Riverside, and the cities of Riverside and Jurupa Valley. In addition, several of these agencies would enter into land use, water use, and cooperative agreements with Valley District in order to implement and maintain the proposed project. A full list of preliminary agencies and entities, in addition to Valley District, that would use this EIR in their consideration of

specific permits, other discretionary approvals, and agreements that may apply to the project is included in Chapter 2, *Project Description*.

1.4 Intended Use of this Draft EIR

The purpose of this Draft EIR is to evaluate the proposed project in accordance with CEQA. The proposed project is a multi-jurisdictional project that would be implemented by Valley District as the CEQA lead agency. The decision-making body of the lead agency and responsible agencies are required to consider the Draft EIR prior to acting upon or approving the project (State CEQA Guidelines §15050(b)). After this EIR is adopted and certified, Valley District may proceed with implementing the proposed project once all applicable regulatory permits are received.

1.5 CEQA Environmental Review Process

The basic purposes of CEQA are to (1) inform decision-makers and the public about the potential significant environmental effects of proposed activities, (2) identify the ways that environmental effects can be avoided or significantly reduced, (3) prevent significant, avoidable environmental effects by requiring changes in projects through the use of alternatives or mitigation measures when feasible, and (4) disclose to the public reasons why an implementing agency may approve a project even if significant unavoidable environmental effects are involved.

An EIR uses a multidisciplinary approach, applying social and natural sciences to make a qualitative and quantitative analysis of all the foreseeable environmental impacts that a proposed project would exert on the surrounding area. As stated in State CEQA Guidelines §15151:

An EIR should be prepared with a sufficient degree of analysis to provide decision makers with information which enables them to make a decision which intelligently takes account of environmental consequences. An evaluation of the environmental effects of a proposed project need not be exhaustive, but the sufficiency of an EIR is to be reviewed in the light of what is reasonably feasible.

This Draft EIR has been prepared to comply with CEQA regulations and is to be used by local regulators and the public in their review of the potential environmental impacts of the proposed project and alternatives, and mitigation measures that would minimize or avoid the potential environmental effects. Valley District will consider the information presented in this Draft EIR, along with other factors, prior to approving the proposed project.

1.5.1 Notice of Preparation and Initial Study

Pursuant to §15082 of State CEQA Guidelines, the lead agency is required to send a Notice of Preparation (NOP) stating that an EIR will be prepared to the State Office of Planning and Research (OPR), Responsible and Trustee agencies, and federal agencies involved in funding or approving the project. The NOP must provide sufficient information in order for responsible agencies to make a meaningful response. At a minimum, the NOP must include a description of the project, location of the project, and probable environmental effects of the project (State CEQA Guidelines §15082(a)(1)). Within 30 days after receiving the NOP, responsible and trustee agencies and OPR shall provide the lead agency with specific detail about the scope and content of the environmental

information related to that agency's area of statutory responsibility that must be included in the Draft EIR (State CEQA Guidelines §15082(b)).

On July 11, 2018, an NOP along with the Initial Study (IS) for the proposed project was submitted to the California OPR, and distributed to Responsible and Trustee agencies and other interested parties for a 30-day review period that ended August 9, 2018. The NOP was mailed to local, state, and federal agencies and groups or individuals who had expressed interest in the project. Copies of the NOP and IS were made available for public review on the Valley District website (<http://www.sbvmd.com/Upper-SAR-Restoration>) and at the Valley District offices at 380 East Vanderbilt Way, San Bernardino, CA 92408.

1.5.2 Written Comments Provided During the NOP Period

Comments on the NOP and IS were received from eight public agencies and organizations during the NOP's 30-day public review period: Center for Biological Diversity, Native American Heritage Commission, Rivers and Land Conservancy, Santa Ana Regional Water Quality Control Board, Inland Empire Water Keeper, California Department of Fish and Wildlife, City of Loma Linda, and San Bernardino County Department of Public Works. Specific environmental concerns raised in these comment letters are set forth in Table 1-1 below, along with an identification of the sections of the Draft EIR that include information that responds to the identified environmental concerns.

Appendix D includes a copy of the NOP and IS, as well as the written comments submitted on the NOP.

Table 1-1. Notice of Preparation Written Comment Summary by Respondent

Comment Summary by Respondent	Response in Draft EIR
City of Loma Linda – July 12, 2018	
No comments at this time.	Comment noted.
Rivers & Lands Conservancy – July 30, 2018	
The Santa Ana River provides opportunities for recreation uses in both developed and undeveloped locations in the immediate vicinity of the proposed project.	Chapter 2, Section 3.11
The Draft EIR should address the existing setting with respect to recreational uses. Any inconsistencies with city general plans should be identified. Discuss how the project may impede ongoing recreational and outreach activities.	Section 3.11
Organization supports the Upper SAR HCP effort and is willing to identify recreational uses and activities within the project area.	Comment noted.
Center for Biological Diversity – July 31, 2018	
The proposed project must commit to in-perpetuity maintenance and conservation mechanisms to ensure that the project efforts are sustainable over the long term.	Chapter 2, Section 3.3
Document existing conditions and perform seasonal surveys for sensitive plant species, vegetative communities, and animal species in close coordination with resource agencies. Full disclosure of survey methods and results to be provided to the public and agencies. Provide vegetation maps at a large enough scale for evaluating impacts. Perform surveys to evaluate the existing on-site conditions at appropriate times; seasonal surveys may be required.	Section 3.3

Comment Summary by Respondent	Response in Draft EIR
State the goals and objectives of the proposed activities at each site, and the project should adopt California Native Plant Society policies and guidelines on native plants. Eliminate invasive exotics such as <i>Arundo donax</i> and perform maintenance to eliminate and control infestations. Have site-specific management/maintenance plans in the EIR.	Section 3.3
EIR to discuss and require safeguards that ensure that restoration sites are protected for conservation purposes that may require updates to the land use plans and zoning for affected cities and counties. Conservation easements or deed restrictions may be useful tools to ensure that the efforts of the proposed project are preserved in perpetuity.	Section 3.3
EIR must fully analyze compliance with the goals of the Western Riverside County Multiple Species Habitat Conservation Plan and other local plans.	Section 3.3
EIR must clarify impacts on jurisdictional waters of the U.S. and waters of the State and avoid, minimize, and mitigate any impacts. EIR to quantify and ensure in perpetuity the water quantities that are the basis of support for the restoration efforts.	Section 3.3
EIR needs to fully evaluate additional impacts on air quality in this polluted air basin and provide effective mitigation measures to minimize hazardous pollution.	Section 3.3
EIR should consider the project's consistency with the Riverside County Climate Action Plan.	Section 3.6
Identify compensatory mitigation options that can be used to obtain necessary permits for water management activities. EIR needs to identify the projects that will take advantage of this mitigation and other projects that affect the project.	Section 3.3
CBD will work with Valley District to ensure that the EIR conforms to the requirements of state and federal laws and that impacts are fully analyzed, avoided, minimized, or mitigated.	Comment noted.
San Bernardino Valley Municipal Water District – August 2, 2018	
No comments at this time. Request to be included on the circulation list for all project notices, public reviews, or public hearings.	Comment noted.
Inland Empire Waterkeeper – August 3, 2018	
Ensure that the project does not limit public access to the Santa Ana River at the restoration sites. Access should not be denied to the public at Anza Creek and Martha McLean-Anza Narrows Park, which is widely used and valued by the public.	Section 3.11
Organization supports the restoration project. States that the project may intentionally prevent the public from accessing the river at Anza Creek and would deny the public benefits that are protected under the public trust doctrine. Recommend taking public trust uses into account throughout the CEQA process and limiting the harm to those uses as feasible.	Chapter 2, Section 3.11
California Department of Fish and Wildlife (CDFW) – August 7, 2018	
EIR should include a complete assessment of flora and fauna within and adjacent to the project footprint, and identify rare, threatened, endangered, and other sensitive species and their associated habitats.	Section 3.4
EIR should provide a thorough discussion of the direct, indirect, and cumulative impacts on biological resources.	Section 5.2
EIR must describe a range of reasonable alternatives to the project that are potentially feasible, would “feasibly attain most of the basic objectives of the project,” and would avoid or substantially lessen any of the project's significant effects.	Chapter 4
EIR should include appropriate and adequate avoidance, minimization, and/or mitigation measures for all direct, indirect, and cumulative impacts that are expected to occur as a result of the construction and long-term operation and maintenance of the project.	Section 3.4

Comment Summary by Respondent	Response in Draft EIR
CDFW recommends early consultation for obtaining a California Endangered Species Act (CESA) Incidental Take Permit. CDFW recommends that the EIR address all project impacts on listed species and specify a mitigation monitoring and reporting program that will meet the requirements of the CESA.	Comment noted.
EIR needs to address how the project will affect the policies and procedures of the Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP). All surveys required by WRCMSHCP policies and procedures to determine consistency with the WRCMSHCP.	Section 3.4
Valley District to notify CDFW per Fish and Game Code Section 1602. Upon receipt of a complete notification, CDFW determines if the proposed project activities may substantially adversely affect existing fish and wildlife resources and whether a Lake and Streambed Alteration Agreement is required.	Section 3.4
Native American Heritage Commission (NAHC) – August 8, 2018	
The lead agency will need to determine whether there are historical resources within the area of potential effects.	Section 3.4
Consult with all California Native American tribes that are traditionally and culturally affiliated with the geographic area. Consult with legal counsel about compliance with Assembly Bill (AB) 52 and Senate Bill (SB) 16 and all applicable laws.	Section 3.4
AB 52 has added to CEQA requirements for formal notification for specified timeframes, consultation requirements, confidentiality of information, discussion of significant impacts, conclusion of consultation, recommendation of mitigation measures, consideration of feasible mitigation, prerequisites for certifying an EIR with a significant impact on tribal cultural resources, and documentation of the process in the cultural resources section of the environmental document.	Section 3.4
SB 18 requires local governments to contact, provide notice to, refer plans to, and consult with tribes prior to an amendment of a general plan or a specific plan, or designation of open space. SB 18 provisions include tribal consultation, confidentiality of information, and conclusion of SB 18 tribal consultation. There is no statutory time limits on SB 18 tribal consultation.	Section 3.4
Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are affiliated with their jurisdictions before specified timeframes.	Section 3.4
To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or, barring both, mitigation of project-related impacts on tribal cultural resources, the NAHC recommends contacting the appropriate regional California Historical Research Information System Center. If an archaeological inventory survey is required, a professional report should detail the findings and recommendations of the records search and field survey.	Section 3.4
Contact the NAHC for a sacred lands file search and a Native American consultation list of appropriate tribes.	Section 3.4
Lack of subsurface evidence of archaeological resources does not preclude their subsurface existence.	Section 3.4

Comment Summary by Respondent	Response in Draft EIR
Santa Ana Regional Water Quality Control Board (RWQCB) – August 9, 2018	
Specify the mechanized methods of channel enhancement, whether by backhoe trenching, reconfiguration by hand tools, or other means.	Chapter 2, Air Quality
Include specific performance criteria that include adaptive management and a monitoring program to be implemented for several years post-project to determine the level of success of the project. Performance criteria to include information on how invasive plants and wildlife will be controlled, and how restored sites will be protected in the future to ensure that homeless encampments do not return.	Chapter 2
Specific early consultation with RWQCB concerning Clean Water Act Section 401 Water Quality Standards Certification issues is suggested.	Comment noted.
Waters in the project sites should have the following beneficial uses of the Santa Ana River, Reach 3: agricultural supply; groundwater recharge; water contact recreation; non-contact water recreation; warm freshwater habitat; wildlife habitat; and rare, threatened, or endangered species.	Sections 3.1, 3.4, 3.9 and 3.11
Coverage is required under State Water Resources Control Board Quality Order No. 99-08-DWQ, the National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction Activity, for individual projects occurring on an area of 1 or more acres. A notice of intent with the appropriate fees for coverage of the project under this permit must be submitted at least 30 days prior to the initiation of construction activity.	Section 3.9

1.5.3 Public Scoping

Pursuant to State CEQA Guidelines §15083, a lead agency may initiate public consultation regarding potential environmental impacts associated with the proposed project. If a project is determined to have statewide, regional, or area-wide significance, the lead agency is required to conduct at least one scoping meeting to gauge the range of actions to be analyzed in the draft EIR pursuant to State CEQA Guidelines §15206. The public scoping meeting was held during the 30-day NOP public review period on July 18, 2018, at the Valley District Offices at 380 E. Vanderbilt Way, San Bernardino, CA 92408.

1.5.4 Draft EIR

The scope of environmental issues addressed in this Draft EIR was determined through review of environmental documentation developed for the project, environmental documentation for nearby projects, and public and agency responses to the NOP. This Draft EIR provides an analysis of reasonably foreseeable impacts associated with the construction and operation of the proposed project. The environmental baseline for determining potential impacts is the date of publication of the NOP for the proposed project (State CEQA Guidelines §15125(a)). The impact analysis is based on changes to existing conditions that would result from implementation of the proposed project.

In accordance with the State CEQA Guidelines §15126, this Draft EIR describes the proposed project and the existing environmental setting; identifies short-term, long-term, and cumulative environmental impacts associated with the project implementation; identifies mitigation measures for significant impacts; analyzes potential growth-inducing impacts; and provides an analysis of

alternatives. Significance criteria have been developed for each environmental resource analyzed in this Draft EIR. The significance criteria are defined at the beginning of each impact analysis section, and are categorized as follows:

- Significant and Unavoidable: mitigation may be recommended to reduce impacts, but impacts remain significant;
- Less than Significant with Mitigation: potentially significant impact but mitigated to a less-than-significant level;
- Less than Significant: mitigation is not required under CEQA but may be recommended; or
- No Impact.

1.5.5 Level of CEQA Analysis in this Draft EIR

This Draft EIR evaluates the impacts related to implementing the Tributaries Restoration Project and Mitigation Reserve Program Phase I at a project-specific level, which creates the initial conservation/mitigation values for the Mitigation Reserve Program Phase I. This document also evaluates a possible second phase of restoration activities (Expanded Mitigation Reserve Program Phase II) at a program level given the additional restoration opportunities at each of the sites have not been fully developed at the project-specific level of detail. As such, this EIR will provide more of a general level of analysis for the Expanded Mitigation Reserve Program Phase II consistent with State CEQA Guidelines §15168. State CEQA Guidelines §15165 requires preparation of a program EIR when an individual project is to be implemented in phases. Some EIRs combine program- and project-level analyses of phases of a project into one EIR. In this way, the initial phase of a planned series of actions can be evaluated in detail pursuant to State CEQA Guidelines §151611 and approved for construction, while the later phase encompassing the larger intentions of the lead agency can be disclosed and described. Because of this, the Expanded Mitigation Reserve Program Phase II activities are still in the conceptual stage and this component is primarily analyzed programmatically. Further appropriate environmental review would be conducted as determined appropriate pursuant to CEQA and when specific information regarding the other restoration opportunities is identified. This Draft EIR would provide the basis for any future project-level CEQA analyses.

1.5.6 Known Areas of Controversy and Issues of Concern

Pursuant to §15123(b)(2) of the State CEQA Guidelines, a lead agency is required to include areas of controversy raised by agencies and the public during the public scoping process in the EIR. Areas of controversy have been identified for the proposed project based on comments received on the NOP during the 30-day public review period. Issues of concern involved the following resource areas: cultural and tribal resources, biological resources, water resources availability, air quality, greenhouse gases, cumulative effects, recreational uses and activities within the Santa Ana River area, long-term restoration success, and homeless encampments.

1.5.7 Public Review of the EIR

In accordance with State CEQA Guidelines §15105, the Draft EIR has been submitted to the OPR State Clearinghouse for review by state agencies and, as such, is available for public review and comment for a 45-day review period. Valley District extended the public review period to 54 days

after hearing comments from the Inland Empire Waterkeeper during the originally scheduled public meeting and then added a second public meeting in the project area. A Notice of Availability ~~has been~~was circulated to federal, state, and local agencies and interested parties, who may wish to review and issue comments on its contents. All comments should be directed to:

Valley District

Heather Dyer, Senior Water Resources Project Manager
380 East Vanderbilt Way, San Bernardino, CA 92408
Email: uppersarrestoration@icf.com

During the ~~4554~~-day review period, Valley District ~~will~~will ~~conducted~~will ~~one~~two public meetings open to the general public to answer questions and receive oral comments on the Draft EIR. The ~~scoping public meeting~~will ~~will~~will included a brief presentation providing an overview of the proposed program and the CEQA process. After the presentation, oral comments ~~will be~~will be accepted. Written comment forms ~~will be~~will be supplied for those who wish to submit comments in writing at the ~~scoping public~~scoping public meetings. Written comments also may be submitted anytime during the Draft EIR review period. The meetings ~~will be~~will be held at the ~~following~~following location, date, and time:

Wednesday, May 15, 2019

4:00 p.m.-~~6:00~~ 6:00 p.m.
San Bernardino Valley Municipal Water District
380 E. Vanderbilt Way
San Bernardino, CA 92408

Monday, June 10, 2019

6:00-8:00 p.m.
Hidden Valley Nature Center
11401 Arlington Avenue
Riverside, CA 92505

All oral and written comments received on the Draft EIR ~~will be~~will be responded to and included in the Final EIR. Comments on the Draft EIR must be received by 5:00 p.m. on the last day of the ~~4554~~-day review period unless Valley District grants an extension.

1.5.8 Final EIR

Once the Draft EIR public review period has ended, Valley District will prepare written responses to all comments received on the Draft EIR. The Final EIR will be composed of the Draft EIR, responses to comments received on the Draft EIR, and any changes or corrections to the Draft EIR that are made as part of the responses to comments. As the lead agency, Valley District has the option to make the Final EIR available for public review prior to considering the project for approval (State CEQA Guidelines §15089(b)). Copies of proposed responses to public agency comments must be provided to those commenting agencies at least 10 days prior to certification (State CEQA Guidelines §15088(b)).

Prior to considering the project for approval, Valley District will review and consider the information presented in the Final EIR and will certify that the Final EIR has been adequately prepared in accordance with CEQA. Once the Final EIR is certified, Valley District's Board of Directors may proceed to consider project approval (State CEQA Guidelines §15090, §15096(f)). Prior to approving the proposed project, Valley District must make written findings in accordance with State CEQA Guidelines §15091. In addition, Valley District must adopt a Statement of Overriding Considerations concerning each unmitigated significant environmental effect identified

in the Final EIR (if any). The findings and Statement of Overriding Considerations will be included in the record of the project's approval and mentioned in the Notice of Determination following State CEQA Guidelines §15093(c). Pursuant to State CEQA Guidelines §15094, Valley District will file a Notice of Determination with the OPR State Clearinghouse and San Bernardino County Clerk within 5 working days after project approval.

1.5.9 Mitigation Monitoring and Reporting Program

CEQA requires lead agencies to “adopt a reporting and mitigation monitoring program for the changes to the project which it has adopted or made a condition of project approval in order to mitigate or avoid significant effects on the environment” (State CEQA Guidelines §15097). The mitigation measures, if any, adopted as part of the Final EIR will be included in a Mitigation Monitoring and Reporting Program and implemented by Valley District.

1.6 Organization of the Draft EIR

This Draft EIR is organized into the following chapters and appendices:

Executive Summary. This chapter summarizes the contents of the Draft EIR.

Chapter 1, Introduction. This chapter discusses the CEQA process and the purpose of the Draft EIR and provides background information on the proposed project.

Chapter 2, Project Description. This chapter provides an overview of the proposed project, describes the project objectives, and provides detail on the characteristics of the proposed project.

Chapter 3, Environmental Setting, Impacts, and Mitigation Measures. This chapter describes the environmental setting and identifies impacts of the proposed project for each of the following environmental resource areas: agricultural resources; air quality; biological resources; cultural resources; geology and soils/paleontological resources; greenhouse gas emissions; hazards and hazardous waste; hydrology and water quality; noise; population and housing; recreation; tribal cultural resources; and utilities and service systems. Measures to mitigate the impacts of the proposed project are presented for each resource area.

Chapter 4, Cumulative Impacts. This chapter analyzes the potential for the proposed project to have significant cumulative effects when combined with other past, present, and reasonably foreseeable future projects in each resource area's cumulative geographic scope.

Chapter 5, Other CEQA Considerations. This chapter describes the significant irreversible environmental changes, growth-inducing impacts, and energy impacts associated with the project.

Chapter 6, Effects Found Not to Be Significant. This chapter identifies the effects that were determined not to be significant from the evaluation in the IS.

Chapter 7, Alternatives Analysis. This chapter presents an overview of the alternatives development process and describes the alternatives to the proposed project that were considered.

Chapter 8, Report Preparers. This chapter identifies authors involved in preparing this Draft EIR.

Chapter 9, References. This chapter compiles the references cited in the Draft EIR and consultations with agencies on the proposed project.

Appendices. The Appendices contain important information used to support the analyses and conclusions made in the Draft EIR. Appendices are provided for documenting the project description, scoping process, air quality emissions modeling results, greenhouse gas emissions estimates, biological resources assessment, and cultural resources assessment.

1.7 Citation of Supporting Documents

The pertinent documents related to this EIR have been cited in accordance with §15148 of the State CEQA Guidelines. The following documents, which have been cited in this EIR or otherwise support the analysis in this EIR, are available for public review at Valley District's office or online.

City of Riverside. 1995. *Hidden Valley Wetlands Enhancement Project Operation and Maintenance Manual*.

Dudek. Prepared for San Bernardino Valley Municipal Water District. August 2018. *Santa Ana Sucker Translocation Plan*. Available: www.uppersarhcp.com/s/2018_SAS-Translocation-Plan.pdf.

ICF. Prepared for San Bernardino Valley Municipal Water District. March 2014. *Final Phase 1 Report: Upper Santa Ana Habitat Conservation Plan*. Available: http://www.uppersarhcp.com/s/Final_Phase1_UpperSARHCP_Report_3-13-14-015d.pdf.

———. November 2015. *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects*. November. (ICF 00054.14) San Diego, CA. Prepared for San Bernardino Valley Municipal Water District, San Bernardino, CA (Appendix A of this Draft EIR).

———. June 2018. *Opportunities and Constraints for Tributaries Restoration Sites, Early Implementation Activities: Upper Santa Ana Habitat Conservation Plan*. Available: http://www.uppersarhcp.com/s/OpportunitiesandConstraintsReport-Tributaries_Restoration_FINAL-Part1.pdf (Appendix B of this Draft EIR).

———. August 2018. *30 Percent Design for Upper Santa Ana River Tributaries*. Sacramento, CA. Prepared for San Bernardino Valley Municipal Water District, San Bernardino, CA (Appendix C of this Draft EIR).

Inland Empire Utilities Agency. 2018. Santa Ana River Conservation and Conjunctive Use Program (SARCCUP) Environmental Impact Report. November. Available: <https://18x37n2ovtbb3434n48jhbs1-wpengine.netdna-ssl.com/wp-content/uploads/2018/11/Santa-Ana-River-Conservation-and-Conjunctive-Use-Project-Draft-EIR-2018-11-05.pdf>.

Riverside-Corona Resource Conservation District. July 2012. *Lower Anza Creek Aquatic Habitat Restoration Project*. Draft.

Riverside-Corona Resource Conservation District. April 2012. *Hole Creek Re-Con Survey*. RCRC Aquatics Program.

San Bernardino Valley Municipal Water District. January 2018. *Upper Santa Ana River Watershed Integrated Regional Water Management Plan*. Available: <http://www.sbvmd.com/Home/ShowDocument?id=1468>.

Santa Ana Watershed Project Authority. December 2017. *Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement Project Final Initial Study/Mitigated Negative Declaration*. SCH #2017101064. Available: http://www.sawpa.org/wp-content/uploads/2018/01/2017-12-19-SAWPA-Com-Pkt_WEB.pdf.

2.1 Introduction

The San Bernardino Valley Municipal Water District (Valley District) proposes to construct and maintain four tributary restoration sites along the Upper Santa Ana River—referred to as Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek—in the cities of Riverside and Jurupa Valley and in Riverside County (**Figure 2-1, Project Location**). The proposed project (the Tributaries Restoration Project and Mitigation Reserve Program) would re-establish, enhance, and rehabilitate jurisdictional aquatic resource habitat and/or improve conditions for Santa Ana sucker species. This would be accomplished by improving conditions in existing channels, excavating new channels, restoring associated floodplain surfaces and habitats, controlling nonnative invasive species, supporting the existing local community environmental education and recreational opportunities at each of the sites.

Those sites that are not owned by the California Department of Fish and Wildlife (CDFW)—i.e., Anza Creek and Old Ranch Creek—would be protected with permanent conservation easements or other site protection instruments.

In addition to the efforts proposed as the Tributaries Restoration Project and Mitigation Reserve Program Phase I, there are a number of additional potential restoration projects that could be undertaken on each of the sites listed above that would provide additional environmental values, both with respect to aquatic resources and protected species. These additional projects, which are not proposed at this time but might be undertaken in the future, are addressed programmatically in this Environmental Impact Report (EIR) and are referred to as the “Expanded Mitigation Reserve Program Phase II.” The proposed project, and the Expanded Mitigation Reserve Program Phase II, as described further below, would be included in a mitigation or conservation bank or otherwise established as advance mitigation for public water management projects that might be undertaken on the Upper Santa Ana River.

Two of the restoration projects included in the Tributaries Restoration Project and Mitigation Reserve Program Phase I, and possibly one or more of the projects anticipated for inclusion in the Expanded Mitigation Reserve Program Phase II, may require additional surface water flows that may not presently occur within the tributaries. As more fully described below, it is anticipated that water would be supplied from the Riverside groundwater basin, at least on a temporary basis. It is also possible that water might be supplied from a new recycled water system that may be constructed by the City of Riverside to deliver treated water to address off-river municipal needs upstream of the city’s wastewater treatment plant. If this project (the Purple Pipe Project) is constructed, some of the treated water could be committed to instream uses for the benefit of the Tributaries Restoration Project and Mitigation Reserve Program Phase I or the additional projects included in the Expanded Mitigation Reserve Program Phase II. Accordingly, the Purple Pipe Project is addressed in this EIR, as a reasonably foreseeable project, in Chapter 4, *Cumulative Impacts*.

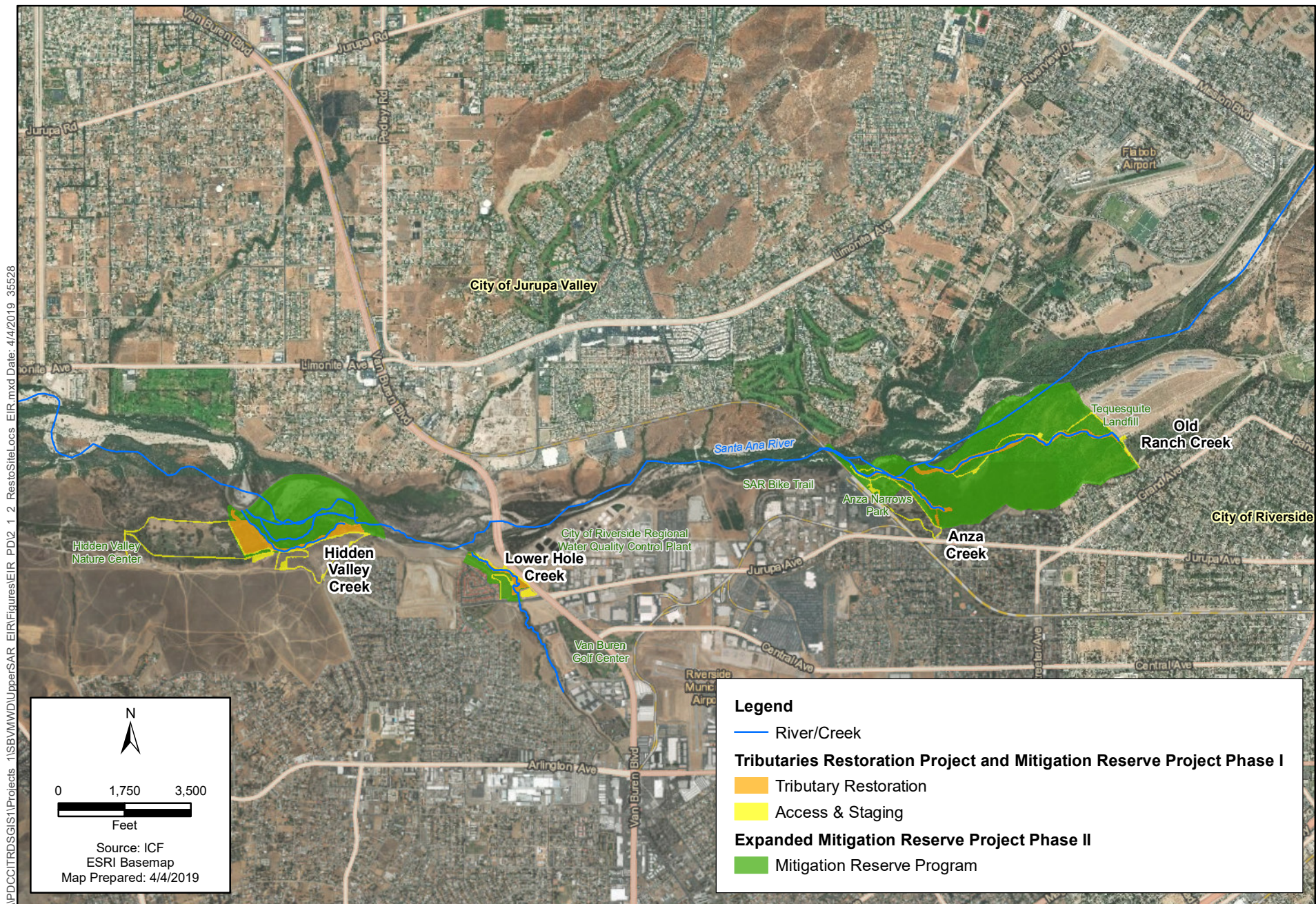


Figure 2-1
Tributary Restoration Project Location
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

2.2 Project Background

2.2.1 Santa Ana River Conservation & Conjunctive Use Program

The Tributaries Restoration Project and Mitigation Reserve Program Phase I component of the proposed project is a primary component of the Santa Ana River Conservation & Conjunctive Use Program (SARCCUP) Phase 1, funded by a Proposition 84 Grant. SARCCUP is a multi-agency, watershed-wide collaborative program designed to improve the Santa Ana River watershed's water supply resiliency and reliability by implementing various watershed-wide projects for development of additional dry-year yield, reduction of water use, and habitat improvement for sustainable native species population. As a watershed-wide cooperative venture, SARCCUP will allow the regional water managers to combine groundwater resources and water conveyance infrastructure for the benefit of the watershed as a whole. SARCCUP consists of the following main program elements:

1. Conjunctive Use Program for the Santa Ana Watershed;
2. Invasive weed removal and habitat creation/restoration for the Santa Ana sucker (*Catostomus santaanae*), a native fish species listed as threatened under the federal Endangered Species Act; and
3. Water use efficiency and water conservation measures.

SARCCUP would initiate additional water conservation measures throughout the Santa Ana River watershed such as conservation-based rate structures and Smartscape, an educational, outreach, training, and communication service that provides support in the design, installation, and maintenance of drought tolerant landscapes.

Regional water managers would utilize existing and new facilities to convey additional surface water supplies to groundwater banking facilities, recharging the underlying groundwater basins throughout the watershed. Conjunctive use of the banked groundwater would occur collaboratively between SARCCUP members. Partnering agencies include Eastern Municipal Water District, Inland Empire Utilities Agency, Orange County Water District, San Bernardino Valley Municipal Water District, and Western Municipal Water District and the Santa Ana Watershed Project Authority, a joint powers agency comprising water agencies listed above. Additionally, SARCCUP partners with Orange County Coastkeeper, a 501(c)(3) nonprofit organization.

For a resilient water supply and use in the watershed, a balance is also needed to improve native species' population and habitat in the Santa Ana River. Invasive plants such as giant cane (*Arundo donax*) use significantly more water than native plant species and have aggressively altered the habitat for endemic fish species, such as the Santa Ana sucker, by choking out conditions for spawning, foraging, and refugia. Through SARCCUP's habitat improvements element, the Santa Ana sucker's habitat will more than double and the remaining giant cane in the Santa Ana River will be removed.

The proposed project would implement the habitat creation/restoration (including for Santa Ana sucker) component of the SARCCUP. Although it is funded through the same grant program, the

proposed project has utility and value independent of the conjunctive use components of the SARCCUP in that it would implement conservation measures to improve conditions for endangered and threatened species along the Santa Ana River. The water bank portion of the SARCCUP deals only in imported State Water Project water delivered to various locations throughout the watershed and does not require mitigation activities. The tributaries restoration, giant cane removal efforts, and water conservation activities would all occur independently of the water bank but were combined into one large watershed-based Proposition 84 funding package to be administered by the Santa Ana Watershed Project Authority. The conjunctive use activities are not a reasonably foreseeable consequence of the proposed project activities and would not likely change the scope or nature of the proposed project or its environmental effects. The environmental effects of the conjunctive use activities are considered in a separate environmental document prepared pursuant to the California Environmental Quality Act (CEQA). For additional details refer to the SARCCUP website: <https://www.ieua.org/santa-ana-river-conservation-and-conjunctive-use-program/>.

2.2.2 Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects

Valley District developed preliminary restoration designs for five sites in support of a Proposition 84 grant application for the proposed project. The five sites included Anza Creek, Old Ranch Creek, Lower Hole Creek, Hidden Valley Creek, and Evans Creek. Valley District evaluated the selection of these five sites that were chosen through preliminary work performed by staff with the Riverside-Corona Resource Conservation District, who are directly familiar with the site's existing conditions and enhancement opportunities, and discussions amongst the Riverside-Corona Resource Conservation District, Valley District, CDFW, and U.S. Fish and Wildlife Service (USFWS). Each site had key attributes that made it a strong candidate for enhancement and providing new Santa Ana sucker habitat, including large tracts of undeveloped land and tributaries with direct connections to the mainstem Santa Ana River. The tributaries will provide opportunities for sucker migration from the mainstem river into new creek habitat where there is refugia and hydrology independent of mainstem river flows. The result was an initial description of site characteristics as well as preliminary designs and cost estimates for features that would restore, enhance, and/or establish Santa Ana sucker habitat. For more details refer to the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* included in **Appendix A**.

2.2.3 Opportunities and Constraints for Tributary Restoration Sites Report

The *Opportunities and Constraints for Tributary Restoration Sites Report* (2018), included in **Appendix B**, documents the baseline conditions at the four proposed project sites and identifies opportunities and constraints for restoring, enhancing or establishing ecological features that benefit threatened/endangered species (in addition to Santa Ana sucker) as well as other aquatic resources. The *Opportunities and Constraints for Tributary Restoration Sites Report* broadens the analysis from the *Preliminary Design Report*, with the addition of a new fifth site, the Hidden Valley Ponds site (listed as a cumulative project), to assess opportunities and constraints for restoring habitat for other threatened/endangered species and for restoring jurisdictional aquatic resources (wetlands and waters of the United States and state) to build a reserve of compensatory mitigation constructed in advance of potential future impacts from water management activities. The

Opportunities and Constraints for Tributary Restoration Sites Report did not further evaluate Evans Creek. A separate Opportunities and Constraints Report is currently being prepared for Evans Creek.

The identification of restoration opportunities utilized a top-down approach beginning with a high-level evaluation of ecological conditions to identify restoration opportunities within the existing land use constraints. Historical ecology and current site conditions were considered when identifying opportunities. After the ecological restoration opportunities were identified, they were refined building off the *Preliminary Design Report* to maximize benefits for threatened/endangered species with prioritization given to Santa Ana sucker (Appendix A). The restoration opportunities were then further evaluated and refined to address other threatened/endangered species' habitat needs as well as additional opportunities to enhance aquatic resources.

The Tributaries Restoration Project and Mitigation Reserve Program Phase I component was developed based primarily on the results of the *Preliminary Design Report* with input from the *Opportunities and Constraints for Tributary Restoration Sites Report*. The Proposition 84 grant provides funds to construct most of the channel and riparian vegetation features identified in the *Preliminary Design Report*. Because the Proposition 84 grant would not have provided enough funding to construct all the sites identified in the *Preliminary Design Report* and *Opportunities and Constraints for Tributary Restoration Sites Report*, the restoration work identified for Evans Lake and Hidden Valley Ponds was not included in the Proposition 84 grant application. These other locations, Evans Lake and Hidden Valley Ponds, are not included in the evaluation of the proposed project but Evans Lake is evaluated as an alternative restoration site in Chapter 7, *Alternatives*. The Hidden Valley Ponds site may become part of a separate mitigation site for vegetation maintenance within the groundwater recharge ponds in the future, and the site was not included as an alternative for the proposed project. In addition, not all of the restoration opportunities identified in the *Opportunities and Constraints for Tributary Restoration Sites Report* were carried forward in the Tributaries Restoration Project and Mitigation Reserve Program Phase I component due to funding limitations. These other opportunities for restoration activities have been identified as part of the Expanded Mitigation Reserve Program Phase II. These other restoration opportunities, described below under Section 2.7.1, *Expanded Mitigation Reserve Program Phase II*, could be implemented on the sites as funding becomes available or a need for additional mitigation arises for one of the partner agencies. The Expanded Mitigation Reserve Program Phase II is still in the conceptual stage of development for individual restoration opportunities, and is being considered for implementation following completion of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. This Draft EIR evaluates the Expanded Mitigation Reserve Program Phase II component of the proposed project at a program level given the restoration opportunities at each of the sites have not been fully developed at the construction level of detail.

2.3 Project Location

The proposed study areas for Anza Creek and Hidden Valley Creek sites are within the jurisdiction of the cities of Riverside and Jurupa Valley and the County of Riverside (**Figure 2-1**). The Old Ranch Creek study area is within the cities of Riverside and Jurupa Valley. The Lower Hole Creek study areas is within the city of Riverside.

The proposed Anza Creek and Old Ranch Creek sites occupy the same overall area on the Santa Ana River's south floodplain about 2 miles downstream of Mount Rubidoux. The Old Ranch Creek site is generally located in the eastern half of the site while the Anza Creek site occupies the western half of

the site. Riverside County owns the majority of the sites' land, while some land along the eastern boundary adjacent to the closed Tequesquite landfill is owned by the City of Riverside. Access is available via public right-of-way.

The proposed Lower Hole Creek restoration site is to the west of Van Buren Boulevard and the closed Pedley landfill, south of the Santa Ana River, and north and east of the single-family housing developments located along Lower Hole Creek. The proposed Lower Hole Creek site begins downstream of Jurupa Avenue where the stream passes under the road through a large, newly installed 40-foot concrete box culvert. Lower Hole Creek meets the Santa Ana River at the downstream end. Most of the site is owned by CDFW but the upper 260 feet of the Lower Hole Creek channel and floodplain is owned by the City of Riverside. Additional privately held parcels are located in the southeastern corner of the site and elevated high above the creek. Access is available via public right-of-way.

The proposed Hidden Valley Creek site is on the inside of a meander bend on the south side of the Santa Ana River about 0.75 mile downstream of the Van Buren Boulevard Bridge and the City of Riverside's Regional Water Quality Control Plant. Nearly all of the land at the site is owned by the State of California (CDFW) and has a long history of management for conservation purposes. The State-owned land is managed by Riverside County Parks and Open Space District. Access is available via public right-of-way.

2.3.1 Project Area and Land Ownership

As stated previously, the project area is within Riverside County and the cities of Riverside and Jurupa Valley. Table 2-1 shows the project area by local jurisdiction and by project site and project component.

Table 2-1. Project Area by Local Jurisdiction and Proposed Project Component

Project Site	City of Riverside (acreage)	City of Jurupa Valley Area (acreage)	Riverside County Area (acreage)	Total (acreage)
Tributaries Restoration Project and Mitigation Reserve Program Phase I				
Old Ranch	18.8	0.0		18.8
Anza Creek	9.2	-	0.7	9.9
Lower Hole Creek	8.2	-		8.2
Hidden Valley Creek	1.2	-	29.2	30.5
Total	37.3	0.0	29.9	67.3
Expanded Mitigation Reserve Program Phase II				
Old Ranch	144.2	44.9		189.1
Anza Creek	94.4	7.4	4.3	106.1
Lower Hole Creek	11.6			11.6
Hidden Valley Creek	2.8	21.2	80.9	104.8
Total	252.9	73.5	85.2	411.6

Source: GIS 2019

In addition, the project sites are owned by many public and private entities, as noted in Table 2-2.

Table 2-2. Land Ownership by Project Site and Project Component

Project Component	Old Ranch Creek (acreage)	Anza Creek (acreage)	Lower Hole Creek (acreage)	Hidden Valley Creek (acreage)	Total (acreage)
Tributaries Restoration Project and Mitigation Reserve Program Phase I					
City of Riverside	2.9	3.9	1.6	0.8	9.2
County of Riverside	15.7	6.0	-	-	21.7
State (CDFW)	-	-	-	-	-
Riverside County Flood Control	-	-	5.0	27.3	32.3
Riverside Gateway	-	-	1.3		1.3
Right-of-Way	0.2	-	0.2	0.1	0.4
Union Pacific Railroad	-	0.02	-	-	0.0
Private	-	-	-	2.2	2.2
Total	9.9	30.5	8.2	18.8	67.3
Expanded Mitigation Reserve Program Phase II					
City of Riverside	33.3	5.4	6.1	0.6	45.4
County of Riverside	155.7	97.4			253.1
State (CDFW)			4.9	103.4	108.2
Riverside County Flood Control		0.4			0.4
Riverside Gateway			0.01		0.01
Right-of-Way	0.1		0.6		0.7
Union Pacific Railroad		0.3			0.3
Private		2.7	0.1	0.8	3.6
Total	189.1	106.1	11.6	104.8	411.6

Source: GIS 2019

2.4 Existing Conditions and Land Uses

2.4.1 Anza Creek and Old Ranch Creek

The Anza Creek and Old Ranch Creek sites are bounded to the north by the Santa Ana River, to the east by the closed Tequesquite Landfill, and to the south and west by the Santa Ana River bicycle trail and Anza Narrows Park. The Anza Creek site contains two small privately owned parcels about 1,500 feet west of the Anza Drain culvert outfall along the southern border of the site. The Santa Ana River bicycle trail extends through these private parcels. Two small wooden pole transmission lines cross the southern portion of the sites. Access roads and the bike path cross the sites and provide feeders to numerous pedestrian trails that zigzag throughout the sites, with a heavy concentration on the northeastern corner where multiple large homeless encampments currently exist. The Old Ranch Creek site is zoned as PF (Public Facilities) with a land use designation of P (Public Park) by the City of Riverside, and is zoned as W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-R (Open Space Recreation) by the City of Jurupa Valley. The Anza Creek site is zoned as PF (Public Facilities) with a land use designation of P (Public Park) by the City of Riverside; is zoned as W-1 (Watercourse, Watershed, and Conservation Areas) with a land use

designation of OS-W (Water) and OS-R (Open Space Recreation) by the City of Jurupa Valley; and is zoned as W-1 (Water) with a land use designation of W (Water) by the County of Riverside. The sites currently support a variety of native floodplain habitats, nonnative grassland, and nonnative riparian habitat. The capped landfill immediately upstream of the sites supports an expansive solar grid.

Old Ranch Creek is one of several surface area drains and stormwater systems, with the upper portion originating in the Wood Streets and lower portion receiving runoff from Jurupa Avenue and over to Central Avenue. The Old Ranch Creek drainage enters the site through a small culvert under the bicycle path at the far southeast corner of the project site. Historically, the drainage conveyed more water than at present. However, currently the drainage is dry most of the year, typically only receiving water during storm events. Thus, the Old Ranch Creek site does not have a perennial source of water and no continuous channel connecting with the Santa Ana River. The Old Ranch Creek no longer exists in the northwestern downstream half of the project site; this area is the south floodplain of the Santa Ana River and requires a rare flood event for flows from the Santa Ana River to spill out into this floodplain area (Appendix A). Existing site photos for Old Ranch Creek are provided on **Figure 2-2**.

Anza Drain is one of several surface area concrete-lined stormwater drains within the City and County of Riverside, with the upper portion originating in the Woodcrest and El Sobrante areas (Appendix A). The Anza Drain flows under the bicycle trail and enters the area at the far southeast portion of the site, at which point the concrete channel turns into a natural, alluvial creek (Anza Creek). Anza Drain supplies little to no surface water flow to the site in dry months; thus, the upper portions of Anza Creek are largely dry. However, in the area of proposed restoration surface water is supplied by natural springs to create perennial flow connecting the creek to the Santa Ana River.

Stormwater also enters the site from another culvert outfall at the far southeast corner of Anza Narrows Park. Stormwater from Anza Drain flowing under the bicycle trail encounters an alluvial fan as it enters the site, causing the water to spread out into different flow paths, with some of the water directed to the northwest toward the Anza Creek channel and some flowing to the north and east away from the channel. The exact distribution of the flow changes with flow level and the configuration of the fan, which also changes in response to sedimentation and vegetation. The result is that not all of the water delivered to the site by Anza Drain ultimately makes its way into the Anza Creek channel. The Santa Ana sucker and the Arroyo chub have been known to occupy portions of Anza Creek during certain times of the year but have been eliminated from most of the lower creek due to fish passage constraints, variable flows, and predation (Appendix A).

Anza Creek near the confluence with the Santa Ana River is a highly dynamic channel. The specific location where the Anza Creek channel meets the Santa Ana River depends upon the current location of the Santa Ana River. Changes to the bed elevation of the Santa Ana River can occur from scour and fill events, which can also cause the amount of sediment in Anza Creek channel to change. An increase in sediment deposits at the mouth of Anza Creek causes backwatering and sedimentation in the lower channel, whereas an increase of sediment scour at the confluence causes Anza Creek to downcut and erode the bed to meet the lower base elevation of the Santa Ana River.

While most of the vegetation along the creek is nonnative, some reaches of the channel exhibit positive attributes that would benefit sucker habitat, such as wood debris accumulations, diversity in depths and velocities that create short gravel riffle sections, stable banks, shading to maintain cooler water temperatures, and active floodplain connectivity. Other channel reaches, however,

exhibit less beneficial attributes. Some sections are completely covered in wild grape and the location of the creek is indiscernible. Homeless activity is prevalent along Anza Creek, which has led to blockages of the channel from footpath and dam construction and excessive garbage, shopping carts, and other debris accumulations (Appendix A). Existing site photos for Anza Creek are provided on **Figure 2-3**.

2.4.2 Lower Hole Creek

The primary land use south and west of the restoration site is single-family residences across from Rutland Park near Van Buren Boulevard and Jurupa Avenue. Jurupa Avenue is the dividing line between two Lower Hole Creek areas—Lower Hole Creek and Upper Hole Creek. Jurupa Avenue is at approximately the same location as the spillway that was used to impound Hole Lake. The project site only includes Lower Hole Creek north of Jurupa Avenue. The upstream section of Hole Creek continues in a southerly direction beyond Jurupa Ave. The primary land use to the east of the project site is the Riverside Regional Water Quality Control Plant, and the Santa Ana River is located north of the restoration site. The site has the following City of Riverside zoning designations: PF (Public Facilities), BMP (Business and Manufacturing Park Zone), and RE (Residential Estate Zone); and these land use designations: (OS) Open Space, C (Commercial), and MDR (Multi Density Residential). The site currently supports dense riparian vegetation along most of the project site and is heavily affected by human use, particularly the area's homeless population, as evidenced by the numerous encampments and extensive trash at the site. There are many informal access trails running down the banks and across the stream.

Hole Creek's water sources include treated effluent and urban runoff, including runoff from Van Buren Boulevard that enters the site from the east downstream of Jurupa Avenue, runoff from the Greenbelt area (south of Victoria), locally rising groundwater, and occasionally flow from the Riverside Canal. These sources provide enough water for Lower Hole Creek to be a perennial channel throughout the year. The urban watershed causes rapid runoff during rain events and periodic flooding that delivers abundant trash and debris to Lower Hole Creek, along with the debris from homeless encampments. In some reaches of the creek, particularly immediately downstream of Jurupa Avenue, the channel is hydrologically connected to a floodplain that allows flood flows to overbank, spread out, and reduce the overall channel velocity and erosive energy. In most reaches, however, the creek is laterally confined by features such as steep terrace deposits, Pedley Landfill, fill placement, and Van Buren Boulevard, and does not have an active floodplain connection. Lower Hole Creek is incised for much of its course downstream of Jurupa Avenue.

The previous channel downcutting created many sections of tall, oversteepened, and unstable banks that deliver fine-grained sediment into the channel and diminish the quality of the gravel material desirable for sucker habitat. However, the morphology of the creek is quite varied and includes riffles (shallow landform or elevated river bed), planar bed channel, and a few isolated and relatively deep pools.

The lower reach upstream of the confluence is largely a long and shallow pool with slow moving water. Overall, the bed substrate is sand and fine gravel with some riffle sections containing clean gravel well-suited for sucker habitat (Appendix A). Existing site photos for Lower Hole Creek are provided on **Figure 2-4**.



Old Ranch Creek and nonnative vegetation



Old Ranch Creek and nonnative vegetation

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Anza Creek camp and nonnative vegetation



Eroding bank lower Anza Creek

Graphics ... 0009618 (8/22/18) AB





Erosion and debris in Van Buren Blvd. tributary channel to Hole Creek



Hole Creek nonnative vegetation and trash

Graphics ... 0009618 (8/22/18) AB



Jurupa Avenue crosses Hole Creek, forming a complete barrier to Santa Ana sucker passage. The crossing is a complicated structure that includes rock rip-rap, a concrete inlet apron, three reinforced concrete box culverts, a concrete outlet apron and stilling basin, and a steep (37 percent slope), loose rip-rap drop structure that ties into the earthen channel on the downstream end. Overall the structure creates a 27-foot elevation drop between the upstream and downstream ends. The lip of the culvert inlet apron creates a backwater effect that causes Hole Creek to pond for about 200 feet upstream of the crossing (Appendix A).

2.4.3 Hidden Valley Creek

The project site is bounded to the north and east by the Santa Ana River, to the south by a steep hillslope, and to the west by an historic wetland complex called the Hidden Valley Duck Ponds. Neighboring land uses upstream and downstream along the Santa Ana River include Hidden Valley Nature Center, community open space, and urban residential communities. Adjacent, developed uplands may also be a source of nuisance species such as feral dogs and cats or nonnative vegetation. The site currently supports a series of native riparian and floodplain vegetation communities. In addition, a large portion of the site supports nonnative California annual grassland. The site has the following City of Riverside zoning designation: PF (Public Facilities) with a land use designation of OS (Open Space/Natural Resources); the following City of Jurupa Valley zoning designation: W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-W (Water); and the following County of Riverside zoning designation: W-1 (Water) with a land use designation of W (Water) and CH (Conservation Habitat). Most of the land is owned by CDFW and managed by the Riverside County Regional Parks and Open Space District. In addition, a private property inholding contains four inactive wells within the floodplain. The proposed project area and the downstream wetlands are a part of the 1,500-acre Hidden Valley Wildlife Area along the Santa Ana River and also hosts the Hidden Valley Nature Center.

The Hidden Valley Creek site does not currently have a perennial source of water. The Hidden Valley Creek site does not contain a functioning tributary channel to the Santa Ana River. There is an historic channel (canal) that used to convey water diverted from the Santa Ana River down the channel, through the Hidden Valley Ponds (i.e., managed wetlands) complex, and back to the Santa Ana River. Water sources to the site are currently limited to storm runoff generated from the surrounding hillslopes during rain events. The alignment and shape of the Santa Ana River changes regularly at the Hidden Valley Creek site in response to flood events as scour and fill processes lead to the creation of new channels with sand and gravel bars and the filling of previous channels. Riparian vegetation colonizes on new river bars and becomes more established in areas that have sufficient time for plants to grow in between flood scouring events. The Hidden Valley Creek site was previously supplied by treated wastewater from the City of Riverside's Regional Water Quality Control Plant located upstream at 5950 Acorn Street in Riverside. The plant is currently being expanded and retrofitted (City of Riverside 2018). The plant expansion is being designed to produce high-quality effluent water and increase efficiency. The Riverside Water Quality Control Plant currently consists of two separate treatment plants and one common tertiary filtration plant. These provide preliminary, primary, secondary, and tertiary treatment (City of Riverside 2018). The treated water was routed alongside the Santa Ana River low-flow channel, separated by a sand berm, until it reached the upstream end of the site and was diverted into a 4,000-foot-long canal that routed the water to the constructed wetlands on the site. A major storm in 2010 destroyed the sand berm separating the recycled water from the river, damaged the diversion infrastructure, and lowered the riverbed by about 8 feet. This lowering made it impossible for water to naturally be

conveyed into the wetlands area using gravity. Therefore, in order to use recycled water for this area in the future, it will need to be pumped uphill to flow into the canal and to the wetlands (Appendix A). Existing site photos for Hidden Valley Creek are provided on **Figure 2-5**.

2.5 Project Objectives

The primary objectives of the proposed project are to:

- Create new or improved aquatic habitat for native aquatic species—the federally listed as threatened Santa Ana sucker (*Catostomus santaanae*) and the state species of special concern Arroyo chub (*Gila orcutti*)—in order to improve current status and security of the populations.
- Improve long-term hydrologic function to create and enhance sustaining native fish habitat through activities such as:
 - (1) creating functional spawning and refugia habitat within tributaries hydrologically connected to the mainstem Santa Ana River,
 - (2) preventing backwater habitat from developing within or at the mouth of the tributaries in order to reduce the habitat suitability for nonnative predator fishes,
 - (3) creating hydrologic conditions that promote the availability of appropriate substrate for successful spawning and feeding,
 - (4) creating tributaries with a reliable source of clean water, and
 - (5) restoring the hydrologic connection with historic floodplains to provide additional areas to where overbank flows can spread into riparian zones,such that the project will enhance and/or create new habitat that results in resource conservation and benefits for other threatened and/or endangered species.
- Promote responsible access and use of public recreation in designated locations along the Upper Santa Ana River.
- Educate the public on responsible use and value of the natural resources on site.
- Maintain ecological value of restored sites for long-term vitality of the sites and secure funding for long-term maintenance.
- Create a Mitigation Reserve Program to create an ecologically functional, self-sustaining mosaic of aquatic and riparian habitats that are resilient to a range of natural disturbances (drought, flood, fire, etc.).
- Provide compensatory mitigation in the form of a Mitigation Reserve Program for future unavoidable adverse impacts on wetlands, waters of the United States and state, riparian habitat, and special-status species that result from activities authorized under Sections 401 and 404 of the Clean Water Act, California's Porter-Cologne Act, Section 1602 of the California Fish and Game Code, the California Endangered Species Act, and the federal Endangered Species Act.



Hidden Valley nonnative vegetation



Hidden Valley nonnative vegetation

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2.6 Tributaries Restoration Project and Mitigation Reserve Program Phase I Components

The proposed project restoration sites would be designed to increase the amount and quality of habitat for the Santa Ana sucker and other native species and enhance jurisdictional aquatic resources; for restoration of existing channels and an existing floodplain tributary; and enhancements to existing riparian and floodplain habitats; limiting of human disturbance; and control of nonnative invasive species. Proposed project details for each restoration site are described below. The proposed project description is based on information provided in the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* included in **Appendix A**, the detail in the *Opportunities and Constraints for Tributary Restoration Sites Report* included in **Appendix B**, and the *30 Percent Design for Upper Santa Ana River Tributaries* included in **Appendix C**.

2.6.1 Common Design Features

2.6.1.1 Enhancement/Re-creation of the Existing Channel

Portions of the Old Ranch Creek and Hidden Valley Creek restoration sites do not currently have an existing channel, or have a poorly defined channel, and thus would require new channel construction. Each new channel would have a morphology that is sustainable with the controlling physical processes and that meets Santa Ana sucker habitat requirements. In general, the enhanced or newly constructed channels would create conditions necessary for Santa Ana sucker sustainability, such as diversity in flow depths and velocities, diversity in substrate size without excessive fine sediment accumulation, intermittent areas of shading and cover provided by vegetation on overhanging banks, and open canopy with appropriate substrate to promote algal growth and sucker feeding. A coarse channel liner composed of a sorted mixture of cobble, gravel, and fine sediment would be constructed under the bed of the new channel in specified reaches to limit water infiltration into the sandy and silty soils at the site, thereby limiting channel flow loss and maintaining flow depths and velocities in the new channel. The new channels would include sections constructed with pool and riffle morphology to create the topographic and hydraulic diversity necessary to sustain different habitats. Gravel would be added to new riffle sections and other areas that would have sufficient flow velocities to maintain suitable coarse substrate for Santa Ana sucker habitat. Many habitat features included in the stream design have been developed based on reference reaches currently occupied by Santa Ana sucker with similar influencing variables such as channel morphology, gradient, water supply, and riparian cover. This includes reference reach work that was performed for this project on the East Fork San Gabriel River and Haines Creek, a tributary to the Big Tujunga River with a similar urban, low-gradient setting as the tributary restoration sites.

Anza Creek

Approximately 1,107 linear feet of constructed channel and 2,322 linear feet of the existing Anza Creek channel would be enhanced by adding gravel to new riffle sections that would have sufficient flow velocities to maintain suitable coarse substrate for Santa Ana sucker habitat. One instream rock and woody material habitat structure would be constructed for approximately every 200 feet of the

existing channel to aid in diversifying hydraulic conditions that would create and sustain habitat complexity. **Figure 2-6** shows the typical cross-sections for the Anza Creek restoration site.

Old Ranch Creek

Under existing conditions the Old Ranch Creek site contains nearly all nonnative plants on the Santa Ana River floodplain with no continuous channel connection to the Santa Ana River. Approximately 2,538 linear feet of new channel would be constructed on the site. 1,782 linear feet of channel would be enhanced and follow the alignment of the Old Ranch Creek drainage that used to connect with the Santa Ana River and whose topography is still visible on the landscape. The downstream portion of the new channel would be constructed along a southwest alignment toward an eventual confluence with the Santa Ana River. **Figure 2-7** shows the post-project condition cross-section for how a new channel would be constructed on the floodplain.

Lower Hole Creek

Approximately 442 linear feet of existing channel downstream of Jurupa Avenue would be enhanced. **Figure 2-8** shows the typical cross-section for the restoration site.

Hidden Valley Creek

Portions of the existing canal would be restored starting near the former canal headworks near the eastern end of the site, and a new channel would be constructed, extending to the Santa Ana River confluence near the western end of the site. The total length of enhanced and created channel would be 4,200 linear feet. **Figure 2-9** shows the typical cross-sections for the restoration site.

2.6.1.2 Floodplain Creation Areas

The proposed project would include floodplain construction in channel reaches where the channel is incised and the banks are tall, oversteepened, and unstable. Construction of new floodplains would allow flood water that is currently confined to spill out of the channel, thereby reducing the flow's energy and reducing the potential for future channel incision and bank erosion. Floodplain construction would also create the hydrologic conditions necessary to support certain native riparian species that cannot exist in upland environments. The new floodplain would be constructed by excavating the ground adjacent to the channel to lower the elevation of the top of the channel's bank and increase the frequency with which flood water would be able to spill out of the channel and overbank onto the new floodplain (Appendix A).

Anza Creek

Anza Creek has several reaches where the channel is confined by steep and tall banks with little to no floodplain connectivity. Approximately 1.1 acres of new floodplain bench would be created, spread out over five different areas, by excavating the high ground adjacent to the low-flow channel. The typical width of the inset floodplain areas would be 20–40 feet, and the average excavation depth would be 2–3 feet.

A 580-foot-long section of Anza Creek's left bank adjacent to the bicycle trail at Martha-McLean-Anza Narrows Park is steep, unvegetated, up to 25 feet tall, and actively eroding into Anza Drain. The bank would be excavated to reduce its steepness, and 0.8 acre would be revegetated with a mixture of riparian plants near the base and coastal scrub in the upland portion. An additional 2.1

acres of coastal scrub would be planted upstream of the eroding bank in an unvegetated and sloping area of the site between the bicycle trail and the Anza Creek channel. Approximately 4.1 acres would have selective clearing and planting.

Old Ranch Creek

Approximately 0.6 acre of floodplain bench would be created. A new riparian corridor would be created, adjacent to which nonnative plants would be removed and new native vegetation would be planted. The riparian corridor would be approximately 100 feet wide (50 feet on either side of the channel); approximately 2.5 acres would be planted with native vegetation. And approximately 12.2 acres would have selective clearing and planting.

Lower Hole Creek

In several long reaches downstream of Jurupa Avenue, the Lower Hole Creek channel is confined by steep, tall banks with little to no floodplain connectivity. Approximately 0.5 acre of new floodplain would be created, spread out over nine different areas, by excavating the high ground adjacent to the low-flow channel. The typical width of the inset floodplain areas would be 25–75 feet, and the average excavation depth would be 3–4 feet. The floodplain creation would provide additional areas where overbank flows can spread out into riparian zones and reduce the shear stress levels in the channel that contribute to channel downcutting and bank erosion. Approximately 3.5 acres would have selective clearing and planting.

Hidden Valley Creek

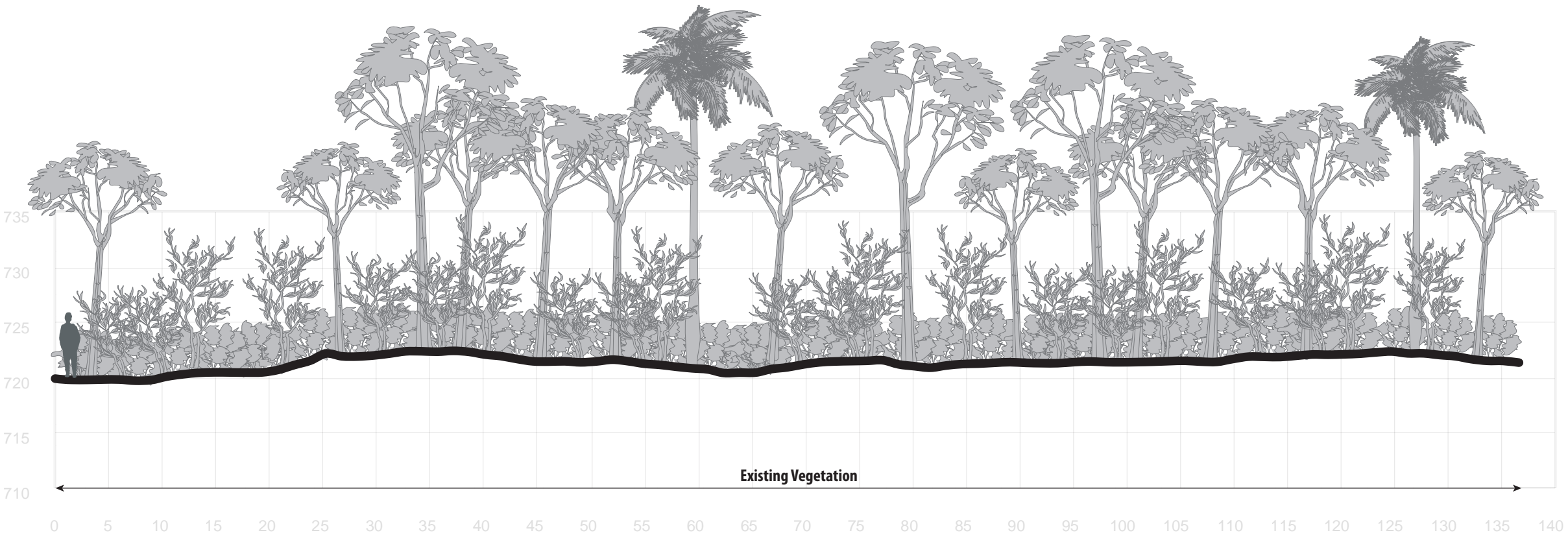
Approximately 18.5 acres of nonnative California annual grassland habitat occurs on site. This habitat would be treated for nonnative species and revegetated with a series of appropriate vegetation communities. Approximately 1.3 acres of floodplain bench would be created, Approximately 6.3 acres of native vegetation would be planted, and 15.4 acres would have selective clearing and planting.

2.6.1.3 Wood and Rock Habitat Structure Design

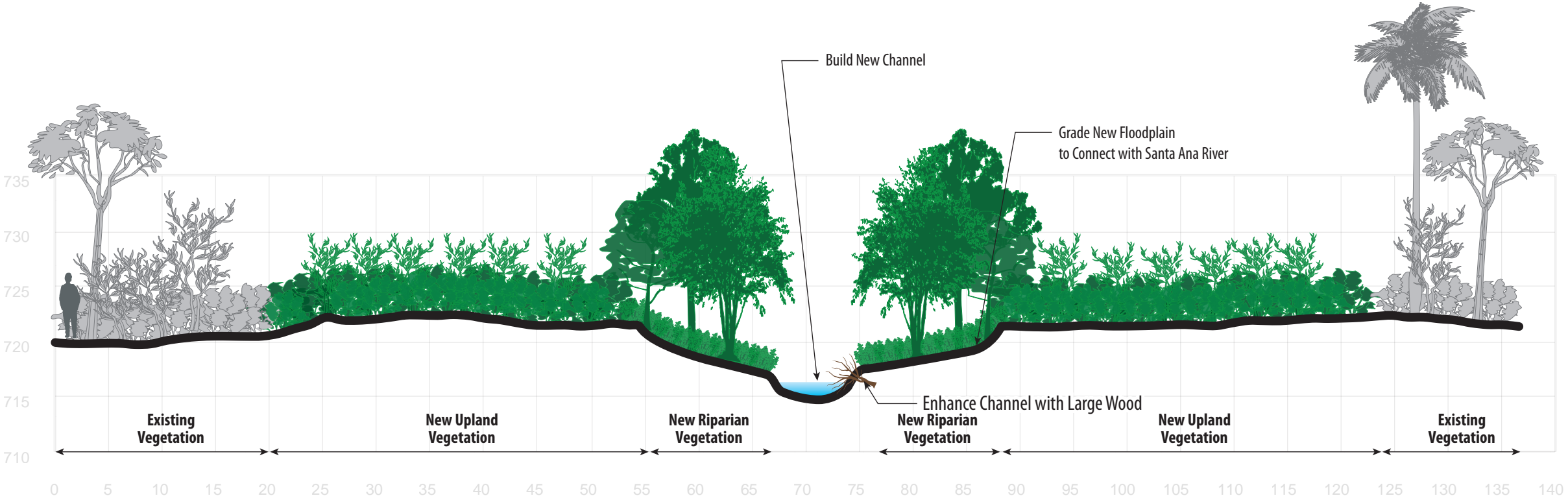
All of the restoration site designs include construction of wood and rock structures to add immediate habitat to the enhancement sites. Several structures have been designed specifically for the restoration project, and would be an appropriately sized for the small channels in which they would be constructed. The objective of the wood and rock structures is to create a flow obstruction that would alter hydraulics in a manner necessary to keep sand from accumulating on the gravel substrate in the vicinity of the structure. The structures would also provide deeper pools and overhang for cover for Santa Ana suckers.

One instream woody material structure would be constructed for approximately every 200 feet of channel to aid in diversifying hydraulic conditions that would create and sustain habitat complexity at each of the restoration sites. **Figure 2-10** shows the types of habitat structures for the restoration sites.

**EXISTING
CONDITIONS**



**POSTPROJECT
CONDITIONS**

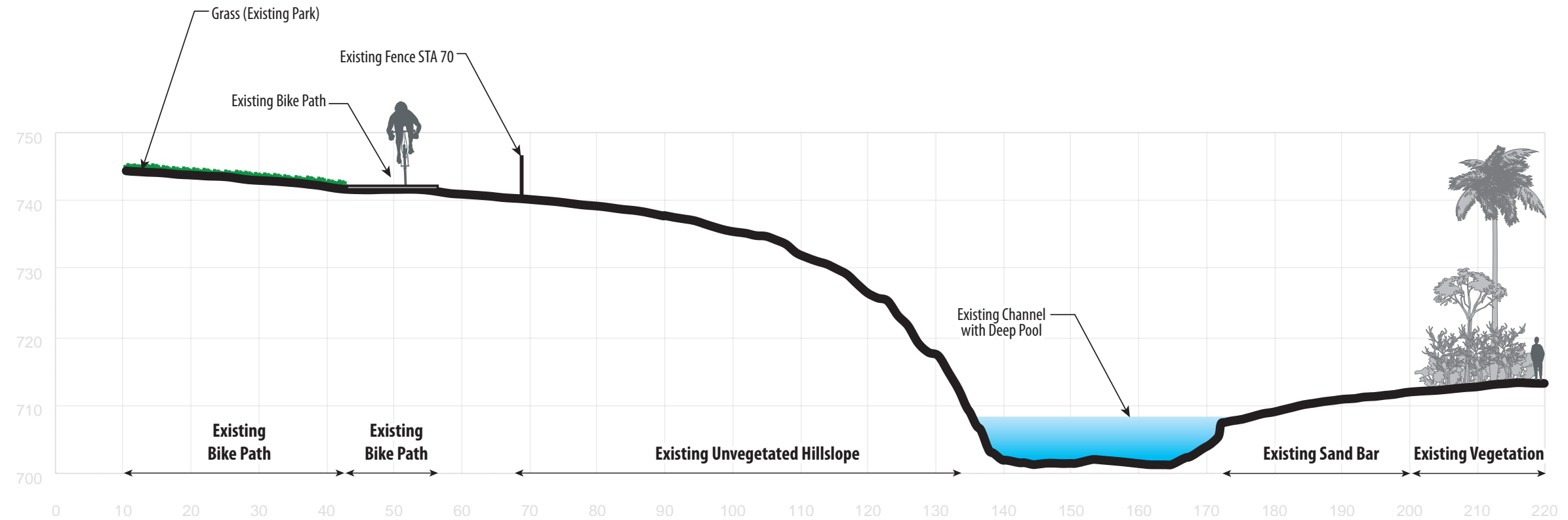


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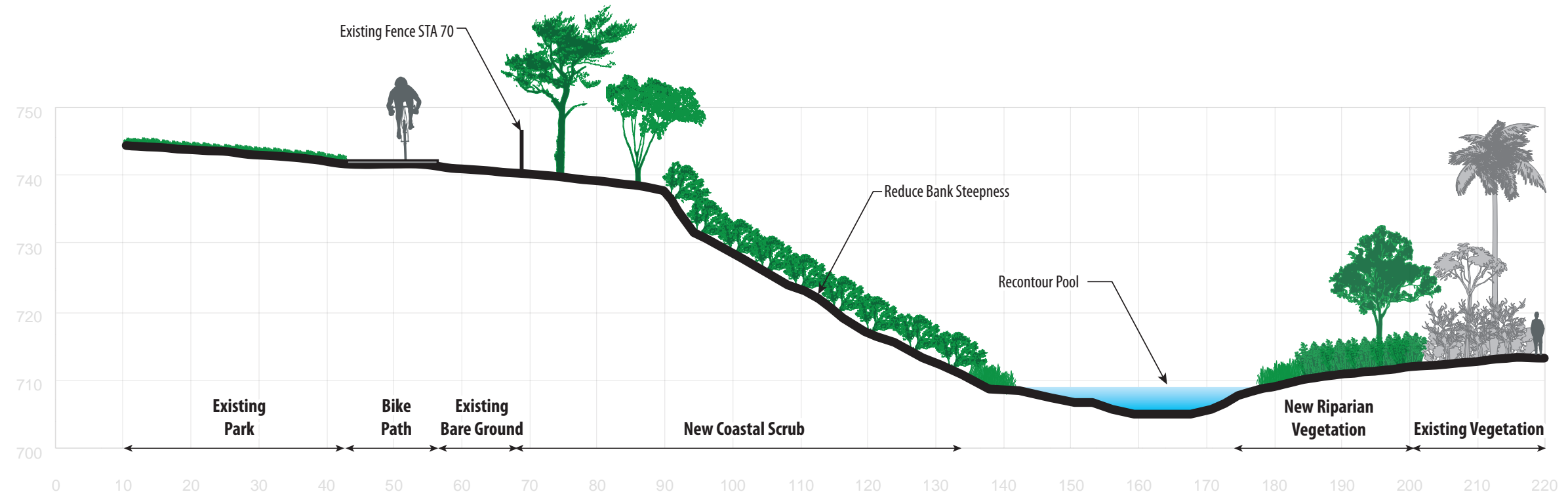


Figure 2-6
Old Ranch Creek Cross Section
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

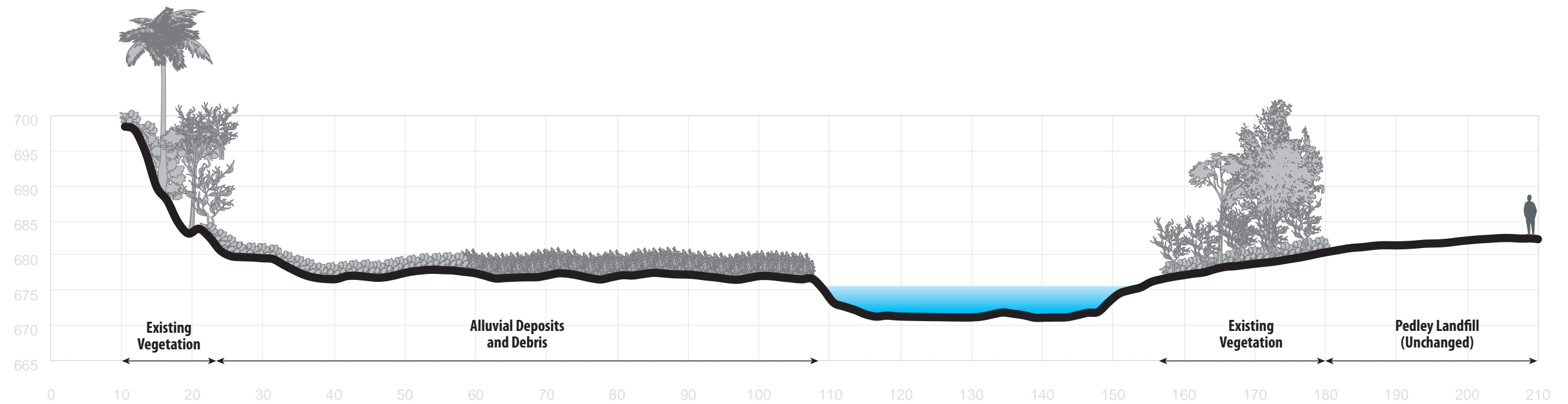
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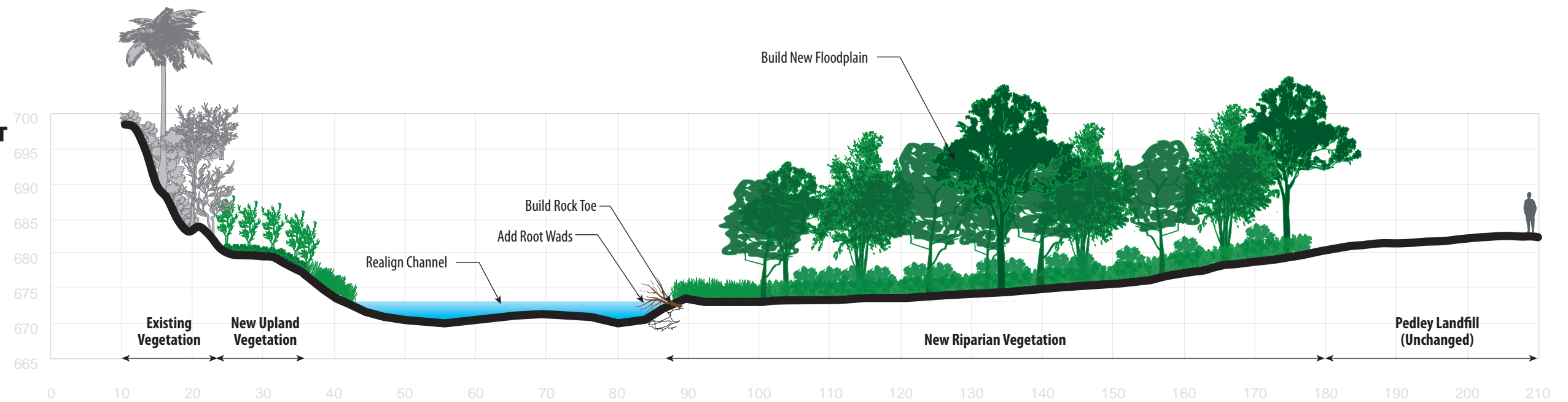
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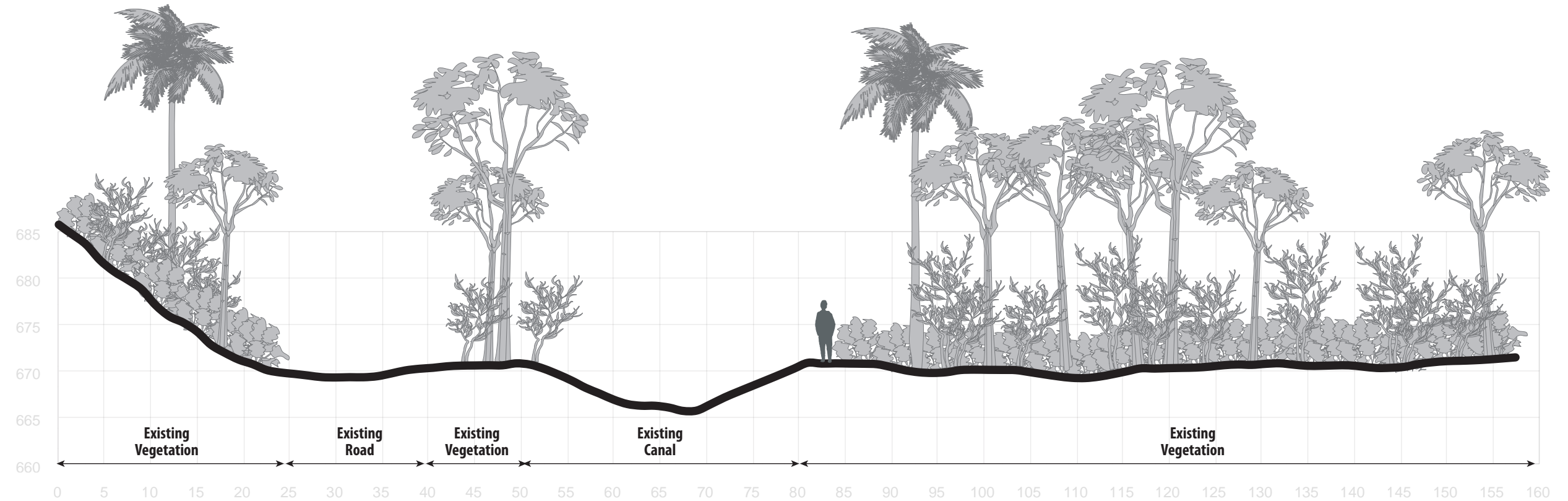
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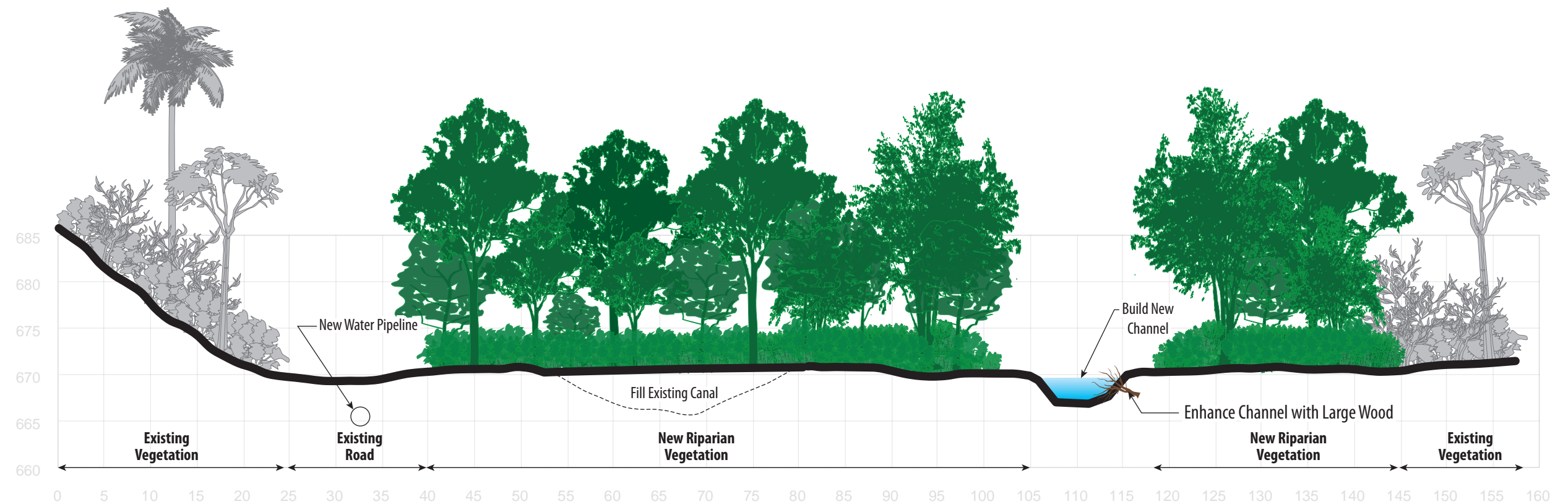
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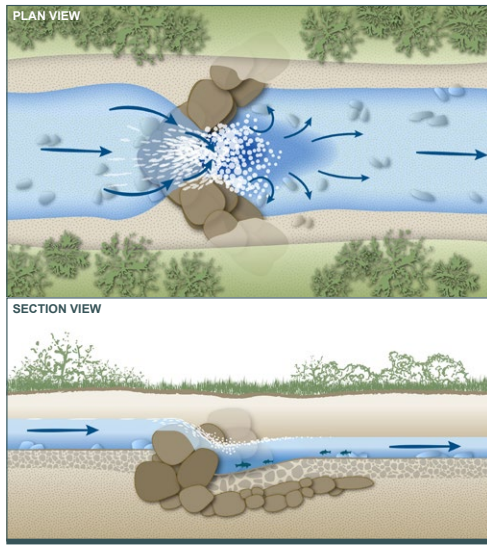


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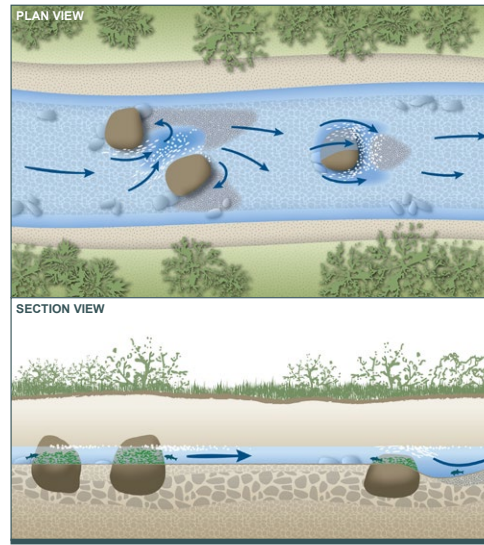


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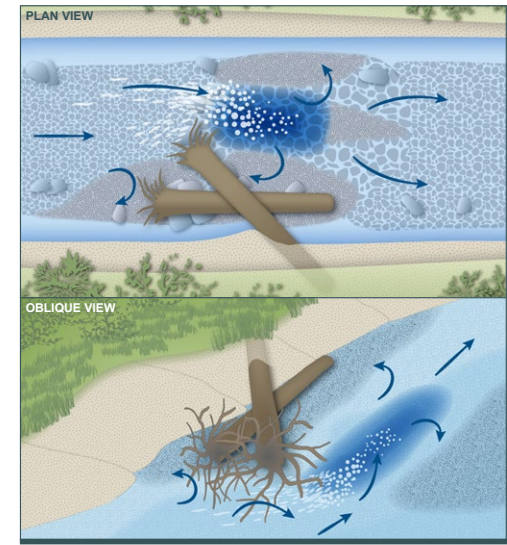




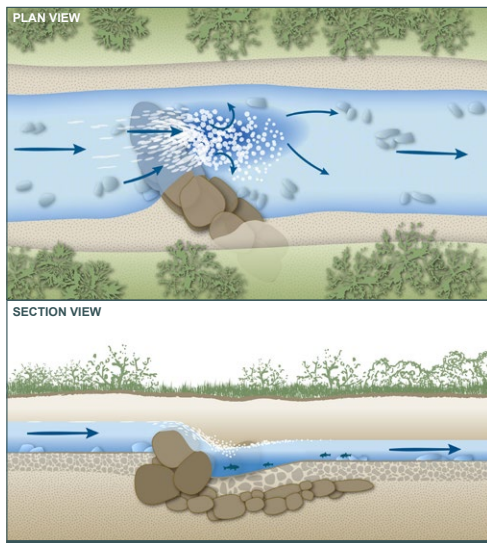
CENTER WEIR PLUNGE POOL



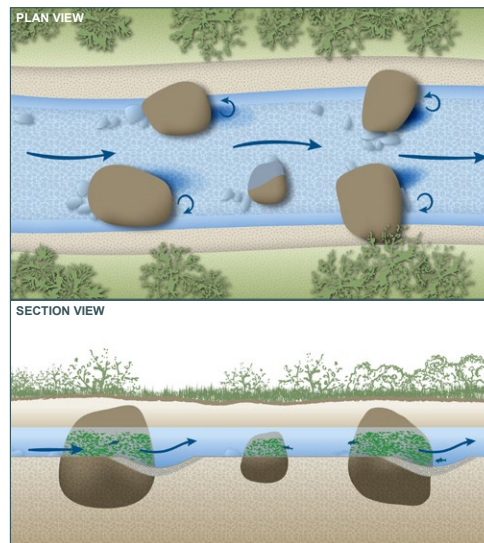
BOULDER-ROUGHENED RIFFLE/RUN HABITAT



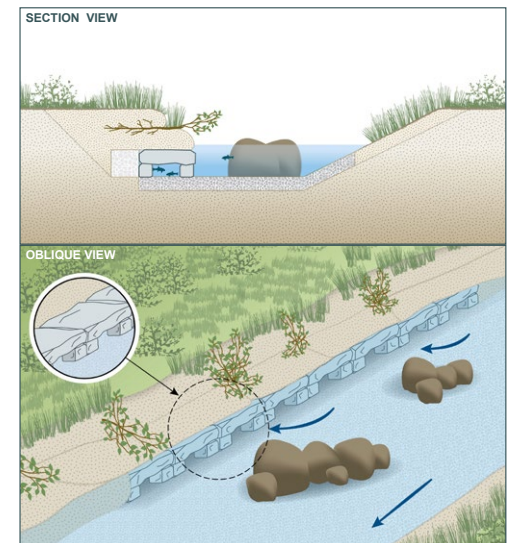
ROOT WAD GROIN SCOUR POOL



ANGLE WEIR PLUNGE POOL



SCATTERED BOULDERS IN SLACKWATER POOLS



LUNKER UNDERBANK HABITAT STRUCTURE

2.6.1.4 Nonnative Vegetation Removal

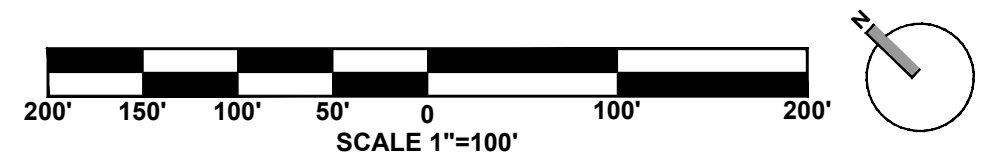
A goal of the proposed project is to create new riparian areas composed of native vegetation, as identified previously. However, currently some of the nonnative vegetation provides beneficial shade to aquatic life in the creeks and to terrestrial species, and it may be important to preserve some nonnative plants that are identified as important sources of existing shade, roosting habitat, or that are providing bank stability until newly planted vegetation becomes established. Future design work will include a detailed tree survey of native and nonnative trees. The results of the survey will be discussed with CDFW and USFWS to develop a plan and schedule for nonnative tree removal. Some of the tall nonnative trees that may provide roosting habitat, such as the nonnative palms, may be treated with herbicide to kill the tree but leave the roosting habitat intact.

2.6.1.5 Public Education

The proposed project would include improvements for public education and outreach that would either enhance, or be developed in partnership with, the existing educational programs such as the City of Riverside Parks and Recreation Department and the Riverside County Parks staff at the Hidden Valley Nature Center. Community education opportunities proposed at all project sites include interpretive trails and signage promoting natural resource protection and native species conservation.

The Lower Hole Creek site currently supports a short trail along the eastern side that offers an opportunity to create short trail with educational signage along the path and perhaps a picnic area near an existing grove of mature trees. However, the site is not currently used by the general public and safety issues associated with the homeless encampments are a high concern. If safety can be improved, Lower Hole Creek could be used for community outreach, with outdoor activities and seating, due to its easy accessibility to both the stream channel and adjacent floodplain native communities.

Martha McLean-Anza Narrows Park is directly adjacent to the Anza Creek site. Restoration of the Anza Creek site presents an opportunity to improve public access to Anza Creek site from the adjacent park to reduce damage to vegetation and the channel integrity. **Figure 2-11** shows the conceptual park improvements considered for implementation at Martha McLean-Anza Narrows Park in cooperation with the City of Riverside Parks and Recreation Department that would facilitate safer public access while educating the public about responsible recreational use of the river. The concept plan is intended to show the types of improvements possible, and final designs are subject to revision upon final review. The goal of the improvements would be to enhance safe site access for recreational purposes and promote the protection of ecological resources.



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2.6.1.6 Limiting Human Disturbance of Restored Habitat

The tributary restoration sites are highly disturbed, with trash dumping, frequent unauthorized human trails, and semi-permanent transient encampments. Measures would be implemented for successful management of the restored habitat to prevent or minimize habitat degradation by controlling human visitation and disturbance in appropriate ways, including eliminating intensive riparian corridor usage by permanent encampments, trash dumping, and off-road vehicle use, and unintended social trails that degrade vegetation and disturb wildlife, including Santa Ana sucker. Managing human access to maintain appropriate levels and areas of visitation would require public education and collaboration with partner agencies and local stakeholders. City of Riverside Public Works staff currently patrol areas along the Santa Ana River approximately twice per week; however, additional patrols would be required to keep the transient populations from rebuilding structures and creating new encampment sites that could impair restored habitats and water quality for fish species. Part of the proposed approach for long-term maintenance for restoration success is deterrence and prevention rather than continued cleanup and removal of items caused by human disturbance. Valley District proposes to fund two full-time County of Riverside Parks and Open Space District ranger positions to patrol the project sites along the tributaries and Santa Ana River plus part-time maintenance staff. The cost of patrol and maintenance of these sites will be included in the long-term endowment set up for management of the restoration sites, in perpetuity. Regular monitoring and onsite patrol presence of uniformed County Parks officers would deter homeless individuals from building or rebuilding semi-permanent structures in the project areas once they have been removed as part of the restoration activities.

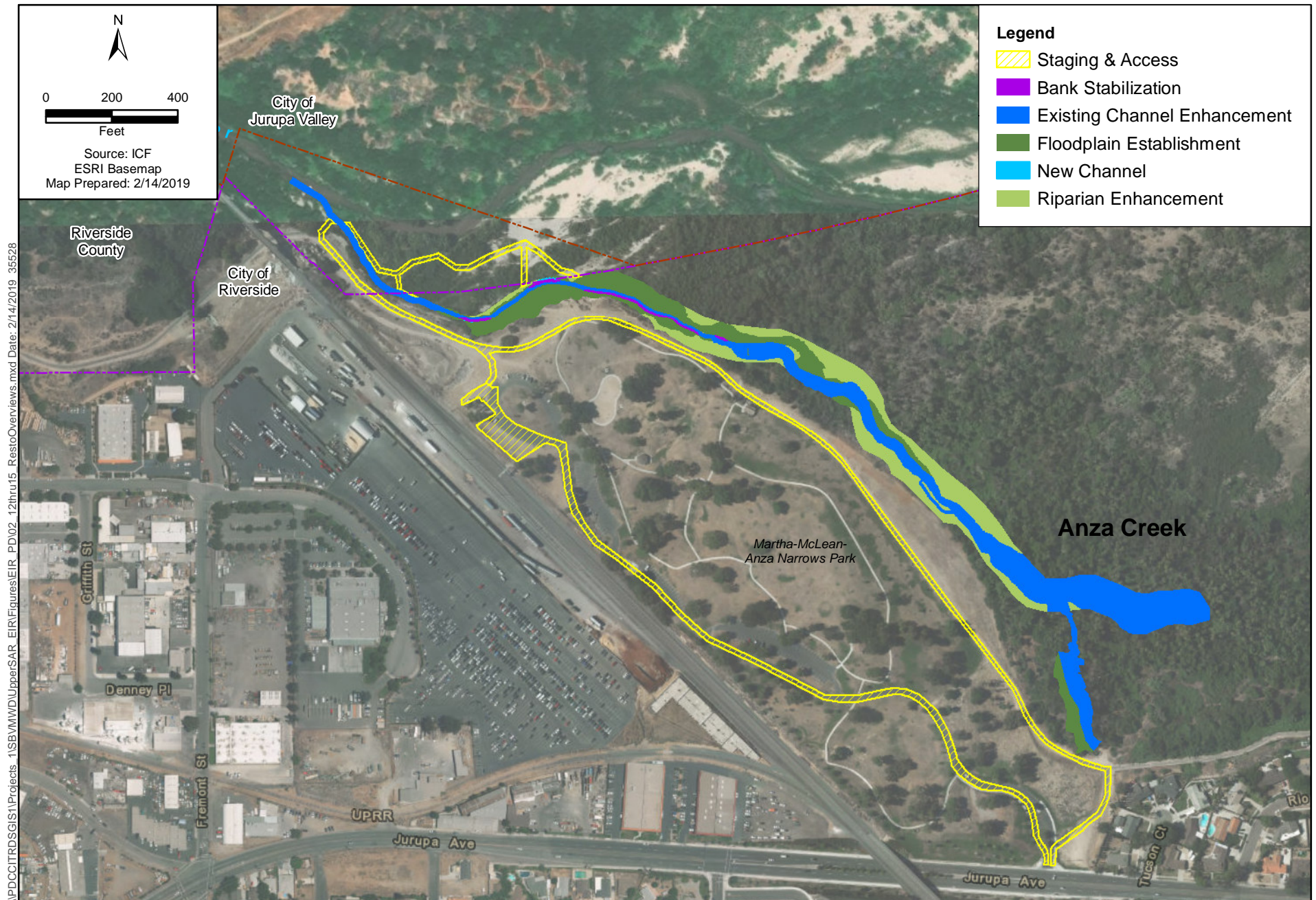
2.6.2 Individual Restoration Site Project Components

2.6.2.1 Anza Creek

The Anza Creek site is currently disturbed and has impaired ecological value, but provides an opportunity for a restored site that would contribute to increased ecosystem functions and benefits to the Santa Ana sucker and aquatic resources. In addition to the proposed common design features identified above, additional individual restoration measures for the Anza Creek site are described below. **Figure 2-12** identifies the location of the proposed restoration activities.

Reconfiguring the Anza Creek Channel near Confluence

The narrow and cattail-choked reach of the Anza Creek channel near the confluence with the Santa Ana River would be enhanced by clearing out the emergent vegetation plugs and reconfiguring the channel topography. This would be done to improve flow into the Santa Ana River to support sufficient flow velocities to maintain a coarse substrate suitable as Santa Ana sucker habitat in the Anza Drain channel upstream of the confluence.



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Figure 2-12
Anza Creek Restoration Activity Overview
 Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

Recontouring the Deep Pool near Confluence with Santa Ana River

A deep pool, about 150 feet long and several feet deep, located at the base of the eroding bank, provides habitat for bass and other nonnative fishes that prey upon Santa Ana sucker migrating up the channel. This pool would be recontoured to reduce its width and depth to eliminate the backwater habitat suitable for nonnative fishes.

Table 2-3 identifies each of the proposed restoration components for the Anza Creek site and the resulting potential benefits to the Santa Ana sucker and other native biological resources.

Table 2-3. Project Specifics and Benefits to Santa Ana Sucker and Associated Resources within Anza Creek

Restoration Opportunities	Benefits to Santa Ana Sucker and Associated Resources												
	Santa Ana Sucker	Santa Ana Speckled Dace	Arroyo Chub	Western Pond Turtle	Two-Striped Garter Snake	Least Bell's Vireo	Southwestern Willow Flycatcher	Yellow-Breasted Chat	California Gnatcatcher	Western Yellow-Billed Cuckoo	Black-Tailed Jackrabbit	Los Angeles Pocket Mouse	Santa Ana River Woolly-Star
Rehabilitate Existing Channel	✓	✓	✓	✓	✓								
Establish New Floodplain	✓	✓	✓	✓	✓	✓	✓	✓		✓			
Reconfigure Channel near Confluence with Santa Ana River	✓	✓	✓	✓	✓								
Construct Rock and Woody Debris Structures	✓	✓	✓	✓	✓								
Recontour Deep Pool	✓	✓	✓	✓	✓								

Source: Appendix B

2.6.2.2 Old Ranch Creek

The Old Ranch Creek site is currently disturbed and has limited ecological value to aquatic species, but provides an opportunity for a restored site that would contribute to increased ecosystem functions and benefits to the Santa Ana sucker and aquatic resources. In addition to the proposed common design features identified above, additional individual restoration measures for the Old Ranch Creek site are described below. **Figure 2-13** identifies the location of the proposed restoration activities.

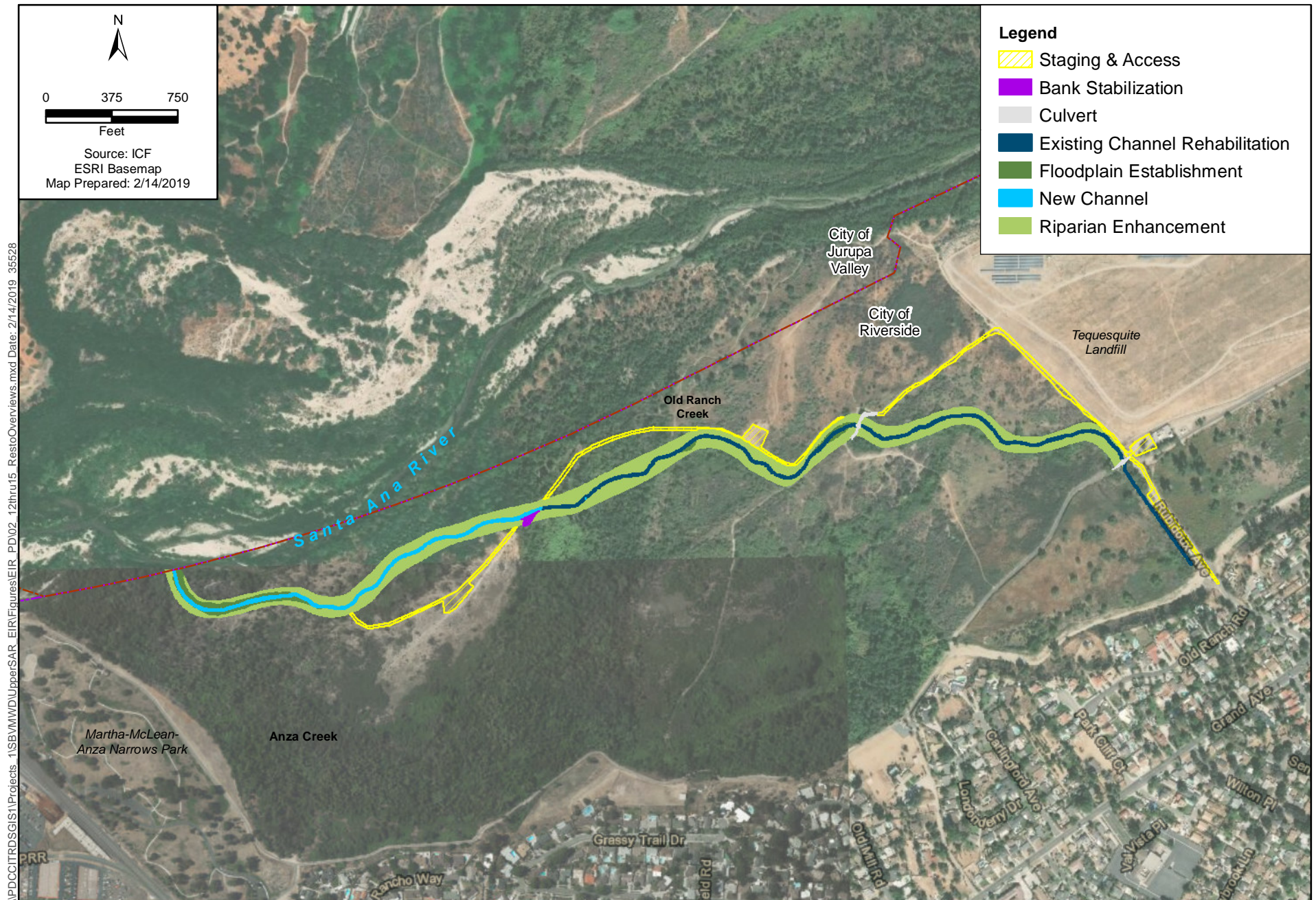


Figure 2-13
Old Ranch Creek Restoration Activity Overview
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

Providing a Perennial Water Source

The Old Ranch Creek site does not currently have a perennial source of water. A new groundwater well and pump are proposed to be constructed at the upstream extent of the channel near the Santa Ana River bicycle trail. The exact capacity of the new pump has not yet been determined. Future studies would determine the achievable flow rate from the new pump. The new pump would have the ability to vary flow rates so that pulses of higher flows can be periodically routed down the channel to flush fine sediment accumulations on gravel substrate (Appendix A).

Table 2-4 identifies each of the proposed individual components and the resulting potential benefits to the Santa Ana Sucker and associated biological resources.

Table 2-4. Project Specifics and Benefits to Santa Ana Sucker and Associated Resources within Old Ranch Creek

Restoration Opportunities	Benefits to Santa Ana Sucker and Associated Resources												
	Santa Ana Sucker	Santa Ana Speckled Dace	Arroyo Chub	Western Pond Turtle	Two-Striped Garter Snake	Least Bell's Vireo	Southwestern Willow Flycatcher	Yellow-Breasted Chat	California Gnatcatcher	Western Yellow-Billed Cuckoo	Black-Tailed Jackrabbit	Los Angeles Pocket Mouse	Santa Ana River Woolly-Star
Construct New, and Enhance Existing, Channels	✓	✓	✓	✓	✓	✓	✓	✓		✓			
Providing a Perennial Water Source	✓	✓	✓	✓	✓	✓	✓	✓		✓			
Construct Rock and Woody Debris Structures	✓	✓	✓	✓	✓								
Restore Riparian Habitat	✓	✓	✓	✓	✓	✓	✓	✓		✓			
Control Invasive Wildlife Species	✓	✓	✓	✓	✓					✓			
Limiting Human Disturbance of Restored Habitat	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Source: Appendix B

2.6.2.3 Lower Hole Creek

The Lower Hole Creek site currently has reduced ecological value due to extensive trash and human disturbance throughout the site. However, Lower Hole Creek provides an opportunity for a restored site that would contribute to increased ecosystem functions and benefits to the Santa Ana sucker and aquatic resources. In addition to the proposed common design features identified above, additional individual restoration measures for the Lower Hole Creek site are described below.

Figure 2-14 identifies the location of the proposed restoration activities.

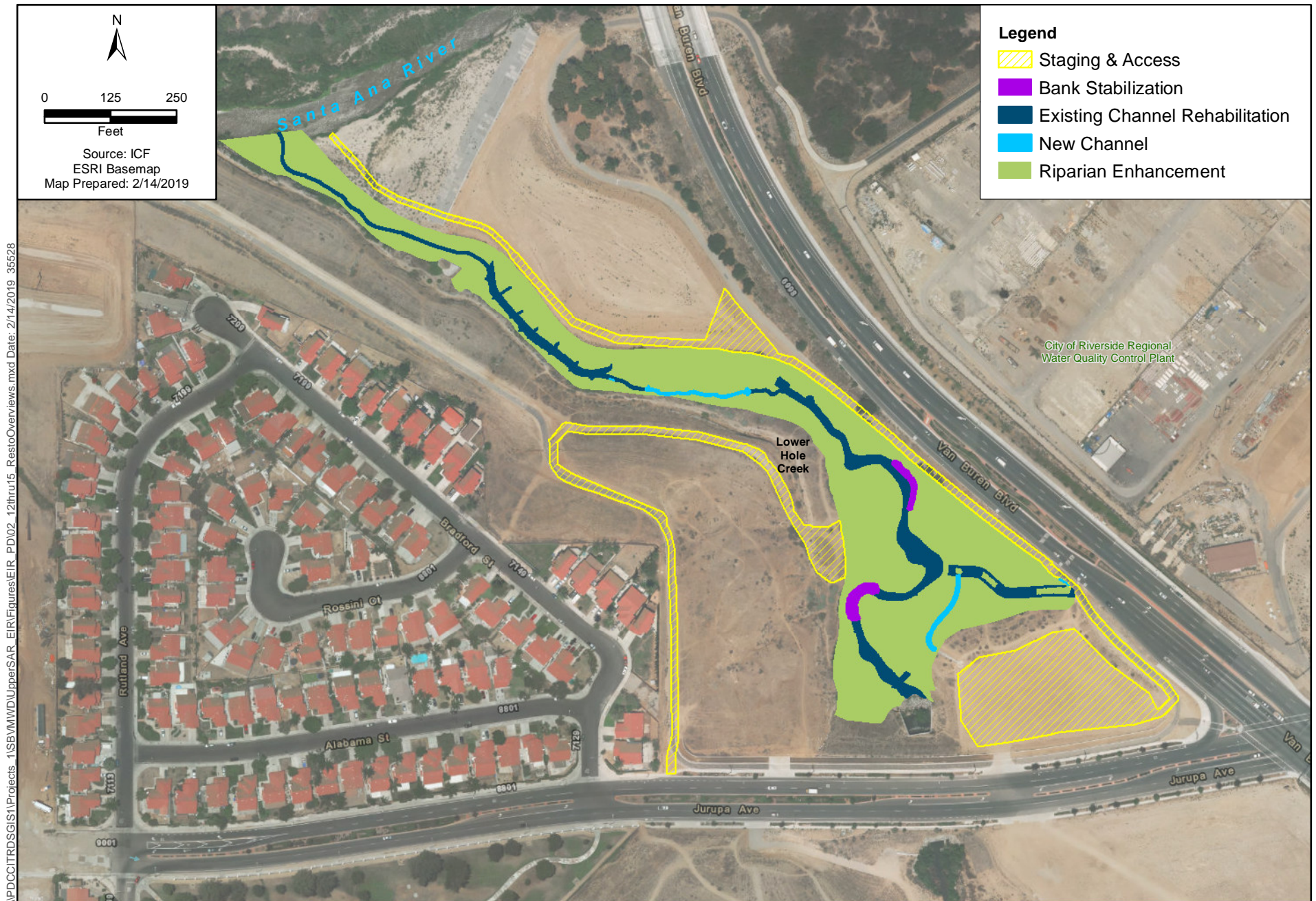


Figure 2-14
Lower Hole Creek Restoration Activity Overview
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

Restore the Riparian Corridor

A new riparian corridor would be created in which nonnative plants would be removed and new native vegetation would be planted. The total width of the corridor would vary from 50 to 75 feet but would extend up to 400 feet in a pocket downstream of Jurupa Avenue. A total of approximately 1.7 acres of new riparian vegetation would be restored downstream of Jurupa Avenue.

Stabilize the Lower Hole Creek Channel Banks

Approximately 575 linear feet of channel bank, split into five different areas located throughout Lower Hole Creek downstream of Jurupa Avenue, exhibits excessive erosion. Many of these areas are along the toes of steep hillslopes where floodplain excavation is not feasible. Consequently, they would require separate work outside of the grading that would occur as part of the floodplain construction. Bank stabilization in these areas would incorporate bank excavation to reduce steepness and methods of placing rock and large wood along the toe to build a narrow bench that separates the active channel from the eroding bank and provides a buffer to keep erosive shear stresses away from the erodible soil that makes up the hillslopes.

Restore the Tributary East of Lower Hole Creek Channel

Restoration of the tributary formed by runoff from Van Buren Boulevard would include trash cleanup, recontouring, bank stabilization, floodplain expansion, and revegetation work.

Narrow the Lower Hole Creek Channel and Create a Terrace at the Downstream End of the Channel

The downstream end of Lower Hole Creek, at the confluence with the Santa Ana River, is much broader than the rest of the site and is influenced by backwatering from the Santa Ana River. As a result, water velocity is slower and increased sedimentation occurs in this location. In an effort to improve sediment transport, create riparian canopy, and increase structural complexity, the channel would be narrowed in this location (approximately 150 linear feet), and a low floodplain with terrace would be added that ties into the terrace elevation near the landfill.

Table 2-5 identifies each of the proposed individual components and the resulting potential benefits to the Santa Ana sucker and associated biological resources.

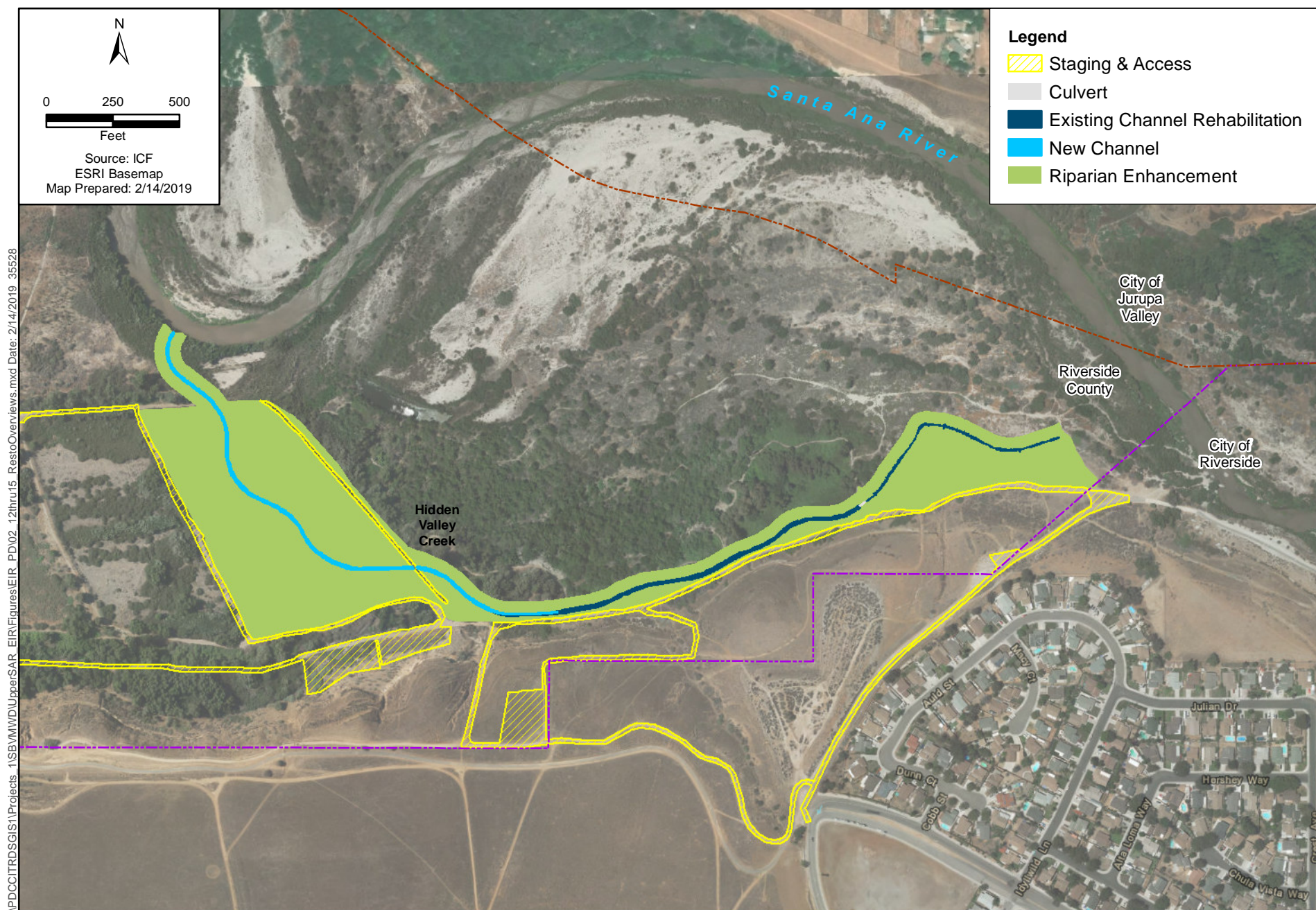
Table 2-5. Project Specifics and Benefits to Santa Ana Sucker and Associated Resources within Lower Hole Creek

Restoration Opportunities	Benefits to Santa Ana Sucker and Associated Resources										
	Santa Ana Sucker	Santa Ana Speckled Dace	Arroyo Chub	Western Pond Turtle	Two-Striped Garter Snake	Least Bell's Vireo	Southwestern Willow Flycatcher	Yellow-Breasted Chat	Black-Tailed Jackrabbit	Los Angeles Pocket Mouse	Santa Ana River Woolly-Star
Restore Riparian Corridor	✓	✓	✓	✓	✓	✓	✓	✓			
Enhance Channel	✓	✓	✓	✓	✓						
Construct Rock and Woody Debris Structures	✓	✓	✓	✓	✓						
Re-establish Floodplain	✓	✓	✓	✓	✓	✓	✓	✓			
Stabilize Channel Banks	✓	✓	✓	✓	✓	✓	✓	✓			
Restore Tributary East of Lower Hole Creek Channel	✓	✓	✓	✓	✓	✓	✓	✓			
Narrow Lower Hole Creek Channel and Create Terrace at Downstream End	✓	✓	✓	✓	✓	✓	✓	✓			
Control Nonnative Invasive Wildlife Species	✓	✓	✓	✓	✓	✓	✓	✓			
Limiting Human Disturbance of Restored Habitat	✓	✓	✓	✓	✓	✓	✓	✓			

Source: Appendix B

2.6.2.4 Hidden Valley Creek

The Hidden Valley Creek site currently has limited ecological value due to the absence of a perennial water source, human disturbance, and the existence of invasive species. However, Hidden Valley Creek provides an opportunity for a restored site that would contribute to increased ecosystem functions and benefits to the Santa Ana sucker and aquatic resources. The individual restoration measures for Hidden Valley Creek are described below. **Figure 2-15** identifies the location of the proposed restoration activities.



Enhance Native Riparian Vegetation

The riparian corridor surrounding the restored floodplain channel would be enhanced by removing nonnative plants. The riparian corridor extends along the length of the channel, and enhancement would target the entire area.

Provide a Perennial Water Source

The Hidden Valley Creek site does not currently have a perennial source of water. A new groundwater well and pump would be constructed at the upstream extent of the channel. The exact capacity of the new pump has not yet been decided. Future studies would determine the achievable flow rate from the new pump, but the current estimate is that it would be in the range of 3 cubic feet per second. The new pump would have the ability to vary flow rates so that pulses of higher flows can be periodically routed down the channel to flush fine sediment accumulations on gravel substrate (Appendix A).

Table 2-6 identifies each of the proposed individual components and the resulting potential benefits to the Santa Ana sucker and associated biological resources.

Table 2-6. Project Specifics and Benefits to Santa Ana Sucker and Associated Resources within Hidden Valley Creek

Restoration Opportunities	Benefits to Santa Ana Sucker and Associated Resources										
	Santa Ana Sucker	Santa Ana Speckled Dace	Arroyo Chub	Western Pond Turtle	Two-Striped Garter Snake	Least Bell's Vireo	Southwestern Willow Flycatcher	Yellow-Breasted Chat	Black-Tailed Jackrabbit	Los Angeles Pocket Mouse	Santa Ana River Woolly-Star
Restore Channel Structural Complexity	✓	✓	✓								
Provide a Perennial Water Source	✓	✓	✓	✓	✓	✓	✓	✓			
Enhance Native Riparian Vegetation	✓	✓	✓	✓	✓	✓	✓	✓			
Construct Rock and Woody Debris Structures	✓	✓	✓								
Enhance Floodplain Habitat				✓	✓	✓	✓	✓			✓
Control Invasive Wildlife Species	✓	✓	✓	✓	✓	✓	✓	✓			
Limiting Human Disturbance of Restored Habitat	✓	✓	✓	✓	✓	✓	✓	✓			✓

Source: Appendix B

2.6.3 Construction Activities

As part of the project, construction would primarily involve removing vegetation and altering existing ground elevations within the restoration sites to establish the proposed habitat distribution. Construction equipment would be brought to the restoration sites via existing access roads. Large

equipment would be transported during off-peak traffic to minimize traffic congestion. Construction of the restoration sites would involve the use of a variety of heavy construction equipment on site. The majority of the equipment and vehicles would be associated with the intensive earthwork. Large construction equipment including backhoes, compactors, excavators, haul trucks, and rollers would be used during the construction phase of the proposed project. Following completion of construction activities, equipment would be demobilized and removed from the sites via the same route. To the extent practicable, temporary impact areas would be situated within disturbed areas such as access/maintenance roads and nearby trails. Temporary construction areas would also have controlled access to maintain public safety during construction. Staging areas, access routes, and other temporarily disturbed areas located within sensitive vegetation areas would be decompacted, revegetated, and restored to preconstruction conditions or as specified in the approved site plans and related construction documents. **Figure 2-16** shows the proposed temporary and permanent construction impacts areas and the staging and access areas.

It is anticipated that 4 months of active construction would be required to complete each of the restoration sites, and up to two sites could be constructed at the same time, for a total project construction timeline of approximately 8 months. However, it is anticipated that construction of all four sites would not be consecutive but two tributaries would be constructed at the same time. The construction methodology and sequencing ultimately used would be determined by the contractor selected for construction with due consideration to the requirements specified in all applicable permits, agreements, and approval documents. Construction is anticipated to occur from 7 a.m. to 7 p.m., 5 days a week, Monday through Friday and 8 a.m. to 5 p.m. on Saturdays, consistent with the City of Riverside's construction noise ordinance. Per the City of Jurupa Valley's municipal code, construction is exempt from the standards between 6:00 a.m. and 6:00 p.m. June through September, and between 7:00 a.m. and 6:00 p.m. October through May. Per the County of Riverside's municipal code, construction is exempt from the standards between 6:00 a.m. and 6:00 p.m. June through September, and between 7:00 a.m. and 6:00 p.m. October through May. All construction activities are anticipated to be completed by 2022 as required by the Proposition 84 grant. The following tasks are anticipated for construction.

The first step in the sequence of construction work would be to mobilize equipment to the project site and prepare staging areas. Staging areas would be cleared and grubbed, as needed, to support construction equipment and materials. Preliminary construction work would include removal of vegetation and would occur primarily using equipment such as excavators and scrapers. Following removal of vegetation from the project site, topsoil would be removed from portions of the restoration sites. High-quality topsoil would be removed to a depth of up to 3 feet, and topsoil would be stockpiled on site for use in revegetation efforts.

The equipment types described above would be used to grade the project area to elevations appropriate for the desired habitat types. Removed material would be reused on site when feasible, such as for fill. Topsoil would be retained throughout project grading and stockpiled on site. Once project grading is complete, this topsoil would be distributed to facilitate successful revegetation on upland portions of the restoration sites. As material is excavated and the site graded to the proposed elevations, soil to be disposed would be transported to the disposal site. Off-highway trucks would transport the material to the disposal site throughout the grading process. During these activities, standard dust control measures would be implemented.

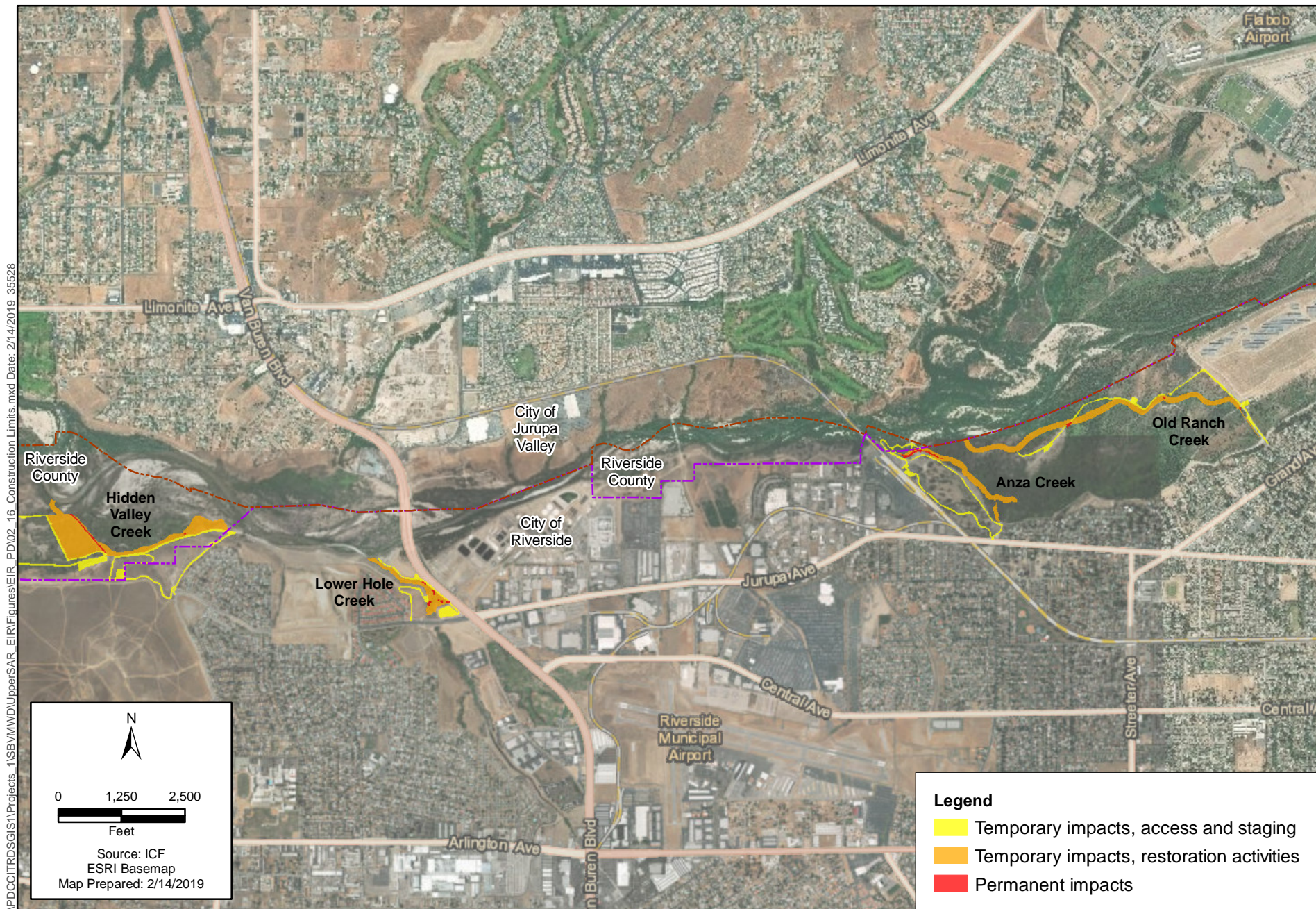


Figure 2-16
Construction Limits
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

Topsoil from the restoration sites excavation would be placed as the last component of final grading, and either hydroseeding or planting would occur to facilitate vegetation recovery as appropriate. Areas proposed for vegetated habitat post-restoration would be planted using a variety of strategies specific to the habitat type (e.g., soils may be amended to facilitate success before or after topsoil placement). Temporary irrigation may also be provided in some areas to support habitat establishment.

After completion of grading and construction improvements, demobilization of construction equipment and materials would commence. Restoration of staging and access areas to preconstruction conditions would then occur.

2.6.4 Long-Term Maintenance

Disturbed areas would be planted as appropriate to facilitate habitat establishment and recovery, and monitoring would occur to ensure success and inform adaptive management actions. The restoration sites would be monitored for physical characteristics, plant establishment, and sensitive species use after completion of construction. Short-term restoration monitoring (post-construction) would occur immediately following construction for a period of 5 to 10 years, to ensure that the habitat meets defined success criteria consistent with regulatory agency permitting requirements. A detailed monitoring program would be developed during the final design and permitting phase of the project and would identify the specific performance criteria that include adaptive management and that would be implemented for several years post-project to determine the level of success of the project. Post-construction monitoring of the restoration sites would be designed to document achievement of project goals and objectives, including success of revegetation efforts and functional stream hydrology, and use of the site by sensitive species. Post-construction monitoring would also be conducted through park ranger patrol of the project sites and other areas along the Santa Ana River to deter unauthorized human disturbances, including garbage disposal and homeless encampments, from disturbing and destroying restoration sites and to promote responsible public access. Furthermore, these restoration projects are meant to complement and provide benefit to a larger regional strategy to improve the long-term quality and function of riparian and riverine areas along the Santa Ana River. Therefore, in order to ensure the permanent benefits to the river and its native species are maintained, a non-wasting endowment will be established to ensure adequate funds for continued monitoring and maintenance of the sites in perpetuity.

2.7 Mitigation Reserve Program Project Components

The Mitigation Reserve Program Phases I and II would result in the development of a combined mitigation/conservation bank and an advance Permittee-responsible mitigation credit program, as shown on **Figure 2-17**. Anza Creek and Old Ranch Creek would be entitled as two separate sites under a single mitigation/conservation bank, while Lower Hole Creek and Hidden Valley Creek would be a stand-alone advance Permittee-responsible mitigation credit program. The latter two project sites would not be part of the formal mitigation/conservation bank because they are primarily located on land owned by CDFW, which does not allow for a mitigation/conservation bank on its lands. Valley District, or its designated representative, would be the mitigation/conservation bank sponsor and would be responsible for installing, maintaining, and monitoring the mitigation/conservation bank sites at Anza Creek and Old Ranch Creek. Valley District or its

designee would be the mitigation/conservation bank owners. In addition to the mitigation/conservation bank sponsor, a long-term habitat manager would be responsible for managing the sites in perpetuity and an endowment holder would be responsible for distributing funds associated with long-term management. Upon mitigation/conservation bank closure, the mitigation/conservation bank is proposed to be managed in perpetuity by Valley District or its designated representative. Valley District would be the advance Permittee-responsible mitigation credit program sponsor and would be responsible for installing, maintaining, and monitoring the advance mitigation credit program projects at Lower Hole Creek and Hidden Valley Creek. U.S. Army Corps of Engineers (USACE), CDFW, USFWS, Regional Water Quality Control Board (RWQCB) and possibly the U.S. Environmental Protection Agency would be likely signatories to the mitigation/conservation bank, while CDFW would be the signatory and USACE would approve the program through preparation of a memorandum for the record for the advance Permittee-responsible mitigation credit program, with the potential involvement of the other resource agencies.

The terms “conservation bank” and “mitigation bank” are defined in Fish and Game Code section 1797.5 as privately or publicly owned land managed for its natural resource values (CDFW 2014). In exchange for permanently protecting the land and resources and managing them according to a written agreement with the CDFW, the bank sponsor is issued credits that it may sell to project proponents who need to satisfy legal requirements for mitigating the environmental impacts of projects, or that it may use for its own project mitigation needs (CDFW 2014). A publicly owned conservation or mitigation bank offers the sponsoring public agency advance mitigation for larger or multiple projects and/or operations and maintenance that spans longer-term project planning horizons (CDFW 2014). Conservation banks generally protect threatened or endangered species habitat or other sensitive resources, while mitigation banks conserve existing, restored, enhanced, or created wetland habitats that may also provide habitat for listed species (CDFW 2014). Senate Bill 1148, Ch. 565, Statutes of 2012, effective January 1, 2013, established a process for CDFW review and approval of mitigation and conservation bank applications and new fees for program services, administration, and oversight by CDFW (CDFW 2014).

The term “*mitigation bank*” is defined in federal regulations (33 Code of Federal Regulations 332.2) as a site, or suite of sites, where resources (e.g., wetlands, streams, riparian areas) are restored, established, enhanced, and/or preserved for the purpose of providing compensatory mitigation for impacts authorized by Department of the Army permits. In general, a mitigation bank sells compensatory mitigation credits to Permittees whose obligation to provide compensatory mitigation is then transferred to the mitigation bank sponsor. The operation and use of a mitigation bank are governed by a mitigation banking instrument. Regulations pertaining to the establishment, use, and operation of mitigation banks are outlined in 33 Code of Federal Regulations 332.8.

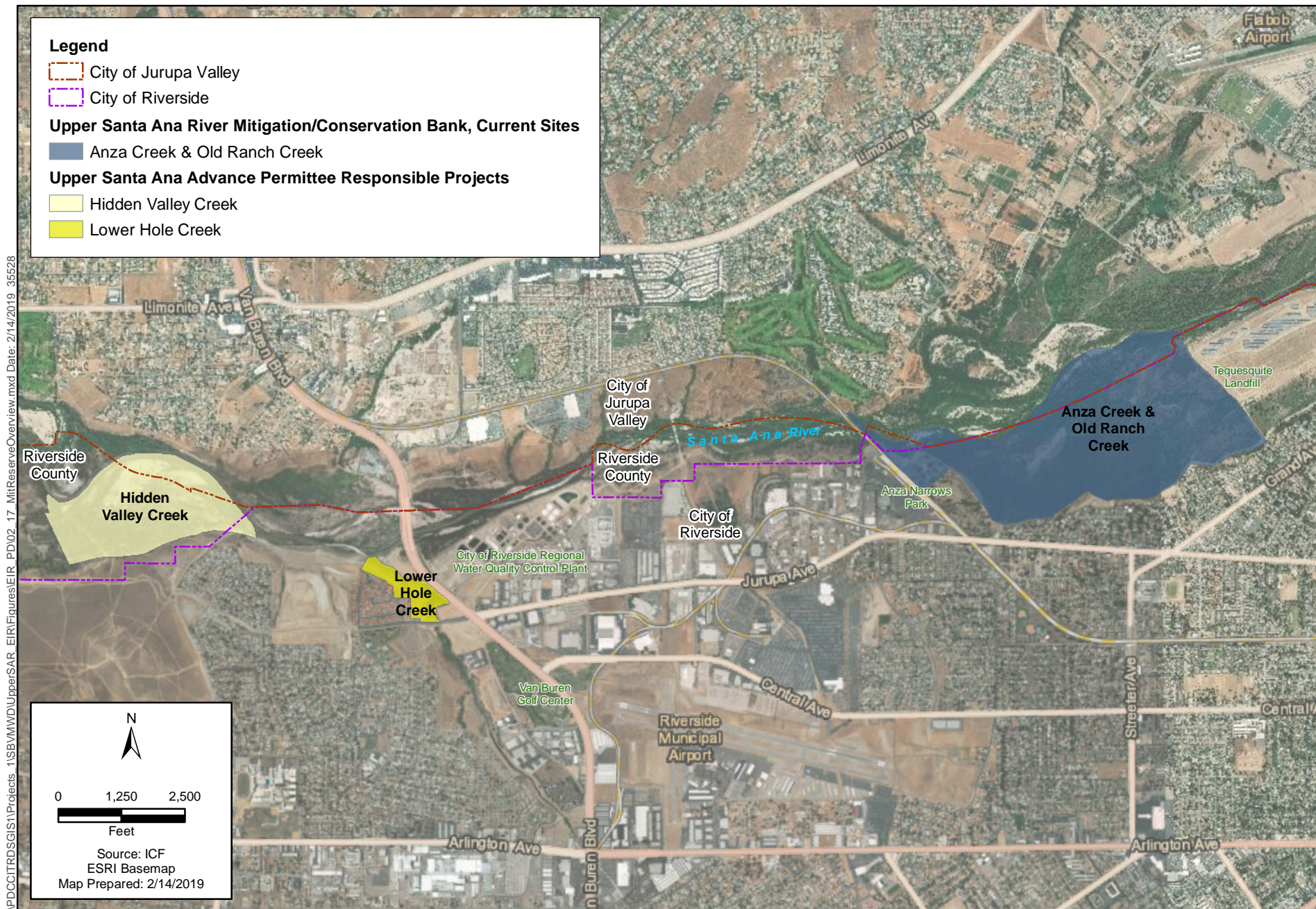


Figure 2-17
Expanded Mitigation Reserve Program Phase II
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

An advance Permittee-responsible mitigation credit project would be a form of Permittee-responsible compensatory mitigation constructed in advance of a permitted impact on waters of the state and possibly the United States. Even if compensatory mitigation activities are themselves authorized by a permit, establishing compensatory mitigation in advance of the impacts does not create any presumption or guarantee that a proposed future impact will be authorized, or that the advance compensatory mitigation will be considered adequate and/or suitable mitigation for any specific future project. Mitigation values may be generated on an “advance mitigation” basis by establishing an advance mitigation site designed to compensate for future expected impacts. Alternatively, advance mitigation can also be combined with concurrent mitigation required by a federal, state, or local permit, where the concurrent mitigation site provides additional area beyond the immediate mitigation requirements, and/or the site provides additional functions in excess of what is required for the permitted impact.

Valley District is anticipating the need for (1) compensatory aquatic resource mitigation to ensure that its water management activities are in compliance with environmental regulations that protect aquatic resources, and (2) endangered species habitat restoration to help implement future water projects being developed. The proposed Mitigation Reserve Program sites would provide sites for mitigation credits to be obtained for waters of the United States and state, as well as credits for species covered or that may be covered by the California Endangered Species Act and federal Endangered Species Act, including Santa Ana sucker (*Catostomus santaanae*), arroyo chub (*Gila orcutti*), western pond turtle (*Actinemys pallida*), two-striped garter snake (*Thamnophis hammondi*), least Bell’s vireo (*Vireo bellii pusillus*), southwestern willow flycatcher (*Empidonax traillii extimus*), yellow-breasted chat (*Icteria virens*), California gnatcatcher (*Polioptila californica californica*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), and Santa Ana River woolly-star (*Eriastrum densifolium*). Water management activities may also result in impacts on aquatic resources under the jurisdiction of USACE, RWQCB, and CDFW. Establishing the Mitigation Reserve Program would allow mitigation to be implemented prior to impacts, thus reducing temporal loss and aggregating mitigation into one larger area, thereby increasing the overall functions and services of the mitigation.

2.7.1 Expanded Mitigation Reserve Program Phase II

The second component of the proposed project includes development of an Expanded Mitigation Reserve Program Phase II. The scope of the Expanded Mitigation Reserve Program Phase II activities to be undertaken by Valley District may expand, depending on such factors as future assessments of habitat improvement needs and the availability of additional funding. Such potential expansions of activity could consist of more intense habitat restoration activities on the project sites evaluated in this EIR. To maximize Valley District’s ability to implement restoration activities, this section describes these activities in a general level of detail. It is not possible at this time to specifically identify where or when potential expansions of activity may occur; as such, expansions would depend on actions that may be taken in the future by other agencies, such as funding decisions by resource agencies. For example, if a resource agency obtains external funding from some source, such as receipt of a substantial penalty payment or settlement award, the resource agency may seek to apply some of that funding to facilitate habitat restoration activities in the Upper Santa Ana River.

In addition to the various Tributaries Restoration Project and Mitigation Reserve Program Phase I components proposed for the four project sites as described above, other restoration activities have been considered for each site for inclusion in the Expanded Mitigation Reserve Program Phase II.

These additional restoration opportunities were identified in the *Opportunities and Constraints for Tributary Restoration Sites Report* included in **Appendix B**. Table 2-7 identifies these additional improvements and the threatened and endangered species the improvements would benefit. Each site opportunity is described in more detail below.

2.7.1.1 Anza Creek and Old Ranch Creek

Eight restoration opportunities were identified within the Anza Creek and Old Ranch Creek sites. The remaining opportunities not included in the proposed project are opportunities for alkali marsh rehabilitation, upland rehabilitation, floodplain expansion, and further management of invasive wildlife species. These restoration opportunities would improve habitat quality for threatened and endangered species by controlling invasive wildlife species detrimental to threatened and endangered species, such as bullfrogs (*Lithobates catesbeianus*), wild boar, mosquitofish (*Gambusia affinis*), and brown-headed cowbird. Control methods are as yet undetermined and may include methods such as seasonal variation in water supply or introduction of biocontrols, as well as more traditional control methods such as trapping or pesticides.

The site currently supports alkali meadow habitat at several locations in the outer floodplains that illustrate near-reference conditions for that vegetation community. There are also areas on site where historic alkali meadow has become degraded by past human use and an influx of nonnative species. In particular, the southeastern corner of this site provides an ideal opportunity for alkali marsh restoration, including control of nonnative species, planting of native species, and improvements to hydrology by connecting the area to the Old Farm Creek drainage. This area is currently mapped as California Annual Grassland as it is dominated by nonnative grasses, but there are still native alkali species present such as salt grass and creeping wild rye (*Elymus triticoides*). The presence of these species, the adjacent reference condition, and the topography (low depression) are all indicators that this area can be successfully restored to alkali meadow. Additional restoration opportunities exist throughout the floodplain in areas currently mapped as California Annual Grassland (nonnative grasses), as much of these areas support lower densities of native alkali species.

Table 2-7. Additional Site Improvements for the Four Proposed Restoration Sites

Additional Restoration Opportunities		Benefits to Threatened and/or Endangered Species												
		Santa Ana Sucker	Santa Ana Speckled	Arroyo Chub	Western Pond Turtle	Two-Striped Garter	Least Bell's Vireo	Southwestern Willow Flycatcher	Yellow-Breasted	California	Western Yellow-Billed Cuckoo	Black-Tailed	Los Angeles Pocket	Santa Ana River Woolly-Star
Anza Creek	Remove Nonnative Plants and Revegetate Upstream	✓	✓	✓	✓	✓				✓				
Old Ranch Creek	Restore Alkali Meadow													✓
	Expand Active Floodplain and Riparian Habitat, and Create Oxbow				✓	✓	✓	✓	✓	✓				✓
Lower Hole Creek	Restore Upland Vegetation			✓	✓	✓	✓	✓						
Hidden Valley Creek	Establish Oxbow Feature				✓	✓	✓	✓	✓					

Source: Appendix B

The northeastern corner of the site, immediately downstream of the landfill, is at a higher elevation than much of the site, with extensive areas of disturbed bare ground, invasive species, and human disturbance. The higher elevation appears to be a result of historic fill, potentially in association with past landfill practices. Removal of fill material would allow this area to reengage the active floodplain at a frequency similar to that of the riparian zone along the river. As this area is artificially armored by the presence of the landfill, there is also the opportunity to further excavate an area in the southern portion of this site to emulate a relic channel in the form of an oxbow. This would require excavation to and below groundwater levels to support a perennial water source.

Due to the combined site size, these sites have the most flexibility in terms of the restoration opportunities that could be pursued. Many of the opportunities provide potential for threatened and endangered species as well as aquatic resources. **Figure 2-18** identifies the location of each of these additional restoration activities within the Anza Creek and Old Ranch Creek sites.

2.7.1.2 Lower Hole Creek

Eleven restoration opportunities were identified for the Lower Hole Creek site, several of which are included in the proposed project. Restoring upland vegetation and further controlling nonnative invasive plant and wildlife species are other opportunities that would enhance threatened and endangered species' habitat and aquatic resources. Restoration opportunities also exist upstream of the site that could further increase the size of contiguous riparian habitat. In addition to restoration on site, improved condition of the adjacent buffer habitat can further reduce stress to the creek. Currently, the buffer is highly accessible to the public and functions in a degraded state with high human use, soil disturbance, and nonnative cover. Restoration of the upland areas to coastal sage scrub vegetation would protect wetland conditions and create additional opportunities for sensitive species. **Figure 2-19** identifies the location of each of these additional restoration activities within the Lower Hole Creek site.

2.7.1.3 Hidden Valley Creek

Six restoration opportunities were identified at the Hidden Valley Creek site. The remaining opportunities not included in the proposed project are establishing an oxbow feature and further controlling nonnative invasive species. Restoration opportunities at the site are largely associated with enhancing habitat by removing nonnative plant species and planting native species. These activities would improve upland habitat conditions for other threatened and endangered species. The site is in an active part of the Santa Ana River floodplain that has experienced substantial erosion and deposition from flood flows. Groundwater and surface flows currently support one large perennial pond feature in the downstream portion of the site, likely a remnant of a previous river course. This feature provides a unique habitat for wildlife, as it represents a perennial, low-velocity water source with adjacent riparian habitat. Creation of a similar feature in the upstream portion of the site would increase the opportunity for wildlife to utilize this unique habitat type. Adding gently sloping shoreline habitat to the created feature would increase nesting opportunity for certain bird species and also provide benefits to pond turtle and garter snake. Due to the risk of future flooding associated with the active Santa Ana River, the proposed location for this feature is the southern portion of the floodplain outside of the regular channel migration zone. **Figure 2-20** identifies the location of each of these additional restoration activities within the Hidden Valley Creek site.

Incorporation of a discussion of the potential expansion of activities is intended to provide as much disclosure as possible even though implementation of those activities is uncertain at this time due to funding constraints. To the extent feasible, this EIR is intended to evaluate such additional expanded activities that may be implemented in the future. It is intended that those future activities will be capable of being found to be within the scope of the analysis included in this EIR. In such instances where additional expanded activities occur, Valley District will evaluate whether further CEQA analysis is required pursuant to provisions of State CEQA Guidelines Sections 15162 through 15164; depending on the scope of the activities and the resulting impacts, Valley District may determine that the future expanded activity requires no further analysis under CEQA because there are no additional impacts, or Valley District may prepare an EIR addendum, subsequent or supplemental EIR, or other appropriate CEQA document to evaluate any additional impacts prior to approving or implementing the future expanded activity.

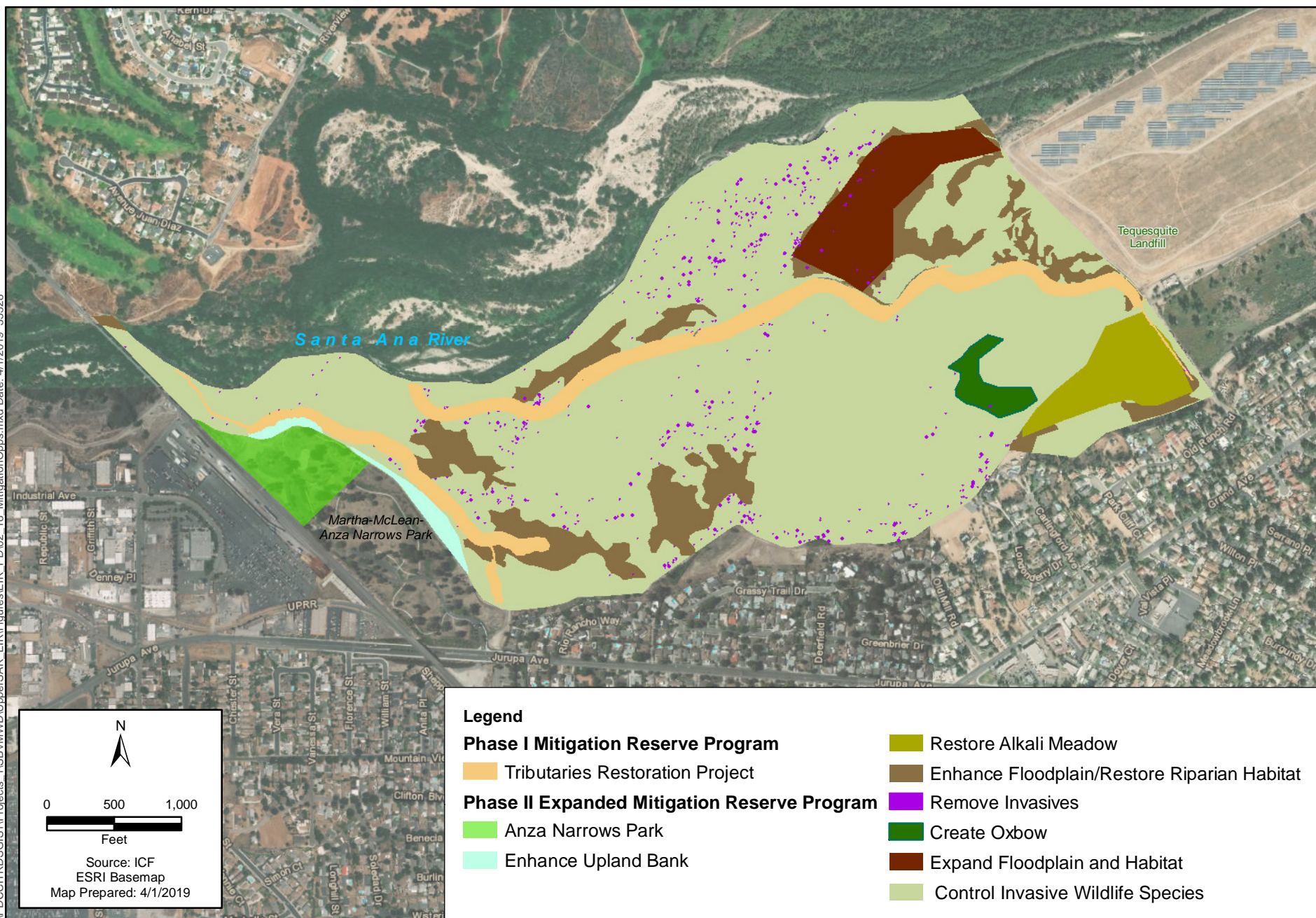


Figure 2-18
Anza/Old Ranch Creek Mitigation Reserve Program
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

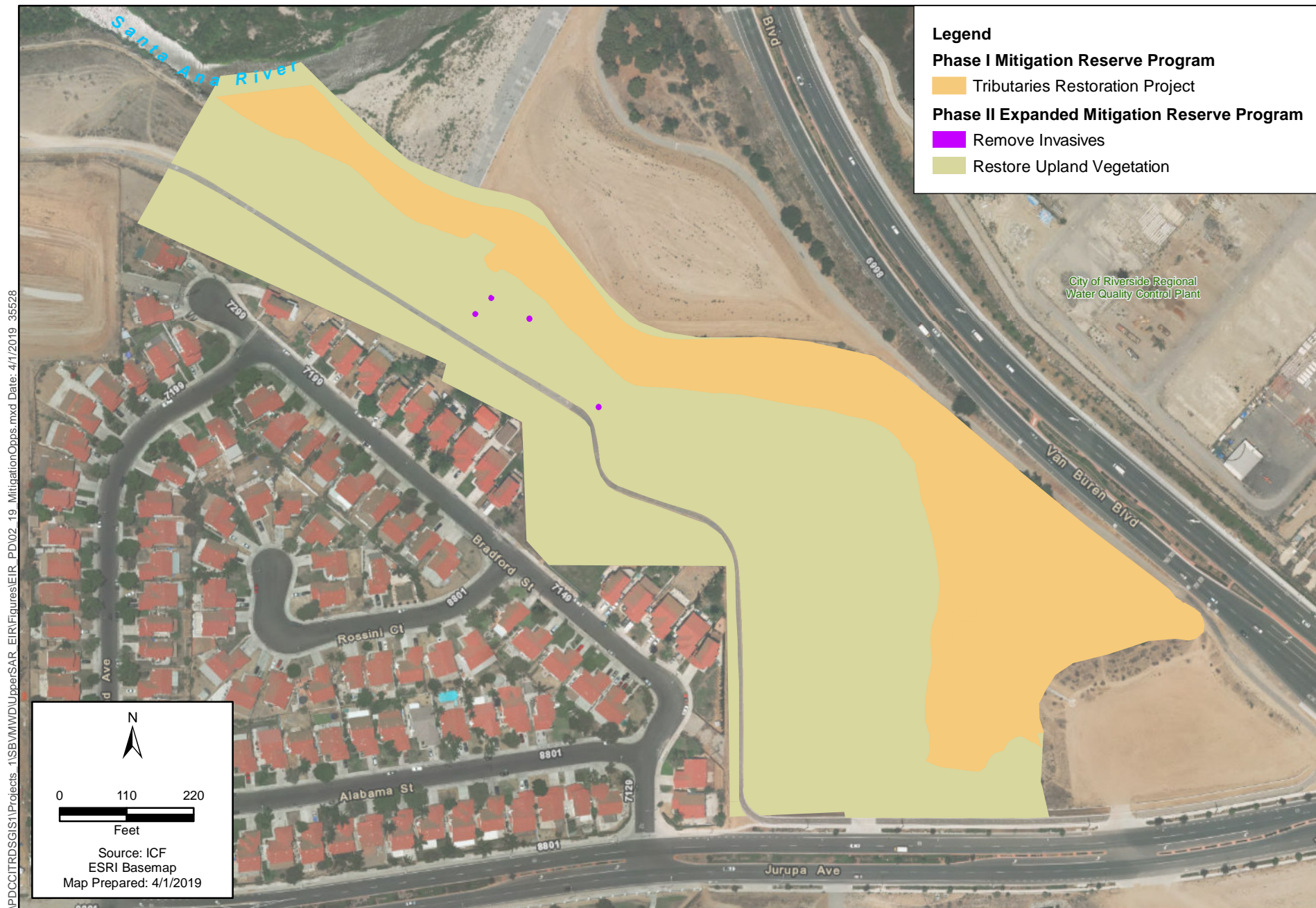


Figure 2-19
Lower Hole Creek Mitigation Reserve Program
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

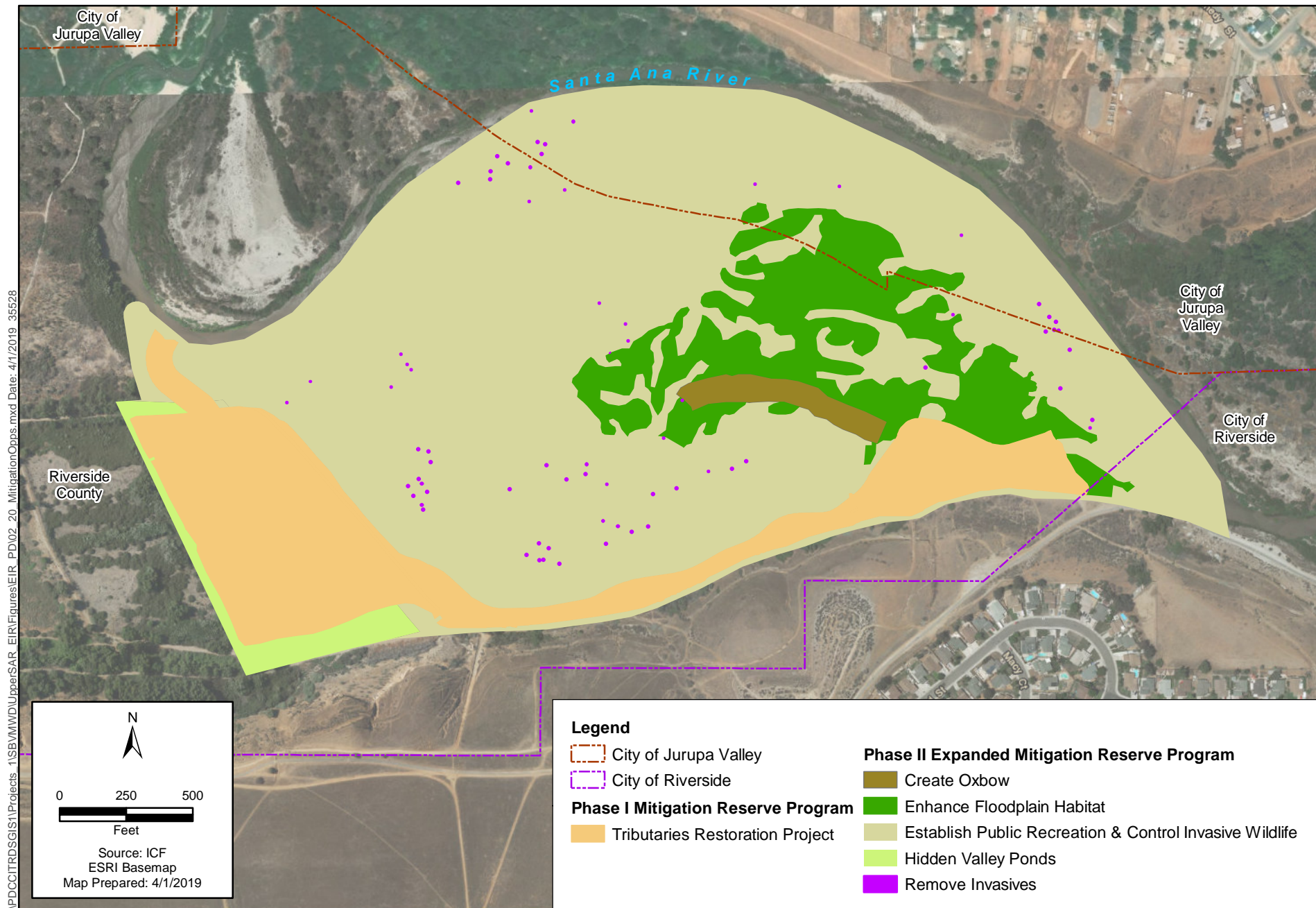


Figure 2-20
Hidden Valley Creek Mitigation Reserve Program
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

2.7.2 Site Protection Mechanism

The Mitigation Reserve Program Phases I and II sites would be protected through recordation of a real estate instrument such as a conservation easement, deed restriction, or restrictive covenant that would be placed on the property title and obligate the Mitigation Reserve Program sponsor or its successor to maintain the sites as natural open space in perpetuity. The protection mechanism would ensure that the Mitigation Reserve Program sites are protected for the primary purpose of maintaining natural aquatic resource functions and services. The protection mechanism would establish an appropriate third party to hold the easement with the right to enforce site protections and provide the third party the financial resources necessary to monitor and enforce the site protections.

The Mitigation Reserve Program sponsor would draft the long-term protection mechanism using USACE's approved template document, if available. The mechanism would identify a third-party easement holder and a third-party land manager. The site protection mechanism would preclude establishment of fuel modification zones, road crossings, paved public trails, maintained public trails, maintenance access roads, and future easements within USACE/CDFW/RWQCB jurisdiction other than those identified in the existing proposal.

2.7.3 Funding Mechanisms and Schedule

The Mitigation Reserve Program Phases I and II sponsor would fund the long-term management and monitoring of the Mitigation Reserve Program sites by establishing a financial instrument such as a non-wasting endowment or other approved mechanism for the purposes of fulfilling the long-term responsibilities described in the long-term management plan. The amount of the endowment would be based on a Property Analysis Record or equivalent analysis accounting for all the required management responsibilities, including monitoring, reporting, and a contingency to account for unforeseen adaptive management needs. The non-wasting endowment would be provided to an approved financial institution such as the National Fish and Wildlife Foundation or similar. A legal agreement between the Mitigation Reserve Program sponsor, signatory agencies, and the endowment manager would be developed if necessary to govern how the endowment is managed and when monies would be released to the long-term land manager.

2.7.4 Long-Term Management Plan

Management of the Mitigation Reserve Program Phases I and II is essential to ensure a mitigation program continues to provide high-quality habitat, and is key to the success of a mitigation or conservation bank. The purpose of the long-term management plan is to ensure the Mitigation Reserve Program property is managed, monitored, and maintained in perpetuity for its natural resource values. The long-term management plan establishes objectives, priorities, tasks, and reporting requirements. Management actions are tailored to achieve desired outcomes for the covered species and habitat, and must be designed to adapt to changing environmental factors (adaptive management).

2.8 Potential Additional Location for Restoration Activities

In addition to the four project sites as described above, another site—Evans Creek—has been considered for additional restoration activities. Improvements to Evans Creek would include similar restoration improvements as the proposed project. The Evans Creek site covers approximately 65 acres in the City of Riverside’s Fairmount Park and is the farthest upstream on the Santa Ana River of all the restoration sites. Improvements at Evans Creek would include a new groundwater well and pump, new riparian corridor, new bank, channel bed complexity and rock and woody structures, fish passage, new channel, and recreational and educational amenities for Fairmount Park. Evans Creek site improvements are described further in Chapter 7, *Alternatives*, under Alternative B: Proposed Project Plus Evans Creek Site.

2.9 Required Approvals

Approvals for particular activities may depend on the nature of property ownership of the sites. The sites are mostly owned by local or state governments, but they all include some privately owned parcels. The majority of the sites are owned by the County of Riverside, CDFW, and City of Riverside, although there are other land owners in the project site as noted in Table 2-2. To secure use of the land or purchase of the land, permitting approvals such as easements and variances would need to be obtained from CDFW, City of Riverside, and County of Riverside. Riverside-Corona Resource Conservation District, a project partner, also has easements for site access and restoration. Any opportunities within these easements would be coordinated with Riverside-Corona Resource Conservation District. Encroachment permits and incidental take permits may need to be obtained from the CDFW. The project may also require landowner access agreements and agreements from Responsible Agencies per CEQA.

Table 2-8 presents a preliminary list of the agencies and entities, in addition to Valley District, that would use this EIR in their consideration of specific permits and other discretionary approvals that may apply to the project. This EIR is intended to provide these agencies with information to support their decision-making processes.

In addition to the permits and other discretionary approvals for the proposed project, Valley District and the City of Riverside entered into a Memorandum of Understanding to enable collaboration between these two agencies within the Upper Santa Ana River region to advance their integrated water management objectives. Recognizing their mutual goals, the Memorandum of Understanding allows for the construction and operation of the groundwater pump to supply the primary or backup water supply to two of the restoration sites.

Table 2-8. Potential Discretionary Permits and Actions

Agency	Permits and Authorizations Potentially Required
San Bernardino Valley Municipal Water District	Environmental Impact Report (EIR) Certification Mitigation Monitoring and Reporting Program (MMRP) Adoption
Regional Water Quality Control Board (RWQCB)	Clean Water Act (CWA) Section 402 National Pollutant Discharge Elimination System (NPDES), Construction General Permit CWA Section 401 Water Quality Certification
U.S. Army Corps of Engineers (USACE)	CWA Section 404 Permit National Historic Preservation Act Section 106 Consultation Endangered Species Act Compliance Section 7 Consultation
Federal Emergency Management Agency	Conditional Letter of Map Revision (CLOMR)
California Department of Fish and Wildlife	Encroachment Permit/Approval for use of Site California Fish and Game Code Section 1602 Lake or Streambed Alteration Agreement/Easement California Fish and Game Code Section 2081 Endangered Species Act Incidental Take Permit
U.S. Fish and Wildlife Service	Endangered Species Act Compliance Section 7/Section 10
State Historic Preservation Office	National Historic Preservation Act Section 106 compliance
County of Riverside	Encroachment Permit/Approval for Use of Site/Grading Permit/ Easement/ <u>Plan Review</u>
City of Riverside	Encroachment Permit/Approval for Use of Site/Grading Permit/ Easement/ <u>Plan Review</u>
City of Jurupa Valley	Encroachment Permit/Approval for Use of Site/Grading Permit/ Easement/ <u>Plan Review</u>
Riverside-Corona Resource Conservation District	Encroachment Permit/Approval for Use of Site/Easement
<u>Riverside County Flood Control and Water Conservation District</u>	<u>Conditional Letter of Map Revision (CLOMR), Letter of Map Revision (LOMR)/Plan Review</u>
<u>Riverside County Department of Waste Resources (RCDWR)</u>	<u>Plan Review</u>

Chapter 3

Impact Analysis

This Draft Environmental Impact Report (EIR) is prepared in accordance with the California Environmental Quality Act (CEQA) (California Public Resources Code, Section 21000 et seq.), the State CEQA Guidelines (California Code of Regulations, Title 14, Section 15000 et seq.), and applicable rules and regulations of regional and local entities. This Draft EIR evaluates the potential environmental impacts associated with the construction and operation of two components that would be implemented by San Bernardino Valley Municipal Water District: the Upper Santa Ana River Tributaries Restoration Project, including four tributary restoration sites referred to as Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek, and creation of a Mitigation Reserve Program. The proposed project, located in the cities of Riverside and Jurupa Valley and in Riverside County, would re-establish, enhance, rehabilitate, and/or preserve jurisdictional aquatic resource habitat and/or improve conditions for the Santa Ana sucker. This would be accomplished by improving conditions in existing channels, excavating new channels, restoring associated floodplain surfaces and habitats, controlling nonnative invasive species, supporting the existing local community environmental education and recreational opportunities at each of the sites, and establishing a Mitigation Reserve Program that would provide opportunities for additional restoration activities on each of the sites. This Draft EIR is intended to serve as an informational document for the public agency decision-makers and the public regarding the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program that compose the proposed project.

Scope of the Environmental Impact Analysis

In accordance with Section 15126 of the State CEQA Guidelines, Chapter 3 provides an analysis of the direct and indirect environmental effects of the proposed project. These impacts are evaluated with respect to existing conditions at the time the NOP, along with the Initial Study, was published on July 11, 2018 (see Appendix D). The determination of whether an impact is significant is based on the significance thresholds and methodology identified for each environmental issue. This Draft EIR evaluates the implementation actions of the proposed project that would require development of four restoration sites and a Mitigation Reserve Program along the Santa Ana River in Riverside County.

In accordance with Appendix G of the State CEQA Guidelines, this chapter assesses the proposed project's potential effects on the following environmental resources:

- Agriculture and Forestry Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Geology, Soils, and Paleontological Resources
- Greenhouse Gas Emissions
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Noise
- Population and Housing
- Recreation
- Tribal Cultural Resources
- Utilities and Service Systems

Approach to Environmental Analysis

Sections 3.1 through 3.13 of this Draft EIR contain discussions of the environmental setting, regulatory framework, and potential impacts related to construction and operation of the proposed project components. This section will evaluate the potential environmental effects of the proposed project. The environmental analyses will estimate the impacts on each resource category before the implementation of mitigation measures. The analyses will then estimate the impacts on each resource category after the implementation of mitigation measures. Additional information regarding CEQA and the CEQA process is provided in Section 1.5, *CEQA Environmental Review Process*, specifically Section 1.5.2 for written comments provided during the Notice of Preparation and Initial Study. Refer to Section 1.5.4, *Draft EIR*, for significance criteria for the impact analysis, and Section 1.5.5, *Level of CEQA Analysis in this Draft EIR*, for the level of impact analysis expected in this EIR for the two major project components. As stated previously in Chapter 1, *Introduction*, this Draft EIR evaluates the impacts related to implementing the Tributaries Restoration Project and Mitigation Reserve Program Phase I at a project-specific level and evaluates the Expanded Mitigation Reserve Program Phase II component of the proposed project at a programmatic level given the additional restoration opportunities at each of the sites have not been fully developed at the construction level of detail. The analysis separates the two distinct project components and provides conclusion statements and mitigation, as applicable, for each project component.

The discussion of cumulative impacts and the potential for the proposed project to have significant cumulative effects when combined with other past, present, and reasonably foreseeable future projects in each resource area's cumulative geographic scope is provided in Chapter 4, *Cumulative Impacts*. Chapter 7, *Alternatives Analysis*, describes the alternatives to the proposed project that were considered and provides the analysis in comparison with the proposed project.

3.1 Agricultural and Forestry Resources

This section focuses on agricultural resources. This section identifies the regulatory requirements applicable to agricultural resources and describes the existing land use conditions in relation to farmland designations, and related uses. The section then evaluates the project's potential impacts on local agricultural resources. There are no Williamson Act contracts and forest and timberland resources located within the project area; therefore, these resources are not discussed in this section. For further discussion of these impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

For purposes of this section, agricultural resources are any natural resources relevant to agriculture including, but not limited to, land, soil, and water and the conveyances of water, for the purposes of producing crops and raising livestock.

3.1.1 Regulatory Setting

Federal

Federal regulations are generally applicable to a project if it involves a federal agency license, permit, approval, or funding, and/or crosses federal lands.

Farmland Protection Policy Act

Congress established the Farmland Protection Policy Act (FPPA) in 1981 to minimize the extent to which federal actions contribute to the unnecessary and irreversible conversion of farmland to nonagricultural uses. The FPPA ensures that federal programs are compatible with state and local governments, and private programs and policies to protect farmland. The Natural Resources Conservation Service (NRCS) of the U.S. Department of Agriculture is the primary agency responsible for implementing and administering the FPPA. The Farm and Ranch Lands Protection Program (FRPP) and a corresponding rating system (Land Evaluation and Site Assessment) are part of the FPPA. Land Evaluation and Site Assessment is used as a tool to determine agricultural suitability of land compared to demands created by non-agricultural uses of the land. The FRPP is a voluntary program that provides funding to state, local, and tribal government entities and nongovernmental organizations with existing farmland protection programs to purchase conservation easements. A minimum 30-year term is required for conservation easements, of which the NRCS provides up to 50 percent of the fair market value of the easements. Participating agencies and organizations agree to keep their land designated as agricultural use and retain all property rights for future agricultural use. The requirements of the FRPP would apply if the proposed project resulted in the conversion of farmland.

State

Farmland Mapping and Monitoring Program

The California Department of Conservation established the Farmland Mapping and Monitoring Program (FMMP) in 1982 to provide a consistent and impartial analysis of agricultural land use and land use conversion throughout California. The FMMP identifies farmlands in the state based on

current land use information and soil survey data on soil characteristics that best support crop production as compiled by the U.S. Department of Agriculture and the NRCS.

The Department of Conservation maintains the FMMP and monitors the conversion of farmland to and from agricultural use through its Important Farmland Inventory System. Farmlands are divided into the following categories based on their suitability for agriculture:

- **Prime Farmland:** This land has the best combination of physical and chemical characteristics (e.g., soil quality, growing season, moisture supply) for the long-term production of crops in high yields. This land must have also been used for irrigated agricultural production at some time during the 4 years prior to the mapping date.
- **Farmland of Statewide Importance:** This land does not meet the criteria for Prime Farmland, but has a good combination of physical and chemical characteristics, albeit with minor shortcomings, such as greater slopes or less ability to store moisture. This land must also have been under irrigated production during the prior mapping date. Per the Riverside County General Plan, this category can include forest land, in addition to crop land, pastureland, rangeland, and other lands that are not urban or water.
- **Unique Farmland:** This is land other than the above categories that is currently used for the production of specific high-value food and fiber crops, such as citrus, avocados, and vegetables. This land may have lesser quality soils, but still has the combination of traits needed to produce high quality or high yields of specific crops. This category may include non-irrigated orchards or vineyards, as well as citrus, olives, avocados, or grapes, among others. The land must also have been cropped at some time during the prior mapping date.
- **Farmland of Local Importance:** This land does not generally qualify for any of the above categories, but has been deemed locally important by the Riverside County Board of Supervisors. This land may also have been suitable for “Prime” or “Statewide Importance” designation, but for the lack of available irrigation water. The category can include lands in production of major, but not unique, crops, as well as dairy lands and agricultural zones (including contract lands and those in jojoba production).
- **Grazing Land:** This includes lands with existing vegetation that are suited to grazing livestock.
- **Other Land:** This refers to land not included in any other category. Commonly, this includes low-density rural developments (with five subcategories); brush and timberlands; wetlands and riparian areas; confined livestock, poultry, or aquaculture facilities; strip mines; etc. Also included are water bodies covering fewer than 40 acres and agricultural lands of fewer than 40 acres when surrounded by urban uses.

Regional and Local

County of Riverside

County of Riverside General Plan

Multipurpose Open Space Element

The County of Riverside recognizes the high socioeconomic value that agriculture has within the County. The two major conservation rationales noted in the General Plan are to maintain the viability of the agricultural industry and to preserve the resource represented by farmland—its

productive soils and its secondary role as an open space amenity. The Riverside County General Plan Multipurpose Open Space Element (County of Riverside 2015a) contains policies relevant to agricultural resources.

OS 7.2: In cooperation with individual farmers, farming organizations, and farmland conservation organizations, the County of Riverside shall employ a variety of agricultural land conservation programs to improve the viability of farms and ranches and thereby ensure the long-term conservation of viable agricultural operations within Riverside County. The County of Riverside shall seek out available funding for farmland conservation. Examples of programs which may be employed include: land trusts; conservation easements (under certain circumstances, these may also provide federal and state tax benefits to farmers); dedication incentives; Land Conservation Contracts; Farmland Security Act contracts; the Agricultural Land Stewardship Program Fund; agricultural education programs; transfer and purchase of development rights; providing adequate incentives (e.g. clustering and density bonuses) to encourage conservation of productive agricultural land in Riverside County's Incentive Program; and providing various resource incentives to landowners (e.g. establish a reliable and/or less costly supply of irrigation water). (AI 78)

The County of Riverside shall establish a Farmland Protection and Stewardship Committee and the Board of Supervisors shall appoint its members. The Committee shall include members of the farming community as well as other individuals and organizations committed to farmland protections and stewardship. The Committee shall develop a strategy to preserve agricultural land within Riverside County and shall identify and prioritize agricultural lands for conservation. This strategy shall not only address the preservation of agricultural land but shall also promote sustainable agriculture within Riverside County. In developing its strategy, the Committee shall consider an array of proven techniques and, where necessary, adapt these techniques to address the unique conditions faced by the farming community within Riverside County. Riverside County staff shall assist the Committee in accomplishing its task. Riverside County Departments, that may be called upon to assist the Committee, include, but are not limited to the following: the Agricultural Commissioner, Planning Department, Assessor's Office and County Counsel. In developing its strategy, the Committee shall consult government and private organizations with expertise in farmland protection. These organizations may include, but are not limited to, the following: USDA Natural Resources Conservation Service; State Department of Conservation and its Division of Land Resource Protection; University of California Sustainable Agriculture Research and Education Program; the University of California Cooperative Extension; The Nature Conservancy; American Farmland Trust; The Conservation Fund; the Trust for Public Land; and the Land Trust Alliance.

The Committee shall, from time to time, recommend to the Board of Supervisors the adoption of policies and/or regulation that it finds will further the goals of the farmland protection and stewardship. The Committee shall also advise the Board of Supervisors regarding proposed policies that curb urban sprawl and the accompanying conversion of agricultural land to urban development, and that support and sustain continued agriculture. Planning policies that may benefit farmland conservation and fall within the purview of the Committee for review include measures to promote efficient development in and around existing communities including clustering, incentive programs, transfer of development rights, and other planning tools.

OS 7.3: Encourage conservation of productive agricultural lands and preservation of prime agricultural lands.

OS 7.4: Encourage landowners to participate in programs that reduce soil erosion, improve soil quality, and address issues that relate to pest management. To this end, the County shall promote coordination between the Natural Resources Conservation Service, Resource Conservation Districts, UC Cooperative Extension, and other agencies and organizations.

OS 7.5: Encourage the combination of agriculture with other compatible open space uses in order to provide an economic advantage to agriculture. Allow by right, in areas designated Agriculture, activities related to the production of food and fiber, and support uses incidental and secondary to the on-site agricultural operation.

Land Use Element

The County considers widespread and diverse agriculture lands to be one of the most important land uses in terms of historic character and economic strength. The Riverside County General Plan Land Use Element (County of Riverside 2017a) contains policies relevant to agricultural resources.

LU 20.1: Encourage retaining agriculturally designated lands where agricultural activity can be sustained at an operational scale, where it accommodates lifestyle choice, and in locations where impacts to and from potentially incompatible uses, such as residential uses, are minimized, through incentives such as tax credits.

LU 20.2: Protect agricultural uses, including those with industrial characteristics (dairies, poultry, hog farms, etc.) by discouraging inappropriate land division in the immediate proximity and allowing only uses and intensities that are compatible with agricultural uses.

Policy LU 20.4: Encourage conservation of productive agricultural lands. Preserve prime agricultural lands for high-value crop production.

Policy LU 20.5: Continue to participate in the California Land Conservation Act (the Williamson Act) of 1965.

Policy LU 20.6: Require consideration of state agricultural land classification specifications when a 2.5-year Agriculture Foundation amendment to the General Plan is reviewed that would result in a shift from an agricultural to a non-agricultural use.

Policy LU 20.7: Adhere to Riverside County's Right-to-Farm Ordinance.

Policy LU 20.8: Encourage educational and incentive programs in coordination with the Riverside County Agricultural Commissioner's Office, the University of California Cooperative Extension Service, and the Riverside County Farm Bureau, that convey the importance of conserving watercourses and their associated habitat, as well as protective buffers for domestic and farm livestock grazing.

Jurupa Area Plan

The County of Riverside General Plan Jurupa Area Plan (County of Riverside 2015b) recognizes the Santa Ana River as an integral part of Riverside County's multipurpose open space system while accommodating the demand for urban development. The County also seeks to recognize existing and future agricultural activities as important and vital components of the land use fabric of the area. Residential uses and certain types of agriculture are inherently incompatible and often lead to complaints by local residents of offending odors, noise, flies, and the like. Likewise, farmers and their land can be the targets of vandals, thieves, and trespassers. It is the intent of the Jurupa Area Plan to recognize agriculture as an important economic activity in the region and to accommodate those agricultural and dairy owners who wish to continue their operations in the future, through the following policies:

JURAP 7.16 Require the replacement of ponds lost during the development of dairy lands.

JURAP 10.1 Adhere to the Riverside County Right-To-Farm Ordinance and any subsequent ordinance assuring the ability of farmers to continue with long-established agricultural activities throughout the Jurupa Plan area.

County of Riverside Ordinances**Ordinance No. 509 (Establishing Agricultural Preserves)**

Agricultural preserves are lands identified for, and devoted to, agricultural and compatible uses, and are established through resolutions adopted by the Riverside County Board of Supervisors. The

purpose of this ordinance is to ensure that incompatible uses are not allowed within established agricultural preserves. It sets forth the powers of the County of Riverside in establishing and administering agricultural preserves pursuant to the California Land Conservation Act of 1965 (California Government Code Section 51200, et seq.). The ordinance also establishes “Uniform Rules” for the agricultural and compatible uses allowed in an agricultural preserve. Land uses not covered in the ordinance are prohibited within agricultural preserves.

Ordinance No. 625 (Right to Farm)

The purpose of this ordinance is to “conserve, protect and encourage the development, improvement and continued viability of agricultural land and industries for the long-term production of food and other agricultural products, and for the economic well-being of the county’s residents.” It seeks to “balance the rights of farmers to produce food and other agricultural products with the rights of nonfarmers who own, occupy or use land within or adjacent to agricultural areas.” Consequently, the ordinance includes regulations to reduce the loss of agricultural resources in Riverside County by limiting the circumstances under which agricultural operations may be deemed a “nuisance.” It states that an agricultural activity that has been operating for more than 3 years on a site (and assuming it was not a nuisance at the time it began) cannot be later classed as a public or private nuisance due to “any changed condition in or about the locality.” This prevents, for example, existing dairies from being targeted by odor complaints from residents of housing units constructed in the surrounding area 3 or more years after the dairy use began. Furthermore, it requires buyers of properties within 300 feet of any land zoned primarily for agricultural purposes to be given notice of the preexisting agricultural use and its right to continue.

Resolution No. 84-526 (Riverside County Rules and Regulations Governing Agricultural Preserves)

These rules and regulations were adopted pursuant to California Government Code Section 51231 to govern agricultural preserve procedures within Riverside County and to aid in implementation of the Williamson Act. The rules and regulations address procedures for the initiation, establishment, enlargement, disestablishment, and diminishment of agricultural preserves. To protect existing agricultural lands and agricultural preserves within Riverside County, Division VI of the rules require a Comprehensive Agricultural Preserve Technical Advisory Committee (CAPTAC) to review and report on land use proposals and applications related to agricultural preserves and advise the Riverside County Board of Supervisors on the administration of agricultural preserves, as well as Williamson Act contract-related matters. In particular, the CAPTAC is charged with reviewing any proposals for the diminishment or disestablishment of an agricultural preserve and providing its recommendations to the Board of Supervisors. Regarding diminishments and disestablishments, the CAPTAC reviews the following findings:

- Whether a notice of nonrenewal has been served pursuant to the Williamson Act, Section 401 of these rules.
- Whether the cancellation is likely to result in the removal of adjacent lands from agricultural use.
- Whether the proposed alternative use of land is consistent with the provisions of the Riverside County General Plan.
- Whether the cancellation will result in discontinuous patterns of urban development.

- Whether there is proximate non-contracted land that is both available and suitable for the use for which the contracted land is being proposed.
- Whether the development of the contracted land would provide more contiguous patterns of urban development than that of proximate non-contracted land.

City of Riverside

City of Riverside General Plan

Open Space and Conservation Element

Preserving and encouraging agriculture as an essential industry and a desirable open space use within the City will be carried out through the following objectives and policies (City of Riverside 2012):

OS-3.1: Promote and encourage agriculture as an essential industry and a desirable open space use. The Arlington Heights Greenbelt and La Sierra Lands (i.e., Rancho La Sierra) are important agricultural lands because of their high soil quality, favorable climate and low water costs.

OS-3.2: Identify land for retention and encouragement of agricultural use based on consideration of historic use, soil suitability, agricultural significance, prevailing parcel sizes and geographical associations.

OS-3.4: Encourage property owners to preserve citrus groves and implement public programs to provide incentives and other assistance to promote and protect citrus farming on prime agricultural lands.

OS-3.9: Coordinate programs to preserve agricultural lands with other public, private and non-profit organizations where feasible.

OS-4.2: Establish buffers and/or open space between agricultural and urban uses so that the potential impacts from urban development will be mitigated.

City of Riverside Municipal Code

According to Title 7, Noise Control, Section 7.10.020 of the City of Riverside Municipal Code, “agricultural property” means a parcel of real property that is developed for agricultural and incidental residential purposes and is located within any permitted zone. Common agricultural practices on agriculturally zoned or agriculturally designated lands are allowed in specific zones within the Riverside Municipal Code. The Residential Agricultural Zone (RA-5) in Title 19, Zoning, Chapter 19.100, Residential Zones, is established to provide areas where general agricultural uses can occur independently or in conjunction with a single-family residence, that preserves the agricultural character of the area. Other residential zoning designations allow for agricultural uses as secondary uses to the primary residential use within that zone.

City of Jurupa Valley

City of Jurupa Valley Draft General Plan

As described in the City of Jurupa Valley Draft General Plan (2017), the following policies outline the City’s approach to agricultural uses:

LUE 1.3: Prime Farmland. Encourage conservation of designated Prime Farmland and productive agricultural lands.

LUE 1.4: Right-To-Farm. Adhere to the Riverside County Right-To-Farm Ordinance and any subsequent ordinance assuring the ability of farmers to continue with legally established agricultural activities.

LUE 1.5: Agricultural. Where it is determined by the City to be compatible, the City will allow new agricultural uses.

LUE 8.3: Protect Existing Legal Uses. Retain and enhance the integrity of legal, existing residential, commercial, agricultural, and open space areas by protecting them from encroachment of land uses that would result in significant, adverse impacts from noise, vibration, noxious fumes, glare, shading, and traffic.

LUE 10.8: City Buffer Areas. Use open space, hills, greenways, agricultural lands, parks, and riparian areas to help define the City's character and views and to serve as land use buffers from adjacent cities.

COS 4.1: Support Agricultural Uses. Employ a variety of agricultural land conservation programs to improve the viability of farms and ranches and thereby ensure the long-term conservation of viable agricultural uses in cooperation with individual farmers, farming organizations, farmland conservation organizations, and the County.

COS 4.2: Agricultural Land Conversion. Discourage the conversion of productive agricultural lands to urban uses unless the property owner can demonstrate overarching Community-wide benefits or need for conversion.

COS 4.3: Compatible Uses. Encourage the combination of agriculture with other compatible uses to help with the production of food, fiber, and support uses incidental to the on-site agricultural operation. Provide an economic advantage to agriculture uses by allowing activities such as farm stores, retail sales of produce or wares, and related accessory uses.

City of Jurupa Valley Municipal Code

Chapter 5.55. Right-to-Farm Regulations, Sec. 5.55.050. - Policy.

A. No agricultural activity, operation or facility, or appurtenances thereof, conducted or maintained for commercial purposes, and in a manner consistent with proper and accepted customs and standards, as established and followed by similar agricultural operations in the same locality, shall be or become a nuisance, private or public, due to any changed condition in or about, the locality, after the same has been in operation for more than three (3) years if it was not a nuisance at the time it began.

B. This section shall not invalidate any provision contained in the Health and Safety Code, Fish and Game Code, Food and Agricultural Code, or Division 7 (commencing with Section 13000) of the Water Code (Wat. Code Section 13000 et seq.), if the agricultural activity, operation, or facility, or appurtenances thereof, constitutes a nuisance, public or private, as specifically defined or described in any such provision.

C. This section is not to be construed so as to modify or abridge the state law set out in the California Civil Code relative to nuisances, but rather it is only to be utilized in the interpretation and enforcement of the provisions of city ordinances and regulations.

3.1.2 Environmental Setting

Regional Setting

Agriculture has historically been an important part of Riverside's economy. According to the 2017 Agricultural Production Report issued by the Riverside County Agricultural Commissioner's Office,

in 2017 the County's total gross agricultural valuation was roughly \$1 billion (\$997,347,000). This was a decrease of \$52.7 million (5 percent) from the 2016 total (County of Riverside 2017b).

Project Area Setting

As described in Chapter 2, *Project Description*, the proposed project would occur within four sites: Hidden Valley Creek, Lower Hole Creek, Old Ranch Creek, and Anza Creek. Based on the FMMP Important Farmland maps, the project sites do not contain prime, unique, or statewide important farmlands. None of the project sites are designated as forest land or Timber Production Zones and do not contain any forestry resources. As shown on **Figure 3.1-1**, there is Farmland of Local Importance designated within the project site boundaries. However, none of these areas within the project sites are currently used for agricultural purposes. **Table 3.1-1** identifies the breakdown of designated Farmland of Local Importance within each project site and project component. There is a total of 26.42 acres of Farmland of Local Importance within three of the project sites, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek. Of that total, 19.12 acres occur within the Expanded Mitigation Reserve Program Phase II sites and 7.3 acres occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. Of the Expanded Mitigation Reserve Program Phase II sites, there are approximately 13.92 acres in Hidden Valley Creek, 1.7 acres in Lower Hole Creek, and 3.5 acres in Old Ranch Creek. Within the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites, there are approximately 6.6 acres in Hidden Valley Creek, 0.35 acre in Lower Hole Creek, and 0.37 acre in Old Ranch Creek.

Table 3.1-1. Agricultural Lands (Farmland of Local Importance) within the Proposed Project Sites

Project Site	Acres
Tributaries Restoration Project and Mitigation Reserve Program Phase I	
Old Ranch	0.37
Anza Creek	0.0
Lower Hole Creek	0.35
Hidden Valley Creek	6.6
Total	7.3
Expanded Mitigation Reserve Program Phase II	
Old Ranch	3.5
Anza Creek	0.0
Lower Hole Creek	1.7
Hidden Valley Creek	13.92
Total	19.12

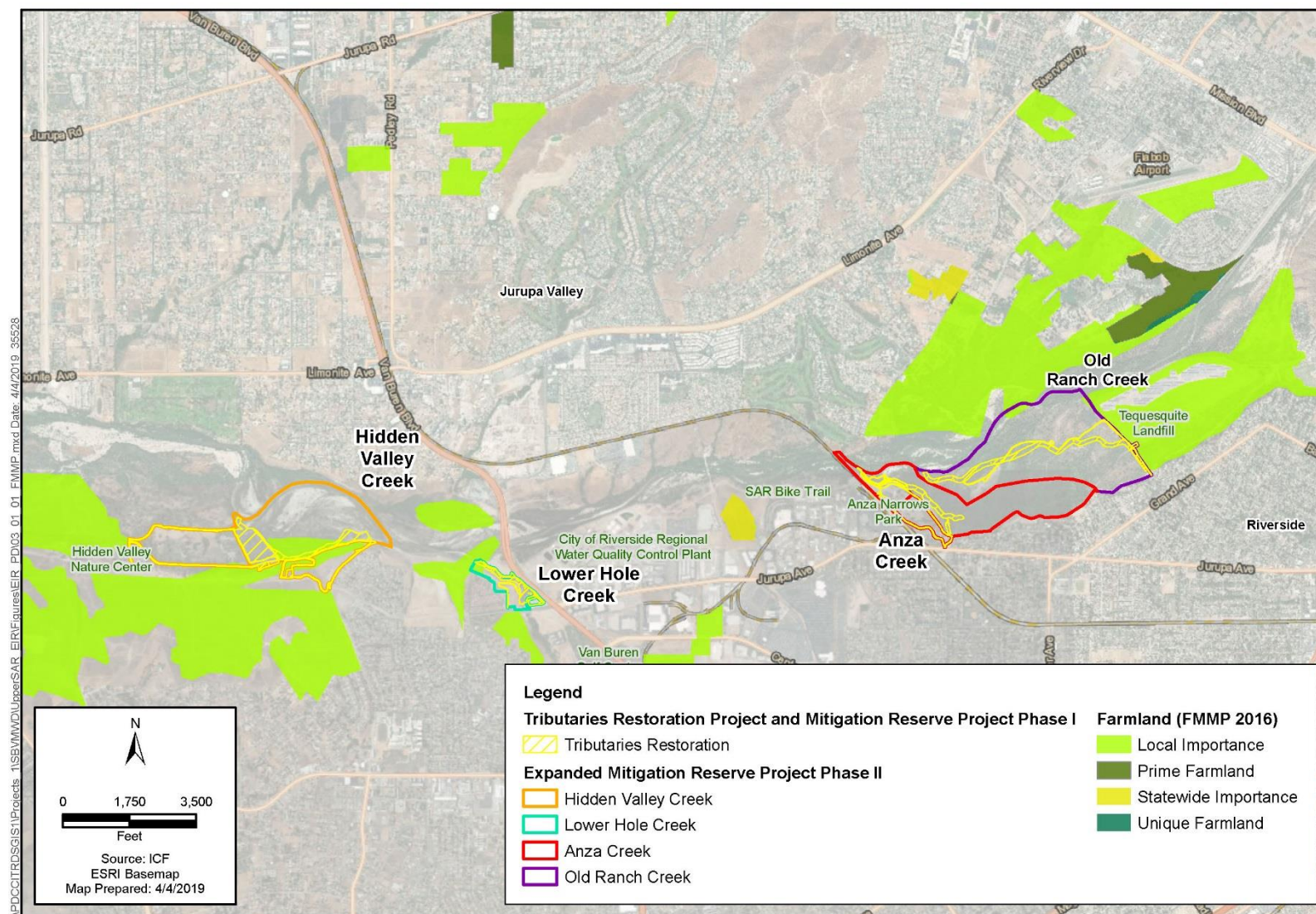


Figure 3.1-1. Farmlands

Old Ranch Creek and Anza Creek currently support a variety of native floodplain habitats, nonnative grassland, and nonnative riparian habitat. Old Ranch Creek is zoned as PF (Public Facilities) with a land use designation of P (Public Park) by the City of Riverside, and is zoned as W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-R (Open Space Recreation) by the City of Jurupa Valley. Anza Creek is zoned as PF (Public Facilities) with a land use designation of P (Public Park) by the City of Riverside; is zoned as W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-W (Water) and OS-R (Open Space Recreation) by the City of Jurupa Valley; and is zoned as W-1 (Water) with a land use designation of W (Water) by the County of Riverside.

Lower Hole Creek currently supports dense riparian vegetation along most of the project site and is heavily affected by human use, particularly the area's homeless population, as evidenced by the numerous encampments and extensive trash at the site. There are many informal access trails running down the banks and across the stream. Lower Hole Creek has the following City of Riverside zoning designations: PF (Public Facilities), BMP (Business and Manufacturing Park Zone), and RE (Residential Estate Zone); and these land use designations: (OS) Open Space, C (Commercial), and MDR (Multi Density Residential).

Hidden Valley Creek currently supports a series of native riparian and floodplain vegetation communities. In addition, a large portion of the site supports nonnative California annual grassland. Hidden Valley Creek has the following City of Riverside zoning designation: PF (Public Facilities) with a land use designation of OS (Open Space/Natural Resources); the following City of Jurupa Valley zoning designation: W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-W (Water); and the following County of Riverside zoning designation: W-1 (Water) with a land use designation of W (Water) and CH (Conservation Habitat).

3.1.3 Environmental Impacts

Methods for Analysis

This analysis utilizes land use and agricultural designation maps produced by planning and resource agencies, including the California Department of Conservation and local governments, to determine the effect the proposed project would have on agricultural land, and analyzes the significance of such impacts based on the potential for the proposed project to convert such lands to non-agricultural uses, or to cause nuisances that would indirectly affect the ability to continue to use them for agricultural use.

Thresholds of Significance

In accordance with Appendix G of the California Environmental Quality Act Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Conversion of Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the FMMP of the California Resources Agency, to nonagricultural use.
- Conflict with existing zoning for agricultural use or conflict with a Williamson Act contract.

- Conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g)).
- Loss of forest land or conversion of forest land to non-forest use.
- Other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use.

As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this Environmental Impact Report) prepared for the proposed project considered and then eliminated a number of thresholds determined to be less than significant from further analysis. The proposed project would not conflict with existing zoning for agricultural use or conflict with a Williamson Act contract; it would also not conflict with existing zoning or cause rezoning of forest land, timberland, or timberland zoned Timberland Production and there are no forest lands or timberlands within the project areas. The proposed project would not result in the loss of forest land or conversion of forest land to non-forest use and would not result in other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to nonagricultural use or conversion of forest land to non-forest use. Therefore, only those impacts and corresponding thresholds of significance evaluated in this section were determined to require further analysis and are addressed in this EIR. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

Impact AG-1: Conversion of Important Farmland to nonagricultural use (Less than significant)

As discussed above, based on the FMMP Important Farmland maps, the project sites do not contain Prime, Unique, or Farmlands of Statewide Importance, which are the categories of farmlands identified in the thresholds of significance in Appendix G of the State CEQA Guidelines. Nonetheless, because Farmlands of Local Importance are designated within certain portions of the project sites, this analysis evaluates the project's potential impacts on these farmlands for informational purposes.

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The project sites currently consist of degraded natural habitat that would be enhanced to increase the amount and quality of habitat for the Santa Ana sucker and other native species and enhance jurisdictional aquatic resources, similar to historical conditions on the sites. The Tributaries Restoration Project and Mitigation Reserve Program Phase I component would restore existing channels, enhance existing riparian and floodplain habitats, and control nonnative invasive species. As a result, the restoration of degraded habitat and the removal of invasive species, as detailed in the project description, would not result in the conversion of existing Farmland of Local Importance and would not involve significant changes in the existing land use but would rather improve ecological conditions. As such, the proposed project would enhance the project sites for beneficial uses and would not result in conversion of any existing agricultural land to nonagricultural use.

The Hidden Valley Creek, Old Ranch Creek, and Lower Hole Creek areas of the Tributaries Restoration Project and Mitigation Reserve Program Phase I component are within and adjacent to

areas of Farmland of Local Importance per FMMP data for Riverside County, as shown on Figure 3.1-1. As shown in Table 3.1-1, a total of approximately 7.3 acres of Farmland of Local Importance are within three of the project sites, including 6.6 acres in Hidden Valley Creek or 21.7 percent of the site, 0.35 acre in Lower Hole Creek or 4.3 percent of the site, and 0.37 acre in Old Ranch Creek or 1.9 percent of the site. However, as previously stated, none of these areas are currently zoned by local agencies as agricultural land uses, nor are the sites currently used for agricultural purposes. The existing land uses associated with the sites would remain unchanged and are generally zoned for PF (Public Facilities) and P (Public Park) by the City of Riverside; W-1 (Watercourse, Watershed, and Conservation Areas) and OS-R (Open Space Recreation) by the City of Jurupa Valley; and W (Water) by the County of Riverside. As such, these lands are not intended to be used locally for agricultural purposes. As identified in the existing setting, the adjacent land uses are also developed with residential and transportation land uses and are not used for agricultural purposes.

Old Ranch Creek proposed project improvements would not be within the 0.37 acre of designated lands. No impacts on lands designated Farmland of Local Importance would occur within Old Ranch Creek. At Hidden Valley Creek, the proposed project would result in an active channel with perennial flow. The perennial channel would flow through areas of Hidden Valley Creek that are currently designated as Farmland of Local Importance by the FMMP. Within Lower Hole Creek, lands designated as Farmland of Local Importance are near the confluence with the Santa Ana River and the proposed project would result in an active channel flowing through these designated lands. Old Ranch Creek and Hidden Valley Creek are adjacent to the Santa Ana River floodplain, do not currently contain any existing agricultural uses, and, as previously identified, are not locally zoned for agricultural uses. The proposed project would not significantly alter existing land uses or convert any agricultural land to non-agricultural use. Therefore, the project sites would remain compatible with agricultural activities in the future as long as the use is compatible with the support of Santa Ana sucker habitat and the surrounding developed land uses, including the land use designations for the sites. Because the proposed project would not result in the conversion of existing agricultural lands to non-agricultural uses, impacts on agricultural land uses are considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The potential implementation of the Expanded Mitigation Reserve Program Phase II would have similar impacts as those noted above for the Tributaries Restoration Project and Mitigation Reserve Program Phase I. The Hidden Valley Creek, Old Ranch Creek, and Lower Hole Creek areas of the proposed project are within and adjacent to areas of Farmland of Local Importance per FMMP data for Riverside County. A total of approximately 19.12 acres of Farmland of Local Importance are within three of the project sites, including 13.92 acres in Hidden Valley Creek or 13.3 percent of the site, 1.7 acres in Lower Hole Creek or 14.9 percent of the site, and 3.5 acres in Old Ranch Creek or 1.9 percent of the site. Although this project would result in active channels flowing through areas designated as Farmlands of Local Importance, these channels are compatible with the use of these farmlands. Therefore, this project component would not result in the conversion of existing Farmland of Local Importance and would not involve significant changes in the existing land use. Notably, this project would improve ecological conditions as a part of the Expanded Mitigation Reserve Program Phase II. As such, the proposed project would enhance the project sites for beneficial uses. Therefore, project impacts would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

3.2 Air Quality

This section examines the degree to which construction and maintenance of the proposed project may result in changes to regional and local air quality. This section also describes the applicable regulatory framework, existing ambient air quality conditions in the project area, and characteristics and effects of air pollutants.

The study area is in western Riverside County, which is within the South Coast Air Basin (Basin). The impact analysis focuses on the primary criteria pollutants that would be generated by construction and maintenance activities, which are carbon monoxide (CO), particulate matter 10 microns or less in diameter (PM₁₀) and 2.5 microns or less in diameter (PM_{2.5}), sulfur dioxide (SO₂), and the ozone precursors reactive organic gases (ROG) and nitrogen oxides (NO_x). Please refer to Appendix E for all emissions calculations and Section 3.6, *Greenhouse Gas Emissions*, for a discussion of greenhouse gas emissions and climate change.

3.2.1 Regulatory Setting

Federal

The federal Clean Air Act (CAA) and its subsequent amendments form the basis for the nation's air pollution control effort. The U.S. Environmental Protection Agency (EPA) is responsible for implementing most aspects of the CAA. A key element of the CAA is the National Ambient Air Quality Standards (NAAQS) for criteria pollutants. The CAA delegates enforcement of the NAAQS to the states. In California, the California Air Resources Board (CARB) is responsible for enforcing air pollution regulations and ensuring the NAAQS and California Ambient Air Quality Standards (CAAQS) are met. CARB, in turn, delegates regulatory authority for stationary sources and other air quality management responsibilities to local air agencies. The South Coast Air Quality Management District (SCAQMD) is the local air agency within the study area. The following sections provide more detailed information on federal, state, and local air quality regulations that apply to the project.

Clean Air Act

The CAA was first enacted in 1963 and has been amended numerous times in subsequent years (1965, 1967, 1970, 1977, and 1990). The CAA establishes federal air quality standards, known as NAAQS, for six criteria pollutants and specifies future dates for achieving compliance. The CAA also mandates that the states submit and implement a State Implementation Plan (SIP) for local areas not meeting those standards. The plans must include pollution control measures that demonstrate how the standards will be met.

The 1990 amendments to the CAA identify specific emission-reduction goals for areas not meeting the NAAQS. These amendments require both a demonstration of reasonable further progress toward attainment and incorporation of additional sanctions for failure to attain or meet interim milestones. Table 3.2-1 shows the NAAQS currently in effect for each criteria pollutant, as well as the CAAQS (discussed further below).

Table 3.2-1. Federal and State Ambient Air Quality Standards

Criteria Pollutant	Average Time	California Standards	National Standards ¹	
			Primary	Secondary
Ozone	1-hour	0.09 ppm	None ²	None ²
	8-hour	0.070 ppm	0.070 ppm	0.070 ppm
Particulate Matter (PM ₁₀)	24-hour	50 µg/m ³	150 µg/m ³	150 µg/m ³
	Annual mean	20 µg/m ³	None	None
Fine Particulate Matter (PM _{2.5})	24-hour	None	35 µg/m ³	35 µg/m ³
	Annual mean	12 µg/m ³	12.0 µg/m ³	15 µg/m ³
Carbon Monoxide	8-hour	9.0 ppm	9 ppm	None
	1-hour	20 ppm	35 ppm	None
Nitrogen Dioxide	Annual mean	0.030 ppm	0.053 ppm	0.053 ppm
	1-hour	0.18 ppm	0.100 ppm	None
Sulfur Dioxide ³	Annual mean	None	0.030 ppm	None
	24-hour	0.04 ppm	0.014 ppm	None
	3-hour	None	None	0.5 ppm
	1-hour	0.25 ppm	0.075 ppm	None
Lead	30-day Average	1.5 µg/m ³	None	None
	Calendar quarter	None	1.5 µg/m ³	1.5 µg/m ³
	3-month average	None	0.15 µg/m ³	0.15 µg/m ³
Sulfates	24-hour	25 µg/m ³	None	None
Visibility-reducing Particles	8-hour	-. ³	None	None
Hydrogen Sulfide	1-hour	0.03 ppm	None	None
Vinyl Chloride	24-hour	0.01 ppm	None	None

Source: CARB 2016

¹ National standards are divided into primary and secondary standards. Primary standards are intended to protect public health, whereas secondary standards are intended to protect public welfare and the environment.

² The federal 1-hour standard of 12 parts per hundred million was in effect from 1979 through June 15, 2005. The revoked standard is referenced because it was employed for such a long period and is a benchmark for State Implementation Plans.

³ The annual and 24-hour NAAQS for SO₂ only apply for 1 year after designation of the new 1-hour standard to those areas that were previously in nonattainment for 24-hour and annual NAAQS.

⁴ CAAQS for visibility-reducing particles is defined by an extinction coefficient of 0.23 per kilometer – visibility of 10 miles or more due to particles when relative humidity is less than 70%.

ppm= parts per million; µg/m³ = micrograms per cubic meter; NAAQS = National Ambient Air Quality Standard; SO₂ = sulfur dioxide; CAAQS = California Ambient Air Quality Standard

Non-road Diesel Rule

EPA has established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and locomotives. New equipment used for restoration activities, including heavy-duty trucks and off-road construction equipment, would be required to comply with the emission standards.

State

California Clean Air Act

In 1988, the state legislature adopted the California Clean Air Act (CCAA), which established a statewide air pollution control program. The CCAA requires all air districts in the state to endeavor to meet the CAAQS by the earliest practical date. Unlike the CAA, the CCAA does not set precise attainment deadlines. Instead, the CCAA establishes increasingly stringent requirements for areas that will require more time to achieve the standards. CAAQS are generally more stringent than NAAQS and incorporate additional standards for sulfates, hydrogen sulfide, visibility-reducing particles, and vinyl chloride. The CAAQS and NAAQS are shown in Table 3.2-1.

CARB and local air districts bear responsibility for meeting the CAAQS, which are to be achieved through district-level air quality management plans incorporated into the SIP. In California, EPA has delegated authority to prepare SIPs to CARB, which, in turn, has delegated that authority to individual air districts. CARB traditionally has established state air quality standards, maintaining oversight authority in air quality planning, developing programs for reducing emissions from motor vehicles, developing air emission inventories, collecting air quality and meteorological data, and approving SIPs.

The CCAA substantially adds to the authority and responsibilities of air districts. The CCAA designates air districts as lead air quality planning agencies, requires air districts to prepare air quality plans, and grants air districts authority to implement transportation control measures. The CCAA also emphasizes the control of “indirect and area-wide sources” of air pollutant emissions. The CCAA gives local air pollution control districts explicit authority to regulate indirect sources of air pollution and to establish traffic control measures.

Statewide Truck and Bus Regulation

Originally adopted in 2005, the on-road truck and bus regulation requires heavy trucks to be retrofitted with particulate matter filters. The regulation applies to privately and federally owned diesel-fueled trucks with a gross vehicle weight rating greater than 14,000 pounds. Compliance with the regulation can be reached through one of two paths: (1) vehicle retrofits according to engine year or (2) phase-in schedule. Compliance paths ensure that by January 2023, nearly all trucks and buses will have 2010 model year engines or newer.

State Tailpipe Emission Standards

Like EPA at the federal level, CARB has established a series of increasingly strict emission standards for new off-road diesel equipment, on-road diesel trucks, and harbor craft operating in California. New equipment used for restoration activities would be required to comply with the standards.

Carl Moyer Program

The Carl Moyer Memorial Air Quality Standards Attainment Program is a voluntary program that offers grants to owners of heavy-duty vehicles and equipment. The program is a partnership between CARB and the local air districts throughout the state to reduce air pollution emissions from heavy-duty engines. Locally, the air districts administer this program.

Toxic Air Contaminant Regulations

California regulates toxic air contaminants (TACs) primarily through the Toxic Air Contaminant Identification and Control Act (Tanner Act) and the Air Toxics “Hot Spots” Information and Assessment Act of 1987 (“Hot Spots” Act). In the early 1980s, CARB established a statewide comprehensive air toxics program to reduce exposure to air toxics. The Tanner Act created California’s program to reduce exposure to air toxics. The “Hot Spots” Act supplements the Tanner Act by requiring a statewide air toxics inventory, notification of people exposed to a significant health risk, and facility plans to reduce these risks.

CARB has identified diesel particulate matter (DPM) as a TAC and has approved a comprehensive *Diesel Risk Reduction Plan* to reduce emissions from both new and existing diesel-fueled engines and vehicles. The goal of the plan is to reduce DPM emissions and the associated health risk by 75 percent by 2010 and by 85 percent by 2020. The plan identifies 14 measures that CARB will implement over the next several years. The project would be required to comply with any applicable diesel control measures from the *Diesel Risk Reduction Plan*.

SCAQMD (2015a) also acknowledges that a project emitting NO_x or ROG below its threshold of 10 tons per year “is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models” and that it would not be feasible to directly correlate project emissions of volatile organic compound (VOC) or NO_x with specific health impacts from ozone.

Regional and Local

At the regional level, responsibilities of air quality districts include overseeing stationary-source emissions, approving permits, maintaining emissions inventories, maintaining air quality stations, overseeing agricultural burning permits, and reviewing air quality-related sections of environmental documents required by CEQA. The air quality districts are also responsible for establishing and enforcing local air quality rules and regulations that address the requirements of federal and state air quality laws and for ensuring that NAAQS and CAAQS are met.

South Coast Air Quality Management District

Within the study area and the Basin, SCAQMD is tasked with preparing regional programs and policies designed to improve air quality, which are assessed and published in the form of the Air Quality Management Plan (AQMP). The AQMP is updated every 4 years to evaluate the effectiveness of the adopted programs and policies and to forecast attainment dates for nonattainment pollutants to support the California SIP based on measured regional air quality and anticipated implementation of new technologies and emissions reductions. The most recent publication is the 2016 AQMP, which is intended to serve as a regional blueprint for achieving the federal air quality standards and healthful air. The 2016 AQMP is based on the forecasts contained within the Southern California Association of Governments’ (SCAG) 2016–2040 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

In addition to the AQMP, SCAQMD develops and adopts various rules to reduce emissions throughout the Basin. The project may be subject to the following district rules. This list of rules may not be all encompassing, as additional SCAQMD rules may apply as specific project components are further developed.

- Rule 401 (Visible Emissions) prohibits an air discharge that results in a plume that is as dark or darker than what is designated as No. 1 Ringelmann Chart by the United States Bureau of Mines for an aggregate of 3 minutes in any 1 hour.
- Rule 402 (Nuisance) states that a person should not emit air contaminants or other material that cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public; or that endanger the comfort, repose, health or safety of any such persons or the public; or that cause, or have a natural tendency to cause, injury or damage to business or property.
- Rule 403 (Fugitive Dust) controls fugitive dust through various requirements including, but not limited to, applying water in sufficient quantities to prevent the generation of visible dust plumes, applying soil binders to uncovered areas, re-establishing ground cover as quickly as possible, utilizing a wheel-washing system to remove bulk material from tires and vehicle undercarriages before vehicles exit the project site, limiting vehicle speeds on unpaved roads to 15 miles per hour, and maintaining effective cover over exposed areas. Rule 403 also prohibits the release of fugitive dust emissions from any active operation, open storage piles, or disturbed surface area beyond the property line of the emission source and prohibits particulate matter deposits on public roadways.
- Rule 474 (Fuel Burning Equipment – Oxides of Nitrogen) limits NO_x emissions from non-mobile fuel burning equipment.
- Rule 1108 (Cutback Asphalt) limits VOC emissions from cutback asphalt.

County of Riverside

County of Riverside General Plan

The County of Riverside General Plan's Air Quality Element, Healthy Communities Element, and Land Use Element contain policies related to air quality that are relevant to the proposed project. The Air Quality Element identifies goals, policies, and programs that are meant to balance Riverside County's actions regarding land use, circulation, and other issues with their potential effects on air quality. In summary, relevant policies are concerned with supporting SCAQMD rules and AQMP guidelines, buffering sensitive receptor from pollution sources, and controlling and reducing particulate matter emissions. Relevant policies are as follows:

AQ 1.1. Promote and participate with regional and local agencies, both public and private, to protect and improve air quality.

AQ 1.3. Participate in the development and update of those regional air quality management plans required under federal and state law, and meet all standards established for clean air in these plans.

AQ 1.4. Coordinate with the SCAQMD and MDAQMD [Mojave Desert Air Quality Management District] to ensure that all elements of air quality plans regarding reduction of air pollutant emissions are being enforced.

AQ 1.11. Involve environmental groups, the business community, special interests, and the general public in the formulation and implementation of programs that effectively reduce airborne pollutants.

AQ 2.2. Require site plan designs to protect people and land uses sensitive to air pollution through the use of barriers and/or distance from emissions sources when possible.

AQ 2.3. Encourage the use of pollution control measures such as landscaping, vegetation and other materials, which trap particulate matter or control pollution.

AQ 4.7. To the greatest extent possible, require every project to mitigate any of its anticipated emissions which exceed allowable emissions as established by the SCAQMD, MDAQMD, [South Coast Air Basin], the Environmental Protection Agency and the California Air Resources Board.

AQ 4.9. Require compliance with SCAQMD Rules 403 and 403.1, and support appropriate future measures to reduce fugitive dust emanating from construction sites.

AQ 4.10. Coordinate with the SCAQMD and MDAQMD to create a communications plan to alert those conducting grading operations in the County of first, second, and third stage smog alerts, and when wind speeds exceed 25 miles per hour. During these instances all grading operations should be suspended.

AQ 15.1. Identify and monitor sources, enforce existing regulations, and promote stronger controls to reduce particulate matter.

AQ 16.1. Cooperate with local, regional, state and federal jurisdictions to better control particulate matter.

AQ 17.1 Reduce particulate matter from agriculture, construction, demolition, debris hauling, street cleaning, utility maintenance, railroad rights-of-way, and off-road vehicles to the extent possible.

AQ 17.4. Adopt incentives, regulations and/or procedures to manage paved and unpaved roads and parking lots so they produce the minimum practicable level of particulates.

HC 14.1. When feasible, avoid siting homes and other sensitive receptors near known or anticipated sources of air pollution.

HC 14.2. When feasible, avoid locating new sources of air pollution near homes and other sensitive receptors.

LU 1.5. The County of Riverside shall participate in regional efforts to address issues of mobility, transportation, traffic congestion, economic development, air and water quality, watershed and habitat management with cities, local and regional agencies, stakeholders, Indian nations, and surrounding jurisdictions.

LU 11.2. Ensure adequate separation between pollution producing activities and sensitive emission receptors, such as hospitals, residences, child care centers and schools.

LU 11.5. Ensure that all new developments reduce Greenhouse Gas emissions as prescribed in the Air Quality Element and Climate Action Plan.

Jurupa Area Plan

According to the County of Riverside General Plan Jurupa Area Plan (2015), the air quality in Riverside County has actually improved slightly despite the phenomenal growth that has occurred in the region. Most of that growth has been in adjacent counties and Riverside County continues to import their pollutants. With technical advances to reduce smog from cars and trucks and an expanded supply of jobs reducing the need for people to commute as far as in the past, air quality is improving locally.

County of Riverside County Code

The County of Riverside County Code does not contain any ordinances related to air quality that are relevant to the proposed project.

City of Riverside

City of Riverside General Plan

The City of Riverside General Plan's Air Quality Element contains policies related to air quality that are relevant to the proposed project. The Air Quality Element identifies the role the City of Riverside can play to help the Basin attain federal and state air quality standards, as well as protect city residents and business from impacts of air pollution. In summary, relevant policies are concerned with supporting SCAQMD rules and the AQMP guidelines, buffering sensitive receptors from pollution sources, and controlling and reducing particulate matter emissions. Relevant policies are as follows:

AQ 1.2. Consider potential environmental justice issues in reviewing impacts (including cumulative impacts for each project proposed).

AQ 1.3. Separate, buffer and protect sensitive receptors from significant sources of pollution to the greatest extent possible.

AQ 1.4. Facilitate communication between residents and businesses on nuisance issues related to air quality.

AQ. 1.21. Cooperate and participate in regional air quality management plans, programs and enforcement measures.

AQ 2.24. Support full compliance with the SCAQMD's Clean Fleet Rules.

AQ 4.1. Identify and monitor sources, enforce existing regulations and promote stronger controls to reduce particulate matter (e.g., require clean fuels for street sweepers and trash trucks, exceed the AQMD requirements for fleet rules).

AQ 4.2. Reduce particulate matter from agriculture (e.g., require use of clean non-diesel equipment and particulate traps), construction, demolition, debris hauling, street cleaning, utility maintenance, railroad rights-of-way and off-road vehicles to the extent possible, as provided in SCAQMD Rule 403.

AQ 4.3. Support the reduction of all particulates potential sources.

AQ 4.5. Require the suspension of all grading operations when wind speeds (as instantaneous gusts) exceed 25 miles per hour.

AQ 4.6. Cooperate with local, regional, State and Federal jurisdictions to better control particulate matter.

AQ 6.5. Involve environmental groups, the business community, special interests and the general public in the formulation and implementation of programs that effectively reduce airborne pollutants.

AQ 7.1. Promote and participate with regional and local agencies, both public and private, to protect and improve air quality.

AQ 7.3. Participate in the development and update of those regional air quality management plans required under Federal and State law and meet all standards established for clean air in these plans.

AQ 7.4. Coordinate with the SCAQMD to ensure that the City's air quality plans regarding reduction of air pollutant emissions are being enforced.

AQ 7.9. Adhere with Federal, State and regional air quality laws, specifically with Government Code Section 65850.2, which requires that each owner or authorized agent of a project indicate, on the development or building permit for the project, whether he/she will need to comply with the requirements for a permit for construction or modification from the SCAQMD.

AQ 7.10. Incorporate, to the extent applicable and permitted by law, current and proposed AQMP measures.

AQ 8.14. Establish programs that comply with the South Coast Air Quality Management District (AQMD) and the City's General Plan 2025 to increase the quality of air in Riverside.

City of Riverside Municipal Code

The City of Riverside Municipal Code describes requirements for grading operation projects (Code 17.28.030). The code is relevant to air quality given its provisions related to dust control. The project permittee shall comply with SCAQMD rules to control fugitive dust. The municipal code describes performance standards related to odor, requiring that any process that creates or emits any odors, dust, smoke, gases, or other odorous matter must comply with applicable standards set by SCAQMD (Code 19.590.080). The municipal code also describes nuisance odors, stating that is unlawful and a nuisance for any person owning, leasing, occupying, or having charge or possession of any property and any vehicles thereon in the city to maintain the property in such a manner that the existence of loud or unusual noises, or foul or noxious odors that offend the peace and quiet of persons of ordinary sensibilities and interfere with the comfortable enjoyment of life or property and affect the entire neighborhood or any considerable number of persons (6.15.020).

City of Jurupa Valley

City of Jurupa Valley Draft General Plan

The City of Jurupa Valley Draft General Plan's Air Quality Element, Mobility Element, Land Use Element, Conservation and Open Space Element, Housing Element, and Environmental Justice Element contain policies related to air quality that are relevant to the proposed project. In summary, applicable policies are concerned with supporting CARB thresholds, SCAQMD rules, and the AQMP guidelines, buffering sensitive receptors from pollution sources, and controlling and reducing particulate matter. Relevant policies are as follows:

AQ 1.1. Regional Participation. Promote and participate with regional, subregional, and state agencies, both public and private, in all areas to protect and improve air quality, including enforcement of all regulations.

AQ 1.2. Air Quality Measures. Establish and implement air quality, land use, and mobility measures that improve not only the City's environment but also that of the entire region.

AQ 2.1. Site Plan Designs. Require City land use planning efforts and site plan designs to protect people and land uses sensitive to air pollution, using barriers and/or distance from emissions sources, and protect sensitive receptors from polluting sources, wherever possible.

AQ 2.2. Pollution Control Measures. Strongly encourage the use of pollution control measures such as landscaping, vegetation and other materials that trap particulate matter or control pollution.

AQ 4.2. Particulate Matter. Reduce particulate matter from agriculture, construction, demolition, debris hauling, street cleaning, utility maintenance, railroad rights of way, and off-road vehicles to the maximum extent possible.

City of Jurupa Valley Municipal Code

The City of Jurupa Valley Municipal Code describes requirements for grading operation projects involving the hauling of more than 500 cubic yards of earth materials on public roads (Code 13.20.010). The code is relevant to air quality given its provisions related to dust control, requiring

that all clearances and permits, if any, are obtained directly from SCAQMD and other applicable governmental agencies.

3.2.2 Environmental Setting

Ambient air quality is affected by climatological conditions, topography, and the types and amounts of pollutants emitted. This section summarizes how air pollution moves through the air within the Basin in the presence of other chemicals and particles. This section also summarizes local climate conditions, existing air quality conditions, and sensitive receptors that may be affected by project-generated emissions.

Regional Climate and Meteorology

The Basin is in an area of high air pollution potential due to the magnitude of emissions sources and the combination of topography, low mean atmospheric mixing height, and abundant sunshine. Although the Basin has a semi-arid climate, air near the surface is generally moist because of the presence of a shallow marine layer. With very low average wind speeds, a limited capacity to disperse air contaminants horizontally exists. The mountains and hills surrounding the Basin contribute to the variation of rainfall, temperature, and winds throughout the region.

The general region lies in the semi-permanent high-pressure zone of the eastern Pacific Ocean, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. The Basin experiences warm summers, mild winters, infrequent rainfalls, light winds, and moderate humidity. This usually mild climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of its perimeter.

During the spring and early summer, pollution is typically blown out of the Basin through mountain passes or lifted by warm, vertical currents adjacent to mountain slopes. The vertical dispersion of air pollutants in the Basin is limited by temperature inversions in the atmosphere close to the Earth's surface. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods of low inversions and low wind speeds, air pollutants become more concentrated in urbanized areas with pollution sources of greater magnitude.

The Basin experiences frequent temperature inversions. Atmospheric temperature typically decreases with height. However, under inversion conditions, temperature increases as altitude increases, thereby preventing air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground. During the summer, air quality problems are created due to the interaction between the ocean surface and the lower layer of the atmosphere. This interaction creates a moist marine layer. An upper layer of warm air mass forms over the cool marine layer, preventing air pollutants from dispersing upward.

Local Climate Conditions

The mountains and hills within and surrounding the Basin contribute to the variation of rainfall, temperature, and winds throughout the region. These variables characterize short-term weather conditions and observing long-term averages and trends in these characteristics provides a synopsis

of typical climatological conditions in the Basin. These meteorological conditions affect how air pollution from emissions sources within the Basin moves through the air within the Basin in the presence of other chemicals and particles. The Western Regional Climate Center—in collaboration with the National Oceanic and Atmospheric Administration—processes and publicizes regional climate summary data for the western United States. There are several meteorological stations located throughout the county that collect and record climatological data including temperature, precipitation, and wind speed and direction.

The meteorological data station that is most representative of local climate conditions within the study area is the Riverside City Fire Station 3, located at 6395 Riverside Avenue. The annual average temperature at the station is 63 degrees Fahrenheit (°F), with an average winter temperature of 49°F and an average summer temperature of 80°F. Total annual precipitation averages about 10 inches, occurring mostly during the winter (Western Regional Climate Center 2018a). The Riverside Municipal Airport southeast of the project site collects information on wind speeds and patterns. The data indicate a prominence of westerly winds that average 5 miles per hour (Western Regional Climate Center 2018b, 2018c).

Pollutants of Concern

Criteria Pollutants

As discussed above, the federal and state governments have established NAAQS and CAAQS, respectively, for six criteria pollutants. Ozone is considered a regional pollutant because its precursors affect air quality on a regional scale. Pollutants such as CO, NO₂, SO₂, and lead are considered local pollutants that tend to accumulate in the air locally. Particulate matter is both a local and a regional pollutant. The primary criteria pollutants generated by the project would be ozone precursors (NO_x and ROG), NO₂, CO, and particulate matter.¹

All criteria pollutants can have human health and environmental effects at certain concentrations. The ambient air quality standards for these pollutants (Table 3.2-1) are set to public health and the environment within an adequate margin of safety (CAA Section 109). Epidemiological, controlled human exposure, and toxicology studies evaluate potential health and environmental effects of criteria pollutants, and form the scientific basis for new and revised ambient air quality standards.

Principal characteristics and possible health and environmental effects from exposure to the primary criteria pollutants generated by the project are discussed below.

Ozone, or smog, is a photochemical oxidant that is formed when ROG and NO_x (both byproducts of the internal combustion engine) react with sunlight. ROG are compounds made up primarily of hydrogen and carbon atoms. Internal combustion associated with motor vehicle usage is the major source of hydrocarbons. Other sources of ROG are emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. NO_x serve as integral participants in the process of photochemical smog production. The two major forms of NO_x are nitric oxide (NO) and NO₂. NO is a colorless, odorless gas formed from

¹ SO₂ would be generated in small quantities. SCAQMD attains all SO₂ thresholds. While SCAQMD has adopted a regional SO₂ threshold to support continued attainment of the SO₂ ambient air quality standards (discussed further below), the air district acknowledges that land use development projects do not result in substantial quantities of localized SO₂. Accordingly, localized and project-level SO₂ impacts are not evaluated. Similarly, the project would not generate lead.

atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO₂ is a reddish-brown irritating gas formed by the combination of NO and oxygen. NO_x acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

Ozone poses a higher risk to those who already suffer from respiratory diseases (e.g., asthma), children, older adults, and people who are active outdoors. Exposure to ozone at certain concentrations can make breathing more difficult, cause shortness of breath and coughing, inflame and damage the airways, aggregate lung diseases, increase the frequency of asthma attacks, and cause chronic obstructive pulmonary disease. Studies show associations between short-term ozone exposure and non-accidental mortality, including deaths from respiratory issues. Studies also suggest long-term exposure to ozone may increase the risk of respiratory-related deaths (EPA 2019a). The concentration of ozone at which health effects are observed depends on an individual's sensitivity, level of exertion (i.e., breathing rate), and duration of exposure. Studies show large individual differences in the intensity of symptomatic responses, with one study finding no symptoms to the least responsive individual after a 2-hour exposure to 400 parts per billion of ozone and a 50 percent reduction in forced airway volume in the most responsive individual. Although the results vary, evidence suggests that sensitive populations (e.g., asthmatics) may be affected on days when the 8-hour maximum ozone concentration reaches 80 parts per billion (EPA 2019b).

In addition to human health effects, ozone has been tied to crop damage, typically in the form of stunted growth, leaf discoloration, cell damage, and premature death. Ozone can also act as a corrosive and oxidant, resulting in property damage such as the degradation of rubber products and other materials.

Nitrogen dioxide is one of a group of highly reactive gases known as NO_x (discussed above). Per SCAQMD (2008), the vast majority (95 percent) of NO_x emissions is in the form of NO. No adverse health effects are associated with NO. However, breathing air with a high concentration of NO₂ can irritate airways in the human respiratory system, leading to increased asthma symptoms, hospital admissions, and visits to the emergency room (EPA 2019c). NO is converted to NO₂ through reactions with ozone as well as through photochemical reactions with hydrocarbons in the lower atmosphere. These reactions are a function of downwind distance, and SCAQMD assumes 100 percent conversion of NO to NO₂ at 500 meters from the emission source. Therefore, while NO_x is a regional pollutant because it contributes to ozone formation, emissions of NO_x, specifically due to the localized conversion of NO_x to NO₂, can have localized effects.

Carbon Monoxide is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances, such as gasoline or diesel fuel. The primary adverse health effect associated with CO is interference with normal oxygen transfer to the blood, which may result in tissue oxygen deprivation. Exposure to CO at high concentrations can also cause fatigue, headaches, confusion, dizziness, and chest pain. There are no ecological or environmental effects of ambient CO (CARB 2019a).

Particulate Matter consists of finely divided solids or liquids such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulates are now recognized—inhalable coarse particles, or PM₁₀, and inhalable fine particles, or PM_{2.5}. Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. However, wind on arid landscapes also contributes substantially to local particulate loading.

Particulate pollution can be transported over long distances and may adversely affect the human population, especially for people who are naturally sensitive or susceptible to breathing problems. Numerous studies have linked particulate matter exposure to premature death in people with preexisting heart or lung disease, nonfatal heart attacks, irregular heartbeat, aggravated asthma, decreased lung function, and increased respiratory symptoms. Depending on its composition, both PM₁₀ and PM_{2.5} can also affect water quality and acidity, deplete soil nutrients, damage sensitive forests and crops, affect ecosystem diversity, and contribute to acid rain (EPA 2019d).

Toxic Air Contaminants

Although NAAQS and CAAQS have been established for criteria pollutants, no ambient standards exist for TACs. Many pollutants are identified as TACs because of their potential to increase the risk of developing cancer or because of their acute or chronic health risks. For TACs that are known or suspected carcinogens, CARB has consistently found that there are no levels or thresholds below which exposure is risk-free. Individual TACs vary greatly in the risks they present. At a given level of exposure, one TAC may pose a hazard that is many times greater than another. TACs are identified and their toxicity is studied by the California Office of Environmental Health Hazard Assessment.

Air toxics are generated by many sources, including: stationary sources, such as dry cleaners, gas stations, auto body shops, and combustion sources; mobile sources, such as diesel trucks, ships, and trains; and area sources, such as farms, landfills, and construction sites. Adverse health effects of TACs can be carcinogenic (cancer-causing), short-term (acute) non-carcinogenic, and long-term (chronic) non-carcinogenic. Direct exposure to these pollutants has been shown to cause cancer, birth defects, damage to the brain and nervous system, and respiratory disorders. The principal TAC associated with the proposed project is DPM.

Existing Air Quality Conditions

The existing air quality conditions in the project vicinity can be characterized by monitoring data collected in the region. Table 3.2-2 summarizes data for criteria air pollutant levels from the Riverside-Rubidoux monitoring station, which is the closest station to the project and approximately 2 miles northeast of the Anza Creek and Old Ranch Creek restoration site, for the last 3 years for which complete data are available (2015–2017). Air quality concentrations are expressed in terms of parts per million (ppm) or micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). As shown in Table 3.2-2, no violations of CO or NO₂ NAAQS and CAAQS were reported. However, the monitoring station has detected numerous violations of the particulate matter and ozone NAAQS and CAAQS. As discussed above, the CAAQS and NAAQS define clean air and represent the maximum amount of pollution that can be present in outdoor air without any harmful effects on people and the environment. Existing violations of the ozone and particulate matter ambient air quality standards indicate that certain individuals exposed to these pollutants may experience certain health effects, including increased incidence of cardiovascular and respiratory ailments.

Table 3.2-2. Ambient Air Quality Monitoring Data from the Riverside-Rubidoux Station (2015–2017)

Pollutant	2015	2016	2017
Ozone (O ₃)			
Maximum 1-hour concentration (ppm)	0.132	0.142	0.145
Maximum 8-hour concentration (ppm)	0.105	0.104	0.118

Pollutant	2015	2016	2017
Number of days standard exceeded ¹			
CAAQS 1-hour (>0.09 ppm)	31	33	47
CAAQS 8-hour (>0.070 ppm)	59	71	82
NAAQS 8-hour (>0.070 ppm)	55	69	81
Carbon Monoxide (CO)			
Maximum 8-hour concentration (ppm)	1.7	1.3	1.8
Maximum 1-hour concentration (ppm)	2.5	1.7	2.4
Number of days standard exceeded ¹			
NAAQS 8-hour (≥9 ppm)	0	0	0
CAAQS 8-hour (≥9.0 ppm)	0	0	0
NAAQS 1-hour (≥35 ppm)	0	0	0
CAAQS 1-hour (≥20 ppm)	0	0	0
Nitrogen Dioxide (NO₂)			
State maximum 1-hour concentration (ppm)	54	73	63
State second-highest 1-hour concentration (ppm)	57	59	62
Annual average concentration (ppm)	14	14	14
Number of days standard exceeded			
CAAQS 1-hour (0.18 ppm)	0	0	0
Particulate Matter (PM₁₀)³			
National ² maximum 24-hour concentration (µg/m ³)	69.0	84.0	92.0
National ² second-highest 24-hour concentration (µg/m ³)	65.0	80.0	81.7
State ³ maximum 24-hour concentration (µg/m ³)	107.4	170.5	137.6
State ³ second-highest 24-hour concentration (µg/m ³)	91.3	82.6	120.3
National annual average concentration (µg/m ³)	32.2	38.1	39.0
State annual average concentration (µg/m ³) ⁴	40.0	-	41.3
Number of days standard exceeded ¹			
NAAQS 24-hour (>150 µg/m ³) ⁵	0	0	0
CAAQS 24-hour (>50 µg/m ³) ⁵	92	-	103
Particulate Matter (PM_{2.5})			
National ² maximum 24-hour concentration (µg/m ³)	54.7	51.5	50.3
National ² second-highest 24-hour concentration (µg/m ³)	46.1	39.1	43.8
State ³ maximum 24-hour concentration (µg/m ³)	61.1	60.8	50.3
State ³ second-highest 24-hour concentration (µg/m ³)	48.0	40.5	45.5
National annual average concentration (µg/m ³)	11.8	12.5	12.2
State annual average concentration (µg/m ³) ⁴	15.3	12.6	14.5
Number of days standard exceeded ¹			
NAAQS 24-hour (>35 µg/m ³) ⁵	10	5	7

Pollutant	2015	2016	2017
Sulfur Dioxide (SO ₂)			
No data available			
Sources: CARB 2018; EPA 2018a			
¹ An exceedance is not necessarily a violation. ² National statistics are based on standard conditions data. In addition, national statistics are based on samplers using federal reference or equivalent methods. ³ State statistics are based on local conditions data, except in the South Coast Air Basin, for which statistics are based on standard conditions data. In addition, state statistics are based on California approved samplers. ⁴ State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria. ⁵ Mathematical estimate of how many days concentrations would have been measured as higher than the level of the standard had each day been monitored. Values have been rounded.			
ppm = parts per million			
NAAQS = National Ambient Air Quality Standards			
CAAQS = California Ambient Air Quality Standards			
µg/m ³ = micrograms per cubic meter			
mg/m ³ = milligrams per cubic meter			
> = greater than			
* = insufficient data			

Attainment Status

Local monitoring data (Table 3.2-2) are used to designate areas as nonattainment, maintenance, attainment, or unclassified for the NAAQS and CAAQS. The four designations are further defined as shown below.

- Nonattainment—assigned to areas where monitored pollutant concentrations consistently violate the standard in question.
- Maintenance—assigned to areas where monitored pollutant concentrations exceeded the standard in question in the past but are no longer in violation of that standard.
- Attainment—assigned to areas where pollutant concentrations meet the standard in question over a designated period of time.
- Unclassified—assigned to areas where data are insufficient to determine whether a pollutant is violating the standard in question.

Table 3.2-3 summarizes the attainment status of the project area in Riverside County with respect to the NAAQS and CAAQS.

Table 3.2-3. Federal and State Attainment Status of the Project Area in Riverside County

Pollutant	NAAQS	CAAQS
Ozone	Extreme nonattainment	Nonattainment
CO	Maintenance	Attainment
PM10	Attainment	Nonattainment
PM2.5	Serious nonattainment	Nonattainment
SO ₂	Attainment	Attainment
NO ₂	Maintenance	Attainment
Lead	Attainment	Attainment
Sulfates	No standard	Attainment
Visibility-Reducing Particles	No standard	Unclassified
Hydrogen Sulfide	No standard	Unclassified
Vinyl Chloride	No standard	Unclassified

Sources: EPA 2018b; CARB 2017

NAAQS = National Ambient Air Quality Standards; CAAQS = California Ambient Air Quality Standards; CO = carbon monoxide; PM10 = particulate matter 10 microns or less in diameter; PM2.5 = particulate matter 2.5 microns or less in diameter; SO₂ = sulfur dioxide; NO₂ = nitrogen dioxide

Sensitive Receptors

Some land uses are considered more sensitive to changes in air quality than others, depending on the population groups and the activities involved. CARB has identified the following population groups who are most likely to be affected by air pollution: children less than 14 years of age, adults over 65 years of age, athletes, and people with cardiovascular and chronic respiratory diseases. Land uses where these population groups are likely to spend a substantial amount of time are considered sensitive receptors. According to SCAQMD, sensitive land uses include residences, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

Residences are the primary sensitive land use within the vicinity of the restoration sites. Additional sensitive land uses include recreational facilities and religious facilities. There are also several transient encampments throughout the project area vicinity. Table 3.2-4 presents a summary of the sensitive land uses in the vicinity of the restoration sites and Figure 3.2-1 displays each sensitive land use's location.

Table 3.2-4. Sensitive Receptors Located within 1,000 Feet of the Restoration Sites

Receptor	Description	Nearest Restoration Site(s)	Distance between Nearest Receptor and Site (feet)	Direction from Site
Single-family homes	Residence	Hidden Valley Creek	Adjacent	Southeast
Pedley Christian Center	Religious facility	Hidden Valley Creek	640	North
Church of God of Prophecy	Religious facility	Hidden Valley Creek	900	North
Single-family homes	Residence	Lower Hole Creek	Adjacent	West
Van Buren Golf Center	Recreational facility	Lower Hole Creek	800	Southeast
Single-family homes	Residence	Anza Creek and Old Ranch Creek	Adjacent	South
Jurupa Hills Country Club	Recreational facility	Anza Creek	250	North
New Joy Baptist Church	Religious facility	Anza Creek	400	South
Santa Ana River Trail	Recreational facility	All	Adjacent	--

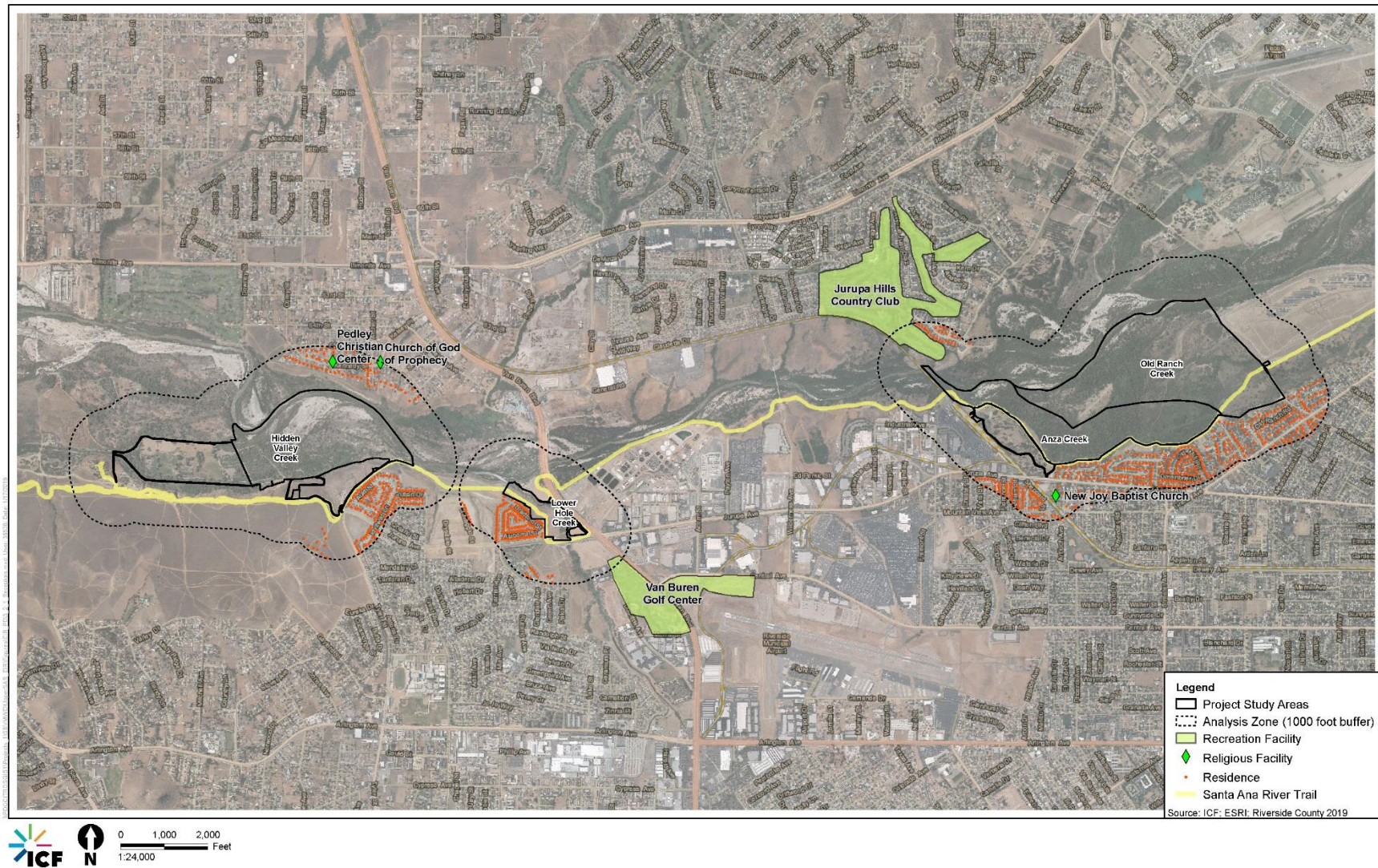


Figure 3.2-1. Sensitive Land Uses in the Project Vicinity

3.2.3 Environmental Impacts

Methods for Analysis

Implementation of the project would generate criteria pollutants during construction and future maintenance activities. Construction activities would occur in 2019 and 2020. Subsequent to 2020, there would be three phases of periodic maintenance: short term, long term, and in perpetuity. Emissions generated during construction and all three maintenance phases were quantified using a combination of emission factors and methodologies from the California Emissions Estimator Model (CalEEMod), version 2016.3.2, and CARB's Emission Factors 2017 (EMFAC2017) model. This section provides a summary of the methodology. Appendix E provides a full list of assumptions.

Construction Activities

Construction activities would generate emissions of ROG, NO_x, CO, SO₂, PM₁₀, and PM_{2.5} that could result in short-term air quality impacts. Emissions would originate from off-road equipment exhaust, employee and haul truck vehicle exhaust (on-road vehicles), paving, and site grading and earth movement. It is anticipated that 4 months of active construction would be required to complete each of the restoration sites, and up to two sites could be constructed at the same time, for a total project construction timeline of approximately 8 months. It is anticipated that construction of all four sites would not be consecutive and Lower Hole Creek and Anza Creek could be constructed at the same time and Hidden Valley Creek and Old Ranch Creek could be constructed at a later time. Accordingly, emissions would be temporary (i.e., limited to the 8-month construction period) and would cease when construction activities are complete.

Combustion exhaust, fugitive dust (PM₁₀ and PM_{2.5}), and fugitive off-gassing (ROG) were estimated using a combination of emission factors and methodologies from the California Emissions Estimator Model (CalEEMod), version 2016.3.2; CARB's Emission Factors 2017 (EMFAC2017) model; and EPA's AP-42 Compilation of Air Pollutant Emission Factors (AP-42) based on project-specific construction data (e.g., schedule, equipment, truck volumes), as described further below.

- **Off-Road Equipment**—Emission factors for off-road construction equipment (e.g., loaders, graders, bulldozers) were obtained from the CalEEMod (version 2016.3.2) User's Guide appendix, which provides values per unit of activity (in grams per horsepower-hour) by calendar year (California Air Pollution Control Officers Association 2017). Criteria pollutants were estimated by multiplying the CalEEMod emission factors by the equipment inventory.
- **On-Road Vehicles**—On-road vehicles (e.g., pickup trucks, flatbed trucks) would be required for material and equipment hauling, onsite crew and material movement, and employee commuting. Exhaust emissions from on-road vehicles were estimated using the EMFAC2017 emissions model and activity data (miles traveled per day). Emission factors for haul trucks are based on aggregated-speed emission rates for EMFAC's T7 Single Vehicle category. Factors for onsite water trucks were based on 5-mile-per-hour emission rates for the T6 Heavy category. Factors for employee commute vehicles are based on a weighted average for all vehicle speeds for EMFAC's light-duty automobile/light-duty truck vehicle categories. Fugitive re-entrained road dust emissions were estimated using EPA's AP-42, Sections 13.2.1 and 13.2.2.
- **Paving**—Pavement replacement would occur at the bike trail crossing of Old Ranch Creek and at the road crossing of Hidden Valley Creek during box culvert installation. Fugitive ROG

emissions were calculated based the amount of square feet paved and the CalEEMod default emission factor of 2.62 pounds of ROG per acre paved (California Air Pollution Control Officers Association 2017).

- **Site Grading and Earth Movement**—Fugitive dust emissions from earth movement (e.g., site grading, bulldozing, and truck loading) were quantified using emission factors from CalEEMod. Data on the total graded acreage and quantity of cut-and-fill material were developed by the project design team. The earthmoving analysis accounts for emission reductions achieved through compliance with SCAQMD Rule 403.

Construction activities at each site would occur over seven phases (e.g., land clearing, invasive plant removal) in a period of 8 months. Criteria pollutants generated by each phase were quantified using the methods described above. Maximum daily emissions, based on concurrent activity among phases at each site, were quantified consistent with air district requirements. The highest daily emissions for each site were conservatively selected as the peak day for analysis purposes. Construction activities at Lower Hole Creek and Old Ranch Creek would overlap during the first year of construction and activities at Anza Creek and Hidden Valley Creek would overlap during the second year of construction. Accordingly, maximum daily emissions within the first year of construction were obtained by adding the peak day estimates for Lower Hole Creek and Old Ranch Creek. Likewise, the peak day estimates for Anza Creek and Hidden Valley Creek were added to obtain maximum daily emissions for the second year of construction. This approach is meant to convey a worst-case scenario based on available information and, therefore, is not necessarily representative of actual emissions that would be incurred on a daily basis throughout the construction period.

Maintenance Activities

Replanting, invasive species removal, and other activities to facilitate plant establishment would occur for the first few years immediately following construction.² Once the vegetation at each site has matured, maintenance activities would be limited to monitoring and occasional channel work. Emissions generated by onsite equipment (e.g., backhoes) and earthmoving were modeled using CalEEMod. Emissions generated by mobile sources (e.g., employee vehicles, haul trucks) were estimated using EMFAC2017 and EPA's AP-42. Maintenance activities would be the same at all four sites, and, as such, emissions would be identical.

Maintenance activities would occur over three phases: short term, long term, and in perpetuity. Short-term maintenance activities were assumed to occur 120 days per year for 2 years (2021 to 2023) following construction. Long-term maintenance activities were assumed to occur 48 days per year for 3 to 10 years (2023 to 2033) following short-term maintenance. In perpetuity maintenance activities were assumed to occur permanently, 24 days per year following long-term maintenance (2033 and beyond).

² Following construction, in addition to maintenance activities, project activities would include the operation of two electric-powered groundwater pumps in perpetuity. Electricity-powered pumps do not directly generate criteria pollutant emissions. Electricity consumed by the pumps would be delivered by Southern California Edison and generated by a mix of renewable and nonrenewable sources. Nonrenewable sources would generate indirect criteria pollutant emissions, but these are permitted stationary sources subject to local and federal emissions limits. Accordingly, these emissions are not included in project-level air quality analyses. The greenhouse gas impact of operation of the pumps is analyzed in Section 3.6, *Greenhouse Gas Emissions*.

Maintenance activities for each phase differ in terms of the number of equipment, volume of earth moved, and days per year (frequency) of activity. All emissions were conservatively modeled using 2021 emission factors, which is the first year following completion of construction. Because emission factors decline as a function of time, long-term emissions would be lower than analyzed in this section.

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or substantially contribute to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors).
- Expose sensitive receptors to substantial pollutant concentrations.
- Generate objectionable odors affecting a substantial number of people.

As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this Environmental Impact Report [EIR]) prepared for the proposed project determined that several air quality impacts would be less than significant and then eliminated those impacts from further analysis on that basis. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. As stated in the Notice of Preparation/Initial Study, the proposed project would not induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure). For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

In December 2018, the California Supreme Court issued its decision in *Sierra Club v. County of Fresno* (6 Cal.5th 502) (hereafter referred to as the Friant Ranch Decision). The case reviewed the long-term, regional air quality analysis contained in the EIR for the proposed Friant Ranch development. The Friant Ranch project is a 942-acre master-plan development in unincorporated Fresno County within the San Joaquin Valley Air Basin, an air basin currently in nonattainment for the ozone and PM_{2.5} NAAQS and CAAQS. The Court found that the air quality analysis was inadequate because it failed to provide enough detail “for the public to translate the bare [criteria pollutant emissions] numbers provided into adverse health impacts or to understand why such a translation is not possible at this time.” The Court’s decision clarifies that environmental documents must connect a project’s air quality impacts to specific health effects or explain why it is not technically feasible to perform such an analysis.

As discussed in Section 3.2.2, *Environmental Setting*, all criteria pollutants that would be generated by the proposed project are associated with some form of health risk (e.g., asthma). Criteria pollutants can be classified as either regional or localized pollutants. Regional pollutants can be transported over long distances and affect ambient air quality far from the emissions source. Localized pollutants affect ambient air quality near the emissions source. Ozone is considered a

regional criteria pollutant, whereas CO, NO₂, SO₂, and lead are localized pollutants. Particulate matter can be both a local and a regional pollutant, depending on its composition. As discussed above, the primary criteria pollutants of concern in the project area are ozone (including ROG and NO_x), NO₂, CO, and particulate matter (including DPM). Thresholds for both regional and local pollutants are discussed further below.

Regional Project-Generated Criteria Pollutants

Adverse health effects induced by regional criteria pollutant emissions generated by the project (ozone precursors and particulate matter) are highly dependent on a multitude of interconnected variables (e.g., cumulative concentrations, local meteorology and atmospheric conditions, the number and character of exposed individuals [e.g., age, gender]). For these reasons, ozone precursors (ROG and NO_x) contribute to the formation of ground-borne ozone on a regional scale, where emissions of ROG and NO_x generated in one area may not equate to a specific ozone concentration in that same area. Similarly, some types of particulate pollutants may be transported over long distances or formed through atmospheric reactions. As such, the magnitude and locations of specific health effects from exposure to increased ozone or regional particulate matter concentrations are the product of emissions generated by numerous sources throughout a region, as opposed to a single individual project.

Models and tools have been developed to correlate regional criteria pollutant emissions to potential community health impacts. Appendix E summarizes many of these tools, identifies the analyzed pollutants, describes their intended application and resolution, and analyzes whether they could be used to reasonably correlate project-level emissions to specific health consequences. As described in Appendix E, while there are models capable of quantifying ozone and secondary particulate matter formation and associated health effects, these tools were developed to support regional planning and policy analysis and have limited sensitivity to small changes in criteria pollutant concentrations induced by individual projects. Therefore, translating project-generated criteria pollutants to the locations where specific health effects could occur or the resultant number of additional days of nonattainment cannot be estimated with a high degree of accuracy.

Technical limitations of existing models to correlate project-level regional emissions to specific health consequences are recognized by air quality management districts throughout the state, including the San Joaquin Valley Air Pollution Control District and SCAQMD, who submitted amicus curiae briefs for the Friant Ranch legal proceedings. In its brief, San Joaquin Valley Air Pollution Control District (2015) states that while health risk assessments for localized air toxics, such as DPM, are commonly prepared, “it is not feasible to conduct a similar analysis for criteria air pollutants because currently available computer modeling tools are not equipped for this task.” The air district further notes that emissions solely from the Friant Ranch project (which equate to less than one-tenth of one percent of the total NO_x and VOC in the San Joaquin Valley) are not likely to yield valid information, and that any such information should not be “accurate when applied at the local level.” SCAQMD (2015a) presents similar information in its brief, stating that “it takes a large amount of additional precursor emissions to cause a modeled increase in ambient ozone levels.”³ SCAQMD (2015a) also acknowledges that a project emitting NO_x or ROG below their threshold of 10

³ For example, SCAQMD’s analysis of its 2012 AQMP showed that modeled NO_x and ROG reductions of 432 and 187 tons per day, respectively, only reduced ozone levels by 9 parts per billion. Analysis of SCAQMD’s Rule 1315 showed that emissions of NO_x and ROG of 6,620 and 89,180 pounds per day, respectively, contributed to 20 premature deaths per year and 89,947 school absence (SCAQMD 2015a).

tons per year “is small enough that its regional impact on ambient ozone levels may not be detected in the regional air quality models” and it would “not be feasible to directly correlate project emissions of VOC or NO_x with specific health impacts from ozone.”

Appendix G of the State CEQA Guidelines indicates that, where available, the significance criteria established by local air districts may be relied upon to make the impact determinations. SCAQMD has developed regional air quality significance thresholds that are applicable to CEQA projects within its jurisdiction. These thresholds were originally published in SCAQMD’s *CEQA Air Quality Handbook* (SCAQMD 1993) and have since been updated through guidance published on the agency’s web portal. Table 3.2-5 presents SCAQMD’s recommended regional criteria pollutant thresholds. There are separate thresholds for short-term construction-type activities and longer-term operational-type activities (i.e., maintenance). The thresholds are applicable to regional emissions, which refer to emissions of all regulated pollutants generated both on and off a project site.

Table 3.2-5. SCAQMD Regional Air Quality Significance Threshold (maximum pounds per day)

Pollutant	VOC	CO ¹	NO _x	SO _x ¹	PM10	PM2.5
Construction						
Regional Threshold	75	550	100	150	150	55
Operation (Maintenance Activities)						
Regional Threshold	55	550	55	150	150	55

Source: SCAQMD 2015b

¹ While CO and SO_x have more direct and localized impacts, SCAQMD has adopted a “regional” threshold that considers basin-wide effects of cumulative CO and SO_x emissions with respect to attainment of the ambient air quality standards.

VOC = volatile organic compound; CO = carbon monoxide; NO_x = nitrogen oxides; SO_x = sulfur oxides; PM10 = particulate matter 10 microns or less in diameter; PM2.5 = particulate matter 2.5 microns or less in diameter

The regional thresholds presented in Table 3.2-5 are used to support the impact determinations for thresholds AQ-1, AQ-2, and AQ-3. Construction and maintenance activities could conflict with applicable air quality plans, violate air quality standards, or result in a cumulatively considerable contribution to a cumulative impact if maximum daily regional emissions exceed any of the thresholds presented in Table 3.2-5.

SCAQMD’s thresholds presented in Table 3.2-5 consider existing air quality concentrations and attainment or nonattainment designations under the NAAQS and CAAQS. The NAAQS and CAAQS are informed from the findings of a wide range of scientific evidence that demonstrates that there are known safe concentrations of criteria pollutants. While recognizing that air quality is a cumulative problem, SCAQMD considers projects that generate regional criteria pollutant and ozone precursor emissions below these thresholds to be minor in nature and to not adversely affect air quality such that the NAAQS or CAAQS would be violated or lead to increased incidence of specific health consequences. Accordingly, projects with criteria pollutant emissions that make only incremental contributions and do not exceed SCAQMD’s thresholds cannot be traced to significant adverse health outcomes. As further described below, the criteria pollutant emissions associated with the proposed project would not exceed SCAQMD’s thresholds and a quantitative correlation of project-generated regional criteria pollutant emissions to specific human health impacts is not included in this analysis.

Localized Project-Generated Criteria Pollutants, Air Toxics (DPM), and Odors

Localized pollutants generated by a project are deposited and potentially affect populations near the emissions source. Because these pollutants dissipate with distance, emissions from individual projects can result in direct and material health impacts on adjacent sensitive receptors. Models and thresholds are readily available to quantify these potential health effects and evaluate their significance. Locally adopted thresholds and analysis procedures for the localized pollutants of concern associated with the proposed project are identified below.

Criteria Pollutants

As discussed above, the NAAQS and CAAQS are health protective standards and define the maximum amount of ambient pollution that can be present without harming public health. SCAQMD has developed localized significance thresholds (LST) to evaluate whether project-generated emissions may violate the ambient air quality standards and therefore expose receptors to substantial criteria pollutant concentrations. Applicable LSTs for the proposed project were identified based on the project's Source Receptor Area (SRA), which is SRA #23, Metropolitan Riverside County, and its proximity to receptors. As described above, the restoration sites are adjacent to several residential and recreational receptors. Accordingly, Table 3.2-6 presents the LSTs for SRA #23 for construction sites equal to or less than 1 acre and within 80 feet (25 meters) of sensitive receptors. The LST for each pollutant is used to evaluate the localized air quality impacts associated with the onsite emissions generated by the project's construction and maintenance activities. These thresholds are used to support the impact determinations under AQ-1 through AQ-4.

Table 3.2-6. SCAQMD Localized Significance Thresholds (pounds per day)

SRA ¹	SRA Name	Project Component	CO	NO _x ²	PM ₁₀	PM _{2.5}
23	Metropolitan Riverside County	Construction	602	118	4	3
		Operation (Maintenance Activities)	602	118	1	1

Source: SCAQMD 2009

¹ SCAQMD divided the air basin into various Source Receptor Areas. LSTs have been developed based on the ambient concentrations of that pollutant for each source receptor area.

² Localized effects can occur from the conversion of NO_x to NO₂, and these effects are assessed through the localized LST analysis for NO_x.

SCAQMD = South Coast Air Quality Management District; SRA = Source Receptor Area; CO = carbon monoxide; NO_x = nitrogen oxides; NO₂ = nitrogen dioxide; LST = Localized Significance Threshold; PM₁₀ = particulate matter 10 microns or less in diameter; PM_{2.5} = particulate matter 2.5 microns or less in diameter

Diesel Particulate Matter

DPM has been identified as TAC and long-term exposure can lead to cancer, birth defects, and damage to the brain and nervous system. Accordingly, SCAQMD has adopted separate thresholds to evaluate receptor exposure to DPM emissions. The "substantial" DPM threshold defined by SCAQMD is the probability of contracting cancer for the maximum exposed individual exceeding 10 in 1 million, or the ground-level concentrations of non-carcinogenic TACs resulting in a hazard index greater than 1 for the maximum exposed individual (SCAQMD 2017). SCAQMD's DPM thresholds are used to support the impact determination under AQ-4.

Odors

Per SCAQMD's odor threshold, the potential for significant air quality impacts under threshold AQ-5 is addressed qualitatively in the context of compliance with SCAQMD Rule 402 (Nuisance) (SCAQMD 2015a). SCAQMD has not established a quantitative-based odor threshold.

Impacts and Mitigation Measures

Impact AQ-1: Conflict with or obstruct implementation of the applicable air quality plan (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The analysis addresses the consistency with applicable SCAQMD and SCAG policies, including SCAQMD's 2016 AQMP and growth projections within the SCAG 2016–2040 RTP/SCS. In accordance with the procedures established in SCAQMD's *CEQA Air Quality Handbook*, the following criteria are required to be addressed in order to determine the consistency with applicable SCAQMD and SCAG policies:

- Would the project:
 - Result in an increase in the frequency or severity of existing air quality violations; or
 - Cause or contribute to new air quality violations; or
 - Delay timely attainment of air quality standards or the interim emission reductions specified in the AQMP?
- Would the project exceed the assumptions utilized in preparing the AQMP?
 - Is the project consistent with the population and employment growth projections upon which AQMP forecasted emission levels are based; or
 - Does the project include air quality mitigation measures; or
 - To what extent is project development consistent with the AQMP land use policies?

With respect to the first criterion, as discussed below in the analysis for Impact AQ-2, construction- and maintenance-generated ozone precursors (ROG and NO_x), CO, PM₁₀, PM_{2.5}, and SO₂ have been quantitatively analyzed for the construction and maintenance activities of the project. These emissions were analyzed in order to: (1) ascertain potential effects on regional and localized concentrations (as applicable) and (2) determine if there is a potential for such emissions to cause or contribute to a violation of the ambient air quality standards. As demonstrated in the quantitative analysis for Impact AQ-2, regional and localized emissions would not exceed the SCAQMD-recommended thresholds during construction and maintenance activities.

With respect to the determination of consistency with AQMP growth assumptions, the projections in the AQMP for achieving air quality goals are based on assumptions in SCAG's 2016–2040 RTP/SCS regarding population, housing, and growth trends. Determining if a project exceeds the assumptions reflected in the AQMP involves the evaluation of three criteria: (1) consistency with applicable population, housing, and employment growth projections; (2) project mitigation measures; and (3) appropriate incorporation of AQMP land use planning strategies.

Construction activities would not increase population or housing. It is not anticipated that the project would result in substantial new regional employment opportunities. Therefore, construction activities would not affect growth projections used in the AQMP. Similarly, maintenance activities would be consistent with applicable SCAQMD and SCAG policies, including SCAQMD's 2016 AQMP and growth projections within the SCAG 2016–2040 RTP/SCS. Although the in perpetuity maintenance activities would extend beyond the 2040 horizon year used by the analysis in the RTP/SCS, these activities would not increase population or housing.

Compliance with Rule 403 may include, but is not limited to, application of water to prevent the generation of dust, application of soil binders to uncovered areas, re-establishment of ground cover, utilization of a wheel-washing system, limitation of vehicle speeds on unpaved roads to 15 miles per hour, and maintenance of effective cover over exposed areas. As demonstrated in the analysis (see Impact AQ-2), the project would not result in significant air quality impacts, and no mitigation measures are required to reduce emissions. As such, the project meets this AQMP consistency criterion. Therefore, as the proposed project would be consistent with applicable SCAQMD and SCAG policies, impacts would be less than significant. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added within each of the restoration sites to restore additional areas to native conditions. Potential projects include removal of nonnative plants, revegetation, improvement to a public park, habitat restoration and enhancement, floodplain expansion, and establishment of an oxbow feature. While specific details about these projects are unknown at this time, the maximum area that would be restored in 1 year is assumed to be similar to the area of the Tributaries Restoration Project and Mitigation Reserve Program Phase I.

The individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would be similar to those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I in terms of construction and maintenance activity (e.g., off-road equipment, on-road vehicles, earthmoving, paving), intensity (i.e., number of equipment), and frequency (i.e., hours per day and days per year of activity). Accordingly, emissions are anticipated to be of similar intensity as those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. Because the individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would restore a similarly sized area per year at the same emissions intensity as the Tributaries Restoration Project and Mitigation Reserve Program Phase I, air quality impacts of the Expanded Mitigation Reserve Program Phase II are anticipated to be similar to those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I.

Based on the analysis of the Tributaries Restoration Project and Mitigation Reserve Program Phase I in Impact AQ-2, regional and localized emissions from the Expanded Mitigation Reserve Program Phase II are not anticipated to exceed the SCAQMD-recommended localized thresholds. Projects in the Expanded Mitigation Reserve Program Phase II would have no direct effect on population or regional housing, and they are not anticipated to result in substantial new regional employment opportunities. Therefore, they would be consistent with applicable SCAQMD and SCAG policies, including SCAQMD's 2016 AQMP and growth projections within the SCAG 2016–2040 RTP/SCS. Projects in the Expanded Mitigation Reserve Program Phase II would comply with all applicable regulatory standards (e.g., SCAQMD Rule 403, Fugitive Dust) as required by SCAQMD. As such, the

Expanded Mitigation Reserve Program Phase II meets the AQMP consistency criterion. Therefore, as the proposed project would be consistent with applicable SCAQMD and SCAG policies, impacts would be less than significant. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Impact AQ-2: Violate any air quality standard or substantially contribute to an existing or projected air quality violation (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

SCAQMD thresholds were determined based on SCAQMD's determination of what level of emissions would result in cumulatively considerable impacts on ambient air quality and human health. Therefore, should the project emissions prove to be less than the applicable thresholds after mitigation, then it is assumed the project would not lead to deterioration of ambient air quality in a significant manner. SCAQMD emphasizes the importance of analyzing both regional and localized emissions. Regional emissions include all emissions associated with project activities within the Basin (i.e., both a project's offsite and onsite emissions), while localized emissions refer only to emissions released from sources specifically located on the project site (i.e., a project's onsite emissions). Both regional and localized emissions associated with construction and maintenance activities are addressed below.

Construction Activities

Criteria pollutant emissions from construction activities at each of the four project sites would be generated by onsite construction equipment, on-road motor vehicle trips, earthworks, and paving. Emissions may vary substantially depending on the level of activity, types of equipment, number of personnel, wind and precipitation conditions, soil moisture content, and length of the construction period. It is anticipated that construction would occur over a period of 8 months—a 4-month period for Lower Hole Creek and Anza Creek and a later 4-month period for Hidden Valley Creek and Old Ranch Creek.

Table 3.2-7 presents maximum daily regional criteria pollutant emissions that would be generated by construction activities. As previously discussed, construction activities for Lower Hole Creek and Old Ranch Creek would occur concurrently, as would activities for Anza Creek and Hidden Valley Creek. Accordingly, peak daily emissions during periods of overlap among the two sites have been calculated and are analyzed relative to SCAQMD's regional thresholds of significance.

Table 3.2-7. Regional Criteria Pollutant Emissions from Construction Activities (pounds per day)

Location	ROG	NO_x	CO¹	PM10	PM2.5	SO_x¹
Lower Hole Creek	21	26	78	2	1	<1
Old Ranch Creek	21	28	79	3	2	<1
Anza Creek	21	24	78	2	1	<1
Hidden Valley Creek	21	28	79	3	2	<1
Peak Daily Emissions²						
Lower Hole Creek and Old Ranch Creek	41	52	147	5	3	<1
Anza Creek and Hidden Valley Creek	40	42	147	4	2	<1
SCAQMD Threshold	75	100	550	150	55	150

Note: Refer to Appendix E for the emission calculations.

¹ While CO and SO_x have more direct and localized impacts, SCAQMD has adopted a “regional” threshold that considers basin-wide effects of cumulative CO and SO_x emissions with respect to attainment of the ambient air quality standards.

² Construction activities at Lower Hole Creek and Old Ranch Creek would overlap during the first year of construction and activities at Anza Creek and Hidden Valley Creek would overlap during the second year of construction. Accordingly, maximum daily emissions within the first year of construction were obtained by adding the peak day estimates for Lower Hole Creek and Old Ranch Creek. Likewise, the peak day estimates for Anza Creek and Hidden Valley Creek were added to obtain maximum daily emissions for the second year of construction. Values may not add due to rounding.

ROG = reactive organic gas; NO_x = nitrogen oxides; CO = carbon monoxide; PM10 = particulate matter 10 microns or less in diameter; PM2.5 = particulate matter 2.5 microns or less in diameter; SO_x = sulfur oxides; SCAQMD = South Coast Air Quality Management District

Table 3.2-8 presents maximum daily localized criteria pollutant emissions that would be generated at each of the restoration sites. Unlike the regional analysis, SCAQMD’s localized impact assessment does not evaluate overlapping emissions from multiple restoration sites. This is because the localized analysis specifically assesses emissions at each individual project site. Under SCAQMD’s localized significance thresholds, because the sites that would be under construction concurrently (Lower Hole Creek and Old Ranch Creek in the first year and Anza Creek and Hidden Valley Creek in the second year) and are more than 2,000 feet apart, there would be no potential for localized emissions interaction among the sites.

Table 3.2-8. Localized Criteria Pollutant Emissions from Construction Activities (pounds per day)

Location	NO_x¹	CO	PM10	PM2.5
Lower Hole Creek	26	78	2	1
Old Ranch Creek	23	79	2	1
Anza Creek	24	78	2	1
Hidden Valley Creek	23	79	2	1
SCAQMD LST	118	602	4	3

Note: Refer to Appendix E for the emission calculations.

¹ Localized effects can occur from the conversion of NO_x to NO₂, and these effects are assessed through the localized LST analysis for NO_x.

NO_x = nitrogen oxides; CO = carbon monoxide; PM10 = particulate matter 10 microns or less in diameter; PM2.5 = particulate matter 2.5 microns or less in diameter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold

As shown in Tables 3.2-7 and 3.2-8, construction activities would not result in regional or localized emissions exceeding SCAQMD thresholds. As such, these emissions levels would not be expected to contribute a significant level of air pollution such that regional or local air quality would be degraded. Therefore, the impact would be less than significant. No mitigation is required.

Maintenance Activities

Maintenance activities would generate criteria pollutant emissions from on-road motor vehicle trips, earthworks, and mobile and stationary equipment. Tables 3.2-9 and 3.2-10 present estimated regional and localized emissions from the short-term, long-term, and in perpetuity maintenance phases. Maintenance activities differ across phases in terms of the number of equipment, cubic yards of earth moved, and days per year (frequency) of activity. The regional analysis conservatively assumes maintenance activities at all four sites could occur on the same day. Accordingly, total emissions generated by all four sites are summed and compared to SCAQMD's regional thresholds. Unlike the construction analysis above, the localized maintenance analysis evaluates overlapping emissions from multiple restoration sites because maintenance activities at the Old Ranch Creek and Anza Creek sites would occur fewer than 2,000 feet apart. Therefore, emissions from Old Ranch Creek and Anza Creek are combined and compared to the LSTs.

Table 3.2-9. Regional Criteria Pollutant Emissions from Maintenance Activities (pounds per day)

Maintenance Activity	ROG	NO_x	CO¹	PM₁₀	PM_{2.5}	SO_x¹
Short Term (2021 to 2023)						
Single site ²	5	4	46	1	<1	<1
<i>Peak Daily Emissions³</i>	<i>19</i>	<i>14</i>	<i>185</i>	<i>4</i>	<i>1</i>	<i><1</i>
Long Term (2023 to 2033)						
Single site ²	5	4	46	<1	<1	<1
<i>Peak Daily Emissions³</i>	<i>19</i>	<i>14</i>	<i>185</i>	<i>2</i>	<i>1</i>	<i><1</i>
In Perpetuity (2033 and beyond)						
Single site ²	5	1	44	<1	<1	<1
<i>Peak Daily Emissions³</i>	<i>19</i>	<i>6</i>	<i>175</i>	<i><1</i>	<i><1</i>	<i><1</i>
SCAQMD Threshold	75	100	550	150	55	150

Note: Refer to Appendix E for the emission calculations.

¹ While CO and SO_x have more direct and localized impacts, SCAQMD has adopted a “regional” threshold that considers basin-wide effects of cumulative CO and SO_x emissions with respect to attainment of the ambient air quality standards.

² Maintenance activities would be the same at all four sites, and, as such, emissions would be identical.

³ Analysis conservatively assumes maintenance activities at all four sites could occur concurrently on one day. Accordingly, the single site estimate is multiplied by four to calculate peak daily emissions. Values may not add due to rounding.

ROG = reactive organic gas; NO_x = nitrogen oxides; CO = carbon monoxide; PM₁₀ = particulate matter 10 microns or less in diameter; PM_{2.5} = particulate matter 2.5 microns or less in diameter; SO_x = sulfur oxides; SCAQMD = South Coast Air Quality Management District

Table 3.2-10. Localized Criteria Pollutant Emissions from Maintenance Activities (pounds per day)

Maintenance Activity^{1,2}	NO_x³	CO	PM₁₀	PM_{2.5}
Short-Term (2021 to 2023)	6	91	1	<1
Long-Term (2023 to 2033)	6	91	1	<1
In Perpetuity (2033 and beyond)	3	87	<1	<1
SCAQMD LST	118	602	1	1

Note: Refer to Appendix E for the emission calculations.

¹ Maintenance activities would be the same at all four sites, and, as such, emissions would be identical.

² Old Ranch Creek and Anza Creek are fewer than 2,000 feet apart. As such, their combined emissions are presented above.

³ Localized effects can occur from the conversion of NO_x to NO₂, and these effects are assessed through the localized LST analysis for NO_x.

NO_x = nitrogen oxides; CO = carbon monoxide; PM₁₀ = particulate matter 10 microns or less in diameter; PM_{2.5} = particulate matter 2.5 microns or less in diameter; SCAQMD = South Coast Air Quality Management District; LST = localized significance threshold

As shown in Tables 3.2-9 and 3.2-10, short-term, long-term, and in perpetuity maintenance activities would not result in regional or localized emissions exceeding SCAQMD thresholds. Moreover, emissions associated with long-term and in perpetuity maintenance were conservatively modeled using 2021 emission factors. Because emission factors decline as a function of time, permanent emissions associated with in perpetuity maintenance would be lower than presented in Tables 3.2-9 and 3.2-10. Therefore, the project would not contribute a significant level of air pollution such that regional or local air quality would be degraded, and the impact would be less than significant. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added within each of the project sites to restore additional areas to native conditions. While specific details about these projects are unknown at this time, the maximum area that would be restored in 1 year is assumed to be similar to the area of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. The individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would also be similar to those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I in terms of construction and maintenance activity, intensity, and frequency. Because the individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would restore a similarly sized area per year at the same emissions intensity as the Tributaries Restoration Project and Mitigation Reserve Program Phase I, air quality impacts of the Expanded Mitigation Reserve Program Phase II would be similar to those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. Impacts could be even less than those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I, given that the localized emissions analysis of maintenance activities for the Tributaries Restoration Project and Mitigation Reserve Program Phase I combines the emissions from two restoration sites occurring fewer than 2,000 feet apart. As the timing and exact location of individual mitigation and conservation projects are unknown at this time, projects in the Expanded Mitigation Reserve Program Phase II may not be restored at the same time and be fewer than 2,000 feet apart.

Based on the analysis of the Tributaries Restoration Project and Mitigation Reserve Program Phase I, regional and localized emissions from the Expanded Mitigation Reserve Program Phase II would not exceed the SCAQMD-recommended localized thresholds. Therefore, the impact would be less than significant. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Impact AQ-3: Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is a nonattainment area for an applicable federal or state ambient air quality standard (including releasing emissions that exceed quantitative thresholds for ozone precursors) (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Cumulative impacts can result from individually minor but collectively significant projects taking place over time. The study area for cumulative effects on air quality is the Basin. The Basin experiences chronic exceedances of state and federal ambient air quality standards because of past and present projects and is subject to continued nonattainment status by reasonably foreseeable future projects. SCAQMD has prepared, and periodically updates, the Basin's regional AQMP, which sets forth a comprehensive and integrated program that will lead the Basin into compliance with the federal and state air quality standards.

SCAQMD has developed strategies to reduce criteria pollutant emissions outlined in the AQMP pursuant to federal CAA mandates. The project would comply with all regulatory requirements previously discussed in this section, including, not limited to, SCAQMD Rules 401, 402, 403, 474, and 1108. In addition, the project would be required by law to comply with any relevant control measures adopted by SCAQMD as part of the AQMP. Per SCAQMD rules and mandates, as well as the CEQA requirement that significant impacts be mitigated to the extent feasible, these same requirements (i.e., rule compliance, the implementation of all feasible mitigation measures, and compliance with adopted AQMP emissions control measures) would also be imposed on all projects Basin-wide.

Moreover, according to SCAQMD, individual projects that exceed the daily significance thresholds would cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment. If the project's pollutant emissions are below the threshold levels, the impacts from an air contaminant are not considered to be cumulatively considerable. As shown in Tables 3.2-7 and 3.2-9, neither construction nor maintenance activities would result in regional emissions exceeding SCAQMD thresholds. Therefore, impacts of the project would not be cumulatively considerable, and this impact would be less than significant. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

If pollutant emissions of individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II are above individual project SCAQMD threshold levels, the impacts from an air contaminants are considered to be cumulatively considerable. The individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would restore a similarly sized area per year at the same emissions intensity as the Tributaries Restoration Project and Mitigation Reserve Program Phase I. As discussed under Impact AQ-2, the Expanded Mitigation

Reserve Program Phase II would not exceed the SCAQMD-recommended regional thresholds. Therefore, the impact would be less than significant. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Impact AQ-4: Expose sensitive receptors to substantial pollutant concentrations (Less than significant)

The potential for significant air quality impacts under threshold AQ-4 is addressed based on potential receptor exposure to localized criteria pollutants and DPM. SCAQMD's LSTs evaluate whether project-generated emissions may violate the ambient air quality standards and therefore expose receptors to substantial criteria pollutant concentrations. SCAQMD thresholds for evaluating receptor exposure to DPM emissions are used. The "substantial" DPM threshold defined by SCAQMD is the probability of contracting cancer for the maximum exposed individual exceeding 10 in 1 million, or the ground-level concentrations of non-carcinogenic TACs resulting in a hazard index greater than 1 for the maximum exposed individual (SCAQMD 2017).

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Construction Activities

Heavy-duty equipment and vehicles required for construction activities would generate DPM emissions that could expose nearby receptors to increased health risks. However, work at each site would range from 71 to 189 days, and carcinogenic risks are generally assessed over a period of 30 years. The brief duration of construction work at each individual site is therefore far less than typically associated with chronic health impacts. Moreover, while the restoration sites are adjacent to existing receptors, equipment and vehicles would be spread throughout each of the sites, and, as such, emissions would not be concentrated at one single location (see Figure 3.2-1). Because emissions dissipate as a function of distance, pollutant concentrations and associated health risks would be lower at the nearest sensitive receptors, particularly when activity occurs on the opposing side of the restoration site. Moreover, the project would be required to comply with any applicable diesel control measures from the *Diesel Risk Reduction Plan*. Given the site characteristics and limited duration of exposure, construction activities would not expose sensitive receptors to substantial DPM concentrations or health risks in excess of SCAQMD thresholds. Similarly, as shown in Tables 3.2-8 and 3.2-10, these receptors would not be exposed to increased criteria pollutant concentrations in excess of SCAQMD's LSTs. Consequently, implementation of project would not result in localized violations of the health-protective CAAQS or NAAQS, and, as such, would not expose sensitive receptors to significant pollutant concentrations or health effects. This impact would be less than significant. No mitigation is required.

Maintenance Activities

Maintenance activities would not introduce any new substantial stationary or mobile sources of DPM emissions. During short-term and long-term maintenance activities, a backhoe, trimmer, chainsaw, excavator, all-terrain vehicle, and other small equipment may be needed to remove invasive species and support plant establishment. In perpetuity maintenance activities would be limited to use of a chainsaw, trimmer, all-terrain vehicle, and various hand tools. Short-term maintenance would occur fewer than 120 days per year, long-term maintenance would occur fewer than 50 days per year, and in perpetuity maintenance would occur fewer than 25 days per year. Moreover, the project would be required to comply with any applicable diesel control measures

from the *Diesel Risk Reduction Plan*. The minor amount of DPM emissions and localized criteria pollutants that would be generated during maintenance activities would not be substantial and would not result in health risks exceeding SCAQMD thresholds. This impact would be less than significant, and no mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added within each of the project sites to restore additional areas to native conditions. While the specific location of these projects is unknown at this time, they would generally be adjacent to the sites in the Tributaries Restoration Project and Mitigation Reserve Program Phase I (see Figure 2-18 through Figure 2-20). Nearby sensitive receptors would be the same as identified for the Tributaries Restoration Project and Mitigation Reserve Program Phase I (see Figure 3.2-1). The individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would also be similar to those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I in terms of construction and maintenance activity, intensity, and frequency. Because the individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would restore land with the same nearby sensitive receptors and would have a similar emissions intensity as the Tributaries Restoration Project and Mitigation Reserve Program Phase I, air quality impacts of the Expanded Mitigation Reserve Program Phase II would be similar to those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. The Tributaries Restoration Project and Mitigation Reserve Program Phase I would not emit substantial DPM concentrations or localized criteria pollutants in excess of SCAQMD thresholds. Similarly, the Expanded Mitigation Reserve Program Phase II would not emit substantial DPM concentrations or localized criteria pollutants in excess of SCAQMD thresholds. This impact would be less than significant, and no mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Impact AQ-5: Generate objectionable odors affecting a substantial number of people (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Construction Activities

There are no quantitative thresholds established to assess construction odor impacts (SCAQMD 2015a). Instead, odor impacts are addressed in the context of Rule 402 (Nuisance). Based on complaints received by SCAQMD, the following sources are likely producers of nuisance odors: agriculture (farming and livestock), chemical plants, composting operations, dairies, fiberglass molding, landfills, refineries, rendering plants, rail yards, and wastewater treatment plants (SCAQMD 2005). Construction activities would not involve any of these listed sources. Construction activities would not disturb any sources of unexpected odors such as sewer lines. Project construction would involve the use of mobile sources of air quality emissions including off-road construction equipment and on-road mobile sources resulting from worker trips, both of which may emit objectionable odors due to the combustion of diesel fuel, as well as during limited asphalt paving.

However, the odor impacts during periods of construction would be intermittent and temporary, and would dissipate rapidly as a function of distance. Thus, construction is unlikely to expose a substantial number of people to objectionable odors. Potential odors generated during asphalt paving would be addressed through mandatory compliance with SCAQMD Rule 1108, which limits the amount of VOCs from cutback asphalt.

Project construction activities would remove vegetation and excavate soil, which could expose buried organic materials. However, odors associated with organic decomposition are typically generated under anaerobic conditions. The restoration sites are composed of primarily well-aerated sandy and gravel soils. Excavation on these soils and stockpiling of cut material on site is therefore not expected to affect the potential for soil-based odors, which would be limited given that any decomposition of organic material would occur under aerobic conditions. Accordingly, construction activities would not result in nuisance odors. This impact would be less than significant. No mitigation is required.

Maintenance Activities

Maintenance would not involve processes found at any of the above-listed producers of nuisance odors. Maintenance activities may result in minor equipment-based odors, but these would occur infrequently throughout the year and would dissipate rapidly. While the restored land uses have the potential to generate odors from natural processes, the emissions would be similar in origin and magnitude to the existing land use types in the restored area (e.g., managed wetlands). Accordingly, maintenance activities would not result in nuisance odors. This impact would be less than significant. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added within each of the project sites to restore additional areas to native conditions. While the specific circumstances of these projects are unknown at this time, they would be similar to those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I in terms of construction and maintenance activity, intensity, and frequency.

Similar to those under the Tributaries Restoration Project and Mitigation Reserve Program Phase I, individual mitigation and conservation projects in the Expanded Mitigation Reserve Program Phase II could involve the use of mobile sources of air quality pollutants including off-road construction equipment and on-road mobile sources, both of which may emit objectionable odors due to the combustion of diesel fuel. Odors could also be emitted during any asphalt paving or excavation of organic matter. Potential odors generated during asphalt paving would be addressed through mandatory compliance with air district rules, such as SCAQMD Rule 1108, which limits the number of VOCs from cutback asphalt. Construction odors from diesel-powered equipment and sediment excavation would be temporary and intermittent, and would dissipate rapidly as a function of distance. Odors associated with soil excavation are likewise anticipated to be minor and localized. The Expanded Mitigation Reserve Program Phase II area is composed of primarily well-aerated sandy and gravel soils. Any excavation on these soils and stockpiling of cut material on site is therefore not expected to affect the potential for soil-based odors, which would be limited given that

any decomposition of organic material would occur under aerobic conditions. Therefore, it is not anticipated that construction activities would emit objectionable odors.

Maintenance activities may result in minor equipment-based odors, but these would occur infrequently throughout the year and would dissipate rapidly. While the restored land has the potential to generate odors from natural processes, the emissions would be similar in origin and magnitude to the existing land use types in the restored area (e.g., managed wetlands). Accordingly, maintenance activities would not result in nuisance odors. This impact would be less than significant. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

3.3 Biological Resources

This section describes the existing biological resource conditions in the project area, summarizes the applicable federal, state, and local regulations, and provides an analysis of potential impacts on biological resources that are expected to occur with implementation of the proposed project. Measures to mitigate potentially significant impacts are included where necessary and feasible. Analysis methods, data sources, significance thresholds, and terminology used in this section are described in the appropriate subsections below. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Biological resources include wildlife, fish, and their habitats within an ecosystem whether it is located within a natural or urban setting. Wetlands and other aquatic resources have been identified by both the federal government and the state of California as important resources. The protection of these areas is critical for maintaining the physical, chemical, and biological integrity of waters of the U.S. and waters of the state.

Special-status species are defined as plants and animals that are legally protected under the federal Endangered Species Act (ESA), California Endangered Species Act (CESA), Migratory Bird Treaty Act (MBTA), Bald and Golden Eagle Protection Act (BGEPA), or other regulations identified below, and species that are considered sufficiently rare by the scientific community to qualify for such listing. Special-status plants are species with one or more of the following characteristics:

- Listed or proposed for listing as threatened or endangered under ESA (50 Code of Federal Regulations [CFR] 17.12 [listed plants] and various notices in the *Federal Register* [proposed species]).
- Candidates for possible future listing as threatened or endangered under the ESA (70 FR 24870–24934, May 11, 2005).
- Listed or candidates for listing by the State of California as threatened or endangered under CESA (14 California Code of Regulations [CCR] 670.5).
- Listed as rare under the California Native Plant Protection Act (California Fish and Game Code [CFGF] Section 1900 et seq.).
- Determined to meet the definitions of rare or endangered under CEQA (State CEQA Guidelines §15380).
- Considered by the California Native Plant Society (CNPS) to be “rare, threatened or endangered in California” (California Rare Plant Ranks 1B and 2B) or vascular plants, bryophytes, and lichens listed as having special status by the California Department of Fish and Wildlife (CDFW).
- Listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (California Rare Plant Ranks 3 and 4) that may be included on the basis of local significance or recent biological information.

Special-status animals are species with one or more of the following characteristics:

- Listed or proposed for listing as threatened or endangered under the ESA (50 CFR 17.11 [listed animals] and various notices in the *Federal Register* [proposed species]).

- Candidates for possible future listing as threatened or endangered under the ESA (70 *Federal Register* 24870- 24934, May 11, 2005), or as species of concern (National Marine Fisheries Service [NMFS]).
- Determined to meet the definitions of rare or endangered under CEQA (State CEQA Guidelines §15380).
- Listed or candidates for listing by the State of California as threatened or endangered under CESA (14 CCR 670.5).
- Wildlife species of special concern to CDFW.
- Fully protected species under CFGC Section 3511 (birds), Section 4700 (mammals), Section 5515 (fish), and Section 5050 (reptiles and amphibians).
- Species with no formal special status but thought by experts to be rare or in serious decline and to warrant special status based on recent information.

3.3.1 Regulatory Setting

Federal

Federal Endangered Species Act of 1973

Administered by the U.S. Fish and Wildlife Service (USFWS) and National Oceanographic and Atmospheric Administration NMFS, the ESA provides the legal framework for the listing and protection of species (and their habitats) that are identified as being endangered or threatened with extinction. Pursuant to ESA (7 United States Code [USC] Section 136, 16 USC 1531 et seq.), USFWS and NMFS have regulatory authority over species listed as endangered or threatened as well as habitat of such species that has been designated as critical (i.e., Critical Habitat). Under ESA, authorization is required to “take” a listed species or adversely modify critical habitat. Take is defined under ESA Section 3 as “to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Under federal regulation (50 CFR 17.3, 222.102); “harm” is further defined to include habitat modification or degradation where it would be expected to result in death or injury to listed wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Designated critical habitat for endangered and threatened species is defined as a specific geographic area that is essential for species recovery and conservation of a threatened or endangered species and that may require special management and protection. Critical habitat is designated when a species is listed pursuant to the ESA. Critical habitat may include an area that is not currently occupied by the species but that will be needed for its recovery.

Specifically, Sections 7 and 10(a) of the ESA regulate actions that could jeopardize endangered or threatened species. ESA Section 7 outlines procedures for federal interagency cooperation to conserve federally listed species and designated critical habitat. Section 7(a)(2) and its implementing regulations require federal agencies to consult with USFWS and/or NMFS to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species, or result in the destruction or adverse modification of critical habitat. Critical habitat designations are not made for every species listed under ESA. The designation process also takes into account economic, national security, and other impacts and may result in the exclusion of some habitat areas from critical habitat designation (16 USC 1533(b)(2)).

Military installations are generally excluded from critical habitat designations; however, they are required by the Sikes Act (16 USC 670a–670f, as amended) to prepare Integrated Natural Resource Management Plans.

For projects where federal action is not involved and take of a listed species may occur, the project proponent may seek to obtain an incidental take permit (ITP) under ESA Section 10(a). Section 10(a) allows issuance of permits for incidental take of endangered or threatened species. The term “incidental” applies if the taking of a listed species is incidental to and not the purpose of an otherwise lawful activity. A Habitat Conservation Plan (HCP) demonstrating how the taking would be minimized and what steps taken would ensure the species’ survival must be submitted for issuance of Section 10(a) permits.

Migratory Bird Treaty Act

The MBTA domestically implements a series of international treaties that provide for migratory bird protection (16 USC 703 et seq.). The MBTA authorizes the Secretary of the Interior to regulate the taking of migratory birds. The act provides that it is unlawful, except as permitted by regulations, “to pursue, hunt, take, capture, kill, attempt to take, capture, or kill, possess, [...] any migratory bird, or any part, nest, or egg of any such bird” (16 USC 703(a)). Species protected under the MBTA are listed in 50 CFR 10.13. Most native birds in the Santa Ana River region are protected under the MBTA. USFWS issues permits under the MBTA to qualified applicants for the following types of activities: falconry, raptor propagation, scientific collecting, special purposes (rehabilitation, educational, migratory game bird propagation, and salvage), take of depredating birds, taxidermy, and waterfowl sale and disposal; USFWS does not issue permits for “incidental take” of migratory birds that results from otherwise lawful activities such as infrastructure, transportation projects, facility structures, or other activities.

Bald and Golden Eagle Protection Act

The BGEPA is the primary law protecting eagles, including individuals, and their nests and eggs (16 USC 668 et seq.). It defines “take” to include “pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, destroy, molest, or disturb” (16 USC 668c). “Disturb” is defined by regulation at 50 CFR 22.3 in 2007 as “to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause...(1) injury to an eagle, (2) a decrease in productivity..., or (3) nest abandonment...”(USFWS 2009). Under the act’s Eagle Permit Rule (50 CFR 22.26), USFWS may issue permits to authorize limited, non-purposeful take of bald eagles and golden eagles.

Protection of Migratory Bird Populations (Executive Order 13186)

Executive Order (EO) 13186 (*Federal Register*, Volume 66, Number 11 [January 17, 2001], p. 4) requires federal agencies to develop a comprehensive strategy for the conservation of migratory birds by the federal government, thereby fulfilling the government’s duty to lead in the protection of this international resource. Each federal agency is required to enter into a Memorandum of Understanding with USFWS outlining how the agency will promote conservation of migratory birds. The EO also requires federal agencies to incorporate migratory bird conservation measures into their agency activities. The EO does not affect federal-aid projects because actions delegated to or assumed by nonfederal entities, or carried out by nonfederal entities with federal assistance, are not subject to the EO, although such actions continue to be subject to the MBTA itself.

Invasive Species (Executive Order 13112)

EO 13112 requires federal agencies to “prevent the introduction of invasive species and provide for their control and to minimize the economic, ecological, and human health effects that invasive species cause.” An invasive species is defined by the EO as “an alien species whose introduction does or is likely to cause economic or environmental harm or harm to human health.” Alien species are defined, with respect to a particular ecosystem, as any species (including its seeds, eggs, spores, or other biological material capable of propagating that species) that is not native to that ecosystem.

Clean Water Act

The principal law that serves to protect the nation’s waters is the 1948 Federal Water Pollution Control Act. This legislation, more commonly referred to as the Clean Water Act (CWA), underwent significant revision when Congress, in response to the public’s growing concern of widespread water pollution, passed the Federal Water Pollution Control Act Amendments of 1972. The purpose of the CWA is to restore and maintain the chemical, physical, and biological integrity of all waters of the U.S. for the conservation of the nation’s potable water sources. Under the current regulatory definition, waters of the U.S. include navigable waters, territorial seas, interstate waters, all other waters where the use or degradation or destruction of the waters could affect interstate or foreign commerce, tributaries to any of these waters, and wetlands that meet any of these criteria or that are adjacent to any of these waters or their tributaries (33 CFR 328.3(a)).

Clean Water Act, Section 404

Section 404 of the CWA (33 USC 401 et seq.; 33 USC 1344; USC 1413; and Department of Defense, Department of the Army, U.S. Army Corps of Engineers [USACE] 33 CFR Part 323), as implemented by USACE, requires authorization by USACE for the discharge of dredged and/or fill material into waters of the U.S. (as defined at 33 CFR 328.3(a)). Dredged material means material that is excavated or dredged from waters of the U.S. Fill material means material placed in waters of the U.S. where the material has the effect of replacing any portion of a waters of the U.S. with dry land or changing the bottom elevation of waters of the U.S. Examples of fill material include rock, sand, soil, clay, plastics, woodchips, concrete, and materials used to create any structure or infrastructure in waters of the U.S.

Clean Water Act, Section 401

Section 401 of the CWA requires a water quality certification or waiver thereof before any federal permit can be issued “to conduct any activity including, but not limited to, the construction or operation of facilities, which may result in any discharge.” Therefore, projects requiring authorization by USACE pursuant to Section 404 of the CWA and/or Section 10 of the Rivers and Harbors Act, may need to obtain water quality certification. The California State Water Resources Control Board and the Regional Water Quality Control Boards (RWQCBs) are responsible for issuing Section 401 Water Quality Certifications.

National Pollutant Discharge Elimination System Permit Program

Finally, under the CWA, the U.S. Environmental Protection Agency has implemented pollution control programs and has developed national water quality criteria recommendations for pollutants in surface waters. The CWA makes it unlawful to discharge any pollutant from a point source into navigable waters, unless a permit was obtained. The U.S. Environmental Protection Agency’s

National Pollutant Discharge Elimination System permit program controls discharges. Point sources are discrete conveyances such as pipes or human-made ditches. Individual homes that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need a National Pollutant Discharge Elimination System permit; however, industrial, municipal, and other facilities must obtain permits if their discharges go directly to surface waters.

Executive Order 11988, Floodplain Management

EO 11988 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. This EO provides an eight-step process that agencies carry out as part of their decision-making process for projects that have potential impacts on or within a floodplain.

Protection of Wetlands (Executive Order 11990)

Pursuant to EO 11990, each federal agency is responsible for preparing implementing procedures for carrying out the provisions of the EO. The purpose of this EO is to “minimize the destruction, loss, or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands.” Each agency, to the extent permitted by law, must avoid undertaking or providing assistance for any activity located in wetlands, unless the head of the agency finds that there is no practical alternative to such activity, and the proposed action includes all practical measures to minimize harm to wetlands that may result from such actions. In making this finding, the head of the agency may take into account economic, environmental, and other pertinent factors. Each agency must also provide opportunity for early public review of any plans or proposals for new construction in wetlands.

State

California Environmental Quality Act

CEQA applies to actions that are directly undertaken, financed, or permitted by state lead agencies. Regulations for implementation are found in the State CEQA Guidelines published by the state resources agency (Office of the Secretary).

California Endangered Species Act

The CESA provides a process by which plants and animals can be recognized as being endangered or threatened with extinction. Pursuant to the CESA, a permit from CDFW is required for projects that could result in the taking of a plant or animal species that is state listed as threatened or endangered (CFGF Section 2050 et seq.). Under CESA, “take” means hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill (CFGF Section 86). The CESA definition of take does not include “harm” or “harass,” as the ESA definition does. As a result, the threshold for take is higher under CESA than under ESA. Authorization for take of state-listed species may be obtained through a CFGF Section 2080.1 consistency determination (for applicants who have already obtained a federal incidental take statement or permit for the same species) or a Section 2081 ITP.

Natural Community Conservation Planning Act

California's Natural Communities Conservation Planning (NCCP) program is a cooperative effort to protect habitats and species that began under the State's NCCP Act of 1991. The ESA Section 4(d) special rule for interim take of coastal California gnatcatchers was promulgated in response to the act and the initiation of NCCP programs targeting coastal sage scrub (gnatcatcher habitat). The NCCP Act authorized the state to engage in regional multiple species conservation planning with local jurisdictions and property owners.

The NCCP Act and the associated Southern California Coastal Sage Scrub NCCP Process Guidelines (1993), Southern California Coastal Sage Scrub NCCP Conservation Guidelines (1993), and NCCP General Process Guidelines (1998) have been superseded by the NCCP Act of 2003. The NCCP Act of 2003 provides for the preparation and approval of NCCPs. NCCPs identify and provide for the regional or area-wide protection of plants and animals, including their habitats, and are intended to preserve local and regional biological diversity, reconcile urban development and wildlife needs, as well as "conserve" state-listed species to the point where they can be delisted, and maintain or enhance conditions for Covered Species such that listing will not become necessary (CFGF Section 2800 et seq.). The NCCP Act was amended again in 2011 to allow CDFW to authorize incidental take of "fully protected" species if they are "Covered Species" under an approved NCCP.

California Fish and Game Code Section 1602 – Lake or Streambed Alteration

CDFW regulates alterations or impacts on streambeds or lakes under CFGF Section 1602. All diversions, obstructions, or changes to the natural flow or bed, channel, or bank of any river, stream, or lake in California that supports wildlife resources are subject to regulation by CDFW under CFGF Section 1602. Under Section 1602, it is unlawful for any person, governmental agency, or public utility to do the following without first submitting a complete Notification of Lake or Streambed Alteration to CDFW:

- Substantially divert or obstruct the natural flow of, or substantially change or use any material from, the bed, channel, or bank of any river, stream, or lake; or
- Deposit or dispose of debris, waste, or other material containing crumbled, flaked, or ground pavement where it may pass into any river, stream, or lake.

The Fish and Game Commission defines "stream" as a body of water that flows at least periodically or intermittently through a bed or channel that has banks and supports fish or other aquatic life. This definition includes watercourses with a surface or subsurface flow that supports or has supported riparian vegetation. CDFW's jurisdiction within altered or artificial waterways is based on the value of those waterways to fish and wildlife.

California Fish and Game Code Sections 3503 and 3503.5 – Protection of Birds, Nests, and Raptors

CFGF Section 3503 states that it is unlawful to take, possess, or needlessly destroy the nest or eggs of any bird. Section 3503.5 specifically states that it is unlawful to take, possess, or destroy any raptors (i.e., species in the orders *Falconiformes* and *Strigiformes*), including their nests or eggs. Typical violations of these codes include destruction of active nests resulting from removal of vegetation in which the nests are located. Violation of Section 3503.5 could also include failure of active raptor nests resulting from disturbance of nesting pairs by nearby project construction. CFGF

Section 3513 states that it is unlawful to take or possess any migratory nongame bird as designated in the MBTA or any part of such migratory nongame bird except as provided by rules and regulations adopted by the Secretary of the Interior under provisions of the MBTA. These code sections do not provide for the issuance of any type of ITP.

Fully Protected Species under the California Fish and Game Code (Sections 3511, 4700, 5050, and 5515)

Protection of fully protected species is described in CFGC Sections 3511, 4700, 5050, and 5515. These statutes prohibit take or possession of fully protected species. Incidental take of fully protected species may be authorized under an approved NCCP.

California Native Plant Protection Act

The Native Plant Protection Act of 1977 (CFGC Section 1900 et seq.) directed CDFW to carry out the Legislature's intent to "preserve, protect and enhance rare and endangered plants in this State." The Native Plant Protection Act gave the California Fish and Game Commission the power to designate native plants as "endangered" or "rare" and to protect endangered and rare plants from take.

California Desert Native Plants Act

The California Desert Native Plants Act of 1981 (California Food and Agriculture Code Section 80000 et seq.) directed CDFW to carry out the Legislature's intent to "to protect California desert native plants from unlawful harvesting on both public and privately owned lands, to provide the people of this state with the information necessary to legally harvest native plants so as to ultimately transplant those plants with the greatest possible chance of survival, and to encourage public participation in implementing the safeguards established by this division and in evaluating the effectiveness and desirability of the safeguards." The California Desert Native Plants Act gave the California Fish and Game Commission the power to define regulated native desert plants, and regulate the harvest, transplant, and resale of regulated native desert plants.

Porter-Cologne Water Quality Control Act – California Water Code Section 13000 et seq.

The State Water Resources Control Board and RWQCBs, as appropriate, have the responsibility to implement and enforce the Porter-Cologne Water Quality Control Act (Porter-Cologne Act), which regulates waste discharge into waters of the state. In the Porter-Cologne Act, the legislature declared that the "state must be prepared to exercise its full power and jurisdiction to protect the quality of waters in the state from degradation" (California Water Code Section 13000). Porter-Cologne grants the RWQCBs the authority to implement and enforce the water quality laws, regulations, policies and plans to protect the groundwater and surface water of the State. The RWQCB regulates the "discharge of waste" to waters of the state. The term "discharge of waste" is also broadly defined in Porter-Cologne, such that discharges of waste include fill, any material resulting from human activity, or any other "discharge" that may directly or indirectly affect waters of the state relative to implementation of Section 401 of the CWA.

Specifically, Porter-Cologne requires each RWQCB to formulate and adopt water quality plans for all areas within their region (also referred to as "Basin Plans"). Basin Plans establish beneficial uses, water quality standards, and water quality objectives for major watershed areas (i.e., RWQCB

boundaries) throughout the state. Under Porter-Cologne, all parties proposing to discharge waste that could affect the quality of waters of the state, other than into a community sewer system, are required to file with the appropriate RWQCB a Report of Waste Discharge containing such information and data as may be required by the RWQCB. The RWQCB will then respond to the report by issuing a waste discharge requirement (WDR) in a public hearing, or by waiving WDRs (with or without conditions) for that proposed discharge. The RWQCB has a statutory obligation to prescribe WDRs except where the RWQCB finds that a waiver of WDRs for a specific type of discharge is in the public interest. Therefore, all parties proposing to discharge waste that could affect waters of the state, but do not affect federal waters (which requires a CWA Section 404 permit and CWA Section 401 Certification) must file a Report of Waste Discharge with the appropriate RWQCB.

The RWQCB collaborates with other agencies on the enforcement of the act, such as CDFW and USACE. While 401 certification is typically issued by RWQCB staff, WDRs must be issued by the RWQCB. Generally, when staff issue or waive 401 certification, WDRs are simultaneously waived. However, for large or multiyear projects that are being reviewed under Section 401 of the CWA, staff may determine that WDRs should also be issued.

Regional and Local

Figure 3.3-1 shows an aerial of the proposed project area to provide a visual representation of the extent of the Santa Ana River as an influence to the regional landscape, along with the local jurisdictions within the proposed project areas.

Regional Habitat Conservation Plans

In the Riverside region, NCCPs and HCPs are designed to provide an umbrella of protection for multiple Covered Species, which are those species for which incidental take is authorized under an approved NCCP and/or HCP. The following sections describe approved and adopted Subarea or Subregional Plans under the NCCP within the Riverside region. Figure 3.3-2 shows the HCPs that cover certain portions of the project area.

Western Riverside County Multiple Species Habitat Conservation Plan

The Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP; the Western Riverside Plan) is an NCCP and HCP for the western portion of the Riverside County region. The project lies within the WRCMSHCP Plan Area. The WRCMSHCP Plan Area encompasses approximately 1.26 million acres (1,966 square miles), and there are 146 Covered Species included in the WRCMSHCP. The WRCMSHCP Plan Area includes all unincorporated Riverside County land west of the crest of the San Jacinto Mountains to the Orange County line, as well as the jurisdictional areas of the cities of Temecula, Murrieta, Lake Elsinore, Canyon Lake, Norco, Corona, Riverside, Moreno Valley, Banning, Beaumont, Calimesa, Perris, Hemet, San Jacinto, Eastvale, Jurupa Valley, Menifee, and Wildomar. The WRCMSHCP was formally adopted by the governing county and cities in 2003 and 2004, and USFWS and CDFW granted take permits in 2004. The Western Riverside Regional Conservation Authority acquires, administers, operates, and maintains land and facilities for ecosystem conservation and habitat reserves for rare, threatened, and endangered species listed in the WRCMSHCP.

The proposed project is not a Covered Activity under the Western Riverside Plan. Although the project is not a Covered Activity, to ensure compliance with CEQA, the proposed project must demonstrate consistency with the WRCMSHCP.

The proposed project occurs within the Cities of Riverside/Norco Area Plan and Jurupa Area Plan of the WRCMSHCP. Portions of the Anza Creek/Old Ranch Creek and Lower Hole Creek sites are within the WRCMSHCP Area Plan Subunits (SU) "SU1-Santa Ana River South, Cities of Riverside/Norco Area Plan" and "SU1-Santa Ana River North, Jurupa Area Plan" within Criteria Cells 617 and 621 (Figure 3.3-2). In addition, the project overlaps with WRCMSHCP Public/Quasi-Public (PQP) Conserved Lands, which comprise a subset of the WRCMSHCP Conservation Area preserved for open space value and contribute to the conservation of Covered Species. The project sites are also within the WRCMSHCP Existing Core A and Core Linkage area. Portions of the proposed project occur within the WRCMSHCP Narrow Endemic Plant Species Survey Area for San Diego ambrosia (*Ambrosia pumila*), Brand's star phacelia (*Phacelia stellaris*), and San Miguel savory (*Clinopodium chandleri*) and are also within a WRCMSHCP Burrowing Owl Survey Area (Figure 3.3-2).

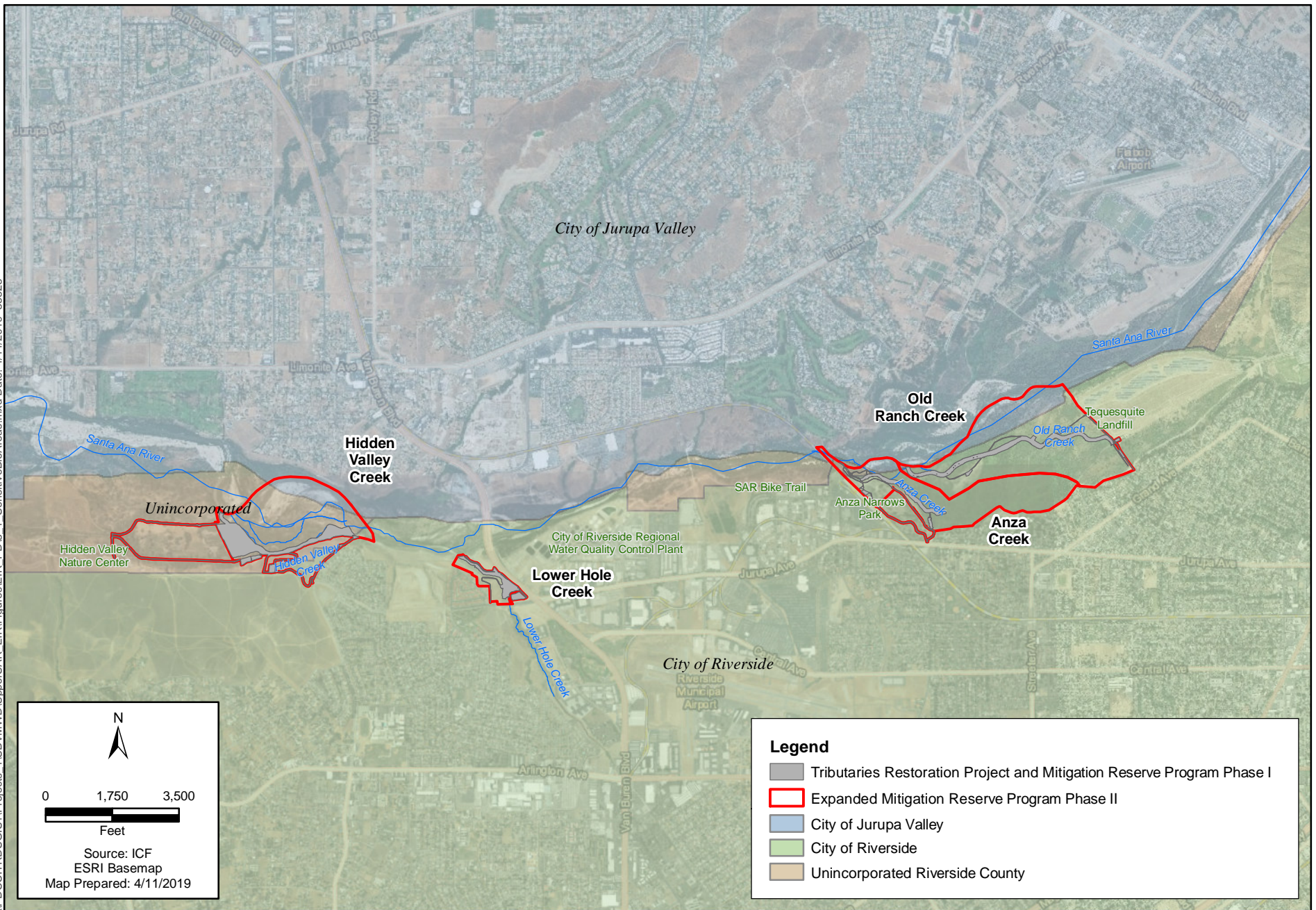


Figure 3.3-1
Cities and Counties in the Project Vicinity
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

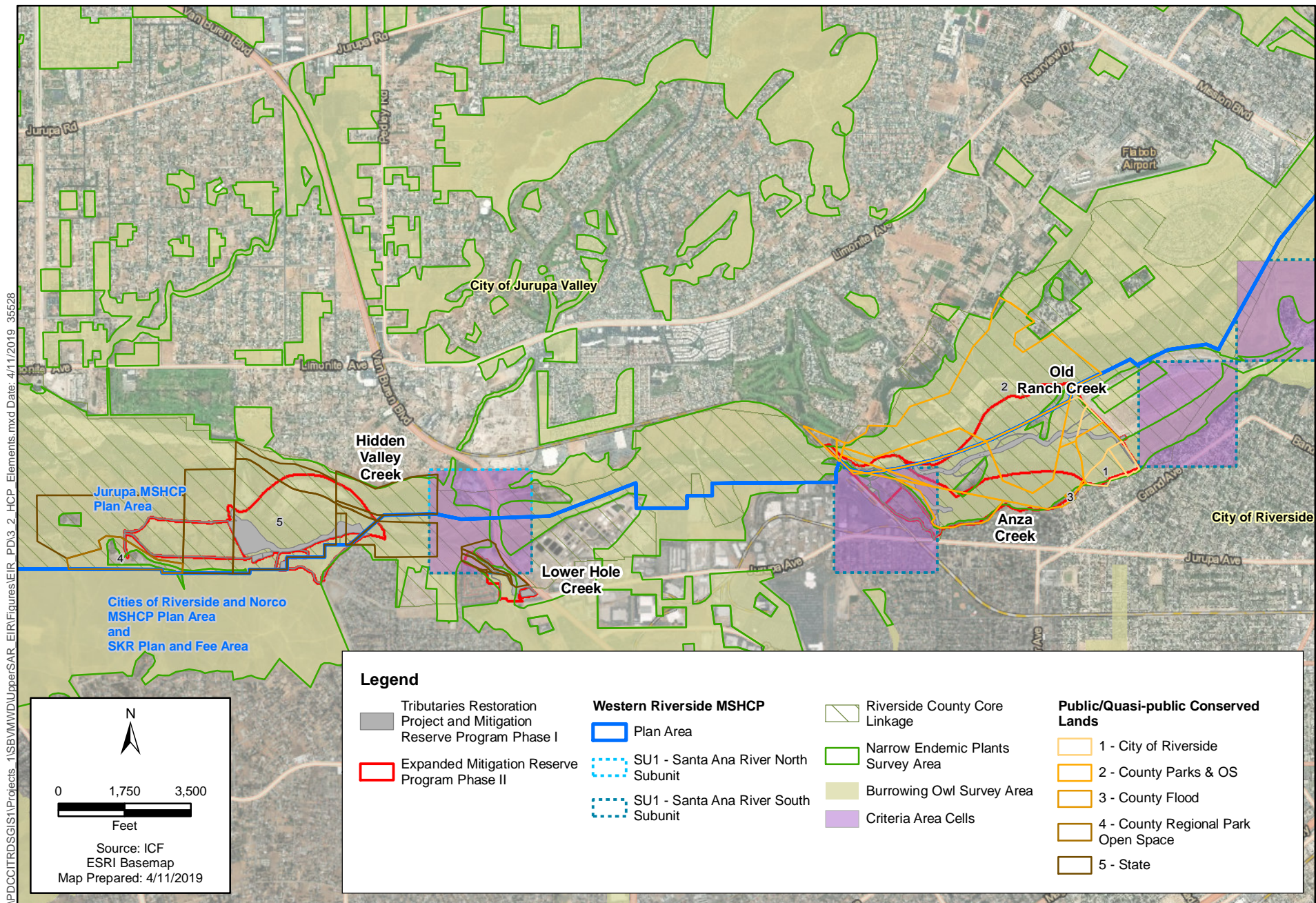


Figure 3.3-2
Habitat Conservation Plan (HCP) Elements in the Vicinity of the Tributary Restoration Sites
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

Table 3.3-1 summarizes the specific applicable WRCMSHCP details such as Criteria Cells and PQP Conserved Lands ~~applicable to that overlap~~ the tributary restoration sites. WRCMSHCP Criteria Cells specify planning species and biological requirements and considerations to be addressed. Refer to Section 3.0 and Section 7.0 of the WRCMSHCP for more information on public and private development within the Criteria Area, including actions determined to be consistent with the Western Riverside Plan.

Table 3.3-1. Western Riverside County Multiple Species Habitat Conservation Plan Criteria Cells, Plan Areas, Plan Area Subunits, Conserved Lands containing portions of Project Sites, and Individual Species Survey Areas

Anza Creek/Old Ranch Creek		
<u>WRCMSHCP Criteria Cell:</u> 621	<u>WRCMSHCP Plan Area:</u> Cities of Riverside and Norco Area Plan	<u>WRCMSHCP Plan Area Subunit:</u> Subunit 1: Santa Ana River – South
<u>Criteria Cell Planning Species:</u> Black-crowned night heron, burrowing owl, Cooper’s hawk, double-crested cormorant, downy woodpecker, least Bell’s vireo, loggerhead shrike, osprey, peregrine falcon, southwestern willow flycatcher, tree swallow, western yellow-billed cuckoo, white-faced ibis, white-tailed kite, yellow-breasted chat, yellow warbler, arroyo chub, Santa Ana sucker, bobcat, western pond turtle, and Santa Ana River woolly-star.		
<u>Criteria Cell Biological Issues and Considerations:</u> <ul style="list-style-type: none"> • Conserve existing wetlands along the Santa Ana River. • Conserve alluvial fan sage scrub associated with the Santa Ana River to support key populations of Santa Ana River woolly-star. • Conserve Habitat for least Bell’s vireo, southwestern willow flycatcher and western yellow-billed cuckoo along the Santa Ana River. • Provide for and maintain a continuous Linkage along the Santa Ana River from the eastern boundary of the Cities of Riverside/Norco to Prado Basin to the west. • Conserve foraging and breeding Habitats occurring in grasslands adjacent to the Santa Ana River to support sensitive bird species such as burrowing owl and loggerhead shrike. • Maintain Core and Linkage Habitat for bobcat. • Maintain Core Area for the western pond turtle. • Maintain Habitat for arroyo chub and Santa Ana sucker. 		
<u>Public/Quasi-Public Conserved Lands of the WRCMSHCP:</u> Jurupa West/Martha McLean-Anza Narrows, owned by Riverside County Parks and the City of Riverside.		
<u>Individual Species Survey Areas:</u> Burrowing owl and narrow endemic plants.		
Lower Hole Creek		
<u>WRCMSHCP Criteria Cell:</u> 617	<u>WRCMSHCP Plan Area:</u> Jurupa Area Plan	<u>WRCMSHCP Plan Area Subunit:</u> Subunit 1-Santa Ana River – North
<u>Criteria Cell Planning Species:</u> Black-crowned night heron, Cooper’s hawk, double-crested cormorant, least Bell’s vireo, loggerhead shrike, osprey, peregrine falcon, southwestern willow flycatcher, tree swallow, western yellow-billed cuckoo, white-faced ibis, white-tailed kite, arroyo chub, Santa Ana sucker, bobcat, and western pond turtle.		
<u>Criteria Cell Biological Issues and Considerations:</u>		

- Conserve existing wetlands in the Jurupa Area Plan portion of the Santa Ana River, with a focus on conserving existing Habitats in the river.
- Conserve known populations of least Bell's vireo and southwestern willow flycatcher along the Santa Ana River.
- Maintain a continuous Linkage along the Santa Ana River from the northern boundary of the Area Plan to the western boundary.
- Maintain Core and Linkage Habitat for bobcat in the Santa Ana River.
- Maintain Core Area for western pond turtle.

Public/Quasi-Public Conserved Lands of the WRCMSHCP:

Santa Ana River Wildlife Area, owned by the State of California.

Individual Species Survey Areas:

Burrowing owl and narrow endemic plants.

Hidden Valley Creek

WRCMSHCP Criteria Cell:

None

WRCMSHCP Plan Area:

Jurupa Area Plan

WRCMSHCP Plan Area Subunit:

None

Criteria Cell Planning Species:

None (not within a Criteria Cell).

Criteria Cell Biological Issues and Considerations:

Not applicable (not within a Criteria Cell).

Public/Quasi-Public Conserved Lands of the WRCMSHCP:

Hidden Valley Wildlife Area, owned by the State of California.

Individual Species Survey Areas:

Burrowing owl and narrow endemic plants.

Habitat Conservation Plan for the Stephens' Kangaroo Rat in Western Riverside County, California

The Stephens' Kangaroo Rat (SKR) Short-term Conservation Plan, prepared by the Riverside County Habitat Conservation Agency, was approved by USFWS and CDFG in 1990, and the long-term conservation plan (SKR HCP) was approved in 1996. The SKR HCP occurs entirely within the WRCMSHCP area.

The SKR HCP establishes conservation of 15,000 acres in core reserves within the plan's boundary for SKR. The loss of habitat and individuals under this HCP is offset by the establishment of a "core reserve" system consisting of seven reserves managed to maintain the long-term survival of the species. The proposed project does not occur within the SKR HCP Core Reserve Area. No SKR or suitable habitat for the species occur within the project area.

Riverside County Ordinance No. 663.10 was established to implement the mitigation provisions of the SKR HCP, which includes a mitigation fee for new development in western Riverside County. Portions of the proposed project sites are within SKR Plan Fee Area (Figure 3.3-2). However, the project is not a development project and does not affect any SKR habitat.

Upper Santa Ana River Habitat Conservation Plan

The Upper Santa Ana River Habitat Conservation Plan (Upper SAR HCP), currently being prepared by the San Bernardino Valley Municipal Water District (Valley District) and 11 other member agencies, has not yet been issued for public review. However, the proposed project is included in the list of Covered Activities. The Upper SAR HCP is a collaborative effort among 11 public agencies of the Santa Ana River Watershed, in partnership with USFWS, CDFW, and several other government

agencies and stakeholder organizations. The purpose of the Upper SAR HCP is primarily to enable the water resource agencies located in Riverside and San Bernardino Counties to continue to provide and maintain a secure source of water for the residents and businesses in the watershed, and to conserve and maintain natural rivers and streams that provide habitat for a diversity of unique and rare species in the watershed. The protection of these habitats and the riverine systems they depend on also provides recreational opportunities for activities such as hiking, fishing, and wildlife viewing. The Upper SAR HCP will specify how species and their habitats will be protected and managed in the future and will provide the ITPs needed by the water resource agencies under the federal and state endangered species acts to maintain, operate, and improve regional water resource infrastructure. The anticipated release of the draft Upper SAR HCP is mid-2019.

Local Regulations

Local regulations of cities and counties overlapped by the project area are discussed below. Relevant environmental and biological objectives and policies are described. Table 3.3-2 shows the acreages of each restoration site that fall within the jurisdictions of the City of Jurupa Valley, City of Riverside, and unincorporated parts of Riverside County. Figure 3.3-1 shows the project sites, city and county locations, and sensitive biological areas in the vicinity.

Table 3.3-2. Acres of Each Restoration Site within Jurisdictions of Cities and Counties

Project Site	City of Riverside (acreage)	City of Jurupa Valley Area (acreage)	Riverside County Area (acreage)	Total (acreage)
Tributaries Restoration Project and Mitigation Reserve Program Phase I				
Old Ranch Creek	18.8	0.0		18.8
Anza Creek	9.2	-	0.7	9.9
Lower Hole Creek	8.2	-		8.2
Hidden Valley Creek	1.2	-	29.2	30.5
Total	37.3	0.0	29.9	67.3
Expanded Mitigation Reserve Program Phase II				
Old Ranch Creek	144.2	44.9		189.1
Anza Creek	94.4	7.4	4.3	106.1
Lower Hole Creek	11.6			11.6
Hidden Valley Creek	2.8	21.2	80.9	104.8
Total	252.9	73.5	85.2	411.6

Source: GIS 2019

County of Riverside

Riverside County General Plan

The Multipurpose Open Space Element of Riverside County's General Plan describes policies to address protection and preservation of natural resources, agriculture and open space areas, management of mineral resources, preservation and enhancement of cultural resources, and recreational opportunities.

The project sites are covered by the following two Area Plans of the Riverside County General Plan: (1) Jurupa Area Plan (Hidden Valley Creek site and a portion of Anza Creek/Old Ranch Creek site),

and (2) Cities of Riverside and Norco Area Plan (Lower Hole Creek site and most of the Anza Creek/Old Ranch Creek site). The City of Riverside has jurisdiction over project site areas within the Cities of Riverside and Norco Area Plan. The City of Jurupa Valley officially incorporated on July 1, 2011, after the baseline established for the County General Plan, and the information presented in the Riverside County General Plan remained unaltered; thus, it has extremely limited application. The County does not have jurisdiction over lands governed by the cities; however, approximately 123 acres of the Hidden Valley Creek site and 7 acres of the Anza Creek site are on unincorporated County land, and are under the jurisdiction of the County.

The following Riverside County General Plan Multipurpose Open Space Element policies are relevant to the consideration of biological resources on unincorporated County land within the project sites:

Watershed Management

Water Quality

OS 3.1. Encourage innovative and creative techniques for wastewater treatment, including the use of local water treatment plants.

OS 3.2 Encourage wastewater treatment innovations, sanitary sewer systems, and groundwater management strategies that protect groundwater quality in rural areas.

OS 3.3. Minimize pollutant discharge into storm drainage systems, natural drainages, and aquifers (AI 3)

OS 3.4. Review proposed projects to ensure compliance with the National Pollutant Discharge Elimination System (NPDES) Permits and require them to prepare the necessary Stormwater Pollution Prevention Program (SWPPP). (AI 3)

OS 3.5. Integrate water runoff management within planned infrastructure and facilities such as parks, street medians and public landscaped areas, parking lots, streets, etc. where feasible.

OS 3.6. Design the necessary stormwater detention basins, recharge basins, water quality basins, or similar water capture facilities to protect water-quality. Such facilities should capture and/or treat water before it enters a watercourse. In general, these facilities should not be placed in watercourses, unless no other feasible options are available.

OS 3.7. Where feasible, decrease stormwater runoff by reducing pavement in development areas, reducing dry weather urban runoff, and by incorporating “Low Impact Development,” green infrastructure and other Best Management Practice design measures such as permeable parking bays and lots, use of less pavement, bio-filtration, and use of multi-functional open drainage systems, etc. (AI 57, 62)

Floodplain and Riparian Area Management

OS 5.1. Substantially alter floodways or implement other channelization only as a “last resort,” and limit the alteration to:

- a. facilities necessary for the protection of public health and safety only after all other options are exhausted;
- b. essential public service projects where no other feasible construction method or alternative project location exists; or
- c. projects where the primary function is improvement of fish and wildlife habitat. (AI 25, 59, 60)

OS 5.2. If substantial modification to a floodway is proposed, design it to reduce adverse environmental effects to the maximum extent feasible, considering the following factors:

- a. stream scour;

- b. erosion protection and sedimentation;
- c. wildlife habitat and linkages;
- d. cultural resources including human remains;
- e. groundwater recharge capability;
- f. adjacent property; and
- g. design (a natural effect, examples could include soft riparian bottoms and gentle bank slopes, wide and shallow floodways, minimization of visible use of concrete, and landscaping with native plants to the maximum extent possible). A site specific hydrologic study may be required. (AI 25, 59, 60)

OS 5.3. Based upon site, specific study, all development shall be set back from the floodway boundary a distance adequate to address the following issues: (AI 59, 60, 133)

- a. public safety;
- b. erosion;
- c. riparian or wetland buffer;
- d. wildlife movement corridor or linkage;
- e. slopes;
- f. type of watercourse; and
- g. cultural resources.

OS 5.4. Consider designating floodway setbacks for greenways, trails, and recreation opportunities on a case-by-case basis. (AI 25, 59, 60)

OS 5.5. Preserve and enhance existing native riparian habitat and prevent obstruction of natural watercourses. Prohibit fencing that constricts flow across watercourses and their banks. Incentives shall be utilized to the maximum extent possible. (AI 25, 60)

OS 5.6. Identify and, to the maximum extent possible, conserve remaining upland habitat areas adjacent to wetland and riparian areas that are critical to the feeding, hibernation, or nesting of wildlife species associated with these wetland and riparian areas. (AI 60, 61)

OS 5.7. Where land is prohibited from development due to its retention as natural floodways, floodplains and watercourses, incentives should be available to the owner of the land including density transfer and other mechanisms as may be adopted. These incentives will be provided for the purpose of encouraging the preservation of natural watercourses without creating undue hardship on the owner of properties following these policies. (AI 60, 134, 135)

Wetlands

OS 6.1. During the development review process, ensure compliance with the Clean Water Act's Section 404 in terms of wetlands mitigation policies and policies concerning fill material in jurisdictional wetlands. (AI 3)

OS 6.2. Preserve buffer zones around wetlands where feasible and biologically appropriate. (AI 61)

OS 6.3. Consider wetlands for use as natural water treatment areas that will result in improvement of water quality. (AI 56)

Vegetation

OS 9.1. Update the Vegetation Map for Western Riverside County in consultation with the California Department of Fish and Wildlife, the Natural Diversity Data Base, the United States Forest Service, and other knowledgeable agencies. The County of Riverside shall also provide these agencies with data as needed. (AI 11)

OS 9.2. Expand Vegetation mapping to include the eastern portion of the County of Riverside. (AI 11)

OS 9.3. Maintain and conserve superior examples of native trees, natural vegetation, stands of established trees, and other features for ecosystem, aesthetic, and water conservation purposes. (AI 3, 79)

OS 9.4. Conserve the oak tree resources in the county. (AI 3, 77, 78)

OS 9.5. Encourage research and education on the effects of smog and other forms of pollution on human health and on natural vegetation.

OS 9.6. Conserve important traditional Native American plant gathering resource areas.

Multiple Species Habitat Conservation Plans

OS 17.1. Enforce the provisions of applicable MSHCP's and implement related Riverside County policies when conducting review of possible legislative actions such as general plan amendments, zoning ordinance amendments, etc. including policies regarding the handling of private and public stand alone applications for general plan amendments, lot line adjustments and zoning ordinance amendments that are not accompanied by, or associated with, an application to subdivide or other land use development application. Every stand alone application shall require an initial Habitat Evaluation and Acquisition Negotiation Process (HANS) assessment and such assessment shall be made by the Planning Department's Environmental Programs Division. Habitat assessment and species-specific focused surveys shall not be required as part of this initial HANS assessment for stand alone applications but will be required when a development proposal or land use application to subsequently subdivide, grade or build on the property is submitted to the County.

OS 17.2. Enforce the provisions of applicable MSHCP's and implement related Riverside County policies when conducting review of development applications.

OS 17.3. Enforce the provisions of applicable MSHCP's and implement related Riverside County policies when developing transportation or other infrastructure projects that have been designated as covered activities in the applicable MSHCP.

Environmentally Sensitive Lands

OS 18.1. Preserve multi-species habitat resources in the County of Riverside through the enforcement of the provisions of applicable MSHCP's and through implementing related Riverside County policies.

OS 18.2. Provide incentives to landowners that will encourage the protection of significant resources in the county beyond the preservation and/or conservation required to mitigate project impacts. (AI 9)

OS 18.3. Prohibit the planting or introduction of invasive, non-native species to watercourses, their banks, riparian areas, or buffering setbacks.

OS 18.4. Develop standards for the management of private conservation easements and conservation lots in fee title. For areas with watercourses, apply special standards a – f (below) for their protection, and apply standards g-j (below) generally:

- a. For conservation lands with watercourses, conform easement boundaries to setback conditions that will preserve natural flows and changes in the natural boundaries of a watercourse and its protective riparian habitat.
- b. Use only "open" fencing that permits the movement of wildlife, and limit fencing to locations outside of setbacks to watercourses (no fencing is permitted to cross the banks or channel of a watercourse, unless no other option is available).
- c. Allow fuel modification only to the outside of buffering vegetation (riparian vegetation and vegetation on slopes that buffer the watercourse from erosion and storm water pollution).
- d. No planting of non-native invasive species is permitted.

- e. No lighting of watercourse area is permitted.
- f. Prohibit the use of pesticides and herbicides known to harm aquatic species and sensitive amphibians.
- g. Ensure that lands under control of Homeowner's Associations employ an experienced nonprofit conservation group or agency to manage/maintain the land.
- h. Prohibit use of recreational off-road vehicles.
- i. Prohibit grazing and alterations of vegetation except for fuel and weed management under close supervision of qualified natural lands manager.
- j. For private conservation lands, especially those within criteria cells of MSHCP areas, ensure that easement and fee title agreements provide funding methods sufficient to manage the land in perpetuity.

Open Space, Parks and Recreation

The following policies pertain to open space:

OS 20.1. Preserve and maintain open space that protects County environmental and other nonrenewable resources and maximizes public health and safety in areas where significant environmental hazards and resources exist.

OS 20.2. Prevent unnecessary extension of public facilities, services, and utilities, for urban uses, into Open Space-Conservation designated areas. (AI 74)

The following policies pertain to parks and recreation:

OS 20.3. Discourage the absorption of dedicated park lands by non-recreational uses, public or private. Where absorption is unavoidable, replace park lands that are absorbed by other uses with similar or improved facilities and programs. (AI 74)

OS 20.4. Provide for the needs of all people in the system of the County recreation sites and facilities, regardless of their socioeconomic status, ethnicity, physical capabilities or age.

OS 20.5. Require that development of recreation facilities occurs concurrent with other development in an area. (AI 3)

OS 20.6. Require new development to provide implementation strategies for the funding of both active and passive parks and recreational sites. (AI 3)

Jurupa Area Plan

The following policies of the County of Riverside General Plan's Jurupa Area Plan are meant to preserve and protect relevant biological resources, and are applicable to unincorporated County land within the Jurupa Area Plan extent:

Santa Ana River Corridor Policy Area

JURAP 7.1. Protect the multipurpose open space attributes of the Santa Ana River Corridor through adherence to policies in the Flood and Inundation Hazards section of the Safety Element; the Multiple Species Habitat Conservation Plans, Wetlands and the Floodplain and Riparian Area Management sections of the Multipurpose Open Space Element; the Non-Motorized Transportation section of the Circulation Element; and the Open Space, Habitat and Natural Resource Preservation section of the Land Use Element.

JURAP 7.2. Require development, where allowable, to be set back an appropriate distance from the top of bluffs, in order to protect the natural and recreational values of the river and to avoid public responsibility for property damage that could result from soil erosion or future floods.

JURAP 7.3. Encourage future development that borders the Policy Area to design for common access and views to and from the Santa Ana River.

JURAP 7.4. Minimize the disruption of sensitive vegetation and species.

JURAP 7.5. Preserve areas subject to erosive flooding in a natural state.

JURAP 7.6. Encourage recreation development, such as parks and golf courses, along the river banks above and out of erosive flooding areas.

JURAP 7.7. Establish trails and related facilities for riding, hiking, and bicycling for the entire reach of the river connecting to the state- and nationally-designated Orange County and San Bernardino Santa Ana River trails and connected with the countywide system of trails.

JURAP 7.8. Provide for recreational trail use under bridge structures crossing the river, where feasible.

JURAP 7.9. Require private development along the river to provide for riding, hiking, and biking trails and for connection to the countywide system of trails.

JURAP 7.10. Require the placement and design of roads to be compatible with the natural character of the river corridor.

JURAP 7.11. Coordinate with the California Department of Transportation (Caltrans) on future freeway expansions to ensure compatibility with the natural character of the river corridor.

JURAP 7.12. Discourage the addition of local road crossings. If any additional crossing is allowed, careful consideration shall be given to location, design, and landscaping to take advantage of the scenic character of the river and to avoid destruction of natural values.

JURAP 7.13. Discourage utility lines within the river corridor. If approved, lines shall be placed underground where feasible and shall be located in a manner to harmonize with the natural environment and amenity of the river.

JURAP 7.14. Prohibit recreational uses that restrict stream flows in the river in order that such flows will be adequate year round for the maintenance of fish and wildlife.

JURAP 7.15. Participate in the regional planning of the Santa Ana River through the Santa Ana River Watershed Planning Authority and the Santa Ana River Watershed Group.

JURAP 7.16. Require the replacement of ponds lost during the development of dairy lands.

County of Riverside Oak Tree Management Guidelines

Riverside County's oak tree management guidelines, approved by the Riverside County Board of Supervisors on March 2, 1993, are intended to provide long-term protection and conservation of oak trees and oak woodlands and provide guidance on establishing baseline oak tree data to develop adequate avoidance, minimization, and/or compensation for impacts on this natural resource. For properties with oak tree resources, the guidelines include the following biological study requirements:

- Inventory of on-site vegetation
 - The location and size of individual oak trees that are two (2) inches [diameters at breast height] or larger within proposed roads, driveways, and homesites including their protected zones as identified by a biologist and mapped by a surveyor or engineer on a map that is the same scale as the project map.
 - An accurate depiction of the distance and direction of all proposed grading
 - Identification of boundaries of plant communities

- Dead or dying trees within proposed roads, driveways, or homesites shall be identified and evaluated for their value to cavity nesting birds.
- Impacts of the proposed development shall be identified and quantified.
- All possible options for mitigation measures shall be identified, including redesign/clustering, if impacts cannot be avoided by the project as proposed.
- The biological report shall include required mitigation, consistent with CEQA and applicable State or County codes and ordinances.
- The mitigation program shall be incorporated into the project's conditions of approval.

Refer to the guideline document for additional guidelines and design provisions.

County of Riverside Tree Removal Ordinance

Ordinance No. 559 (as amended through 559.7 and as provided for in Ordinance No. 725) is an ordinance of the County of Riverside regulating the removal of trees (County of Riverside 2000). This ordinance states that, "No person shall remove any living native tree on any parcel or property greater than one-half acre in size, located in an area above 5,000 feet in elevation and within the unincorporated area of the County of Riverside, without first obtaining a permit to do so, unless exempted by the provisions of Section 4 of this ordinance."

The project area is below 5,000 feet of elevation; therefore, a tree removal permit is not required for areas within unincorporated Riverside County.

City of Riverside

City of Riverside General Plan

California state planning law requires each City and County to adopt a comprehensive, long-term general plan for the physical development of the area within its jurisdiction and of any land outside its boundaries that bears relations to its land use planning activities. The City of Riverside General Plan was adopted in November 2007. The General Plan is a long-range policy-planning document that defines the framework by which the County's physical and economic resources are to be managed over time. The goals and policies contained in the General Plan are provided to guide the County's decision-makers. The seven state-mandated elements are included in the General Plan: Land Use, Circulation, Housing, Conservation, Open Space, Safety, and Noise. In addition, the City of Riverside has also chosen to address Arts and Culture, and Education, which are optional elements.

The Open Space and Conservation Element is intended to provide guidance in developing and implementing activities that ensure the protection of Riverside's open space areas, scenic resources, and hillsides. The following are relevant goals, objectives, and policies contained within the Open Space and Conservation Element:

Objective OS-1: Preserve and expand open space areas and linkages throughout the City and sphere of influence to protect the natural and visual character of the community and to provide for appropriate active and passive recreational uses.

Policy OS-1.1: Protect and preserve open space and natural habitat wherever possible.

Objective OS-5: Protect biotic communities and critical habitats for endangered species throughout the General Plan Area.

Policy OS-5.4: Protect native plant communities in the General Plan Area, including sage scrub, riparian areas, and vernal pools, consistent with the MSHCP.

Objective OS-6: Preserve and maintain wildlife movement corridors.

Policy OS-6.1: Protect and enhance known wildlife migratory corridors and create new corridors as feasible.

Policy OS-6.2: Support regional and local efforts to acquire, develop and maintain open space linkages.

Policy OS-6.3: Preserve the integrity of Riverside's arroyos and riparian habitat areas through the preservation of native plants.

Objective OS-7: Turn the Santa Ana River Task Force "Vision" into reality.

Policy OS-7.3: Preserve and expand open space along the Santa Ana River to protect water quality, riparian habitat and recreational uses.

City of Jurupa Valley

City of Jurupa Valley General Plan

The City of Jurupa Valley's General Plan was adopted on September 7, 2017. The General Plan is the primary tool guiding the development and character of Jurupa Valley for the next 5 to 10 years. The elements contained in the General Plan are Land Use; Open Space/Conservation; Mobility; Community Safety, Services & Facilities; Noise; Housing; Air Quality; Environmental Justice; Healthy Communities; and, Economic Sustainability.

The following policies and program sections of the City of Jurupa Valley's General Plan are relevant to biological resources:

COS 1 – Biological Resources

Policies:

COS 1.1. Habitat Conservation. Conserve key habitats, including existing wetlands and California native plant communities, with a focus on protecting and restoring the following endangered species habitats:

1. Conserve alluvial fan sage scrub associated with the Santa Ana River to support key populations of Santa Ana River woolly-star (*Eriastrum densifolium sanctorum*).
2. Conserve clay soils to support key populations of many-stemmed liveforever plants (*Dudleya multicaulis*) known to occur along the Jurupa Valley portion of the Santa Ana River.
3. Conserve known populations of least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii extimus*) along the Santa Ana River.
4. Conserve large intact habitat areas consisting of coastal sage scrub, chaparral, and grasslands to support known locations of coastal California gnatcatcher (*Poliophtila californica*).
5. Conserve grassland and coastal sage scrub supporting known populations of San Bernardino kangaroo rat (*Dipodomys merriami parvus*) in the Jurupa Mountains.
6. Conserve grasslands adjacent to sage scrub for foraging habitat for raptors.
7. Conserve riparian areas, including river basin, creeks, streams, vernal springs, seeps and other natural water features.

COS 1.2. Protection of Significant Trees. Protect and preserve significant trees, as determined by the City Council upon the recommendation of the Planning Commission. Significant trees are those trees that make substantial contributions to natural habitat or to the urban landscape due to their species, size, or rarity. In particular, California native trees should be protected.

COS 1.3. Other Significant Vegetation. Maintain and conserve superior examples of vegetation, including: agricultural wind screen plantings, street trees, stands of mature native and non-native trees, and other features of ecological, aesthetic, and conservation value.

COS 1.4. Soil Conservation and Landform Modification. Public and private development projects shall be designed to prevent soil erosion, minimize landform modifications to avoid habitat disturbance, and conserve and reuse on-site soils.

Program:

COS 1.1.1. Riparian Corridors. Identify and protect riparian corridors through zoning, easements, or other measures that ensure effective, long-term conservation.

COS 1.1.2. Public Information. Provide public information materials regarding the City's sensitive habitats, the values of watershed, biological resources, and sensitive habitats, and how to protect them.

COS 1.1.3. Nature Trail Signage. Working with Community Services Districts and other agencies, help create minimal and appropriate signage along major trails (e.g., Santa Ana River and Jurupa Mountains) for educational outreach about critical habitats and native plant and animal species.

COS 1.1.4. Urban Encroachment. Amend the Municipal Code to regulate the establishment or encroachment of non-compatible land uses or activities in habitat areas and passive open space, such as commercial uses, off-road motorized vehicle use, off-trail, non-motorized vehicle use, hang gliding, grading, or other activities that conflict with biological resource conservation goals or policies.

COS 1.1.5. Volunteer Conservation Programs. Working with community volunteers, conservation clubs, youth groups, and recreation and conservation agencies, help plan and support conservation activities such as habitat restoration, interpretive signage and tours, trail building, erosion control, and litter removal.

COS 1.1.6. Tree Protection Ordinance. Develop a Tree Protection Ordinance.

COS 2 – Wildlife Habitat

Policies:

COS 2.1. MSHCP Implementation. Implement provisions of the MSHCP when conducting review of development applications, General Plan amendments/zoning changes, transportation, or other infrastructure projects that are covered activities in the MSHCP.

COS 2.2. Wildlife Corridors. Identify and maintain a continuous wildlife corridor along the City's northern boundary through the Jurupa Mountains and along the Santa Ana River from the northern boundary to the City's western boundary. Condition development approvals to ensure that important corridors for wildlife movement and dispersal are protected and not interrupted by walls, fences, roadways or other obstructions. Features of particular importance to wildlife include riparian corridors, wetlands, streams, springs, and protected natural areas with cover and water. Linkages and corridors shall be provided to maintain connections between habitat areas.

COS 2.3. Biological Reports. Require the preparation of biological reports to assess the impacts of development and provide mitigation for impacts to biological resources when reviewing discretionary development projects with the potential to affect adversely wildlife habitat.

Program:

COS 2.1.1. Preservation Incentives. Develop and provide incentives to private landowners that will encourage the protection of significant wildlife habitat resources, such as density averaging, transfer of development credits, tax incentives, and grants.

COS 2.1.2. Regulation and Prevention of Destructive Practices. Develop and adopt regulations that effectively regulate dumping, camping, off-road vehicle use, illegal entry, and polluting within protected conservation areas such as the Santa Ana River corridor and the Jurupa Hills along the north City boundary.

COS 3 – Water Resources

Policies:

COS 3.1. Water Use Planning. Adopt and strive for the most efficient available water conservation practices in the City's operations and planning, and encourage community services districts and other agencies to do the same. "Most efficient available practices" means actions and equipment that use the least water for a desired outcome, considering available equipment, life-cycle costs, social and environmental side effects, and the regulations of other agencies.

COS 3.2. Multi-Use Consideration. Consider, in planning, land use decisions, and municipal operations, the effects of water supply on urban growth, wildlife habitat, agriculture, and stream flows, and seek to ensure continued water availability for these uses in planning for long-term water supplies. The City will encourage individuals, organizations, and other agencies to follow this policy.

COS 3.3. Water Quality. Employ the best available practices for pollution avoidance and control and encourage others to do the same. "Best available practices" means actions and equipment that result in the highest water quality, considering available equipment, life-cycle costs, social and environmental side effects, and the regulations of other agencies.

COS 3.4. Water Conservation Systems. Encourage the installation of water-conserving systems such as dry wells and graywater systems, where feasible, especially in new developments. The installation of cisterns or infiltrators shall also be encouraged to capture rainwater from roofs for irrigation in the dry season and to reduce runoff during heavy storms.

COS 3.5. Site Water Collection and Retention. Consider requiring design practices such as permeable parking bays and porous parking lots with bermed, landscaped storage areas for rainwater detention as a condition of development approval,

COS 3.6. Landscaping with California Native Plants. Encourage the use of California native plants for drought-resistant landscape planting.

COS 3.7. Edible Landscaping. Encourage the use of edible landscaping in residential areas, streetscapes, public spaces, and parks, including vegetable gardens, herbs, and fruit trees in lieu of large expanses of lawn or other more water-demanding plantings.

Program:

COS 3.1.1. Public Information. Promote and support educational outreach programs that provide information services to the public about water conservation techniques, benefits, and water-saving technologies in conjunction with water providers, Riverside County, community services districts, and other entities.

COS 3.1.2. Regional Cooperation. Monitor and participate in regional activities addressing water resources, ground-water and water quality to help ensure adequate and safe water supplies for existing and future residents and businesses.

Water Quality Policies:

COS 3.8. Wastewater Treatment. Encourage the use of innovative and creative techniques for wastewater treatment.

COS 3.9. Pollution Discharge. Minimize pollutant discharge into storm drainage systems and natural drainage and aquifers.

COS 3.10. Regional Cooperation. Support efforts to create additional water storage where needed, in cooperation with federal, state, community services districts, the Riverside County Flood Control District, and other water authorities. Additionally, support and/or engage in water banking in conjunction with these agencies where appropriate, as needed.

COS 3.11. Aquifer Protection. Require that aquifer water-recharge areas are preserved and protected.

COS 3.12. Drainage Systems in Development Projects. Require that developers and designers incorporate natural drainage systems into development projects where appropriate and feasible.

COS 3.13. Storm Water Retention. Retain storm water at or near the site of generation for percolation into the groundwater to conserve it for future uses and to mitigate adjacent flooding.

COS 3.14. Natural Channels. Collaborate with the Riverside County Flood Control District to promote natural approaches to managing streams and avoid lined, non-porous channels to the maximum extent possible where groundwater recharge is likely to occur.

COS 3.15. Water Retention Incentives. Consider granting incentives to landowners to preserve natural ground water recharge areas, through measures such as density averaging.

Water Quality Program:

COS 3.1.3. Aquifer Recharge. Participate in the development, implementation, and maintenance of a program to recharge the aquifers underlying the City and Western Riverside County, where feasible and appropriate. The program shall make use of flood and other waters to offset existing and future groundwater pumping, except where:

1. Groundwater quality would be reduced;
2. Available groundwater aquifers are full; or
3. Rising water tables threaten the stability of existing structures.

Floodplain and Riparian Area Management Policy:

COS 3.16. Floodway Modification. Encourage other agencies to limit floodway modification or channelization only as a “last resort,” and limit the alteration to:

1. That necessary for the protection of public health and safety, only after all other options are exhausted,
2. Essential public service projects where no other feasible construction method or alternative project location exists,
3. Projects where the primary function is improvement of fish and wildlife habitat, or
4. Private development entitlements shall be required to design floodplain and river edge treatments to simulate and ultimately regenerate natural terrain and riparian habitat, using techniques such as covering and re-planting over rip-rap embankments, and utilizing gentle contoured slopes that do not exceed 8:1 slope ratio.

COS 3.17. Environmental Mitigation. Encourage and, where possible, require that substantial modifications of a floodplain be designed to reduce adverse environmental effects to the maximum extent feasible, considering the following factors:

1. Stream scour
2. Erosion protection and sedimentation
3. Wildlife habitat and linkages

4. Groundwater recharge capability

5. Adjacent property

6. Designed to achieve a natural effect. Examples could include soft riparian bottoms, riparian corridors within the floodway, and gentle and modulating bank slopes, wide and shallow floodways, minimization of visible use of concrete, and landscaping with California native plants to the maximum extent possible. A site-specific hydrologic study may be required.

COS 3.18. Setbacks. Based upon site-specific study, all development shall be set back from the designated floodway boundary or top of bank, whichever is most appropriate, a distance adequate to address the following issues:

1. Public safety,
2. Erosion,
3. Riparian or wetland buffer,
4. Wildlife movement corridor or linkage, and
5. Slopes

COS 3.19. Trails. Consider designating floodway setbacks to accommodate greenways, trails, and recreation opportunities and allowing such uses within floodways, where appropriate.

COS 3.20. Riparian Area Preservation. Require development projects to preserve and enhance native riparian habitat and prevent obstruction of natural watercourses. Zoning incentives, such as transfer of development credits, should be used to the maximum extent possible.

COS 3.21. Ecotones. Identify and, to the maximum extent possible, conserve remaining upland habitat areas, or “ecotones” adjacent to wetland and riparian areas that are critical to the feeding, hibernation, or nesting of wildlife species.

Floodplain and Riparian Area Management Program:

COS 3.1.4. Floodway Protection and Enhancement. Working with other responsible agencies, help implement the following actions:

1. Prepare an inventory of natural areas that have been degraded and list sites in priority order, for restoration efforts.
2. Revegetate disturbed areas using native plants.
3. Eliminate sources of water pollutants and improper water diversions.
4. Remove invasive, non-native plant species in natural habitat areas, and prevent the introduction or spread of invasive, non-native species.
5. Strongly discourage the placement of and, where possible, remove man-made elements such as buildings, paving, structural elements, concrete lining of waterways, signs, streets, and utilities within floodways or floodplains, unless they are needed for public health or safety, or for implementation of City plans.
6. Require that suitably sized access corridors be provided and/or maintained through or under new and previously established, man-made obstacles to wildlife movement (such as appropriately sized culverts under arterial streets, highways, and other major roads).
7. Prohibit camping, off-road vehicles, hunting and other activities that are not compatible with floodplain health and preservation.
8. Remove trash, debris, and contaminants, using methods that minimally disrupt the open-space resources.

9. Provide continuing community education and outreach for all citizens, youth, and youth groups, and property owners on open space and natural resource values, programs, and responsibilities.
10. Enlist the help of volunteers, youth and service groups, and academic programs in restoring and monitoring habitat health.

COS 8 – Open Space and Recreation Resources

Policies:

COS 8.1. Environmental Resource Protection. Preserve and maintain open space that protects environmental resources and protects public health and safety.

COS 8.2. Extension of Public Facilities. Avoid the extension of public streets, facilities, services, and utilities for urban uses into areas designated as Open Space in the General Plan.

COS 8.3. Conversion of Recreation and Open Space Uses. Discourage the conversion of dedicated parklands and designated open space to non-recreational or non-open space uses. Where conversion is unavoidable, require developers or responsible agencies to replace parklands that are converted to other uses on a 2-for-1-acre basis, with similar or improved facilities and programs, and open space with land of equivalent open space value.

COS 8.4. Equal Access to Recreation and Open Space Resources. Ensure that the City's open space and recreational network accommodates the needs of all residents, regardless of their income, ethnicity, physical capabilities, or age.

COS 8.5. Parkland Implementation Strategies. Require new development to provide funding and/or long-term implementation strategies for the acquisition and improvement of active and passive parks, open space, and recreational sites, when appropriate.

COS 8.6. Provision of Recreation Facilities. Require that parkland or open space dedication and improvement occur prior to, or concurrent with, construction, as a condition of approval of new residential subdivisions (Figure 4-21, of Jurupa Valley General Plan).

COS 8.7. Public Access. Provide public access to open space resources when doing so is consistent with protection of the resources, and with the security and privacy of affected landowners and occupants. Access will generally be limited to non-vehicular movement, and may be restricted in sensitive areas.

COS 8.8. Trails Network. Establish an off-street trails network, linking residential/equestrian areas, local open space attractions, staging areas, and regional trail connections, integrating elements of the JARPD's [Jurupa Area Recreation and Park District] Vision for Master Trails Plan (Appendix 16.0) as determined appropriate by the City Council.

COS 8.9. Open Space Enhancement and Restoration. Encourage, and, as budget resources allow, support the enhancement and restoration of permanently dedicated open space and trail easements. Enhancements may include trail clearing, erosion protection, drainage, fencing, revegetation, trash clean up, directional and interpretive signage, and other improvements the City Council determines necessary for public health and safety.

COS 8.10. Fire Prevention Activities. Conduct fire prevention activities such as fuel clearance or thinning, grading, prescribed burns, or other activities pursuant to an approved Conservation Plan, and under the supervision of state and local wildlife authorities and CAL FIRE representatives, except in an emergency. Habitat preservation shall be given equal priority with fire prevention.

Programs:

COS 8.1.1. Protect Open Space Resources. Take the following actions to protect open space, and encourage individuals, organizations, and other agencies to take the same actions within their areas of responsibility and jurisdiction:

- a. Open Space Designation. Apply Open Space or Agriculture zoning to private property where equitable development potential is granted to the property owner for the remainder of the land, as appropriate and consistent with General Plan goals and policies.
- b. Open Space and Trails Dedication. Preserve or enhance open space and trails resources through application of conditions of subdivision and development approvals, consistent with General Plan goals and policies, including dedications of fee ownership or easements where necessary and appropriate.
- c. Donations and Grants. Seek and use grants, donations, other revenue sources, and long-term financing mechanisms to purchase fee ownership or easements. The City will consider allocating funding for open space acquisition and protection, and will explore all potential funding sources and other creative incentive programs, including general obligation bonds, sales tax increase, property transfer tax, assessment districts, tax incentives, and state and federal loans and grants.
- d. Interagency Cooperation. Promote interagency cooperation for open space acquisition, greenbelt, creeks, wetlands, and wildlife habitat protection in open space areas by coordinating with other government agencies and organizations having interest or expertise in resource protection.
- e. Taxes and Fees. Avoid imposing taxes or fees that discourage dedication, improvement and retention of open space, trails, or agricultural uses.

Encroachment/Land Use Permits

The project sites overlap portions of land owned by the City of Riverside, City of Jurupa Valley, County of Riverside, Riverside-Corona Resource Conservation District, and/or CDFW; thus, encroachment or other land use permits may need to be acquired from these entities prior to construction on lands that they own.

The upper 260 feet of the Lower Hole Creek site is owned by the City of Riverside. The remaining lower portion is owned by CDFW. The Hidden Valley Creek site is owned by CDFW and managed by Riverside County Parks and Open Space District. Encroachment permits may need to be obtained from CDFW. Please refer to Chapter 2, *Project Description*, Section 2.9, for additional land use approvals potentially required for the project.

3.3.2 Environmental Setting

An overview of the existing site conditions and biological resources for each of the tributary restoration and mitigation sites is provided below. The sites are Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek. The sites are located in the cities of Riverside and Jurupa Valley, and unincorporated portions of Riverside County (Figure 3.3-1). The Anza Creek and Old Ranch Creek sites occupy the same overall area on the Santa Ana River's southern floodplain and have been combined for discussion purposes. The information summarized for each site includes the following.

- An overview of general site conditions.
- A description of habitats and sensitive species with potential to occur at the sites.
- Results of the baseline surveys (vegetation, invasive species, jurisdictional delineation, and wetland condition).

Technical studies and reports evaluated for this analysis include the *Opportunities and Constraints for Tributary Restoration Sites Report* (provided as Appendix B), which includes the Vegetation

Mapping and Sensitive Plant Surveys Report, the Aquatic Species Habitat Assessment Report, the Riparian Bird Survey and Habitat Assessment Report, the Habitat Assessment and Surveys for Los Angeles Pocket Mouse, Black-tailed Jackrabbit, and Coast Horned Lizard Report, the Habitat Assessment for Coastal California Gnatcatcher and Burrowing Owl Report, the Jurisdictional Delineation Report, and the Wetland Condition Assessment Report. Refer to these technical reports for more detailed discussions of the site conditions, descriptions of habitats and sensitive species, and methods and results of baseline surveys.

Literature Review

A literature review was conducted to evaluate the environmental setting of the tributaries restoration and mitigation sites and identify potential special-status biological resources that may be found within them (Table 3.3-3). The review included a search of the California Natural Diversity Database (CNDDB) and the CNPS Inventory of Rare and Endangered Plants for the 7.5-minute U.S. Geological Survey (USGS) quadrangle containing the tributary restoration sites (Riverside West) and the surrounding eight quadrangles (Corona North, Corona South, Fontana, Guasti, Lake Mathews, Riverside East, San Bernardino South, and Steele Peak). The USFWS Information for Planning and Consultation database, which maintains a list of threatened and endangered plant and wildlife species, was also queried for the project sites and vicinity, as was the NMFS quadrangle-based database. Additionally, literature detailing the habitat requirements of special-status species, the most recent USFWS critical habitat maps, and the Calflora database of rare plant observations were reviewed. Results of the literature review and database queries are shown on Figure 3.3-3.

In addition, the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey (USDA/NRCS 2018) was reviewed for the tributary restoration sites. The soil data were then evaluated for the potential to support rare vegetation communities, plants, and/or wildlife.

A comprehensive list of special-status species has been compiled for the project sites. Field verification, baseline habitat assessments, vegetation mapping, and sensitive species database queries, and review of local laws and regulations identified ~~128~~ 129 special-status species and 9 sensitive natural communities to be evaluated for potential to occur within the sites. Of these, 43 special-status species and 6 sensitive natural communities were either observed or may occur at the restoration sites based on the presence of suitable habitat and proximity of previous observations (Table 3.3-3). These species are associated with stream, wetland, riparian, grassland, scrub, forest, and woodland habitats that present at the sites.

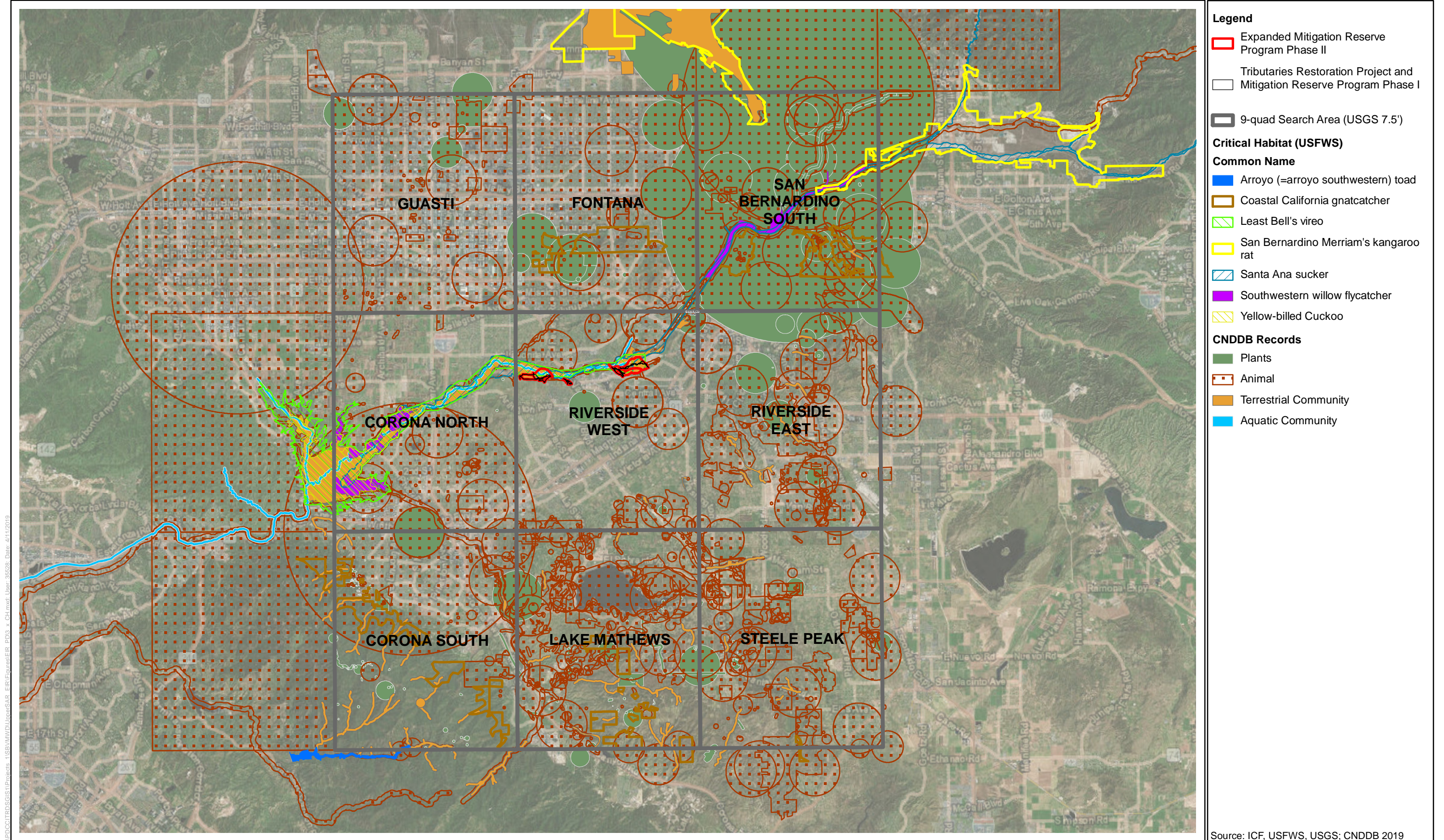


Figure 3.3-3
Designated Critical Habitat Map Overview
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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Species with low potential to occur at the sites are not anticipated to be affected by the project; thus, these species are listed in Table 3.3-3 but are not discussed further in this section with the exception of California gnatcatcher and western burrowing owl. These species are considered to have a low potential to occur; however, protocol surveys were not conducted and a conservative approach has been taken in which the project will assume presence and proceed with western burrowing owl protocol surveys as prescribed by CDFW (2012), prior to, and within 12 months of, construction. Western burrowing owl surveys are required by the WRCMSHCP. Species with moderate or high potential to occur and species that are known to be present at the sites are discussed in the *Project Setting* and in Section 3.3.3, *Environmental Impacts* below. Refer to Table 3.3-3 for habitat requirements and evaluations of each species' and sensitive natural community's potential to occur within the tributary restoration sites.

The sensitive natural vegetation communities within the proposed project boundaries are described below. Vegetation communities are assemblages of plant species that occur together in the same area, which are defined by species composition and relative abundance. Vegetation communities are described using *A Manual of California Vegetation, 2nd Edition* (Sawyer et al. 2009).

Arrow Weed Thickets

Arrow Weed Thicket Alliance is defined by the dominance or co-dominance of arrow weed (*Pluchea sericea*) with iodine bush (*Allenrolfea occidentalis*), salt bush (*Atriplex* spp.), and mulefat (*Baccharis salicifolia*) in the shrub layer. Emergent trees include Fremont poplar (*Populus fremontii*), if present. Arrow Weed Thickets community is considered by CDFW to be a sensitive natural community.

Black Willow Thickets

The Black Willow Thicket Alliance is defined by the dominance of any single or combination of tree species of willow (*Salix* spp.), such as black (*Salix gooddingii*), red (*Salix laevigata*), or arroyo (*Salix lasiolepis*). Understory scrub species include mulefat (*Baccharis salicifolia*) and coyote bush (*Baccharis pilularis*). Black Willow Thickets community is considered by CDFW to be a sensitive natural community.

Black Willow/Fremont Cottonwood Thickets

Black Willow/Fremont Cottonwood Thicket Alliance is defined by the co-dominance of black willow (*Salix gooddingii*) with Fremont Cottonwood (*Populus fremontii*). Other willow species (*Salix* spp.) may be present. Understory scrub species include mulefat (*Baccharis salicifolia*) and coyote bush (*Baccharis pilularis*). Black Willow/Fremont Cottonwood Thickets community is considered by CDFW to be a sensitive natural community.

California Buckwheat Scrub

California Buckwheat Scrub Alliance is defined the dominance of California buckwheat (*Eriogonum fasciculatum*) in the shrub layer, or co-dominant with California sagebrush (*Artemisia californica*), coyote bush (*Baccharis pilularis*), sticky monkey-flower (*Diplacus aurantiacus*), sunflower (*Encelia* spp.), and sages (*Salvia* spp.). This community is not considered by CDFW to be a sensitive natural community.

California Sycamore Woodlands

California Sycamore Woodlands Alliance is defined by the dominance or co-dominance of California sycamore (*Platanus racemose*) with white alder (*Alnus rhombifolia*), Southern California walnut (*Juglans californica*), Fremont's cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), or willow (*Salix* spp.) within the tree layer. California Sycamore Woodlands are considered a CDFW sensitive natural community.

Cattail Marshes

Cattail Marsh Alliance is defined by the dominance or co-dominance of cattail species (*Typha* spp.) including narrowleaf cattail (*Typha angustifolia*), southern cattail (*Typha domingensis*), or bulrush (*Typha laurifolia*) within the herbaceous layer. Additional herbaceous species that may be present include creeping bentgrass (*Agrostis stolonifera*), pacific silverweed (*Argentina egedei*), sedges (*Cyperus* spp.), saltgrass (*Distichlis spicata*), spike rush (*Eleocharis macrostachya*), northern giant horsetail (*Equisetum telmateia*), and rushes (*Juncus* spp.). Cattail Marshes are not considered a CDFW sensitive natural community.

Fremont Cottonwood Forest

Fremont Cottonwood Forest Alliance is defined by the dominance or co-dominance of Fremont's cottonwood (*Populus fremontii*) with California sycamore (*Platanus racemosa*), coast live oak (*Quercus agrifolia*), and willow (*Salix* spp.) within the tree layer. Shrub layer may include mulefat (*Baccharis salicifolia*). This community is considered a CDFW sensitive natural community.

Fremont Cottonwood/Willow/Mulefat Forest

The Fremont Cottonwood/Willow/Mulefat Forest Alliance is a community in which the Fremont Cottonwood Forest and Black Willow Thicket Alliances described above are co-dominant with mulefat (*Baccharis salicifolia*). This community is considered a CDFW sensitive natural community.

Fremont Cottonwood/Willow/Wild Grape Forest

The Fremont Cottonwood/Willow/Wild Grape Forest Alliance is a community in which the Fremont Cottonwood Forest and Black Willow Thicket Alliances described above are co-dominant in the tree layer. California wild grape (*Vitis californica*) is dominant or co-dominant in the shrub layer with fourwinged saltbush (*Atriplex canescens*), pacific blackberry (*Rubus ursinus*), or arrow weed (*Pluchea sericea*). This community is considered a CDFW sensitive natural community.

Mulefat Thickets

The Mulefat Thickets alliance is defined by the dominance or co-dominance of mulefat (*Baccharis salicifolia*) with California sagebrush (*Artemisia californica*), willow baccharis (*Baccharis salicina*), and coyote bush (*Baccharis pilularis*) within the shrub layer. Tree species may include willows (*Salix* spp.), elderberry (*Sambucus nigra*), oak (*Quercus* spp.), California sycamore (*Platanus racemosa*), or Fremont's poplar (*Populus fremontii*). Mulefat Thickets are not considered a CDFW sensitive natural community.

Table 3.3-3. Special-status Species and Sensitive Natural Communities with Potential to Occur at the Proposed Project Sites

							Current Habitat Suitability (“S”) and Potential Suitability After Restoration (“R”), by Site		
	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification		Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Species						Justification			
Fish Species									
Santa Ana sucker (<i>Catostomus santaanae</i>)	FT/-/-	Yes - only in Santa Ana River mainstem, not in tributaries	Yes	Benthic species using sand, cobble, and boulder substrates for various life stages, cool, clear water, and benthic algae. Adults require coarse substrates free of silt and sand to graze algae.	Low to Moderate – Suitable habitat present. Species occasionally observed at wetted areas within the sites, particularly Anza Creek after high-flow events, which temporarily provide habitat. Also observed in the mainstem Santa Ana River, including areas adjacent to Anza Creek as recently as 2018 (Appendix B).	Suitable habitat present. Species occasionally observed at wetted areas within the sites, particularly Anza Creek after high-flow events, which temporarily provide habitat. Also observed in the mainstem Santa Ana River, including areas adjacent to Anza Creek as recently as 2018 (Appendix B).	S	S	R

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Arroyo chub (<i>Gila orcuttii</i>)	-/SSC/-	N/A	Yes	Slow to moderate flows in stream channels or backwaters with sand or cobble bottoms. Feeds heavily on aquatic vegetation and associated invertebrates.	Moderate to High – Species observed in mainstem of Santa Ana River, including areas adjacent to project sites in 2001 and 2018 (CDFW 2018).	Arroyo chub has been observed in the mainstem of the Santa Ana River, including in some areas adjacent to project sites as recently as 2001 and 2018 (CDFW 2018), in the vicinity of the river and tributaries. Therefore, arroyo chub has a high potential to occur within the project sites under suitable hydrologic conditions.	S	S	R
Santa Ana speckled dace (<i>Rhinichthys osculus</i> ssp.)	-/SSC/-	N/A	Yes	Requires permanent flowing streams with summer water temps of 17–20°C. Usually inhabits shallow cobble and gravel riffles. Overhanging riparian vegetation. Low tolerance for nonnative predatory fishes.	Not expected to occur ³ – Most recent documentation in vicinity to project sites in 1996 within the mainstem of Santa Ana River at confluence with Hole Creek (CDFW 2018). Considered extirpated from area.	There are historic records of dace in the lower Santa Ana River above Prado Dam from before 1970 (Swift et al. 1993). There is a more recent record for the species from the mainstem of the Santa Ana River at the confluence with Hole Creek in 1996 (CDFW 2018). However, the species has not been	R	R	R

							Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
							observed in the vicinity since and is considered extirpated from the area. Therefore, Santa Ana speckled dace are not expected to occur within the project sites.		
Reptile & Amphibian Species									
Southwestern pond turtle (<i>Actinemys pallida</i>)	-/SSC/-	N/A	Yes	An aquatic turtle, utilizing ponds, marshes, rivers, streams, and irrigation ditches, usually with aquatic vegetation, below 6,000 feet elevation. Needs basking sites and suitable (sandy banks or grassy open fields) upland habitat up to 0.5 kilometer from water for egg-laying.	High – suitable habitat for species is present within project sites. Documented occurrences in Santa Ana River diversion at Prado Wetlands and oxbow pools in Norco (WRCRCA 2011, 2013).	Suitable habitat is present for southwestern pond turtle within the project sites. WRCMSHCP monitoring for the species has documented occurrences in the Santa Ana River diversion in the Prado Wetlands and at the oxbow pools along the Santa Ana River in Norco (WRCRCA 2011, 2013). Therefore, the species has a high potential to occur within the project sites.	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Southern California legless lizard (<i>Anniella stebbinsi</i>)	-/SSC/-	N/A	No	Occurs in sandy or loose loamy soils under sparse vegetation. Variety of habitats; generally in moist, loose soil. Prefers soils with a high moisture content.	High – Suitable habitat for species is present within project sites. Documented occurrence in 2016 within 0.25 miles of Anza Creek/Old Ranch Creek site (CDFW 2018).	Suitable habitat is present within the project sites. The nearest record of occurrence is from 2016 within 0.25 mile of the Anza Creek/Old Ranch Creek project site (CDFW 2018). Therefore, there is a high potential for Southern California legless lizard to occur within the project sites.	S	S	S
California glossy snake (<i>Arizona elegans occidentalis</i>)	-/SSC/-	N/A	Yes	Generalist reported from a range of scrub, grassland, and rocky wash habitats, often with loose or sandy soils.	Low – suitable habitat is present within project sites; however, species prefers cismontane habitats. Nearest documented occurrences within 2 miles of species from mid-1900s (CDFW 2018).	Suitable habitat is present within the project sites, although the species is typically found in cismontane habitats. There are multiple nearby records of occurrences within 2 miles of the project sites; however, all are historical occurrences from the mid-1900s (CDFW 2018). Therefore, California glossy	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Coastal whiptail (<i>Aspidoscelis tigris stejnegeri</i>)	-/SSC/-	N/A	No	Found in deserts and semi-arid areas with sparse vegetation and open areas. Also found in woodland and riparian areas. Ground may be firm soil, sandy, or rocky.	Moderate – Suitable habitat is present within project sites. Nearest documented occurrences in 1995 and 2001, approximately 5 miles from project sites.	snake has a low potential to occur within the project sites. Suitable habitat is present within the project sites. The nearest records of occurrence are approximately 5 miles north and south of the project sites in 1995 and 2001, respectively (CDFW 2018). Therefore, coastal whiptail has a moderate potential to occur within the project sites.	S	S	S
Red-diamond rattlesnake (<i>Crotalus ruber</i>)	-/SSC/-	N/A	No	Chaparral, woodland, grassland, and desert areas, typically in rocky areas and dense vegetation. Needs rodent burrows, cracks in rocks, or surface cover objects.	Low – suitable habitat is present, though rodent burrows were rare during habitat suitability surveys. Most occurrences within 5 miles date to early or mid-1900s, with one occurrence in 2003 (CDFW 2018).	Suitable habitat is present; however, few rodent burrows were observed during mammal habitat suitability surveys. Most of the nearby records of occurrence within 5 miles of the project sites are historical from the early to mid-1900s, and one is from 2003 (CDFW	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Coast horned lizard (<i>Phrynosoma blainvillii</i>)	-/SSC/-	N/A	No	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Open areas for sunning, bushes for cover, patches of loose soil for burial, and abundant supply of ants and other insects.	Low – poor to moderate quality habitat of limited extent within project sites. Occurrence records within 5 to 10 miles of project sites in 1980s and 1990s. Species was observed in 2017 along Santa Ana River upstream of Van Buren Boulevard (Appendix B).	2018). Therefore, there is a low potential for red-diamond rattlesnake to occur within the project area. Suitable habitat is present; however, it is of limited extent and only poor to moderate quality. There are multiple occurrence records within 5–10 miles of the project sites from the 1980s through 1990s (CDFW 2018), and coast horned lizards were observed in 2017 at a neighboring project site along the Santa Ana River adjacent and upstream of Van Buren Boulevard (Appendix B). Therefore, there is a low potential for coast horned lizard to occur within the project area.	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Coast patch-nosed snake (<i>Salvadora hexalepis virgultea</i>)	-/SSC/-	N/A	No	Brushy or shrubby vegetation in coastal Southern California. Requires small mammal burrows for refuge and overwintering sites.	Low – suitable habitat is present, though few rodent burrows observed during habitat suitability surveys. No occurrences within 10 miles of the project sites (CDFW 2018).	Suitable habitat is present; however, few rodent burrows were observed during mammal habitat suitability surveys. There are no nearby occurrences recorded within 10 miles of the project sites (CDFW 2018). Therefore, there is a low potential for coast patch-nosed snake to occur within the project area.	S	S	S
Two-striped gartersnake (<i>Thamnophis hammondi</i>)	-/SSC/-	N/A	Yes	Essential habitat factors include permanent water source, low gradient topography, and dense multi-storied riparian vegetation.	Moderate – suitable habitat is present within the project sites. No official records of occurrence within 10 miles of the project sites (CDFW 2018). Species has been documented at unknown locations within Riverside County (Nafis 2018), and	Suitable habitat is present. There are no official records of occurrence within 10 miles of the project sites (CDFW 2018). However, there is a record of unknown exact location within Riverside County available online (Nafis 2018), and a gartersnake was previously observed at the upstream end of Anza Creek.	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
South coast gartersnake (<i>Thamnophis sirtalis infernalis</i>)	-/SSC/-	N/A	Yes	Highly aquatic, found in or near permanent fresh water. Often along streams with rocky beds and riparian growth.	upstream of Anza Creek. Moderate – limited documentation of historical occurrence from CNDDDB or San Bernardino County Museum. One extinct museum record from Prado Basin (Jennings and Hayes 1994). Two records from HERP database in Prado Basin in 2007 and 2011 (HERP 2014). Recent occurrence in Santa Ana River upstream of Interstate 15 (USGS).	Therefore, there is a moderate potential for two-striped gartersnake to occur within the project sites. Historical occurrence data is sparse. There are no San Bernardino County Museum records for San Bernardino County, or CNDDDB records for Riverside and San Bernardino Counties. Jennings and Hayes (1994) show one extinct museum record from Prado Basin. However, the HERP database has two records from Prado Basin in 2007 and 2011 (HERP 2014), and USGS has recent occurrence records from the Santa Ana River upstream of Interstate 15. Therefore, there is a moderate potential for south coast gartersnake to occur	S	S	S

							Current Habitat Suitability (“S”) and Potential Suitability After Restoration (“R”), by Site		
Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
							within the project sites.		
Bird Species									
Grasshopper sparrow (<i>Ammodramus savannarum</i>)	-/SSC/- (nesting)	N/A	No	Dense grasslands on rolling hills, lowland plains, in valleys and on hillsides on lower mountain slopes. Favors native grasslands with a mix of grasses, forbs, and scattered shrubs. Loosely colonial when nesting.	Low (nesting) – habitat is present, though of poor quality due to nonnative species. Multiple observations at Hidden Valley Wildlife Area (eBird 2018).	There are multiple observations of grasshopper sparrow at Hidden Valley Wildlife Area (eBird 2018). However, although grassland habitat is present within the project sites, it is not dense and is dominated by nonnative species; thus, it is only marginally suitable for grasshopper sparrow. Therefore, there is a moderate potential for individuals of the species to occur in the project sites, but a low potential for nesting.	S	S	S
Long-eared owl (<i>Asio otus</i>)	-/SSC/- (nesting)	N/A	No	Riparian bottomlands grown to tall willows and cottonwoods; also, belts of live oak paralleling stream courses. Require	Low (nesting) – suitable nesting habitat within project sites and potentially suitable foraging habitat adjacent to	There is suitable nesting habitat present within the project sites, and potentially adequate open land for foraging adjacent to	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				adjacent open land, productive of mice and the presence of old nests of crows, hawks, or magpies for breeding.	project sites. Observation at Hidden Valley Wildlife Area in 2015 (eBird 2018). Nearest documented occurrence from 1920s approximately 12 miles from the project sites (CDFW 2018).	project sites. There is an observation recorded at the Hidden Valley Wildlife Area in 2015 (eBird 2018). However, the nearest documented nesting occurrence was a historical record from 1920s in the Chino Hills, approximately 12 miles west of the project sites (CDFW 2018). Therefore, there is a moderate potential for long-eared owl to occur within the project sites, and a low potential for nesting.			
Burrowing owl (<i>Athene cunicularia</i>)	-/SSC/- (burrowing sites and some wintering sites)	N/A	Yes	Upland habitat, open, low relief, well-drained soils. Substantial small mammal populations to provide burrows and a forage base.	Low (burrowing and wintering) – suitable vegetation communities exist within project site, though vegetation is likely too tall and/or dense. Limited suitable burrowing and foraging habitat within project	Suitable vegetation communities are present within portions of the project sites; however, in most areas, vegetation may be too tall and/or dense to support burrowing owl, and only there is limited suitable	-	R	-

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
					sites. Nearest documented occurrence approximately a half mile from Hole Creek (CDFW 2018).	habitat for burrows and foraging. Suitable habitat is limited within the project site, and primarily found on the mesa above and to the south of the Santa Ana River floodplain above Lower Hole Creek. Burrowing owl are generally known to occur in the region, and the nearest recent record of occurrence was approximately a half mile southeast of the Hole Creek site, near the Riverside Municipal Airport (CDFW 2018). Therefore, there is a low potential for the species to occur within project sites.			
Clark's marsh wren (<i>Cistothorus palustris clarkae</i>)	-/SSC/-	N/A	No	Narrow distribution along the coast of Southern California from the Los Angeles basin south to the Mexican border. Nests in cattail, bulrush, or sedge in	High – suitable nesting and foraging habitat present within project sites. Common year round in Prado Flood Control	Suitable nesting and foraging habitat present within the project sites. In western Riverside County, where sub-specific identity needs confirmation,	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				emergent wetland habitat.	Basin and Hidden Valley Wildlife Area (Shuford and Gardali 2008). Several observations in vicinity of project sites (eBird 2018).	Marsh Wrens remain common all year in Prado Flood Control Basin along the Santa Ana River and occur locally along the river between Prado Basin and the city of Riverside (including at Hidden Valley Wildlife Area at the western edge of the city of Riverside) (Shuford and Gardali 2008). There have been many recorded observations of marsh wren in the vicinity of the project sites (eBird 2018). Therefore, Clark's marsh wren has a high potential to occur (nesting and foraging) within the project sites.			
<u>Tricolored blackbird</u> <i>(Agelaius tricolor)</i>	-/T/-	N/A	Yes	<u>Breeding colonies require open water; appropriate nesting substrate consists of cattails bulrushes, willows.</u>	<u>Absent - There is currently no suitable open water or marsh habitat on the project sites that would support</u>	<u>The project would restore over 53 acres of ponds that would support a variety of habitats including open water/marsh.</u>	=	=	R

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
<u>Southwestern Willow Flycatcher</u> (<i>Empidonax traillii extimus</i>)	<u>E/E/-</u>	<u>N/A</u>	<u>Yes</u>	<u>Breeding range is distributed throughout the southwestern United States. Occurs within dense riparian tree and scrub communities (<i>Tamarix</i> or <i>Salix</i> usually). Surface hydrology during nesting season.</u>	<u>Present (nesting) – nesting behavior observed within project sites during 2016 surveys at Anza Creek/Old Ranch Creek, and suitable habitat exists within project sites.</u>	<u>Suitable habitat is present within the project sites. Southwestern willow flycatcher territories were found at the Anza Creek/Old Ranch Creek sites. Several willow flycatcher (non-breeding migrants) were detected on the other sites, but it was determined not to be the federally listed sub-species.</u>	<u>S</u>	<u>S</u>	<u>S</u>
White-tailed kite (<i>Elanus leucurus</i>)	-/SFP/- (nesting)	N/A	No	Rolling foothills and valley margins with scattered oaks and river bottomlands or marshes next to deciduous woodland. Open grasslands, meadows, or marshes for foraging close to isolated, dense-topped trees for nesting and perching.	Moderate (nesting) – species has been seen in vicinity of project sites (eBird 2018). Nearest recent records of nesting in 2009 at Prado Regional Park (CDFW 2018).	White-tailed kite has been seen often in the vicinity of the project sites (eBird 2018); however, the nearest recent records of nesting were at Prado Regional Park in 2009 (CDFW 2018). Therefore, there is a high potential for individuals of the species to occur within the project	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Yellow-breasted chat (<i>Icteria virens</i>)	-/SSC/- (nesting)	N/A	Yes	Summer resident; inhabits riparian thickets of willow and other brushy tangles near watercourses. Nests in low, dense riparian, consisting of willow, blackberry, wild grape; forages and nests within 10 feet of ground.	Present (nesting) – species currently present within project sites. Breeding activities observed at Anza Creek/Old Ranch Creek during surveys in 2016.	sites, but only a moderate potential for nesting within the project sites. Suitable habitat is present within the project sites. Yellow-breasted chat currently occurs in riparian habitat within the Santa Ana River and associated tributaries, and breeding activities were observed at the Anza Creek/Old Ranch Creek and Hidden Valley Creek sites during riparian bird surveys in 2016. Therefore, yellow breasted chat is considered present (nesting) within the project sites.	S (species present)	S	S (species present)
Coastal California gnatcatcher (<i>Polioptila californica californica</i>)	FT/SSC/-	No	Yes	Low, coastal sage scrub in arid washes, on mesas and slopes. Not all areas classified as coastal sage scrub are occupied.	Low – most recent occurrences approximately 2 miles from project sites in 1990s and 2000s (CDFW 2018, eBird 2018).	Records of the species in the area include numerous detections from the 1990s and 2000s in the vicinity of the Pedley Hills and	R	S	-

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
					However, limited suitable habitat within project sites as habitat is small, fragmented, and of poor quality.	Norco Hills, approximately as close as 2 miles away from the nearest project sites (CDFW 2018, eBird 2018). However, much of the land cover at the project sites consists of unsuitable habitat. Potentially suitable habitat for the species is limited to small, fragmented, isolated patches of poor quality scrub, primarily at the Lower Hole Creek site outside of the floodplain. Therefore, there is a low potential for the species to occur at the project sites.			

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Yellow warbler (<i>Setophaga petechia</i>)	-/SSC/- (nesting)	N/A	No	Riparian plant associations close to water. Frequently found nesting and foraging in willow shrubs and thickets, and in other riparian plants including cottonwoods, sycamores, ash, and alders.	High (nesting) – species was documented during surveys in 2016, and suitable habitat exists within project sites. Nesting activities documented in vicinity of project sites from 2007–2015 (CDFW 2018).	Suitable habitat present and the species was observed during 2016 project sites surveys. Additionally, there are records of nesting behavior observed within the Santa Ana River corridor in the immediate vicinity of the project sites from 2007–2015 (CDFW 2018). Therefore, there is a high potential for yellow warbler to nest within the project sites.	S	S	S
Least Bell's vireo (<i>Vireo bellii pusillus</i>)	FE/SE/- (nesting)	Yes	Yes	Summer resident of Southern California in low riparian in vicinity of water or in dry river bottoms; below 2,000 feet. Nests placed along margins of bushes or on twigs projecting into pathways, usually willow, mule fat, or mesquite.	Present (nesting) – nesting behavior observed within project sites during 2016 surveys, and suitable habitat exists within project sites.	Suitable habitat is present within the project sites, and individuals and nesting behavior were observed within the project sites during riparian bird surveys in 2016. Therefore, the species is present (including nesting)	S (species present)	S (species present)	S (species present)

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Yellow-headed blackbird (<i>Xanthocephalus</i> <i>xanthocephalus</i>)	-/SSC/- (nesting)	N/A	No	Nests in freshwater emergent wetlands with dense vegetation and deep water. Often along borders of lakes or ponds. Nests only where large insects such as <i>Odonata</i> are abundant.	Low (nesting) – suitable habitat exists within project sites, though there are no records of nesting in the region (CDFW 2018). Individuals have been seen at Hidden Valley Wildlife Area, Rancho Jurupa Park, and Rubidoux Nature Center (eBird 2018).	within the project sites. Suitable habitat is present in the project sites, where relatively deep water with peripheral emergent vegetation occurs. There are no records of nesting in the region (CDFW 2018); however, individual yellow- headed blackbird have been observed at the Hidden Valley Wildlife Area, Rancho Jurupa Park, and Rubidoux Nature Center, in the vicinity of the project sites (eBird 2018). Therefore, there is a high potential for individuals of the species to occur within the project sites, and low potential for nesting.	-	-	S

							Current Habitat Suitability (“S”) and Potential Suitability After Restoration (“R”), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification			
Mammal Species									
Northwestern San Diego pocket mouse (<i>Chaetodipus fallax fallax</i>)	-/SSC/-	N/A	No	Coastal scrub, chaparral, grasslands, sagebrush, etc., primarily in western San Diego County, and also in western Riverside and San Bernardino counties. Sandy, herbaceous areas, usually in association with rocks or coarse gravel.	Low – suitable isolated patches of habitat exist within project sites. Nearest documented occurrence of species is from 1999, approximately 4 miles from project sites.	Potentially suitable habitat is present within the project sites within isolated patches of annual grassland and coastal sage scrub communities. The nearest record of occurrence is from 1999, approximately 4 miles southeast of the project sites, south of Highway 91 (CDFW 2018). Based on the isolated and limited amount of potentially suitable habitat and the lack of reported occurrences, the potential for this species to occur is low.	S	S	S
Stephens’ kangaroo rat (<i>Dipodomys stephensi</i>)	FE/ST/-	N/A	No	Primarily annual and perennial grasslands, but also occurs in coastal scrub and sagebrush with sparse canopy cover. Prefers buckwheat,	Low – potentially suitable habitat within elevated grassland terraces above Santa Ana River, no suitable habitat within	There is potentially suitable habitat present within the project sites on the elevated grassland terraces south of the Santa Ana River	S	S	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				chamise, brome grass and filaree. Will burrow into firm soil.	floodplain. Species typically occurs farther south and east in Riverside County, but has been documented near Norco (USFWS 1997). Two documented occurrences within 4 miles of Hidden Valley Creek in 2003 and 2013 (CDFW 2018).	floodplain, and there is no suitable habitat within the floodplain. The species is primarily found farther south and east in Riverside County than the location of the project sites; however, it also occurs near Norco, California (USFWS 1997), and there are two documented occurrences within 4 miles of the Hidden Valley Creek from 2003 and 2013 (CDFW 2018). Therefore, there is a low potential for SKR to occur within the project sites.			
Western mastiff bat (<i>Eumops perotis californicus</i>)	-/SSC/-	N/A	No	Many open, semi-arid to arid habitats, including conifer and deciduous woodlands, coastal scrub, grasslands, chaparral, etc. Roosts in crevices in cliff faces, high buildings, trees and tunnels.	Low (foraging and roosting) – suitable foraging and roosting habitat present within project sites. However, documented occurrences include 1 mile	There is suitable habitat present within the project sites for foraging and roosting. The nearest records of occurrence are from 1954 near Pedley approximately within a mile of the project sites, and	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Western yellow bat (<i>Lasiurus xanthinus</i>)	-/SSC/-	N/A	No	Found in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. Roosts in trees, particularly palms. Forages over water and among trees.	from project sites in 1954 and 4 miles from project sites in 1993. Moderate (foraging and roosting) – suitable foraging and roosting habitat exists within project sites. Nearest documented occurrence less than a mile from project sites in 1996 (CDFW 2018).	from 1993 at Norco City Hall approximately 4 miles southwest of the project sites and within a half mile of the Santa Ana River corridor (CDFW 2018). Therefore, there is a low potential for mastiff bat to occur within the project sites. There is suitable habitat for foraging and roosting (particularly abundant palm trees) within the project sites. The nearest record of occurrence is from 1996 near Riverside, less than a mile south of the project sites (CDFW 2018). Therefore, there is a moderate potential for western yellow bat to occur within the project sites.	S	S	S
San Diego black-tailed jackrabbit	-/SSC/-	N/A	No	Intermediate canopy stages of shrub	Moderate – suitable habitat	There is suitable habitat for within	S	S	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
<i>(Lepus californicus bennettii)</i>				habitats with open shrub, herbaceous and tree, and herbaceous edges. Coastal sage scrub habitats in Southern California.	exists within project sites. Species documented in 2001 approximately 5 miles from project sites (CDFW 2018).	the project sites. The nearest recent record of occurrence is from 2001 approximately 5 miles south of the project sites, and there is an historical occurrence within approximately 2 miles of the project sites north of the Santa Ana River (CDFW 2018). Therefore, there is a moderate potential for San Diego black-tailed jackrabbit to occur within the project sites.			
San Diego desert woodrat <i>(Neotoma lepida intermedia)</i>	-/SSC/-	N/A	No	Coastal scrub of Southern California from San Diego County to San Luis Obispo County. Moderate to dense canopies preferred. They are particularly abundant in rock outcrops, rocky cliffs, and slopes.	Low – suitable habitat exists within project sites as small isolated fragments. Nearest recent documented occurrence is approximately 8 miles from the project sites in 1999 (CDFW 2018).	There is limited suitable habitat for San Diego desert woodrat within the project sites. The nearest recent record of occurrence is from 1999 approximately 8 miles south of the project sites (CDFW 2018). Therefore, given the small and isolated fragments of potentially	S	S	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Pocketed free-tailed bat (<i>Nyctinomops femorosaccus</i>)	-/SSC/-	N/A	No	Variety of arid areas in Southern California; pine-juniper woodlands, desert scrub, palm oasis, desert wash, desert riparian, etc. Roosts in rocky areas with high cliffs.	Moderate (foraging) – suitable foraging habitat exists within the project site, though no suitable roosting habitat. Several documented occurrences within 1-10 miles of project sites from 1980s (CDFW 2018).	suitable habitat present, there is a low potential to occur within the project sites. Suitable habitat is present within the project sites for foraging; however no suitable roosting habitat is present. There are multiple records of occurrence of pocketed free-tailed bat within 1–10 miles of the project sites during the 1980s (CDFW 2018). Therefore, there is a moderate potential for the species to occur within the project sites.	S	S	S
Los Angeles pocket mouse (<i>Perognathus longimembris brevinasus</i>)	-/SSC/-	N/A	Yes	Lower elevation grasslands and coastal sage communities in and around the Los Angeles Basin. Open ground with fine, sandy soils. May not dig extensive	Low – suitable habitat is present within project site, though it is patchy and limited. Nearest documented occurrence approximately 7	Suitable habitat is present within the project sites, but is of small areas, limited extent, and patchy in distribution. The nearest record of occurrence of Los	S	S	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				burrows, hiding under weeds and dead leaves instead.	miles from project sites in 2000 (CDFW 2018).	Angeles pocket mouse is approximately 7 miles northeast of the project sites in 2000 (CDFW 2018). Therefore, there is a low potential for the species to occur within the project sites.			
Plant Species									
<u>San Diego ambrosia (<i>Ambrosia pumila</i>)</u>	<u>E/-/1B.1</u>	<u>N/A</u>	<u>No</u>	<u>Found in chaparral, coastal scrub, valley and foothill grasslands, and vernal pool habitats; often found within disturbed sandy loam or clay soils within the upper terraces of a water source.</u>	<u>Low – Suitable habitat is present within grasslands at the Lower Hole Creek site. This species was found near the intersection of Arlington Avenue and Van Buren Boulevard; however this population is believed to be extirpated (CNDDB 2019). The nearest occurrence occurs near Lake Elsinore, CA.</u>	<u>The species was not observed during focused habitat assessment conducted for WRC MSHCP Narrow Endemic Plant Species in July 2019. If present, it would have been observed, as the survey occurred during the appropriate time of year. Refer to Appendix I.</u>	<u>=</u>	<u>S</u>	<u>=</u>
Plummer's mariposa-lily	-/-/4.2	N/A	No	Coastal scrub, chaparral, valley and foothill grassland,	Low – suitable habitat exists within project sites	Suitable habitats with alluvial substrate are	S	R	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
<i>(Calochortus plummerae)</i>				cismontane woodland, lower montane coniferous forest. Occurs on rocky and sandy sites, usually of granitic or alluvial material. Can be very common after fire. 60–2,500 meters.	(USDA NRCS 2018). Nearest documented occurrence 3.5 miles from project sites in 1998, 2003, and 2011 (CDFW 2018).	present within the project sites (USDA NRCS 2018). The nearest recorded observations are from near Riverside and the Jurupa Hills, as close at 3.5 mile from a project site, from 1998, 2003, and 2011 (CDFW 2018, Calflora 2018). Plummer's mariposa-lily was not observed during project surveys. Therefore, due to the presence of suitable habitat and records of contemporary occurrences within a few miles, there is a low potential for Plummer's mariposa lily to occur within the project sites.			
Smooth tarplant (<i>Centromadia pungens</i> ssp. <i>laevis</i>)	-/-/1B.1	N/A	No	Valley and foothill grassland, chenopod scrub, meadows and seeps, playas, riparian woodland. Alkali meadow, alkali scrub; also in	High – habitat was documented at Anza Creek/Old Ranch Creek site during surveys. Documented in Hidden Valley	Suitable habitat for this species is present within the project sites, and was identified at the Anza Creek/Old Ranch Creek project	S	-	R

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				disturbed places. 5– 1,170 meters.	Wildlife Reserve in 2004 (CDFW 2018).	sites during vegetation mapping surveys. It was also observed in alkali grassland along the access road to Hidden Valley Wildlife Reserve in 2004 (CDFW 2018), and near the Santa Ana River just downstream of the Anza Creek project site in the 1960s (Calflora 2018). Smooth tarplant was not observed during project surveys. Therefore, due to suitable habitat and nearby observations, the species has a high potential to occur within the project sites.			
Parry's spineflower (<i>Chorizanthe parryi</i> var. <i>parryi</i>)	-/-/1B.1	N/A	No	Coastal scrub, chaparral, cismontane woodland, valley and foothill grassland. Dry slopes and flats; sometimes at interface of two vegetation types,	Low – suitable habitat exists within project sites. However, nearest documented occurrences within 5 miles date to	Suitable sandy openings within dry habitats are present at the project sites. Multiple nearby observation of the species are recorded within approximately 5	S	S	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				such as chaparral and oak woodland. Dry, sandy soils. 90–1,220 meters.	1900s (CDFW 2018).	miles; however, they are from the early to mid-1900s (CDFW 2018, Calflora 2018). Parry's spineflower was not observed during project surveys. Therefore, due to the historical nature of nearby observations, there is low potential for the species to occur within the project sites.			
<u>San Miguel savory</u> <u>(<i>Clinopodium</i></u> <u><i>chandleri</i>)</u>	<u>-/-/1B.2</u>	<u>N/A</u>	<u>No</u>	<u>Occurs within rocky, gabbroic, or metavolcanics soils in chaparral, cismontane woodland, coastal scrub, riparian woodland, and valley and foothill grasslands.</u>	<u>None - Suitable habitat is not present at the project sites.</u>	<u>The project sites lack suitable soils. A habitat assessment was conducted for WRC MSHCP Narrow Endemic plants. Refer to Appendix I.</u>	=	=	=
Snake cholla (<i>Cylindropuntia californica</i> var. <i>californica</i>)	-/-/1B.1	N/A	No	Chaparral, coastal scrub. 15–290 meters.	Low – Marginally suitable habitat present within project sites. Species was observed 2 miles from project sites	Marginally suitable scrub habitat is present in the project sites. Snake cholla was observed approximately 2 miles south of the project sites in	S	R	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Paniculate tarplant (<i>Deinandra paniculata</i>)	-/-/4.2	N/A	No	Coastal scrub, valley and foothill grassland, vernal pools. Usually in vernally mesic sites. Sometimes in vernal pools or on mima mounds near them. 25-940 meters.	in 1998 (Calflora 2018). High – suitable habitat present within project sites. Several observations from 1970-2010s within 1 mile of project sites (Calflora 2018).	1998, near Challen park (Calflora 2018). Snake cholla was not observed during project surveys. Therefore, due to the nearby observation and presence of marginally suitable habitat, the species has a low potential to occur within the project sites. Suitable vernal mesic habitat is present within the project sites. There are multiple observations recorded from the 1970s through the 2010s within 1 mile of each of the project sites, primarily in or adjacent to the Santa Ana River corridor (Calflora 2018). Paniculate tarplant was not observed during project surveys. Therefore, due to the proximity of	S	R	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Slender-horned spineflower (<i>Dodecahema leptoceras</i>)	FE/SE/1B.1	N/A	Yes	Chaparral, cismontane woodland, coastal scrub (alluvial fan sage scrub). Flood deposited terraces and washes; associates include Encelia, Dalea, Lepidospartum, etc. Sandy soils. Typically found on stable older alluvium away from active channels in areas with little flooding disturbance but infrequent surface flows. 200– 765 meters.	Low – suitable habitat exists within project sites (USDA NRCS 2018). Nearest documented occurrences approximately 9 miles from project sites from late 1800s to early 1900s (CDFW 2018). Contemporary observations 15 miles from project sites in 2010s (CDFW 2018).	recent observations and presence of suitable habitat, paniculate tarplant has a high potential to occur within the project sites. Suitable sandy soils and habitat types are present within the project sites, particularly where terraces and alluvial deposits of the mainstem Santa Ana River occur (USDA NRCS 2018). The nearest recorded occurrences in San Bernardino and Riverside Counties are historical from the late 1800s and early 1900s, are located at least 9 miles away from the project sites, and are considered extirpated (CDFW 2018). The nearest contemporary observations from the 2010s were recorded at the Santa Ana River's	S	S	S

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							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						floodplain upstream near Highland (at least 15 miles northeast of the project sites), and in Temescal Wash south of Lake Matthews (at least 14 miles south of the project sites) (Calflora 2018, CDFW 2018). Slender-horned spineflower was not observed during project surveys. Therefore, although there is suitable habitat and extant populations upstream in the Santa Ana River Watershed, due to a lack of contemporary observations nearby, there is a moderate potential for slender-horned spineflower to occur within the project sites.			
Many-stemmed dudleya	-/-/1B.2	N/A	No	Chaparral, coastal scrub, valley and foothill grassland. In	Low – habitat present within project sites (USDA	Scrub and grassland habitats and loamy sand/sandy loam	S	R	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
<i>(Dudleya multicaulis)</i>				heavy, often clayey soils or grassy slopes. 15–790 meters.	NRCS 2018). Nearest documented occurrences in 2003 and 2017 approximately 2 miles from project sites.	soils are present within the project sites (USDA NRCS 2018); thus, there is potentially suitable habitat present. The nearest recent observations were recorded in 2003 and 2017 approximately 2 miles south of the project sites, near the Crestlawn Memorial Cemetery (CDFW 2018, Calflora 2018). Many-stemmed dudleya was not observed during project surveys. Therefore, due to the presence of potentially suitable habitat and distance of previous observations, there is a low potential for many-stemmed dudleya to occur within the project sites.			
Santa Ana River woolly-star (<i>Eriastrum</i>)	FE/SE/1B.1	N/A	Yes	Coastal scrub, chaparral. In sandy soils on river	Present – suitable habitat exists within Hidden Valley	Suitable habitat is present within the Hidden Valley Creek	S (species present)	R	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
<i>densifolium</i> ssp. <i>sanctorum</i>)				floodplains or terraced fluvial deposits. 180–705 meters.	Creek site. Species was observed within Anza Creek/Old Ranch Creek site in 2014.	site. This species was observed within the Anza Creek/Old Ranch Creek project sites in 2014.			
Southern California black walnut (<i>Juglans californica</i>)	-/-/4.2	N/A	No	Chaparral, coastal scrub, cismontane woodland. Slopes, canyons, alluvial habitats. 50–900 meters.	High – suitable habitat exists within project sites. Documented occurrences within 1 mile of project sites in 2004 and 2013 (Calflora 2018).	Suitable scrub and alluvial habitat is present at the project sites. Recent observations of Southern California black walnut have been recorded within 1 mile of project sites in 2004 and 2013 (Calflora 2018). The species was not observed during project surveys. Therefore, due to proximity of recent nearby observations and presence of suitable habitat, Southern California black walnut has a high potential to occur at the project sites.	S	R	S
Coulter's goldfields (<i>Lasthenia</i>)	-/-/1B.1	N/A	No	Coastal salt marshes, playas, vernal pools. Usually found on alkaline soils in	Low – suitable habitat exists within project sites, though	Suitable alkaline grassland habitat is present near the project sites;	S	-	R

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
<i>glabrata</i> ssp. <i>coulteri</i>)				playas, sinks, and grasslands. 1–1,375 meters.	limited in distribution. Nearest documented occurrence to project sites in 1989 approximately 5 miles from project sites (Calflora 2018, CDFW 2018).	however, it is of limited distribution. The nearest observation of the species was recorded in 1989, approximately 5 miles south of the project sites near Woodcrest, south of Highway 91 (Calflora 2018; CDFW 2018). Coulter's goldfields was not observed during project surveys. Therefore, due to proximity of a contemporary observation and presence of limited suitable habitat, the species has a low potential to occur at the project sites.			
Robinson's pepper-grass (<i>Lepidium</i> <i>virginicum</i> var. <i>robinsonii</i>)	-/-/4.3	N/A	No	Chaparral, coastal scrub. Dry soils, shrubland. 4–1,435 meters.	Moderate – suitable habitat exists within project sites. Few documented occurrences within Santa Ana River. Nearest documented occurrence in 1952	Suitable scrub habitat is present at the project sites. The nearest observation of the species was recorded in 1952 at Fairmount Park in Riverside, approximately 3	S	R	S

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
					approximately 3 miles from project sites and in Prado Basin in 2010 (Calflora 2018, CDFW 2018).	miles east of the project sites. A more recent observation was recorded at Prado Basin in 2010 (Calflora 2018; CDFW 2018). Robinson's peppergrass was not observed during project surveys. Therefore, due to few previous observations within the Santa Ana River corridor, and presence of suitable habitat, the species has a moderate potential to occur at the project sites.			

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Brand's star phacelia (<i>Phacelia stellaris</i>)	-/-/1B.1	N/A	No	Coastal scrub, coastal dunes. Open areas. 3– 370 meters.	Moderate – limited suitable habitat exists within project sites. Nearest documented occurrence in 2000 approximately 2.5 miles from project sites (CDFW 2018).	Suitable scrub habitat with openings is present near the project sites, though the extent of scrub habitat is limited. A nearby occurrence was observed in 2000, approximately 2.5 miles west of the project sites, along the Santa Ana Santa Ana River and adjacent to horse trails (CDFW 2018, Calflora 2018). Therefore, there is a moderate potential for Brand's star phacelia to occur within the project sites.	S	R	S
Chaparral ragwort (<i>Senecio aphanactis</i>)	-/-/2B.2	N/A	No	Chaparral, cismontane woodland, coastal scrub. Drying alkaline flats. 20–855 meters.	Low – suitable habitat exists within project sites. Few documented occurrences in proximity to project sites; nearest documented occurrence	Scrub habitat and alkaline meadows are present within the project sites. There are observations from the early 2000s in the Box Springs Mountains southeast of Riverside,	S	-	R

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
San Bernardino aster (<i>Symphyotrichum defoliatum</i>)	-/-/1B.2	N/A	No	Meadows and seeps, cismontane woodland, coastal scrub, lower montane coniferous forest, marshes and swamps, valley and foothill grassland. Vernal mesic grassland or near ditches, streams and springs; disturbed areas. 3–2,045 meters.	approximately 6 miles from project sites in early 2000s (Calflora 2018, CDFW 2018). Low – suitable habitat exists within project sites. Nearest most recent documented occurrence in 1995 approximately 4 miles from project sites (Calflora 2018). Other occurrences are historical and species is considered extirpated or possibly extirpated (CDFW 2018).	approximately 6 miles from the nearest project sites (Calflora 2018, CDFW 2018). Therefore, due to the presence of potentially suitable habitat and few regional observations, chaparral ragwort has a low potential to occur within the project sites. Scrub, alkaline meadows, and grassland habitats with disturbed areas are present within the project sites. The nearest contemporary recorded observation is from north of the Jurupa Hills in 1995, approximately 4 miles north of the closest project sites (Calflora 2018). The other recorded occurrences in the region are historical and are considered	S	R	R

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
						extirpated or possibly extirpated (CDFW 2018). Therefore, due to the presence of potentially suitable habitat and the lack of contemporary observation in the region, there is a low potential for San Bernardino aster to occur within the project sites.			
Sensitive Natural Communities									
Riversidian Alluvial Fan Sage Scrub	--	--	--	Sub-type of coastal sage scrub found on the alluvial fans and flood plains of the coastal side of the San Bernardino and San Gabriel Mountains. All remaining significant expanses of alluvial fan sage scrub habitats now occur only in San Bernardino County, specifically on the Etiwanda Fan, Lytle Creek, Cajon Creek	Present – vegetation mapping in 2016 identified California Buckwheat Scrub present within some alluvial areas within the project sites (Barbour and Wirka 1997).	Riversidian Alluvial Fan Sage Scrub habitat is not mapped within the project sites (CDFW 2018). However, the vegetation mapping completed for the project in 2016 identifies California Buckwheat Scrub within some alluvial areas of the project sites. Classification of alluvial scrub in Los Angeles, Riverside, and San Bernardino	R	R	S (present)

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
				and the Santa Ana River.		Counties has been expanded to include additional series, including a Western Riverside group distinguished by low cover of <i>Eriogonum fasciculatum</i> and <i>Lepidospartum squamatum</i> as well as a high diversity of annuals (Barbour and Wirka 1997).			
Southern California Arroyo Chub/Santa Ana Sucker Stream	--	--	--	Santa Ana River and tributaries, in San Bernardino, Riverside and Orange Counties. From Mount Rubidoux downstream to northeastern Anaheim, including tributaries Chino, Aliso, and Sunnyslope Creeks.	Present – identified during 2016 and 2017 aquatic species habitat assessments within portions of tributaries within project sites.	Southern California Arroyo Chub/Santa Ana Sucker Stream is mapped within the project sites where the Santa Ana River is present (CDFW 2018). Additionally, as determined during 2016 and 2017 aquatic species habitat assessments, portions of the tributaries within the project sites have suitable habitat for these species.	S (present)	S (present)	R

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Southern Cottonwood Willow Riparian Forest	--	--	--	Santa Ana River, from the Prado Flood Control Basin to below Rubidoux. Extant, 1985, per interpretation of aerial photos but boundary changed. Mapped as closed canopy <i>Populus fremontii</i> , <i>P. trichocarpa</i> , and <i>Salix</i> spp. in matrix with scrub of <i>Baccharis viminea</i> and <i>B. emoryi</i> .	Present – vegetation mapping in 2016 identified the presence of this community within project sites.	Southern Cottonwood Willow Riparian Forest is mapped within the project sites along the Santa Ana River riparian corridor. As noted in the CNDDDB, the boundary of mapped occurrence has changed over time (CDFW 2018). The vegetation mapping completed for the project in 2016 identifies the following vegetation communities: Black Willow/Fremont Cottonwood Forest, Fremont Cottonwood/Willow Forest, Fremont Cottonwood/Willow /Mulefat Forest, and Fremont Cottonwood/Willow /Wild Grape Forest within the project sites.	S (present)	S (present)	S (present)
Southern Riparian Forest	--	--	--	Riparian forests in Southern California.	Present – vegetation mapping in 2016 identified the presence of this	Southern Riparian Forest habitat is not recorded as mapped by the CNDDDB within the project	S (present)	S (present)	S (present)

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
					community within project sites.	sites (CDFW 2018). However, the vegetation mapping completed for the project in 2016 identifies the following vegetation communities: Black Willow/Fremont Cottonwood Forest, California Sycamore Woodlands, Fremont Cottonwood/Willow Forest, Fremont Cottonwood/Willow /Mulefat Forest, and Fremont Cottonwood/Willow /Wild Grape Forest within the project sites.			
Southern Riparian Scrub	--	--	--	Riparian scrub habitats in Southern California.	Present – vegetation mapping in 2016 identified the presence of this community within project sites.	Southern Riparian Scrub habitat is not recorded as mapped by the CNDDB within the project sites (CDFW 2018). However, the vegetation mapping completed for the project in 2016 identifies the following vegetation communities: Arrow	S (present)	R	S (present)

Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
							Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
Southern Willow Scrub	--	--	--	Willow scrub habitats in Southern California.	Present - vegetation mapping in 2016 identified the presence of this community within project sites.	Weed Thickets, Black Willow Thickets, California Buckwheat Scrub, Mulefat Thickets, and Sandbar Willow Thickets within the project sites. Southern Willow Scrub habitat is not recorded as mapped by the CNDDDB within the project sites (CDFW 2018). However, the vegetation mapping completed for the project in 2016 identifies the following vegetation communities: Arrow Weed Thickets, Black Willow Thickets, California Buckwheat Scrub, Mulefat Thickets, and Sandbar Willow Thickets within the project sites.	S (present)	S (present)	S (present)

¹ Status Definitions:

FE = Federally-listed as endangered under ESA

FT = Federally-listed as threatened under ESA

FD = De-listed under ESA

SE = State-listed as endangered under CESA

							Current Habitat Suitability ("S") and Potential Suitability After Restoration ("R"), by Site		
Species	Status (Federal/ State/ CRPR) ¹	Critical Habitat within Project Sites ²	Upper SAR HCP Covered Species	Habitat Descriptions and Requirements	Current Potential to Occur at Project Sites and Justification	Justification	Anza Creek/ Old Ranch Creek	Lower Hole Creek	Hidden Valley Creek
ST = State-listed as threatened under CESA									
SC = Candidate for state-listing as endangered under CESA									
SD = De-listed under CESA									
SFP = Fully-protected species in California as identified in the California Code of Regulations, Fish and Game Code.									
SSC = California Species of Special Concern									
CRPR = California Rare Plant Rank:									
1A. Presumed extirpated in California and either rare or extinct elsewhere									
1B. Rare or Endangered in California and elsewhere (includes Rare Plant Ranks 1B.1, 1B.2, 1B.3)									
2A. Presumed extirpated in California, but more common elsewhere									
2B. Rare or Endangered in California, but more common elsewhere (includes Rare Plant Ranks 2B.1, 2B.2, 2B.3)									
3. Plants for which more information is needed - Review list (includes Rare Plant Ranks 3, 3.1, 3.2, 3.3)									
4. Plants of limited distribution in California - Watch list (includes Rare Plant Ranks 4.1, 4.2, 4.3)									
Threat Code extensions and their meanings:									
.1 - Seriously threatened in California (over 80% of occurrences threatened / high degree and immediacy of threat)									
.2 – Moderately threatened in California (20-80% of occurrences threatened / moderate degree and immediacy of threat)									
.3 – Not very threatened in California (<20% of occurrences threatened / low degree and immediacy of threat or no current threats known)									
² Critical habitat as designated in <i>Federal Register</i> documents. "N/A" value indicates critical habitat is not designated for a species; thus, it is not applicable to identify if critical habitat occurs within the project sites.									
³ Santa Ana speckled dace is not expected to occur within the project sites under current conditions; however, habitat within the project sites is expected to potentially become suitable for the species following completion of the restoration projects, and the species' potential to occur within the project sites is expected to increase.									

Project Setting

Anza Creek and Old Ranch Creek

Baseline Summary

The Anza Creek and Old Ranch Creek project sites, which have been combined for discussion and analysis purposes, together cover approximately 324 acres and are located on the Santa Ana River's south floodplain about 2 miles downstream of Mount Rubidoux (Figure 3.3-1). The site is bounded to the north by the Santa Ana River, to the east by the closed Tequesquite Landfill, and to the south and west by the Santa Ana River Trail Bike Path and Anza Narrows Park. This area was selected based on two potential native fish channel restoration opportunities, referred to as Anza Creek channel and Old Ranch Creek channel. The Old Ranch Creek channel is located generally in the eastern half of the site while the Anza Creek channel is in the western half of the site.

Elevations at the restoration sites range from 742 feet above mean sea level (AMSL) in the southeastern corner near the bike path to 712 AMSL feet in the Santa Ana River channel in the northwestern portion of the site. Soils within the site are characterized by fine-grained alluvial sands linked to the Santa Ana River channel and historical floodplain that used to occupy the site. Three soil types occur at the site: Grangeville fine sandy loam (GuB), Dello loamy fine sand (DoA), and Delhi fine sand (DaD2). The most substantial land change was the installation of the Tequesquite Landfill, which is located directly in the floodplain upstream of the site and where the Santa Ana River historically flowed. Prior to confinement by levees, the landfill, and other constraints, the condition of the Anza Creek/Old Ranch Creek project sites was highly dynamic. The alignment and shape of the Santa Ana River changed regularly in response to flood events, as scour and fill processes led to the creation of new channels with sand and gravel bars and the filling of previous channels (Figure 3.3-1). As described in Section 2.3, *Existing Conditions and Land Uses*, and Section 3.8, *Hydrology and Water Quality*, Old Ranch Creek and Anza Creek are two of several surface area drains and stormwater systems at the Old Ranch Creek/Anza Creek site.

Currently the land at the Anza Creek/Old Ranch Creek site is in public and private ownership. Most of the site is owned by Riverside County, with some land along the eastern boundary adjacent to the landfill owned by the City of Riverside. The site contains two small privately owned parcels about 1,500 feet west of the Anza Drain culvert outfall along the southern border of the site. The bike path extends through these private parcels. Two small wood pole transmission lines cross the southern portion of the site. Access roads and the bike path cross the site and provide feeders to numerous social pedestrian trails that zigzag throughout the site, with a heavy concentration on the northeastern corner where multiple large homeless encampments currently exist. Homeless activity is most prevalent along Anza Creek, which has led to blockages of the channel from log footpath and dam construction and excessive garbage, shopping carts, and other debris accumulations.

Habitats and Sensitive Species

Vegetation Communities and Land Cover

Vegetation mapping was conducted at the Anza Creek/Old Ranch Creek site between July and September 2016, and the site was visited again on August 24, 2017. Vegetation communities and land cover types observed at the Anza Creek/Old Ranch Creek site during baseline surveys are shown in Table 3.3-4 and on Figure 3.3-4.

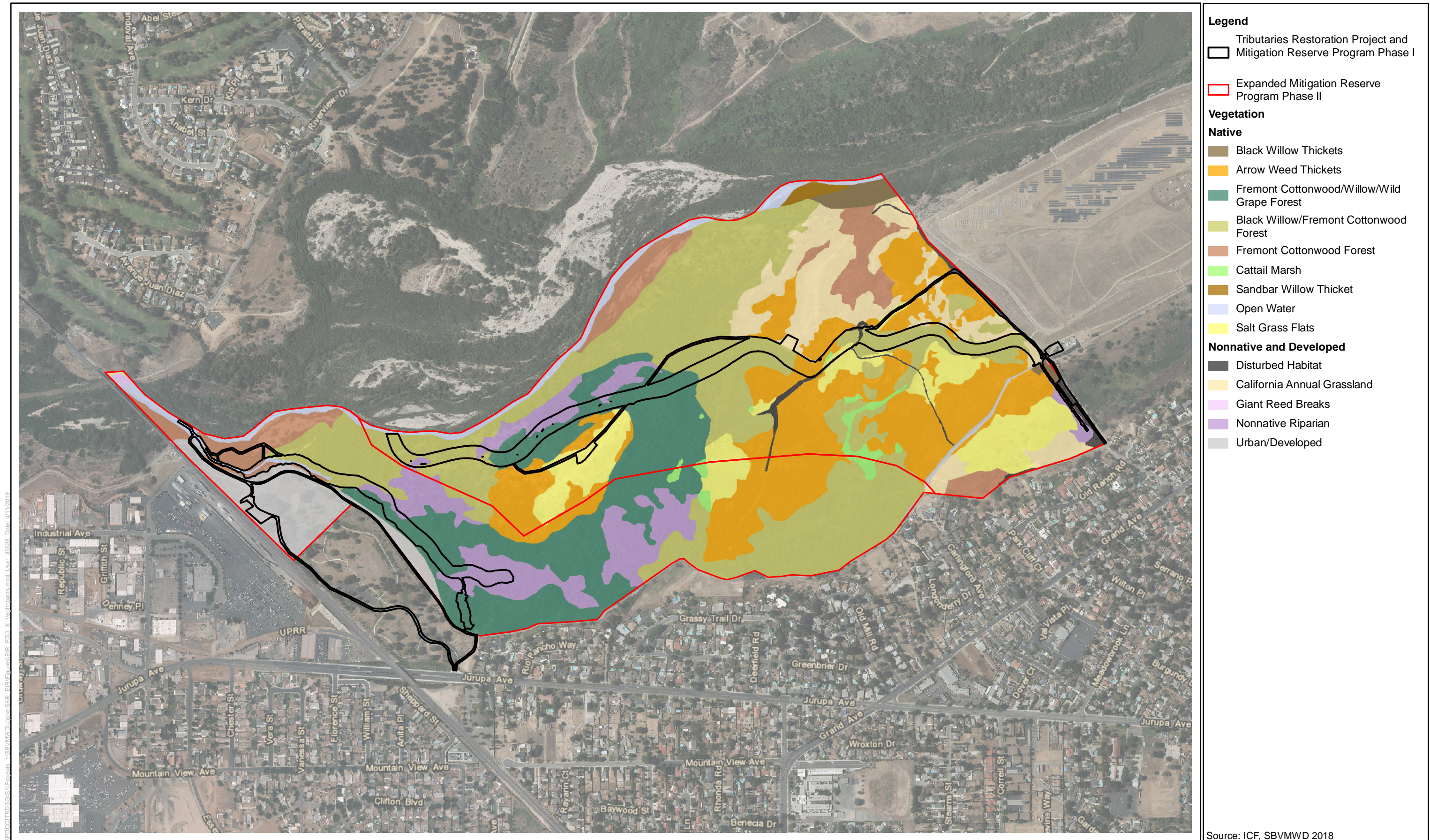


Figure 3.3-4
Anza and Old Ranch Creeks Vegetation Communities and Land Cover Types Map
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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Vegetation communities were classified based on the dominant and characteristic plant species, in accordance with *Vegetation Classification, A Manual of California Vegetation*.

The Anza Creek/Old Ranch Creek site currently supports a variety of native vegetation communities including Black Willow/Fremont Cottonwood Forest, Fremont Cottonwood/Willow/Wild Grape Forest, and Fremont Cottonwood Forest, with upland areas consisting mostly of Arrow Weed Thickets and Salt Grass Flats. The principal native plant species include arrow weed (*Pluchea sericea*), black willow (*Salix gooddingii*), Fremont's cottonwood (*Populus fremontii*), and desert wild grape (*Vitis girdiana*). Extensive nonnative plant communities found on site include nonnative grassland and nonnative riparian habitat, dominated by palms.

Additional land cover types observed in the Anza Creek/Old Ranch Creek site include Disturbed Habitat, Urban/Developed Areas, and Open Water (Figure 3.3-4). Disturbed Habitat exists mostly on and adjacent to trails and dirt roads and consists of bare ground. Urban/Developed Areas consist of paved areas within the parking lots of the Anza Narrows Park in the eastern edge of the site, and the bike/pedestrian path along southern portions of the site. Open Water is present where the Santa Ana River runs along the northern edge of the sites and in Anza Creek in the eastern portion of the site.

Table 3.3-4. Vegetation Communities and Land Cover Types Occurring at the Anza Creek/Old Ranch Creek Site

Common Name	CNPS Vegetation Alliance/Association ¹	CWHR Habitat Classifications ²	Acres
Native Communities			254.72
Arrow Weed Thickets	<i>Pluchea sericea</i>	Alkali Desert Scrub/Desert Wash	62.56
Black Willow Thickets	<i>Salix gooddingii</i>	Desert Riparian/Valley Foothill Riparian	2.81
Black Willow/Fremont Cottonwood Forest	<i>Salix gooddingii</i> / <i>Populus fremontii</i>	Desert Riparian/Valley Foothill Riparian	93.29
Cattail Marshes	<i>Typha (angustifolia, domingensis, latifolia)</i>	Fresh Emergent Wetland/Saline Emergent Wetland	3.1
Fremont Cottonwood Forest	<i>Populus fremontii</i>	Desert Riparian/Valley Foothill Riparian	19.84
Fremont Cottonwood/Willow/Wild Grape Forest	<i>Populus fremontii</i> / <i>Salix laevigata</i> / <i>Salix</i> spp./ <i>Vitis girdiana</i>	Desert Riparian/Valley Foothill Riparian	48.47
Salt Grass Flats	<i>Distichlis spicata</i>	Saline Emergent Wetland	23.55
Sandbar Willow Thickets	<i>Salix exigua</i>	Valley Foothill Riparian	1.10
Nonnative Communities			49.38
California Annual Grassland	N/A	Annual Grassland	23.94
Giant Reed Breaks	<i>Arundo donax</i>	Fresh Emergent Wetland	0.26
Nonnative Riparian	N/A	Palm Oasis/Valley Foothill Riparian	25.18
Land Cover Types			19.79
Disturbed Habitat	Vacant (disturbed bare ground)	Barren	3.85

Common Name	CNPS Vegetation Alliance/Association ¹	CWHR Habitat Classifications ²	Acres
Open Water	Lacustrine	Riverine/Lacustrine	7.88
Urban/Developed	N/A	Urban	17.81
Total			323.9

¹ Sawyer et al. 2009² CDFG 2005

CNPS = California Native Plant Society; CWHR = California Wildlife Habitat Relationships

Aquatic Habitat

The Anza Creek/Old Ranch Creek site was visited on August 11, 2016, and August 24, 2017, for aquatic habitat assessments. Old Ranch Creek and Anza Creek are two of several surface area drains and stormwater systems at the Old Ranch Creek/Anza Creek site. Refer to Section 2.3, *Existing Conditions and Land Uses*, and to Section 3.8, *Hydrology and Water Quality*, for additional detailed descriptions of these streams.

Old Ranch Creek is an ephemeral drainage; it does not have a perennial source of water, nor a continuous channel that connects with the Santa Ana River. Old Ranch Creek no longer exists in the northwestern downstream half of the site; this area is the south floodplain of the Santa Ana River and requires a rare flood event in order for flows from the Santa Ana River to spill out into this floodplain area. Anza Creek is fed by the Anza Drain, which supplies little to no surface water flow to the site in dry months; thus the upper portions of Anza Creek are intermittent and largely dry most of the year. In the lower portion of Anza Creek, enough surface water is supplied by natural springs to create perennial flow. Stormwater also enters the site from another culvert outfall located at the far southeast corner of Anza Narrows Park, although not all of the water delivered to the site from this location ultimately makes its way into the Anza Creek channel due to dispersion across an alluvial fan zone in this area. Anza Creek is a highly dynamic channel near the confluence with the Santa Ana River, and the specific location where the Anza Creek channel meets the Santa Ana River depends on geomorphic and hydrologic conditions. Santa Ana sucker and arroyo chub have been known to occupy portions of Anza Creek during certain times of the year but have been extirpated from most of the lower creek due to fish passage constraints, variable flows, and predation (Appendix A). Designated critical habitat for Santa Ana sucker includes the Santa Ana River and adjacent riparian habitat at the Anza Creek/Old Ranch Creek site (Figure 3.3-5), but the final critical habitat designation acknowledges that most tributaries in this portion of the critical habitat, including Anza Creek and Old Ranch Creek, do not provide suitable habitat for Santa Ana sucker (75 *Federal Register* 77962). However, once the creeks are restored, they will provide functional habitat for Santa Ana sucker and offer many of the Primary Constituent Elements listed in the Designated Critical Habitat rule.

While most of the vegetation along the creeks is nonnative, some reaches of the Anza Creek channel exhibit positive attributes that would benefit sucker habitat, such as wood debris accumulations in the channel, diversity in depths and velocities that create short gravel riffle sections, stable banks, shading to maintain cooler water temperatures, and active floodplain connectivity. Other reaches, however, exhibit less beneficial attributes; some sections of the channels are completely covered in wild grape and the locations of the creeks are indiscernible. Due to homeless activity, Anza Creek channel has multiple blockages from log footpath, dam construction, and excessive debris (e.g., garbage, shopping carts), which may cause passage impediments or passage barriers to fish movement.

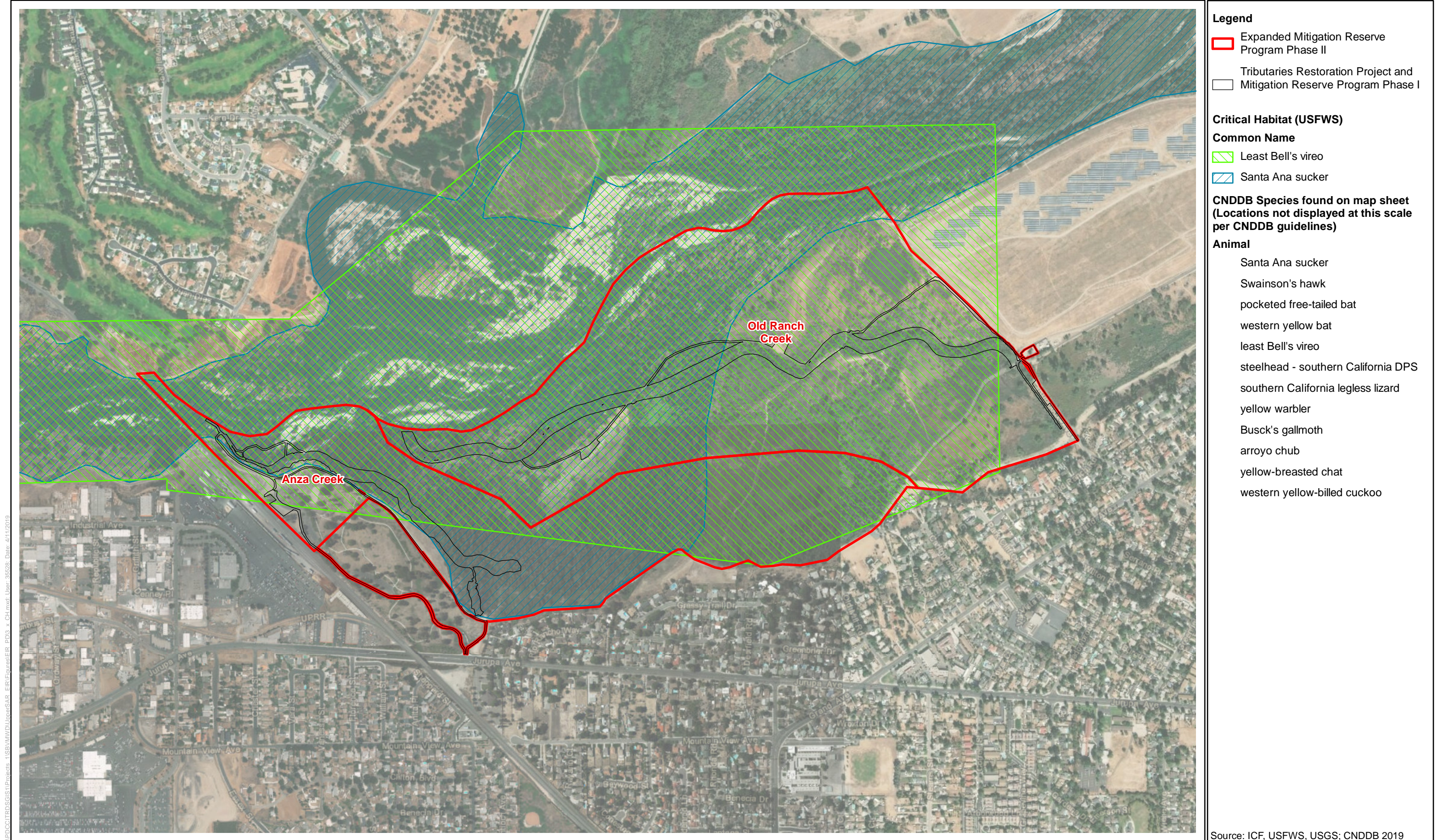


Figure 3.3-5
Designated Critical Habitat Map Anza and Old Ranch Creeks
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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Sensitive Plant Species

Based on its location and general conditions, the Anza Creek/Old Ranch Creek site provides potential habitat for the following sensitive plant species with moderate to high potential to occur, or that are present on site: Santa Ana River woolly-star (present), smooth tarplant, Robinson's pepper-grass (moderate), Brand's star phacelia (moderate), Southern California black walnut (high), slender-horned spineflower (low), and paniculate tarplant (high). Suitable habitat for Santa Ana River woolly-star is composed of open washes and early-successional alluvial fan scrub on open slopes above main watercourses where flooding and scouring occur periodically to maintain open shrublands. Suitable habitat for the species currently occurs within the Anza Creek/Old Ranch Creek site. Suitable habitat for smooth tarplant is composed of alkali scrub, alkali playas, riparian woodland, watercourses, and grasslands with alkaline affinities. The only potentially suitable alkaline habitat for smooth tarplant occurs within the Salt Grass Flats at the Anza Creek/Old Ranch Creek site. Habitat assessments were performed for these species at the site and verified presence of suitable habitat for woolly-star (52.06 acres) and tarplant (23.55 acres), and a small population of Santa Ana River woolly-star was previously observed within the site during a March 12, 2014, visit.

To ensure consistency with the WRC MSHCP, a species-specific habitat assessment for WRC MSHCP narrow endemic plants was performed in July 2019, and suitable habitat for Brand's star phacelia was found present. There was no suitable habitat for San Miguel savory or San Diego ambrosia on these sites. Refer to Appendix X for additional details.

Invasive/Nonnative Plants

Nonnative plants are present throughout the site. Palms, including date palm (*Phoenix dactylifera*) and fan palm, are prevalent in the Fremont Cottonwood communities. Salt cedar/tamarisk (*Tamarix* spp.) stands are found closer to the mainstem of the Santa Ana River. As described above, extensive nonnative plant communities found on site include nonnative grassland and nonnative riparian habitat, dominated by palms.

Sensitive Fish and Wildlife Species Habitat Suitability and Observations

Sensitive fish species with moderate to high potential to occur at the site are Santa Ana sucker (moderate) and arroyo chub (high). As described above, suitable fish habitat at the Anza Creek/Old Ranch Creek site is limited to the lower portion of Anza Creek that supports perennial flows (Figure 3.3-6). Santa Ana sucker and arroyo chub have been known to occasionally occupy portions of Anza Creek, and have been observed in the channel after high-flow events (as recently as April 2016). There are no recently documented occurrences of Santa Ana speckled dace, and no sensitive fish species were observed within the stream during baseline surveys, although sampling was not conducted (e.g., snorkel, seine, etc.). Refer to the Aquatic Species Habitat Assessment, included in Appendix B, for more details. During a September 2018 Santa Ana River fish population survey of the mainstem Santa Ana River, Santa Ana sucker and arroyo chub were observed immediately upstream and downstream of the Anza Creek confluence (Appendix B).

The following sensitive aquatic reptile species have moderate to high potential to occur within the site: southwestern pond turtle (high), two-striped gartersnake (moderate), and south coast gartersnake (moderate). Potentially suitable aquatic habitat of variable quality for both southwestern pond turtle and gartersnakes is present within the site, specifically where perennial surface waters are present in the Santa Ana River, in lower Anza Creek, and at wetted areas near the

culverts that feed the upper portion of Anza Creek (Figure 3.3-6). Upland habitat for southwestern pond turtle and gartersnakes is present in areas adjacent to perennial waters. Aquatic and upland habitats for these species are of variable quality due to the presence of nonnative vegetation, nonnative wildlife, and human use impacts (predominantly from homeless activity). No sensitive aquatic reptiles or amphibians were observed during the baseline survey site visits; however, one southwestern pond turtle has previously been observed in lower Anza Creek, and a single two-striped gartersnake has been observed in the upstream portion of the channel. The upper channel's character has changed significantly in the interim and has become heavily overgrown with riparian vegetation.

Sensitive bird species documented at the site during field visits include least Bell's vireo, yellow-breasted chat, and yellow warbler (Figure 3.3-6). A total of 27 least Bell's vireo territories were detected at the Anza Creek/Old Ranch Creek site, and breeding (i.e., nest or fledglings observed) was confirmed. A total of 25 yellow-breasted chat breeding territories were confirmed. One willow flycatcher was detected at the site, but it was determined not to be the federally listed sub-species and was determined to be a non-breeding migrant (see Appendix B). Other sensitive bird species with potential to occur within the site are Clark's marsh wren (high potential to occur) and white-tailed kite (moderate potential to occur/nest). Riparian bird habitat was evaluated to be of moderate to high quality throughout the site, with habitat quality depending largely on the amount of human disturbance and extent of nonnative vegetation.

Sensitive terrestrial reptile species with moderate to high potential to occur within the site are: coastal whiptail (moderate), coast horned lizard (moderate), and Southern California legless lizard (high). Sensitive mammal species with moderate to high potential to occur within the site are: western yellow bat (moderate), San Diego black-tailed jackrabbit (moderate), and pocketed free-tailed bat (moderate). No sensitive mammal or terrestrial reptile species were documented during site visits, and there are no historically documented occurrences of these species at the site. Much of the project sites is covered with dense riparian and nonnative species, and limited areas suitable for sensitive terrestrial reptile species exist within scrub habitat, or areas with relatively low vegetative cover. The sites do support small patches of potential habitat suitable for sensitive mammal species, but their ability to support populations of these species is limited due to the intra-site patchiness of habitat and lack of connectivity to upland habitat in the region. Suitable foraging areas for bat species and palms suitable for western yellow bat roosting occur within the sites.

Invasive/Nonnative Fish and Wildlife Species

Introduced mosquitofish were observed in the lower portion of Anza Creek during the baseline survey visits. Bullfrogs have been observed in nearby aquatic habitats and are likely to be present within Anza Creek and the Santa Ana River, but were not observed at the sites. Largemouth bass have commonly been observed in the large ponded pool within lower Anza Creek. The site is used by brown-headed cowbird (*Molothrus ater*), a significant nest parasite on least Bell's vireo, and cowbird control may be needed to optimize site suitability for the vireo and other desirable riparian birds. Field surveys did not identify feral pet predators at the site, but it is also possible that feral or pet dogs or cats may have an adverse effect on native wildlife at the site. Control of these predators may prove to be appropriate. The Santa Ana River supports a population of wild boar (*Sus scrofa*), which can create damage to freshly graded sites and young vegetation (planted or recruited). Although population control of this species has not been feasible to date, site-specific management actions may be warranted to protect revegetated areas.

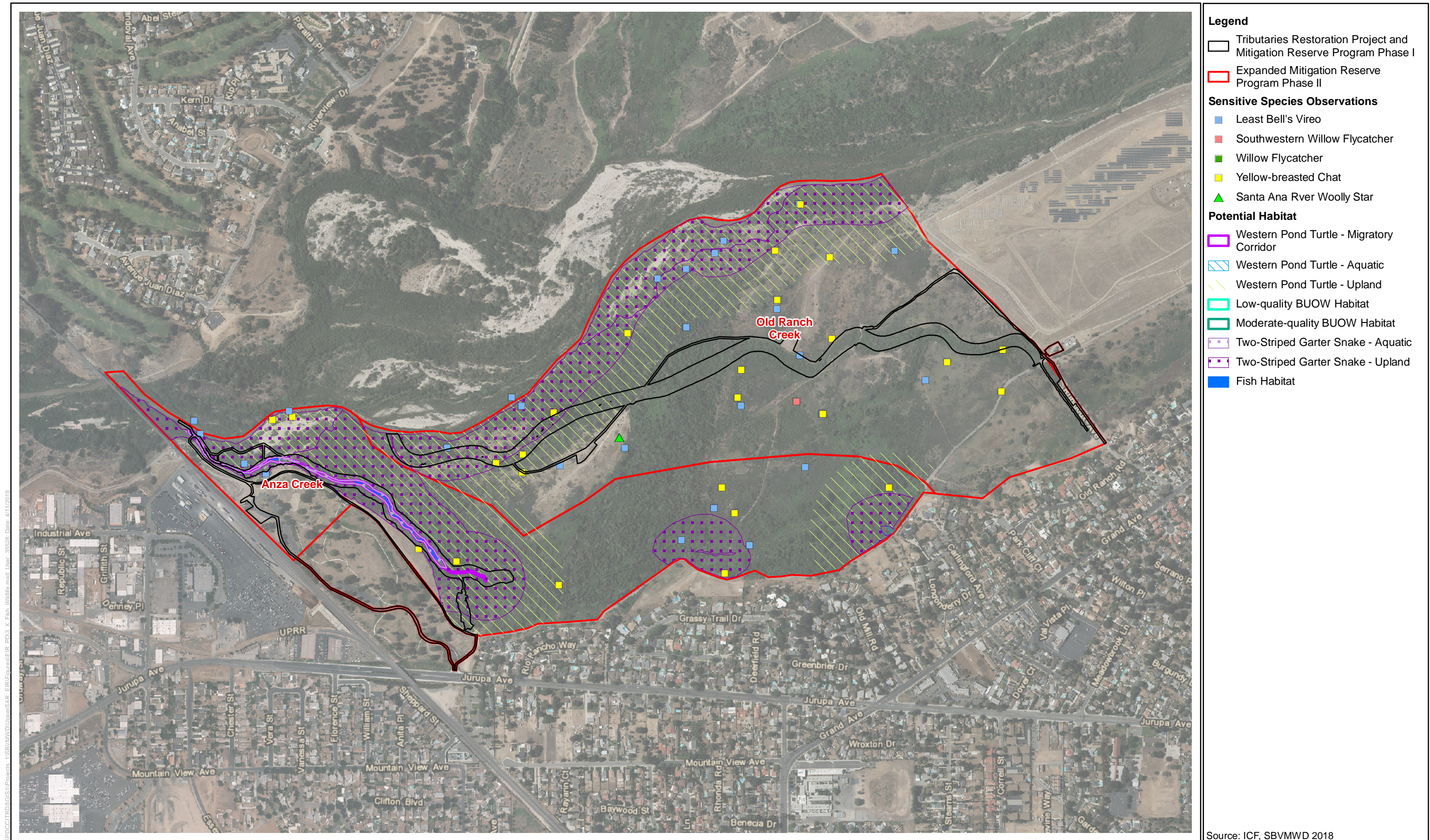


Figure 3.3-6
Anza and Old Ranch Creeks Sensitive Fish and Wildlife Observations and Potential Aquatic Species Habitat Map
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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There have been recent observations of the polyphagous shot hole borer beetle (*Euwallacea* sp.) near the site, along the Santa Ana River corridor, which poses a substantial threat to existing riparian habitat on site and in the watershed. Care will need to be taken when removing trees to avoid transport of the invasive beetle, and long-term monitoring and maintenance strategies will need to consider the species.

Jurisdictional Delineation

Jurisdictional delineation fieldwork was performed at the Anza Creek/Old Ranch Creek site on August 1–3, 2016. The Anza Creek/Old Ranch Creek site contains eight jurisdictional drainage features, including the Santa Ana River (Figures 3.3-7 and 3.3-8). Refer to the Jurisdictional Delineation Report in the Opportunities and Constraints Report included as Appendix B for descriptions of each drainage feature. It should be noted that due to minor modifications in the project boundary limits, the acreages and linear feet for the jurisdictional drainage features provided below have been updated from those values previously provided in the Jurisdictional Delineation Report. It should be noted that due to minor modifications in the project boundary limits at the Anza Creek site, the acreages and linear feet for the jurisdictional drainage features provided below have been updated from those values previously provided in the Jurisdictional Delineation Report.

A total of 90.34 acres of waters of the U.S. and state were mapped within the site. There is complete overlap between waters of the U.S. and waters of the state. Of this, 83.32 acres are wetland waters and 7.02 acres are non-wetland waters (Table 3.3-5). On October 30, 2018, a field verification meeting was conducted with a representative of USACE. During the field verification meeting, USACE provided verbal direction that only wetlands outside of the Ordinary High Water Mark (OHWM) were to be classified as wetlands (i.e., adjacent wetlands) and that areas that met all three wetland parameters but were located below the OHWM were not to be classified as wetlands per new internal USACE understanding. However, for the purposes of this EIR, areas that exhibited wetlands characteristics (i.e., met all three wetland criteria), regardless of their location with regard to the OHWM, were classified as wetlands. A total of 311.31 acres of CDFW jurisdiction were mapped within the site. Of this, 256.24 acres are CDFW associated riparian and 55.07 acres are CDFW streambed (Table 3.3-5). The site is entirely within the wide floodplain of the Santa Ana River; therefore, the jurisdictional limits of CDFW extend throughout much of the site well beyond the OHWM and wetland limits.

Table 3.3-5. Jurisdictional Waters and Wetlands within the Anza Creek and Old Ranch Creek Sites

Feature	Linear Feet	USACE/RWQCB		CDFW	
		Wetland	Non-wetland	Riparian	Streambed
		Acres ¹	Acres ¹	Acres ¹	Acres ¹
Santa Ana River	7,520	23.01	6.03	199.20	49.12
Old Ranch Creek Channel	4,662	6.75	0.31	3.72	4.86
Anza Drain	8,499	45.23	0.17	48.01	0.58
Drainage 2	1,076	7.09	--	3.56	--
Drainage 3	551	0.76	--	1.28	--
Unnamed Ephemeral Drainage	1,464	--	0.51	--	0.51
Depression 1	--	0.39	--	0.39	--
Depression 2	--	0.07	--	0.07	--
TOTAL	23,772	83.32	7.02	256.24	55.07

¹ Total acreage may not sum to the total shown; total is reflective of rounding geographic information system raw data in each category.

Wetland Condition

California Rapid Assessment Method (CRAM) practitioners conducted field surveys of the Anza Creek/Old Ranch Creek site on September 30, 2016. Five CRAM Assessment Areas (AAs) were surveyed within the delineated drainages, including three in the Old Ranch Creek channel and two in the Anza Creek channel (Appendix F of Appendix B). CRAM is an ambient monitoring and assessment tool that can be performed on different scales, ranging from an individual wetland to across a watershed or a larger region. CRAM is designed to collect a coarse assessment of the site's ambient conditions but can be used to measure progress toward meeting success criteria established for wetland function/condition, and can be repeated over the long term if necessary or desired. The final CRAM score for each AA is composed of four main attribute scores (buffer and landscape context, hydrology, physical structure, and biotic structure), which are based on the metric and submetric scores (a measurable component of an attribute). The CRAM practitioners assign a letter rating (A–D) for each metric/submetric based on a defined set of condition brackets ranging from an “A” as the theoretical best case achievable for the wetland class across California to a “D,” the worst-case achievable. Each metric condition level (A–D) has a fixed numerical value (A=12, B=9, C=6, D=3), which, when combined with the other metrics, results in a score for each attribute. That number is then converted to a percentage of the maximum score achievable for each attribute and represents the final attribute score ranging from 25 to 100 percent. The final overall CRAM score is the sum of the four final attribute scores, ranging from 25 to 100 percent. A summary of the results for each AA is provided in Table 3.3-6. Wetland condition throughout the site was moderate, ranging from 60 to 70 in total CRAM score. Refer to the CRAM Report in Appendix F of Appendix B for descriptions of each AA.

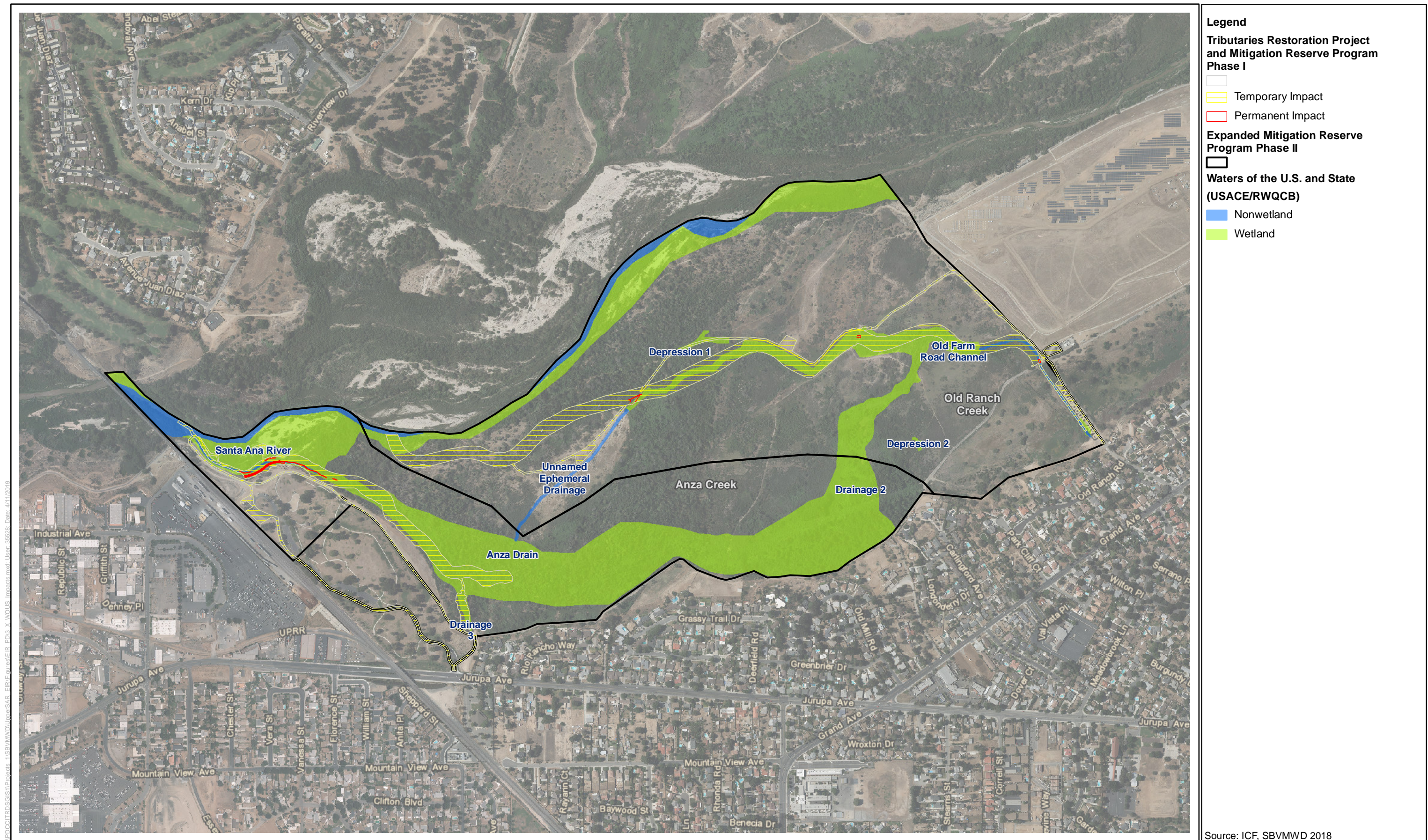
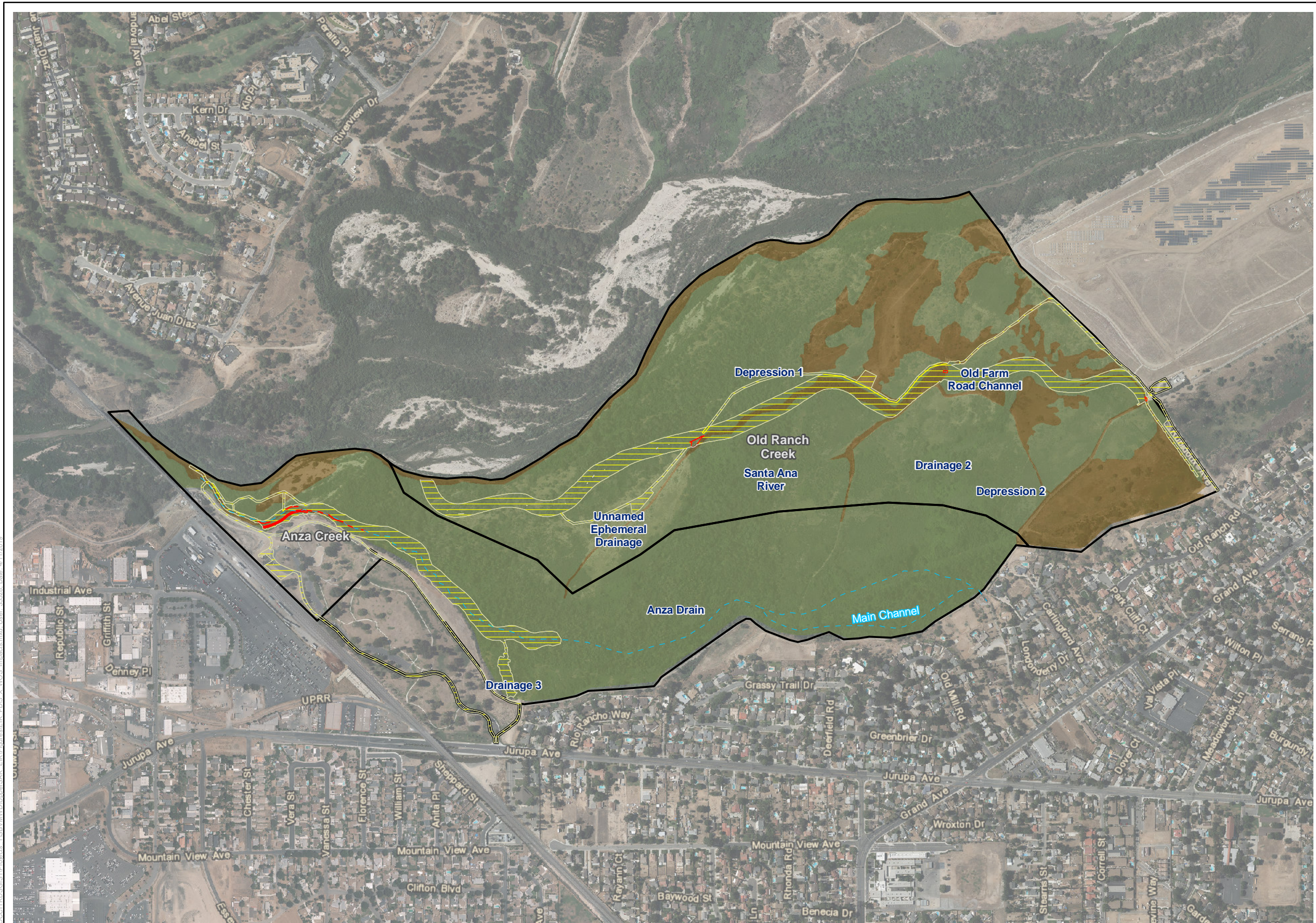


Figure 3.3-7
Anza/Old Ranch Creek Jurisdictional Aquatic Resources Map (USACE/RWQCB)
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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- Legend**
- Tributaries Restoration Project and Mitigation Reserve Program Phase I**
- Temporary Impact
 - Permanent Impact
- Expanded Mitigation Reserve Program Phase II**
-
- Waters of the State (CDFW)**
- Streambed
 - Riparian
 - Main Channel

Source: ICF, SBVMWD 2018



Figure 3.3-8
Anza/Old Ranch Creek Jurisdictional Aquatic Resources Map (CDFW)
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

Table 3.3-6. CRAM Metric, Submetric, Attribute, and Overall Scores for Anza Creek and Old Ranch Creek Sites

Attributes	CRAM Metric and Submetrics	CRAM Assessment Areas and CRAM Attribute Scores				
		AA1	AA2	AA3	AA4	AA5
Buffer and Landscape Context	Stream Corridor Continuity	A (12)	A (12)	A (12)	A (12)	A (12)
	<i>Buffer Submetric A: Percent of Assessment Area with Buffer</i>	A (12)	A (12)	A (12)	A (12)	A (12)
	<i>Buffer Submetric B: Average Buffer Width</i>	A (12)	A (12)	A (12)	B (9)	B (9)
	<i>Buffer Submetric C: Buffer Condition</i>	B (9)	B (9)	B (9)	B (9)	B (9)
	Final Attribute Score	93.30%	93.30%	93.30%	90.30%	90.30%
Hydrology	Water Source	C (6)	C (6)	C (6)	C (6)	C (6)
	Channel Stability	B (9)	B (9)	B (9)	B (9)	C (6)
	Hydrologic Connectivity	A (12)	A (12)	A (12)	B (9)	A (12)
	Final Attribute Score	75.00%	75.00%	75.00%	66.67%	66.70%
Physical Structure	Structural Patch Richness	D (3)	D (2)	D (3)	B (9)	D (3)
	Topographic Complexity	C (9)	C (6)	C (6)	C (6)	C (6)
	Final Attribute Score	37.50%	37.50%	37.50%	62.50%	37.50%
Biotic Structure	<i>Plant Community (PC) Submetric A: Number of Plant Layers</i>	C (6)	B (9)	A (12)	B (9)	B (9)
	<i>PC Submetric B: Number of Co-dominant Species</i>	D (3)	C (6)	B (9)	C (6)	C (6)
	<i>PC Submetric C: Percent Invasion</i>	B (9)	A (12)	A (12)	A (12)	C (6)
	Horizontal Interspersion	D (3)	C (6)	C (6)	C (6)	D (3)
	Vertical Biotic Structure	D (3)	B (9)	B (9)	C (6)	C (6)
	Final Attribute Score	33.33%	66.67%	72.22%	58.30%	44.40%
	Overall AA Score	60%	68%	70%	69%	60%

Lower Hole Creek

Baseline Summary

The Lower Hole Creek tributary restoration site covers 20 acres and is located to the west of Van Buren Boulevard, south of the Santa Ana River, and north and east of the single-family housing developments located along Lower Hole Creek (Figure 3.3-1). The Lower Hole Creek site begins downstream of Jurupa Avenue where the stream passes under the road through a large, recently installed 40-foot concrete box culvert. Historically, the creek upstream of Jurupa Avenue was part of Hole Lake, which was drained in 1975. The stream now flows through the location of the former spillway at the Jurupa Avenue crossing, then continues through a confined floodplain. Elevations at the site range from 668 feet AMSL in the northern edge at the Santa Ana River to 745 feet AMSL on top of the bluff at the southeastern side of the site. Soils within the site are characterized by fine-

grained alluvial sands linked to the Santa Ana River channel and historical floodplain that used to occupy the site. Four soil types occur at the site: Buchenau loam (BhC), Dello loamy sand (DgB), Grangeville fine sandy loam (GuB), and Porterville Clay (PtB).

As described in Section 2.3, *Existing Conditions and Land Uses*, and Section 3.8, *Hydrology and Water Quality*, Lower Hole Creek is perennial as a result of urban inputs from the upstream watershed, with flows typically less than 0.5 cubic feet per second. Lower Hole Creek's water sources include treated effluent and urban runoff, including runoff from Van Buren Boulevard that enters the site from the east downstream of Jurupa Avenue, runoff from the Greenbelt area (south of Victoria), locally rising groundwater, and occasionally flow from the Riverside Canal. The urban watershed causes rapid runoff during rain events and periodic flooding that delivers abundant trash and debris to Lower Hole Creek. Santa Ana sucker and the arroyo chub have been observed within Lower Hole Creek, particularly after high-flow events that scour the channel and create more favorable substrate conditions.

The majority of the project site is owned by CDFW, with an easement on the upstream portion from the Riverside-Corona Resource Conservation District. The Upper 260 feet of the Lower Hole Creek channel and floodplain is owned by the City of Riverside. Additional privately held parcels are located in the southeastern corner of the site and elevated high above the creek. Refer to Table 2-2 in Chapter 2, *Project Description*, which provides a breakdown of the acreage of each site's land owners. Access to the site is available via public right-of-way. The site as a whole is heavily affected by human use, particularly the homeless population in the area, as evidenced by the numerous encampments and extensive trash at the creek. There are many access trails running down the banks and across the stream, and check dams, extensive trash, and debris are also present.

Habitats and Sensitive Species

Vegetation Communities and Land Cover

Vegetation mapping was conducted at the Lower Hole Creek site in July to September 2016. Vegetation communities were classified based on the dominant and characteristic plant species, in accordance with *Vegetation Classification, A Manual of California Vegetation*. Vegetation communities and land cover types at the Lower Hole Creek site are shown in Table 3.3-7 and Figure 3.3-9.

Table 3.3-7. Vegetation Communities and Land Cover Types Occurring within the Lower Hole Creek Site

Common Name	CNPS Vegetation Alliance/Association ¹	CWHR Habitat Classifications ²	Acres
Native Communities			4.62
Black Willow Thickets	<i>Salix gooddingii</i>	Desert Riparian/Valley Foothill Riparian	1.27
California Buckwheat Scrub	<i>Eriogonum fasciculatum</i>	Coastal Scrub/Desert Scrub/Mixed Chaparral	0.05
California Sycamore Woodlands	<i>Platanus racemosa</i>	Valley Foothill Riparian	2.94
Mulefat Thickets	<i>Baccharis salicifolia</i>	Desert Riparian/Valley Foothill Riparian	0.36

Common Name	CNPS Vegetation Alliance/Association ¹	CWHR Habitat Classifications ²	Acres
Nonnative Communities			9.73
California Annual Grassland	N/A	Annual Grassland	9.73
Land Cover Types			5.41
Disturbed Habitat	Vacant (disturbed bare ground)	Barren	1.93
Open Water	Lacustrine	Riverine/Lacustrine	0.71
Urban/Developed	N/A	Urban	2.76
Total			19.76

¹ Sawyer et al. 2009
² CDFG 2005
CNPS = California Native Plant Society; CWHR = California Wildlife Habitat Relationships

Dense riparian vegetation is present along most of the upstream half of Lower Hole Creek and becomes less abundant along the downstream reach. The Lower Hole Creek site primarily supports two native vegetation communities: Black Willow Thickets and California Sycamore Woodlands. Small areas of native California Buckwheat Scrub and Mulefat Thickets are also present at the site. These native communities occur along the creek channel, with upland areas of the site consisting mostly of California Annual Grassland that is dominated by nonnative grasses (Figure 3.3-9). The principal native plant species include black willow and California sycamore. Most of the banks along the upper half of Lower Hole Creek lack native riparian shrub understory primarily due to impacts from heavy human use. There are fringing wetlands dominated by emergent species present along portions of the creek, with more substantial emergent wetlands present at the confluence with the creek and the floodplain of the Santa Ana River. Nonnative invasive plants are present throughout the site and include date and fan palm trees, giant reed, ash, and tree of heaven, in addition to castor bean and tree tobacco (*Nicotiana glauca*).

Additional land cover types observed in the Lower Hole Creek site include Disturbed Habitat, Urban/Developed Areas, and Open Water. Disturbed Habitat exists mostly on the southeastern side of the site where the stream banks are denuded and consist of bare ground. Urban/Developed Areas consist of paved areas at the bike/pedestrian path along the eastern bluff and the paved area of the Jurupa Avenue site area and in the active, perennial channel of Lower Hole Creek.

Aquatic Habitat

The Lower Hole Creek site was visited on August 11, 2016, and August 24, 2017, for aquatic habitat assessments. As described above, Lower Hole Creek's water sources include treated effluent and urban runoff, locally rising groundwater, and occasionally flow from the Riverside Canal, which provide enough water for perennial flow in the stream. The urban watershed causes rapid runoff during rain events and periodic flooding that delivers abundant trash and debris to Lower Hole Creek, along with the use by the homeless encampments. In some reaches of the creek, particularly immediately downstream of Jurupa Avenue, the channel is hydrologically connected to a floodplain that allows flood flows to overbank, spread out, and reduce the overall channel velocity and erosive energy.

The upstream half of Lower Hole Creek has steep natural banks as well as incised channel reaches and has a higher gradient than the downstream portion of the site. In most portions of the

downstream half of Lower Hole Creek, the stream does not have an active floodplain connection because channel meandering is limited by a steep bedrock wall along the western side of the stream and by the Santa Ana River Trail Bike Path, bank stabilization in the form of interlocking concrete mat, and the closed Pedley Landfill on the eastern side of the stream. Lower Hole Creek is incised for much of its course downstream of Jurupa Avenue. Previous channel down-cutting created many sections of tall, over-steepened, and unstable banks that deliver fine-grained sediment into the channel and diminish the quality of the gravel material desirable for sucker habitat. However, the morphology of the creek is quite varied and includes riffles (areas where the surface of the water is visibly disturbed by shallow cobble or gravel substrate below), planar bed channel, and a few isolated and relatively deep pools. The lower reach upstream of the Santa Ana River confluence is largely a long and shallow pool with slow moving water. Overall, the bed substrate is sand and fine gravel with some riffle sections containing clean gravel well-suited for Santa Ana sucker habitat. Designated critical habitat for Santa Ana sucker is present near the Lower Hole Creek site along the Santa Ana River but does not overlap with the site (Figure 3.3-10).

The Jurupa Avenue crossing is currently a complete barrier to Santa Ana sucker passage. It consists of a structure that includes a rock rip-rap lined pool, a concrete inlet apron, three reinforced concrete box culverts, a concrete outlet apron and stilling basin, and a steep (37 percent slope), loose rip-rap drop structure that ties into the earthen channel on the downstream end. Overall, the structure creates a 27-foot elevation drop between the upstream and downstream ends. The lip of the culvert inlet apron creates a backwater effect that causes Lower Hole Creek to pond for about 200 feet upstream of the Jurupa Avenue crossing.



Figure 3.3-9

Lower Hole Creek Vegetation Communities and Land Cover Types Map

Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program



Figure 3.3-10
Designated Critical Habitat Map Lower Hole Creek
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

Sensitive Plant Species

No sensitive plant species were observed during baseline survey visits, and the site does not currently support suitable habitat for any sensitive plant species. Refer to Appendix B for further details.

To ensure consistency with the WRC MSHCP, a species-specific habitat assessment for WRC MSHCP narrow endemic plants was performed in July 2019, and suitable habitat for San Diego ambrosia was present. There was no suitable habitat for San Miguel savory (*Satureja chandleri*) or Brand's star phacelia. The survey was conducted when San Diego ambrosia would have been detectable if present, and it was not observed; therefore, this species is absent. Refer to Appendix I for additional details.

Invasive/Nonnative Plants

As described above, nonnative, invasive plants are present throughout the site and include date and fan palm trees, giant reed, ash, and tree of heaven, in addition to castor bean and tree tobacco. Upland areas consist mostly of California annual grassland that is dominated by nonnative grasses (Figure 3.3-9).

Sensitive Fish and Wildlife Species Habitat Suitability and Observations

As described above, the Lower Hole Creek site has perennial flows, which provides suitable habitat for native fishes within Lower Hole Creek (Figure 3.3-11). Santa Ana sucker and arroyo chub have been periodically observed in the stream, particularly after high-flow events that scour the channel and create more favorable substrate for habitat. However, existing fish habitat in Lower Hole Creek is of moderate or poor quality due primarily to the prevalence of fine sediment in the streambed, presence of aquatic invasive species, and impacts from trash, debris, and potentially passage impediments as a result of heavy human use (i.e., homeless activity and encampments).

Aquatic and upland habitat for southwestern pond turtle, two-striped gartersnake, and south coast gartersnake is also present at the site (Figure 3.3-11) but is of varying quality primarily as a result of high human disturbance (e.g., trash and encampments) and nonnative invasive species. Neither southwestern pond turtles nor gartersnakes were observed during baseline survey visits.

Habitat quality for riparian birds was moderate to poor due to the high degree of human disturbance and lack of native riparian shrub understory. One least Bell's vireo male was repeatedly detected at the Lower Hole Creek site during riparian bird surveys, suggesting presence of an active territory. However, a female was not detected, and it is not known whether this male was paired.

The Lower Hole Creek site lacks suitable habitat for sensitive mammal and terrestrial reptile species due to compacted soils and very dense undergrowth in upland areas. The small amount of habitat present for these species is of poor quality due to the small, sparse shrub cover. None of these species were observed during baseline survey visits.

Invasive/Nonnative Fish and Wildlife Species

Lower Hole Creek is tributary to the mainstem Santa Ana River and has perennial flow from the upstream watershed; thus, it supports a variety of invasive aquatic species including nonnative fish (such as largemouth bass and mosquitofish) and bullfrogs. The site also has a high potential to support brown-headed cowbirds, a significant nest parasite on least Bell's vireo, and cowbird

control may be needed to optimize site suitability for vireo and other desirable riparian birds. Field surveys did not identify feral pet predators at the site, but it is also possible that feral or pet dogs or cats may have an adverse effect on native wildlife at the site. The Santa Ana River floodplain supports a population of wild boar, which can create damage to freshly graded sites and young vegetation (planted or recruited).

Jurisdictional Delineation

Jurisdictional delineation fieldwork was performed at the Lower Hole Creek site on August 9, 2016. Three features were delineated therein: the mainstem of Hole Creek, an unnamed tributary (Drainage 1) that enters the upstream area from the east, and the Santa Ana River at the downstream end (Figures 3.3-12 and 3.3-13). Refer to the Jurisdictional Delineation Report in the Opportunities and Constraints Report included as Appendix B for descriptions of each drainage feature. It should be noted that due to minor modifications in the project boundary limits at the Lower Hole Creek site, the acreages and linear feet for the jurisdictional drainage features provided below have been updated from those values previously provided in the Jurisdictional Delineation Report.

A total of 3.27 acres of waters of the U.S. and state were mapped within this site. There is complete overlap between waters of the U.S. and waters of the state. Of this, 1.10 acres are wetland waters, 2.06 acres are non-wetland waters and 0.11 acre is culverted (Figure 3.3-12 and Table 3.3-8). On October 30, 2018, a field verification meeting was conducted with a representative of USACE. During the field verification meeting, USACE provided verbal direction that only wetlands outside of the OHWM were to be classified as wetlands (i.e., adjacent wetlands) and that areas that met all three wetland parameters but were located below the OHWM were not to be classified as wetlands per new internal USACE understanding. However, for the purposes of this EIR, areas that exhibited wetlands characteristics (i.e., met all three wetland criteria), regardless of their location with regard to the OHWM, were classified as wetlands. In addition, 5.13 acres of CDFW jurisdiction were mapped within the site. Of this, 2.96 acres are CDFW associated riparian, 2.06 acres are CDFW streambed, and 0.11 acre is culverted (Figure 3.3-13 and Table 3.3-8).

Table 3.3-8. Jurisdictional Waters and Wetlands within the Lower Hole Creek Site

Feature	Linear Feet	USACE/RWQCB			CDFW		
		Wetland Acres ¹	Non-wetland Acres ¹	Culvert Acres ¹	Riparian Acres ¹	Streambed Acres ¹	Culvert Acres ¹
Hole Creek	2,173	0.41	1.63	0.11	2.00	1.64	0.11
Drainage ¹	238	--	0.12	--	0.25	0.12	--
Santa Ana River (confluence)	171	0.69	0.30	--	0.70	0.30	--
Total	2,583	1.10	2.06	0.11	2.96	2.06	0.11

¹ Total acreage may not sum to the total shown; total is reflective of rounding geographic information system raw data in each category.

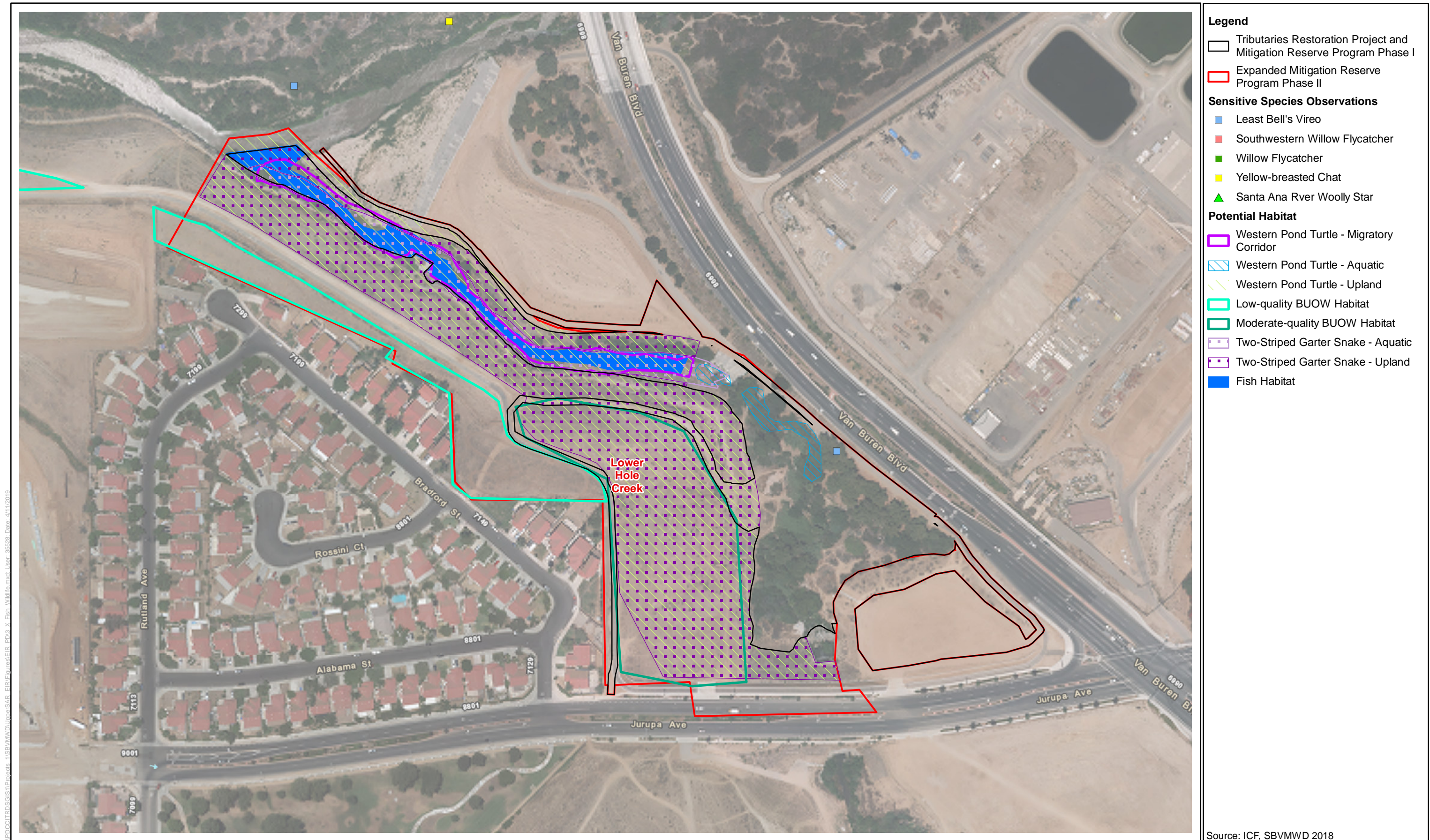


Figure 3.3-11
Lower Hole Creek Sensitive Fish and Wildlife Observations and Potential Aquatic Species Habitat Map
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

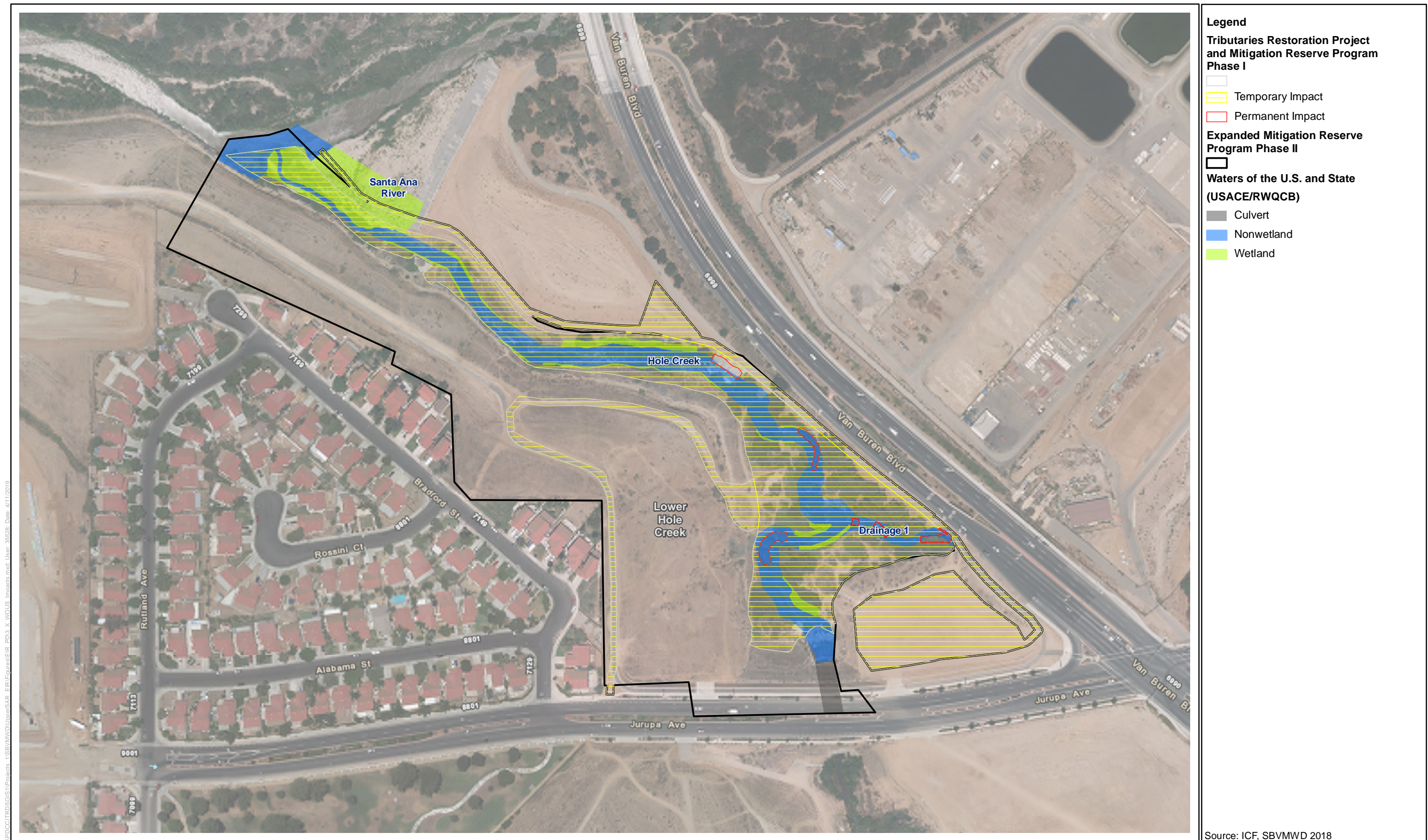


Figure 3.3-12
Lower Hole Creek Jurisdictional Aquatic Resources Map (USACE/RWQCB)
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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- Legend**
- Tributaries Restoration Project and Mitigation Reserve Program Phase I**
- Temporary Impact
 - Permanent Impact
- Expanded Mitigation Reserve Program Phase II**
-
- Waters of the State (CDFW)**
- Streambed
 - Riparian

Source: ICF, SBVMWD 2018

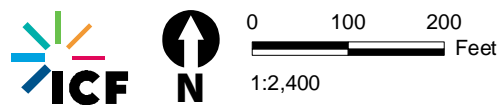


Figure 3.3-13
Lower Hole Creek Jurisdictional Aquatic Resources Map (CDFW)
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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Wetland Condition

CRAM practitioners conducted field surveys of the Lower Hole Creek site on August 30, 2016. Two CRAM AAs were surveyed in the Lower Hole Creek site. The overall CRAM score, attribute scores, and metric scores are shown in Table 3.3-9. The overall CRAM scores for both AAs were moderate, with the downstream (confined) AA1 scoring 66 and upstream (non-confined) AA2 scoring 60. Refer to the CRAM Report in Appendix F of Appendix B for descriptions of each AA.

Table 3.3-9. CRAM Metric, Submetric, Attribute, and Overall Scores for the Lower Hole Creek Site

Attributes	CRAM Metric and Submetrics	CRAM Assessment Areas and CRAM Attribute Scores	
		AA1	AA2
Buffer and Landscape Context	Stream Corridor Continuity	A (12)	A (12)
	<i>Buffer Submetric A: Percent of Assessment Area with Buffer</i>	A (12)	A (12)
	<i>Buffer Submetric D: Average Buffer Width</i>	C (6)	C (6)
	<i>Buffer Submetric C: Buffer Condition</i>	C (6)	C (6)
	Final Attribute Score	79.73%	79.73%
Hydrology	Water Source	C (6)	C (6)
	Hydroperiod	B (9)	B (9)
	Hydrologic Connectivity	C (6)	C (6)
	Final Attribute Score	58.33%	75.00%
Physical Structure	Structural Patch Richness	B (9)	D (3)
	Topographic Complexity	C (6)	B (9)
	Final Attribute Score	62.50%	50.00%
Biotic Structure	<i>Plant Community (PC) Submetric A: Number of Plant Layers</i>	A (12)	D (3)
	<i>PC Submetric B: Number of Co-dominant Species</i>	B (9)	D (3)
	<i>PC Submetric C: Percent Invasion</i>	A (12)	D (3)
	Horizontal Interspersion	C (6)	C (6)
	Vertical Biotic Structure	C (6)	D (3)
	Final Attribute Score	63.89%	33.33%
Overall AA Score		66%	60%

Hidden Valley Creek

Baseline Summary

The Hidden Valley Creek site covers 135 acres, located about 0.75 mile downstream of the Van Buren Boulevard Bridge and the City of Riverside's Regional Water Quality Control Plant (Figure 3.3-1). Nearly all the land at the site is owned by the State of California.

The site is bounded to the north and east by the Santa Ana River, to the south by a steep hillslope, and to the west by former wetlands. Neighboring land uses upstream and downstream along the Santa Ana River include Hidden Valley Nature Center and urban residential communities. Adjacent,

developed uplands may also be a source of nuisance species such as feral dogs and cats and nonnative vegetation. In addition, a private property inholding within the floodplain exists along with four inactive wells. The site currently supports a series of native riparian and floodplain vegetation communities. In addition, a large portion of the study area supports nonnative California annual grassland (Figure 3.3-14). The proposed restoration site and the downstream riparian and wetlands are a part of the 1,500-acre Hidden Valley Nature Center wildlife area along the Santa Ana River.

As described in Section 2.3, *Existing Conditions and Land Uses*, and Section 3.8, *Hydrology and Water Quality*, other than the Santa Ana River mainstem, the Hidden Valley Creek site does not currently have a perennial source of stream water and does not currently contain a tributary channel to the Santa Ana River. Water sources to the site are limited to storm runoff generated from the surrounding hillslopes during rain events. There is a perennial pond in the eastern side of the site, which is likely maintained by the high water table within the Santa Ana River floodplain. The alignment and shape of the Santa Ana River channel changes regularly within the northern edge of the Hidden Valley Creek site, in response to flood events. Scour and fill processes lead to the creation of new channels with sand and gravel bars, and to the filling of previous channels. Riparian vegetation colonizes on new river bars and becomes more established in areas that have sufficient time for plants to grow in between flood scouring events.

The Hidden Valley Creek site was previously supplied by treated wastewater from the City of Riverside's Regional Water Quality Control Plant upstream. The treated water was routed alongside the Santa Ana River low flow channel, separated by a berm, until it reached the upstream end of the site and entered a headworks structure, which led into a 4,000-foot-long canal that routed the water to the human-made wetlands on the site. The wetlands served as a final treatment system that removed nitrogen from the water before it returned to the river. In 2010, high flows from a major storm caused the Santa Ana River to erode the berm separating the treated wastewater from the river, damaged the headworks infrastructure, and lowered the riverbed by about 8 feet. The lowering of the riverbed means the wastewater could not overcome the elevation change between the river and the head of the canal to reach the wetlands. Rather than construct a new diversion into the wetlands, the treatment plant installed a tertiary treatment system at the plant so that it could discharge directly into the river.

Habitats and Sensitive Species

Vegetation Communities and Land Cover

Vegetation mapping was conducted at the Hidden Valley Creek site between July and September 2016. Vegetation communities were classified based on the dominant and characteristic plant species, in accordance with *Vegetation Classification, A Manual of California Vegetation*. Vegetation and land cover at the site are shown in Table 3.3-10 and on Figure 3.3-14.

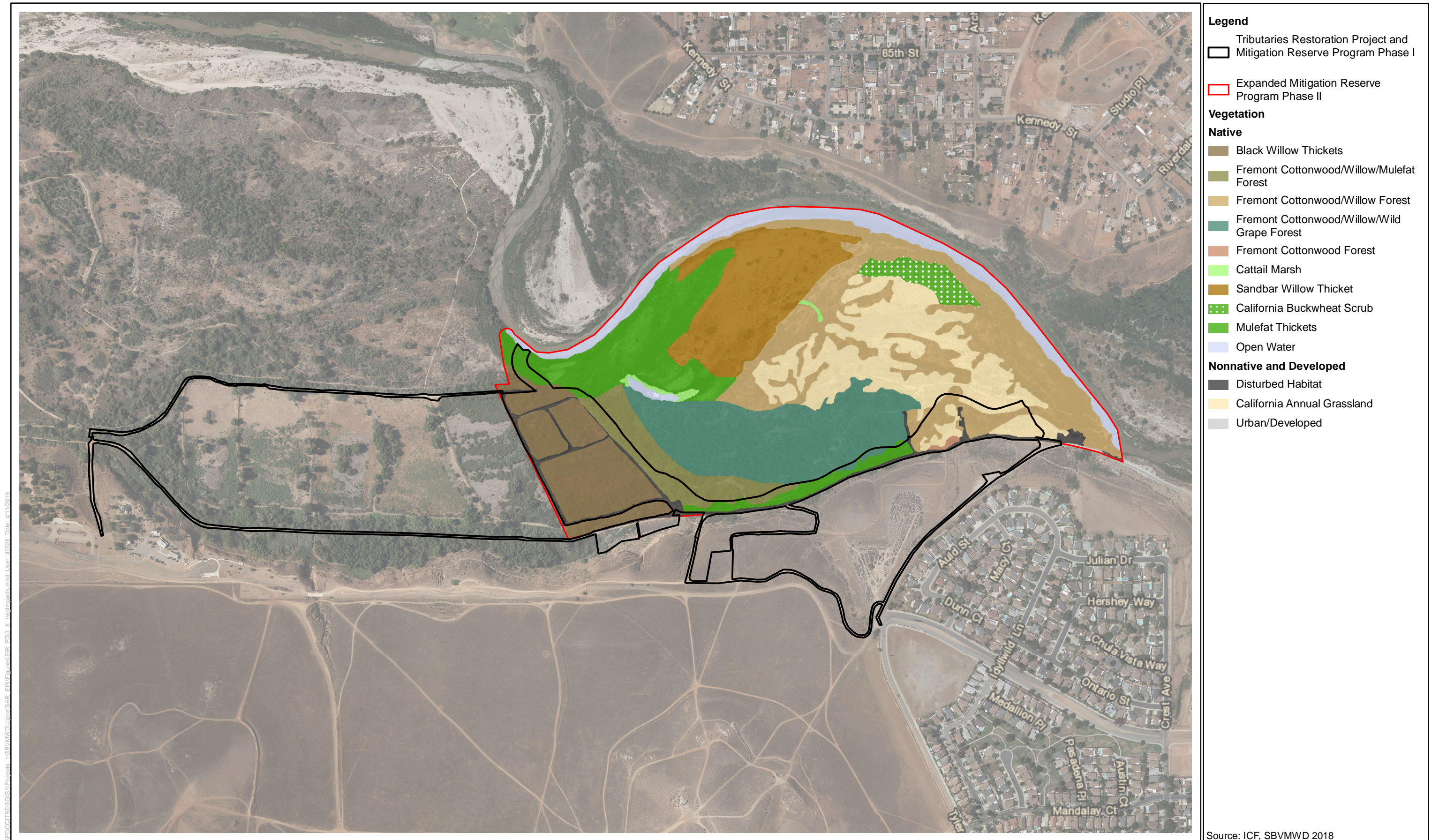


Figure 3.3-14
Hidden Valley Creek Vegetation Communities and Land Cover Types Map
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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Table 3.3-10. Vegetation Communities and Land Cover Types Occurring within the Hidden Valley Creek Site

Common Name	CNPS Vegetation Alliance/Association ¹	CWHR Habitat Classifications ²	Acres
Native Communities			98.54
Black Willow Thickets	<i>Salix gooddingii</i>	Desert Riparian/Valley Foothill Riparian	14.2
California Buckwheat Scrub	<i>Eriogonum fasciculatum</i>	Coastal Scrub/Desert Scrub/Mixed Chaparral	2.61
Cattail Marshes	<i>Typha (angustifolia, domingensis, latifolia)</i>	Fresh Emergent Wetland	0.51
Fremont Cottonwood Forest	<i>Populus fremontii</i>	Desert Riparian/Valley Foothill Riparian	0.17
Fremont Cottonwood/Willow Forest	<i>Populus fremontii/Salix (laevigata, lasiolepis, lucida ssp. lasiandra)</i>	Desert Riparian/Valley Foothill Riparian	24.9
Fremont Cottonwood/Willow/Mulefat Forest	<i>Populus fremontii/Salix laevigata/Salix spp./Baccharis salicifolia</i>	Desert Riparian/Valley Foothill Riparian	6.77
Fremont Cottonwood/Willow/Wild Grape Forest	<i>Populus fremontii/Salix laevigata/Salix spp./Vitis girdiana</i>	Desert Riparian/Valley Foothill Riparian	18.9
Mulefat Thickets	<i>Baccharis salicifolia</i>	Desert Riparian/Valley Foothill Riparian	15.7
Sandbar Willow Thickets	<i>Salix exigua</i>	Valley Foothill Riparian	14.7
Nonnative Communities			19.6
California Annual Grassland	N/A	Annual Grassland	19.6
Land Cover Types			17.1
Disturbed Habitat	Vacant (disturbed bare ground)	Barren	8.28
Open Water	Lacustrine	Riverine/Lacustrine	8.62
Urban/Developed	N/A	Urban	0.22
Total			135

¹ Sawyer et al. 2009
² CDFG 2005
 CNPS = California Native Plant Society; CWHR = California Wildlife Habitat Relationships

Dense woodland, riparian forest, grassland, and scrub vegetation is present throughout most of the Hidden Valley Creek site. The Hidden Valley Creek site currently supports a variety of native vegetation communities including California Buckwheat Scrub, Cattail Marshes, Fremont Cottonwood Forest, Fremont Cottonwood/Willow Forest, Fremont Cottonwood/Willow/Mulefat Forest, Fremont Cottonwood/Willow/Wild Grape Forest, Mulefat Thickets, and Sandbar Willow Thickets. These native communities occur along the Santa Ana River mainstem, active floodplain, and former recycled water channel (Figure 3.3-14). Upland areas consist mostly of California Annual Grassland that is dominated by nonnative grasses. The principal plant species on the site include western sycamore (*Platanus racemosa*), arroyo willow (*Salix lasiolepis*), blue elderberry (*Sambucus*

nigra ssp. *Caerulea*), and mulefat (*Baccharis salicifolia*). Dominant nonnative vegetation consists of giant reed and common poison hemlock (*Conium maculatum*).

Additional land cover types observed in the Hidden Valley Creek site include Disturbed Habitat, Urban/Developed Areas, and Open Water (Figure 3.3-14). Disturbed Habitat exists mostly on the southern edge of the site where some bare ground is present within and along trails.

Urban/Developed Areas consist of pavement at the bike/pedestrian path in the southeastern corner of the site. Open Water is present where the Santa Ana River runs along the northern edge of the site and at the perennial pond located in the eastern side of the site.

Aquatic Habitat

The Hidden Valley Creek site was visited on August 11, 2016, and August 24, 2017, for aquatic habitat assessments. As described above, the Santa Ana River mainstem is the only stream feature active within the site and runs along its northern edge. The Hidden Valley Creek site does not currently have any other perennial source of water, nor a tributary channel to the Santa Ana River. There is a large, perennial pond located in the eastern side of the site, which is likely maintained by the high water table within the Santa Ana River floodplain. Water sources to the site are limited to storm runoff generated from the surrounding hillslopes during rain events. Designated critical habitat for Santa Ana sucker includes the Santa Ana River and adjacent riparian habitat at the Hidden Valley Creek site (Figure 3.3-15), but the final critical habitat designation acknowledges that most tributaries in this portion of the critical habitat, including Hidden Valley Creek, do not provide suitable habitat for the Santa Ana sucker (75 *Federal Register* 77962).

Sensitive Plant Species

Based on its location and general conditions, the Hidden Valley Creek site could potentially provide habitat for Santa Ana River woolly-star. Habitat assessments were performed during June to September 2016 and verified suitable habitat conditions for the woolly-star in areas currently vegetated by California annual grassland. No sensitive plant species were observed during visits, and the site does not currently support suitable habitat for any other sensitive plant species (Appendix B).

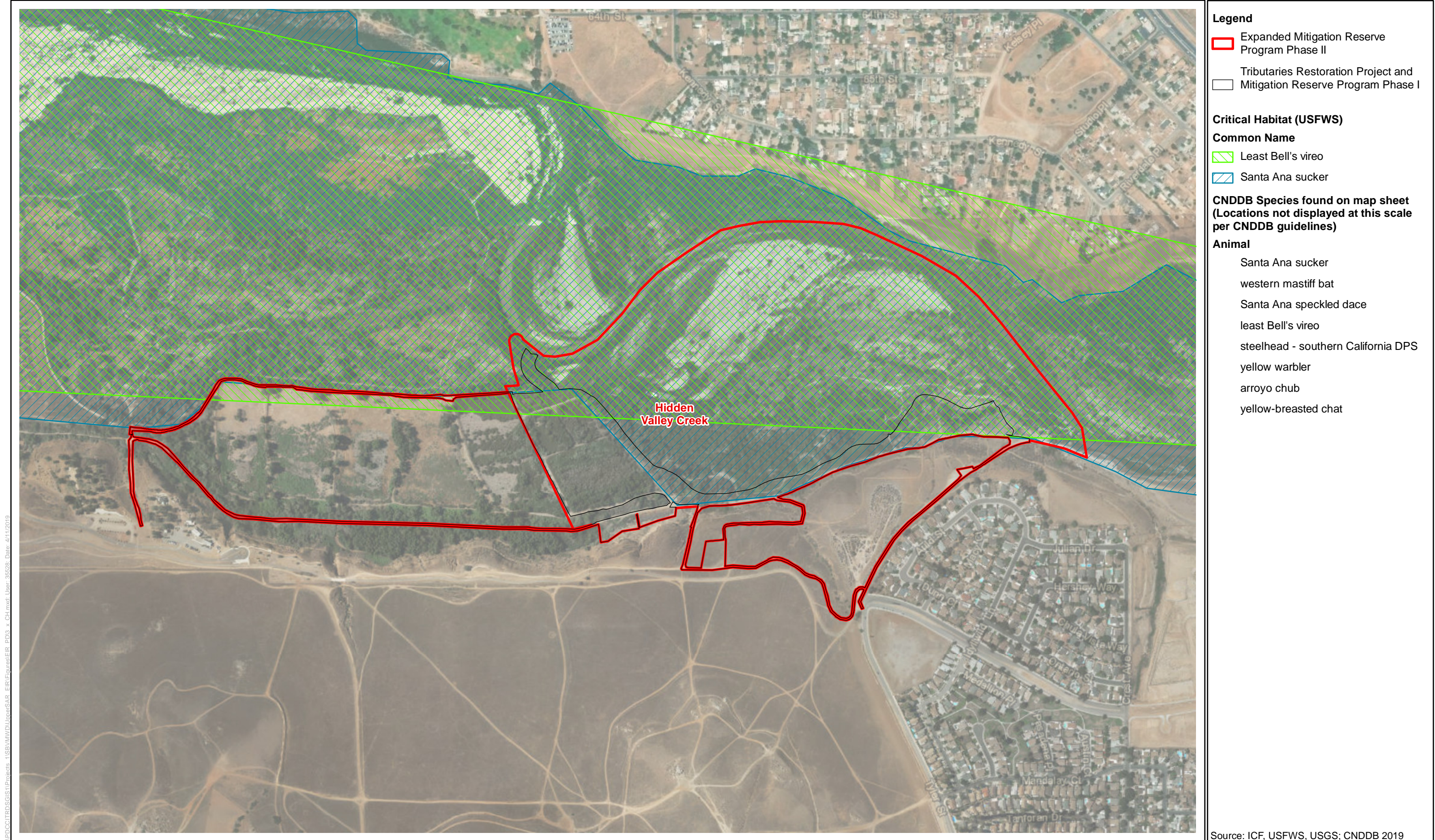
To ensure consistency with the WRC MSHCP, a species-specific habitat assessment for WRC MSHCP narrow endemic plants was performed in July 2019, and suitable habitat for Brand's star phacelia was found. There was no suitable habitat for San Miguel savory or San Diego ambrosia at this site. Refer to Appendix I for additional details.

Invasive/Nonnative Plants

Within the Hidden Valley Creek site, upland areas consist mostly of California annual grassland, which is dominated by nonnative grasses. Other prevalent nonnative vegetation consists of giant reed and common poison hemlock.

Sensitive Fish and Wildlife Species Habitat Suitability and Observations

Because the former treated wastewater does not now support perennial flows to the wetlands, there is currently no habitat for Santa Ana sucker or arroyo chub other than within the Santa Ana River mainstem, which runs along the northern edge of the site. Arroyo chub has historically been seen within the wetted channel of the Santa Ana River mainstem within the site.



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The pond within the site appears to provide high-quality aquatic habitat for southwestern pond turtle, two-striped gartersnake, and south coast gartersnake (Figure 3.3-16), although none of these species were observed during baseline survey visits. The water appeared to be of sufficient depth to provide cover, and cattails and willows provide cover in shallow water along the pond's edges. The pond is large enough that its surface receives direct sunlight, allowing for basking opportunities on exposed logs. The surrounding upland habitat to the northwest within the Santa Ana River floodplain is also of high quality, with a combination of dense willow vegetation, arrow weed scrub, and open sandy areas where the river channel formerly ran. Conversely, habitat quality for southwestern pond turtle and gartersnakes is marginally suitable in the southeastern portions of the site due to an extensive riparian overstory and dense understory. Habitat quality is also marginal at the eastern edge of the site due to extensive human use of the area.

Least Bell's vireos make abundant use of the Hidden Valley Creek site. Surveyors detected 37 least Bell's vireo territories at the site (Figure 3.3-16), with paired birds known to be breeding at 12 of the territories. Only a singing male was detected at each of the other 25 territories. In addition, two non-federally listed willow flycatchers were detected on May 23, 2016, at the Hidden Valley Creek site. There were also detections of 34 other bird species, including two state species of special concern, the yellow-breasted chat (breeding) and yellow warbler (Figure 3.3-16). Riparian habitat quality at the site was generally good, with a species-rich and structurally diverse native vegetation community at most sample points. Human disturbance is a limitation in some parts of the site, but is less of an issue than at the Anza Creek/Old Ranch Creek and Lower Hole Creek sites, with high levels of disturbance confined to a small portion of the Hidden Valley Creek site.

Invasive/Nonnative Fish and Wildlife Species

No aquatic invasive species are known from the Hidden Valley Creek site, but a variety of invasive species are known to occur in the Santa Ana River system, including largemouth bass, mosquitofish, and bullfrogs. Restoration of a flowing tributary stream and good water quality in the pond would create habitat for nonnative aquatic species in addition to the target native species; thus, management to minimize these risks will be needed (e.g., seasonal flushing flows that create unsuitable conditions and could be lethal to nonnatives). Invasive terrestrial species including brown-headed cowbirds (a significant nest parasite on least Bell's vireo) are present at the site. Cowbird control may be needed to optimize site suitability for the vireo and other desirable riparian birds. Field surveys did not identify feral pet predators at the site, but it is also possible that feral or pet dogs or cats may be preying on native wildlife at the site, and control of these predators may prove to be appropriate. Wild boar also pose a threat to the recovery of the site, as their rooting behavior is destructive to young vegetation. The Hidden Valley Creek site also has recent recordings for the polyphagous shot hole borer beetle, which poses a substantial threat to existing riparian habitat on site and in the watershed.

Jurisdictional Delineation

Jurisdictional delineation fieldwork was performed at the Hidden Valley Creek site on August 8, 2016. Ten features were delineated within the Hidden Valley Creek site or immediately adjacent to the site or proposed access or staging areas, including two human-made channels (Drainages 1 and 3), one unnamed southern tributary of the Santa Ana River (Drainage 2), six depressional features, and the Santa Ana River (Figures 3.3-17 and 3.3-18). Refer to the Jurisdictional Delineation Report in Appendix B for descriptions of each drainage feature. It should be noted that due to minor

modifications in the project boundary limits, the acreages and linear feet for the jurisdictional drainage features provided below have been updated from those values previously provided in the Jurisdictional Delineation Report. It should be noted that due to minor modifications in the project boundary limits at the Hidden Valley Creek site, the acreages and linear feet for the jurisdictional drainage features provided below have been updated from those values previously provided in the Jurisdictional Delineation Report.

A total of 34.2 acres of waters of the U.S. and state were mapped within this site. There is complete overlap between waters of the U.S. and waters of the state. Of this, 27.5 acres are wetland waters and 6.64 acres are non-wetland waters (Table 3.3-11). On October 30, 2018, a field verification meeting was conducted with a representative of USACE. During the field verification meeting, USACE provided verbal direction that only wetlands outside of the OHWM should be classified as wetlands (i.e., adjacent wetlands) and that areas meeting all three wetland parameters but located below the OHWM should not be classified as wetlands per new internal USACE understanding. However, for the purposes of this EIR, areas that exhibit wetlands characteristics (i.e., meet all three wetland criteria), regardless of their location with regard to the OHWM, were classified as wetlands. In addition, a total of 144 acres of CDFW jurisdiction were mapped within the site. Of this, 113 acres are CDFW associated riparian and 31.11 acres are CDFW streambed (Table 3.3-11).

Table 3.3-11. Jurisdictional Waters and Wetlands within the Hidden Valley Creek Site

Feature	Linear Feet	USACE/RWQCB		CDFW	
		Wetland Acres ¹	Non-wetland Acres ¹	Riparian Acres ¹	Streambed Acres ¹
Drainage 1	4,079	1.01	0.31	0.95	2.23
Drainage 2	965	--	0.11	0.29	0.18
Drainage 3	4,126	1.87	--	12.0	--
Depression 1	--	0.17	--	0.17	--
Depression 2	--	0.90	--	0.90	--
Depression 3	--	4.28	--	6.26	--
Depression 4	--	1.05	--	1.62	--
Depression 5	--	1.03	--	1.62	--
Depression 6	--	2.19	--	7.35	--
Santa Ana River	4,825	15.1	6.22	82.0	28.7
Total	13,995	27.53	6.64	113	31.1

¹ Total acreage may not sum to the total shown; total is reflective of rounding GIS raw data in each category.

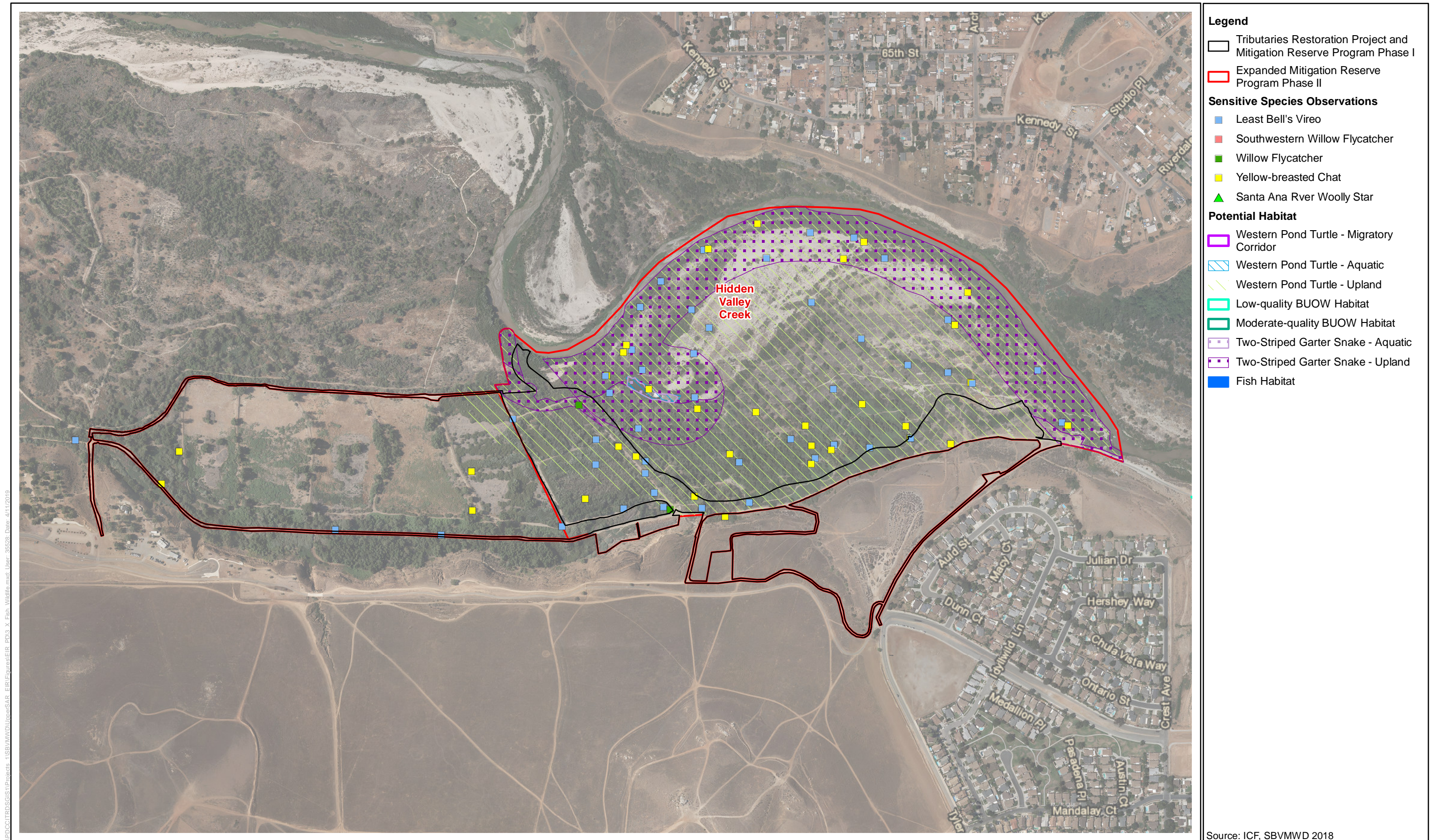
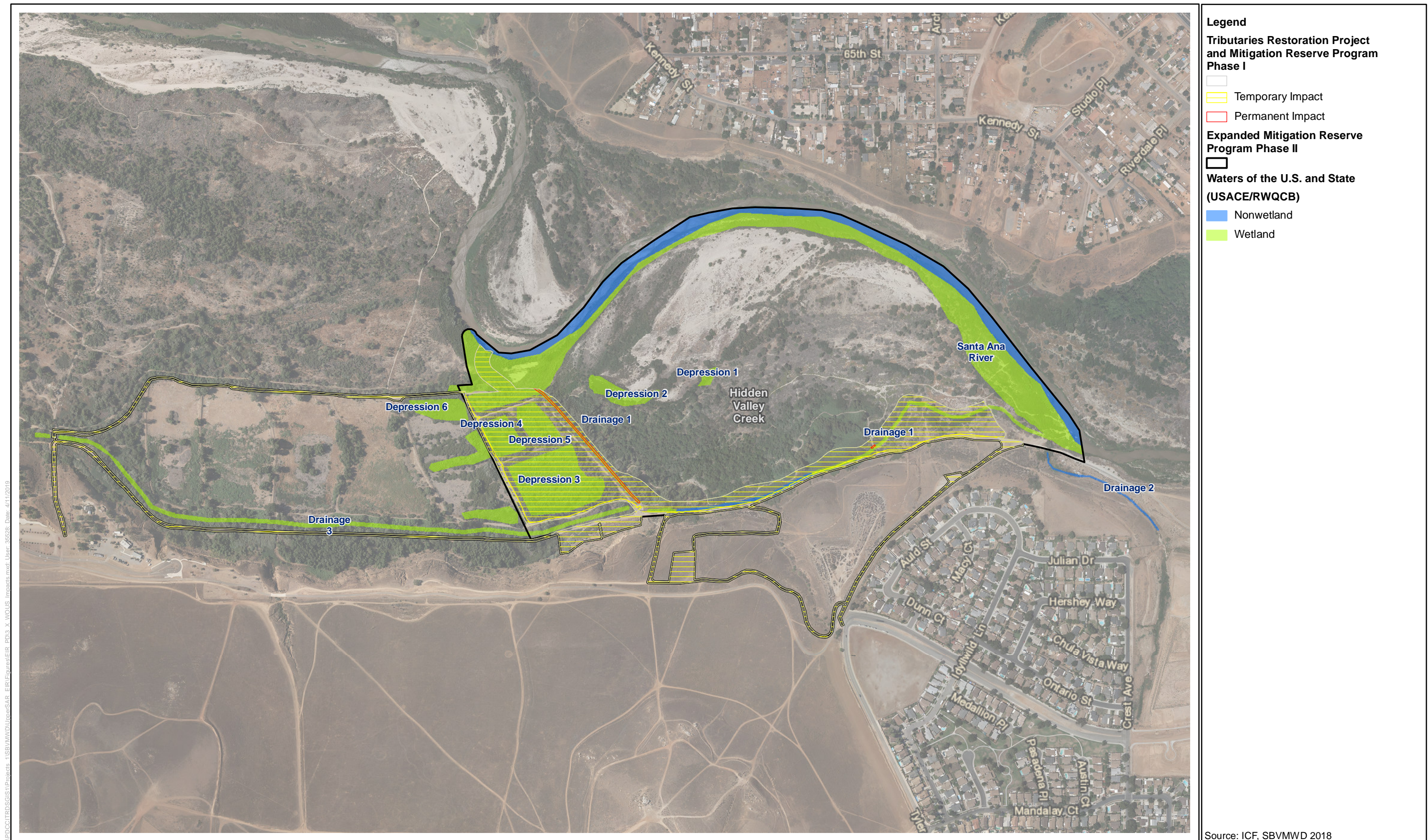


Figure 3.3-16
Hidden Valley Creek Sensitive Fish and Wildlife Observations and Potential Aquatic Species Habitat Map
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program



Source: ICF, SBVMWD 2018

Figure 3.3-17
Hidden Valley Creek Jurisdictional Aquatic Resources Map (USACE/RWQCB)
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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Legend

Tributaries Restoration Project and Mitigation Reserve Program Phase I

- Temporary Impact
- Permanent Impact

Expanded Mitigation Reserve Program Phase II

- Waters of the State (CDFW)

Waters of the State (CDFW)

- Streambed
- Riparian

Source: ICF, SBVMWD 2018

Figure 3.3-18
Hidden Valley Creek Jurisdictional Aquatic Resources Map (CDFW)
Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program

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Wetland Condition

CRAM practitioners conducted field surveys of the Hidden Valley Creek site on August 31, 2016. Five CRAM AAs were surveyed in the Hidden Valley Creek site, all distributed within the USACE jurisdictional areas. The overall CRAM score and attribute scores are shown in Table 3.3-12. The overall CRAM scores for all AAs were moderate, ranging from 53 to 69. Refer to the CRAM Report in Appendix F of Appendix B for descriptions of each AA.

Table 3.3-12. 2016 CRAM Metric, Attribute, and Overall Scores for the Hidden Valley Creek Site

Attributes	CRAM Metric and Submetrics	CRAM Assessment Areas and CRAM Attribute Scores				
		AA1 (Depression)	AA2	AA3	AA4	AA5
Buffer and Landscape Context	Stream Corridor Continuity	A (12) ¹	A (12)	A (12)	A (12)	A (12)
	<i>Buffer Submetric A: Percent of Assessment Area with Buffer</i>	A (12)	A (12)	A (12)	A (12)	A (12)
	<i>Buffer Submetric B: Average Buffer Width</i>	A (12)	A (12)	A (12)	A (12)	A (12)
	<i>Buffer Submetric C: Buffer Condition</i>	B (9)	B (9)	B (9)	B (9)	B (9)
	Final Attribute Score	93.30%	93.30%	93.30%	93.30%	93.30%
Hydrology	Water Source	C (6)	D (3)	D (3)	D (3)	D (3)
	Channel Stability	A (12) ²	A (12)	C (6)	C (6)	C (6)
	Hydrologic Connectivity	B (9)	A (12)	D (3)	C (6)	C (6)
	Final Attribute Score	75.00%	75.00%	33.33%	41.67%	41.67%
Physical Structure	Structural Patch Richness	C (6)	D (3)	D (3)	D (3)	D (3)
	Topographic Complexity	C (6)	C (6)	D (3)	D (3)	D (3)
	Final Attribute Score	50.00%	37.50%	25.00%	25.00%	25.00%
Biotic Structure	<i>Plant Community (PC) Submetric A: Number of Plant Layers</i>	B (9)	B (9)	A (12)	B (9)	B (9)
	<i>PC Submetric B: Number of Co-dominant Species</i>	B (9)	C (6)	D (3)	C (6)	D (3)
	<i>PC Submetric C: Percent Invasion</i>	A (12)	C (6)	B (9)	A (12)	C (6)
	Horizontal Interspersion	C (6)	D (3)	B (9)	B (9)	B (9)
	Vertical Biotic Structure	C (6)	B (9)	C (6)	C (6)	C (6)
	Final Attribute Score	61.11%	52.78%	61.10%	63.89%	58.30%
Overall AA Score		69	65	53	56	55

¹ Assessed as Aquatic Area Abundance from the Depressional CRAM Module for AA1.

² Assessed as Hydroperiod from the Depressional CRAM Module for AA1.

3.3.3 Environmental Impacts

Methods for Analysis

This EIR evaluates potential significant impacts associated with the proposed project based on technical studies and reports. Technical studies and reports evaluated for this analysis include the *Opportunities and Constraints for Tributary Restoration Sites Report* (Appendix B), which includes the Vegetation Mapping and Sensitive Plant Surveys Report; the Aquatic Species Habitat Assessment Report; the Riparian Bird Survey and Habitat Assessment Report; the Habitat Assessment and Surveys for Los Angeles Pocket Mouse, Black-tailed Jackrabbit, and Coast Horned Lizard Report; the Habitat Assessment for Coastal California Gnatcatcher and Burrowing Owl Report; the Jurisdictional Delineation Report; and the Wetland Condition Assessment Report. These technical reports are based on an analysis of the existing biological resources and jurisdictional areas that could be affected in the short term (i.e., during construction) and in the long term (i.e., as a result of habitat modification and improvement, and any necessary maintenance and monitoring). Refer to the methodology for baseline assessments of key resources in the technical report documents included in Appendix B for more information on field verification and baseline habitat assessments for special-status species, vegetation mapping, jurisdictional delineation of aquatic resources, and wetland condition assessment.

Direct impacts would occur when special-status species are directly affected by injury, mortality, or disruption of essential behaviors (e.g., feeding, reproduction, and migration) during project activities such as vegetation removal, excavation, and grading. Direct impacts can occur during project construction and also post-construction during maintenance and monitoring activities. Direct impacts can also occur when aquatic resources are killed or otherwise affected by work activities such as reduced water quality through increased erosion or sedimentation. Indirect impacts are typically further in time and may occur as a result of habitat or site modifications, such as changes in surface water hydrology; long-term conversion of aquatic, riparian, and wetland habitat suitability; edge effects; and shifts in population distribution over time. These types of indirect impacts can affect vegetation communities, aquatic and wetland habitat, and/or their potential use by sensitive fish and wildlife species. Elevated levels of noise or disturbance (e.g. vibration of construction equipment, presence of construction personnel) could also result in indirect impacts on sensitive species.

This analysis does not include a discussion of local policies or ordinances protecting biological resources, as the project would not result in the removal of native trees or oak trees (Ordinance 559) and the project would not be required to pay any SKR mitigation fee, specifically \$500.00 per gross acre of the parcels proposed for development per Riverside County (Ordinance 663), given the proposed project is not development.

The discussion below identifies potential direct and indirect construction and operational impacts from the proposed project and the measures that would be required to mitigate impacts found to be potentially significant.

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below:

- A substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- A substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS.
- A substantial adverse effect on state or federally protected wetlands (e.g., marshes, vernal pools, coastal wetlands) through direct removal, filling, hydrological interruption, or other means.
- Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedance of the use of native wildlife nursery sites.
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance.
- Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan.

As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D) prepared for the proposed project considered and then eliminated a number of impacts from further analysis. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. The proposed project was determined not to conflict with a tree preservation policy or ordinance. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

As detailed in Chapter 2 and summarized in Section 3.3.2, *Environmental Setting*, the proposed project would create and enhance habitat for many sensitive and listed species through restoration of four Santa Ana River tributary sites. Overall, the proposed project is expected to result in a net increase in aquatic and riparian habitat and a net improvement in aquatic, riparian, and upland habitat quality to support the special-status species listed in Table 3.3-3. No net loss of sensitive habitat including wetlands and other waters would occur. However, the project construction and operation would temporarily affect occupied habitat and Critical Habitat for federally and state-listed species, sensitive vegetation communities, wetlands and waters, nesting habitat, and wildlife corridors. Formal consultation with USFWS and CDFW will be completed to secure incidental take authorization for state- and federally listed species. Avoidance and minimization measures are included to reduce potentially significant impacts on biological resources.

As detailed in Section 2.7, the Mitigation Reserve Program would result in the development of a combined mitigation/conservation bank and advance mitigation credit program project to secure mitigation values for future waters of the U.S. and waters of the state impacts. The Mitigation Reserve Program will also secure values for species covered by the ESA and CESA and California special-status species, including but not limited to Santa Ana sucker, arroyo chub, western pond turtle, two-striped gartersnake, least Bell's vireo, southwestern willow flycatcher, yellow-breasted chat, California gnatcatcher, western yellow-billed cuckoo, and Santa Ana River woolly-star. Some of the mitigation values developed for the Mitigation Reserve Program are derived from the tributaries restoration footprint and the associated 100-foot riparian buffer, referred to as the Tributaries

Restoration Program Phase I. However, there are additional restoration opportunities beyond the current footprint that could provide functional life to the habitat while generating additional mitigation values for Valley District, or others, to use for future projects' mitigation, referred to as the Expanded Mitigation Reserve Program Phase II. There is no funding currently secured for the Expanded Mitigation Reserve Program Phase II restoration activities and they are discussed at a program level.

Impact BIO-1: Potential to have an adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Less than significant with mitigation incorporated)

Construction and operation activities, including long-term maintenance, have the potential to cause direct and indirect impacts on the following sensitive and listed species if individuals are present at the project sites during construction:

Special-status Aquatic Species

- Santa Ana sucker and Critical Habitat for Santa Ana sucker
- Arroyo chub

Special-status Semi-aquatic Species

- Southwestern pond turtle
- Two-striped gartersnake
- South coast gartersnake

Special-status Riparian Bird Species

- Clark's marsh wren
- Coastal California gnatcatcher
- Least Bell's vireo (nesting) and Critical Habitat for least Bell's vireo
- White-tailed kite (nesting)
- Yellow-breasted chat (nesting)
- Yellow warbler (nesting)

Special-status Riparian Bat Species

- Pocketed free tailed bat
- Western yellow bat

Special-status Terrestrial Species

- Coastal whiptail
- Coast horned lizard
- San Diego black-tailed jackrabbit
- Southern California legless lizard

- Western burrowing owl
- Coastal California gnatcatcher
-

Special-status Plant Species

- Smooth tarplant
- Paniculate tarplant
- Santa Ana River woolly-star
- Southern California black walnut
- Robinson's pepper-grass
- Brand's star phacelia

Table 3.3-13 identifies the acres of habitat or the numbers of populations for certain special-status species occurring in the project sites for each of the project components. Habitat for Santa Ana sucker, two-striped gartersnake, and western pond turtle was assessed on August 11, 2016, at the project sites in support of ongoing efforts to restore aquatic habitat for these species. Staff walked the accessible extent of each wetted stream channel. Notes taken on the character of the stream channel included presence and attributes of surface waters, incidental native and/or nonnative aquatic species observations, and degree of human use. Habitat quality for native fishes was graded on five attributes: flow, substrate, habitat complexity, presence of nonnative invasive aquatic species, and canopy cover. Habitat quality for western pond turtle was graded on four attributes: presence of perennial pond habitat deeper than 1.6 feet, presence of intact adjacent upland habitat, degree of human use, presence of nonnative aquatic species, and canopy cover. Habitat quality for two-striped gartersnake was graded on four attributes: presence of surface waters, presence of intact adjacent upland habitat, degree of human use, and presence of nonnative aquatic species. Refer to Appendix B of Appendix B for the general habitat conditions at each site, along with the habitat quality ratings for the fish, snake, and turtle species assessed.

Refer to Appendix C of Appendix B for the habitat assessment and survey for (1) assessment of existing riparian bird habitat at the sites; (2) surveys for least Bell's vireo, Southwestern willow flycatcher, and yellow-breasted chat; and (3) recording of the presence of other bird species to evaluate habitat use at the project sites. Four site visits were conducted at each project site between May 16 and July 14, 2016. Data were collected at: (1) vegetation/avian point count stations (328-foot-radius circle) (hereafter vegetation point), (2) vegetation stands, where a "stand" consists of vegetation that is distinct from the neighboring vegetation communities (e.g., willow scrub versus willow-cottonwood stand), and (3) general observations while walking through each project site. Habitat parameters were recorded to quantify composition, structure, cover, and disturbance at each vegetation point. All project sites were surveyed for least Bell's vireo, southwestern willow flycatcher, and yellow-breasted chat during four site visits in 2016 to document presence and assess habitat. Protocol surveys for least Bell's vireo and southwestern willow flycatcher were not necessary because absence validation is not needed for habitat restoration activities. Therefore, the standard eight visits for vireos and five visits for flycatchers were not conducted, but each site was visited four times. Biologists followed standard survey techniques described in the USFWS least Bell's vireo survey guidelines and the protocol for southwestern willow flycatcher surveys. All birds were identified to species when possible. Unidentified birds were also recorded but were not used

in the analyses. All project sites were occupied by riparian birds such as least Bell's vireo and yellow-breasted chat, indicating that there is habitat available to support these species.

Table 3.3-13. Acres or Populations of Temporary Impacts on Special-Status Species at the Tributaries Restoration Project and Mitigation Reserve Program Phase I and Phase II Sites

Special-Status Species Name	Total Acres in Study Area	Total Populations in Study Area	Phase I Direct Impact	Phase II Direct Impact
Anza Creek/Old Ranch Creek				
Least Bell's vireo critical habitat	287.82	N/A	22.46	265.36
Least Bell's vireo territories ¹	73.35	17	8.44 ² /2 ³	64.91 ² /15 ³
Southwestern Willow Flycatcher territories ¹	6.49	1	0.31/0	6.18/1
Willow Flycatcher territories ¹	0	0	0	0
Yellow-breasted Chat territories ¹	122.10	25	11.69 ² /3 ³	110.41 ² /22 ³
Santa Ana River Woolly Star	N/A	1	0	1
Santa Ana sucker (Santa Ana River confluence) ⁴	N/A	5	5	0
Santa Ana sucker critical habitat	170.75	N/A	16.82	153.93
Western Pond Turtle – Aquatic habitat	1.84	N/A	1.62	0.22
Western Pond Turtle – Upland habitat	186.68	N/A	21.74	164.94
Low-quality BUOW habitat	0	N/A	0	0
Moderate-quality BUOW habitat	0	N/A	0	0
Two Striped Gartersnake – Aquatic habitat	1.56	N/A	1.49	0.08
Two Striped Gartersnake – Upland habitat	83.82	N/A	9.08	74.74
Black-tailed Jackrabbit habitat – High	45.14	N/A	2.23	42.91
Black-tailed Jackrabbit habitat – Moderate	19.07	N/A	0.67	18.39
Coast Horned Lizard habitat – High	8.45	N/A	0.76	7.69
Coast Horned Lizard habitat – Moderate	0.90	N/A	0.00	0.9
Coast Horned Lizard habitat – Poor	7.76	N/A	0.26	7.5
LA Pocket Mouse habitat – High	5.41	N/A	0.56	4.85
LA Pocket Mouse habitat – Moderate	0.90	N/A	0.00	0.90
LA Pocket Mouse habitat – Poor	10.80	N/A	0.46	10.34
Lower Hole Creek				
Least Bell's vireo critical habitat	0	0	0	0
Least Bell's vireo territories ¹	0.88	0	0.44 ² /0 ³	0.44 ² /0 ³
Southwestern Willow Flycatcher territories ¹	0	0	0	0
Willow Flycatcher territories ¹	0	0	0	0
Yellow-breasted Chat territories ¹	0	0	0	0
Santa Ana River Woolly Star	N/A	0	0	0
Santa Ana sucker (Santa Ana River confluence) ⁴	0	5	5	0
Santa Ana sucker critical habitat	0	N/A	0	0
Western Pond Turtle – Aquatic habitat	0	N/A	0	0

Special-Status Species Name	Total Acres in Study Area	Total Populations in Study Area	Phase I Direct Impact	Phase II Direct Impact
Western Pond Turtle – Migratory Corridor	1.03	N/A	0.03	1.0
Western Pond Turtle – Upland habitat	9.73	N/A	2.39	7.34
Low-quality BUOW habitat	1.90	N/A	0	1.90
Moderate-quality BUOW habitat	3.98	N/A	0.11	3.87
Two Striped Gartersnake – Aquatic habitat	1.16	N/A	1.14	0.02
Two Striped Gartersnake – Upland habitat	9.39	N/A	2.44	6.95
Black-tailed Jackrabbit habitat – Moderate	0.76	N/A	0.51	0.25
Black-tailed Jackrabbit habitat – Poor	10.22	N/A	0.83	9.39
Coast Horned Lizard habitat – Poor	10.22	N/A	0.83	9.39
LA Pocket Mouse habitat – Poor	10.22	N/A	0.83	9.39
Hidden Valley Creek				
Least Bell's vireo critical habitat	96.24	N/A	8.01	88.24
Least Bell's vireo territories ¹	108.35	27	25.31 ² /6 ³	83.04 ² /21 ³
Southwestern Willow Flycatcher territories ¹	0	0	0	0
Willow Flycatcher territories ¹	11.21	2	7.07 ² /1 ³	4.14 ² /1 ³
Yellow-breasted Chat territories ¹	91.05	27	18.66 ² /6 ³	72.39 ² /21 ³
Santa Ana River Woolly Star	N/A	0	0	0
Santa Ana sucker (Santa Ana River confluence) ⁴	0	0	0	0
Santa Ana sucker critical habitat	114.36	N/A	11.32	103.03
Western Pond Turtle – Aquatic habitat	0.47	N/A	0	0.47
Western Pond Turtle – Upland habitat	106.38	N/A	10.67	95.71
Low-quality BUOW habitat	0	N/A	0	0
Moderate-quality BUOW habitat	0	N/A	0	0
Two Striped Gartersnake – Aquatic habitat	0.44	N/A	0	0.44
Two Striped Gartersnake – Upland habitat	44.52	N/A	1.65	42.87
Black-tailed Jackrabbit habitat – Moderate	21.52	N/A	0.00	21.52
Black-tailed Jackrabbit habitat – Poor	1.3	N/A	0.77	0.53
Coast Horned Lizard habitat – High	19.74	N/A	0.00	19.74
Coast Horned Lizard habitat – Poor	1.78	N/A	0.00	1.78
LA Pocket Mouse habitat – Poor	21.52	N/A	0.00	21.52

¹ Total acres assumes territories includes a 300-foot buffer around the center point.

² Total acres potentially affected within the mapped territories including a 300-foot buffer.

³ Number of mapped territories potentially affected.

⁴ Estimated number of fish that may be captured and relocated from work area based on current conditions of tributary at confluence with Santa Ana River.

N/A = not applicable or not available

Refer to Appendix D of Appendix B for the habitat assessment for Los Angeles pocket mouse, black-tailed jackrabbit, and coast horned lizard at the project sites. Baseline habitat for these species was assessed at the sites to inform restoration opportunities and constraints. Surveys were conducted

on August 17, 2016. Each site was walked throughout, with a focus on those areas of potential habitat that were identified during the aerial photo review prior to visiting the sites. Surveys evaluated potential habitat for suitability for each species based on density of vegetation cover, vegetation species, soils, presence of burrows, and presence of sparse shrubs for cover. Areas covered by dense riparian vegetation that prevented access during visits to the sites were not surveyed, as these areas are not suitable for black-tailed jackrabbit, Los Angeles pocket mouse, or coast horned lizard.

Temporary construction effects could potentially affect special-status species and/or their associated habitats, including aquatic, and sensitive wetland and riparian habitat. During construction, these impacts would include temporary habitat disturbance and degradation, fragmentation, interference with foraging/feeding behavior, interference with migration and reproduction, and direct injury or mortality. Long-term impacts resulting from the protection and operations of the streams are anticipated to be largely beneficial. Operations and maintenance of the habitat will result in the creation, re-establishment, and enhancement of aquatic, wetland, riparian, and upland habitats while providing overall improved ecological function to each stream and its associated riparian corridor.

Impact BIO-1.1: Construction- and Operation and Maintenance-related Direct Impacts on Special-status Species

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Construction Impacts

Construction would be completed using heavy equipment and would occur during a period of approximately 8 months (see Chapter 2). Construction-related direct impacts on special-status species could include the following. Indirect impacts are discussed under Impact BIO-1.2.

Aquatic Species

Santa Ana sucker and arroyo chub sometimes inhabit perennial waters within the limits of disturbance at the Anza Creek and Lower Hole Creek restoration sites, primarily at the confluence with the Santa Ana River. The Old Ranch Creek and Hidden Valley Creek restoration sites lack perennial or intermittent aquatic habitat and are not expected to include construction-related impacts on these species. During construction activities at the Anza Creek and Lower Hole Creek sites, Santa Ana sucker and arroyo chub would be excluded from the work area by placing a barrier at the upstream and downstream limits of work, then removing aquatic species by first chasing fish out a temporary opening then using an electroshocker for the few remaining fish. Native species would be relocated to nearby suitable habitat. Nonnative species would be sacrificed. If individuals remain after the pre-construction removal and exclusion activities, they could be subjected to desiccation, suffocation, and/or predation due to stranding in isolated or dewatered aquatic habitats. Animals could also be harmed during dewatering or diversion activities if entrained in pumping equipment or impinged at intakes if pumping methods are used in the diversions. The barriers may be nets that allow flow to pass but have openings small enough to prevent passage of aquatic species in the stream. The barriers may be made of solid materials, such as sandbags, or a pushed-up soil berm to prevent both fish and flow from entering the construction site.

Solid barriers would also protect water quality downstream of the work site. The length of stream blocked and defished would depend on the amount of work to be done, presence of groundwater,

and length of diversion. The length of stream excluded from aquatic species would be shorter when dewatering is required for construction because the smaller area reduces the contribution of groundwater into the area being dewatered. After construction within the stream channel is completed, the exclusionary barrier would be removed and fish would have access to the restored area's aquatic habitat.

A total of 27.6 acres of Santa Ana sucker Critical Habitat would also be temporarily affected through dewatering and construction activities. Approximately 0.50 acre would be permanently changed to an improved state by the proposed restoration at the Anza Creek, Hidden Valley Creek, and Lower Hole Creek restoration sites.

Substances toxic to Santa Ana sucker and arroyo chub, such as petroleum products, transmission fluid, hydraulic fluid, coolant, and degreaser would be prevented from entering aquatic habitats by implementation of best management practices (BMPs) such as washing equipment prior to entering the work area, inspecting hydraulic fluid hose daily and replacing worn hoses before they leak, and refueling a safe distance away from aquatic habitats. The contractor will develop a Spill Prevention Control and Countermeasures Plan that details specific methods the contractor will use to prevent spills and quickly clean up spills that occur. The Spill Prevention Control and Countermeasures Plan is required to be approved by the Contracting Agency prior to work beginning.

Semi-aquatic Species

Southwestern pond turtle, two-striped gartersnake, and south coast gartersnake inhabit emergent vegetation and dense multi-storied riparian vegetation along the fringes of perennial waters at the Anza Creek and Lower Hole Creek restoration sites. The Old Ranch Creek and Hidden Valley Creek restoration sites lack perennial or intermittent aquatic habitat and are not expected to include impacts on these species. During restoration activities, potential habitat would be temporarily blocked in the Anza Creek and Lower Hole Creek sites as part of the exclusion and dewatering, but the animals are expected to return soon after the restored areas are submerged and native vegetation has begun to mature.

Potential impacts on these species from construction activities could include harm and displacement during removal of emergent and woody vegetation, excavation and filling, grading in existing stream channels and riparian areas, and placement of boulders and large woody material along the restored channels. During the construction period, semi-aquatic species could be injured or killed if they are buried or crushed by construction equipment, or could be injured or killed by equipment crossing and working within the streambed and riparian zone. Exclusions and dewatering of work areas, as described in the previous subsection on aquatic species, would minimize the possibility of harming semi-aquatic species.

Additionally, southwestern pond turtles build subterranean nests that could be buried or crushed. The nests are constructed upland of a perennial water source (ranging from 300 feet to 0.5 mile), and staging and construction activities could crush subterranean nests containing eggs or juveniles overwintering in the nest. Accidental burial of turtles and gartersnakes during construction and habitat enhancement activities could injure or kill adults, juveniles, and eggs.

During construction, southwestern pond turtles would be excluded from the work area by placing a barrier at the upstream and downstream limits of work, then removing southwestern pond turtles by first chasing turtles out a temporary opening then using traps for the few remaining turtles.

Native turtles would be relocated to nearby suitable habitat. Nonnative turtles would be sacrificed. If

individuals remain after the pre-construction removal and exclusion activities, they could be subjected to predation due to stranding in isolated or dewatered aquatic habitats.

Construction could affect special-status semi-aquatic species within existing access roads by hitting or crushing these species. These roads would be graded for construction vehicle traffic to a width of 12 to 15 feet, and staging areas would be improved as necessary to allow vehicles to be parked and materials to be stored, as shown on Figures 3.3-4, 3.3-9, and 3.3-14. Access roads would avoid sensitive areas to the maximum extent practicable. Staging areas would be placed strategically as far away from sensitive areas as practicable, balanced with the need for efficient delivery of materials with the construction sites. Staging areas and construction roads would be restored at the conclusion of construction.

Substances toxic to southwestern pond turtle, two-striped gartersnake, and south coast gartersnake, such as petroleum products, transmission fluid, hydraulic fluid, coolant, and degreaser would be prevented from entering habitats of special-status species by implementation of BMPs as described in the previous subsection on aquatic species.

Special-status Riparian Bird Species

Riparian bird species including Clark's marsh wren and coastal California gnatcatcher inhabit the restoration site year-round, and least Bell's vireo, white-tailed kite, yellow-breasted chat, and yellow warbler are known, or expected, to nest within the limits of disturbance. In addition, least Bell's vireo territories and USFWS Critical Habitat for least Bell's vireo are present within the project sites. These species would experience temporary loss of nesting and foraging opportunities in areas where vegetation is removed, and would likely remain out of these areas until restored vegetation becomes denser and more mature.

These species occur in grassland, scrub, riparian, and wetland habitats. Within the project sites, special-status bird species have potential to nest within the following vegetation communities: Arrow Weed Thickets, Black Willow Thickets, Black Willow/Fremont Cottonwood Forest, California Buckwheat Scrub, California Sycamore Woodlands, Cattail Marshes, Fremont Cottonwood Forest, Fremont Cottonwood/Willow Forest, Fremont Cottonwood/Willow/Mulefat Forest, Fremont Cottonwood/Willow/Wild Grape Forest, Mulefat Thickets, Salt Grass Flats, Sandbar Willow Thickets, California Annual Grassland, Giant Reed Breaks, and Nonnative Riparian. If occupied by sensitive species, construction activities involving removal or modification of vegetation from the riparian, grassland, scrub, forest, woodland, and/or wetland plant communities could disturb, injure, or kill individuals or cause nest failure. All vegetation communities within the limits of disturbance and adjacent buffer areas also have the potential to support nesting birds protected under the MBTA and CFGC.

~~California gnatcatcher may also be affected by construction as they are resident birds in the region, although suitable habitat for gnatcatcher is limited at the Tributaries Restoration Project sites. Removal of suitable habitat and construction activities adjacent to suitable habitat may affect foraging and sheltering habitat and reduce prey availability. No impacts are expected on nesting California gnatcatcher as construction is expected to occur during the fall or winter months; however, if construction were to occur during the nesting season, direct impacts on California gnatcatcher could occur.~~

Of particular concern are least Bell's vireo and white-tailed kite. Active least Bell's vireo territories were observed at each of the restoration sites, and nesting kite have also been recorded in the

general project vicinity, but not at the Tributaries Restoration Project and Mitigation Reserve Program Phase I site. The Tributaries Restoration Project and Mitigation Reserve Program Phase I has the potential to directly affect least Bell's vireo individuals, nests, and occupied habitat with active territories during construction in the nesting season. Construction would also affect designated USFWS Critical Habitat for least Bell's vireo. Up to 30.5 acres of USFWS Critical Habitat would be temporarily affected within the limits of disturbance by removal of vegetation and general construction disturbance. In addition, the Tributaries Restoration Project and Mitigation Reserve Program Phase I has the potential to directly affect white-tailed kite individuals, nests, occupied habitat, and foraging habitat during construction. White-tailed kite are fully protected under CESA.

Although construction scheduling is not currently known, it is expected to occur in the summer and early fall months, during periods of low flow in the streams. The timing of construction will help to avoid impacts on nesting special-status birds within and adjacent to the limits of disturbance. Any potentially suitable vegetation within the restoration footprint would be removed prior to bird nesting season in order to avoid the habitat becoming occupied by nesting birds prior to construction. If construction occurs during the nesting season, nest abandonment could result in egg failure and/or the death of nestlings as well as loss of energy related to nest building, feeding, and territorial defense. Physiological stressors could lead to energetic losses and increased stressors to the body, potentially resulting in lowered reproductive performance, increased susceptibility to diseases and predation, inability to successfully forage and feed young, and death of both adults and nestlings. All life stages could be exposed to these stressors during the nesting period. Outside of the nesting season, construction would remove or modify suitable or potentially suitable habitat. This would result in a temporal loss of habitat for the species during construction and until the replanted vegetation becomes mature and dense enough to provide the requisite functions for each special-status riparian bird species.

Special-status Riparian Bat Species

The Tributaries Restoration Project and Mitigation Reserve Program Phase I has the potential to directly affect foliage and/or crevice dwelling bat species, including western yellow bat and pocketed free-tailed bat individuals and roosting habitat. Although construction scheduling is not currently known, it is expected to occur in the fall and winter months, when bats may be hibernating. Removal or trimming of suitable roost trees for foliage and/or crevice dwelling bats could directly harm roosting or hibernating bats and would reduce potential roosting habitat for these species, such as western yellow bat or crevice dwelling species roosting in any trees containing snags, crevices, or peeling bark. If construction occurs during the maternity season (typically March 1–August 31 in Southern California), young, flightless bats could be particularly susceptible to harm. Physiological stressors could lead to energetic losses and increased stressors to the body, potentially resulting in lowered reproductive performance, increased susceptibility to diseases and predation, and inability to successfully forage and feed young. Depending on whether individuals are foraging or roosting within the limits of disturbance, all life stages of special-status bats associated with the maternity season could be exposed to these stressors. The temporary removal of riparian habitat along the waterway of the Santa Ana River would also reduce the amount of available foraging habitat for bats that may or may not roost in the area until the restored vegetation becomes dense and mature.

Special-status Terrestrial Wildlife Species

Special-status terrestrial species—including coastal whiptail, coast horned lizard, San Diego black-tailed jackrabbit, Southern California legless lizard, ~~and~~ western burrowing owl, and California gnatcatcher—may inhabit the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites and vicinity. These special-status terrestrial species would not have access to sheltering, foraging, or breeding opportunities in areas where vegetation is modified or removed, and would likely remain out of these areas for at least a year as restored vegetation matures.

Impacts on special-status terrestrial wildlife species could result from the following construction activities: vegetation removal, excavation and filling, grading in existing stream channels and riparian areas, and placement of boulders and large woody material in and along the restored channels. Burial or crushing of special-status terrestrial wildlife species could occur during all stages of construction, including during grading bank slopes and streambed contouring; excavation in streambed, riparian, and upland areas; or placement of substrate during creation of habitat enhancement features.

Western burrowing owl is of particular concern as this species builds subterranean nests that could be buried or crushed with individuals and/or eggs inside. Although suitable habitat is limited at the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites, western burrowing owl nests are often located within low grassland, ruderal, and barren upland habitats containing burrows or burrow surrogates (e.g., debris piles, open pipes) where staging, access, and construction activities could crush subterranean nests containing eggs or juveniles that overwinter in the nest. Accidental burial of owls during construction and habitat enhancement activities could injure or kill adults, juveniles, and eggs. Construction in these areas could also directly affect owls adjacent to the work areas.

California gnatcatchers may also be affected by construction, as they are resident birds in the region, although suitable habitat for gnatcatcher is limited at the Tributaries Restoration Project sites. Removal of suitable habitat and construction activities adjacent to suitable habitat may affect foraging and sheltering habitat and reduce prey availability. No impacts are expected on nesting California gnatcatcher, as construction is expected to occur during the fall or winter months; however, if construction were to occur during the nesting season, direct impacts on California gnatcatcher could occur.

Outside the limits of disturbance, construction could affect special-status terrestrial wildlife species within existing access roads by hitting or crushing these species. These roads would be bladed for construction vehicle traffic to a width 14 feet, and staging areas would also be bladed, as shown on Figures 3.3-4, 3.3-9, and 3.3-14. Access roads would avoid sensitive areas to the maximum extent practicable. Staging areas would be placed strategically as far away from sensitive areas as practicable, balanced with the need for efficient construction sites, and would be restored at the conclusion of construction.

Special-status Plant Species

Special-status plants—including smooth tarplant, paniculate tarplant, Santa Ana River woolly-star, Southern California black walnut, Robinson's pepper-grass, and Brand's star phacelia—inhabit or have the potential to occur at the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. Impacts on special-status plant species could result from construction activities such as vegetation removal, excavation and filling, grading in existing stream channels and riparian areas,

and placement of boulders and large woody material in and along the restored channels. Special-status plant species could be destroyed if they are buried or crushed by construction equipment during clearing, grading, and restoration or crushed during stream bank grading and placement of habitat structures such as large boulders and woody debris.

Outside the limits of disturbance, construction could impact special-status plant species within existing access roads by destroying or crushing these species. These roads would be cleared and graded for construction vehicle traffic to a width of 12 to 15 feet, and staging areas would also be cleared and graded, as shown on Figures 3.3-4, 3.3-9, and 3.3-14. Access roads would be avoided sensitive areas to the maximum extent practicable. Staging areas would be placed strategically as far away from sensitive areas as practicable, balanced with the need for efficient construction sites, and would be restored at the conclusion of construction.

Operational and Maintenance Impacts

Aquatic Species

Direct impacts on the aquatic species present or potentially present could occur during post-construction maintenance activities when crews are performing invasive removal, weeding, planting, or other restoration monitoring and maintenance activities along the shores of water bodies. Impacts could include temporarily inhibiting or disturbing aquatic species and disturbing their refuge habitat. Minimal disturbance or impacts could also occur when overall site maintenance activities are performed, which are expected in perpetuity during implementation of a long-term management plan.

Semi-aquatic Species

Direct impacts on the semi-aquatic species present or potentially present could occur during post-construction maintenance activities when crews are performing invasive removal, weeding, planting, or other restoration monitoring and maintenance activities. Impacts could include temporarily inhibiting, or disturbing, foraging and breeding behavior of semi-aquatic species and disturbing their refuge habitat. Minimal disturbance or impacts could also occur when overall site maintenance activities are performed, which are expected in perpetuity during implementation of a long-term management plan, such as homeless encampment removal, signage and fencing maintenance, unauthorized trail removal, targeted invasive weed removal, or other long-term maintenance work.

Following construction, patrol vehicles and/or equipment could affect semi-aquatic species within existing access roads during maintenance activities, hitting, crushing, or destroying these species. It is expected that access roads would not be bladed during operations and would be allowed to grow over with vegetation; impassable locations would be spot-repaired and roads would avoid sensitive areas to the maximum extent practicable. Operations and maintenance work are not expected to require large-scale equipment deployment and would be staged in existing roadways.

Special-status Riparian Bird Species

Direct impacts on the special-status riparian bird species present or potentially present could occur during post-construction maintenance activities when crews are performing invasive removal, weeding, planting, or other restoration monitoring and maintenance activities. Impacts could include temporarily inhibiting, or disturbing, foraging and breeding behavior of special-status riparian bird species and disturbing their refuge habitat.

Following construction, patrol vehicles and/or equipment could affect special-status riparian bird species within existing access roads during maintenance activities, hitting, crushing, or destroying these species. It is expected that access roads would not be bladed during operations and would be allowed to grow over with vegetation; impassable locations would be spot-repaired and roads would avoid sensitive areas to the maximum extent practicable. Operations and maintenance work are not expected to require large-scale equipment deployment and would be staged in existing roadways.

Special-status Riparian Bat Species

Direct impacts on the special-status riparian bat species present or potentially present could occur during post-construction maintenance activities when crews are performing invasive removal, weeding, planting, or other restoration monitoring and maintenance activities. Impacts could include temporarily inhibiting, or disturbing, foraging and breeding behavior of special-status riparian bat species and disturbing their refuge habitat.

Following construction, patrol vehicles and/or equipment could affect special-status bat species within existing access roads during maintenance activities, hitting, crushing, or destroying these species. It is expected that access roads would not be bladed during operations and would be allowed to grow over with vegetation; impassable locations would be spot-repaired and roads would avoid sensitive areas to the maximum extent practicable. Operations and maintenance work are not expected to require large-scale equipment deployment and would be staged in existing roadways.

Special-status Terrestrial Wildlife Species

Direct impacts on the terrestrial wildlife species present or potentially present could occur during post-construction maintenance activities when crews are performing invasive removal, weeding, planting, or other restoration monitoring and maintenance activities. Impacts could include temporarily inhibiting, or disturbing, foraging and breeding behavior of wildlife species and disturbing their refuge habitat.

Following construction, patrol vehicles and/or equipment could affect terrestrial wildlife species within existing access roads during maintenance activities, hitting, crushing, or destroying these species. It is expected that access roads would not be bladed during operations and would be allowed to grow over with vegetation; impassable locations would be spot-repaired and roads would avoid sensitive areas to the maximum extent practicable. Operations and maintenance work are not expected to require large-scale equipment deployment and would be staged in existing roadways.

Special-status Plant Species

Direct operational impacts on special-status plants are expected to be negligible or nonexistent, as the species would be identifiable by regular monitoring surveys and avoidance measures would be in place to reduce impacts on the species as part of long-term maintenance and monitoring. Impacts would likely be more intense in the early phases of restoration when vegetation is young and sparse and rigorous and frequent weed control is required; as native vegetation becomes denser and weeds become more controlled and limited, these impacts are anticipated to lessen over time as the restoration plantings mature.

Minimal disturbance or impacts could also occur when overall site maintenance activities are performed, which are expected in perpetuity during implementation of a long-term management plan, such as homeless encampment removal, signage and fencing maintenance, unauthorized trail removal, targeted invasive weed removal, or other long-term maintenance work.

Following construction, patrol vehicles and/or equipment could affect special-status species within existing access roads during maintenance activities, hitting, crushing, or destroying these species. It is expected that access roads would not be bladed during operations and would be allowed to grow over with vegetation; impassable locations would be spot-repaired and roads would avoid sensitive areas to the maximum extent practicable. Operations and maintenance work are not expected to require large-scale equipment deployment and would be staged in existing roadways.

Post-construction restoration monitoring and maintenance is expected to occur regularly over a period of 5 to 10 years to ensure the project achieves the objectives of performance success.

Based on the above construction and operational impact analysis, direct impacts including physical injury, physiological impairment, or mortality of special-status plant or wildlife species as a result of construction and operational activities would be significant within the areas identified for channel excavation and floodplain grading.

Implementation of mitigation measures BIO-1 through BIO-17 would reduce these impacts to a less-than-significant level.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Mitigation Measure BIO-1: Consult with Agencies Regarding ESA and CESA Permitting

The ESA provides regulatory protection for species listed as “threatened” or “endangered.” The Tributaries Restoration Project and Mitigation Reserve Program Phase I shall obtain federal and state incidental take authorization as necessary for all federally listed species identified as potentially being adversely affected from the construction, operations, and/or maintenance of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. The project shall require a permit from USACE in order to construct within waters of the United States. As required by Section 7 of the ESA, USACE analyzes the potential direct, indirect, and cumulative effects associated with the proposed project and makes determinations on each federally protected species that may be affected. We anticipate that USACE will likely initiate consultation with USFWS in order to receive a Biological Opinion and incidental take coverage for least Bell’s vireo, Santa Ana sucker, and potentially Santa Ana River woolly-star, as adverse impacts on these species may be unavoidable. Therefore, formal consultation shall occur between the federal action agency, USACE, and USFWS in order to ensure the Tributaries Restoration Project and Mitigation Reserve Program Phase I is not likely to jeopardize the continued existence of any threatened or endangered species or result in the adverse modification of critical habitat. USFWS will issue a Biological Opinion, including terms and conditions, which shall then be included as terms and conditions of the USACE permit issued to the Applicant, Valley District. These terms and conditions may include, for example, ensuring that an authorized and approved biological monitor is in place during construction and that any incidental take in excess of the authorized amount stated in the Biological Opinion is reported immediately to USFWS. The mitigation measures included in this EIR are intended to avoid and minimize harm to the

species and will be included in the application to USACE and in the Biological Assessment submitted to USFWS for consultation.

In order to receive incidental take coverage for the state-listed species for least Bell's vireo and potentially Santa Ana River woolly-star, it is anticipated that the Biological Opinion will provide the description and mitigation measures required for CDFW to issue a consistency determination, which states that the federal incidental take authorization is "consistent" with CESA under CFGC Section 2080.1. Alternatively, CDFW may wish to issue a CESA Incidental Take Permit to the project. Expected terms and conditions may address take avoidance, habitat restoration and conservation, construction monitoring, and project operations for federally listed species identified or expected to occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits.

Mitigation Measure BIO-2: Conduct Pre-Construction Biological Clearance Surveys to Avoid and Minimize Direct Impacts on Special-status Terrestrial Species From Construction Activities

To avoid or minimize direct impacts on special-status species from construction activities, a qualified biologist approved by USFWS and/or CDFW shall conduct preconstruction clearance surveys at all Tributaries Restoration Project and Mitigation Reserve Program Phase I sites for special-status species prior to any ground-disturbing and/or dewatering activities. During these surveys, the biologist shall inspect the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites prior to earthwork or other disturbance for any special-status wildlife species listed in Table 3.3-3 and prepare a list of species observed and record their activity before and during construction. Prior to construction each day, biological construction monitors will sweep survey at a reconnaissance level all areas scheduled for construction to confirm that special-status species are not present. Any species found shall be captured and relocated to an approved location in consultation with USFWS and/or CDFW by a biologist having appropriate permits, if required, and in compliance with regulatory permits and authorizations issued.

Mitigation Measure BIO-3: Conduct Preconstruction Nesting Bird Surveys Within 300 Feet of the Limits of Disturbance

Vegetation clearing within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance shall be completed prior to bird nesting season to the maximum extent possible. Impacts on nesting birds will be avoided through the implementation of preconstruction surveys, ongoing monitoring, and, if necessary, establishment of minimization measures. Specific avoidance and minimization measures for nesting birds methods may include specific procedures as recommended by the CDFW and detailed below.

BIO-3.1: Designated Biologist and Survey Protocols – Valley District shall designate a biologist experienced in: identifying local and migratory bird species; conducting bird surveys using appropriate survey methodology (e.g., Ralph et al. 1993 and USFWS and/or CDFW-accepted species-specific survey protocols, available here: <https://www.wildlife.ca.gov/conservation/survey-protocols>); nesting surveying techniques, recognizing breeding and nesting behaviors, locating nests and breeding territories, and identifying nesting stages and nest success (e.g., Martin and Geupel 1993); determining/establishing appropriate avoidance and minimization measures; and monitoring the efficacy of implemented avoidance and minimization measures.

BIO-3.2: Pre-construction Surveys – Surveys shall be conducted by the designated biologist at the appropriate time of day/night, during appropriate weather conditions, no more than 3 days prior to the initiation of project activities. Surveys shall encompass all suitable areas including trees, shrubs, bare ground, burrows, cavities, and structures. Survey duration shall take into consideration the size of the property, density and complexity of the habitat, number of survey participants, and survey techniques employed; and shall be sufficient to ensure the data collected are complete and accurate. Pre-construction surveys shall focus on both direct and indirect evidence of nesting, including nest locations and nesting behavior (e.g., copulation, carrying of food or nest materials, nest building, removal of fecal sacks, flushing suddenly from atypically close range, agitation, aggressive interactions, feigning injury or distraction displays, or other behaviors).

If a nest is suspected, but not confirmed, the designated biologist shall establish a disturbance-free buffer until additional surveys can be completed, or until the location can be inferred based on observations. Surveyors shall not risk failure of the nest to determine the exact location or status and will make every effort to limit the nest to potential predation as a result of the survey/monitoring efforts (e.g., limit number of surveyors, limit time spent at/near the nest, scan the site for potential nest predators before approaching, immediately depart nest area if indicators of stress or agitation are displayed).

If a nest is observed, but thought to be inactive, the designated biologist shall monitor the nest for 1 hour (4 hours for raptors during the non-breeding season) prior to approaching the nest to determine status. The designated biologist shall use their best professional judgment regarding the monitoring period and whether approaching the nest is appropriate. Results of pre-construction surveys shall be provided to CDFW.

BIO-3.3: Establishment of Buffers – When an active nest is confirmed, the designated biologist shall immediately establish a conservative buffer surrounding the nest based on their best professional judgment and experience. The buffer shall be delineated to ensure that its location is known by all persons working within the vicinity, but shall not be marked in such a manner that it attracts predators. Once the buffer is established, the designated biologist shall document baseline behavior, stage of reproduction, and existing site conditions, including vertical and horizontal distances from proposed work areas, visual or acoustic barriers, and existing level of disturbance. Following documentation of baseline conditions, the designated biologist may choose to make adjustments to the buffer based on site characteristics, stage of reproduction, and types of project activities proposed at/near that location. The designated biologist shall monitor the nest at the onset of project activities and at the onset of any changes in project activities (e.g., increase in number or type of equipment, change in equipment usage) to determine the efficacy of the buffer. If the designated biologist determines that project activities may be causing an adverse reaction, the designated biologist shall adjust the buffer accordingly.

BIO-3.4: Deterrents – Valley District, under the direction of the designated biologist, may also take steps to discourage nesting on the project site, including moving equipment and materials daily, covering material with tarps or fabric, and securing all

open pipes and construction materials. The designated biologist shall ensure that none of the materials used pose an entanglement risk to birds or other species.

BIO 3.5: Reporting – The designated biologist shall be responsible for providing summary reports, where relevant, to CDFW no less than once weekly regarding the nesting species identified on site, discovery of any of new nests, the status/outcome of any previously identified nest, buffer distances established for each nest, and any adjustments made to established buffers. If the project results in the abandonment of, or damage to, a nest, CDFW shall be notified within 24 hours.

Mitigation Measure BIO-4: Conduct Pre-construction Surveys for Coastal California Gnatcatcher within 500 Feet of the Limits of Disturbance

A qualified biologist shall conduct preconstruction surveys for coastal California gnatcatcher no more than 7 days prior to the start of ground-disturbing activities if work would occur between February 15 and August 31. Surveys for coastal California gnatcatcher shall be conducted in suitable habitat within 500 feet of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance. If a breeding territory or nest is confirmed, USFWS shall be notified and, in coordination with USFWS, an exclusionary buffer shall be established around the nest. Construction activities in occupied coastal California gnatcatcher habitat shall be monitored by a USFWS-approved qualified biologist at a frequency specified by USFWS. Unless otherwise authorized by USFWS, no proposed activities shall occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I established buffer until it is determined by the qualified biologist that the young have left the nest.

Mitigation Measure BIO-5: Conduct Pre-construction Surveys for Least Bell's Vireo Within 500 Feet of the Limits of Disturbance

A qualified biologist shall conduct preconstruction surveys for least Bell's vireo no more than 7 days prior to the start of ground-disturbing activities if work is to occur between March 15 and August 31. Surveys for least Bell's vireo shall be conducted in suitable habitat within 500 feet of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance. If a breeding territory or nest is confirmed, USFWS and CDFW shall be notified and, in coordination with USFWS and CDFW, an exclusionary buffer shall be established around the nest. Construction activities in occupied least Bell's vireo habitat shall be monitored by an ~~USFWS~~-approved qualified biologist at a frequency specified by USFWS and CDFW. Unless otherwise authorized by USFWS and CDFW, no proposed activities shall occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I established buffer until it is determined by the qualified biologist that the young have left the nest.

Mitigation Measure BIO-6: Conduct Protocol Preconstruction Western Burrowing Owl Surveys Within 500 Feet of the Limits of Disturbance

Vegetation clearing within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance shall be completed during the non-nesting season to the extent feasible. If ground-disturbing activities or removal of any trees, shrubs, or any other suitable nesting or foraging habitat are scheduled within the western burrowing owl nesting season (February 1 to August 31), a protocol preconstruction clearance survey for western burrowing owl shall be conducted in accordance with CDFW guidelines. If potential western burrowing owl

burrows are found during non-nesting season, the occupiable areas of those burrows will be examined, with a burrow scope if needed, and collapsed if not occupied. If active burrows are found during nesting season, an avoidance buffer shall be established through consultation with CDFW and in accordance with CDFW guidelines and remain around the occupied nest(s) until all young have fledged and the nest is confirmed by the qualified biologist to be no longer active. If active burrows are found outside of the nesting season, then CDFW will be consulted for avoidance and minimization methods. Specific avoidance and minimization measures for burrowing owl may include the following procedures as recommended by CDFW and detailed below.

BIO 6.1: Habitat Assessments – Burrowing owl habitat assessments, surveys, impact assessments, and associated reports shall be completed. Methodology shall follow the recommendations and guidelines provided within the *Staff Report on Burrowing Owl Mitigation* (CDFW 2012).

Prior to the initiation of project activities, a burrowing owl habitat assessment shall be conducted by a biologist knowledgeable of burrowing owl habitat, ecology, and field identification of the species and burrowing owl sign and in accordance with the *Staff Report on Burrowing Owl Mitigation*. The assessment shall consist of walking all areas subject to project activities and adjoining areas within 150 meters (approximately 500 feet). If no suitable habitat is found on site (i.e., if the site is completely covered in chaparral habitat, cement, or asphalt), no additional surveys are necessary. A report summarizing the results of the habitat assessment shall be submitted to CDFW.

BIO 6.2: Surveys – If suitable habitat is found on site within areas subject to project activities, burrowing owl surveys shall be conducted by a qualified biologist in accordance with the *Staff Report on Burrowing Owl Mitigation*. As such, the Designated Biologist(s) shall conduct four survey visits: (1) at least one site visit between February 15 and April 15, and (2) a minimum of three survey visits, at least 3 weeks apart between April 15 and July 15, with at least one visit after June 15.

BIO 6.3: CDFW Coordination – If breeding season surveys confirm occupied burrowing owl habitat in or adjoining areas subject to project activities, Valley District shall contact CDFW and conduct an impact assessment, in accordance with the *Staff Report on Burrowing Owl Mitigation*, prior to commencing project activities, to assist in the development of avoidance, minimization, and mitigation measures.

Mitigation Measure BIO-7A: Conduct Preconstruction Surveys and Minimization Measures Within the Limits of Disturbance for Sensitive Mammal Species

No greater than 48 hours prior to initiation of ground disturbance, including vegetation-clearing activities, within suitable habitat, the limits of disturbance shall be surveyed for sensitive mammal species, including northwestern San Diego pocket mouse, SKR, San Diego black-tailed jackrabbit, San Diego desert woodrat, and Los Angeles pocket mouse.

If sensitive mammal species are observed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance and do not self-relocate out of the area by the start of scheduled construction, a qualified biologist may opt to relocate the species to a suitable area out of the construction impact zone. Any capture and relocation shall occur in coordination with USFWS and/or CDFW and be implemented by a biologist having

appropriate permits, if required, and in compliance with regulatory permits and authorizations issued.

Mitigation Measure BIO-7B: Conduct Preconstruction Surveys Within the Limits of Disturbance for Sensitive Bat Species

To mitigate for potential construction-related impacts on special-status bats and maternity roosts during construction activities, the following measures shall be implemented prior to the commencement of construction activities at all Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. A combination, as required by specific site conditions, of habitat suitability assessments, acoustic surveys of habitat around construction sites, nighttime surveys, maternity colony assessments, and exit counts shall be used to survey the area that may be directly or indirectly affected by the Tributaries Restoration Project and Mitigation Reserve Program Phase I. Avoidance and minimization measures for bats may include specific procedures as recommended by CDFW and detailed below.

BIO-7B.1: Roosting Habitat Suitability Assessment – Prior to commencement of project activities, a CDFW-approved bat biologist shall conduct a bat roosting habitat suitability assessment of the structures and trees that may be removed, altered, or indirectly affected by the proposed project activities. As bats may utilize dense tree canopies, snags, rock crevices, or built structures over creeks/water, these habitat types shall be surveyed. Foraging areas and specific flight routes to those foraging areas shall be documented, as well.

If bat roosting habitat is detected during the pre-construction surveys, Valley District will implement a Bat Protection Plan. All contractors, subcontractors, and employees shall also comply with these measures and it shall be the responsibility of the Permittee to ensure compliance. Valley District shall submit to CDFW for review and approval a Bat Avoidance, Monitoring, and Protection Plan (BAMPP). The BAMPP shall include project-specific avoidance and minimization measures to ensure that impacts on bats are avoided or minimized. The BAMPP shall be created and be implemented by the CDFW-approved bat biologist. The BAMPP shall include: monitoring protocols, survey timing and duration, procedures and frequency of direct reporting to CDFW, and project-specific avoidance and minimization measures that consider, but are not necessarily limited to, project phasing and timing; installation and monitoring of exclusionary materials, where and when appropriate; monitoring of project-related noise, vibration, and lighting; and installation of buffers.

BIO-7B.2: Nighttime Surveys – Any locations identified as suitable bat roosting habitat by the CDFW-approved bat biologist shall be subject to additional nighttime surveys during the summer months (i.e., June–August) to determine the numbers and bat species using the roost(s). The information collected during these additional surveys shall be used by the CDFW-approved bat biologist to develop species-specific measures to minimize impacts on roosting bats. The surveys shall be conducted by the CDFW-approved bat biologist using an appropriate combination of structure inspection, sampling, exit counts, and acoustic surveys. If bats are found using any structures or trees within the project area, the biologist shall identify the bats to the species level and evaluate the colony to determine its size and significance.

The bat survey shall include: (1) the exact location of all roosting sites (location shall be adequately described and drawn on a map); (2) the number of bats present at the time of visit (count or estimate); (3) the names of each species of bat present (including how the species was identified); (4) the location, amount, and distribution of all bat guano described and pinpointed on a map; and (5) the type of roost, i.e., a night roost (resting at night while out feeding) versus a day roost (resting during the day), clearly stated. The results of the pre-construction bat surveys shall be submitted to CDFW for review.

BIO-7B.3: Maternity Colonies Avoidance and Minimization – If the presence of a maternity colony is confirmed within a structure (e.g., bridge, culvert) during the maternity season survey and activities involving combustion engines and/or night lighting is deemed necessary during the recognized bat maternity season (April 1 through August 31), avoidance and minimization measures including the designation of buffers shall be developed and submitted to CDFW for review.

BIO-7B.4 Establishment of Buffer – If any previously undiscovered roosting bats are discovered during project activities, all work shall stop on, under, around, or within an appropriate buffer as determined by the CDFW-approved bat biologist.

To avoid disturbance of maternity-roosting bats during project-related activities, work activities within a predetermined buffer distance of the maternity roost sites shall avoid the recognized bat maternity season (April 1 through August 31) unless concurrence otherwise has been received from CDFW. The buffer distance shall be determined by a CDFW-approved bat biologist and shall be based upon which bat species are found to compose the maternity colony, because different bat species are known to have different tolerance levels for certain construction activities. Project activities shall not occur at structures housing a maternity colony of bats during the recognized bat breeding season unless concurrence is received from CDFW.

Mitigation Measure BIO-8: Conduct Preconstruction Surveys Within the Limits of Disturbance for Sensitive Terrestrial Reptile Species

Not greater than 48 hours prior to initiation of ground disturbance, the work area shall be surveyed for sensitive terrestrial reptile species, including southwestern pond turtle, California legless lizard, California glossy snake, coastal whiptail, red-diamond rattlesnake, coast horned lizard, and coast patch-nosed snake. If a sensitive reptile species is observed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance, those reptiles shall be captured and relocated to an approved location in consultation with USFWS and/or CDFW by a biologist having appropriate permits, if required, and in compliance with regulatory permits and authorizations issued.

Mitigation Measure BIO-9: Conduct Preconstruction Surveys Within the Limits of Disturbance for Special-status Plant Species

During the appropriate blooming period up to 1 year prior to initiation of ground disturbance, the work area shall be surveyed to confirm the presence/absence of special-status plant species, including: Santa Ana woolly-star, smooth tarplant, Parry's spineflower, snake cholla, paniculate tarplant, many-stemmed dudleya, Southern California black walnut, Coulter's goldfield, Robinson's pepper-grass, chaparral ragwort, San Bernardino aster, as well as WRCMSHCP narrow endemic species ~~San Diego ambrosia, Brand's star phacelia~~. Surveys shall be conducted

in accordance with CNPS and CDFW rare plant survey guidelines and shall be conducted during the flowering period when each species is most readily identifiable, if necessary. A botanist shall determine the blooming period for each species and verify blooming during the growing season by visiting a reference site as necessary to observe if the target species is flowering or otherwise identifiable. A species-specific survey may be required for each special-status plant depending upon the blooming period.

Any special-status plant populations shall be mapped. If the presence of any special-status plant species is confirmed, a copy of the survey results shall be forwarded to USFWS and CDFW. If individuals of a sensitive plant species are observed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance, then prior to ground disturbance, the individuals shall be flagged and/or mapped for avoidance. If impacts on non-listed species are unavoidable, minimization measures shall be addressed within a 5-year onsite restoration mitigation and monitoring program developed and implemented for the Tributaries Restoration Project and Mitigation Reserve Program Phase I. If impacts on listed plant species are unavoidable, USFWS and/or CDFW shall be consulted prior to proceeding with the project. The following restoration success criteria shall be required.

1. Establishment of restoration site(s) within the Tributaries Restoration Project and Mitigation Reserve Program Phase I, where plant restoration shall occur. The restoration site shall include a restoration mitigation and monitoring program detailing: (1) a clear description of the restoration activities to be completed, including: (a) any recontouring, (b) methods for de-compacting soils, (c) a planting/seeding plan and plant/seed palette, and (d) an irrigation plan; (2) a comprehensive monitoring and maintenance plan, including: (a) a detailed monitoring and maintenance schedule, (b) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced or allowed to sustain within the restoration areas, (c) success standards (e.g., survival, native plant establishment, diversity, nonnative cover), (d) locations of permanent photo stations, and (e) adaptive management measures; (3) graphics and accompanying geographic information system (GIS) shapefiles of the restoration areas; and (4) a contingency plan (e.g., purchase of additional mitigation credits, mitigation at a different offsite location) in the event that the restoration areas do not meet success criteria.
2. Seed collection/salvage, if feasible.
3. A qualified botanist shall identify and submit for approval an appropriate plant palette and restoration methodology compatible with the specific affected special-status species. Mitigation sites could include existing habitats in the Tributaries Restoration Project and Mitigation Reserve Program Phase I of the same vegetation community type, depending on site conditions and locations of special-status plants found.
4. Topsoil salvage and reapplication.

Mitigation Measure BIO-10: Designate a Qualified Biologist(s) to Ensure Compliance with Avoidance and Minimization Measures

A USFWS-approved qualified biologist(s) with knowledge of least Bell's vireo, coastal California gnatcatcher, Santa Ana sucker, and their habitats shall function as a biological monitor. Prior to initiating Tributaries Restoration Project and Mitigation Reserve Program Phase I activities, the name(s) and resumes of all prospective biological monitors shall be submitted to the

appropriate USFWS and CDFW offices. The biological monitor shall ensure compliance with the Tributaries Restoration Project and Mitigation Reserve Program Phase I avoidance and minimization measures. The qualified biologist shall be present on site during construction within and adjacent to occupied least Bell's vireo habitat to ensure that avoidance and minimization measures are in place according to specifications, and shall monitor construction within the vicinity of the least Bell's vireo and coastal California gnatcatcher territories at a frequency necessary to ensure that avoidance and minimization measures are properly followed. The qualified biologist shall report any non-compliance within 24 hours to USFWS.

The qualified biologist shall be familiar with other special-status species known, or having the potential to occur, at the restoration sites and shall be present during construction activities involving initial ground disturbance, dewatering, and vegetation removal. If a special-status species is observed within the limits of disturbance, the biologist shall have authority to stop work in order to prevent harm to the individual. The individual animal shall be allowed to leave the site of its own volition; however, should the biologist determine this is not possible, the individual shall be relocated outside of the Tributaries Restoration Project and Mitigation Reserve Program Phase I by the qualified biologist.

Mitigation Measure BIO-11: Conduct Preconstruction Surveys for Special-Status Semi-Aquatic Species

Prior to construction activity, a qualified biologist familiar with the special-status species, including southwestern pond turtle, two-striped gartersnake, and south coast gartersnake, and approved by USFWS and/or CDFW, shall conduct a preliminary survey of the affected water body and surrounding suitable habitat, noting habitat present and any special-status semi-aquatic species. If special-status species are present, they shall be captured and relocated by a qualified biologist. A Capture and Relocation Plan shall be prepared, which shall include requirements for qualified biologists, methods for special-status semi-aquatic species capture, requirements for any information to be collected for captured special-status semi-aquatic species, procedures for temporary containment and transport of captured special-status semi-aquatic species, details for approved release locations for special-status semi-aquatic species, and periodic and final reporting requirements for all relocated special-status semi-aquatic species.

Mitigation Measure BIO-12: Conduct Preconstruction Surveys Within the Limits of Disturbance for Special-Status Aquatic Species

Prior to construction activity, a USFWS-approved Authorized Biologist (i.e., a biologist approved by USFWS and qualified to survey for and evaluate impacts on specific listed special-status species) familiar with the special-status species, including Santa Ana sucker and arroyo chub, and approved by USFWS and CDFW, shall conduct a preliminary survey of the affected water body and surrounding suitable habitat, noting habitat present and any special-status fishes. If special-status species are present, a capture and relocation plan shall be implemented to safely relocate these species (see mitigation measure BIO-13). This plan shall include requirements for qualified biologists, methods for special-status aquatic species capture, requirements for any information to be collected for captured special-status aquatic species, procedures for temporary containment and transport of captured special-status aquatic species, details for approved release locations for special-status aquatic species, and periodic and final reporting requirements for all relocated special-status aquatic species.

Mitigation Measure BIO-13: Develop a Tributaries Restoration Project and Mitigation Reserve Program Phase I-Specific Dewatering, Diversion, and Aquatic/Semi-aquatic Species Rescue Plan (Dewatering Plan)

Prior to dewatering activities, a dewatering plan including site-specific measures shall be developed and submitted to USFWS and CDFW for approval. Dewatering structures may include the use of sand bag, Port-a-dams, water bladder dams, K-rails, or driven sheet metal coffer dams. USFWS and CDFW shall review the proposed water diversion method, to approve the plan or provide the requirements for that approval. Valley District shall not commence dewatering of a stream/diversion of water without explicit approval from CDFW. A qualified biologist, familiar with the special-status species, and approved by USFWS and CDFW, shall be present during implementation of the dewatering plan. The plan shall include the following standard measures for the avoidance and minimization of impacts on special-status species resulting from dewatering activities.

- Dewater aquatic habitat that shall be disturbed or removed 15 days prior to the initiation of construction activities to allow time for construction areas to dry and management of any deficiencies in the dewatering effort. If complete dewatering is not possible, potential snake prey (i.e., fish and tadpoles) shall be removed so that snakes and other wildlife are not attracted to the construction area.
- Prior to dewatering, blocking nets or other fish barriers shall be installed at the upstream and downstream extents of the reach to be dewatered to prevent aquatic species from entering.
- All aquatic species shall be removed by a team of qualified biologists as the stream is dewatered. Native species shall be relocated to nearby suitable habitat downstream of the project sites. Nonnative species shall be sacrificed.
- Pumps used for flow diversion shall be appropriately screened to prevent entrainment of all life stages of aquatic and semi-aquatic species.
- Diversion outflow structures shall be appropriately placed and silt screens, settling ponds, and other equipment shall be used to minimize erosion, sediment deposition, and increased turbidity at the site of outflow.
- Draw-down rates shall be implemented to maintain water quality, reduce crowding of fish, and prevent stranding.
- Water quality shall be regularly monitored during dewatering to ensure conditions are sufficient for aquatic life.
- Other measures shall be implemented to ensure minimal mortality associated with relocation or holding of captured individuals.

The dewatering plan shall also specify the following:

- The removal methods shall be implemented so as to minimize potential injury or mortality to native fish. All captured native fish shall be placed in ice chests filled with Santa Ana River water. The ice chest shall be kept shaded and aerated at all times. The water temperature in the ice chests and condition of captured native fish shall be closely monitored. Any native fish removed from the site shall be relocated in suitable habitat downstream of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. When handling

native fish, the hands of all participants shall be free of sunscreen, lotion, and insect repellent. The qualified biologist shall submit a report to USFWS and CDFW identifying the number of any native fish that were relocated and other measures that were taken to minimize impacts on native fish. The report shall be submitted to USFWS and CDFW no more than 60 days following capture and relocation activities.

- If a southwestern pond turtle nest is found, a 100-foot no-disturbance buffer zone shall be established around the nest using flagging, fencing, and/or signage as appropriate. No construction activities shall occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I established buffer until a qualified biologist has determined that the nest is not in use. If an active southwestern pond turtle nest is found, the turtle nest shall be relocated by a qualified biologist, in consultation with CDFW, and in accordance with the aquatic species rescue plan for the project. If a southwestern pond turtle is observed at any time before or during construction, it shall be left alone to move out of the area on its own or may be relocated by a qualified biologist to a suitable aquatic habitat outside of the Tributaries Restoration Project and Mitigation Reserve Program Phase I; translocation of turtles can only be performed in consultation with CDFW, and by an individual possessing a valid scientific collecting permit.

Mitigation Measure BIO-14: Develop a Nesting Bird Management Plan

Construction is likely to occur during nesting bird season. Therefore, the Tributaries Restoration Project and Mitigation Reserve Program Phase I shall develop a nesting bird management plan in consultation with USFWS and CDFW. Approval by both USFWS and CDFW are required before the plan can be implemented. The nesting bird management plan shall include measures, some of which may have been detailed above, and an adaptive management program to avoid and minimize impacts on special-status and MBTA- or CFGC-protected bird species during nesting periods. The qualified biologist shall notify USFWS and CDFW of all Tributaries Restoration Project and Mitigation Reserve Program Phase I-related bird injuries or mortalities within 48 hours of discovery and shall follow the agencies' recommended actions, if any. This plan shall include a description of all federal, state, and local nesting bird policies, biologist qualifications, roles and responsibilities, definitions of active and inactive nest, survey requirements, active nest avoidance, nest buffer reductions, guidelines for working within nest buffers, notification and documentation, inactive nest management, and periodic and final reporting requirements.

Mitigation Measure BIO-15: Delineate Limits or Require Use of GPS-based exclusionary Technology on Construction Equipment to Prevent Encroachment of Construction Activities into Environmentally Sensitive Areas

Before the start of construction activities, including establishment of staging areas, vegetation clearing, and/or grading activities, environmentally sensitive areas shall be mapped and either delineated with flagging or stakes, or the contractor shall be required to use global positioning system (GPS)-based exclusionary technology, along the limits of disturbance at each tributary restoration site to prevent access into non-Tributaries Restoration Project and Mitigation Reserve Program Phase I areas. The limits of work shall be inspected during construction by a qualified biological monitor at a frequency necessary to ensure that protective measures are intact and construction activities are not encroaching into environmentally sensitive areas. Environmentally sensitive area fencing shall be inspected daily by the authorized biologist(s) or project construction personnel working under the direction of the authorized biologist(s). The

authorized biologist(s) shall personally inspect the fencing no less than once per week. Environmentally sensitive area fencing shall be maintained in good working order for the duration of project activities.

Mitigation Measure BIO-16: Implement Best Management Practices

The contractor shall implement the following BMPs during construction activities to protect aquatic habitat and other sensitive natural communities that provide habitat for special-status species.

- Reduce the risk of wildfire ignition using spark arresters.
- Limit personnel activities, vehicles, equipment, and construction materials to the designated work area.
- Confine the ingress and egress of construction equipment and personnel to designated access points. Prohibit cross-country travel by vehicles and equipment.
- Leave no open trenches or holes overnight without covering, fencing, or providing escape ramps with a minimum 3:1 slope. If trenches are not covered, they shall be inspected for trapped wildlife by a qualified biologist or biological monitor. Animals found shall be captured and moved to the nearest safe location outside the construction area.
- Develop an integrated weed management plan (IWMP) to minimize the potential introduction of new weeds and to control the spread of weeds resulting from ground disturbance. The IWMP shall be developed within the first year following issuance of the ITP and shall be reviewed and approved by the Wildlife Agencies. The IWMP shall include biologist qualifications, roles, and responsibilities; definitions of noxious weeds and invasive plants; pre-construction, construction, and operations phase weed control methods; and periodic and final reporting requirements.
- Maintain adequate fire suppression capability in active construction areas including having a water tender on site in active construction areas during periods of high fire danger. A water truck or water buffalo with adequate hoses for fire control shall be maintained on the site during all habitat-clearing and construction activities during fire season.
- Implement litter control measures. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness of the area to opportunistic predators.
- Limit vehicle speeds to 15 miles per hour except on paved roads with posted speed limits. If work must take place at night, the speed limit shall be 10 miles per hour.
- Conduct new construction during the daylight hours to the extent feasible.
- Confine the construction site disturbances to the smallest practical area, considering topography, placement of facilities, location of Covered Species habitat, public health and safety, and other limiting factors, and use previously disturbed areas to the extent possible.
- Use secondary containment devices such as drip pans under stationary engines, such as compressors, generators, light plants, etc., to prevent any leakage from entering runoff or receiving waters.

- Inspect all construction equipment for leaks and regularly maintain such equipment to avoid soil contamination. Leaks shall be fixed or the equipment shall be taken out of service until the leak is fixed. Smears of petroleum products shall be cleaned prior to use.
- Clean up any hazardous waste or spills immediately and dispose at an offsite location that receives the required grade of hazardous waste.
- Store spill kits capable of containing hazardous spills on site.

Mitigation Measure BIO-17: Implement a Worker Environmental Awareness Training

Prior to construction, a Worker Environmental Awareness Program (WEAP) shall be implemented for work crews by a qualified biologist(s). Training materials and briefings shall include, but not be limited to, discussion of ESA and CESA, the consequences of noncompliance with Tributaries Restoration Project and Mitigation Reserve Program Phase I permitting requirements, identification and values of special-status plant and wildlife species and sensitive natural plant community habitats, fire protection measures, hazardous substance spill prevention, and containment measures.

Level of Significance Following Mitigation: Less than significant.

With implementation of mitigation measures BIO-1 through BIO-17, the Tributaries Restoration Project and Mitigation Reserve Program Phase I would avoid and minimize temporary construction impacts on habitat and species. Operations and maintenance of the project would actually increase the amount and ecological function of native riverine habitat and riparian corridor. Mitigation measure BIO-1 includes terms and conditions that offset the impacts on protected species and ensure that the project does not jeopardize a listed species or adversely modify critical habitat. Therefore, impacts of the Tributaries Restoration Project and Mitigation Reserve Program Phase I would be reduced to a less-than-significant level.

Expanded Mitigation Reserve Program Phase II

As detailed in Section 2.7, the Expanded Mitigation Reserve Program Phase II would result in the development of a combined mitigation/conservation bank and advance mitigation credit program project to secure mitigation values for future waters of the U.S. and state impacts. The Expanded Mitigation Reserve Program Phase II would also secure values for species covered by ESA and CESA and California special-status species, including but not limited to Santa Ana sucker, arroyo chub, western pond turtle, two-striped gartersnake, least Bell's vireo, southwestern willow flycatcher, yellow-breasted chat, California gnatcatcher, western yellow-billed cuckoo, and Santa Ana River woolly-star. The Expanded Mitigation Reserve Program Phase II could provide functional life to the habitat while generating additional mitigation values for Valley District, or others, to use for future projects' mitigation. There is no funding currently secured for these additional restoration activities. However, in order to maximize Valley District's ability to implement restoration activities as funding does become available, this section describes potential impacts associated with these expanded opportunities in a programmatic level of detail. It is not possible at this time to specifically identify where or when potential mitigation site construction or restoration efforts (e.g., enhancement, re-establishment, and creation) may occur; as such, expanded restoration construction activities would depend on actions that may be taken in the future as funding becomes available.

Although special-status species and other sensitive biological resources in the Expanded Mitigation Reserve Program Phase II have been evaluated in Appendix B, no specific construction or

restoration details are currently known for implementation of expanded opportunities included in the Expanded Mitigation Reserve Program Phase II. Therefore, impacts on species from an expanded footprint of the Expanded Mitigation Reserve Program Phase II are analyzed at a programmatic level and additional analyses of the additional restoration will be prepared at a project-specific level when specific details are available, such as credit types and location, schedule of credit restoration implementation, restoration methods, implementation agreements, long-term management plans, and similar activities.

Construction Impacts

Based on the special-status species present or potentially present in the Expanded Mitigation Reserve Program Phase II limits of disturbance, construction-related direct impacts will likely result. During construction, substances toxic to aquatic species such as Santa Ana sucker and arroyo chub and semi-aquatic species such as southwestern pond turtle, two-striped gartersnake, and south coast gartersnake may be released into aquatic environments from construction equipment. Toxins may include petroleum products, transmission fluid, hydraulic fluid, coolant, and degreaser. Similarly, releases of toxic construction substances could contaminate upland areas affecting sensitive terrestrial bird, mammal (including bats), reptile, amphibian, and plant individuals and populations. Exposure to toxic substances could result in lethal or non-lethal direct effects such as physiological impairment that prevents or interferes with migration, feeding, and reproduction. Exposure to sufficient quantities or for a sufficient duration could cause mortality. Construction in aquatic and terrestrial areas could also cause injury or mortality if individuals are buried or crushed by construction equipment and personnel.

Sensitive bird species, including Clark's marsh wren and coastal California gnatcatcher, may inhabit the restoration sites year-round, and least Bell's vireo, white-tailed kite, yellow-breasted chat, and yellow warbler are known, or expected, to nest within the Expanded Mitigation Reserve Program Phase II limits of disturbance. In addition, least Bell's vireo and USFWS Critical Habitat for least Bell's vireo are present. These species would not have access to nesting and foraging opportunities in or near areas where invasive vegetation is removed, where areas are created, or where restoration efforts are in the early stages of native revegetation, and would likely remain out of these areas for an indeterminate period as native vegetation fills in. If construction occurs during the nesting season, nest abandonment could result in egg failure and/or the death of nestlings as well as loss of energy related to nest building, feeding, and territorial defense. Outside of the nesting season, Expanded Mitigation Reserve Program Phase II construction would remove or alter habitat that has been occupied, and that habitat would not be suitable for nesting and foraging until the restored vegetation becomes dense and mature.

The Expanded Mitigation Reserve Program Phase II has the potential to directly affect foliage and/or crevice dwelling bat species and roosting habitat. If construction were to occur during the maternity season (typically March 1–August 31 in Southern California), then young, flightless bats could be affected. Depending on whether individuals are foraging or roosting within the limits of disturbance, all life stages of special-status bats associated with the maternity season could be affected. The removal of riparian habitat along the waterway of the Santa Ana River would also reduce the amount of available foraging habitat for bats.

Impacts on special-status plant species could result from construction activities such as invasive vegetation removal, excavation and filling, and grading in existing riparian areas. During construction, special-status plant species could be destroyed if they are buried or crushed by

construction equipment during movement overland to and from restoration areas, and during clearing, grading, and restoration of upland habitat.

Outside specific Mitigation Reserve site limits of disturbance, construction could affect special-status species within existing access roads, hitting, crushing, or destroying these species. These roads would be bladed for construction vehicle traffic. Staging areas would also be bladed. Access roads would be bladed only as needed where existing conditions become impassable and would avoid sensitive areas to the maximum extent practicable. Staging areas would be placed strategically as far away from sensitive areas as practicable, balanced with the need for efficient construction sites.

Operational and Maintenance Impacts

Direct impacts on each of the special-status species present or potentially present could occur during post-construction Expanded Mitigation Reserve Program Phase II restoration activities when maintenance crews are performing invasive removal, weeding, planting, or other restoration maintenance activities and when biologists are performing restoration success criteria monitoring. Impacts could include temporarily inhibiting or disturbing refueling, foraging, and breeding behavior of wildlife species. Direct operational impacts on special-status plants are expected to be negligible or nonexistent as the species would presumably be identifiable by maintenance crews and included as part of a maintenance area. The duration of restoration site maintenance is uncertain, but would be expected to occur over at least a 5-year period. Also uncertain is the phasing of credit allocation. If a large amount of credit acreage is allotted and maintained at one time, then impacts with the area and adjacent area would temporarily increase but lessen over time as the large area fills in with native vegetation. However, if credits are allocated in smaller acreages and/or dispersed randomly spatially and temporally, then impacts would be expected to be higher through a patchwork effect.

Maintenance weeding would likely occur monthly during the growing season. Impacts would likely be more intense in the early phases of restoration when vegetation is young and sparse and rigorous and frequent weed control is required; as native vegetation becomes denser and weeds become more controlled and limited, these impacts are anticipated to lessen. Once the native vegetation is fully restored, restoration maintenance is expected to be minimal within the mitigation credit areas, and much of the riparian restoration areas would likely be impenetrable for humans. Impacts could also occur when overall site maintenance activities are performed, which are expected to occur in perpetuity, such as homeless encampment removal, signage and fencing maintenance, unauthorized trail removal, or other long-term maintenance work.

Following construction, vehicles could affect special-status species within existing access roads while traveling to the specific Mitigation Reserve sites during maintenance activities, hitting, crushing, or destroying these species. Access roads would not be bladed during operations and would be allowed to grow over with vegetation, impassable locations would be spot-repaired, and roads would avoid sensitive areas to the maximum extent practicable. Operations and maintenance work would not require large-scale equipment deployment and would be staged in existing roadways.

Direct impacts including physical injury, physiological impairment, or mortality of special-status plant or wildlife species as a result of construction and operational activities in the Expanded Mitigation Reserve Program Phase II limits of disturbance, including grading, excavation, vegetation removal, placement of substrate, exposure to toxic substances, and site maintenance would be significant.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Implementation of mitigation measures BIO-18 through BIO-24 would reduce these impacts to a less-than-significant level. Implementation of these measures is intended for the initial restoration and creation activities within the Expanded Mitigation Reserve Program Phase II limits of disturbance; depending on the extent of invasive vegetation to be removed annually thereafter, these measures may need to be repeated, as determined during project-level impact analysis.

Mitigation Measure BIO-18: Consult with Agencies Regarding ESA and CESA Permitting Needed for Expanded Mitigation Reserve Program Phase II Restoration Activities

The Expanded Mitigation Reserve Program Phase II shall obtain federal and state incidental take authorization as necessary for all federally listed species identified as potentially being adversely affected by construction, operations, and/or maintenance within the Expanded Mitigation Reserve Program Phase II limits of disturbance. Implementation of the Upper Santa Ana Wash Plan-HCP is expected to provide coverage for federally listed and/or state-listed species when it is approved. Specific Expanded Mitigation Reserve Program Phase II projects that predate the approval of the Upper Santa Ana Wash Plan-HCP shall require Valley District to initiate Section 7 consultation with the appropriate federal agency for the purpose of insuring that the specific Expanded Mitigation Reserve Program Phase II projects are not likely to jeopardize the continued existence of any threatened or endangered species identified within the Expanded Mitigation Reserve Program Phase II project limits of disturbance, or result in the destruction or adverse modification of critical habitat for these species within the limits of disturbance. Expected terms and conditions may address take avoidance, habitat restoration and conservation, construction monitoring, and project operations for federally listed species identified or expected to occur within the Expanded Mitigation Reserve Program Phase II limits. Furthermore, those specific Expanded Mitigation Reserve Program Phase II projects that predate the approval of the Upper Santa Ana Wash Plan-HCP and result in a take of a state-only listed species identified within the project limits shall require Valley District to apply for a take permit under Section 2081(b). Expected terms and conditions may address take avoidance, habitat restoration and conservation, construction monitoring, and project operations for state-listed species identified or expected to occur within the Expanded Mitigation Reserve Program Phase II limits.

Mitigation Measure BIO-19: Conduct Pre-Construction Biological Clearance Surveys to Avoid and Minimize Direct Impacts on Special-Status Wildlife and Plants From Construction Activities

To avoid or minimize direct impacts on special-status species from construction activities, a qualified biologist approved by USFWS and/or CDFW shall conduct appropriate preconstruction clearance surveys of the specific projects of the Expanded Mitigation Reserve Program Phase II for special-status bird species—including nesting bird surveys, coastal California gnatcatcher surveys, least Bell's vireo surveys, western burrowing owl surveys—special-status mammal species, special-status terrestrial reptile species, special-status semi-aquatic species, and special-status native plants and narrow endemic plants prior to any ground disturbing activities.

Mitigation Measure BIO-20: Designate a Qualified Biologist

A USFWS qualified biologist with knowledge of special-status species and their habitats that may be affected by the construction activities shall function as a biological monitor. The qualified biologist shall ensure compliance with the avoidance and minimization measures of the Expanded Mitigation Reserve Program Phase II.

Mitigation Measure BIO-21: Develop a Nesting Bird Management Plan

To address potential conflicts between construction activities and the activities of nesting birds in the specific projects of the Expanded Mitigation Reserve Program Phase II, the project shall develop a nesting bird management plan in consultation with USFWS and CDFW. Approval by both USFWS and CDFW is required before the plan is implemented. This plan shall include a description of all federal, state, and local nesting bird policies, biologist qualifications, roles and responsibilities, definitions of active and inactive nest, survey requirements, active nest avoidance, nest buffer reductions, guidelines for working within nest buffers, notification and documentation, inactive nest management, and periodic and final reporting requirements.

Mitigation Measure BIO-22: Delineate Limits or Require Use of GPS-Based Exclusionary Technology on Construction Equipment to Prevent Encroachment of Construction Activities into Environmentally Sensitive Areas

Before the start of construction activities, including establishment of staging areas, vegetation clearing, and/or grading activities, environmentally sensitive areas shall be mapped and either delineated with flagging or stakes or the contractor shall be required to use GPS-based exclusionary technology along the specific projects of the Expanded Mitigation Reserve Program Phase II limits of disturbance to prevent access into non-project areas. The limits of work shall be inspected during construction by a qualified biological monitor at a frequency necessary to ensure that protective measures are intact and construction activities are not encroaching into environmentally sensitive areas. Environmentally sensitive area fencing shall be inspected daily by the authorized biologist(s) or project construction personnel working under the direction of the authorized biologist(s). The authorized biologist(s) shall personally inspect the fencing no less than once per week. Environmentally sensitive area fencing shall be maintained in good working order for the duration of project activities.

Mitigation Measure BIO-23: Implement Best Management Practices to Avoid or Minimize Construction-Related Spills or Leaks of Toxic Substances

The contractor shall implement the following BMPs during construction activities to protect aquatic habitat and other sensitive natural communities that provide habitat for special-status species:

- Reduce the risk of wildfire ignition using spark arresters.
- Limit personnel activities, vehicles, equipment, and construction materials to the designated work area.
- Confine the ingress and egress of construction equipment and personnel to designated access points. Prohibit cross-country travel by vehicles and equipment.

- Leave no open trenches or holes overnight without covering, fencing, or providing escape ramps with a minimum 3:1 slope. If trenches are not covered, they shall be inspected for trapped wildlife by a qualified biologist or biological monitor. Animals found shall be captured and moved to the nearest safe location outside the construction area.
- Develop an IWMP to minimize the potential introduction of new weeds and to control the spread of weeds resulting from ground disturbance. The IWMP shall be developed within the first year following issuance of the ITP and shall be reviewed and approved by the Wildlife Agencies. The IWMP shall include biologist qualifications, roles, and responsibilities; definitions of noxious weeds and invasive plants; pre-construction, construction, and operations phase weed control methods; and periodic and final reporting requirements.
- Maintain adequate fire suppression capability in active construction areas, including having a water tender on site in active construction areas during periods of high fire danger. A water truck or water buffalo with adequate hoses for fire control shall be maintained on the site during all habitat-clearing and construction activities during fire season.
- Implement litter control measures. Trash and food items shall be contained in closed containers and removed daily to reduce the attractiveness of the area to opportunistic predators.
- Limit vehicle speeds to 15 miles per hour except on paved roads with posted speed limits. If work must take place at night, the speed limit shall be 10 miles per hour.
- Conduct new construction during the daylight hours to the extent feasible.
- Confine the area of construction site disturbances to the smallest practical area, considering topography, placement of facilities, location of Covered Species habitat, public health and safety, and other limiting factors, and locate sites in previously disturbed areas to the extent possible.
- Use secondary containment devices such as drip pans under stationary engines, such as compressors, generators, light plants, etc. to prevent any leakage from entering runoff or receiving waters.
- Inspect all construction equipment for leaks and maintain equipment regularly to avoid soil contamination. Leaks shall be fixed or the equipment shall be taken out of service until the leak is fixed. Smears of petroleum products shall be cleaned prior to use.
- Clean up any hazardous waste or spills immediately and dispose of at an offsite location that receives the required grade of hazardous waste.
- Store spill kits capable of containing hazardous spills on site.

Mitigation Measure BIO-24: Implement a Worker Environmental Awareness Training

Prior to construction, a WEAP shall be implemented for work crews by a qualified biologist(s). Training materials and briefings shall include but not be limited to discussion of ESA and CESA, the consequences of noncompliance with specific Expanded Mitigation Reserve Program Phase II project permitting requirements, identification and values of special-status plant and wildlife species and sensitive natural plant community habitats, fire protection measures, hazardous substance spill prevention, and containment measures.

Level of Significance Following Mitigation: Less than significant

With implementation of mitigation measures BIO-18 through BIO-24, construction- and operation-related direct impacts described under Impact BIO-1.1 related to the Expanded Mitigation Reserve Program Phase II would be reduced to a less-than-significant level.

Impact BIO-1.2: Construction- and Operation-related Indirect Impacts on Special-status Species***Tributaries Restoration Project and Mitigation Reserve Program Phase I******Construction Impacts***

Construction-related indirect impacts on special-status species, such as increased stress or displacement of individuals, could result from increased noise, dust, and vibration; increased suspended sediment and turbidity in aquatic habitat as a result of excavation, vegetation removal, grading, and/or dewatering and diversion activities; increased personnel and equipment presence; temporary loss of aquatic habitats resulting from dewatering and diversion; temporary loss of riparian/wetland and upland habitat at any of the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites; and edge effects of the construction work.

Impacts on special-status aquatic and semi-aquatic species related to increased sedimentation and turbidity resulting from dewatering or diversion would only occur where aquatic habitat is currently available at the Anza Creek and Lower Hole Creek project sites; no impacts related to increased sedimentation or turbidity or resulting from dewatering or diversion would occur at the Hidden Valley Creek and Old Ranch Creek project sites because these channels are dry most of the year and lack suitable aquatic habitat to support special-status aquatic species. Sediment disturbed during excavation and enhancement activities in aquatic habitats would cause increased suspended sediment concentrations and turbidity at the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites and possibly downstream in the Santa Ana River. Sediment could also be delivered to stream habitats during dewatering and diversion activities, particularly at the point of re-entry of diverted water, and can be transported downstream changing bathymetric and hydrological conditions. Erosion of soils may also occur at all Tributaries Restoration Project and Mitigation Reserve Program Phase I sites following precipitation events prior to vegetation replanting or establishment or in the event that erosion control BMPs fail or are ineffective.

High levels of turbidity could trigger avoidance and alarm behavior leading to physical displacement from preferred habitat, which in turn could lead to physiological stress and reduced feeding. This could adversely affect all life stages of special-status aquatic and semi-aquatic species, and could also reduce foraging abilities of these aquatic and semi-aquatic species; such an impact would be significant. Such increases in turbidity could temporarily impair feeding by native fishes or disrupt other behaviors; however, Santa Ana sucker and arroyo chub are adapted to turbid environments and can likely tolerate short-term, minor increases in suspended sediment and turbidity that would occur during construction. As a result, physiological impairment or mortality of native fishes and aquatic species is expected to be minimal from indirect construction impacts.

As described above in Impact BIO-1.1, temporary dewatering of aquatic habitats and diversion of streamflow would be necessary for construction of habitat enhancement and restoration areas. Temporary loss of aquatic habitats during construction could result in indirect impacts on special-status species, such as a temporary loss of essential foraging and sheltering areas for semi-aquatic

species and loss of foraging areas and water sources for terrestrial and riparian species. These impacts would be limited to the duration of construction. In addition, the Santa Ana River provides an alternative water source in the vicinity of the Anza Creek and Lower Hole Creek project sites. As a result, adverse effects on special-status species are expected to be minimal.

It is possible that special-status riparian bird and bat species, and terrestrial wildlife species, may be present in or near the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites during construction activities. Noise generated from construction activities has the potential to disturb special-status riparian bird species with moderate or high potential to occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance, including coastal California gnatcatcher, Clark's marsh wren, white-tailed kite, yellow breasted chat, yellow warbler, and least Bell's vireo. Noise from construction equipment and habitat enhancement activities may disturb essential behaviors of these species, such as feeding, migration, reproduction, and sheltering. Construction-related sound and vibration may also drive individuals away from suitable adjacent habitat or cause breeding species to abandon nest sites, which would disrupt essential behaviors and lead to stress, competition, or predation.

Indirect impacts on special-status plant species are expected to be minor. Airborne sedimentation could settle on special-status plant species outside of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance and could cause a reduction in photosynthetic output, loss of productivity, and potentially mortality. Downstream sedimentation could cause a change in vegetation communities, indirectly affecting some species. However, with the implementation of mitigation measure BIO-25, indirect impacts on special-status plant species would be less than significant.

Operational and Maintenance Impacts

Although indirect impacts would be temporary and generally limited to the construction period, special-status animals could be subject to impacts if they are present during post-construction restoration activities when indirect impacts may occur. Operational impacts may occur when maintenance crews are performing invasive removal, weeding, planting, or restoration activities in or near aquatic habitats and when biologists are performing field surveying of restoration success criteria. Indirect impacts could result in stress, behavioral impairment, and displacement of special-status terrestrial, riparian, aquatic, semi-aquatic, and upland species due to post-construction restoration activities such as ongoing maintenance noise, vibrations, and turbidity.

Significance Determination Prior to Mitigation: Potentially significant.

Indirect impacts on special-status species as a result of operations and maintenance-related noise, dust, and vibration would be significant. Effects on special-status aquatic species related to increased suspended sediment and turbidity would be short-term and minor and are considered to be less than significant. The temporary loss of aquatic habitat due to dewatering during Tributaries Restoration Project and Mitigation Reserve Program Phase I construction would be less than significant. Also, implementation of mitigation measure BIO-25 would reduce noise, dust, and vibration impacts to a less-than-significant level.

*Mitigation Measures***Mitigation Measure BIO-25: Implement Best Management Practices to Avoid or Minimize Impacts on Special-Status Species From Construction- and Operations-Related Impacts.**

To avoid noise impacts on special-status species from construction and operations activities, the Tributaries Restoration Project and Mitigation Reserve Program Phase I shall include measures necessary to reduce construction noise levels to comply with local noise ordinances. All heavy equipment shall install and maintain mufflers or other noise-reducing features. A biological monitor shall monitor at the edge of the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance or areas not cleared of vegetation to ensure noise levels do not result in a disruption to nesting birds. If construction noise is negatively affecting nesting birds (e.g., a discernable negative change in behavior is observed, such as nest flushing or adults not returning to the nest with prey) then work shall cease in the immediate area until adequate controls such as noise barriers can be established to reduce noise levels. Noise barriers may include temporary noise blankets or noise shrouds. If construction noise may affect nesting birds, it may be most effective to construct noise barriers well prior to February 15, the start of the nesting season, to ensure construction delays do not occur. All noise barriers shall be constructed within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance.

To control fugitive dust, active construction and operations areas shall be watered regularly to control dust and minimize impacts on adjacent vegetation.

Level of Significance Following Mitigation: Less than significant.

With implementation of mitigation measure BIO-25, indirect impacts resulting from temporary construction- and operations-related increases in noise and vibration related to the Tributaries Restoration Project and Mitigation Reserve Program Phase I would be reduced to a less-than-significant level.

Expanded Mitigation Reserve Program Phase II*Construction Impacts*

Construction-related indirect impacts on special-status species, such as increased stress or displacement of individuals, will be analyzed at a project-specific level when specific details of the projects of the Expanded Mitigation Reserve Program Phase II are available. Potential indirect impacts on special-status species could include increased stress or displacement of individuals resulting from increased noise, dust, and vibration; increased personnel and equipment presence; and temporary edge effects at riparian/wetland and upland habitat at all Expanded Mitigation Reserve Program Phase II sites.

Operational and Maintenance Impacts

Although the indirect impacts would likely be temporary and generally limited to the construction period, indirect impacts may occur during the post-construction restoration period. Depending on the level of restoration and enhancement work required, special-status animals could be subject to indirect impacts if they are present when maintenance crews are performing invasive removal, weeding, planting, or restoration activities and when biologists are performing field surveying of restoration success criteria. Indirect impacts could result in stress, behavioral impairment, and

displacement of special-status terrestrial, riparian, aquatic, semi-aquatic, and upland species due to post-construction restoration activities such as ongoing maintenance noise, vibrations, and turbidity.

Significance Determination Prior to Mitigation: Potentially significant.

Indirect impacts on special-status species as a result of construction- and operations-related stress, behavioral impairment, and displacement of special-status terrestrial, riparian, semi-aquatic, and upland species could result. Implementation of mitigation measure BIO-25 would reduce impacts on special-status species as a result of construction and operational stress, behavioral impairment, and displacement to a less-than-significant level.

Mitigation Measures

Implement mitigation measure BIO-25.

Level of Significance Following Mitigation: Less than significant.

With implementation of mitigation measure BIO-25, indirect impacts resulting from temporary construction and operational increases in noise and vibration associated with the Expanded Mitigation Reserve Program Phase II would be reduced to a less-than-significant level.

Impact BIO-1.3: Indirect Impacts on Special-Status Species Resulting from Habitat Modifications

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Construction Impacts

As described in Chapter 2, the proposed tributaries restoration sites would be designed to maximize beneficial impacts while minimizing impacts on special-status species. Refer to Chapter 2 for a detailed description of proposed restoration components at each restoration site. The tributaries restoration sites are designed to restore existing channels, restore existing floodplain tributaries, enhance existing riparian and floodplain habitats, reduce the potential human disturbance, and control nonnative invasive species. Although construction may temporarily affect wetland, riparian, and upland habitats in and near the restoration sites that support habitat for special-status species, the net project benefits of restoring and improving habitat quality and extent for these species would outweigh the potential short-term construction and restoration impacts. No net loss of sensitive habitats or jurisdictional aquatic resources would occur.

Outside the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance, habitat modifications could indirectly affect special-status species within existing access roads and staging areas. These roads would be bladed for construction vehicle traffic to a width 14 feet, and staging areas would also be bladed, as shown on Figures 3.3-4, 3.3-9, and 3.3-14. Access roads would avoid sensitive areas to the maximum extent practicable. Staging areas would be placed strategically as far away from sensitive areas as practicable, balanced with the need for efficient construction sites, and would be restored at the conclusion of construction.

Indirect impacts resulting from habitat modifications are discussed below for each of the tributaries restoration sites. Following that discussion, the permanent, yet beneficial, impacts are discussed.

Summary of Habitat Modifications by Site

Anza Creek/Old Ranch Creek

The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I at the Anza Creek project site would reconfigure the Anza Creek channel near the confluence, enhance approximately 3,045 feet of the existing channel, establish a new 0.75-acre floodplain, and reconfigure a deep pool. The reconfiguration of Anza Creek would involve narrowing the channel and a deep pool leading to increased flow rates, scouring the channel, and increasing connectivity with the Santa Ana River.

At the Old Ranch Creek project site, 7,045 feet of new and enhanced channel would be created with the installation of a perennial water source. A 100-foot-wide riparian corridor along the entire channel (50 feet on each side of the channel) would also be enhanced. Realignment of Old Ranch Creek would redirect the channel southwest and to an eventual confluence with the Santa Ana River.

Creation and enhancement of aquatic and riparian habitat in Old Ranch Creek, including installation of a perennial water source, would increase the quantity and quality of stream habitat used by special-status fishes, semi-aquatic species, and other riparian species, resulting in long-term benefits to these species. Enhancements of other existing vegetation communities would improve functions and values for other special-status wildlife.

Lower Hole Creek

Components of the Lower Hole Creek site would include restoration of 1,845 feet of existing riparian corridor, stabilization of channel bank, and narrowing the downstream channel at the confluence. The restored corridor would extend up to 400 feet downstream of Jurupa Avenue at 50–75 feet wide. Bank stabilization would occur at five sites that exhibit excessive erosion. Bank stabilization at these sites would incorporate bank excavation to reduce steepness and building a narrow bench at the toe to provide a buffer from the active channel. The downstream channel would be narrowed approximately 150 feet and is an effort to promote scouring, increase flow rates, and increase structural complexity. A low floodplain with terrace would be added as well. As with Anza Creek and Old Ranch Creek restoration, creation and enhancement of aquatic and riparian habitat in Lower Hole Creek would increase the quantity and quality of stream habitat used by special-status fishes and semi-aquatic species, and enhancements to existing vegetation communities would result in long-term benefits to other wildlife species.

Hidden Valley Creek

The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I at the Hidden Valley Creek restoration site would enhance 3,320 feet of riparian corridor, and create a new channel and a new perennial groundwater source. The enhanced riparian corridor would extend from the former canal headworks at the eastern end of the site to the Santa Ana River confluence to the west via a newly constructed channel totaling 4,200 feet. A new perennial water source would be sustained by a new groundwater well and pump proposed to be constructed upstream. This proposed source of water would restore hydrology to the floodplain channel. These improvements would provide long-term benefits to special-status and commonly occurring plant and wildlife species.

Impacts on Special-Status Species from Habitat ModificationsTemporary Construction Impacts on Special-Status Species from Habitat Modifications

Habitat improvements at each restoration site would result in temporary impacts on native vegetation communities, nonnative and invasive vegetation communities, and other land cover types, including open water, disturbed habitat, and urban/developed areas (see Section 3.3.2 for native and nonnative vegetation communities). Temporary impacts are composed of three types of impacts: (1) grading and access, (2) access and staging, and (3) clearing and planting (see Table 3.3-14). Permanent impacts are discussed subsequent to temporary impacts below.

Table 3.3-14. Estimated Temporary and Permanent Impacts on Native Communities, Nonnative Communities, and Land Cover Types at the Tributaries Restoration Project and Mitigation Reserve Program Phase I Sites

Common Name	Temporary Grading and Access	Temporary Access and Staging	Temporary Clearing and Planting	Permanent
Anza Creek/Old Ranch Creek				
Native Communities	4.64	1.82	12.86	0.12
Nonnative Communities	0.92	0.35	2.56	0.00
Land Cover Types	0.53	3.86	0.16	0.08
Total	6.09	6.03	15.58	0.20
Lower Hole Creek				
Native Communities	1.94	0.14	2.03	0.15
Nonnative Communities	0.06	0.15	0.39	-
Land Cover Types	0.22	2.60	0.47	0.00
Total	2.22	2.89	2.89	0.15
Hidden Valley Creek				
Native Communities	5.21	2.21	12.31	0.28
Nonnative Communities	0.20	1.12	1.40	-
Land Cover Types	0.86	6.44	0.37	0.01
Total	6.27	9.77	14.08	0.29
Source: Appendix B				

Anza Creek/Old Ranch Creek

Temporary impacts at Anza Creek and Old Ranch Creek would include grading and access (6.09 acres), access and staging (6.03 acres), and clearing and planting (15.58 acres) activities. Temporary access and staging impacts would be concentrated predominantly in urban/developed areas and disturbed habitat (3.86 acres); native vegetation communities would be minimally affected (1.82 acres). Of the temporary grading and access impacts, the majority (4.64 acres) would occur in native vegetation communities. Similarly, temporary clearing and planting impacts would be largest in native vegetation communities (12.86 acres). These impacts are associated with activities that would restore this land cover type to high quality aquatic and riparian habitat for focal, special-status species through channel creation and enhancement, installation of instream habitat features, and riparian vegetation planting. Nevertheless, in their current state, these vegetation communities have the potential to support, or do support, special-status riparian bird species, aquatic and semi-aquatic species, and terrestrial species. Although temporary, the impacts on 19.32 acres of native

vegetation would displace special-status species from suitable habitat. As a result, this impact would be potentially significant. However, the impact would be reduced to a less-than-significant level with implementation of mitigation measures BIO-2 through BIO-9, and BIO-11 and BIO-12.

Lower Hole Creek

Temporary impacts at Lower Hole Creek would include grading and access (2.22 acres), access and staging (2.89 acres), and clearing and planting (2.89 acres) activities. Similar to the Anza Creek and Old Ranch Creek sites, the majority of impacts on native vegetation communities would result from grading and access (1.94 acres) and clearing and planting (2.03 acres) activities. These vegetation communities have the potential to support, or do support, special-status riparian bird species, aquatic and semi-aquatic species, and terrestrial species. As at other restoration sites these impacts are associated with conversion to high quality aquatic habitat through channel creation or enhancement, creation of instream habitat features, or riparian vegetation planting. Temporary access and staging impacts would be concentrated in other land cover types (2.60 acres), predominantly urban/developed areas and disturbed habitat, but native vegetation communities would also be minimally affected (0.14 acre). Although temporary, the impacts on 4.11 acres of native vegetation could displace special-status riparian bird species, aquatic and semi-aquatic species, and terrestrial species from suitable habitat. As a result, this impact would be potentially significant. However, the impact would be reduced to a less-than-significant level with implementation of mitigation measures BIO-2 through BIO-9, and BIO-11 and BIO-12.

Hidden Valley Creek

Temporary impacts at the Hidden Valley Creek site would include grading and access (6.27 acres), access and staging (9.77 acres), and clearing and planting (14.08 acres). Most impacts on native vegetation communities would result from grading and access (5.21 acres) and clearing and planting (12.31 acres) activities. These vegetation communities have the potential to affect special-status riparian bird species, aquatic and semi-aquatic species, and terrestrial species. These impacts are predominantly associated with conversion to high quality aquatic habitat through riparian planting, creation of instream habitat features, or wetland/channel planting. Temporary access and staging impacts would be concentrated in other land cover types (6.44 acres), predominantly urban/developed areas and disturbed habitat, but native vegetation communities would also be affected (2.21 acres). Although temporary, the impacts on 19.73 acres of native vegetation could displace special-status riparian bird species, aquatic and semi-aquatic species, and terrestrial species from suitable habitat and potentially prevent these species from successfully foraging, seeking cover, and reproducing. As a result, this impact would be potentially significant. However, the impact would be reduced to a less-than-significant level with implementation of mitigation measures BIO-2 through BIO-9, and BIO-11 and BIO-12.

Permanent Construction Impacts on Special-Status Species from Habitat Modifications

Habitat improvements at all restoration sites would result in a total of 0.64 acre of permanent impacts on native vegetation communities, nonnative vegetation communities, and other land cover types including open water, disturbed habitat, and urban/developed areas. Permanent impacts would result from conversion of existing vegetation or other land cover types to "hard scape" features such as culverts, weirs, and boulders used in the creation and enhancement of aquatic habitat and riparian habitat. Because of the creation and enhancement of up to 478.90 acres of habitat within the Tributary Restoration Sites, most of which is highly degraded, no net loss of occupied or sensitive habitat would occur as a result of 0.64 acre of hardscape project components;

rather a net increase in habitat would occur. Permanent impacts at each Tributaries Restoration Project site are detailed in the following sections.

Anza Creek/Old Ranch Creek

Permanent impacts at the Anza Creek/Old Ranch Creek site include impacts on native vegetation communities (0.12 acre), and non-vegetated land cover types (0.08 acre). Permanent impacts on native vegetation communities would occur in Black Willow Thickets, Black Willow/Fremont Cottonwood Forest, Fremont Cottonwood Forest, and Fremont Cottonwood/Willow/Wild Grape Forest. These vegetation communities have the potential to support special-status riparian bird species, aquatic and semi-aquatic species, and terrestrial species. These impacts would result from stream channel enhancements, installation of lunger structure or boulder terraces, and riparian shrub or wetland/channel planting. Conversion of 0.17 acre of native vegetation to aquatic habitat features is unlikely to adversely affect special-status species, which would continue to have access to the 113 acres of these vegetation communities available at this site.

An additional 0.06 acre of open water habitat would be permanently affected by conversion to a variety of in-water habitat features and channel enhancements. Open water habitat is expected to support special-status aquatic and semi-aquatic species at these restoration sites. Conversion of the existing low quality open water habitat to high quality aquatic habitat elements via channel enhancements, riparian and channel plantings, lunger structure, and angle weirs would not be considered adverse. A total of 1.10 acres of floodplain bench would be created.

Lower Hole Creek

Permanent impacts at Lower Hole Creek consist of impacts on native vegetation communities (0.15 acre), including Black Willow Thickets and California Sycamore Woodlands, and a very small area (> 0.01 acre) of urban/developed area. These impacts would result from installation of boulder terraces and aquatic step pool habitat, and bank stabilization activities. These vegetation communities have the potential to support special-status riparian bird species, aquatic and semi-aquatic species, and terrestrial species. However, removal of this acreage represents a relatively small amount of habitat affected/removed compared to the 4.20 acres of these vegetation communities available at the site, most of which would be enhanced from current conditions. A total of 0.50 acre of floodplain bench would be created. Therefore, removal of this amount of habitat would not be considered adverse when compared to the overall net increase in high quality habitat.

Hidden Valley Creek

Permanent impacts at the Hidden Valley Creek site consist of impacts on native vegetation communities (0.28 acre) and other land cover types (0.01 acre). Permanent impacts on native vegetation communities would occur in Fremont Cottonwood/Willow Forest, Fremont Cottonwood/Willow/Mulefat Forest, and Mulefat Thickets. These impacts would result from installation of culverts, channel enhancements, and riparian and wetland/channel plantings. These vegetation communities have the potential to support, or do support, special-status riparian bird species, aquatic and semi-aquatic species, and terrestrial species. Removal of this acreage represents a relatively small amount of habitat affected/removed compared to the 47.00 acres of these vegetation communities available at the site. A total of 1.30 acres of floodplain bench would be created. Therefore, removal of this amount of habitat would be considered less than significant.

Benefits to Special-Status Species from Habitat Modifications

Existing fish habitat at the Anza Creek and Old Ranch Creek project sites is limited to a portion of the Anza Creek channel that supports perennial flows, with variable habitat quality ranging from poor to high, largely dependent on flow velocity and channel substrate. Existing fish habitat at the Lower Hole Creek site consists of highly degraded perennial stream habitat due to a high level of human disturbance and trash, the presence of invasive species, the presence of a large drop structure (at Jurupa Avenue) that has reduced sediment transport and delivery of coarse sand and gravel substrate, and excessive bank erosion that has contributed fine-grained sediment to the stream. There is currently no existing fish habitat at the Hidden Valley Creek project site due to near-absence of perennial or intermittent surface hydrology, a legacy of damage caused by a 2010 flood, and resultant impairment of channel structure and function.

Creation and enhancement of aquatic and riparian habitat in Anza Creek and Old Ranch Creek and the establishment of a perennial water source in Old Ranch Creek would increase the quantity and quality of stream habitat for special-status fishes and semi-aquatic species, resulting in long-term benefits to those species. Additional benefits to native fish and semi-aquatic species could include reduced risk of predation by nonnative predators (e.g., bass and bullfrogs) that currently use the deep pool in Anza Creek, by recontouring the pool to make it shallower and less suitable for predators. Channel modifications and increased flow could reduce the current risk of suffocation, desiccation, and predation that may occur when fish are stranded or trapped in isolated aquatic habitats during seasonal drying of portions of Anza Creek.

Wetland habitats would be created, enhanced, and/or restored at the Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek project sites. Alkali marsh habitat would also be restored at the Old Ranch Creek site. Creation and enhancement of wetland and marsh habitats would benefit sensitive aquatic, semi-aquatic, and riparian species with potential to occur within the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites and that use these habitats during their natural life history.

Creation, restoration, and enhancement of floodplain habitat would occur at the Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek project sites. Creating floodplain benches to provide additional areas to where overbank flows can spread is expected to enhance existing riparian zones and improve riparian habitat that would benefit sensitive amphibians, reptiles, and bird species, such as least Bell's vireo and yellow-breasted chat, breeding, which have been confirmed at the Anza Creek/Old Ranch Creek and Hidden Valley Creek project sites. Suitable habitat for Santa Ana River woolly-star currently occurs at the Anza Creek/Old Ranch Creek and Hidden Valley Creek sites, and suitable habitat for smooth tarplant occurs at the Anza Creek/Old Ranch Creek site. Restoration opportunities to enhance the floodplain and to restore California annual grassland and alkali marsh would improve habitat conditions for Santa Ana River woolly-star and smooth tarplant.

Planting of coastal scrub for revegetation at the Anza Creek/Old Ranch Creek site would benefit sensitive species with potential to occur within the sites that use scrub habitat for breeding and/or foraging, potentially including sensitive and common birds, mammals, and reptiles. Expansion of suitable coastal scrub habitat is expected to benefit northwest San Diego pocket mouse, western mastiff bat, San Diego black tailed jackrabbit, and San Diego desert woodrat, as well as other avian, mammalian, and reptilian species.

Nonnative vegetation removal and replacement with native species is proposed in riparian and California annual grassland habitats at the Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek sites. As described above, vegetation removal activities have the potential to temporarily affect nesting birds and other sensitive terrestrial species; however, this restoration activity is expected to have a net benefit to these species by improving the quality and quantity of riparian and California annual grassland habitats. Species potentially benefitting from riparian restoration and grassland habitat improvement include those that may breed, forage, and/or shelter in riparian and upland habitats. These species include, but are not limited to, least Bell's vireo, grasshopper sparrow, yellow-breasted chat, yellow warbler, western yellow bat, and two-striped gartersnake, all of which rely on riparian and/or grassland habitat.

Human activity in both the buffer and the floodplain degrades conditions as a result of trail creation, trash disposal, vegetation clearing, and human waste. Limiting human disturbance in restored and enhanced areas would be expected to benefit all special-status species and improve overall wetland conditions. The restoration areas would be delineated and staked, restoration signage would be installed, and routine patrols would be conducted. Specific benefits to sensitive species at each of the Tributaries Restoration sites are discussed in the following sections.

Anza Creek and Old Ranch Creek

Table 3.3-15 summarizes the sensitive species that would benefit from restoration activities at the Anza Creek/Old Ranch Creek site. Establishment of new floodplain would include the creation of riparian and scrub habitat within the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. Least Bell's vireo, willow flycatcher, yellow-breasted chat, and yellow warbler occur on site, and riparian habitat suitable for these species occupies much of the site. Santa Ana River woolly-star was detected on site during a March 12, 2014, site visit. No sensitive plant species were detected during 2016 site visits, but habitat for Santa Ana River woolly-star and smooth tarplant does exist throughout the site (Appendix B). Restoration of the creek, including removal of invasive species and enhancement of the riparian habitat, would benefit these species. The enhancement and creation of wetted channels would create suitable habitat for arroyo chub, Santa Ana sucker, and Santa Ana speckled dace. These species would be able to feed and reproduce in the wetted channels because of increased surface flows. Restoring riparian habitat and controlling invasive species would allow for two-striped gartersnake and southwestern pond turtle to reproduce successfully without disturbance, thereby increasing recruitment.

Table 3.3-15. Summary of Restoration Design Components and Benefits to Sensitive Species at the Anza Creek/Old Ranch Creek Tributary Restoration Sites

Restoration Opportunities	Santa Ana Sucker	Santa Ana Speckled Dace	Arroyo Chub	Southwestern Pond Turtle	Two-Striped Gartersnake	Least Bell's Vireo	Yellow-Breasted Chat	California Gnatcatcher	Western Yellow-Billed Cuckoo
Rehabilitate Existing Channel	✓	✓	✓	✓	✓				
Establish New Floodplain	✓	✓	✓	✓	✓	✓	✓		✓
Restore Riparian Habitat	✓	✓	✓	✓	✓	✓	✓		✓
Construct New, and Enhance Existing, Channels	✓	✓	✓	✓	✓	✓	✓		✓
Control Invasive Wildlife Species	✓	✓	✓	✓	✓				✓
Supply Flows	✓	✓	✓	✓	✓	✓	✓		✓
Limit Human Disturbance	✓	✓	✓	✓	✓	✓	✓	✓	✓
Reconfigure Channel near Confluence with Santa Ana River	✓	✓	✓	✓	✓				
Construct Rock and Woody Debris Structures	✓	✓	✓	✓	✓				
Recontour Deep Pool	✓	✓	✓	✓	✓				
Source: Appendix B									

Lower Hole Creek

Table 3.3-16 summarizes the sensitive species that would benefit from restoration activities at the Lower Hole Creek. Channel enhancement and construction of rock and woody debris structures would contribute to increased ecosystem functions and benefits for aquatic and semi-aquatic species within the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. Stabilization of channel banks would increase the amount of suitable habitat along the channel's margin and decrease the rate of siltation, maintaining the appropriate substrate structure for Santa Ana sucker and Santa Ana speckled dace to forage and reproduce. Restoration activities that enhance riparian conditions at the site—including creating floodplain bench area and vegetation to increase native shrub density and vegetation strata and limiting human disturbance—would increase habitat quality for sensitive riparian bird species including least Bell's vireo, southwestern willow flycatcher, and yellow-breasted chat.

Table 3.3-16. Summary of Restoration Design Components and Benefits to Sensitive Species at the Lower Hole Creek Tributary Restoration Site

Restoration Opportunities	Santa Ana Sucker	Santa Ana Speckled Dace	Arroyo Chub	Southwestern Pond Turtle	Two-Striped Gartersnake	Least Bell's Vireo	Southwestern Willow Flycatcher	Yellow-Breasted Chat
Restore Riparian Corridor	✓	✓	✓	✓	✓	✓	✓	✓
Enhance Channel	✓	✓	✓	✓	✓			
Construct Rock and Woody Debris Structures	✓	✓	✓	✓	✓			
Re-establish Floodplain	✓	✓	✓	✓	✓	✓	✓	✓
Stabilize Channel Banks	✓	✓	✓	✓	✓	✓	✓	✓
Restore Tributary East of Lower Hole Creek Channel	✓	✓	✓	✓	✓	✓	✓	✓
Narrow Lower Hole Creek Channel and Create Terrace at Downstream End	✓	✓	✓	✓	✓	✓	✓	✓
Control Nonnative Invasive Wildlife Species	✓	✓	✓	✓	✓	✓	✓	✓
Control Human Disturbance	✓	✓	✓	✓	✓	✓	✓	✓
Source: Appendix B								

Hidden Valley Creek

Table 3.3-17 summarizes the sensitive species that would benefit from restoration activities at the Hidden Valley Creek site. Provision of a perennial water source, restoration of channel complexity and the addition of rock and wooded structures would provide aquatic and semi-aquatic species with suitable habitat to forage and reproduce. Restoration activities that enhance riparian conditions at the site, creating a stream channel in the old canal reach or an oxbow feature and enhancing native riparian vegetation, would further increase habitat quality for covered riparian bird species, including least Bell's vireo, southwestern willow flycatcher, and yellow-breasted chat. Controlling invasive species, such as brown-headed cowbird, and limiting human disturbance would also result in long-term benefits to covered bird species.

Table 3.3-17. Summary of Restoration Design Components and Benefits to Sensitive Species at the Hidden Valley Creek Tributary Restoration Site

Restoration Opportunities	Santa Ana Sucker	Santa Ana Speckled Dace	Arroyo Chub	Southwestern Pond Turtle	Two-Striped Gartersnake	Least Bell's Vireo	Southwestern Willow Flycatcher	Yellow-Breasted Chat	Santa Ana River Woolly-Star
Restore Channel Structural Complexity	✓	✓	✓	✓	✓				
Provide a Perennial Water Source	✓	✓	✓	✓	✓	✓	✓	✓	
Enhance Native Riparian Vegetation	✓	✓	✓	✓	✓	✓	✓	✓	
Construct Rock and Woody Debris Structures	✓	✓	✓	✓	✓				
Enhance Floodplain Habitat				✓	✓	✓	✓	✓	✓
Control Invasive Wildlife Species	✓	✓	✓	✓	✓	✓	✓	✓	
Limit Human Disturbance	✓	✓	✓	✓	✓	✓	✓	✓	✓
Source: Appendix B									

Operational and Maintenance Impacts

Direct and indirect temporary impacts on special-status species resulting from habitat modification could occur during post-construction Tributaries Restoration Project and Mitigation Reserve Program Phase I activities when maintenance crews are performing invasive removal, weeding, planting, or other restoration maintenance activities. Maintenance weeding would likely occur monthly during the growing season. Impacts would likely be more intense in the early phases of restoration when vegetation is young and sparse and rigorous and frequent weed control is required; as native vegetation becomes denser and weeds become more controlled and limited, these impacts are anticipated to lessen. Once the native vegetation is fully established, restoration maintenance is expected to be minimal, and much of the restoration area would likely be impenetrable for humans. Impacts could also occur when overall site maintenance activities are performed, which are expected to occur in perpetuity, such as homeless encampment removal, signage and fencing maintenance, unauthorized trail removal, or other long-term maintenance work. However, operational impacts on special-status species through habitat modification are expected to be negligible or nonexistent.

Following construction, habitat modifications caused by maintenance vehicles traveling on access roads could temporarily affect special-status species. Access roads are not expected to be bladed during operations and would be allowed to grow over with vegetation, impassable locations would be spot-repaired, and access roads would avoid sensitive areas to the maximum extent practicable. Operations and maintenance work would not require large-scale equipment deployment and would be staged in existing roadways.

In summary for Impact 1.3, among all Tributaries Restoration Project and Mitigation Reserve Program Phase I sites, a total of 0.64 acre of habitat would be permanently affected by hardscape installation; however, new floodplain bench habitat would be created and the quality of habitat would be enhanced at each Tributaries Restoration Project and Mitigation Reserve Program Phase I site, largely through activities to restore hydrological functioning, controlling invasive wildlife species, and limiting human disturbance. As described above, creation and enhancements are expected to have an overall benefit to many special-status species with no net loss of habitat resulting from permanent design components. Nonetheless, the Tributaries Restoration Project and Mitigation Reserve Program Phase I would require mitigation measures to avoid and minimize impacts. Restoration of degraded habitats with higher quality habitat, long-term management and protection of restored sites, and implementation of mitigation measures BIO-1 through BIO-17 would reduce this impact to less-than-significant levels.

Significance Determination Prior to Mitigation: Potentially significant.

As described above, indirect impacts on special-status species resulting from habitat modifications would be considered significant under CEQA. With implementation of mitigation measures BIO-1 through BIO-17, indirect impacts from habitat modifications would be avoided and/or minimized to the maximum extent feasible. By design, the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I would: increase the amount and quality of habitat for the Santa Ana sucker and other sensitive native species and enhance jurisdictional aquatic resources, restore existing channels and an existing floodplain tributary, enhance existing riparian and floodplain habitats, limit human disturbance, and control nonnative invasive species. Therefore, considering the overwhelming long-term benefits of the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I for sensitive species and their habitats relative to impacts resulting from construction activities and habitat modifications, Impact BIO-1.3 would be reduced to a less-than-significant level with implementation of mitigation measures BIO-1 through BIO-17.

Mitigation Measures

Implement mitigation measures BIO-1 through BIO-17.

Level of Significance Following Mitigation: Less than significant.

With implementation of mitigation measures BIO-1 through BIO-17, impacts resulting from indirect impacts on special-status species resulting from habitat modifications within the Tributaries Restoration Project and Mitigation Reserve Program Phase I would be reduced to a less-than-significant level.

Expanded Mitigation Reserve Program Phase II

Construction Impacts

Project-specific construction-related indirect impacts on special-status species resulting from habitat modifications will be analyzed when specific details of the projects of the Expanded Mitigation Reserve Program Phase II are available. Although the indirect impacts would likely be temporary and generally limited to the construction period, special-status species could be subject to temporary indirect impacts as habitats are enhanced and created during construction. Construction-related stress, behavioral impairment, and displacement of special-status terrestrial, riparian, semi-aquatic, and upland species could result.

Outside specific Mitigation Reserve site limits of disturbance, habitat modifications caused by vehicles could affect special-status species within existing access roads. These roads would be bladed for construction vehicle traffic, but only as needed when existing conditions become impassable, and they would avoid sensitive areas to the maximum extent practicable. Staging areas would be placed strategically as far away from sensitive areas as practicable, balanced with the need for efficient construction sites.

Operational and Maintenance Impacts

Project-specific operations-related indirect impacts on special-status species resulting from habitat modifications will be analyzed when specific details of the projects of the Expanded Mitigation Reserve Program Phase II are available. Creation and enhancement of aquatic and riparian habitat for the Expanded Mitigation Reserve Program Phase II would increase the quantity and quality of existing vegetation communities and would improve functions and values for other special-status wildlife.

Following construction, maintenance vehicles could affect special-status species while traveling on access roads to the specific Expanded Mitigation Reserve Program Phase II sites, potentially hitting, crushing, or destroying these species. However, access roads would not be bladed during operations and would be allowed to grow over with vegetation, impassable locations would be spot-repaired, and roads would avoid sensitive areas to the maximum extent practicable. Operations and maintenance work would not require large-scale equipment deployment, and would be staged in existing roadways.

Nonetheless, the benefits to special-status species, in general, from low quality habitat conversion to high quality habitat for special-status species far outstrips the habitat lost, but this indirect impact would be considered significant.

Significance Determination Prior to Mitigation: Potentially significant.

As described above, indirect impacts on special-status species resulting from habitat modifications could be considered significant under CEQA. With implementation of mitigation measures BIO-18 through BIO-24 direct impacts from habitat modifications would be minimized to the maximum extent feasible. Construction-related direct impacts on special-status species resulting from habitat modifications will be analyzed when specific details of the projects of the Expanded Mitigation Reserve Program Phase II are available.

Mitigation Measures

Implement mitigation measures BIO-18 through BIO-24.

Level of Significance Following Mitigation: Less than significant.

With implementation of mitigation measures BIO-18 through BIO-24, impacts resulting from indirect impacts on special-status species resulting from habitat modifications within the Expanded Mitigation Reserve Program Phase II would be reduced to a less-than-significant level.

Impact BIO-2: Potential to result in a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service (Less than significant with mitigation incorporated.)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

As described in Chapter 2, the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I would create or enhance ecologically important riparian, floodplain, and alkali meadow habitat through restoration of four Santa Ana River tributaries sites. Although the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I would result in a net gain in these habitat types, construction would cause the temporary loss or degradation of habitat potentially used by native species. Construction would take approximately 4 months at each restoration site and the natural revegetation of the affected areas would likely take several years to become dense, mature native vegetation stands.

Impacts on Riparian Habitat or Other Sensitive Natural Communities

Construction Impacts

Temporary construction-related impacts would affect riparian and other sensitive natural communities. Construction activities would include clearing, grubbing, excavation, and grading during streambed, floodplain, riparian creation and enhancement activities, as well as creation, use, and maintenance of temporary access roads for heavy equipment and revegetation.

Permanent effects from channel and floodplain creation, enhancement, and restoration activities would include physical design structures such as boulders, gravel bars, and culverts, resulting in small, but adverse, permanent impacts due to reductions in habitat quantity or suitability for native species. Construction could affect riparian habitat or other sensitive natural communities within or adjacent to existing access roads. These roads would be bladed for construction vehicle traffic to a width of 14 feet and staging areas would also be bladed, as shown on Figures 3.3-4, 3.3-9, and 3.3-14. Access roads would avoid sensitive areas to the maximum extent practicable, and staging areas would be placed strategically as far away from sensitive areas as practicable, balanced with the need for efficient construction sites. Staging areas would be restored at the conclusion of construction.

Table 3.3-18 shows the acreages of estimated impacts on each natural community within the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. Impacts on waters of the U.S. and state, including protected wetlands and other jurisdictional resources, are evaluated separately in Impact BIO-3. As noted in Table 3.3-18, permanent impacts would represent a minor component of the overall Tributaries Restoration Project and Mitigation Reserve Program Phase I impacts.

Table 3.3-18. Acres of Temporary and Permanent Impacts on Natural Communities at Each Tributary Restoration Project and Mitigation Reserve Program Phase I Site

Natural Community Name	Affected Acres Within Limits of Disturbance			
	Temporary Grading and Access	Temporary Access and Staging	Temporary Clearing and Planting	Permanent
Anza Creek/Old Ranch Creek				
Arrow Weed Thickets	0.22	0.25	0.67	--
Black Willow Thickets	0.06	--	--	--
Black Willow/Fremont Cottonwood Forest	3.03	0.47	6.38	0.01
Cattail Marshes	0.04	--	0.02	--
Fremont Cottonwood Forest	0.35	0.30	0.12	0.04
Fremont Cottonwood/Willow/Wild Grape Forest	1.44	0.27	5.43	0.07
<i>Total – Anza Creek/Old Ranch Creek</i>	<i>5.14</i>	<i>1.29</i>	<i>12.62</i>	<i>0.12</i>
Lower Hole Creek				
Black Willow Thickets	0.32	0.01	0.78	-
California Buckwheat Scrub	0.01	-	0.05	-
California Sycamore Woodlands	1.62	0.07	1.08	0.15
<i>Total – Lower Hole Creek</i>	<i>1.95</i>	<i>0.08</i>	<i>1.91</i>	<i>0.15</i>
Hidden Valley Creek				
Black Willow Thickets	1.94	1.51	8.75	-
Fremont cottonwood/Willow Forest	0.72	0.57	0.91	-
Fremont Cottonwood/Willow/Mulefat Forest	1.01	-	1.08	0.25
Fremont Cottonwood/Willow/Wild Grape Forest	0.03	-	0.25	-
Mulefat Thickets	1.51	0.03	1.24	0.03
<i>Total – Hidden Valley Creek</i>	<i>5.21</i>	<i>2.11</i>	<i>12.23</i>	<i>0.28</i>
Grand Total	7.10	3.50	26.76	0.55
-- = no impacts				

Anza Creek and Old Ranch Creek

At the Anza Creek and Old Ranch Creek sites approximately 1.70 acres of new floodplain bench would be created by excavating the high ground adjacent to the low-flow channel. A 580-foot-long section of Anza Creek's left bank adjacent to the bicycle trail at Martha McLean-Anza Narrows Park is steep, unvegetated, up to 25 feet tall, and actively eroding into Anza Creek. The bank would be excavated to reduce its steepness, and 0.80 acre would be revegetated with a mixture of riparian plants near the base. An additional 2.10 acres of coastal scrub would be planted upstream of the eroding bank in an unvegetated and sloping area of the site between the bicycle trail and the Anza Creek channel. A new riparian corridor would be created, adjacent to which nonnative plants would be removed and new native vegetation would be planted. The riparian corridor would be

approximately 100 feet wide (50 feet on either side of the channel); approximately 2.50 acres would be planted with native vegetation. Approximately 15.58 acres would have selective clearing and planting, of which 12.62 acres would occur within native communities.

At the Anza Creek and Old Ranch Creek sites, 0.12 acre of riparian or sensitive natural communities would be permanently affected by project activities (Table 3.3-18). These communities include Black Willow/Fremont Cottonwood Forest, Fremont Cottonwood Forest, and Fremont Cottonwood/Willow/Wild Grape Forest. A total of 19.05 acres of riparian or sensitive natural communities would experience temporary construction impacts.

Lower Hole Creek

At the Lower Hole Creek site, approximately 2.62 acres would have selective clearing and planting to create a floodplain bench. See Figure 2-8 for details of floodplain creation. The establishment of a new floodplain is expected to permanently affect 0.15 acre of California Sycamore Woodlands. Construction activities would temporarily affect 3.94 acres of natural communities, which includes temporary clearing, grading, staging, and planting within 1.11 acres of Black Willow Thickets, 0.06 acre of California Buckwheat Scrub, and 2.77 acres of California Sycamore Woodlands.

Hidden Valley Creek

Construction activities at the Hidden Valley Creek site would permanently affect 0.25 acre of Fremont Cottonwood/Willow/Mulefat Forest and 0.03 acre of Mulefat Thickets, totaling 0.28 acre of permanently affected natural communities. A total of 19.55 acres of riparian and sensitive natural communities would experience temporary impacts during project construction due to grading, staging, and temporary clearing and planting. These communities include Black Willow Thickets, Fremont Cottonwood/Willow/Mulefat Forest, Fremont Cottonwood/Willow/Wild Grape Forest, and Mulefat Thickets.

Benefits to Riparian Habitat or Other Sensitive Natural Communities

The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I would result in an overall improvement to riparian habitat and other sensitive natural communities within the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. Activities at each site include restoration of riparian habitat through removal of nonnative vegetation, planting new native vegetation, limiting human disturbance, and controlling invasive wildlife species. Each of these restoration opportunities would enhance the quality and quantity of riparian habitat and other natural communities.

Anza Creek and Old Ranch Creek

The Anza Creek and Old Ranch Creek site currently supports a variety of native floodplain habitats, including Black Willow Cottonwood Riparian Forest, Arrow Weed Thickets, and Salt Grass Flats. Extensive nonnative plant communities found on site include nonnative grassland and nonnative riparian habitat, dominated by palms. Control of nonnative species will benefit riparian and other native communities. Areas within the upper floodplain that historically supported alkali meadow habitat that are now disturbed and degraded will be restored. Channel reconfiguration to enhance hydrological performance and the establishment of 1.70 acres of new floodplain would improve ecological functioning of riparian communities within the Anza Creek and Old Ranch Creek site. Lower Hole Creek supports dense riparian vegetation along most of the upstream half of Lower Hole Creek, which becomes less abundant along the downstream reach. Riparian habitat is

dominated by black willows as well as many invasive species. There are fringing wetlands dominated by emergent species present along portions of the creek, with more substantial emergent wetlands present at the confluence with the creek and the floodplain of the Santa Ana River. Upland areas consist mostly of California annual grassland that is dominated by nonnative grasses.

The riparian corridor would be restored by removing nonnative vegetation and planting new native vegetation. The total width of the corridor would range from 50 to 75 feet but would extend up to over 400 feet in a pocket downstream of Jurupa Avenue where runoff from Van Buren Boulevard enters the site through a culvert. A total of 5.50 acres of riparian vegetation would be restored downstream of Jurupa Avenue. Approximately 1 acre of new floodplain would be created, spread out over nine different areas, by excavating the high ground adjacent to the low-flow channel. The typical width of the inset floodplain areas would be 25–75 feet, and the average excavation depth would be 3–4 feet. Additionally, improvements in upland, nonnative grassland habitat to coastal scrub habitat would provide a buffer to wetland and riparian areas. Limiting human disturbance to this site would maximize ecological functioning of restored habitat. Bank stabilization and channel enhancement would restore hydrological functioning to the site, which in turn would positively affect wetland, riparian, and floodplain habitats within the Anza Creek and Old Ranch Creek sites.

Hidden Valley Creek

The Hidden Valley Creek site is dominated by a series of native riparian and floodplain vegetation communities. In addition, a large portion of the site (eastern end) supports nonnative California annual grassland with an often monotypic cover of nonnative (locally invasive) sunflower. This habitat would be treated for nonnative species and revegetated with a series of appropriate vegetation communities including Fremont Cottonwood/Willow Forest, Alkali Marsh, Arrow Weed Thicket, and Mulefat Scrub. Restoration of a floodplain tributary at this site would include the restoration of riparian habitat surrounding the restored floodplain. The riparian corridor extends along the length of a 3,320-foot channel, and enhancement through nonnative species removal would target the entire area. Limiting human disturbance to this site would maximize ecological functioning of restored habitat.

Operational and Maintenance Impacts

Direct impacts on riparian habitat or other sensitive natural communities identified in local or regional plans, policies, or regulations, or CDFW or USFWS could occur during post-construction restoration activities when maintenance crews are performing invasive species removal, weeding, planting, or other restoration maintenance and when biologists are performing field analysis related to restoration success criteria. Impacts could include temporarily inhibiting or disturbing, crushing, or destroying minor areas of riparian habitat or other sensitive natural communities. Direct operational impacts on constituent special-status plants within these habitats or communities are expected to be negligible or nonexistent as the species would presumably be identifiable by maintenance crews. Restoration site maintenance is expected to occur over a period of 5-10 years, and maintenance weeding would likely occur monthly during the growing season. Impacts would likely be more intense in the early phases of restoration when vegetation is young and sparse and rigorous and frequent weed control is required; as native vegetation becomes denser and weeds become more controlled and limited, these impacts are anticipated to lessen. Once the native vegetation is fully established, restoration maintenance is expected to be minimal, and much of the restoration area would likely be impenetrable for humans. Impacts could also occur when overall site maintenance activities are performed, which are expected in perpetuity, such as homeless

encampment removal, signage and fencing maintenance, unauthorized trail removal, or other long-term maintenance work.

Summary of Impacts and Benefits

Despite an expected overall increase in the amount and quality of riparian habitat and sensitive natural vegetation communities, the Tributaries Restoration Project and Mitigation Reserve Program Phase I would result in permanent loss of approximately 0.55 acre of native vegetation communities. In addition, approximately 31.3 acres of native vegetation communities are expected to be temporarily degraded through construction activities within all Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. This impact would be significant. However, with restoration of channel morphology and hydrologic functioning of the Santa Ana River tributaries, limiting human disturbance, and removal of nonnative invasive species, the quality and quantity of riparian and other natural habitats within the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites would improve.

Significance Prior to Mitigation: Potentially significant.

Implementation of mitigation measures BIO-16 (see Impact BIO-1.1) and BIO-26 would reduce this impact to less-than-significant levels. Mitigation measure BIO-16 outlines construction activity BMPs to minimize degradation of adjacent natural communities. Mitigation measure BIO-26 describes a revegetation plan for temporarily affected riparian habitat or other sensitive natural community.

Mitigation Measures

Mitigation Measure BIO-26: Restore Temporarily Affected Riparian Habitat or Other Sensitive Natural Communities

Prior to any ground disturbances a site-specific revegetation plan shall be prepared by a qualified restoration ecologist that includes a description of existing conditions for each area, disturbances, site preparation, revegetation methods, maintenance and monitoring criteria, performance standards, and adaptive management practices. The plan shall identify cover standards that shall be developed for each plant community target, and cover values established for each layer (shrub, herb, and/or tree layers). The restoration plan shall include a restoration mitigation and monitoring program detailing: (1) a clear description of the restoration activities to be completed, including: (a) any recontouring, (b) methods for de-compacting soils, (c) a planting/seeding plan and plant/seed palette, and (d) an irrigation plan; (2) a comprehensive monitoring and maintenance plan, including: (a) a detailed monitoring and maintenance schedule, (b) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced or allowed to sustain within the restoration areas, (c) success standards (e.g., survival, native plant establishment, diversity, nonnative cover), (d) locations of permanent photo stations, and (e) adaptive management measures; (3) graphics and accompanying GIS shapefiles of the restoration areas; and (4) a contingency plan (e.g., purchase of additional mitigation credits, mitigation at a different offsite location) in the event that the restoration areas do not meet success criteria. Revegetation shall be implemented immediately following construction activities to ensure no permanent net loss of sensitive habitats would occur. Seeds and container stock shall be from regional stock.

Level of Significance Following Mitigation: Less than significant.

With the implementation of mitigation measures BIO-16 and BIO-26, impacts resulting from substantial adverse effects on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS within the Tributaries Restoration Project and Mitigation Reserve Program Phase I would be reduced to a less-than-significant level.

Expanded Mitigation Reserve Program Phase II

Construction Impacts

As described in Chapter 2, the proposed Expanded Mitigation Reserve Program Phase II would create or enhance ecologically important riparian, floodplain, and alkali meadow habitat. Although the proposed Expanded Mitigation Reserve Program Phase II would result in a net gain in these habitat types, construction would cause the temporary modification of habitat potentially used by native species. Outside specific Mitigation Reserve site limits of disturbance, habitat modifications caused by vehicles could affect riparian habitat or other sensitive natural communities within or adjacent to existing access roads. These roads would be bladed for construction vehicle traffic, but only as needed where existing conditions become impassable, and would avoid sensitive areas to the maximum extent practicable. Staging areas would be placed strategically as far away from sensitive areas as practicable, balanced with the need for efficient construction sites. Construction-related substantial adverse effects on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS will be analyzed at a project-specific level when specific details of the projects within the Expanded Mitigation Reserve Program Phase II are available.

Operational and Maintenance Impacts

Direct impacts on riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations, or by CDFW or USFWS could occur during post-construction restoration activities when maintenance crews are performing invasive species removal, weeding, planting, or other restoration maintenance and when biologists are performing field surveys of restoration success criteria. Impacts could include temporarily inhibiting or disturbing, crushing, or destroying minor areas of riparian habitat or other sensitive natural communities. Following construction, habitat modifications caused by vehicles could affect riparian habitat or other sensitive natural communities within or adjacent to existing access roads while traveling during maintenance activities, potentially hitting, crushing, or destroying species. Access roads would not be bladed during operations and would be allowed to grow over with vegetation, impassable locations would be spot-repaired, and roads would avoid sensitive areas to the maximum extent practicable. Operations and maintenance work would not require large-scale equipment deployment, and would be staged in existing roadways. Direct operational impacts on constituent special-status plants within these habitats or communities are expected to be negligible or nonexistent as the species would presumably be identifiable by maintenance crews. Though specific Expanded Mitigation Reserve Program Phase II details are not known, the revegetation of the affected areas would likely take several years to become dense, mature native vegetation stands.

Significance Determination Prior to Mitigation: Potentially significant.

Implementation of mitigation measure BIO-27 would reduce this impact to less-than-significant levels.

Mitigation Measures

Mitigation Measure BIO-27: Restore Temporarily Affected Riparian Habitat or Other Sensitive Natural Communities

Prior to any ground disturbances a site-specific revegetation plan shall be prepared by a qualified restoration ecologist that includes a description of existing conditions for each area, disturbances, compensation mitigation, site preparation, revegetation methods, maintenance and monitoring criteria, performance standards, and adaptive management practices. The plan shall identify cover standards that shall be developed for each plant community target, and cover values established for each layer (shrub, herb, and/or tree layers). The restoration plan shall include a restoration mitigation and monitoring program detailing: (1) a clear description of the restoration activities to be completed, including: (a) any recontouring, (b) methods for de-compacting soils, (c) a planting/seeding plan and plant/seed palette, and (d) an irrigation plan; (2) a comprehensive monitoring and maintenance plan, including: (a) a detailed monitoring and maintenance schedule, (b) a nonnative plant removal plan, including procedures to ensure that nonnative plants are not introduced or allowed to sustain within the restoration areas, (c) success standards (e.g., survival, native plant establishment, diversity, nonnative cover), (d) locations of permanent photo stations, and (e) adaptive management measures; (3) graphics and accompanying GIS shapefiles of the restoration areas; and (4) a contingency plan (e.g., purchase of additional mitigation credits, mitigation at a different offsite location) in the event that the restoration areas do not meet success criteria. Revegetation shall be implemented immediately following construction activities to ensure no permanent net loss of sensitive habitats would occur. Seeds and container stock shall be from regional stock.

Level of Significance Following Mitigation: Less than significant.

With the implementation of mitigation measure BIO-27, impacts resulting from substantial adverse effects on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, or regulations or by CDFW or USFWS within the Expanded Mitigation Reserve Program Phase II would be reduced to a less-than-significant level.

Impact BIO-3: Potential to result in a substantial adverse effect on state or federally protected wetlands (e.g., marshes, vernal pools, coastal wetlands) through direct removal, filling, hydrological interruption, or other means (Less than significant with mitigation incorporated)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Construction Impacts

As described in Section 3.3.2, the tributaries restoration sites support aquatic resources. This includes waters of the U.S. and state consisting of non-wetland and wetland waters subject to the jurisdiction of USACE and RWQCB under Sections 404 and Section 401 of the CWA, respectively, and streambed and associated riparian (contiguous with the streambed) subject to regulation by CDFW under CFGC Section 1602. Impacts on aquatic resources would be potentially significant and would require mitigation.

Impacts on Jurisdictional Waters and Wetlands and CDFW Jurisdictional Streambed and Associated Riparian

Table 3.3-19 shows the acreages of estimated impacts on wetlands and non-wetland waters of the U.S. and state at each restoration site within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance. For the purposes of this analysis, impacts on individual jurisdictional features have been summarized for each restoration site. An impact analysis is not included for each feature. Figures 3.3-7, 3.3-12, and 3.3-17 show the USACE/RWQCB jurisdictional aquatic features at the respective sites.

Impacts have been considered permanent if they result in irreversible effects or removal of resources. Examples of permanent impacts include the installation of culverts and hardened structures for bank stabilization or to address potential erosion, or the direct loss of a feature, such as through the direct and permanent placement of fill into the feature, permanently removing its ability to convey flow and the functions it previously provided. Temporary impacts are characterized as effects that are reversible and include access, staging, cut, temporary fill (when removed in a timely manner), grading, and temporary clearing and planting efforts.

In addition to the impacts described above and detailed for each site below, the proposed improvements include the installation of substrate such as gravel or cobble in the channel to support the necessary hydrology, substrate, and microhabitat for the Santa Ana sucker, which may result in the wetland areas becoming non-wetlands. However, these wetlands would be relocated on site through the creation of new floodplain benches by excavating the high ground adjacent to the low-flow channel, the creation of new channel lengths, and a greater distribution of hydrology through the site. In addition, fringe wetlands are expected to establish along the channels. With project implementation, the resulting wetlands would be more hydrologically connected through riverine flows and flooding, would be surrounded by more natural topography, would support native emergent and alkali marsh, and would be adjacent to native riparian vegetation, providing a net increase in aquatic resource functions and services at each site.

Table 3.3-19. Impacts on Waters of the U.S. and State ¹

Jurisdictional Feature Type	Impacts (acres)	
	Temporary (acres) ²	Permanent (acres) ²
Anza Creek/Old Ranch Creek Site		
Non-wetland waters	0.38	0.03
Wetland waters	11.51	0.09
Total	11.89	0.12
Lower Hole Creek Site		
Non-wetland waters	1.65	0.11
Wetland waters	0.70	0.001
Total	2.35	0.11

Hidden Valley Creek Site		
Non-wetland waters	0.32	N/A
Wetland waters	8.56	0.29
Total	8.88	0.29
Grand Total	23.12	0.52

¹ There is complete overlap between waters of the U.S. and waters of the state.

² Total acreage may not sum to the total shown; total is reflective of rounding geographic information system raw data in each category.

Table 3.3-20 shows the acreages of expected impacts on streambed and associated riparian subject to the jurisdiction of CDFW at each restoration site within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance. For the purposes of this analysis, impacts on individual jurisdictional features have been summarized for each restoration site. An impact analysis is not included for each feature. Figures 3.3-8, 3.3-13, and 3.3-18 show the CDFW jurisdictional aquatic features at the respective sites.

Table 3.3-20. Impacts on CDFW Jurisdictional Resources

Jurisdictional Feature Type	Impacts (acres)	
	Temporary (acres)¹	Permanent (acres)¹
Anza Creek/Old Ranch Creek Site		
Streambed	4.37	0.08
Associated Riparian	20.4	0.12
Total	24.8	0.20
Lower Hole Creek Site		
Streambed	1.66	0.11
Associated Riparian	2.32	0.02
Total	3.98	0.13
Hidden Valley Creek Site		
Streambed	2.88	0.29
Associated Riparian	19.6	>0.01
Total	22.5	0.29
Grand Total	51.2	0.62

¹ Total acreage may not sum to the total shown; total is reflective of rounding geographic information system raw data in each category.

Anza Creek/Old Ranch Creek

The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I at the Anza Creek/Old Ranch Creek sites would result in permanent impacts on 0.03 acre of non-wetland and 0.09 acre of wetland waters, and temporary impacts on 0.38 acre of non-wetland and 11.5 acres of wetland waters of the U.S. and state (Figure 3.3-17 and Table 3.3-19). The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I at the Anza Creek/Old Ranch Creek sites would result in permanent impacts on 0.08 acre of streambed and 0.12 acre of associated

riparian, and temporary impacts on 4.37 acres of streambed and 20.48 acres of associated riparian subject to CDFW jurisdiction (Figure 3.3-18 and Table 3.3-20).

Permanent impacts would result from the installation of two culverts and a boulder bar in Old Ranch Creek channel and bank stabilization and a boulder bar in Anza Creek. Temporary impacts within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance would result from access, staging, grading, temporary clearing, and planting efforts.

Lower Hole Creek

The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I at the Lower Hole Creek site would result in permanent impacts on 0.11 acre of non-wetland and >0.01 acre of wetland waters, and temporary impacts on 1.65 acres of non-wetland and 0.70 acre of wetland waters of the U.S. and state (Figure 3.3-12 and Table 3.3-19). The proposed project would result in permanent impacts on 0.11 acre of streambed and 0.02 acre of associated riparian, and temporary impacts on 1.66 acres of streambed and 2.32 acres of associated riparian subject to CDFW jurisdiction (Figure 3.3-13 and Table 3.3-20).

Permanent impacts would result from the installation of bank stabilization and a boulder terrace in Hole Creek and boulder steps in Drainage 1. Temporary impacts within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance would result from access, staging, grading, temporary clearing, and planting efforts. Temporary impacts outside the limits of disturbance would consist of access and staging.

Hidden Valley Creek

The proposed project at the Hidden Valley Creek site would result in permanent impacts on 0.29 acre of wetland waters, and temporary impacts on 0.32 acre of non-wetland and 8.56 acres of wetland waters of the U.S. and state (Figure 3.3-7 and Table 3.3-19). Permanent impacts on non-wetland waters of the U.S. and state are not expected. The proposed project would result in permanent impacts on 0.29 acre of streambed and >0.01 acre of associated riparian, and temporary impacts on 2.88 acres of streambed and 19.6 acres of associated riparian subject to CDFW jurisdiction (Figure 3.3-8 and Table 3.3-20).

Permanent impacts would result from the installation of a culvert at Drainage 1 and the partial fill of Drainage 1. Temporary impacts within the Tributaries Restoration Project and Mitigation Reserve Program Phase I limits of disturbance would result from access, staging, grading, temporary clearing, and planting efforts. Temporary impacts outside the limits of disturbance would consist of access and staging.

Benefits to Non-Wetland and Wetland Waters of the U.S. and State and CDFW Riparian and Streambed Jurisdictional Resources

Benefits expected from implementation of the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I to wetland and non-wetland waters of the U.S. and state and CDFW riparian and streambed jurisdictional resources are described below, by site.

Anza Creek/Old Ranch Creek

The Anza Creek/Old Ranch Creek tributaries restoration sites support a variety of wetland conditions ranging in quality from low to moderate. The primary factors adversely affecting existing wetland quality include the presence of invasive species, adjacent land uses, limited surface

hydrology, and human disturbance. Although the sites have a high diversity of native vegetation communities, including alkali marsh and riparian habitat, they also support several expansive nonnative vegetation communities and invasive species.

The primary invasive species in the jurisdictional features are palms and giant reed, while the scrub habitat contains perennial pepperweed and nonnative grasses. The removal and control of invasive species and ongoing management of the sites would allow for native species establishment and recovery. In addition, human activity in the jurisdictional resources, as well as the buffer and floodplain, degrades conditions as a result of trail creation, trash disposal, vegetation clearing, and human waste. The restoration activities described in Section 2.6 would facilitate improvements to overall site conditions, including wetland and non-wetland, riparian, and streambed conditions.

There are various components of the proposed project at the Anza Creek/Old Ranch Creek sites that would benefit and provide a net increase of USACE/RWQCB jurisdictional wetlands and other waters. The removal of fill material and expansion of the floodplain in the upstream portion of the site and treatment and planting of the alkali meadow in the southeastern portion of the site, along with select grading and hydrology improvements, would result in the creation of additional non-wetland or wetland waters of the U.S. and state subject to USACE/RWQCB jurisdiction. Treatment and revegetation of the degraded scrub habitat would improve the quality and quantity of riparian areas. Removal of the larger invasive species (primarily palms) would also increase quality. The proposed restoration of Anza Creek and Old Ranch Creek would improve stream hydrology and structure in addition to increasing the native vegetation community and jurisdictional acreage to offset impacts.

The CDFW jurisdictional resources would benefit in a similar manner to the waters of the U.S. and state, resulting in a net increase in acreage as well as improvement in the functions and values for fish and wildlife species. In addition, the CDFW riparian resources that extend outside the limits of waters of the U.S. and state would benefit from restoration activities such as removal of invasive species, revegetation of native species, and control of human impacts.

Lower Hole Creek

Lower Hole Creek and its associated wetlands are degraded as a result of multiple stressors. One of the primary stressors is human activity in both the buffer and the wetlands, including channel manipulation, substantial trash disposal, vegetation clearing for encampments, and human waste. In addition, the channel is experiencing excess erosion from high flows through the unnamed tributary that enters from the east, resulting in steep channel banks, high scour zones (no understory vegetation), and deposition downstream. The creek is experiencing further stress as a result of invasive species encroachment, with multiple species invading the floodplain including palms, ash, castor bean, and giant reed. The restoration activities described in Section 2.6 would facilitate improvements to wetland/riparian conditions overall and would result in a net increase in wetlands and waters and functions and values for fish and wildlife resources.

There are components of the proposed project within Lower Hole Creek that would benefit and increase USACE/RWQCB jurisdictional wetlands and other waters. Expansion of the floodplain and recontouring of the banks to create benches in the upstream portion of the site would result in increased jurisdictional acreage as well as improved conditions for the existing wetlands that would experience increased structural complexity and hydrological connectivity. In-stream structural enhancements and natural slope stabilization would increase topographic complexity within the existing and expanded channel. Invasive species removal and revegetation would improve wetland

conditions. Revegetation of the upland buffer habitat and exclusion of human visitation would provide protection to the wetland and result in improved wetland buffer acreage.

The CDFW jurisdictional streambed and riparian would benefit in a similar manner as USACE/RWQCB resources. In addition, the CDFW riparian habitat that extends outside the channel and primary floodplain would benefit from restoration activities, in particular control of human use, removal of invasive species, revegetation of native species, and buffer revegetation.

Hidden Valley Creek

Much of the Hidden Valley Creek site is CDFW riparian habitat with a few areas also falling under USACE jurisdiction (canal and depressions). The site supports a variety of riparian/wetland conditions ranging from low to moderate quality. The primary stress to the site is associated with invasive species and limited surface hydrology in the canal. Although the site has a high diversity of native species (including Fremont cottonwood/willow forest, mulefat scrub, and willow scrub), there is also a large component of nonnative and invasive species. Previously, the site supported dense thickets of giant reed; however, the area has since recovered as a result of treatment following a 2010 flood. The presence of a perennial pond in the western portion of the site is an indication of potential conditions that could be replicated on the eastern end, which would increase the overall ecological complexity of the site and provide a unique resource. All restoration activities described above would facilitate improvements to overall wetland conditions.

There are select opportunities within the Hidden Valley Creek site to benefit USACE-jurisdictional resources. The improvement to the tributary channel structure and restored hydrology would facilitate improved wetland condition and increased acreage. Within the existing channel, construction methods would be sensitive to the presence of existing resources to limit temporary impacts. Invasive species removal in the riparian habitat and treatment of the grassland habitat would result in buffer acreage. The establishment of an oxbow in the eastern end of the site would increase the overall ecological complexity of the site and provide a unique resource.

Of all the tributary restoration sites, the Hidden Valley Creek site has the greatest amount of CDFW jurisdictional resources; in addition, the restoration efforts would produce the greatest improvements. All wetlands and waters would benefit in the same manner as USACE/RWQCB resources. In addition, the CDFW riparian habitat that extends throughout the wetland would benefit from restoration activities, specifically removal of invasive species and revegetation of native species, including riparian and alkali marsh habitat.

Operational and Maintenance Impacts

Direct operational impacts on federally protected wetlands and other waters as well as CDFW streambed and riparian resources at the Tributaries Restoration Project and Mitigation Reserve Program Phase I could occur during post-construction restoration activities when maintenance crews are performing invasive species removal, weeding, planting, or other restoration maintenance. Impacts could include inadvertent travel through protected wetlands, other waters, and CDFW jurisdiction that disturbs, crushes, or destroys small segments of those areas. However, it is anticipated that maintenance crews would utilize existing access roads, and no grading or new access roads is expected for maintenance work. Created jurisdictional aquatic resources could also be affected if any newly established perennial water sources become impeded by unanticipated natural storm flow and sedimentation in the restored stream channel or unanticipated reductions in available groundwater sources.

Significance Determination Prior to Mitigation: Potentially significant.

As described above, the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I may adversely affect wetland and non-wetland waters of the U.S. and state and CDFW jurisdictional resources by direct modification (i.e., restoration and creation) of these habitats. This direct impact would be considered significant under CEQA. With implementation of mitigation measure BIO-28 adverse effects on federally protected wetlands, non-wetland waters, and state waters (riparian and streambed) would result in a net increase in area as well as functions and values within state and federal jurisdiction following restoration activities. Therefore, Impact BIO-3 would be reduced to a less-than-significant level with mitigation incorporated.

Mitigation Measures**Mitigation Measure BIO-28: Obtain Clean Water Act Section 404 and 401 Authorization and California Fish and Game Code Section 1600 et seq. Authorization**

The Tributaries Restoration Project and Mitigation Reserve Program Phase I shall require authorization from USACE pursuant to Section 404 of the CWA, the RWQCB pursuant to Section 401 of the CWA and the Porter-Cologne Water Quality Control Act, and from CDFW pursuant to Section 1602 of the CFGC, as a result of temporary and permanent impacts on jurisdictional aquatic resources. Authorizations from these agencies shall be obtained prior to construction. Terms and conditions may include: compensatory mitigation requirements, aquatic life movement requirements, spawning area requirements, migratory bird breeding area requirements, water flow management requirements, 100-year floodplain requirements, soil erosion and sediment control requirements, water quality requirements, and pre-construction notification and coordination requirements.

Level of Significance Following Mitigation: Less than significant.**Expanded Mitigation Reserve Program Phase II****Construction Impacts**

As described in Section 3.3.2, the Expanded Mitigation Reserve Program Phase II sites support jurisdictional aquatic resources. This includes waters of the U.S. and state consisting of wetland and non-wetland waters subject to the jurisdiction of USACE and RWQCB under Sections 404 and Section 401 of the CWA, respectively, and CDFW riparian and streambed subject to regulation by CDFW under CFGC Section 1602. Construction-related impacts on waters of the U.S. and state, which would be potentially significant, will be analyzed at a project-specific level when specific details of the projects of the Expanded Mitigation Reserve Program Phase II are available. Anticipated impacts are presented below.

Anza Creek/Old Ranch Creek: Impacts on Jurisdictional Waters and Wetlands and CDFW Jurisdictional Streambed and Associated Riparian

The proposed Expanded Mitigation Reserve Program Phase II at the Anza Creek/Old Ranch Creek sites would result in impacts on waters of the U.S. and state within a broad range of habitats including but not limited to arrow weed thicket, black willow thicket, sandbar willow thicket, alkali marsh, adjacent uplands, and nonnative riparian. The site currently supports jurisdictional alkali meadow habitat at several locations in the outer floodplains that illustrate near-reference conditions for that vegetation community. There are also areas on site where historic alkali meadow

has become degraded by past human use and an influx of nonnative species. Temporary construction impacts are expected to result from access, staging, grading, temporary clearing, and planting efforts both within the Expanded Mitigation Reserve Program Phase II limits of disturbance and on the access roads and staging areas outside the limits of disturbance. Permanent impacts may include establishment of permanent access roads through some portions of the site to facilitate access, maintenance, and surveying/reporting within interior portions.

Lower Hole Creek

The proposed Expanded Mitigation Reserve Program Phase II at the Lower Hole Creek site would not result in impacts on waters of the U.S. and state but may affect CDFW jurisdictional riparian areas. Temporary construction impacts may result from access, staging, grading, temporary clearing, and planting efforts both within the Expanded Mitigation Reserve Program Phase II limits of disturbance and on the access roads and staging areas outside the limits of disturbance. Permanent impacts are not expected.

Hidden Valley Creek

The proposed Expanded Mitigation Reserve Program Phase II at the Hidden Valley Creek site may result in temporary and permanent impacts on waters of the U.S. and state, and on CDFW streambed, riparian, and floodplain. Temporary construction impacts may result from access, staging, grading, temporary clearing, and planting efforts both within the Expanded Mitigation Reserve Program Phase II limits of disturbance and on the access roads and staging areas outside the limits of disturbance. Permanent impacts may include establishment of permanent access roads through some portions of the site to facilitate access, maintenance, and surveying/reporting.

Operational and Maintenance Impacts

Direct operational impacts on protected wetlands, other waters, and CDFW streambed and riparian habitat could occur during post-construction restoration activities when maintenance crews are performing invasive species removal, weeding, planting, or other restoration maintenance and when biologists are performing field analysis related to restoration success criteria within the Expanded Mitigation Reserve Program Phase II limits of disturbance and within the access roads outside the limits of disturbance. Impacts could include inadvertent travel through jurisdictional areas that disturbs, crushes, or destroys small segments of those areas.

Significance Determination Prior to Mitigation: Potentially significant.

As described above, the proposed Expanded Mitigation Reserve Program Phase II may adversely affect wetland and non-wetland waters of the U.S. and state and CDFW jurisdictional resources by direct modification (i.e., restoration and creation) of these habitats. This direct impact would be considered significant under CEQA. With implementation of mitigation measure BIO-28 adverse effects on protected wetlands, other waters, and CDFW riparian and streambed would result in a net increase in area as well as functions and values within state and federal jurisdiction following restoration activities; therefore, Impact BIO-3 would be reduced to a less-than-significant level with mitigation incorporated.

Mitigation Measures

Implement mitigation measure BIO-28.

Level of Significance Following Mitigation: Less than significant.

Impact BIO-4: Substantial interference with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impedance of the use of native wildlife nursery sites (Less than significant with mitigation incorporated)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Construction Impacts

The Santa Ana River functions as a major regional wildlife movement corridor and breeding ground for many special-status and common aquatic and terrestrial wildlife species. Species that breed during the winter would be affected by temporary loss of breeding habitat. Water diversion and instream habitat enhancement activities including large woody debris placement, channel contouring, water diversion, and other in-water work is expected to temporarily affect movement patterns or displace special-status fish and sensitive semi-aquatic species. Temporary diversion and dewatering activities may limit the ability of Santa Ana sucker, arroyo chub, and sensitive semi-aquatic species such as southwestern pond turtles and gartersnakes to freely pass through the affected reach of the Santa Ana River during construction. Water diversions would be designed to maintain hydrological connectivity; however, temporary alteration of the natural channel would likely change the velocity, volume, and contours of the channel, presenting abnormal channel conditions for aquatic species. Discharges of sediment and other construction-related turbidity, which would be minimized through avoidance measures and permit conditions, may still occur and could also inhibit movement. Interference with the movement of fish and semi-aquatic species would be temporary over the course of the construction, but overall the Tributaries Restoration Project and Mitigation Reserve Program Phase I is expected to have a permanent benefit for species as it would improve aquatic breeding habitat and habitat connectivity and allow for increased aquatic species movement through channel enhancement actions and flow restoration. Nevertheless, aquatic impacts would be potentially significant during construction and for some time after construction and require mitigation.

Riparian and upland areas within the Tributaries Restoration Project and Mitigation Reserve Program Phase I provide somewhat unconstrained habitat for many special-status birds, terrestrial wildlife species, and semi-aquatic species that inhabit, breed, and disperse through the area. Construction work in these areas would temporarily remove available habitat in the region and potentially cause a movement constraint. Construction noise and increased human activity would also affect an area around the limits of disturbance, further reducing available breeding and movement habitat. However, the Tributaries Restoration Project and Mitigation Reserve Program Phase I would temporarily affect a relatively small portion of the overall reach of the Santa Ana River floodplain in the broader region and is limited to discrete locations that do not completely close off an entire reach. Although habitat in the work areas would be temporarily unavailable and would be temporarily reduced in the region during construction, riparian and upland wildlife species would be able to freely pass around the work areas.

Operational and Maintenance Impacts

Following construction, revegetation efforts would likely take several years to become dense and mature, which, until that time, would have limited cover, foraging, breeding, and dispersal functions

for many special-status and common species. Aquatic species would likely not have adequate aquatic vegetation or overhanging bank vegetation for natural life history requirements, including movement and dispersal, until vegetation fills in. Semi-aquatic and terrestrial species would likely have reduced movement activities in the restoration areas until adequate native vegetation cover is present. Similarly, avian species would have less nesting, foraging, and migrating opportunities until the native vegetation has reestablished at sufficient density to provide the necessary functions and values required for breeding and dispersal. In addition, special-status species could be affected by maintenance crews performing invasive removal, weeding, planting, or other restoration maintenance activities and when biologists are performing field analysis related to restoration success criteria. Maintenance is expected to occur over a 5–10 year period and would likely have a greater impact on wildlife species soon after construction and decrease over time as native vegetation matures and limits invasive establishment and the need for intensive maintenance. Nonetheless, operational impacts would be potentially significant and require mitigation.

Level of Significance Prior to Mitigation: Potentially significant.

As described above, impacts from the Tributaries Restoration Project and Mitigation Reserve Program Phase I on the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, and the impedance of the use of native wildlife nursery sites, would be considered significant under CEQA.

Mitigation Measures

Implement mitigation measures BIO-2 through BIO-9, BIO 11 and BIO-12, BIO-26, and BIO-28.

Level of Significance Following Mitigation: Less than significant.

Implementation of mitigation measures BIO-2 through BIO-9, BIO-11 and BIO-12, BIO-26, and BIO-28 would avoid or minimize environmental effects on migratory fish, wildlife species, established wildlife corridors, and native wildlife nursery sites.

Overall, the Tributaries Restoration Project and Mitigation Reserve Program Phase I would increase the quantity and quality of aquatic habitat, native riparian habitat, native scrub habitat, and grassland habitat, thereby increasing the functions and values related to breeding and connectivity for wildlife movement through the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites and within the larger Santa Ana River floodplain. Considering the benefits of the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I on the movement of native fishes and wildlife, migratory wildlife corridors, and nursery sites relative to temporary impacts resulting from construction activities and habitat modifications, and with implementation of mitigation measures, interference with the movement of native resident fish or wildlife species or with established native resident or migratory wildlife corridors or impedance of the use of native wildlife nursery sites would be less than significant.

Expanded Mitigation Reserve Program Phase II

Construction Impacts

As with the Tributary Restoration Project, riparian and upland areas within the Expanded Mitigation Reserve Program Phase II provide relatively unconstrained habitat for many special-status birds, terrestrial wildlife species, and semi-aquatic species that inhabit, breed, and disperse through the area. Construction work associated with restoration activities in these areas would temporarily

remove available habitat in the region and potentially cause a movement constraint. Aquatic habitats would also be affected where restoration efforts are required to remove nonnative and invasive vegetation. Construction noise and increased human activity would also affect an area around the limits of disturbance, further reducing available breeding and movement habitat. Although habitat in the work areas would be temporarily unavailable and overall habitat would be temporarily reduced in the region, riparian and upland wildlife species would be able to freely pass around the work areas. It is also anticipated that restoration efforts would not be required over the entire Expanded Mitigation Reserve Program Phase II area, and as such, much of the area within the Expanded Mitigation Reserve Program Phase II would be available for breeding and dispersal, albeit in reduced quantities during restoration work.

Operational and Maintenance Impacts

Following construction, natural revegetation would likely take several years to become dense and mature, which, until that time, would offer limited cover, foraging, and breeding functions for many special-status and common species. Semi-aquatic and terrestrial species would likely have reduced movement activities in the restoration areas until adequate native vegetation cover is present. Similarly, avian species would have less nesting, foraging, and migrating opportunities until the native vegetation has reestablished at sufficient density to provide the necessary functions and values required for dispersal and breeding activities. In addition, activities of all special-status species could be affected by maintenance crews performing invasive removal, weeding, planting, or other restoration maintenance and when biologists are performing field analysis related to restoration success criteria. These impacts would be potentially significant and require mitigation.

Significance Determination Prior Mitigation: Potentially significant.

As described above, impacts from the Expanded Mitigation Reserve Program Phase II on the movement of native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors and the impedance of the use of native wildlife nursery sites could be considered significant under CEQA.

Mitigation Measures

Implement mitigation measure BIO-19.

Level of Significance Following Mitigation: Less than significant.

Implementation of mitigation measure BIO-19 would avoid or minimize environmental effects on migratory fish, wildlife species, established wildlife corridors, and native wildlife nursery sites.

Overall, the Expanded Mitigation Reserve Program Phase II would increase the quantity and quality of aquatic habitat, native riparian habitat, native scrub habitat, and native grassland habitat, thereby increasing the functions and values related to breeding and connectivity for wildlife movement through the Expanded Mitigation Reserve Program Phase II sites and within the larger Santa Ana River floodplain. Considering the benefits of the proposed Expanded Mitigation Reserve Program Phase II on the movement of native fishes and wildlife, migratory wildlife corridors, and nursery sites relative to temporary impacts resulting from construction activities and habitat modifications, and with implementation of mitigation measures, interference with the movement of native resident fish or wildlife species or with established native resident or migratory wildlife corridors or impedance of the use of native wildlife nursery sites would be less than significant.

Impact BIO-5: Conflict with the provisions of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan (Less-than-significant level with mitigation incorporated)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The Tributaries Restoration Project and Mitigation Reserve Program Phase I sites are within the boundaries of the WRCMSHCP and portions are within the SKR HCP. The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I is intended to align with the provisions, goals, and objectives of these HCPs as well as the draft Upper Santa Ana River HCP.

CDFW issued Natural Community Conservation Plan Approval and Take Authorization for the WRCMSHCP per Section 2800, et seq., of the CFGC on June 22, 2004. The WRCMSHCP establishes a multiple species conservation program to minimize and mitigate habitat loss and provides for the incidental take of Covered Species in association with activities covered under the permit. However, Valley District is not a Permittee under the WRCMSHCP and the proposed project is not a Covered Activity; as a result, the proposed project would not be processed through the WRCMSHCP for Covered Species but rather would obtain take coverage for threatened, endangered, and/or candidate species under ESA and/or CESA. As discussed below, the project goals and objectives would be consistent with WRCMSHCP policies and guidelines including: Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (WRCMSHCP Section 6.1.2), Protection of Narrow Endemic Plant Species (WRCMSHCP Section 6.1.3), Additional Survey Needs and procedures (WRCMSHCP section 6.3.2), and Urban/Wildland Interface Guidelines (WRCMSHCP section 6.1.4).

Ten local public agencies of the Santa Ana River Watershed, including Valley District, USFWS, CDFW, and stakeholder organizations are collaborating to complete a draft Upper Santa Ana River HCP and associated watershed-wide conservation strategy for aquatic dependent resources. Once approved and permitted, the Upper SAR HCP would enable the local authorities to maintain, expand, and upgrade water supply infrastructure while providing a framework for conserving and protecting the river and associated riparian habitat that supports a diverse group of plants and animals that have become exceedingly rare in arid Southern California. The Upper SAR HCP would streamline the incidental take permitting process for 22 species covered under the plan, which are found in the river and adjacent upland habitat, including Santa Ana sucker, San Bernardino kangaroo rat, and least Bell's vireo. Estimated completion for the Upper Santa Ana River HCP is 2019.

Because the goals and objectives of the Tributaries Restoration Project and Mitigation Reserve Program Phase I are to provide long-term benefits to the special-status species and habitats covered by these HCPs, the proposed project would be consistent with these adopted and proposed plans. The Tributaries Restoration Project and Mitigation Reserve Program Phase I is expected to provide a net improvement to stream, wetland, riparian, scrub, and grassland habitat quality, thereby benefitting sensitive and listed species and their habitats overall, most of which are species covered by these HCPs.

Construction Impacts

Construction activities could result in temporary direct and indirect impacts on special-status species and their habitats, as described in Impact BIO-1 through Impact BIO-4. This includes species covered by the WRCMSHCP with potential to occur in the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites (American bittern, bald eagle, black-crowned night-heron, black swift, Cooper's hawk, double-crested cormorant, downy woodpecker, ferruginous hawk,

grasshopper sparrow, great blue heron, horned lark, least Bell's vireo, Lincoln's sparrow, MacGillivray's warbler, merlin, Nashville warbler, northern harrier, osprey, prairie falcon, sharp-shinned hawk, Southern California rufous-crowned sparrow, tree swallow, turkey vulture, white-faced ibis, white-tailed kite, Wilson's warbler, yellow-breasted chat, yellow warbler, arroyo chub, Santa Ana sucker, southwestern pond turtle, coast horned lizard, coastal whiptail, granite spiny lizard, bobcat, coyote, Dulzura kangaroo rat, long-tailed weasel, Los Angeles pocket mouse, mountain lion, northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, San Diego desert woodrat, SKR, Santa Ana River woolly-star, smooth tarplant, Brand's star phacelia, California black walnut, Coulter's goldfields, many-stemmed dudleya, Parry's spineflower, Plummer's mariposa lily, and slender-horned spine flower). However, the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I would implement mitigation measures BIO-2 through BIO-9, and BIO-11 through BIO-12 and would adhere to the requirements of the City of Riverside General Plan (Policies OS-5, OS-6, and OS-7), the City of Jurupa Valley General Plan (Policies COS-1, COS-2, COS-3), and the Riverside County General Plan (Policies OS 3, OS 5, OS 6, OS 9, OS 17, OS 18, and JURAP 7).

The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I would also address biological issues and considerations of the WRCMSHCP area (for Criteria Cells 621 and 617, and Public/Quasi-Public Conserved Lands), and adhere to mitigation fee requirements of the SKR HCP and Riverside County Ordinance No. 663 (SKR Mitigation Fee Ordinance). With implementation of mitigation measures BIO-2 through BIO-9, BIO-11 and BIO-12, BIO-26, and BIO-28, the Tributaries Restoration Project and Mitigation Reserve Program Phase I would not conflict with the provision of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan because the Tributaries Restoration Project and Mitigation Reserve Program Phase I would not result in permanent loss of habitat and would increase the quantity and quality of native vegetation and aquatic resources that would benefit each of the species covered by these plans.

Operational and Maintenance Impacts

Operations could result direct and indirect impacts on special-status species and their habitats, as described in Impact BIO-1 through Impact BIO-4.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Implementation of mitigation measures BIO-2 through BIO-9, BIO-11 and BIO-12, BIO-26, and BIO-28, and compliance with policies of the City of Riverside General Plan, City of Jurupa Valley General Plan, and Riverside County General Plan would ensure the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I aligns with the goals of, and is consistent with, the WRCMSHCP and SKR HCP. The proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I would also adhere to applicable mitigation requirements of the SKR HCP and Riverside County Ordinance No. 663 (SKR Mitigation Fee Ordinance) to reduce impacts from construction activities to a less-than-significant level.

In summary, the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I is intended to align with the provisions, goals, and objectives of the Upper SAR HCP and with adopted conservation plans, the WRCMSHCP and SKR HCP. In general, the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I would be consistent with these adopted

plans and is expected to provide a net improvement to stream, wetland, riparian, scrub, and grassland habitat quality, thereby improving WRCMSHCP Public/Quasi-Public Conserved Lands within the Tributaries Restoration Project and Mitigation Reserve Program Phase I area, improving WRCMSHCP cores and linkages for WRCMSHCP and SKR planning species, and benefitting sensitive species and their habitats overall. However, construction activities could result in potentially significant direct and indirect impacts on listed species and their habitat, including those covered by the SKR HCP and the WRCMSHCP with potential to occur in the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. With implementation of mitigation measure BIO-9, impacts on an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan are anticipated to be reduced to less than significant; therefore, Impact BIO-5 would be reduced to a less-than-significant level with mitigation incorporated.

Level of Significance Following Mitigation: Less than significant.

Expanded Mitigation Reserve Program Phase II

The Expanded Mitigation Reserve Program Phase II sites are within the boundaries of the WRCMSHCP and portions are within the SKR HCP. The proposed Expanded Mitigation Reserve Program Phase II is intended to align with the provisions, goals, and objectives of the Upper SAR HCP (in draft) and also align with adopted conservation plans, including the WRCMSHCP and SKR HCP. As such, the proposed Expanded Mitigation Reserve Program Phase II would be consistent with these adopted plans. Also, as described above, the Expanded Mitigation Reserve Program Phase II project sites are expected to provide a net improvement to stream, wetland, riparian, scrub, and grassland habitat quality, thereby benefitting sensitive and listed species and their habitats overall.

Construction Impacts

Construction activities could result in direct and indirect impacts on listed species and their habitat, as described in Impact BIO-1 through Impact BIO-4. This includes species covered by the SKR HCP with potential to occur in the Expanded Mitigation Reserve Program Phase II sites (SKR) and species covered by the WRCMSHCP with potential to occur in the Expanded Mitigation Reserve Program Phase II project sites (American bittern, bald eagle, black-crowned night-heron, black swift, Cooper's hawk, double-crested cormorant, downy woodpecker, ferruginous hawk, grasshopper sparrow, great blue heron, horned lark, least Bell's vireo, Lincoln's sparrow, MacGillivray's warbler, merlin, Nashville warbler, northern harrier, osprey, prairie falcon, sharp-shinned hawk, Southern California rufous-crowned sparrow, tree swallow, turkey vulture, white-faced ibis, white-tailed kite, Wilson's warbler, yellow-breasted chat, yellow warbler, arroyo chub, Santa Ana sucker, southwestern pond turtle, coast horned lizard, coastal whiptail, granite spiny lizard, bobcat, coyote, Dulzura kangaroo rat, long-tailed weasel, Los Angeles pocket mouse, mountain lion, northwestern San Diego pocket mouse, San Diego black-tailed jackrabbit, San Diego desert woodrat, SKR, Santa Ana River woolly-star, smooth tarplant, Brand's star phacelia, California black walnut, Coulter's goldfields, many-stemmed dudleya, Parry's spineflower, Plummer's mariposa lily, and slender-horned spine flower). However, the proposed Expanded Mitigation Reserve Program Phase II would implement mitigation measures BIO-1 through BIO-9, and BIO-11 through BIO-12, described above, as well as adhere to the requirements of the City of Riverside General Plan (Policies OS-5, OS-6, and OS-7), the City of Jurupa Valley General Plan (Policies COS-1, COS-2, COS-3), and the Riverside County General Plan (Policies OS 3, OS 5, OS 6, OS 9, OS 17, OS 18, and JURAP 7).

The proposed Expanded Mitigation Reserve Program Phase II would adhere to the Protection of Species Associated with Riparian/Riverine Areas and Vernal Pools (WRCMSHCP Section 6.1.2), Protection of Narrow Endemic Plant Species (WRCMSHCP Section 6.1.3), Additional Survey Needs and Procedures (WRCMSHCP Section 6.3.2), and Urban/Wildland Interface Guidelines (WRCMSHCP Section 6.1.4) and would also be consistent with biological issues and considerations for Criteria Cells 621 and 617, and Public/Quasi-Public Conserved Lands), and would adhere to mitigation fee requirements of the SKR HCP and Riverside County Ordinance No. 663 (SKR Mitigation Fee Ordinance). With the implementation of mitigation measure BIO-9, the Expanded Mitigation Reserve Program Phase II would not conflict with the provision of an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan, and there would be a less-than-significant impact.

Operational and Maintenance Impacts

Operations could result in direct and indirect impacts on special-status species and their habitats covered by the WRCMSHCP and SKR HCP, as described in Impact BIO-1 through Impact BIO-4.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Implementation of mitigation measures BIO-18 through BIO-23, and BIO-25, and compliance with policies of the City of Riverside General Plan, City of Jurupa Valley General Plan, and Riverside County General Plan described above, would ensure the proposed Expanded Mitigation Reserve Program Phase II aligns with the goals of the WRCMSHCP and SKR HCP for the region. The Expanded Mitigation Reserve Program Phase II project would adhere to mitigation requirements of the SKR HCP and Riverside County Ordinance No. 663 (SKR Mitigation Fee Ordinance) to reduce impacts of construction activities to a less-than-significant level.

In summary, the proposed Expanded Mitigation Reserve Program Phase II is intended to align with the provisions, goals, and objectives of the Upper SAR HCP and with adopted conservation plans, the WRCMSHCP and SKR HCP. In general, the proposed Expanded Mitigation Reserve Program Phase II would be consistent with these adopted plans and is expected to provide a net improvement to stream, wetland, riparian, scrub, and grassland habitat quality, thereby improving WRCMSHCP Public/Quasi-Public Conserved Lands within the Expanded Mitigation Reserve Program Phase II limits of disturbance, and the WRCMSHCP cores and linkages for WRCMSHCP and SKR planning species; the Expanded Mitigation Reserve Program Phase II would benefit sensitive species and their habitats overall. With implementation of mitigation measure BIO-9, impacts on an adopted habitat conservation plan, natural community conservation plan, or other approved local, regional, or state habitat conservation plan are anticipated to be reduced to less-than-significant level.

Level of Significance Following Mitigation: Less than significant.

3.4 Cultural Resources

This section describes the existing conditions and applicable laws and regulations for cultural resources, followed by an analysis of the potential impacts on cultural resources that could result from implementation of the proposed project. Cultural resources include archaeological resources, ethnographic resources, and elements of the historical-period built environment (architectural resources). This section is based on the cultural resources technical study titled *Cultural Resources Survey and Inventory for the Upper Santa Ana River Restoration Project, Riverside County, California* (Appendix F).

This section addresses the potential impacts of the project on cultural resources. Cultural resources can include prehistoric and historic-period archaeological sites, districts, landscapes, or any other physical manifestation of human activity. For the purposes of this analysis, cultural resources are separated into the following categories: archaeological resources, built environment resources, and Native American resources.

Of the 12 archaeological sites in the proposed project area, the proposed project has the potential to affect four archaeological sites (P-33-000127, P-33-000622, P-33-000884, and P-33-009652) in the project area. Three of the sites that would be affected have not been formally evaluated and one site is recommended as eligible for inclusion in the California Register of Historical Resources (CRHR) and National Register of Historic Places (NRHP). Of the remaining eight archaeological sites, four would not be affected by the proposed project and no further action is recommended; one site could not be relocated and was recommended as ineligible; and three were recommended ineligible but may be affected and use of the unanticipated discoveries protocol was recommended due to the potential for unknown subsurface components to exist.

3.4.1 Regulatory Setting

Federal

National Environmental Policy Act

As amended, the National Environmental Policy Act (NEPA) (42 United States Code [USC] Sections 4321–4347) establishes a federal policy of protecting important historic, cultural, and natural aspects of our national heritage during federal project planning. All federal or federally assisted projects requiring action pursuant to Section 102 of NEPA must consider the effects on cultural resources. The President’s Council on Environmental Quality has adopted regulations and other guidance that provide detailed procedures that federal agencies must follow to implement NEPA. However, the Council on Environmental Quality has not adopted regulations or other guidance that establish procedures for addressing cultural resources, specifically. In 2013, the Council on Environmental Quality and the Advisory Council on Historic Preservation issued guidance on integrating NEPA and Section 106 of the National Historic Preservation Act. This guidance reflects a long-standing practice of incorporating the Section 106 technical findings into NEPA to address project impacts on historic and cultural resources, and provides options for coordinating or, if planned in advance, substituting Section 106 and NEPA reviews.

Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (16 USC Section 470f) requires that effects on historic properties be taken into consideration in any federal undertaking. "Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the NRHP criteria" (36 Code of Federal Regulations [CFR] Part 800.16(l)). Implementing regulations at 36 CFR Part 800 outline the process whereby federal agencies, in consultation with the State Historic Preservation Officer (SHPO) and other consulting parties, identify historic properties within the Area of Potential Effects (APE) of the proposed project and make a finding of effect. If the project is determined to have an adverse effect on historic properties, the federal agency is required to consult further with SHPO and the Advisory Council on Historic Preservation to develop methods to resolve the adverse effects. The Section 106 process has five basic steps.

1. Initiate the Section 106 process, including the identification of consulting parties, such as Native American tribes.
2. Identify the APE, in consultation with the SHPO and other consulting parties.
3. Assess the effects of the undertaking on historic properties within the APE.
4. If historic properties may be subject to an adverse effect, the federal agency, the SHPO, and any other consulting parties (including Native American tribes and the Advisory Council on Historic Preservation) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effect. A Memorandum of Agreement is usually developed to document the measures agreed upon to resolve adverse effects. Alternatively, the federal agency may prepare and execute a Programmatic Agreement with the aforementioned parties to comply with 36 CFR Part 800, particularly in the context of complex undertakings that entail years of implementation actions or where the undertaking's effects on historic properties cannot be well characterized during the planning phase.
5. Proceed in accordance with the terms of the Memorandum of Agreement or Programmatic Agreement.

Criteria for Eligibility for the National Register of Historic Places

Cultural resources are eligible for the NRHP if they have integrity and significance as defined in the regulations for the NRHP. Four primary criteria define significance; a property may be significant if it displays one or more of the following characteristics:

- A. It is associated with events that have made a significant contribution to the broad pattern of our history; or
- B. It is associated with the lives of people significant in our past; or
- C. It embodies the distinct characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or it represents a significant and distinguishable entity whose components may lack individual distinction; or
- D. It has yielded, or is likely to yield, information important in prehistory or history (36 CFR 60.4).

Some types of cultural resources are not typically eligible for the NRHP. These resources consist of cemeteries, birthplaces, graves of historic figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years. These property types may be eligible for the NRHP, however, if they are integral parts of eligible districts of resources or meet the criteria considerations described in 36 CFR 60.4.

In addition to possessing significance, a property must also have integrity to be eligible for listing in the NRHP. The principle of integrity has seven aspects: location, design, setting, materials, workmanship, feeling, and association (36 CFR 60.4). To retain historic integrity, a property will always possess several, and usually most, of the qualities of integrity (U.S. Department of the Interior 1995:44).

Native American Graves Protection and Repatriation Act of 1990 – Code of Federal Regulations

The Native American Graves Protection and Repatriation Act (NAGPRA) provides a process for federal agencies to determine custody of Native American cultural items to lineal descendants and culturally affiliated Indian tribes. NAGPRA defines the ownership of Native American human remains and funerary materials excavated on lands owned or controlled by the federal government. NAGPRA establishes a hierarchy of ownership rights for Native American remains identified on these lands (25 USC Section 3002(a)):

- Where the lineal descendants can be found, the lineal descendants own the remains.
- Where the lineal descendants cannot be found, the remains belong to the Indian tribe or Native Hawaiian organization on whose land the remains were found.
- If the remains are discovered on other lands owned or controlled by the federal government and the lineal descendants cannot be determined, the remains belong to the Indian tribe or Native Hawaiian organization that is culturally affiliated with the remains, or the tribe that aboriginally occupied the land where the remains were discovered.

Under NAGPRA, intentional excavation of Native American human remains on lands owned or controlled by the federal government may occur (25 USC Section 3002(c)) only under the following circumstances.

- With a permit issued under the Archaeological Resources Protection Act (16 USC Section 470cc); and;
- After documented consultation with the relevant tribal or Native American groups.
- Ownership and disposition follow NAGPRA for all human remains and associated artifacts (25 1 USC Section 3001 and 43 CFR Section 10.6).

NAGPRA also provides guidance on inadvertent discoveries of Native American or Hawaiian human remains on lands owned or controlled by the federal government. When an inadvertent discovery on these lands occurs in association with construction, construction must cease. The party that discovers the remains must notify the relevant federal agency, and the remains must be transferred according to the ownership provisions above (25 USC Section 3002(d)).

State

California Environmental Quality Act and Public Resources Code Section 5024.1 (California Register of Historical Resources)

The California Environmental Quality Act (CEQA) requires public agencies to evaluate the implications of their project(s) on the environment and includes significant historic resources as part of the environment. Public agencies must treat any cultural resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant (California Code of Regulations [CCR] Title 14 §15064.5). A historic resource is considered significant if it meets the definition of historic resource or unique archaeological resource, as defined below.

Historical Resources

The term historic resource includes, but is not limited to any object, building, structure, site, area, place, record, or manuscript which is historically or archaeologically significant, or is significant in the architectural, engineering, scientific, economic, agricultural, educational, social, political, military, or cultural annals of the California Public Resources Code (PRC) (PRC §5020.1(j)). Historical resources may be designated as such through three different processes:

1. Official designation or recognition by a local government pursuant to local ordinance or resolution (PRC §5020.1(k))
2. A local survey conducted pursuant to PRC §5024.1(g)
3. The property is listed in or eligible for listing in the NRHP (PRC §5024.1(d)(1))

The process for identifying historical resources is typically accomplished by applying the criteria for listing in the CRHR (CCR Title 14 §4852), which states that a historical resource must be significant at the local, state, or national level under one or more of the following four criteria.

1. It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
2. It is associated with the lives of persons important in our past.
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master or possesses high artistic values.
4. It has yielded, or may be likely to yield, information important in prehistory or history.

To be considered a historical resource for the purpose of CEQA, the resource must also have integrity, which is the authenticity of a resource's physical identity evidenced by the survival of characteristics that existed during the resource's period of significance.

Resources, therefore, must retain enough of their historic character or appearance to be recognizable as historical resources and to convey the reasons for their significance. Integrity is evaluated with regard to the retention of location, design, setting, materials, workmanship, feeling, and association. It must also be judged with reference to the particular criteria under which a resource is eligible for listing in the CRHR (CCR Title 14 §4852(c)).

Unique Archaeological Resources

A unique archaeological resource is defined in section 21083.2 of the PRC as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria.

- Contains information needed to answer important scientific research questions and for which there is a demonstrable public interest
- Has a special and particular quality such as being the oldest of its type or the best available example of its type
- Is directly associated with a scientifically recognized important prehistoric or historic event or person

In most situations, resources that meet the definition of a unique archaeological resource also meet the definition of historical resource. As a result, it is current professional practice to evaluate cultural resources for significance based on their eligibility for listing in the CRHR. For the purposes of this CEQA cultural resources study, a resource is considered significant if it meets the CRHR eligibility (significance and integrity) criteria. Individual resource assessments of eligibility are provided in this report.

Even without a formal determination of significance and nomination for listing in the CRHR, the lead agency can determine that a resource is potentially eligible for such listing, to aid in determining whether a significant impact would occur. The fact that a resource is not listed in the CRHR, or has not been determined eligible for such listing, and is not included in a local register of historic resources, does not preclude an agency from determining that a resource may be a historical resource for the purposes of CEQA.

Assembly Bill 52

On September 25, 2014, California Governor Jerry Brown signed into law Assembly Bill 52, which amended PRC Section 5097.94 and added Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to establish a new category of environmental resources that must be considered under CEQA: tribal cultural resources. Tribal cultural resources are defined as either (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are included in the CRHR or a local register of historical resources, or that are determined to be eligible for inclusion in the CRHR; or (2) resources determined by the lead agency, in its discretion, to be significant based on the criteria for listing in the CRHR. For projects with applications filed on or after July 1, 2015, lead agencies are also required to consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed project, including tribes that may not be federally recognized, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area, and the tribe requests consultation, prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.

Section 6 of Assembly Bill 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures “capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource.” Furthermore, if a California Native American tribe requests consultation

regarding project alternatives, mitigation measures, or significant effects on tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2(a)). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that result from the consultation process (PRC Section 21082.3(a)).

Public Resources Code Section 5097

PRC Section 5097 addresses archaeological, paleontological, and historic sites on state land as well as the cooperative efforts with the Native American Heritage Commission (NAHC) that are to be undertaken as part of a project being evaluated under CEQA. PRC Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal public lands. PRC Section 5097.5 considers it a misdemeanor to knowingly and willfully excavate upon or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency having jurisdiction over the lands. The disposition of Native American burials falls within the jurisdiction of the NAHC, which prohibits willfully damaging any historic, archaeological, or vertebrate paleontological site or feature on public lands (PRC Section 5097.9). PRC Section 5097.98 stipulates that whenever the NAHC receives notification of a discovery of Native American human remains from the county coroner, it shall immediately notify those people it believes to be the most likely descendants of the deceased Native American. The descendants may inspect the site of discovery and make recommendations on the removal or reburial of the remains.

Health and Safety Code 7050.5

Health and Safety Code 7050.5 addresses the protection of human remains discovered in any location other than a dedicated cemetery and makes it a misdemeanor for any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law, except as provided in PRC Section 5097.99. It further states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to the provisions concerning investigation of the circumstances, manner, and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in PRC Section 5097.98. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC.

California Government Code Section 6254(r) and 6254.10

California Government Code Section 6254(r) and Section 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to "Native American graves, cemeteries, and sacred places maintained by the Native

American Heritage Commission.” Section 6254.10 specifically exempts from disclosure requests for “records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency.”

California Native American Graves Protection and Repatriation Act of 2001

The California Native American Graves Protection and Repatriation Act conveys to American Indians of demonstrated lineal descent human remains and funerary items that are held by state agencies and museums. Human remains require special handling and must be treated with dignity. Procedures for the handling of human remains are pursuant to Section 15064.5e of the State CEQA Guidelines and Section 5097.98 of the PRC. In the event of the discovery of human remains and/or funerary items, the following procedures, as outlined by the NAHC, must be followed (14 CCR 15000 et seq.).

1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - a. The County Coroner is contacted to determine that no investigation of the cause of death is required, and
 - b. If the Coroner determines that the remains are Native American:
 - 1) The Coroner shall contact the NAHC within 24 hours.
 - 2) The NAHC shall identify the person or persons it believes to be the most likely descended from the deceased Native American.
 - 3) The most likely descendant may make the recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in PRC Section 5097.98, or
2. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further disturbance.
 - a. The NAHC is unable to identify an most likely descendant or the most likely descendant failed to make a recommendation within 24 hours after being notified by the commission;
 - b. The descendant identified fails to make a recommendation; or
 - c. The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

Local

County of Riverside

County of Riverside General Plan

The General Plan for the County of Riverside follows both federal and state laws and guidelines for the definition of significance and sensitivity of cultural resources. Cultural resources may include objects, buildings, structures, sites, area, places, records, or manuscripts. They also may include places that have historic or traditional associations or are important for traditional cultural uses.

The cultural history of Riverside County is divided chronologically into time periods associated with European contact: before and after contact. Native American populations that predate European contact extend back over 10,000 years in history, which can be seen from numerous archaeological sites in the county.

The County of Riverside has enacted the following general plan policies in the Open Space and Conservation Element to ensure that cultural resources are appropriately considered:

OS 19.1 Cultural resources (both prehistoric and historic) are a values part of the history of the County of Riverside.

OS 19.2 The County of Riverside shall establish a cultural resources program in consultation with Tribes and the professional cultural resources consulting community. Such a program shall, at a minimum, address each of the following: application processing requirements; information database(s); confidentiality of site locations; content and review of technical studies; professional consultant qualifications and requirements; site monitoring; examples of preservation and mitigation techniques and methods; and the descendant community consultation requirements of local, state and federal law. (AI 144)

OS 19.3 Review proposed development for the possibility of cultural resources and for compliance with the cultural resources program.

OS 19.4 To the extent feasible, designate as open space and allocate resources and/or tax credits to prioritize the protection of cultural resources preserved in place or left in an undisturbed state. (AI 145)

OS 19.5 Exercise sensitivity and respect for human remains from both prehistoric and historic time periods and comply with all applicable laws concerning such remains.

County of Riverside County Code

County of Riverside County Code Section 15.72.050, Establishing Historic Preservation Districts, provides details regarding how to establish a historic preservation district in the county of Riverside and the approval process for its establishment. Other details include disestablishment or modification of historic preservation districts, activities within historic preservation districts, local review board for historic preservation districts, and enforcement, violations, fines, and penalties for any offenses. The County of Riverside County Code Chapter 2.100, Emergency Management Organization, includes tribal governments in emergency management organizations. This code states that the Riverside County Emergency Management Organization consists of all officers and employees of the County of Riverside; its agencies, cities, tribal governments, and special districts of Riverside County; and all volunteers and all groups, organizations, and persons commandeered under the provisions of the act; and that all equipment and material publicly owned, volunteered,

commandeered, or in any way under the control of the aforementioned personnel can be used for the support of the aforementioned personnel in the conduct of emergency operations.

City of Riverside

City of Riverside General Plan 2025, Historic Preservation Element

The purpose of the Historic Preservation Element of the City of Riverside General Plan is to “provide guidance in developing and implementing activities that ensure that the identification, designation, and protection of cultural resources are part of the City of Riverside’s community planning development, and permitting processes” (City of Riverside 2012). The Preservation Element acknowledges that the California SHPO has recognized Riverside’s historic preservation program with a designation as a Certified Local Government. The Historic Preservation Element provides historic context with themes important for identifying and evaluating cultural resources within the city. The General Plan 2025 Final Environmental Impact Report includes two cultural resources-related sensitivity maps that use a ranking of unknown, low, medium, and high for archaeological sensitivity and prehistoric cultural resources sensitivity. The Historic Preservation Element outlines several policies called Objectives to reduce the impacts on cultural resources within the city:

Objective HP-1.0: To use historic preservation principles as an equal component in the planning and development process.

Objective HP-2.0: To continue an active program to identify, interpret and designate the City’s cultural resources.

Objective HP-3.0: To promote the City’s cultural resources as a means to enhance the City’s identity as an important center of Southern California history.

Objective HP-4.0: To fully integrate the consideration of cultural resources as a major aspect of the City’s planning, permitting and development activities.

Objective HP-5.0: To ensure compatibility between new development and existing cultural resources.

Objective HP-6.0: To actively pursue funding for a first-class historic preservation program, including money needed for educational materials, studies, surveys, staffing, and incentives for preservation by private property owners.

Objective HP-7.0: To encourage both public and private stewardship of the City’s cultural resources.

City of Riverside Municipal Code

The City of Riverside Municipal Code Title 20, Cultural Resources, provides guidelines for the application, enforcement, and public awareness of the City’s historic preservation regulations, as enforced by the City’s planning department. The purpose of this title is to promote the public health, safety, and general welfare by providing for the identification, protection, enhancement, perpetuation, and use of improvements, buildings, structures, signs, objects, features, sites, places, areas, districts, neighborhoods, streets, works of art, natural features, and significant permanent landscaping having special historical, archaeological, cultural, architectural, community, aesthetic, or artistic value in the city of Riverside (Section 20.05.010). The criteria to designate, modify the status of, or de-designate Landmarks, Structures, or Resources of Merit and Historic Districts, and to modify or de-designate Neighborhood Conservation Areas, are set forth in their definitions in Chapter 20.50 (Ord. 7108 §1, 2010; Ord. 6263 §1 (part), 1996).

Consultant requirements for cultural resources survey, studies, and reports are outlined by the City of Riverside's Community Development Department. All consultants completing studies, surveys, or reports for cultural resources in compliance with the Planning Department's CEQA process shall include the following. This applies to prehistoric archaeological, historic archaeological, and historic resources.

1. Evaluation for eligibility for any applicable designation program:
 - a. Listing in the National Level: National Register of Historic Places, National Historic Landmark, etc.
 - b. Listing at the State Level: California Register of Historical Resources, California Points of Historical Interest, State Landmarks, etc.
 - c. Local designation: City of Riverside Municipal Code Title 20 (Cultural Resources Ordinance), County Landmark, etc.
2. Evaluation of potential impacts to identified cultural resources.
3. Recommendation of mitigation measures where potential impacts have been identified.
4. For larger surveys a project database shall be submitted in Microsoft Access format.
5. Completion of the appropriate State of California Historic Resources Inventory (DPR) forms. Photographs shall be in digital format.
6. Completion of a final report shall include, but not be limited to: executive summary, project location with map, project description, research and field methodology, architectural description, definition of area history, statement of significance, recommendations, resumes of authors and/or contributors, DPR forms (as an appendix), list of sources, discussion of potential impacts, proposed mitigation measures, current setting, evaluation of significance in accordance with the criteria listed in (1) above, copy of the records search from the Eastern Information Center (EIC), record of contact with appropriate Native American group(s), and contact with the Native American Heritage Commission for a Sacred Lands File (SLF) search.
7. Project Deliverables shall include:
 - a. Two (2) copies of the final report.
 - b. Two (2) original copies of the DPR forms.
8. Upon acceptance of the final report, one (1) copy shall be submitted to the Eastern Information Center, Department of Anthropology, University of California, Riverside, 92521.

All work shall be completed in accordance with the Secretary of the Interior's Standard. All work shall be completed in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation including standards for planning, identification, evaluation, registration, historical documentation, archaeological documentation, and professional qualifications as published in the Federal Register, September 29, 1983 (Vol. 48, No. 190 pp. 44716 et seq.).

City of Jurupa Valley

City of Jurupa Valley General Plan

The City of Jurupa Valley's Draft General Plan was adopted in April of 2017, and outlines policies for the protection and treatment of cultural and paleontological resources in the Conservation and Open Space Element. The General Plan also provides maps showing known historic resources and areas of

paleontological sensitivity. In addition to a set of policies governing development within the city, the General Plan describes several historic preservation programs. The policies guiding development are as follows:

COS 7.1 Preservation of Significant Cultural Resources. Identify, protect, and, where necessary, archive significant paleontological, archaeological, and historical resources.

COS 7.2 Public Information. Encourage programs that provide public information on the City's history and cultural heritage, and participate with other agencies to help educate students about the City's rich natural and man-made environment.

COS 7.3 Development Review. Evaluate project sites for archaeological sensitivity and for a project's potential to uncover or disturb cultural resources as part of development review.

COS 7.4 Site Confidentiality. Protect the confidentiality and prevent inappropriate public exposure or release of information on locations or contents of paleontological and archaeological resource sites.

COS 7.5 Native American Consultation. Refer development projects for Native American tribal review and consultation as part of the environmental review process, in compliance with state law.

COS 7.6 Non-Development Activities. Prohibit activities that could disturb or destroy cultural resource sites, such as off-road vehicle use, site excavation or fill, mining, or other activities on or adjacent to known sites, or the unauthorized collection of artifacts.

COS 7.7 Qualified archaeologist present. Cease construction or grading activities in and around sites where archaeological resources are discovered until a qualified archaeologist knowledgeable in Native American cultures can determine the significance of the resource and recommend alternative mitigation measures.

COS 7.8 Native American Monitoring. Include Native American participation in the City's guidelines for resource assessment and impact mitigation. Native American representatives should be present during archaeological excavation and during construction in an area likely to contain cultural resources. The Native American community shall be consulted as knowledge of cultural resources expands and as the City considers updates or significant changes to its General Plan.

COS 7.9 Archaeological Resources Mitigation. Require a mitigation plan to protect resources when a preliminary site survey finds substantial archaeological resources before permitting construction. Possible mitigation measures include presence of a qualified professional during initial grading or trenching; project redesign; covering with a layer of fill; and excavation, removal and curation in an appropriate facility under the direction of a qualified professional.

COS 7.10 Historically significant buildings. Prohibit the demolition or substantial alteration of historically significant buildings and structures unless the City Council determines that demolition is necessary to remove an imminent threat to health and safety and other means to eliminate or reduce the threat to acceptable levels are physically infeasible. Additional unlisted historic resources may also be present and must be evaluated and protected, pursuant to CEQA requirements.

City of Jurupa Valley Municipal Code

The City of Jurupa Valley established a municipal code in order to provide a system of organization for the classification and grouping of ordinances. The municipal code provides guidance for the establishment of Historic Preservation Districts (Sec. 8.55.010 and 8.55.030), a Local Review Board (8.55.040), and the Application for Certificate of Historic Appropriateness (Sec. 8.55.060).

Chapter 8.55. Historic Preservation Districts

Sec. 8.55.010. - Purpose.

It is declared as a matter of public policy that the recognition, protection, preservation, enhancement, perpetuation and use of sites and structures within the city having historic significance is necessary

and required in the interest of the health, safety, prosperity and general welfare of the public. The purpose of this chapter is to:

- (1) Effect and accomplish the protection, enhancement and perpetuation of such improvements which represent or reflect significant elements of the city's history;
- (2) Safeguard the city's historic heritage, as embodied and reflected in specifically defined historic preservation districts;
- (3) Stabilize and improve property value;
- (4) Protect and enhance the city's attraction to residents, tourists and visitors, and serve as a support and stimulus to business and industry;
- (5) strengthen the economy of the city;
- (6) Promote the use of historic preservation districts for the education, pleasure, prosperity and welfare of the people of the city.

Sec. 8.55.030. – Historic Preservation Districts; establishment process

Sec. 8.55.040. – Local review board.

C (2) Recommend implementation guidelines and standards to be used by the local review board in the review of applications, which shall be submitted to the Planning Director for a determination of consistency with the historic and prehistoric resources section of the Jurupa Valley Comprehensive General Plan. The approved guidelines shall be used by the local review board and the Planning Department as the basis of approving or denying applications for a Certificate of Historic Appropriateness. The guidelines shall contain drawings and photographs or reproductions thereof, including a standardized survey of historic sites and structures which will serve as general guides of acceptable construction within the district;

C (4) Serve as an advisory resource to all agencies of the city in matters pertaining to the district, and to encourage efforts by, and cooperation with, individuals, private organizations and other governmental agencies concerned with preservation of the district's architectural, environmental and cultural heritage;

C (6) To encourage public understanding and appreciation of the unique architectural, environmental and cultural heritage of the community through educational and interpretative programs.

Sec. 8.55.060. – Application for Certificate of Historic Appropriateness.

(4) No application for a Certificate of Historic Appropriateness shall be approved unless the Planning Director, or, on appeal, the Planning Commission finds that the proposed construction or alteration is consistent with and conforms to the objectives and design criteria set forth in the historic and prehistoric resource section of the Jurupa Valley Comprehensive General Plan and the guidelines and standards of the local review board that relate to the specific historic preservation district in which the proposed construction is located.

3.4.2 Environmental Setting

The Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program comprise four sites in three locations in the Santa Ana River watershed within the larger Jurupa Valley in the cities of Riverside and Jurupa Valley, and in the County of Riverside, California. Topography, soils, vegetation communities, and historic modifications to the landscape vary somewhat for each of the locations; therefore, they are presented individually below. However, because the Anza Creek and Old Ranch Creek sites occupy the same overall area, they are discussed together.

Anza Creek/Old Ranch Creek Site

The Old Ranch Creek site and Anza Creek site occupy the same overall area on the Santa Ana River's south floodplain about 2 miles downstream of Mount Rubidoux. The combined area of both sites is about 294 acres. The Old Ranch Creek project location is generally the eastern half of the site while the Anza Creek site occupies the western half. Elevations at the site range from 742 feet in the southeast corner near the bicycle trail to 712 feet in the Santa Ana River channel in the northwest portion of the site. The upstream portion of the proposed Old Ranch Creek channel takes an alignment that generally follows the path of the 1931 Santa Ana River channel. The middle portion of the proposed channel is located on what used to be farmland on the floodplain of the inside of a large meander bend in the 1931 Santa Ana River channel. The fine-grained, sandy soils at the Old Ranch Creek site are linked to the alluvial processes of the Santa Ana River channel that used to occupy the site. The Old Ranch Creek site currently supports disturbed Southern Riparian Forest, which is composed of a mixture of native and nonnative vegetation.

Lower Hole Creek

The Lower Hole Creek site is bounded to the north by the Santa Ana River, to the east by the Pedley Landfill and Van Buren Boulevard, and to the west by a former canal, steep hillslope, and residential subdivisions. Elevations at the site range from 671 feet where Hole Creek empties into the Santa Ana River channel to 740 feet on the plateau above the upper portion of Hole Creek upstream of Jurupa Avenue. The entire present-day Hole Creek channel upstream of Jurupa Avenue was a part of Hole Lake in 1931. Jurupa Avenue crosses Hole Creek at the same location as the former lake's spillway. The dam that created Hole Lake was constructed in 1915 by Willits J. Hole with the objective of providing irrigation water for his alfalfa and barley fields in the area now known as La Sierra and Arlanza. The Pedley Landfill that is currently located on a 13.5-acre parcel along the lowermost 1,200 feet of Hole Creek's east bank and extending over to Van Buren Boulevard did not exist in 1931. The historic floodplain been eliminated by Pedley Landfill, and the alignment of Van Buren Boulevard now travels farther south and closer to the creek than it did in 1931. Hole Creek upstream of Jurupa Avenue is a densely vegetated channel with bed elevations inset 25–30 feet below the top of the terrace slopes. Hole Creek is located in terrace escarpment soils for nearly its entire length in the site. The terrace escarpment soils are generally shallow, poorly developed, and rocky in nature. The Lower Hole Creek site currently supports disturbed Southern Riparian Forest which is composed of a mixture of native and nonnative vegetation.

Hidden Valley Creek

The Hidden Valley Creek site is located on the inside of a meander bend on the south side of the Santa Ana River on an approximate 77-acre site. The Hidden Valley Creek site is bounded to the north and east by the Santa Ana River, to the south by a steep hillslope, and to the west by former wetlands. Elevations at the site range from 675 feet at the far upstream end to 655 feet at the far downstream end at the Santa Ana River's low-flow channel. Site elevations generally slope from upstream to downstream, elevations along the south side of the site are similar to the north, and remnant channels are visible in LiDAR images that were recorded in 2014, all which indicate the Santa Ana River has occupied positions throughout the entire site at some time in the past. The Hidden Valley Creek site does not currently have a perennial source of water. Water sources to the site are limited to storm runoff generated from the surrounding hillslopes during rain events. Review of historic aerial photographs shows that portions of the site were farmland in 1931 and the

wetlands presently at the downstream end of the site did not exist. The Santa Ana River occupied a position farther to the northwest than it currently does but the un-farmed land was active floodplain like it is today. The fine-grained, sandy soils at the Hidden Valley Creek site are linked to the alluvial processes of the Santa Ana River channel that routinely shifts position and forms new channels and floodplain at the site in response to flood events. The Hidden Valley Creek site currently supports a patchy matrix of Southern Riparian Forest, which is composed of a mixture of native and nonnative vegetation.

Geology

The proposed project is underlain primarily by younger Quaternary Alluvium with some older Quaternary deposits exposed in the southern margin of the Anza Creek and Lower Hole Creek restoration sites. Plutonic igneous rocks occur on the far western portion of Anza Creek and the southeastern margin of Hidden Valley Creek restoration area.

Younger Quaternary Alluvium (Holocene to late Pleistocene) consists of unconsolidated cobble and sandy alluvium and is mostly gray and poorly sorted (Morton and Cox 2001). These sediments have been recently transported and deposited in the river channels, and alluvial plains. Older Quaternary deposits (Pleistocene began 1.8 million years ago) are moderately consolidated and derived primarily as alluvial fan deposits from the more elevated terrain to the west. Igneous rocks are those that solidified from magma and formed below the surface of the earth (Norris and Webb 1990). As they are trapped deep below the surface, and cool very slowly over millions of years until solid, they do not contain fossils (McLeod 2018).

Prehistoric Setting

Building on early studies and focusing on data synthesis, Wallace (1955, 1978) developed a prehistoric chronology for the Southern California coastal region that is still widely used today and is applicable to coastal and many inland areas, including southwestern San Bernardino and Riverside Counties. Four periods are presented in Wallace's prehistoric sequence: Early Man, Milling Stone, Intermediate, and Late Prehistoric. In addition to Wallace's classic summary, a regional synthesis developed by Warren (1968) is referred to in the following discussion.

When Wallace defined the Early Man Period in the mid-1950s, there was little evidence of human presence on the Southern California coast prior to 6000 B.C. Archaeological work in the intervening years has identified numerous older sites dating prior to 10,000 years ago, including ones on the coast and Channel Islands (e.g., Erlandson 1991; Rick et al. 2001:609; Johnson et al. 2002; Moratto 1984, 2004). The earliest accepted dates for occupation are from two of the northern Channel Islands off the coast of Santa Barbara. On San Miguel Island, Daisy Cave clearly establishes the presence of people in this area about 10,000 years ago (Erlandson 1991). On Santa Rosa Island, human remains have been dated from the Arlington Springs site to approximately 13,000 years ago (Johnson et al. 2002). Recent data from inland as well as coastal sites during this period indicate that the economy was a diverse mixture of hunting and gathering. At near-coastal and inland sites, it appears that an emphasis on hunting may have been greater during the Early Man Period than in later periods; numerous Clovis-like or Folsom-like fluted points have been found in San Bernardino County along shorelines of Pleistocene lakes in the desert portion of the county. Subsistence patterns shifted around 6000 B.C. coincident with the gradual desiccation associated with the onset of the Altithermal, a warm and dry period that lasted for about 3,000 years.

The Milling Stone Period of Wallace (1955, 1978) and Encinitas Tradition of Warren (1968) are characterized by an ecological adaptation to collecting, and by the dominance of small seed grinding. Milling stones, such as metates and slabs, and handstones, such as manos and mullers, occurred in large numbers for the first time, and were even more numerous near the end of this period. As indicated by their toolkits, people during this period practiced a mixed food procurement strategy. Subsistence patterns varied somewhat as groups became better adapted to their regional or local environments.

Koerper and Drover (1983) suggest that Milling Stone Period sites reflect migratory settlement patterns of hunters and gatherers who used marine resources during the winter and inland resources the remainder of the year. More recent research indicates that residential bases or camps were moved to resources in a seasonal round (de Barros 1996; Mason et al. 1997; Koerper et al. 2002), or that some sites were occupied year-round, with portions of the village population leaving at certain times of the year to exploit seasonally available resources (Cottrell and Del Chario 1981). Regardless of settlement system, it is clear that subsistence strategies during the Milling Stone Period included hunting small and large terrestrial mammals, marine mammals, and birds; collecting shellfish and other shore species; extensive use of seed and plant products; the processing of yucca and agave; and near-shore fishing (Reinman 1964; Kowta 1969).

Wallace's Intermediate Period and Warren's Campbell Tradition date from approximately 3000 B.C. to A.D. 500. This era is characterized by a shift toward a hunting and maritime subsistence strategy along with a wider use of plant foods. During the Intermediate Period, there was a pronounced trend toward greater adaptation to regional or local resources. For example, chipped stone tools suitable for hunting were more abundant and diversified, and shell fishhooks became part of the toolkit during this period. Mortars and pestles, used for processing acorns, became more common during this period, gradually replacing manos and metates as the most abundant milling stone implements. In addition, hopper mortars and stone bowls, including steatite vessels, appear to have entered the toolkit at this time. This shift appears to be a correlate of a diversification in subsistence resources. Many archaeologists believe this change in milling tools signals a shift away from the processing and consuming of hard seed resources to the increasing importance of the acorn (e.g., Glassow et al. 1988; True 1993).

Wallace (1955, 1978) places the beginning of the Late Prehistoric Period around A.D. 500. In all chronological schemes for Southern California, the Late Prehistoric Period lasts until European contact occurred in A.D. 1769. During the Late Prehistoric Period, there was an increase in the use of plant food resources and an increase in land and marine mammal hunting. There was a concurrent increase in the diversity and complexity of material culture during this period, demonstrated by more classes of artifacts. The recovery of a greater number of small, finely chipped projectile points, usually stemless with convex or concave bases, indicates an increased use of the bow and arrow—rather than the atlatl and dart—for hunting. Cottonwood series triangular projectile points in particular are diagnostic of this period (Koerper and Drover 1983).

During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages (Wallace 1955:223). Large populations and, in places, high population densities were characteristic, with some coastal and near-coastal settlements containing as many as 1,500 people. Many of the larger settlements were permanent villages where people resided year-round. The populations of these villages may have also increased seasonally. In Los Angeles, Orange, western Riverside and southwestern San Bernardino Counties, similar changes (introduction of cremation, pottery, and small triangular arrow points) are thought to have resulted from Takic

migration to the coast from inland desert regions. This Takic or Numic Tradition was formerly referred to as the “Shoshonean wedge” or “Shoshonean intrusion” (Warren 1968).

Ethnographic Setting

The project area is located near an ethnographic transition zone between the Gabrielino/Tongva, Serrano, and Cahuilla Native American groups. All three groups are speakers of Takic languages, which are part of the Uto-Aztecan linguistic stock. Because the project area occupies a transitional zone among Gabrielino/Tongva, Serrano, and Cahuilla, it is necessary to consider all three groups to fully understand the occupation history of the project area.

Gabrielino/Tongva

The Gabrielino/Tongva are characterized as one of the most complex societies in native Southern California, second perhaps only to the Chumash, their coastal neighbors to the northwest (Bean and Smith 1978a:538; Kroeber 1925:621). The Gabrielino/Tongva language, as well as that of the Juaneno and Luiseno to the south, was derived from the Takic family. The Takic family is part of the Uto-Aztecan linguistic stock, and can be traced to the Great Basin (Mithun 2004:539). This language group represents an origin quite different from that of the Chumash to the north and Ipai and Tipai farther south. Linguistic analysis suggests that Takic-speaking immigrants from the Great Basin moved into Southern California around 500 B.C. (Kroeber 1925:579). This migration may have displaced both Chumashan- and Yuman-speaking peoples. The timing and extent of the migrations and their impact on indigenous peoples is poorly understood.

The Gabrielino/Tongva established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast that stretched from the foothills of the San Gabriel Mountains to the Pacific Ocean. The tribal population at contact is estimated to be at least 5,000 (Bean and Smith 1978a:540), although recent ethnohistoric work suggests a number approaching 10,000 is more likely (O’Neil 2002). The fundamental economy of the Gabrielino/Tongva was one of subsistence gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, deserts, riparian, estuarine, and open and rocky coastal environmental zones. With a large portion of their territory situated inland, they had access to juniper, yucca, and other vegetation from higher and drier areas than exclusively coastal peoples. As with most Native American Californians, acorns were the staple food, supplemented by the roots, leaves, seeds, and fruit of a wide variety of flora. Fresh and saltwater fish, shellfish, birds, and insects, as well as large and small mammals, were also exploited.

A wide variety of tools and implements were used by the Gabrielino/Tongva to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Groups residing near the ocean used ocean-going plank canoes and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands (McCawley 1996:7). Foods were processed with a variety of tools, including hammer stones and anvils, mortars and pestles, manos and metates, strainers, leaching baskets and bowls, knives, bone saws, and wooden drying racks. Catalina Island steatite was used to make ollas and cooking vessels (Kroeber 1925:629).

Deceased individuals were either buried or cremated (Harrington 1942; McCawley 1996). Cremation was the standard practice for the mainland Gabrielino/Tongva during the contact period. Cremation ashes have been recovered from various archaeological contexts, including being buried

within stone bowls and in shell dishes (Ashby and Winterbourne 1966:27). The Gabrielino/Tongva were apparently first contacted by Europeans in 1542 when Juan Rodríguez Cabrillo entered the area. Following subsequent Spanish visits to the region, colonization began in 1769, precipitating the establishment of Missions San Gabriel (1771) and San Fernando (1797). Due in part to the introduction of Euro-American diseases and the harsh effects of mission life, the Gabrielino/Tongva population and culture suffered a gradual deterioration. Following the secularization of the missions, most surviving Gabrielino/Tongva became wage laborers on the ranchos of Mexican California. In the early 1860s, a smallpox epidemic nearly wiped out many of the remaining Gabrielino/Tongva. However, persons of Gabrielino/Tongva descent have continued to live in the Los Angeles area to the present time.

Serrano

The Serrano were originally a relatively small group located within the San Bernardino and Sierra Madre Mountains, and the term “Serrano” has come to be ethnically defined as the name of the people in the San Bernardino Mountains (Kroeber 1925:611). The Vanyume, who lived along the Mojave River and associated Mojave Desert areas, also referred to as the Desert Serrano, spoke either a dialect of Serrano or a closely related language (Mithun 2004:543). The Serrano language is part of the Serran division of a branch of the Takic family of the Uto-Aztecan linguistic stock (Mithun 2004:539, 543). The two Serran languages, Kitanemuk and Serrano, are closely related. Kitanemuk ethnographic lands were located to the northwest of the Serrano.

The Serrano occupied an area in and around the San Bernardino Mountains between approximately 1,500 and 11,000 feet above mean sea level. Their territory extended west into the Cajon Pass, east as far as Twentynine Palms, north past Victorville, and south to the Yucaipa Valley. Year-round habitation tended to be located out on the desert floor, at the base of the mountains, and up into the foothills, with all habitation areas requiring year-round water sources (Kroeber 1908; Bean and Smith 1978b).

Most Serrano lived in small villages near water sources (Bean and Smith 1978b:571). Each house was occupied by a single extended family, comprising a husband, wife (or wives), children, grandparents, and perhaps a widowed aunt or uncle, and was a central family unit gathering place for sleeping and storage. Serrano territory was a trade nexus between inland tribes and coastal tribes. Ethnohistory also suggests that the Serrano played a role in the trade of horses from the southwest to the California coast (Bean and Vane 2002). The subsistence economy of the Serrano was one of subsistence hunting and collecting plant goods, with occasional fishing (Bean and Smith 1978b:571). Trade and exchange was an important aspect of the Serrano economy. A variety of materials were used for hunting, gathering, and processing food, many of which were also used for shelter, clothing, and ceremonial items. Shell, wood, bone, horn, stone, plant materials, animal skins, and feathers were used for making money, baskets, rabbit skin blankets, mats, nets, and bags. The Serrano made pottery and used it daily to carry and store water or foodstuffs; ceramics were also used as ceremonial objects.

Mainly due to the inland territory that Serrano occupied beyond Cajon Pass, contact between Serrano and Europeans was relatively minimal prior to the early 1800s. As early as 1790, Serrano began to be drawn into mission life (Bean and Vane 2002). More Serrano were relocated to Mission San Gabriel in 1811 after a failed indigenous attack on that mission. Most of the remaining western Serrano were moved to an *asistencia* built near Redlands in 1819, where they provided much of the

labor to establish the Mill Creek Zanja that irrigated much of the land between present day Mentone and the *asistencia* (Bean and Smith 1978b:573).

In the 1860s, a smallpox epidemic decimated many indigenous Southern Californians, including the Serrano (Bean and Vane 2002). Surviving Serrano sought shelter at Morongo with their Cahuilla neighbors; Morongo later became a reservation (Bean and Vane 2002). Other survivors followed the Serrano leader Santos Manuel down from the mountains and toward the valley floors, and eventually settled what later became the San Manuel Band of Mission Indians Reservation. This reservation was established in 1891.

Cahuilla

The Cahuilla settled in a territory that extended west to east from the present-day city of Riverside to the central portion of the Salton Sea in the Colorado Desert, and south to north from the San Jacinto Valley to the San Bernardino Mountains. Evidence suggests the Cahuilla migrated to Southern California about 2,000 to 3,000 years ago, most likely from the southern Sierra Nevada ranges of east-central California with other related socio-linguistic (Takic-speaking) groups (Moratto 1984:559).

Cahuilla villages were usually located in canyons or on alluvial fans near accessible water such as springs or where large wells could be dug. Each family and lineage had houses (*kish*) and granaries for the storage of food, and ramadas for work and cooking. Sweat houses and song houses (for nonreligious music) were typically present within the villages, and each community constructed a separate house for the lineage or clan leader. Houses and ancillary structures were often spaced apart, and villages typically spread over a mile or two.

The Cahuilla used more than 200 desert and mountain plants (Bean and Saubel 1972). Although 60 percent of Cahuilla territory was in the Lower Sonoran Desert environment, 75 percent of their diet came from plant resources acquired in Upper Sonoran and Transition environmental zones (Bean and Smith 1978c). Key plant foods included acorns, screwbean and honey mesquite, pinon nuts, prickly-pear cactus fruit and leaves, and yucca blossoms and stalks.

The Cahuilla employed a wide variety of tools and implements to gather and collect food resources. Hunting was achieved using the bow and arrow, traps, nets, slings, and blinds for land mammals and birds and nets for fish when Lake Cahuilla was filled. Throwing sticks were used to procure individual rabbits and hares, whereas clubs and large nets were used during communal rabbit drives. Food processing was achieved using a variety of tools: portable and bedrock mortars, basket hopper mortars, pestles, manos and metates, bedrock grinding slicks, hammerstones and anvils, woven strainers and winnowers, leaching baskets and bowls, woven parching trays, knives, bone saws, and wooden drying racks.

Asistencias were established near Cahuilla territory at San Bernardino and San Jacinto by 1819. Interaction with Europeans was less intense in the Cahuilla region than for coastal groups because the topography and paucity of water rendered the inland area inhabited by the Cahuilla unattractive to colonists. By the 1820s, however, the Pass Cahuilla experienced consistent contact with the ranchos of Mission San Gabriel, whereas the Mountain Cahuilla frequently received employment from private rancheros and were recruited to Mission San Luis Rey.

Mexican ranchos were located near Cahuilla territory along the upper Santa Ana and San Jacinto Rivers by the 1830s, providing the opportunity for the Cahuilla to earn money ranching and to learn

new agricultural techniques. The expansion of immigrants into the region introduced the Cahuilla to European diseases. The single worst recorded event was a smallpox epidemic in 1862–1863. By 1891, only 1,160 Cahuilla remained within what was left of their territory, down from an aboriginal population estimated at 6,000 to 10,000 (Bean and Smith 1978c:583–584). By 1974, approximately 900 people claimed Cahuilla descent, most of who resided on reservations.

Between 1875 and 1891, the United States established ten reservations for the Cahuilla within their territory: Agua Caliente, Augustine, Cabazon, Cahuilla, Los Coyotes, Morongo, Ramona, Santa Rosa, Soboba, and Torres-Martinez (Bean and Smith 1978c:585). Four of these reservations are shared with other Native American groups, including the Chemehuevi, Cupeno, and Serrano. The Cahuilla on the Morongo Reservation established the Malki Museum in 1965.

Historical-period Setting

History for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Some researchers subdivide the American Period in various phases, such as 19th century (1848–1900), Early 20th century (1900–1950), and Modern Period (1950–present).

Spanish Period

In the 18th century, the Spanish colonized present-day California, establishing a tripartite system consisting of missions, presidios, and pueblos (Bean and Rawls 1968). History records the Spaniard Pedro Fages as the first white person to pass through the San Bernardino Valley in 1772. Four years later, Fr. Francisco Hermenegildo Garcés, “the famous and revered Franciscan missionary-explorer-martyr,” entered the valley, seeking to plot a road that would connect Monterey with Sonora (Beattie and Beattie 1939:3). It would be another 30 years before the Spanish returned to the region.

As the chain of missions prospered, their livestock holdings increased and became vulnerable to theft. The Spaniards responded by planning inland missions that could provide additional security and establish a presence beyond the coast. Efforts to colonize and evangelize were continued by Mission San Gabriel Archangel, which established an estancia (rancho) at Puente at least by 1816 and further expanded its scope of operations by establishing the San Bernardino estancia at a site 1.5 miles east of Guachama in 1819. Other estancias in San Bernardino County soon followed at Agua Caliente and at the ranchos of Jucumba and Yucaipa (Beattie and Beattie 1939:12). The estancia at Guachama was intended to serve several purposes, one of which was to develop farming and teach the Cahuilla Indians about European agricultural methods. By 1821, mail was being carried between Sonora and California on the Cocomaricopa Trail, which passed through the San Bernardino Valley.

Mexican Period

Mexico proclaimed its independence from Spain in 1821 and became a federal republic in 1824, with both Baja and Alta California classified as territories (Starr 2005). The Mexican Republic began to grant private land to citizens to encourage immigration to California. Huge land grant ranchos took up large sections of land in California. Between 1835 and 1846, more than 600 land grants were made in California by the Mexican government. The dons dominated the economy and defined the society of Mexican California (Robinson 1948; Starr 2005). These men, often referred to as

“Californios,” practiced an agricultural pattern that included mixed stock raising and commercial agriculture on their vast landholdings (Jelinek 1999; Starr 2005).

In 1833, Mexico adopted the Secularization Act of 1833, by which the Mexican government privatized most of the Franciscan’s landholdings, including their California missions. By 1836, this sweeping process effectively reduced the California missions to parish churches and released their vast properties. Although earlier secularization plans had called for redistribution of lands to the Native American neophytes, who were responsible for construction of the mission empire, the mission lands and livestock holdings were instead redistributed by the Mexican government through land grants to Mexican ranchers (Langum 1987:15–18).

American Period

In 1848, at the end of the war between Mexico and the United States, the Treaty of Guadalupe Hidalgo was signed, giving control of California to the United States. The acquisition of California by the United States and the discovery of gold in 1849 drew many Euro-Americans into California (Robinson 1948). In 1850 California became a state and was subsequently divided into 27 counties. However, the great population influx was limited primarily to central California, San Francisco, and the Gold Rush region of the Sierra Nevada. Southern California grew slowly during this time.

Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the Southern California economy through the 1850s. Cattle were no longer desired mainly for their hides, but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from Southern to Northern California to feed that region’s burgeoning mining and commercial boom. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, then were transported by trains where available. The cattle boom ended for Southern California as neighbor states and territories drove herds to northern California at reduced prices. Operation of the huge ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 1941:102–103).

Riverside County

In 1859, the first U.S. Post Office in what would become Riverside County was established at John Magee’s store on Temecula Rancho (Gunther 1984:526). The first major population boom in Southern California followed completion of the Southern Pacific Railroad connection from Sacramento and the transcontinental Central Pacific Railroad route south to Los Angeles in 1874 (Lech 2012). The railroad brought land speculators, developers, and agriculturalists into the region, including Riverside and surrounding areas that seemed most fit for agricultural development.

In 1870, Judge John Wesley North and a group of associates founded the city of Riverside on part of Rancho Jurupa. Orange trees were first planted in Riverside County in 1871, but the citrus industry began 2 years later when Eliza Tibbets received two Brazilian navel orange trees from a friend at the Department of Agriculture in Washington. The trees thrived in the Southern California climate, and the navel orange industry grew rapidly, supported by extensive irrigation projects. By 1882, there were more than half a million citrus trees in California, almost half of which were in Riverside County. With the agricultural boom that the navel orange provided, the city of Riverside grew rapidly during the 1880s. On May 9, 1893, Riverside County was officially formed from portions of San Bernardino County and San Diego County (Patterson 1971). The citrus boom created a number

of fortunes in Riverside and, according to the Bradstreet Index, in 1895 the city became the wealthiest jurisdiction per capita in the United States (Patterson 1971).

During World War I, the federal government established a military presence in Riverside County. The U.S. Army constructed March Field, now March Air Reserve Base, to train aviators. The base increased in size during World War II, adding Camp Haan and a third facility, Camp Anza, now occupied by the National Veteran's Cemetery. Over the decades, new residents populated new towns such as Murrieta, Wildomar, and Lake Elsinore. Eastvale, Norco, and unincorporated areas within the county south of Corona zoned lots with enough acreage for "ranchettes" and permitted horse keeping. Civic activities with equestrian themes became a feature of towns and neighborhoods within the county area and towns south of the city of Riverside (County of Riverside 2010; March Air Reserve Base n.d.). The bulk of the county remained agricultural into the 1960s and 1970s, when real estate development activity began to occur (ICF 2012).

City of Riverside

While Native Americans inhabited the area now known as the city of Riverside for centuries, the first nonnative inhabitants of the area settled during the Mexican period. During this time, lands once owned by the Franciscan missions that had been used primarily for sheep and cattle grazing were deeded to Mexican rancheros. Vast land grants were often given, usually to retired soldiers. In 1838, Juan Bandini was granted a large tract of land by the Mexican government that included much of the Santa Ana River drainage. Bandini called this Rancho Jurupa, portions of which were later sold and renamed Rubidoux Rancho. Fewer than 10 miles to the north of what would become downtown Riverside, a group of Mexican colonists from New Mexico settled two villages on either side of the Santa Ana River known as Agua Mansa and La Placita. Juan Bandini had donated this portion of his rancho in 1845 to the colonists. The two towns thrived until the catastrophic flood of 1862 that destroyed most all of the adobe residences and other structures. While there was an attempt to rebuild, the town was not able to rebuild its former status (Holmes 1912). Rubidoux Rancho was later sold in 1859 to Abel Stearns, a land prospector and resident of Los Angeles. In 1868, Stearns then sold Jurupa Rancho to the Los Angeles Land Company (Greves 2002; Holmes 1912).

Because of the devastation wrought by the 1862 flooding and later drought years, the once-flourishing cattle industry was all but destroyed in Southern California. Land owners attempted various agricultural enterprises, most of which were unsuccessful. For a time, the silk industry exploded, and a portion of the Jurupa rancho was purchased with the intention of planting groves of mulberry trees and the establishment of a silk weaving colony. However, this enterprise was not to be, as the leader of this industry and partner in the ownership of the land Louis Prevost died and the newly established Silk Center Association sold its lands (Greves 2002; Holmes 1912).

While the silk industry did not take hold in Southern California, the citrus industry became highly successful due to the climate and abundance of land. In 1870 John North, E. G. Brown, A. J. Twogood, and James Greves moved to California to purchase land for the development of "a colony of industrious people to engage in the culture of semitropical fruits and grapes for the manufacture of raisins" (Greves 2002:21). After researching areas to establish this colony in Southern California, the group decided to purchase land from the Silk Culture Association in what would later become the city of Riverside (Greves 2002; Lech 2007). Construction of the first irrigation canal began in October of 1870 and was completed in July of 1871. A larger system of canals was designed and planned for the area. At a meeting of the inhabitants of the colony, the name Riverside was adopted. Within a year they established a church, a schoolhouse, a hardware store, and residences. Growth

was relatively slow but steady over the next several years with the influx of more families and entrepreneurs.

With the construction of other irrigation systems namely the Gage Canal in 1886, the community saw rapid expansion during the 1870s and 1880s. Eventually, the Atchison, Topeka and Santa Fe Railway and the Southern Pacific Railroad each extended lines into Riverside. The extension of rail lines into Riverside and the subsequent opening of markets to the east meant higher profits for the various agricultural enterprises as the costs of transport decreased significantly. Packing houses were erected, and the Annual Citrus Fair attracted nationwide interest. The 1884 World's Fair in New Orleans proved a windfall for the Riverside citrus industry. In this event, oranges from the city won several gold medals boosting the prominence of the Riverside citrus industry throughout the country (Holmes 1912).

In 1885, the city of Riverside was granted an official government and status as a city by the Secretary of State of California. Riverside and surrounding cities were divided between Los Angeles and San Diego counties, and in 1853, San Bernardino County was formed. Riverside was subsumed into San Bernardino County until 1893 when Riverside County was formed and confirmed by Governor Henry Markham. The city of Riverside became the county seat. The city of Riverside prospered through the 1920s with the development of the Riverside Land and Irrigation Company, construction of transportation infrastructure, and construction of numerous public works such as parks, a library, schools, hotels, and other private and municipal buildings. Fraternal organizations supported the development of such civic works and maintained strong business ties between their members. The operation of several streetcar companies allowed for the growth of suburban neighborhoods on the outskirts of downtown Riverside (Lech 2007; Tibbet 2007), and in 1926 a master plan was developed by the city to accommodate the expanding footprint of the city and the increase in automobile traffic.

While the depression of the 1930s hit the city hard, government programs such as those sponsored by the Civil Works Administration put residents to work constructing highways and improving infrastructure. The precursors to State Route 60, State Highway 395, and State Route 91 were all constructed during this time (Tibbet 2007). March Airfield was established southeast of the city in 1918 to support the Army. In 1927 it was expanded and became the Western Headquarters of Army Aviation. Because of its proximity and the number of people employed by and supporting the base, the city of Riverside received numerous benefits such as the improvement of highways and accelerated housing construction. Personnel increased substantially at March Airfield through World War II, and the city also saw a boom in residential development with the return of veterans and the availability of Veterans Administration and Federal Housing Administration mortgages (Tibbet 2007). As with much of the rest of Southern California, the 1950s and 1960s saw large-scale residential development and a large increase in Riverside's population. In 1953, Riverside was reported as being the 15th fastest-growing city in the western United States. The University of California, Riverside was opened in 1961, and La Sierra University in 1964. Eventually, the strong dependence on agriculture waned, and the vast orchards and agricultural fields that previously covered the landscape were replaced with housing tracts and industrial facilities.

City of Jurupa Valley

The city of Jurupa Valley was incorporated in 2011; however, its history dates back many centuries. The name Jurupa comes from the earliest inhabitants of the region. Native Americans are said to have referred to the plant known as California sagebrush as some variant of the word Jurupa. The

city is near the ethnohistoric boundaries of the Gabrielino and Serrano tribes who occupied the region for several thousand years prior to contact with nonnative colonists. Early recorded history of the region begins with the explorations of Colonel Juan Bautista de Anza, who camped along the Santa Ana River in 1774 and 1776, and noted the location of a Native American village in this area (Johnson 2005).

Prior to the American annexation of California, much of the Jurupa Valley was under the domain of the Mission San Gabriel; however, secularization of the missions in 1835 meant that the area was given to private owners. The area of the Jurupa Valley was granted to Juan Bandini in 1838 by Governor Alvarado (Guinn 1902; Johnson 2005, 2012). The Rancho Jurupa spanned 32,000 acres and included a portion of the Santa Ana River within its boundaries. Portions of the Rancho Jurupa were later sold to Benjamin Wilson in 1843 who in turn sold his portion to Louis Rubidoux in 1844. The area would come to be known as the Rubidoux Rancho with a large adobe residence facing the Santa Ana River. Rubidoux built a grist mill and ran a vineyard. The Jurupa Ditch, a large irrigation canal, was built at some time during either Wilson or Rubidoux's ownership of the Rancho (Guinn 1902; Johnson 2005).

Before he died in 1868, Rubidoux sold portions of his land as small ranches to many different settlers. Abel Sterns married Juan Bandini's daughter and in 1857 purchased the remainder of Bandini's Jurupa Rancho. Much like the history of the city of Riverside, the late 1800s was a time of agricultural pursuits for most of the residents of the area that would become the city of Jurupa Valley. The expansion of the Southern Pacific Railroad into Southern California meant a growing number of immigrants to the area. However, unlike the city of Riverside, the city of Jurupa Valley did not grow quickly into a larger metropolitan area, and the population remained relatively small with a more rural and agricultural base. The area was subjected to major flooding with especially large flood episodes in 1938 and 1969, which saw vast areas under water with agricultural fields submerged and cattle and livestock drowned (Johnson 2005). Prior to incorporation, the area encompassing the city of Jurupa Valley was a conglomeration of small rural communities such as West Riverside, Mira Loma, Glen Avon, Belltown, Crestmore Heights, Sunnyslope, and Pedley (Johnson 2005). Efforts at incorporation were made many times, but eventually the city would be incorporated in 2011 to cover a 44-square-mile area that includes the communities of Jurupa Hills, Mira Loma, Glen Avon, Pedley, Indian Hills, Belltown, Sunnyslope, Crestmore Heights, and Rubidoux (City of Jurupa Valley 2018).

3.4.3 Environmental Impacts

Background research and field studies were conducted in compliance with CEQA (PRC Section 21000 et seq.), pursuant to the State CEQA Guidelines (CCR Title 14 Section 15000 et seq.).

Methods for Analysis

The effort to identify cultural resources in the study area included records searches of previous cultural resource investigations and recorded sites; background research and a review of literature relevant to the prehistory, ethnography, and history of the project site and proposed project vicinity; consultation with the NAHC and Native American representatives; and a pedestrian survey. Figures for the proposed project sites are provided in Chapter 2, *Project Description*. A map of the cultural resources study area and a detailed discussion of methodology are presented in the cultural resources technical study included in Appendix F.

Records Search and Literature Review

The records search for the project was conducted on July 17, 2018 by ICF staff archaeologists at the Eastern Information Center (EIC) at the University of California, Riverside. The records search included a review of all recorded historic and prehistoric archaeological sites, as well as recorded built environment resources within 0.25 mile of the project site. The records search included a review of all available cultural resources surveys and excavation reports and site records within the four restoration sites and within a 0.5-mile radius surrounding them. In addition, the NRHP (National Park Service 2010) and documents and inventories from the California Office of Historic Preservation, including the lists of California Historical Landmarks (COHP 2010a), California Points of Historical Interest (COHP 2010b), Listing of National Register Properties (COHP 2010c), and Inventory of Historic Structures (COHP 2010d) were consulted. Historic maps including 1901, 1905, 1911, 1927, 1939, 1942, 1955, 1960, 1962, 1969, and 1975 U.S. Geological Survey quadrangle maps, were also examined. Historic aerial photographs dated to 1948, 1966, 1967, 1994, and 2002 were also reviewed using NETROnline at www.historic.aerials.com.

A total of 55 cultural resources studies have been conducted within the 0.5-mile radius of the records search; 11 of the cultural resources studies overlap with the project area. Table 3.4-1 contains a summary of the cultural resources studies that include a portion of the proposed project area.

Table 3.4-1. Cultural Resources Studies Conducted within a 0.5-mile Radius of the Project Area

EIC Number	NADB Number	Year	Author	Title
RI-0030	1080030	1971	Michael Gardner	Archaeological Impact Expected from the Tequesquite Arroyo-Box Springs Wash Flood Control Project
RI-2131	1083416	1995	Bruce Love	Archaeological Survey Report for Santa Ana River Bikeway Phase IIIA Landscaping Project, City and County of Riverside, California
RI-2132	1083553	1995	Bruce Love	Historic Property Survey Report for Santa Ana River Bikeway Phase IIIA Landscaping Project, City and County of Riverside, California
RI-2307	1082764	1988	R. Paul Hampson, Jerrel Sorensen, Susan Goldberg, Mark Swanson, and Jeanne Arnold	Cultural Resources Survey, Upper Santa Ana River, California
RI-3395	1084037	1991	Patricia Jertberg and Karen Kirtland	Cultural and Biological Resources Assessment of Jurupa Avenue Extension, Approximately 1 Mile, City of Riverside, Riverside County, California
RI-3873	1084805	1996	Bruce Love and Bai Tom Tang	Identification and Evaluation of Historic Properties – Existing Data Inventory and Intensive Survey: Anza Electric Powerline Upgrade Project

EIC Number	NADB Number	Year	Author	Title
RI-3893	1084859	1995	Brian Dillon	Archaeological Assessment of the Riverside Cogeneration Project on the Santa Ana River, Riverside County, California
RI-4220	1085427	1999	Bruce Love and Bai Tom Tang	Identification and Evaluation of Historic Properties: Rancho La Sierra Water Supply Facility Site, City of Riverside, Riverside County, California
RI-5325	1086193	2005	Robert White and Laura White	A Cultural Resources Assessment of a 5.09-Acre Parcel as Shown on TPM 32521 Located Adjacent to Calle Lagartija in Rancho California, Unincorporated Riverside County
RI-7694	NA	2008	Joan George, Peggy Beedle, and Vanessa Mirro	Cultural Resources Report for the Santa Ana River Trunk Sewer Replacement Project, Riverside County, California
RI-8403	NA	2009	Joan George	Letter Report: Phase-I Cultural Resources Addendum for the Santa Ana River Trunk Sewer Replacement Project, Riverside County, CA

Previously Recorded Resources

Results of the records search indicated that 47 previously recorded resources are located within 0.5 mile of the proposed project area and 12 of these are located within the project area. One of the 12 resources in the project area is the Union Pacific Railroad Bridge, a built environment resource. The six historical-period cultural resources within the APE include water conveyance features, a refuse scatter a bridge, a sewer line, and the remains of a dock. The prehistoric resources are mostly bedrock milling sites, but also include a lithic scatter and a pictograph site. Ten of the twelve previously recorded cultural resources within the project area were relocated. Additionally, two new isolates (ICF-HV-01 and ICF-HV-02) were identified, and substantial additions were made to one previously recorded site (P-33-000621) during the survey. Table 3.4-2 contains a summary of cultural resources sites within the proposed project APE.

Table 3.4-2. Cultural Resources Sites Located within 0.5 mile of the Project Area

Primary	Trinomial	Age	Description	Location relative to the project APE
P-33-000127	CA-RIV-127	Multicomponent	Bedrock milling and historical-period debris	Inside
P-33-000325	CA-RIV-325	Prehistoric	Unknown prehistoric artifacts, possibly same site as CA-RIV-127	Inside
P-33-000559	CA-RIV-559	Multicomponent	Pecan grove on Judson farmstead	Outside
P-33-000560	CA-RIV-560	Prehistoric	Flake scatter and rock feature	Outside
P-33-000621	CA-RIV-621	Prehistoric	Bedrock milling	Inside
P-33-000622	CA-RIV-622	Prehistoric	Bedrock milling	Inside

Primary	Trinomial	Age	Description	Location relative to the project APE
P-33-000623	CA-RIV-623	Prehistoric	Bedrock milling	Outside
P-33-000624	CA-RIV-624	Multicomponent	Bedrock milling, lithics, historical-period canal, nails	Outside
P-33-000679	CA-RIV-679	Prehistoric	Pictograph	Outside
P-33-000700	CA-RIV-700	Prehistoric	Bedrock milling	Outside
P-33-000884	CA-RIV-884	Prehistoric	Pictographs	Inside
P-33-001093	CA-RIV-1093	Multicomponent	Bedrock milling and concrete marker dated 1946	Outside
P-33-003354	CA-RIV-3354	Historical-period	"China Gardens" farm	Outside
P-33-003357	CA-RIV-3357	Historical-period	Canal	Inside
P-33-003359	CA-RIV-3359	Historical-period	Historical-period debris	Outside
P-33-003360	CA-RIV-3360	Multicomponent	Historic period debris and three prehistoric flakes	Outside
P-33-003361	CA-RIV-3361H	Historical-period	Union Pacific Railway bridge	Inside
P-33-004762	CA-RIV-4762	Prehistoric	Bedrock milling	Outside
P-33-007540	CA-RIV-5806H	Historical-period	Historic canal	Outside
P-33-007541	CA-RIV-5807H	Historical-period	Concrete building foundation	Outside
P-33-008698		Historical-period	Isolated condiment bottle and tea cup fragment	Inside
P-33-008827	CA-RIV-6263	Prehistoric	Bedrock milling	Outside
P-33-008829	CA-RIV-6265	Prehistoric	Bedrock milling	Outside
P-33-008831	CA-RIV-6267	Prehistoric	Bedrock milling	Outside
P-33-008839		Historical-period	Water control and conveyance to and across old Hole Ranch	Inside
P-33-009651		Historical-period	Hole Lake Complex water conveyance features and dam	Inside
P-33-009652	CA-RIV-6452	Prehistoric	Bedrock milling	Inside
P-33-011126	CA-RIV-6690	Historical-period	Lloyd H. Edmiston residence, ranch, and orchard	Outside
P-33-011397	CA-RIV-6785	Prehistoric	Flakes and a mano	Outside
P-33-011398	CA-RIV-6786H	Historical-period	Wood pillars, concrete pylons, and concrete footings	Outside
P-33-011592		Prehistoric	Mano and flake	Outside
P-33-011633		Built Environment	One-story residence, garage, barn	Outside
P-33-013252		Historical-period	Wastewater treatment plant	Outside
P-33-013254		Historical-period	"Kendall's" Commercial Building	Outside
P-33-013255		Historical-period	One story California Bungalow	Outside
P-33-013256		Historical-period	One story California Bungalow	Outside

Primary	Trinomial	Age	Description	Location relative to the project APE
P-33-013257		Historical-period	Barn	Outside
P-33-013258		Historical-period	One story California Bungalow	Outside
P-33-013261		Historical-period	One story California Bungalow	Outside
P-33-014379		Historical-period	Ranch-style residence	Outside
P-33-014380		Historical-period	One story residence	Outside
P-33-016848		Historical-period	Santa Ana River Trunk Sewer	Inside
P-33-016849		Historical-period	Historical-period refuse, shed, and livestock pen	Outside
P-33-016851		Historical-period	De Anza Trail Monument	Outside
P-33-017330		Prehistoric	Two metate fragments	Outside
P-33-017331		Historical-period	Historical-period trash pit	Outside
P-33-024052		Historical-period	Paradise Knolls Golf Course	Outside

P-33-000127 (CA-RIV-127)

P-33-000127 is a bedrock milling site consisting of milling slicks and bedrock mortars on several granitic outcrops. Historical-period (mid-19th to early 20th century) and modern refuse was also observed throughout the site. This site has been described as the location where de Anza's party camped and crossed the Santa Ana River in 1774 and 1776, although no evidence of his camp site has been identified. The milling features may be remnants of the village site de Anza mentioned, or could be from an earlier, prehistoric occupation. A few historical-period artifacts were previously observed in the site area since 1975 and are most likely associated with the Union Pacific Railroad Bridge (CA-RIV-3361H) that was built over this site in 1902–1904. Modern graffiti and gray paint now cover the bedrock outcrops and obscure some of the previously recorded milling features.

During the current survey, archaeologists revisited the resource and found it to be as previously recorded in 2011 by Ruzicka and Akyüz. Graffiti still covers much of the outcrops and portions of the boulders have been painted gray to cover older episodes of graffiti. The gray paint has obscured the surface of the outcrops, making the identification of exfoliated slick features very difficult. This resource is located under a Union Pacific Railroad Bridge (site P-33-003361), and it has been posited that the construction of the bridge likely disturbed the site. The Santa Ana River bike path has also been constructed adjacent to the site, which may also have obscured the features on the site. The site continues to be a target of graffiti and “cover up” painting.

P-33-000127 has been recommended as eligible for the CRHR (Ruzicka and Akyüz 2013), although it is unknown if there has been concurrence on this recommendation. The site still appears eligible under CRHR Criteria 1, 2, and 4 (NRHP Criteria A, B, and D), but requires further evaluation through subsurface testing to make a final determination. Such milling sites are ubiquitous throughout the region, and aside from its possible association with the de Anza party, the site is not distinctive of a certain time, place, or construction method and would not be recommended eligible under Criteria 3/C. Bedrock milling features were described by de Anza near an area where he camped, and if these features are the same as those described by the de Anza party, the site shows an association with people and events (Criteria 1/A, 2/B) important to local history, history of the region, and the broad

patterns of history. Subsurface testing could yield temporally or behaviorally diagnostic archaeological information that could clarify any association with de Anza's party (Criteria 4/D). As such, ICF concurs with the previous recommendation that the site is eligible per Criteria 1/A, 2/B, and 4/D. Should ground disturbance be proposed at the site, further evaluation through archaeological testing is recommended (see below).

P-33-000325 (CA-RIV-325)

This resource was originally recorded in 1967 and later updated in 1971 as a group of unspecified artifacts in the Santa Ana River bottom. No information was given on that record about the types of artifacts that were identified, nor was a map provided with the original site record. During the current survey, archaeologists revisited the site boundary provided by the EIC but did not observe any artifacts or other cultural constituents. It is posited that these artifacts were most likely buried by sediment from the Santa Ana River or have been washed downstream. The site form refers to CA-RIV-127 (P-33-000127) as a previous designation, so these artifacts may have either been near CA-RIV-127 or a component of it. P-33-000325 could not be relocated during the current survey, and the artifacts have not been observed since 1971. No known maps of the site exist, and there is only reference to site CA-RIV-127 as a possible association. Given that the site has never been relocated, and information on its contents are ambiguous, the site is recommended as ineligible for inclusion on the CRHR or NRHP.

P-33-00621 (CA-RIV-621)

P-33-00621 is a prehistoric bedrock milling site located on the south side of the Santa Ana River that was originally recorded as a single milling slick on one bedrock outcrop by Hammond of the University of California at Riverside Archaeological Research Unit in 1973. The site has been updated multiple times since its original recording and the size and number of features has increased each time. The site was relocated during the current survey and additional components were added. The previously identified site boundaries were expanded to include an additional set of milling features on a cluster of boulders on the northern side of the Santa Ana River Trail. The milling features originally recorded in the southern portion of the site were confirmed; however, no new features were observed.

The newly identified northern portion of the site has been affected by the changing course of the Santa Ana River, flood episodes, and the development of small tributaries that most likely obscured the boulders containing these newly identified milling features during previous archaeological surveys. The degree to which the northern portion of this site was covered by sediment and vegetation varies throughout this time, and affected what would have been visible to the various archaeological surveys that covered this area over the past 45 years. Aerial photographs were reviewed and showed major fluctuations in the amount of sediment and the levels and courses of the river dating back to at least 1948.

Current conditions and new alignments of the Santa Ana River channel have exposed additional granite boulders with milling slicks. Three new boulders with slicks on them were noted during the current survey. Soils surrounding the boulders have been scoured away, so it is unknown if there are any buried constituents to the site. There were no signs of a subsurface component to the site, and no artifacts were noted on the current ground surface near the newly mapped milling features. The current alignment of the Santa Ana River channel flows immediately adjacent to the boulders that are now on the "bank" of the river.

Overall, extensive graffiti and other layers of paint have obscured most of the milling surfaces, and copious amounts of modern trash and dense grasses obscure the ground surface around the newly identified milling features at the site. Homeless encampments surround the site and, as a result, large amounts of refuse are found in and around the site boundaries. Minor archaeological testing was conducted previously on the southern portion of this site. A single, 1- by 1-meter test unit was excavated to a depth of 32 centimeters below the ground surface, and no prehistoric artifacts were observed at that time.

When site P-33-000621 was originally recorded and later updated, no formal evaluations were conducted and no recommendations were made as to the potential eligibility of the site for inclusion on the CRHR or the NRHP. The southern portion of the site was “tested” through the excavation of a single 1- by 1-meter excavation unit, and no subsurface cultural materials were identified at that location at that time. The 1-meter square test unit was a very small percentage of the total site area overall, and not adequate for providing a formal evaluation of the site. The newly added northern portion of this site increases the site’s overall area, and it has not been tested. The proximity of the newly added portion of the site to the Upper Santa Ana River means that there is a high likelihood that scouring has removed any subsurface component that may have existed. However, a determination of whether a subsurface component exists at the site cannot be made accurately without additional testing in a larger portion of both the southern and northern portions of the site.

Milling sites such as this are ubiquitous in the region, and without an associated subsurface component, such sites are typically recommended as ineligible for inclusion on the CRHR or the NRHP for their lack of potential to yield information important to the history or prehistory of the local area, region, state, or the nation. Without a more formal testing program for the site, a recommendation for eligibility cannot be made at this time. Should the site be subject to disturbance from the proposed project, a testing plan and program should be enacted so that the site can be properly evaluated.

P-33-000622 (CA-RIV-622)

CA-RIV-622, a prehistoric bedrock milling site on the south side of the Santa Ana River, was originally recorded as containing one metate or basin, nine milling slicks, and three mortars by Hammond of the University of California at Riverside Archaeological Research Unit in 1973. The site was field-checked by Matthew Hall in 1975, and it was noted at that time to include the nine milling slicks, two metates or basins, and four mortars across three boulders covering a 20- by 10-meter area. No associated artifacts or middens was observed at that time. In 1987 archaeologists with Greenwood and Associates revisited the site, and recorded that it was much the same as had been described in 1975. Additional exfoliation of the bedrock was noted, and two ground stone fragments were identified in the vicinity. In 1995 the site was visited by Archaeological Consulting Services. The only change to the record at that time was to note the disappearance of one of the boulders and the absence of one previously described milling feature due to exfoliation. No historical-period or prehistoric deposits were observed, and the site boundaries were reduced to 13- by 6.1 meters at that time.

The site was relocated during the current survey. All three of the boulders were observed, and it is apparent that sediments had accumulated to obscure Feature 2 from view during the 1995 site visit. It is likely that soils were pushed onto this boulder because of grading the dirt road immediately adjacent to the site. The site appears to be unchanged since the 1995 update. Extensive graffiti and other layers of paint cover the vertical faces of Feature 3, which was surrounded by poison oak,

making the previously recorded slick inaccessible. No associated artifacts were observed on the ground surface surrounding the outcrops. The site record was updated to include Feature 2, and the boundary adjusted to 20- by 10 meters per the 1975 site record.

When site P-33-000622 was originally recorded and later updated, no formal evaluations were conducted, and no recommendations were made as to the potential eligibility of the site for inclusion on the CRHR or the NRHP. No subsurface components have been identified at the site, nor has subsurface testing been conducted to assist in its evaluation. Milling sites such as this are ubiquitous in the region, and without an associated subsurface component, such sites are typically recommended as ineligible for inclusion on the CRHR or the NRHP for their lack of potential to yield information important to the history or prehistory of the local area, region, state, or the nation. Without a more formal testing program for the site, a recommendation for eligibility cannot be made at this time.

P-33-000884 (CA-RIV-884)

P-33-000884 was first recorded in 1965 by Arda Haenszel, who reported that the site consisted of a large granite boulder with red “pictos” (pictographs) on its south side. Haenszel stated that they could not get close to the feature because it was overgrown with poison oak. The site was described as being situated on a slope between a drainage ditch from Hole Lake and an abandoned irrigation ditch. The original recording did not include any photographs, and there have been no site updates since 1965. Travis Armstrong, the Tribal Historic Preservation Officer for the Morongo Band of Mission Indians, contacted ICF in response to Native American outreach and indicated that he had visited the site and that there was significant damage due to graffiti, and that the pictographs were barely visible. Mr. Armstrong provided a photograph of the feature that had been processed using DStretch.¹ The image processed using DStretch did show some red markings, but a pattern or image could not be discerned. On September 18, 2018, ICF archaeologist Benjamin Vargas, M.A., RPA visited the site and could access the southern portion of the rock outcrop. Mr. Vargas photographed this area, and could discern some very faint red pigment that had been painted over by black spray-painted graffiti, confirming Mr. Armstrong’s earlier findings.

The site is in poor condition. While the large rock outcrop appears to be in its original location, graffiti and natural weathering have obscured the pictographs almost beyond recognition. Processing the images through DStretch slightly enhanced the markings; however, no discernable pattern or imagery could be identified. Overall, the site is rare considering that few similar site types (with pictographs) have been recorded in this area. There was no indication of a subsurface component to the site; however, much of the area adjacent to the north of the large outcrop is within the channel of a small stream, while the area to the south of the boulder is a relatively steep slope and has been disturbed by a historical-period canal. No subsurface testing has been conducted at the site, and such testing would not likely be possible due to current conditions.

P-33-000884 was originally recorded in 1971, and has had no formal update or evaluation since that time. The site has very poor integrity, as it has been vandalized for many years through graffiti and attempts at covering the graffiti. The pictographs are exposed to the elements, and have likely also been subject to weathering through natural processes. Unfortunately, no known photographs exist of the rock art prior to having been vandalized. This site is of importance to the Morongo Band of Mission Indians, as noted by their Tribal Historic Preservation Officer during the consultation

¹ DStretch is a tool for rock art researchers to enhance images of pictographs using a digital camera.

process. Using technology such as DStretch and more detailed analysis, it may be possible to identify elements of the rock art that have not been documented to this point. Because such rock art sites are relatively rare in this region, they have the potential to yield information important to the prehistory of the local region. As such, we recommend that the site is potentially eligible for inclusion on the CRHR and NRHP under Criteria 4/D.

P-33-003357 (CA-RIV-3357H)

P-33-003357 was originally recorded as two different sites (CA-RIV-3357H and CA-RIV-5806H). In 1997, Love and Tang decided that the two sites should be combined, as they were part of the same hydroelectric system. The two sites originally consisted of several structures, a concrete and rip-rap-lined canal, and other associated features. The canal originally ran a 6-mile-long course along the Santa Ana River to the Riverside Power Company's hydroelectric plant known as the Pedley Power Plant. The power plant and associated infrastructure were constructed in 1904. The power plant was eventually destroyed by flooding, and was abandoned in the 1910s (Love and Tang 1997). At the time Love and Tang updated the site record, the canal was still intact; however, there is no mention of the structures. Recent aerial photographs show that the structures appear to remain largely intact on the western portion of the site; however, this was not verified by the current survey, as this portion of the site is outside of the current project area.

The channel on the eastern portion of the site from just north of the intersection of Crest Avenue and Julian Drive east to its terminus approximately 850 feet northwest of the intersection of Van Buren Boulevard and Jurupa Avenue appears to be mostly intact and in the same condition as when it was updated by Love and Tang in 1997. In this area, portions of the channel are concrete lined; however, much of what is visible of the channel has been filled in by sediment and modern refuse. There are dense growths of riparian plants and nonnative weeds and plants covering the edges of most of the channel. Due to the lack of integrity and destruction of the portions of this site that were resurveyed, this resource is recommended ineligible for the CRHR and NRHP. These water features did not have an important association with people or events (Criteria 1/A and 2/B), were not distinctive of a certain time, place, or construction method (Criteria 3/C), and would not yield additional information with further research (Criteria 4/D).

P-33-003361 (CA-RIV-3361/H)

CA-RIV-3361 is a Union Pacific Railroad bridge that spans the Santa Ana River, and was constructed from 1902 to 1904. The viaduct-style bridge was originally part of the San Pedro, Los Angeles, and Salt Lake Railroad line. It was built using wooden-scaffold molding with eight large arches that cross the river. When built, it was the longest concrete bridge in the world (Ruzicka and Akyüz 2013). The site was originally recorded in 1987 by Sorensen et. al, and updated in 2003 by SWCA Environmental Consultants and in 2013 by Ruzicka and Akyüz. The bridge retains its original design and is in daily use with some minor repair patching. This resource was observed during the current survey and appears to be in the same condition as previously recorded and updated. Areas of the bridge have been graffitied and covered up with white paint.

The site has been recommended previously as eligible under Criterion 3, stating that it embodies distinctive characteristics of a type, period, region, or method of construction, represents a feat of engineering, and possess high artistic values (Ruzicka and Akyüz 2013). It is unknown whether there has been concurrence on this recommendation. The contributing features of this site would not be adversely affected by the proposed restoration efforts. Despite this, the site boundary is

adjacent to the Old Ranch Creek restoration site, where soil disturbances in the river would take place. ICF concurs with the recommendation of eligibility for inclusion on the CRHR and NRHP.

P-33-008698

Site P-33-008698 consists of an isolated Owens-Illinois condiment bottle (1933–1943 production) and an isolated teacup fragment. These isolates were originally recorded in 1999 by Archaeological Consulting Services. In 2018, archaeologists revisited the location of the isolate and did not relocate the previously recorded artifacts. While these artifacts were not relocated, a fence line that may be historical-period in age was observed running through the location of the isolate. The fence line consists of a series of 6-by 8-inch wooden fence posts and wire mesh and barbed-wire fence lines in varying states of disrepair. The wooden posts have been burned by local brushfires and some have fallen over. Overall, there is low visibility in the surrounding area due to heavy growths of seasonal grasses, wild flowers, and vegetal duff, which has obscured the previously recorded isolated artifacts.

Historical-period topographic maps show a dirt road terminating near where the project archaeologist recorded the fence line as early as 1901. An aerial photograph dating to 1948 shows a series of dirt roads in a triangular pattern in this location, but no structures or fence lines are discernable. As late as 1981, the triangular arrangement of roads is still seen on topographic maps and aerial photographs; however, there is no evidence of structures. Archival research with aerial photographs and maps show that there was activity in the area near P-33-008698, and it is likely that it was related to early residential or agricultural pursuits in this location during the historical period. The age and function of the fence line and the previously recorded historical-period isolated artifacts are unknown, but likely related to the activity identified from archival research.

Due to the lack of integrity and destruction of the portions of this site, this resource is recommended as ineligible for inclusion in either the CRHR or NRHP. Abandoned property and fence lines and other infrastructure are ubiquitous throughout the local area and throughout the region, and have little research value. The fence line and previously associated artifacts did not have a known association with people or events important to the local area, region, or state/nation (Criteria 1/A and 2/B), was not distinctive of a certain time, place, or construction method (Criteria 3/C), and further research is not likely to yield additional information (Criteria 4/D).

P-33-008839

When it was originally recorded, site P-33-008839 consisted of several water control and conveyance features including wooden posts and cross beams, booster pumps, steel pipes, concrete reservoirs/settling ponds, concrete-lined ditches, and ground wells. This site was first recorded in 1997 by Robertson & Associates. The water conveyance features and wells located within this site boundary date to as early as 1917 and had modifications and additions as late as the 1950s.

In 2018, archaeologists revisited the site and observed portions of the destroyed water control and conveyance features including steel pipes, wooden posts with metal caps, and concrete features. A few features remain intact, but overall, the infrastructure that was previously recorded within the project area has largely been dismantled or demolished. Aerial photographs show that at some time between 2016 and the present, most of these features were graded and/or dismantled. Presently, much of the site is covered in dense vegetation including sycamores, wild sunflowers, and seasonal grasses, with some portions where vegetation has been graded away. Within the project area, the site does not retain integrity comparable to the time that it was originally recorded. The site

boundaries extend beyond the boundaries of the current project area, and it is unknown whether those additional components retain integrity or have been disturbed.

P-33-008839 has been significantly altered within the current project area since it was originally recorded in 1997. Many of the site components have been removed and graded away, with only a few items remaining. Within the project area, the site clearly does not retain integrity, and would not be recommended for inclusion in either the CRHR or the NRHP. It is unknown whether remaining portions of the site exist outside of the current project area and whether they have been affected similarly. Because the full extent of disturbance to the site is unknown, a recommendation cannot be made for the entirety of this site. The portion of the site within the project area is heavily disturbed and in some locations altogether removed; therefore, it would not be recommended as eligible for inclusion in the CRHR or NRHP.

33-009651

P-33-009651 was originally recorded in 1995 by Alexandrowicz et al., as an earthen dam. In 2000, Collett updated the site to include the dam and a complex of features constructed circa 1915 as part of the Willits J. Hole Ranch (Collett 2000). Collett called the site the “Hole Lake Complex” and it consisted of an earthen dam, two spillways, two pipelines, two channels, a pump house, a drainage pipe, and two other pipelines. The site was updated in 2009 by McKenna and found to be in the same state as when it was originally recorded by Collett. In 2011, McKenna was involved in a project known as the Jurupa Avenue Extension Project, where it was noted that “numerous features identified in 2000 by Collett et al. were already demolished by the contractor” (McKenna 2009).

Archaeological monitoring conducted by McKenna for the Jurupa Avenue Extension Project identified a few of the remnants of features as they were being demolished.

During the current survey, only one partial feature of the Hole Lake Complex was identified. A new spillway has been built, and the extension of Jurupa Avenue has destroyed most of the features that were identified by Collett and confirmed by McKenna. A small segment of what was described as the “western spillway” was identified as a section of a standing wall. This remnant of the western spillway feature consists of a section of poured concrete that appears to have been a sidewall of the spillway. Dense brush covers the area surrounding the feature, which did not allow for close inspection and documentation. The section of the spillway wall is actively being buried by sediment from the western slope of overlying hillside and has been heavily graffitied. Other elements of the Hole Lake Complex have been completely removed by the extension of Jurupa Avenue and the Santa Ana River Trail and by the construction of a new spillway that was built between 2011 and 2012. Overall, the site does not retain any integrity, as most of its components are gone.

Due to the lack of integrity from the destruction of the portions of this site that were resurveyed, this resource is recommended as ineligible for inclusion on the CRHR and NRHP. These water conveyance features (when extant) did not have an association with important people or events (Criteria 1/A and 2/B), were not distinctive of a certain time, place, or construction method (Criteria 3/C), and would not yield additional information with further research (Criteria 4/D) beyond what has already been documented.

P-33-009652 (CA-RIV-6452)

P-33-009652 was originally recorded in 2000 by Collett as a large isolated bedrock milling feature. Collett identified three grinding elements on the outcrop including one basin, one slick, and one rub. The grinding elements were all identified as “low intensity” but discernable. Collett did not identify

any other artifacts or midden constituents at the site. The site was updated by McKenna in 2011, and it was noted that the grinding elements were still visible; however, the outcrop had been vandalized with graffiti.

The site was visited by ICF senior archaeologist Benjamin Vargas, M.A., RPA on September 18, 2018. Construction of a new sewer outfall since the time the site was originally recorded has affected the site. The outcrop containing the grinding elements appears to have been incorporated into the design of the outfall. Currently, the large granite outcrop sits at the north end of the sewer outfall with other large boulders as rip-rap that have been cemented together. Much of the boulder is obscured with sediment and vegetation and the rock is covered in graffiti and paint. Mr. Vargas could not relocate the grinding surfaces on the rock, but it is likely that those elements were covered in brush or had been painted over and were not discernable. The outcrop does not appear to have been moved as research with historical-period aerial photographs shows it in the same location since the time it was recorded in 2000 and earlier. While the site is intact, the feature appears to lack integrity because it has been altered through modern graffiti and painting and has been incorporated into the design of a modern sewage outfall feature.

Due to a lack of integrity and heavy disturbance to the area surrounding the site, this resource is recommended as ineligible for inclusion on the CRHR and NRHP. The site is not associated with significant events (Criteria A/1) or the lives of a person or persons significant in our past (Criteria B/2), nor does it embody distinctive characteristics that set it apart from many other similar resources in the region (Criteria C/3). Resources such as this are ubiquitous throughout the region and, given the current level of recordation of this site, it is unlikely to yield any additional information in prehistory or history of the local area, state, or nation (Criteria D/4).

P-33-016848

P-33-016848 is identified as the Santa Ana River Trunk Sewer line/Santa Ana River Outfall. This site was originally recorded in 2008 as two pipelines located along the south bank of the Santa Ana River. The lines were described to have been constructed in 1941 and 1957 (Beedle 2008). At that time, the site was evaluated and recommended as ineligible for listing on the CRHR. The site was later updated in 2008 and several manhole features were added. In 2012, the site was again updated, and at this time it was noted that the site had been destroyed as part of the construction of its replacement.

In 2018, archaeologists revisited the recorded site area and observed remnants of the concrete-covered manholes and portions of the clay sewer line and reinforced concrete pipe both in the Santa Ana River valley and in the bluffs above the valley. Portions of the clay sewer line and concrete pipe have been removed or eroded out of their original locations, as stated in the last update of this site in 2012, and were observed outside of their original location along the bluff. The original clay pipe has been mostly removed as a result of the Santa Ana River Trunk Sewer Replacement Project in 2012.

In 2012, Webb and Ruzicka recommended this resource was as ineligible for inclusion on the CRHR, as it did not have an important association with people or events (Criteria 1 and 2), it was not distinctive of a certain time, place, or construction method (Criterion 3), and would not yield additional information with further research (Criterion 4). Due to the construction of a new sewer line in the same location as the original trunk/sewer line, the site has largely been destroyed. As such, the integrity of the site has been permanently altered, and it cannot be considered for inclusion in either the CRHR or NRHP. The site extends beyond the current project area, and the condition of

the site in other areas is unknown. Considering the lack of integrity of the site within the project area, ICF concurs with the previous recommendation of “not eligible” for inclusion on the CRHR or NRHP.

Native American Outreach

A letter was sent to NAHC on July 26, 2018, requesting a Sacred Lands File search and list of potentially interested Native American groups and individuals. NAHC responded on August 2, 2018, stating that a search of the Sacred Lands records files revealed no Sacred Lands or traditional cultural properties in proximity to the proposed project area. NAHC also provided a list of 30 Native American contacts who might have knowledge of cultural resources in the project area.

On April 25, 2018, San Bernardino Valley Municipal Water District (Valley District) sent out letters pursuant to Assembly Bill 52 to three Native American groups to assess recommendations or concerns regarding the project. Letters were sent to Raymond Huaute representing the Morongo Band of Mission Indians, Jessica Mauck representing the San Manuel Band of Mission Indians, and Andrew Salas representing the Gabrieleño Band of Mission Indians – Kizh Nation. Mr. Raymond Huaute and Mr. Travis Armstrong responded for the Morongo Band of Mission Indians, and Ms. Jessica Mauck responded for San Manuel Band of Mission Indians. Mr. Andrew Salas of the Gabrieleño Band of Mission Indians – Kizh Nation did not respond.

On May 1, 2018, Ms. Jessica Mauck, a Cultural Resources Analyst representing the San Manuel Band of Mission Indians, responded stating that the project area is outside of the Serrano ancestral territory and, as such, did not request consulting party status or elect to participate in the project any further.

On May 9, 2018, Mr. Raymond Huaute, Tribal Historic Preservation Officer for Morongo Band of Mission Indians, responded to Valley District’s request for consultation. Mr. Huaute stated that “the project is located within the Tribe’s aboriginal territory or in an area considered to be a traditional use area or one in which the Tribe has cultural ties.” Additionally, Mr. Huaute requested that a records search be conducted at the California Historical Resources Information System Information Center, that the results be provided to the tribe, and that tribal monitoring participation be considered during the initial pedestrian field survey of the Phase I study of the project. Mr. Huaute also requested a copy of the results of that study. A cultural resources records search was conducted and ICF reached out to Travis Armstrong, Morongo Band of Mission Indians Consulting Archaeologist, to join the cultural resources pedestrian survey that was conducted. Mr. Armstrong was not available to join the survey. Additionally, Native American monitoring has been recommended as a mitigation measure (see below).

Consultation meetings were also held with Mr. Travis Armstrong, Consulting Archaeologist with the Morongo Band of Mission Indians, and ICF, on two separate occasions: June 21, 2018, and August 21, 2018. Mr. Armstrong described archaeological site P-33-000884 as a pictograph site that had been vandalized with spray-painted graffiti within the project area. He stated that the pictographs were barely visible due to the damage from vandals. Mr. Armstrong provided a photograph of the feature that had been processed using DStretch. DStretch is software that can be used to enhance digital images of pictographs and allow a viewer to see faint rock art imagery that is not always visible to the naked eye. The processed image did show some red markings, but a pattern or image could not be discerned. He emphasized the importance of this resource and requested he be notified of field surveys. Mr. Armstrong later spoke with ICF Principal Investigator Benjamin Vargas, M.A., RPA, and

also discussed the damage that had been done to the site and provided some ideas for how to protect the site from further damage. Mr. Armstrong suggested the planting of poison oak or some other type of vegetation that would keep people away from the feature. Mr. Armstrong also recommended further consultation to discuss potential measures for protecting the site and possibly restoring the pictographs. Mr. Armstrong also discussed that he had tried to visit other resources in the vicinity, but that a significant number of homeless people live in the area and that the area was overgrown with brush. These impediments curtailed his ability to visit the sites. Mr. Armstrong also requested that he be informed when cultural resources surveys were to take place. Mr. Armstrong was contacted prior to conducting the surveys, but he declined to join due to other commitments. Additionally, some of Mr. Armstrong's suggestions for protection of this resource were incorporated into proposed mitigation measures (see below), including continued consultation regarding the treatment of this resource.

Other than consultation with Mr. Armstrong representing Morongo Band of Mission Indians, Mr. Huaute representing Morongo Band of Mission Indians, and Ms. Mauck representing San Manuel Band of Mission Indians, no other Native American individuals or tribes responded to requests for consultation by Valley District. As of the time of this report, no other responses have been received by Valley District or otherwise.

Pedestrian Survey

The field survey methods consisted of both a systematic intensive pedestrian survey and a reconnaissance survey. The intensive pedestrian survey was the preferred method and was utilized in all areas where feasible. The intensive pedestrian survey method consisted of teams of two walking 10-meter transects in areas where slope, vegetation, and/or terrain allowed transects to be maintained. In surveyed areas, team members checked all bedrock outcrops as well as areas that had been cleared of vegetation or disturbed by rodents along and between the transect lines.

The reconnaissance survey method was used in areas that could not be walked through systematically. Although the ground surface was visible in some reconnaissance areas, transect coverage was precluded by dense and/or toxic vegetation such as poison oak. Due to these factors, some areas could not be covered consistently using 10-meter transects. The reconnaissance survey method consisted of surveying visible areas where they were present and/or accessible. Surveys along intervening access routes through vegetated areas were conducted, to the degree possible, as reconnaissance surveys.

Project archaeologists conducted pedestrian surveys on three different dates. As part of a related project, archaeologists Nara Cox and Jesse Shelmire conducted a pedestrian survey of a portion of the Hidden Valley Creek site and the majority of the Lower Hole Creek site on June 21, 2017. ICF archaeologists Benjamin Vargas, M.A., RPA and Rachel Droessler, M.A., RPA conducted a cultural resources pedestrian survey within the remainder of the project site from August 23–34 and 27–29, 2018, using 10- to 15-meter transects, when possible. Benjamin Vargas performed an additional site visit on September 18, 2018, to collect data for the update of three archaeological sites. The records search identified a total of 12 cultural resources sites within the project area. The pedestrian survey relocated and updated 11 of the resources, but could not relocate one of them (P-33-000325).

New Resources

ISO-ICF-HV-01

This isolate consists of a single, relatively small, shallow mortar, likely a “hopper” mortar with a chip on one portion of the margin of the upper ground surface that appears to have been “repaired” with asphaltum. The mortar measures roughly 16 by 18 centimeters and the upper grinding surface is approximately 2 centimeters deep. The mortar has been shaped on all sides and is made of granite. The mortar was mostly buried (approximately 75 percent) in the sand of the Santa Ana River floodplain. No other artifacts were identified in the immediate vicinity of this isolate, and it has likely been moved through natural flooding activity or grading/disking for fire suppression.

ISO-ICF-HV-02

This isolate consists of a single grinding implement (mano) made from an adobe brick. The mano is rectangular with rounded edges and corners, and appears to have been shaped on all sides. The material is a coarse, high-fired adobe brick that likely dates to the early historical period (Mission or Rancho era). The adobe brick was made with adobe clay with straw or hay temper, and is of unknown origin. The artifact is heavily weathered, and measures 21 by 9 centimeters and is 3.5 centimeters thick. The artifact is situated on a sand bar area in the floodplain of the Santa Ana River. The artifact has likely been transported, as this area appears to be highly active during rain or flood events.

Isolates Summary

Both of the isolates are located in the floodplain of the Santa Ana River, in an area that is highly active. Soils in this area are coarse sands and gravels with pebble and cobble inclusions and some larger boulders. The isolates are subject to natural disturbance from flooding and scouring during rain events. The area additionally appears to have been graded or disked, likely for fire suppression. Bioturbation through plant and tree growth and rodent activity are also evident throughout this area. Lacking context to consider them against larger prehistoric and historic research themes, isolated artifacts such as those identified during this survey cannot be evaluated for inclusion on the CRHR or NRHP. These two isolated artifacts were fully documented on appropriate confidential Department of Parks and Recreation forms.

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5
- Disturb any human remains, including those interred outside of dedicated cemeteries

According to CEQA, a project that causes a substantial adverse change in the significance of a historical resource or a unique archaeological resource has a significant effect on the environment (CCR Title 14 §15064.5; PRC §21083.2). CEQA defines a substantial adverse change as (CCR Title 14 §15064.5(b)):

- Physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of a historical resource would be materially impaired.
- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources.
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to section 5020.1(k) of the Public Resources Code or its identification in an historical resource survey meeting the requirements of section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant.
- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by the lead agency.

As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this EIR) prepared for the proposed project considered and then eliminated several impacts from further analysis. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. As stated in the Notice of Preparation/Initial Study, the proposed project would evaluate all thresholds for cultural resources. For further discussion of thresholds eliminated, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

Impact CUL-1: Substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the State CEQA Guidelines (Less-than-significant impact)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Current plans for the Tributaries Restoration Project and Mitigation Reserve Program Phase I study area would not affect any known historical resources. However, ground-disturbing activities associated with the Tributaries Restoration Project and Mitigation Reserve Program Phase I may result in the discovery of previously unidentified historical resources. Should previously unidentified historical resources be discovered as a result of proposed ground disturbance, a significant impact would result. As such, mitigation measures CUL-1 and CUL-2 are recommended.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Mitigation Measure CUL-1: Retain a Qualified Archaeologist

The applicant shall retain a qualified archaeologist, defined as an archaeologist who meets the Secretary of the Interior's Standards for professional archaeology, to carry out all mitigation measures related to archaeological and historical-period resources. The qualified archaeologist shall work under the direction of a qualified archaeological Principal Investigator.

Mitigation Measure CUL-2: Unanticipated Discoveries

If an above-surface artifact, cultural resources of potential significance, or archaeological deposit of potential significance is discovered, the qualified archaeologist shall have the authority to temporarily halt construction activities within 25 feet of the find and shall be given reasonable time to map its location with a global positioning system device and recover the item. If buried cultural resources of potential significance are discovered inadvertently during ground-disturbing activities, work shall be temporarily halted in the area and within 50 feet of the find until a qualified archaeologist can assess the significance of the find and, if necessary, develop appropriate treatment measures in consultation with the lead agency. If the find is prehistoric or Native American in origin, consultation with local Native American tribes who have expressed interest regarding the project shall be undertaken.

The Principal Investigator will notify the lead agency to discuss the significance determination and shall also submit a letter to the lead agency indicating whether additional mitigation is required. If the discovery is determined to be not significant in consultation with the lead agency, work will be permitted to continue in the area. If, in consultation with the lead agency, a discovery is determined to be significant, a mitigation plan shall be prepared and carried out in accordance with state and federal guidelines. If the resource cannot be avoided, a data recovery plan shall be developed to ensure collection of sufficient information to address archaeological and historical-period research questions, with results presented in a technical report describing field methods, materials collected, and conclusions. The qualified archaeologist shall treat recovered items in accordance with current professional standards by properly proveniencing, cleaning, analyzing, researching, reporting, and curating them in a collection facility meeting the Secretary of the Interior's Standards as promulgated in 36 CFR 79.

Level of Significance Following Mitigation: Less than significant. No mitigation required.

Expanded Mitigation Reserve Program Phase II

One historical-period built environment resource (P-33-003361) is located within the Expanded Mitigation Reserve Program Phase II study area. P-33-003361 (CA-RIV-3361H) is a Union Pacific Railway bridge that has been recommended as eligible for listing in the CRHR and NRHP and, as such, would be considered a significant historical resource under CEQA. P-33-003361 is located along the eastern boundary of the proposed Anza Creek and Old Ranch Creek Expanded Mitigation Reserve Program Phase II areas. Future projects associated with the Expanded Mitigation Reserve Program Phase II could potentially affect this resource and a significant impact on P-33-003361 would result. As such, mitigation measures CUL-1 and CUL-3 are recommended and, if avoidance of the site is not feasible, then mitigation measure CUL-5. As part of mitigation measure CUL-3, a 25-foot buffer outside of the known boundaries of the site is recommended for the placement of environmentally sensitive area (ESA) fencing. However, if avoidance is not possible, then mitigation measure CUL-5 would also be followed.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Implement mitigation measures CUL-1, described above, and CUL-3, described below.

Mitigation Measure CUL-3: Avoidance of Significant Historical Resource through Establishment of Environmentally Sensitive Areas (ESAs)

Impacts on significant historical resources and/or archaeological resources identified in Table 3.4-3 and Table 3.4-4 should be avoided through establishing fencing around the boundaries of these known resources and delineating these locations as ESAs. The placement of protective fencing can include a buffer beyond the known boundaries of archaeological or historical sites to account for potentially unknown buried resources. Buffers of 25 feet have been recommended for sites P-33-000621, P-33-000622, P-33-03361, and P-33-009652. Due to conditions surrounding the sites, a 10-foot buffer is recommended for P-33-000127 and no buffer is recommended for site P-33-000884. Worker training should include language to the effect that ESAs must be avoided and cannot be entered on foot or with heavy equipment. Reasonable signage indicating the fenced area is an ESA should be posted. Should sacred objects or objects of religious importance to Native American groups be identified, consultation with local Native American tribes who have expressed interest regarding the project shall be undertaken and those materials should be preserved in place to the extent feasible to maintain the critical relationship between built environment resources and archaeological artifacts and their archaeological context.

Level of Significance Following Mitigation: Less than significant.

Impact CUL-2: Substantial adverse change in the significance of an archaeological resources as defined in Section 15064.5 of the State CEQA Guidelines (Less-than-significant impact with mitigation incorporated)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Seven previously recorded archaeological sites are located within the Tributaries Restoration Project and Mitigation Reserve Program Phase I study area and would potentially be affected by ground disturbance associated with this work. Of the seven previously recorded sites, two sites (P-33-000622 and P-33-009652) have not been formally evaluated; one site (P-33-000884) is recommended as eligible for inclusion in the CRHR and NRHP; and four sites (P-33-03357, P-33-008839, P-33-009651, and P-33-016848) were recommended ineligible for inclusion in the CRHR and NRHP. Table 3.4-3 below presents the sites and eligibility recommendations and recommended mitigation measures for archaeological resources within the Tributaries Restoration Project and Mitigation Reserve Program Phase I study area.

Table 3.4-3. Eligibility Recommendations and Recommended Mitigation Measures for Identified Archaeological Sites within the Tributaries Restoration Project and Mitigation Reserve Program Phase I Study Area

Primary Number	Trinomial	Eligibility for Inclusion on CRHR and NRHP	Recommended Mitigation Measures
P-33-000622	CA-RIV-622	Unevaluated	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-5
P-33-000884	CA-RIV-884	Recommended eligible	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-4 and CUL-2
P-33-003357	CA-RIV-3357H	Recommended ineligible	CUL-1 and CUL-2

Primary Number	Trinomial	Eligibility for Inclusion on CRHR and NRHP	Recommended Mitigation Measures
P-33-008839		Recommended ineligible	CUL-1 and CUL-2
P-33-009651		Recommended ineligible	CUL-1 and CUL-2
P-33-009652	CA-RIV-6452	Unevaluated	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-4 and CUL-2
P-33-016848		Recommended ineligible	CUL-1 and CUL-2

Sites P-33-000622 and P-33-009652 could not be formally evaluated during the current project due to project site conditions. Without formal evaluations of these sites, it is unknown whether they would be considered eligible for inclusion in either the CRHR or NRHP, or whether they would qualify as unique archaeological resources per PRC Section 21083.2. Without these determinations, it is unknown whether the proposed project would have a substantial adverse change to the significance of these archaeological resources. Site P-33-009652 is in an area that is highly disturbed, and given its location, would be extremely difficult to test using traditional archaeological excavation methods. For that reason, it is recommended that mitigation measures CUL-1 and CUL-3 are implemented for this site. As part of mitigation measure CUL-3, a 25-foot buffer outside of the known boundaries of the site is recommended for the placement of ESA fencing. However, if avoidance is not feasible through project redesign, and ground disturbance would take place within the known boundaries of the site, then mitigation measures CUL-4 and CUL-2 would also be followed.

For site P-33-000622, mitigation measures CUL-1 and CUL-3 are recommended for implementation to reduce impacts to a less-than-significant level. As part of mitigation measure CUL-3, a 25-foot buffer outside of the known boundaries of the site is recommended for the placement of ESA fencing. However, if project components would result in ground disturbance within the known boundaries of the site, CUL-5 would be implemented such that a recommendation of eligibility for inclusion on the CRHR or NRHP can be made. Conditions at site P-33-000622 allow for archaeological testing and, as such, CUL-5 can be implemented. Implementation of mitigation measure CUL-5 would involve the development and implementation of an Archaeological Treatment Plan (ATP). The implementation of an ATP would allow for a determination as to the integrity of the archaeological site and whether the proposed project could cause a substantial impact. If implementation of mitigation measure CUL-5 finds that the site would be considered eligible for inclusion in the NRHP and/or CRHR, and that it would be significantly affected by the proposed project and impacts are unavoidable, then additionally, development and implementation of a data recovery plan would be necessary, as presented in mitigation measure CUL-2.

Archaeological site P-33-000884 has been recommended as eligible for inclusion in the CRHR and NRHP. Significant disturbance has taken place to areas surrounding the site, and it is not likely that a subsurface component exists. Additionally, due to existing conditions near the site, testing using traditional archaeological methods is not feasible. However, ground disturbance would take place immediately adjacent to the site boundaries and, therefore, has the potential to cause a significant adverse effect on this resource if a subsurface component does exist. As such, mitigation measures CUL-1 and CUL-3 would be implemented so that the known boundaries of the site would not be

affected by ground-disturbing activities through designation of an ESA. Conditions surrounding the main site feature are not conducive to the placement of fencing with a buffer and, as such, it is recommended that protective ESA fencing be placed immediately adjacent to the site boundaries as part of mitigation measure CUL-3. Additionally, it has been recommended that further consultation with interested Native American parties be conducted to explore additional means of protection for the site, such as the placement of deterrent plant species (such as poison oak) around the site. If, however, avoidance is not feasible, then mitigation measures CUL-4 and CUL-2 would be implemented, requiring archaeological and Native American monitoring. If unanticipated discoveries are made during archaeological and Native American monitoring, then CUL-2 would be enacted, which could include a mitigation plan and potentially data recovery. Implementation of CUL-1, CUL-3, CUL-4, and CUL-2 would result in less-than-significant impacts on unknown historical or unique archaeological resources under CEQA.

Archaeological sites P-33-003357, P-33-008839, P-33-009651, and P-33-016848 were recommended as ineligible for inclusion on the CRHR or NRHP and, as such, are not considered unique archaeological resources under CEQA. The Tributaries Restoration Project and Mitigation Reserve Program Phase I does include ground-disturbing activities within the boundaries of each of these sites; however, all of these sites have been previously disturbed in the areas of potential impact. Because of the potential for ground disturbance, there is potential for discovery and impact on unknown subsurface archaeological deposits associated with these sites that might exist. Because of the potential for unknown subsurface components to the sites, mitigation measures CUL-1 and CUL-2 would be implemented. CUL-2 would be implemented, which could include a mitigation plan and potentially data recovery if previously unknown components of the site are discovered. CUL-1 and CUL-2 would be implemented to ensure that the project would result in less-than-significant impacts on unknown historical or unique archaeological resources under CEQA.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Implement mitigation measures CUL-1, CUL-2, and CUL-3, described above, and CUL-4 and CUL-5, described below.

Mitigation Measure CUL-4: Provide Archaeological and Native American Monitoring and Prepare Archaeological Monitoring Plan

If avoidance is not feasible, and if project-related ground disturbance is anticipated to occur at archaeological sites identified in Tables 3.4-3 and 3.4-4, a qualified archaeologist shall be present to monitor the ground-disturbing activity. If ground-disturbing activities are to proceed at prehistoric archaeological sites, a Native American monitor shall be retained in addition to an archaeologist. The Native American monitor, if required, should be affiliated with a local Native American tribe. Prior to the commencement of ground-disturbing activity, an Archaeological Monitoring Plan (AMP) shall be developed to guide archaeological monitoring work during ground-disturbing activities. The AMP shall detail and emphasize training for construction workers and qualifications necessary for archaeological monitors. The AMP must also detail the locations where archaeological monitoring will take place and the depths of excavation that will require monitoring. The AMP must include roles and responsibilities for cultural resources staff and contact information for any Archaeological Principal Investigator, archaeological and Native American monitors, and appropriate management staff.

The AMP must detail monitoring procedures, discovery protocols, general procedures for documenting and recovering archaeological materials, artifact identification, repository institution identification, associated repository fees, guidelines for preparing the archaeological monitoring, and mitigation final report. The AMP must also include protocols for communication and response should an unanticipated discovery be made at times that archaeological monitors are not present. The AMP must require attendance by construction personnel at a preconstruction meeting led by either the Principal Investigator or qualified archaeologist in which the Principal Investigator or qualified archaeologist will explain the anticipated likelihood for encountering archaeological resources, what resources may be discovered, and the methods that will be employed if such a resource is discovered. The AMP must include an example proposed letter regarding transfer of salvaged materials to an appropriate museum curation facility, an example daily monitoring report form, and all other pertinent archaeological resources recordation and analysis forms.

Should unanticipated discoveries be made during archaeological monitoring, then the unanticipated discoveries protocol described in mitigation measure CUL-2 will be enacted. In the event of an unanticipated discovery of human remains, the archaeological monitor will follow the unanticipated discovery protocols (mitigation measure CUL-6) described below.

Mitigation Measure CUL-5: Development and implementation of an Archaeological Treatment Plan (ATP)

To evaluate archaeological sites for which information regarding the potential for listing in the NRHP or CRHR is not available due to a lack of data on the full vertical and horizontal extents and the archaeological integrity of the site, the lead agency shall develop an Archaeological Treatment Plan (ATP) prior to ground-disturbing activities that describes methods and procedures for conducting subsurface excavations to determine the vertical and horizontal extents of an archaeological site. Development of the ATP should include consultation with local Native American tribes who have expressed interest regarding the project. Implementation of such a plan may include mechanical and/or manual excavations to provide data on the cultural constituents at the site and the depositional context of such materials (if found to exist). These data can be used to determine the integrity of the site and to make a formal evaluation based on the eligibility criteria set forth in CEQA and Section 106 of the National Historic Preservation Act for inclusion in the CRHR and NRHP. The ATP should define the parameters of archaeological testing at the site, and the extent of excavation and analysis of any materials recovered. The ATP must also include guidelines for treatment and curation of any materials recovered during the testing process. Following implementation of the ATP, a technical report describing the methods and results of archaeological testing and formal evaluations of the archaeological sites and recommendations for further treatment shall be completed.

Level of Significance Following Mitigation: Less than significant.

Expanded Mitigation Reserve Program Phase II

Twelve previously recorded archaeological resources and two newly discovered isolated artifacts are located within the Expanded Mitigation Reserve Program Phase II study area. Seven of these 12 previously recorded resources are also located within the Tributaries Restoration Project and Mitigation Reserve Program Phase I study area, and are discussed above (P-33-000622, P-33-000884, P-33-003357, P-33-008839, P-33-009651, P-33-009652, and P-33-016848); one historical

resource is also located in the Expanded Mitigation Reserve Program Phase II study area and was discussed above (P-33-003361). Mitigation measures suggested for the previously discussed seven archaeological and one historical resources are recommended for any potential impacts as a result of the Expanded Mitigation Reserve Program Phase II, and as such, will not be discussed further in this section. However, these resources, their eligibility recommendations, and recommended mitigation measures are included in Table 3.4-4 below.

Presently, the extent of impacts in the Expanded Mitigation Reserve Program Phase II are not known, as the components (and potential ground disturbance) have not been defined at this time. While potential impacts are unknown, the analysis below assumes that the sites would be affected to some degree by ground disturbance and recommended mitigation measures are provided. Of the four archaeological resources within the Expanded Mitigation Reserve Program Phase II study area that were not within the Tributaries Restoration Project and Mitigation Reserve Program Phase I study area, one site appears to be eligible but has not been formally evaluated (P-33-000127); one site is unevaluated (P-33-000621); and the remaining two sites (P-33-000325 and P-33-008698) have been recommended ineligible. Should archaeological resources be affected by ground-disturbing work related to program activities within the boundaries of the Expanded Mitigation Reserve Program Phase II, then Table 3.4-4 provides information about the sites and recommended mitigation measures.

Table 3.4-4. Eligibility Recommendations and Recommended Mitigation Measures for Archaeological Sites within the Expanded Mitigation Reserve Program Phase II Study Area

Primary Number	Trinomial	Eligibility for Inclusion on CRHR and NRHP	Recommended Mitigation Measures
P-33-000127	CA-RIV-127	Appears eligible; unevaluated	CUL-1 and CUL-2; if avoidance is not feasible, then CUL-4 and CUL-5
P-33-000325	CA-RIV-325	Recommended ineligible	No further action recommended
P-33-000621	CA-RIV-621	Unevaluated	CUL-1 and CUL-2; if avoidance is not feasible, then CUL-3 and CUL-5
P-33-000622*	CA-RIV-622	Unevaluated	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-5
P-33-000884*	CA-RIV-884	Recommended eligible	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-4 and CUL-2
P-33-003357*	CA-RIV-3357H	Recommended ineligible	CUL-1 and CUL-2
P-33-003361**	CA-RIV-3361H	Recommended eligible	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-5
P-33-008698		Recommended ineligible	CUL-1 and CUL-2
P-33-008839*		Recommended ineligible	CUL-1 and CUL-2
P-33-009651*		Recommended ineligible	CUL-1 and CUL-2
P-33-009652*	CA-RIV-6452	Unevaluated	CUL-1 and CUL-3; if avoidance is not feasible, then CUL-4 and CUL-2

Primary Number	Trinomial	Eligibility for Inclusion on CRHR and NRHP	Recommended Mitigation Measures
P-33-016848*		Recommended ineligible	CUL-1 and CUL-2
ISO-ICF-HV-01		Recommended ineligible	No further action recommended
ISO-ICF-HV-02		Recommended ineligible	No further action recommended

*Denotes archaeological resources that are within both the Tributaries Restoration Project and Mitigation Reserve Program study areas. **Denotes historical resource previously discussed within Mitigation Reserve Program study area.

It is unknown whether sites P-33-000127 and P-33-000621 would be affected directly by Expanded Mitigation Reserve Program Phase II work, as the components of this program (and potential ground disturbance) have not been defined at this time. It is unknown whether a subsurface component exists at either of these sites. Key to providing a formal evaluation of these sites and making recommendations as to whether they are eligible for inclusion in the CRHR or NRHP would be the presence of a subsurface component. Without formal evaluations of these sites, it is unknown whether they would be considered eligible for inclusion in either the CRHR or NRHP, or whether they would qualify as unique archaeological resources per PRC Section 21083.2. Without these determinations, it is unknown whether the Expanded Mitigation Reserve Program Phase II component of the proposed project would have a substantial adverse change to the significance of these archaeological resources.

P-33-000127 is near the Santa Ana River and Santa Ana River Trail Bike Path and has likely been affected by the construction of a railroad bridge, the Santa Ana River Trail Bike Path, and other infrastructure; as such, much of the site has been obscured. Given the current conditions at the site, archaeological testing would be very difficult due to the presence of paved roads, a railroad line, and the Santa Ana River. Given the current conditions and the low likelihood of encountering subsurface components to the site, it is recommended that mitigation measures CUL-1 and CUL-3 are implemented for this site. As part of mitigation measure CUL-3, a 10-foot buffer outside of the known boundaries of the site is recommended for the placement of ESA fencing. However, if avoidance is not possible, then mitigation measures CUL-4 and CUL-2 would also be followed. P-33-000621 has not been formally evaluated, and it is unknown whether a subsurface component exists at the site. Because the presence of a subsurface component could be important in the assessment of the site's potential eligibility for listing in either the CRHR or NRHP, mitigation measures CUL-1 and CUL-3 are recommended for implementation. As part of mitigation measure CUL-3, a 25-foot buffer outside of the newly recorded boundaries of the site is recommended for the placement of ESA fencing. However, if avoidance is not feasible for this site, it is recommended that mitigation measure CUL-5 is implemented such that a recommendation of eligibility for inclusion on the CRHR or NRHP can be made. Additionally, implementation of mitigation measure CUL-5 would allow a determination as to the integrity of the archaeological site and whether the proposed project could cause a substantial impact. If implementation of mitigation measure CUL-5 finds that the site would be considered significantly affected by the proposed project and impacts are unavoidable, development and implementation of a data recovery plan would be necessary, as required in mitigation measure CUL-2.

Previously recorded archaeological resource P-33-000325 was not relocated during the pedestrian survey performed for the Expanded Mitigation Reserve Program Phase II study area. The location where this site was mapped is in an area that is highly disturbed through the natural processes of channelization of the Santa Ana River. As such, it is highly unlikely that this site still exists, and this site is recommended as ineligible for listing in either the CRHR or the NRHP. While it is unknown whether the site exists, and therefore unknown whether the site would be affected by Expanded Mitigation Reserve Program Phase II activities, implementation of ground-disturbing activities associated with the Expanded Mitigation Reserve Program Phase II project component could affect the site if it were to exist, and mitigation measures CUL-1 and CUL-2 would be required.

Archaeological site P-33-008698 was recommended as ineligible for inclusion on the CRHR or NRHP and, as such, is not considered a unique archaeological resource under CEQA. It is unknown whether subsurface materials associated with this site exist, and it is unknown whether the Expanded Mitigation Reserve Program Phase II would affect this resource. Because of the potential for ground disturbance, there is potential for discovery and impacts on unknown subsurface archaeological deposits that might exist. Because of the potential for unknown subsurface components to this site, mitigation measures CUL-1 and CUL-2 would be implemented to ensure that the project would result in less-than-significant impacts on unknown historical or unique archaeological resources under CEQA.

Both ISO-ICF-HV-01 and ISO-ICF-HV-02 were isolated artifacts found in the floodplain of the Santa Ana River within the Expanded Mitigation Reserve Program Phase II study area. Traditionally, isolated artifacts are not considered for eligibility determinations for either the CRHR or NRHP. Recordation of these artifacts has exhausted their research potential. Furthermore, the artifacts were discovered in an area that is subject to disturbance from the natural processes of flooding and have likely moved a significant distance from their original locations. Due to a lack of depositional integrity and context for these finds, no further action is recommended.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Implement mitigation measures CUL-1, CUL-2, CUL-3, CUL-4, and CUL-5, as described above.

Level of Significance Following Mitigation: Less than significant.

Impact CUL-3: Significant impact if it would disturb any human remains, including those interred outside of formal cemeteries (Less-than-significant impact with mitigation incorporated)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

No known human remains are located in the vicinity of the proposed project area. Because the proposed project would involve ground-disturbing activities in the vicinity of archaeological sites, it is possible that such actions could unearth, expose, or disturb previously unknown human remains. Mitigation measure CUL-6 would ensure that impacts on human remains would be less than significant with mitigation.

Level of Significance Prior to Mitigation: Potentially significant.

Mitigation Measure**Mitigation Measure CUL-6: Human Remains and Associated or Unassociated Funerary Objects**

The discovery of human remains is always a possibility during ground-disturbing activities; if human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, all work within 50 feet of the find shall be halted until the remains have been evaluated by the county coroner, and appropriate action taken in coordination with the NAHC, in accordance with Section 7050.5 of the California Health and Safety Code or, if the remains are Native American, Section 5097.98 of the PRC. If the human remains are determined to be prehistoric, the coroner will notify the NAHC, which will determine and notify a most likely descendant. The most likely descendant shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Level of Significance Following Mitigation: Less than significant.

Expanded Mitigation Reserve Program Phase II

The discovery of human remains is always a possibility during ground-disturbing activities; if human remains are found, the State of California Health and Safety Code Section 7050.5 states that no further disturbance shall occur until the county coroner has made a determination of origin and disposition pursuant to PRC Section 5097.98. In the event of an unanticipated discovery of human remains, all work within 50 feet of the find shall be halted and the County of Riverside coroner must be notified immediately. If the human remains are determined to be prehistoric, the coroner would notify the NAHC, which would determine and notify a most likely descendant. The most likely descendant shall complete the inspection of the site within 48 hours of notification and may recommend scientific removal and nondestructive analysis of human remains and items associated with Native American burials.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Implement mitigation measure CUL-6, as described above.

Level of Significance Following Mitigation: Less than significant.

3.5 Geology, Soils, and Paleontological Resources

This section focuses on paleontological resources. As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this EIR) prepared for the proposed project considered and then eliminated a number of geology and soils impacts determined to be less than significant from further analysis. This section identifies the regulatory requirements applicable to paleontological resources and describes the potential for paleontological resources to be present on the project sites. The section then evaluates the project's potential impacts on paleontological resources. This section is based on the paleontological database review conducted for the project by the Natural History Museum of Los Angeles County (McLeod 2018). For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Paleontology is a branch of geology that studies the life forms of the past, especially prehistoric life forms, through the study of plant and animal fossils. Paleontological resources represent a limited, non-renewable, and impact-sensitive scientific and educational resource. As defined in this section, paleontological resources are the fossilized remains or traces of multi-cellular invertebrate and vertebrate animals and multi-cellular plants, including their imprints from a previous geologic period. Fossil remains such as bones, teeth, shells, and leaves are found in the geologic deposits (rock formations) where they were originally buried. Paleontological resources include not only the actual fossil remains, but also the collecting localities, and the geologic formations containing those localities.

3.5.1 Regulatory Setting

Federal

Several federal regulations address paleontological resources. These statutes generally are applicable to a project if it involves a federal agency license, permit, approval or funding, and/or crosses federal lands.

The Antiquities Act of 1906

The Antiquities Act of 1906 states that any person who appropriates, excavates, injures, or destroys any historic or prehistoric ruin or monument, or any object of antiquity, situated on lands owned or controlled by the Government of the United States, without the permission of the Secretary of the Department of the Government having jurisdiction over the lands on which said antiquities are situated, upon conviction would be fined in a sum of not more than 500 hundred dollars or be imprisoned for a period of not more than 90 days, or both, at the discretion of the court. While the act does not specially address paleontological resources, the term "objects of antiquity" has been interpreted by the National Park Service, the Bureau of Land Management, the Forest Service, and other agencies to include fossils. Permits to collect fossils on federal lands are authorized under this act.

Title 23 United States Code Section 305

This statute amends the Antiquities Act of 1906 and allows for funding for mitigation of paleontological resources on projects funded by federal highway funds. The statute contemplates that “excavated objects and information are to be used for public purposes without private gain to any individual or organization” (*Federal Register* 46(19):9570).

National Registry of Natural Landmarks

The National Natural Landmarks (NNL) Program (16 United States Code 461–467), established in 1962 under the authority of the Historic Sites Act of 1935, recognizes and encourages the conservation of outstanding examples of our country’s natural history. As the only natural areas program of national scope that identifies and recognizes the best examples of biological and geological features in both public and private ownership, NNLs are designated by the Secretary of the Interior, with the owner’s concurrence, as being of national significance, defined as being one of the best examples of a biological community or geological feature within a natural region of the U.S., including terrestrial communities, landforms, geological features and processes, habitats of native plant and animal species, or fossil evidence of the development of life (36 Code of Federal Regulations 62.2). The National Park Service administers the NNL Program, and if requested, assists NNL owners and managers with the conservation of these important sites.

Paleontological Resources Preservation Act of 2009

The Paleontological Resources Preservation Act is part of the Omnibus Public Land Management Act of 2009 (Public Law 111-11, Title VI, Subtitle D). This act directs the Secretary of the Interior or the Secretary of Agriculture to manage and protect paleontological resources on federal land and develop plans for inventorying, monitoring, and deriving the scientific and educational use of such resources. It prohibits the removal of paleontological resources from federal land without a permit issued under this act, establishes penalties for violation of this act, and establishes a program to increase public awareness about such resources. The bill imposes criminal penalties for violating this act, which includes serving up to 10 years in prison if convicted.

State**Public Resources Code Section 5097.5**

California Public Resources Code Section 5097.5 prohibits excavation or removal of any “vertebrate paleontological site, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands and specifies that state agencies may undertake surveys, excavations, or other operations as necessary on publicly owned lands to preserve or record paleontological resources.” Public lands include lands owned by or under the jurisdiction of the state or any city, county, district, authority, or public corporation or any agency thereof. Section 5097.5 states that any unauthorized disturbance or removal of archaeological, historical, or paleontological materials or sites located on public lands is a misdemeanor.

Regional and Local

County of Riverside

County of Riverside General Plan

Multipurpose Open Space Element

The Riverside County General Plan Multipurpose Open Space Element (2015) contains policies relevant to paleontological resources.

Policy OS 19.6: Whenever existing information indicates that a site proposed for development has high paleontological sensitivity as shown on Figure OS-8, a paleontological resource impact mitigation program (PRIMP) shall be filed with the County Geologist prior to site grading. The PRIMP shall specify the steps to be taken to mitigate impacts to paleontological resources.

Policy OS 19.7: Whenever existing information indicates that a site proposed for development has low paleontological sensitivity as shown on Figure OS-8, no direct mitigation is required unless a fossil is encountered during site development. Should a fossil be encountered, the County Geologist shall be notified and a paleontologist shall be retained by the project proponent. The paleontologist shall document the extent and potential significance of the paleontological resources on the site and establish appropriate mitigation measures for further site development.

Policy OS 19.8: Whenever existing information indicates that a site proposed for development has undetermined paleontological sensitivity as shown on Figure OS-8, a report shall be filed with the County Geologist documenting the extent and potential significance of the paleontological resources on site and identifying mitigation measures for the fossil and for impacts to significant paleontological resources prior to approval of that department.

Policy OS 19.9: Whenever paleontological resources are found, the County Geologist shall direct them to a facility within Riverside County for their curation, including the Western Science Center in the City of Hemet.

Jurupa Area Plan

There are no policies specific to paleontological resources within the County of Riverside General Plan Jurupa Area Plan (2015).

County of Riverside County Code

The County of Riverside County Code does not contain any ordinances related to paleontological resources that are relevant to the proposed project.

City of Riverside

City of Riverside General Plan Historic Preservation Element

Objectives and Policies for Historic Preservation in Riverside

Policy HP-1.3: The City shall protect sites of archaeological and paleontological significance and ensure compliance with all applicable State and federal cultural resources protection and management laws in its planning and project review process.

City of Riverside Municipal Code**Chapter 12.28 – Minimum Grading Standards and General Requirements****17.28.010 – General Requirements**

The following standards and general requirements shall apply to all grading requiring a grading permit. In addition to the minimum standards which apply to all grading, supplementary regulations which apply to grading of hillsides and arroyos are also included.

H. Inspection

3. Community & Economic Development Department inspection.

At the discretion of the Community & Economic Development Director, the Community & Economic Development Department may also inspect engineered grading for compliance with conditions of approval which may include, but are not limited to, slope ratio, slope height, slope location, contour grading, areas of land disturbance, archaeology, paleontology, landscaping, erosion control, protection of native plants and animals, or other conditions of approval relating to environmental or aesthetic concerns. The Community & Economic Development Department shall file reports with the Public Works Director as required by the Public Works Director. Grading other than engineered grading shall be designated "Regular Grading."

City of Jurupa Valley**City of Jurupa Valley General Plan****Historic and Cultural Resource Overlay (HRO)**

The Historic Resource Overlay is applied to sites, buildings, or other resources of historical, cultural, archaeological, or paleontological merit, including Native American sacred places or other areas of special cultural merit. Development and land use changes within the HRO require special review to evaluate potential adverse impacts on the resource and to establish measures or conditions to protect the resource. The HRO allows the use of flexible development standards, incentives, and building codes to encourage preservation of historically designated properties and districts, such as the Mills Act and the Historic Building Code.

Conservation and Open Space Element Goals, Policies and Programs

Goals - to be a good steward of Jurupa Valley's natural resources, and protect and enhance open space by:

COS 7: ensuring the preservation of cultural, historical, archaeological, and paleontological resources.

COS 7.1: Preservation of Significant Cultural Resources. Identify, protect, and, where necessary, archive significant paleontological, archaeological, and historical resources.

COS 7.4: Site Confidentiality. Protect the confidentiality and prevent inappropriate public exposure or release of information on locations or contents of paleontological and archaeological resource sites.

3.5.2 Environmental Setting**Natural Setting**

The proposed project comprises four locations in the Santa Ana River watershed in the County of Riverside and cities of Riverside and Jurupa Valley, California. Topography, soils, vegetation communities, and historic modifications to the landscape vary somewhat for each of the locations;

therefore, they are presented individually below. For more details refer to the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* included in Appendix A and *Opportunities and Constraints for Tributary Restoration Sites Report* (2018) included in Appendix B.

Anza Creek/Old Ranch Creek Site

The Anza Creek/Old Ranch Creek elevations at the site range from 742 feet in the southeast corner near the Santa Ana River Trail Bike Path to 712 feet in the Santa Ana River channel in the northwestern portion of the site. The upstream portion of the proposed Old Ranch Creek channel takes an alignment that generally follows the path of the 1931 Santa Ana River channel. The middle portion of the proposed channel is located on what used to be farmland on the floodplain of the inside of a large meander bend in the 1931 Santa Ana River channel. The fine-grained, sandy soils at the Old Ranch Creek site are linked to the alluvial processes of the Santa Ana River channel that used to occupy the site. The Old Ranch Creek site currently supports disturbed Southern Riparian Forest, which is composed of a mixture of native and nonnative vegetation.

Lower Hole Creek

The Lower Hole Creek elevations at the site range from 671 feet where Hole Creek empties into the Santa Ana River channel to 740 feet on the plateau above the upper portion of Hole Creek upstream of Jurupa Avenue. The entire present-day Hole Creek channel upstream of Jurupa Avenue was a part of Hole Lake in 1931. Jurupa Avenue crosses Hole Creek at the same location as the former lake's spillway. The dam that created Hole Lake was constructed in 1915 by Willits J. Hole with the objective of providing irrigation water for his alfalfa and barley fields in the area now known as La Sierra and Arlanza. The Pedley Landfill that is currently located on a 13.5-acre parcel along the lowermost 1,200 feet of Hole Creek's east bank and extending over to Van Buren Boulevard did not exist in 1931. The historic floodplain has been reduced by Pedley Landfill embankment, in addition to the alignment of Van Buren Boulevard that now travels farther south and closer to the lower portions of Hole Creek than it did in 1931. Hole Creek upstream of Jurupa Avenue is a densely vegetated channel with bed elevations inset 25–30 feet below the top of the terrace slopes. Hole Creek is located in terrace escarpment soils for nearly its entire length in the site. The terrace escarpment soils are generally shallow, poorly developed, and rocky in nature. The Lower Hole Creek site currently supports disturbed Southern Riparian Forest, which is composed of a mixture of native and nonnative vegetation.

Hidden Valley Creek

The Hidden Valley Creek site is located on the inside of a meander bend on the south side of the Santa Ana River on an approximate 77-acre site. The Hidden Valley Creek site is bounded to the north and east by the Santa Ana River, to the south by a steep hillslope, and to the west by former wetlands. Elevations at the site range from 675 feet at the far upstream end to 655 feet at the far downstream end at the Santa Ana River's low-flow channel. Site elevations generally slope from upstream to downstream, elevations along the south side of the site are similar to the north, and remnant channels are visible in LiDAR images that were recorded in 2014, all which indicate the Santa Ana River has occupied positions throughout the entire site at some time in the past. The Hidden Valley Creek site does not currently have a perennial source of water. Water sources to the site are limited to storm runoff generated from the surrounding hillslopes during rain events. Review of historic aerial photographs shows that portions of the site were farmland in 1931 and the wetlands presently at the downstream end of the site did not exist. The Santa Ana River occupied a

position farther to the northwest than it presently does but the land that was not being farmed was active floodplain as it is today. The fine-grained, sandy soils at the Hidden Valley Creek site are linked to the alluvial processes of the Santa Ana River channel that routinely shifts position and forms new channels and floodplain at the site in response to flood events. The Hidden Valley Creek site currently supports a patchy matrix of Southern Riparian Forest, which is composed of a mixture of native and nonnative vegetation.

Geology

The proposed project is underlain primarily by younger Quaternary Alluvium with some older Quaternary deposits exposed in the southern margin of the Anza Creek and Lower Hole Creek sites. Plutonic igneous rocks occur on the far western portion of Anza Creek and the southeastern margin of the Hidden Valley Creek site.

Younger Quaternary Alluvium (Holocene to late Pleistocene) consists of unconsolidated cobble and sandy alluvium and is mostly gray and poorly sorted (Morton and Cox 2001). These sediments have been recently transported and deposited in the river channels, and alluvial plains. Older Quaternary deposits (Pleistocene began 1.8 million years ago) are moderately consolidated and derived primarily as alluvial fan deposits from the more elevated terrain to the west. Igneous rocks are those that solidified from magma and formed below the surface of the earth (Norris and Webb 1990). As they are trapped deep below the surface, and cool very slowly over millions of years until solid, they do not contain fossils (McLeod 2018).

Paleontological Sensitivity

The Natural History Museum of Los Angeles County Museum analyzed each project site for paleontological sensitivity and geologic context. Overall, Lower Hole Creek and the southernmost portion of the Anza Creek/Old Ranch Creek sites contain paleontological sensitivity. In addition, the County of Riverside's Paleontological Sensitivity data were reviewed.

Anza Creek. The paleontological records search results state that an approximately 0.5-acre area in the northwestern extent of the Anza Creek site contains exposures of plutonic igneous rocks, which do not produce recognizable fossils and therefore have no paleontological sensitivity. However, the County of Riverside General Plan Paleontological Sensitivity map indicates the Anza Creek site is within a high paleontological sensitivity area (County of Riverside 2015). A review of U.S. Geological Survey geologic maps indicates that the majority of the site is located in Quaternary alluvium (USGS 2019). The southern margin of the Anza Creek site skirts surface deposits of older Quaternary deposits, which have produced nearby fossils at depths of 9 to 11 feet below the ground surface (McLeod 2018). Older Quaternary deposits almost certainly underlie the younger Quaternary Alluvium, which has less paleontological sensitivity but is located on site. Deeper excavations that extend down into older Quaternary deposits may encounter significant fossil vertebrate remains.

Lower Hole Creek. Surface deposits consist of older Quaternary Alluvium derived primarily as deposits from the more elevated terrain to the west. Substantial excavation in this site may encounter fossils (McLeod 2018). The southeastern border of this site skirts exposures of igneous rocks, which do not produce fossils and therefore have no paleontological sensitivity. According to the County's Paleontological Sensitivity data, the entire Lower Hole Creek site is located in an area of high paleontological sensitivity (County of Riverside 2015).

Old Ranch Creek. Surface deposits consist primarily of younger Quaternary sand and gravels within the active channel of the Santa Ana River. These deposits have a low sensitivity for paleontological resources because they typically do not contain significant vertebrate fossils in the uppermost layers. Shallow excavations in the younger Quaternary Alluvium are unlikely to uncover significant vertebrate fossils. However, the southern margin of the Old Ranch Creek site skirts surface deposits of older Quaternary deposits, similar to Anza Creek, and deeper excavations into older Quaternary deposits may encounter significant fossil vertebrate remains. According to the County's Paleontological Sensitivity data, the majority of the Old Ranch Creek site is within an area of low paleontological sensitivity. However, an approximately 10-acre portion along the western edge of this site is within a high sensitivity area (County of Riverside 2015).

Hidden Valley Creek. Surface deposits consist primarily of younger Quaternary sand and gravels within the active channel of the Santa Ana River. These deposits have a low sensitivity for paleontological resources because they typically do not contain significant vertebrate fossils in the uppermost layers. Shallow excavations in the younger Quaternary Alluvium are unlikely to uncover significant vertebrate fossils. However, according to the County's Paleontological Sensitivity data, the southeastern portion of this site is located in an area of high paleontological sensitivity (County of Riverside 2015).

3.5.3 Environmental Impacts

Methods for Analysis

This analysis utilizes the results of the paleontological records search to determine the effect the proposed project would have on paleontological resources. On August 2, 2018, the Natural History Museum of Los Angeles County conducted a paleontological search of the project area and identified paleontological sensitivity and geologic context. The search revealed that no fossils have been recorded within the boundaries of the proposed project. Two fossil localities have been recorded approximately 6 miles west and south-southwest of the proposed project within older Quaternary deposits (McLeod 2018).

Thresholds of Significance

In accordance with Appendix G of the California Environmental Quality Act (CEQA) Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving: (1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault; (2) strong seismic ground shaking; (3) seismic-related ground failure, including liquefaction; or (4) landslides.
- Result in substantial soil erosion or the loss of topsoil.
- Be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse.

- Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property.
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater.
- Result in direct or indirect destruction of a unique paleontological resource or site or unique geologic feature.

As noted in Section Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this EIR) prepared for the proposed project determined that several geology and soils impacts would be less than significant and then eliminated those impacts from further analysis on that basis. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. The proposed project would not directly or indirectly cause potential substantial adverse effects involving earthquake fault rupture or strong seismic ground shaking. The proposed project would not result in substantial soil erosion or the loss of topsoil. The proposed project would not be located on soils such that it would potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse. The proposed project would not result in the placement of project-related facilities on expansive soil and would not use septic tanks. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

Impact GEO-1: Direct or indirect destruction of a unique paleontological resource or site or unique geologic feature (Less than Significant After Mitigation)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The Natural History Museum of Los Angeles County conducted a paleontological records search and provided paleontological sensitivity recommendations for the proposed project. Most of the project area is underlain by younger Quaternary deposits, which contain a low sensitivity for paleontological resources. The western margins of the Lower Hole Creek site and the southernmost portion of the Anza Creek/Old Ranch Creek sites contain older Quaternary deposits, which have elevated paleontological sensitivity. In the western margins of the Lower Hole Creek site, impacts are likely to involve grading of existing hillslopes for stabilization and revegetation. The southern portions of the Anza Creek/Old Ranch Creek sites are also likely to be affected through grading of some portions of the existing hillslopes for stabilization and revegetation. Depth of excavations would vary in these areas depending on the current conditions and degree of slope. Excavations in these areas may encounter older Quaternary deposits that have been found to contain fossils. While shallow excavations associated with the proposed project are unlikely to directly or indirectly affect unique paleontological resources, deeper excavations into older alluvial sediments have the potential to affect unique paleontological resources. In addition, because the County of Riverside's Paleontological Sensitivity data identify that the southeastern portion of the Hidden Valley Creek site is located in an area of high paleontological sensitivity, there is the potential for deeper excavations to have the potential to affect unique paleontological resources.

Mitigation measures GEO-1 and GEO-2 would be implemented to ensure that the proposed project would result in less-than-significant impacts on unique paleontological resources or sites or unique

geologic features under CEQA. Mitigation measure GEO-1 requires a Paleontological Monitoring Plan (PMP) to be developed by a qualified paleontologist prior to the start of ground-disturbing activities occurring within the older Quaternary deposits. Mitigation measure GEO-2 requires paleontological monitoring for all ground-disturbing activities occurring within the older Quaternary deposits. Paleontological monitoring would be conducted for ground-disturbing activities conducted along the southern margins of the Anza Creek/Old Ranch Creek site at depths of 9 feet below the ground surface or deeper. Paleontological monitoring would also be conducted for excavations in the Lower Hole Creek site at all depths because surface deposits contain older Quaternary Alluvium, which is known to contain fossils (McLeod 2018). And lastly, paleontological monitoring would also be conducted for deeper excavations in the southeastern portion of Hidden Valley Creek site given the County's designation as high paleontological sensitivity.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Mitigation Measure GEO-1: Retain a Qualified Paleontologist and Develop a Paleontological Monitoring Plan (PMP)

The applicant shall retain a qualified paleontologist defined as a paleontologist who meets the requirements as a Principal Investigator/Project Paleontologist per the guidelines of the Society of Vertebrate Paleontologists. The Principal Investigator/Project Paleontologist will review any paleontological finds encountered during monitoring and provide input for significance determinations and procedures for recovery (if necessary).

A Paleontological Monitoring Plan (PMP) shall be developed by the qualified paleontologist prior to the start of ground-disturbing activities and paleontological monitoring. The PMP shall detail and emphasize training for construction workers and qualifications necessary for paleontological monitors. The plan will also detail the locations where paleontological monitoring will take place (Lower Hole Creek, southeastern portion of Hidden Valley Creek, and southern Anza Creek/Old Ranch Creek sites) and the depths of excavation that will require monitoring (deeper than 9 feet). The PMP will include contact information for the Principal Investigator/Project Paleontologist, paleontological monitors, and appropriate management staff.

The PMP will detail procedures for collecting macro to micro fossils; general procedures for recovered specimens and specimen identification, repository institution identification and associated repository fees, and permits for collecting; and guidelines for preparing the paleontological monitoring and mitigation final report. The PMP will also include protocols for communication and response should an unanticipated discovery be made at times that paleontological monitors are not present. The PMP will require attendance at a preconstruction meeting led by a Qualified Principal Investigator/Project Paleontologist. The Project Paleontologist will explain the likelihood for encountering paleontological resources, what resources may be discovered, and the methods that will be employed if anything is discovered (who to call, construction diversion away from the find, etc.). The PMP will include an example letter regarding donating salvaged fossils to an appropriate museum repository, an example of a daily monitoring report form, and an example of a paleontological training acknowledgement form.

Mitigation Measure GEO-2: Provide Paleontological Monitoring

Paleontological monitoring will be conducted by a paleontological monitor that meets the qualifications set forth by the Society of Vertebrate Paleontology (SVP) as a Paleontological Resource Monitor. Oversight of paleontological monitoring and recovery of any fossils will be conducted by a professional paleontologist that meets the requirements as a Principal Investigator, Project Paleontologist per the guidelines of the SVP.

Paleontological monitoring will be conducted under the direction of the Paleontological Principal Investigator/Project Paleontologist. Paleontological monitors will record observations on a daily monitoring report form and will notify the Principal Investigator/Project Paleontologist immediately upon the identification of a paleontological resource (fossil) during monitoring. The paleontological monitors shall be equipped to salvage fossils as they are unearthed to avoid construction delays and to remove samples of sediments that are likely to contain the remains of small fossil invertebrates and vertebrates. Monitoring efforts can be reduced or ended based upon field conditions, site assessment, and professional judgment of the Paleontological Principal Investigator/Project Paleontologist.

The monitor shall have authority to temporarily divert grading away from exposed fossils in order to professionally and efficiently recover the fossil specimens and collect associated data. All efforts to avoid delays in project schedules shall be made. To prevent construction delays, paleontological monitors shall be equipped with the necessary tools for the rapid removal of fossils and retrieval of associated data. This equipment shall include handheld global positioning system receivers, digital cameras, and cell phones, as well as a tool kit with specimen containers, matrix sampling bags, field labels, field tools (awls, hammers, chisels, shovels, etc.), and plaster kits. At each fossil locality, field data forms shall be used to record pertinent geologic data, stratigraphic sections shall be measured, and appropriate sediment samples shall be collected and submitted for analysis.

Fossils collected, if any, shall be transported to a paleontological laboratory for processing where they shall be prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological curation facility (such as the Western Science Center).

Following analysis, a Report of Findings with an appended itemized inventory of specimens shall be prepared. The report and inventory, when submitted to the appropriate lead agency along with confirmation of the curation of recovered specimens into an established, accredited museum repository, shall signify completion of the program to mitigate impacts on paleontological resources.

Level of Significance Following Mitigation: Less than significant.

Expanded Mitigation Reserve Program Phase II

A paleontological records search conducted by the Natural History Museum provided paleontological sensitivity recommendations for the proposed project, which included the Expanded Mitigation Reserve Program Phase II area. Most of the project area is underlain by younger Quaternary deposits, which contain a low sensitivity for paleontological resources. The western margins of the Lower Hole Creek site and the southernmost portion of the Anza Creek/Old Ranch Creek sites contain older Quaternary deposits, which have elevated paleontological sensitivity. In

addition, because the County of Riverside's Paleontological Sensitivity data identify that the southeastern portion of the Hidden Valley Creek site is located in an area of high paleontological sensitivity, there is the potential for deeper excavations to have the potential to affect unique paleontological resources. In the western margins of the Lower Hole Creek site, impacts are likely to involve activities for restoring upland vegetation and controlling nonnative invasive plant and wildlife species. The southern portions of the Anza Creek/Old Ranch Creek sites are also likely to be affected through opportunities for alkali marsh rehabilitation, upland rehabilitation, floodplain extension, and further management of invasive wildlife species. Depth of excavations would vary in these areas depending on the current conditions and degree of slope. Excavations in these areas may encounter older Quaternary deposits that have been found to contain fossils. Resources in the southeastern portion of the Hidden Valley Creek site may be affected by excavations for the enhanced floodplain habitat, oxbow feature, and management of invasive wildlife species. While shallow excavations associated with the Expanded Mitigation Reserve Program Phase II are unlikely to directly or indirectly affect unique paleontological resources, deeper excavations into older alluvial sediments have the potential to affect unique paleontological resources.

Mitigation measures GEO-1 and GEO-2 would be implemented to ensure that the Expanded Mitigation Reserve Program Phase II would result in less-than-significant impacts on unique paleontological resources or sites or unique geologic features under CEQA. Mitigation measure GEO-1 requires a PMP to be developed by a qualified paleontologist prior to the start of ground-disturbing activities occurring within the older Quaternary deposits. Mitigation measure GEO-2 requires paleontological monitoring for all ground-disturbing activities occurring within the older Quaternary deposits. Paleontological monitoring would be conducted for ground-disturbing activities conducted along the southern margins of the Anza Creek/Old Ranch Creek site at depths of 9 feet below the ground surface or deeper. Paleontological monitoring would also be conducted for excavations in the Lower Hole Creek site at all depths because surface deposits contain older Quaternary Alluvium, which is known to contain fossils (McLeod 2018). And lastly, paleontological monitoring would also be conducted for deeper excavations in the southeastern portion of the Hidden Valley Creek site given the County's designation as high paleontological sensitivity.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Mitigation Measure GEO-1: Retain a Qualified Paleontologist and Develop a Paleontological Monitoring Plan (PMP)

Mitigation Measure GEO-2: Provide Paleontological Monitoring

Level of Significance Following Mitigation: Less than significant.

3.6 Greenhouse Gas Emissions

This section provides an overview of the regulatory framework applicable to greenhouse gas (GHG) emissions at the statewide, regional, and local scales and evaluates the potential significant impacts associated with GHG emissions related to construction, maintenance, and subsequent operation of the project. GHG emissions refer to airborne pollutants that affect global climate conditions. These gaseous pollutants have the effect of trapping heat in the atmosphere and consequently altering weather patterns and climactic conditions over long timescales. Unlike other resource areas that are concerned primarily with localized project impacts (e.g., within 1,000 feet of the project sites), the global nature of climate change requires a broader analytic approach. Accordingly, although the GHG analysis focuses on emissions generated at the restoration sites, the climate change study area includes the global context. Please refer to Appendix E for all emissions calculations and Section 3.2, *Air Quality*, for a discussion of criteria pollutants and air quality.

3.6.1 Regulatory Setting

Federal

Historically, GHGs were not directly regulated under the federal Clean Air Act (CAA). However, the 2007 ruling by the U.S. Supreme Court in *Massachusetts v. EPA* found that U.S. Environmental Protection Agency (EPA) may regulate GHGs if they are determined to be a danger to human health. In response, President George W. Bush ordered EPA to use its existing authority under the CAA to regulate GHGs from mobile sources.

EPA issued its so-called Endangerment Finding in December 2009, which found that six GHGs do threaten the health and welfare of current and future generations. For mobile sources, the Endangerment Finding led to development of the Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards Rule (LDV Rule) by EPA and the National Highway Traffic Safety Administration in May 2010. The LDV rule first applied to model years 2012–2017 but was later extended to the 2025 model year. It requires light-duty vehicles to comply with progressively more stringent GHG emission standards for the 2012–2025 model years. For stationary sources, the Endangerment Finding led to the so-called Tailoring Rule in May 2010, which tailored permit trigger levels to the largest sources.

EPA phased in GHG permitting requirements for stationary sources for the period from 2010 to 2014. However, the U.S. Supreme Court decision on June 23, 2014, in *Utility Air Regulatory Group v. EPA*, limited the applicability of GHG requirements to large sources that are already subject to major-source permitting under the CAA because of other pollutants. EPA also developed New Source Performance Standards, which cover GHGs associated with power plants and certain oil and gas sources. In addition, the agency maintains an annual GHG reporting program that covers multiple industrial sectors. However, none of the current CAA requirements for GHGs are expected to directly affect the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program (proposed project).

EPA adopted a Mandatory Reporting Rule and Clean Power Plan. Under the Clean Power Plan, EPA issued regulations to control carbon dioxide (CO₂) emissions from new and existing coal-fired power plants. However, on February 9, 2016, the Supreme Court issued a stay for these regulations

pending litigation. Former EPA Administrator Scott Pruitt also signed a measure to repeal the Clean Power Plan. The fate of the proposed regulations is uncertain, pending deliberation in federal courts. Therefore, there is currently no overarching federal law related specifically to climate change or a reduction in GHG emissions.

State

California has adopted statewide legislation to address various aspects of climate change and GHG emissions. Much of this legislation establishes a broad framework for the State's long-term GHG reduction and climate change adaptation program. The governor has also issued several executive orders (EOs) related to the State's evolving climate change policy. Of particular importance are Assembly Bill (AB) 32 and Senate Bill (SB) 32, which outline the State's GHG reduction goals of achieving 1990 emissions levels by 2020 and a level 40 percent below 1990 emissions levels by 2030. In the absence of federal regulations, control of GHGs is generally regulated at the state level. It is typically approached by setting emission reduction targets for existing sources of GHGs, setting policies to promote renewable energy and increase energy efficiency, and developing statewide action plans. Summaries of key policies, legal cases, regulations, and legislation at the state level that are relevant to the project are identified below.

Assembly Bill 1493—Pavley Rules (2002, Amendments of 2009, 2012 Rulemaking)

Known as *Pavley I*, the AB 1493 standards were the nation's first GHG standards for automobiles. AB 1493 required the California Air Resources Board (CARB) to adopt vehicle standards that would lower GHG emissions from new light-duty autos to the maximum extent feasible beginning in 2009. Additional strengthening of the Pavley standards (referred to previously as *Pavley II*, now referred to as *Advanced Clean Cars*) has been proposed for vehicle model years 2017–2025. Together, the two standards are expected to increase average fuel economy to roughly 54.5 miles per gallon by 2025.

Executive Order S-3-05 (2005)

EO S-3-05 stated that California is vulnerable to the effects of climate change. To combat this concern, the order established the following GHG emissions reduction targets:

- By 2010, reduce GHG emissions to 2000 levels;
- By 2020, reduce GHG emissions to 1990 levels; and
- By 2050, reduce GHG emissions to 80 percent below 1990 levels.

Executive orders are legally binding only on state agencies. Accordingly, EO S-3-05 guides state agencies' efforts to control and regulate GHG emissions but has no direct, binding effect on local government or private actions. The secretary of the California Environmental Protection Agency is required to report to the governor and state legislature biannually regarding the impacts of global warming on California, mitigation and adaptation plans, and progress made toward reducing GHG emissions and meeting the targets established in EO S-3-05.

Assembly Bill 32—California Global Warming Solutions Act (2006)

AB 32 codified the State's GHG emissions target by requiring California's global warming emissions to be reduced to 1990 levels by 2020. Since AB 32 was adopted, CARB, the California Energy Commission (CEC), California Public Utilities Commission (CPUC), and Building Standards

Commission have been developing regulations to help meet the goals of AB 32. Under AB 32, CARB is required to prepare a Scoping Plan and update it every 5 years. The Scoping Plan was approved in 2008. The first update was approved in 2014, and an additional update was approved in 2017 (see discussion of SB 32, below). The Scoping Plan identifies specific measures to reduce GHG emissions to 1990 levels by 2020 and requires CARB and other state agencies to develop and enforce regulations and other initiatives for reducing GHGs. Specifically, the AB 32 Scoping Plan articulates a key role for local governments, recommending that they establish GHG reduction goals for both their municipal operations and the community consistent with those of the State.

Executive Order S-01-07—Low-Carbon Fuel Standard (2007)

EO S-01-07 essentially mandates that (1) a statewide goal be established to reduce the carbon intensity of California's transportation fuels by at least 10 percent by 2020 and (2) a Low-Carbon Fuel Standard (LCFS) for transportation fuels be established in California. CARB approved the LCFS on April 23, 2009, and the regulation became effective on January 12, 2010. The U.S. District Court for the Eastern District of California ruled in December 2011 that the LCFS violates the Commerce Clause of the U.S. Constitution. CARB appealed this ruling in 2012, and on September 18, 2013, the Ninth U.S. Circuit Court of Appeals upheld the LCFS, ruling that the program does not violate the Commerce Clause and remanded the case to the Eastern District.

Senate Bills 1078, 107, and 2—Renewables Portfolio Standard (2011)

SBs 1078 (2002), 107 (2006), and 2 (2011), California's Renewables Portfolio Standard (RPS), obligate investor-owned utilities, energy service providers, and community-choice aggregators to procure additional retail sales per year from eligible renewable sources, with the long-range target of procuring 33 percent of retail sales from renewable resources by 2020. CPUC and CEC are jointly responsible for implementing the program.

Senate Bill 350 (Clean Energy and Pollution Reduction Act of 2015) (2015)

SB 350 requires the following by 2030: (1) an RPS of 50 percent and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. These mandates will be implemented by future actions of CPUC and CEC.

Senate Bill 32 (2016) and the 2017 Scoping Plan

SB 32 (2016) requires CARB to ensure that statewide GHG emissions are reduced to at least 40 percent below the 1990 level by 2030, consistent with the target set forth in EO B-30-15. CARB adopted the 2017 Climate Change Scoping Plan in November 2017 to meet the GHG reduction requirement set forth in SB 32. It proposes continuing the major programs of the previous Scoping Plan, including cap-and-trade regulation; the LCFS; more efficient cars, trucks, and freight movement; the RPS; and reductions in methane emissions from agricultural and wastes. It also includes as Appendix H a summary titled "Major Climate Statutes and Regulations." That summary is separated into the following sectors: low-carbon energy, industry, transportation sustainability, lands and agriculture, waste management, water, and buildings. Appendix H to the Scoping Plan is referenced herein as part of the regulatory framework for the proposed project (CARB 2017).

Assembly Bill 197

The companion bill to SB 32, AB 197, creates requirements to form a joint legislative committee on climate change policies, requires CARB to prioritize direct emission reductions and consider social costs when adopting regulations to reduce GHG emissions beyond the 2020 statewide limit, requires CARB to prepare reports on sources of GHGs and other pollutants, establishes 6-year terms for voting members of CARB, and adds two legislators as non-voting members of CARB.

Senate Bill 1386 (2016)

SB 1386 supports the emission reduction targets of AB 32 through a policy of the State that recognizes the protection and management of natural and working lands as an important strategy in meeting California's GHG reduction goals. SB 1386 requires all relevant state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria related to the protection and management of natural and working lands. The bill defines "natural lands" to mean wetlands, watersheds, wildlands, wildlife habitat, or lands used for recreational purposes.

Senate Bill 100 (2018)

SB 100 builds on SB 350, the Clean Energy and Pollution Reduction Act of 2015, which required the following by 2030: (1) an RPS of 50 percent and (2) a doubling of energy efficiency (electrical and natural gas) by 2030, including improvements to the efficiency of existing buildings. SB 100 increases the 2030 RPS target set in SB 350 to 60 percent and requires an RPS of 100 percent by 2045.

Executive Order B-55-18

Former Governor Brown issued Executive Order B-55-18 to establish a state goal for achieving carbon neutrality no later than 2045 and achieve and maintain net negative emissions thereafter. This executive order directs CARB to work with state agencies to develop a framework for implementation and accounting that tracks progress toward this goal and include measures in the next Scoping Plan update to achieve carbon neutrality by 2045.

Regional and Local

As discussed in Section 3.2, *Air Quality*, the South Coast Air Quality Management District (SCAQMD) is responsible for air quality planning within the South Coast Air Basin (Basin). SCAQMD formed a working group to identify GHG emission thresholds for land use projects with local lead agencies. The working group developed several different options, which are contained in the draft guidance document regarding the interim California Environmental Quality Act (CEQA) GHG significance threshold. The working group has not provided additional guidance since release of the interim guidance in 2008. The SCAQMD board has not approved the thresholds; however, the guidance document provides substantial evidence for supporting the approaches to the significance of GHG emissions that the lead agency can consider in adopting its own threshold.

County of Riverside

County of Riverside Climate Action Plan

The County of Riverside adopted a Climate Action Plan (CAP) on December 8, 2015. The CAP, which is part of the County's general plan, contains guidance regarding the County's GHG inventory reduction goals, policies, guidelines, and implementation programs. The CAP outlines existing sources of GHG emissions and contain measures and strategies by sector (e.g., transportation, building, energy, agricultural) to reduce GHG emissions and promote sustainable land uses for a horizon year of 2035. The following measure can be incorporated into new development projects for the reduction of transportation-related emissions:

R2-T8: Anti-Idling Enforcement. This R2 measure involves adoption and enforcement of an anti-idling policy for heavy-duty diesel trucks, including local delivery trucks and long-haul trucks within unincorporated Riverside County. This policy prohibits the idling of on- and off-road heavy-duty diesel vehicles for more than five minutes. This policy would be implemented by new commercial and industrial projects with loading docks or delivery trucks. Such projects would be required to post signage at all loading docks and/or delivery areas directing drivers to shut down their trucks after five minutes of idling time. Also, employers who own and operate truck fleets would be required to inform their drivers of the anti-idling policy.

County of Riverside General Plan

The County of Riverside General Plan's Air Quality Element contains additional policies related to air quality that are relevant to the GHG emissions issues associated with the proposed project. These policies are as follows:

AQ 18.4. Implement policies and measures to achieve reduction targets. The County shall implement the greenhouse gas reduction policies and measures established under the County Climate Action Plan for all new discretionary development proposals.

AQ 20.16. Preserve and promote forest lands and other suitable natural and artificial vegetation areas to maintain and increase the carbon sequestration capacity of such areas within the county. Artificial vegetation could include urban forestry and reforestation, development of parks and recreation areas, and preserving unique farmlands that provide additional carbon sequestration potential.

AQ 20.25. Coordinate County GHG emissions reduction efforts with those of other regional agencies and plans (i.e., SCAG's [Southern California Association of Governments'] Compass Blueprint and Regional Transportation Plan and SCAQMD's Air Quality Management Plans). In addition, coordinate with cities and sub-regional planning agencies, particularly the WRCOG [Western Riverside Council of Governments] and CVAG [Coachella Valley Association of Governments], on efforts that jointly affect the county and the cities. Also, coordinate with utility and service providers to develop programs to improve energy efficiency, water efficiency, and water delivery; make structural improvements to reduce demand; or better coordinate infrastructure development, as appropriate.

AQ 21.2. Implementation measures found necessary for a given project, pursuant to the CAP screening tables, shall be incorporated into the project's mitigation and monitoring programs as required mitigation measures under CEQA to ensure the measures are implemented appropriately. Such implementation measures may also be separately incorporated into the conditions of approval issued by the County. In the event no that mitigation and monitoring program is required for a project, the implementation measures shall be incorporated into a project's conditions of approval issued by the County.

AQ 21.3 Discretionary Measures – Because of the varied nature of the private development proposals reviewed by the County, in some cases, the implementing measures in the CAP may not

provide the most appropriate means for achieving the required interim GHG reductions. In such cases, the following alternate measures may be utilized, at the County's discretion:

- a. For large-scale developments, such as specific plans, business parks, industrial centers, and those triggering a full environmental impact report, a custom GHG analysis may be warranted to both ensure compliance with the applicable targets herein and provide a customized array of appropriate reduction measures.
- b. In such cases, the resultant GHG analysis may be used to develop customized GHG reduction measures in place of the CAP's implementing measures, provided they achieve the stated targets or implement all feasible mitigation, short of achieving the applicable targets.
- c. Project-specific analysis may be particularly valuable when assessing large-scale mixed-use developments. In such developments, significant energy efficiencies and reductions in VMT [vehicle miles traveled] can result from smart-growth design features, such as the provision of housing, jobs, services, and recreation within a five- to 10-minute walking radius. Project-specific analysis in these cases may result in the need for fewer add-on implementing measures and potentially yield substantial savings on construction costs.

AQ 23.2 For discretionary actions, land use-related greenhouse gas reduction objectives shall be achieved through development and implementation of the appropriate implementation measures of the Climate Action Plan for individual future projects. County programs shall also be developed and implemented to address land use-related reductions for County operations and voluntary community efforts.

AQ 25.2. The County shall implement programs and requirements to achieve the following objectives related to reducing greenhouse gas emissions through biota conservation:

- b. Preserve forestlands and other suitable natural vegetation areas to maintain the carbon sequestration capacity of such areas within the county.
- c. Promote the establishment of vegetated recreational uses, such as local and regional parks, that provide carbon sequestration potential in addition to opportunities for healthy recreation.
- f. Promote the voluntary preservation of areas of native vegetation that may contribute to biological carbon sequestration functions.

AQ 25.3. For discretionary actions, greenhouse gas reduction objectives related to water and biota conservation shall be achieved through development and implementation of the applicable implementation measures of the Climate Action Plan. County programs shall also be developed and implemented to address conservation issues related to County operations and voluntary community efforts.

AQ 28.2. The County shall implement programs and requirements to achieve greenhouse gas emissions reductions through the following interagency coordination objectives:

- a. Coordinate County regional GHG reduction efforts with those of other regional agencies and plans:
 - o SCAG Regional Blueprint Plan
 - o SCAG Regional Transportation Plan (which will address SB 375)
 - o SCAQMD Air Quality Management Plans
 - o SB 375 coordination and "Sustainable Communities Strategies"
- b. Coordinate with constituent cities and sub-regional planning agencies, particularly WRCOG and CVAG, on GHG reduction efforts that jointly affect the county and these cities.

Jurupa Area Plan

According to the County of Riverside General Plan's Jurupa Area Plan (2015), the air quality in Riverside County has actually improved slightly, despite the phenomenal growth that has occurred in the region. Most growth has been in adjacent counties; however, Riverside County continues to import their pollutants. With technical advances to reduce smog from cars and trucks and an expanded supply of jobs to reduce the need for people to commute as far as in the past, air quality and GHG emissions are improving locally.

County of Riverside County Code

The County of Riverside County Code does not contain any ordinances related to GHGs that are relevant to the proposed project.

City of Riverside**Riverside Restorative Growthprint Climate Action Plan and Economic Prosperity Action Plan**

The City of Riverside has adopted the Riverside Restorative Growthprint CAP (RRG-CAP), which combines the City's Economic Prosperity Action Plan and CAP. The RRG-CAP works to reduce GHG emissions in a way that also advances economic growth, inspires entrepreneurial opportunities, and provides meaningful benefit to residents, employees, investors, and visitors. The RRG-CAP expands upon the Western Riverside Council of Governments' Subregional Climate Action Plan and provides a path for the City to achieve GHG reduction goals through 2035.

City of Riverside General Plan

The City of Riverside General Plan's Air Quality Element includes one policy related to GHGs that is relevant to the proposed project, as noted below:

AQ-8.17: Develop measures to encourage a minimum of 40 percent of waste from all construction sites throughout Riverside to be recycled by the end of 2008.

City of Riverside Municipal Code

The City of Riverside Municipal Code does not contain any ordinances related to GHGs that are relevant to the proposed project.

City of Jurupa Valley**City of Jurupa Valley General Plan**

The City of Jurupa Valley General Plan's Air Quality Element contains a policy related to GHGs that is relevant to the proposed project.

AQ 9.5. GHG Thresholds. Utilize the SCAQMD draft GHG thresholds to evaluate development proposals until the City of Jurupa Valley City adopts a Climate Action Plan.

City of Jurupa Valley Municipal Code

The City of Jurupa Valley Municipal Code does not contain any ordinances related to GHGs that are relevant to the proposed project.

3.6.2 Environmental Setting

Greenhouse Effect and Climate Change

The natural process known as the *greenhouse effect* keeps the atmosphere near Earth's surface warm enough for the successful habitation of humans and other life forms. The greenhouse effect is created by sunlight that passes through the atmosphere. Some of the sunlight striking Earth is absorbed and converted to heat, which warms the surface. The surface emits a portion of this heat as infrared radiation, some of which is re-emitted toward the surface by GHGs. Human activities that generate GHGs increase the amount of infrared radiation absorbed by the atmosphere, thus amplifying the greenhouse effect and increasing or accelerating the warming of Earth's atmosphere.

Human-caused sources of GHGs (e.g., fossil fuel combustion and deforestation) have exponentially increased concentrations of GHGs in the atmosphere since the Industrial Revolution (IPCC 2007). Rising atmospheric concentrations of GHGs in excess of natural levels result in increasing global surface temperatures—a phenomenon commonly referred to as *global warming*. Higher global surface temperatures, in turn, result in changes to Earth's climate system, including increased ocean temperature and acidity, reduced sea ice, variable precipitation, and increased frequency and intensity of extreme weather events (IPCC 2018). Large-scale changes to Earth's system are collectively referred to as *climate change*.

The Intergovernmental Panel on Climate Change (IPCC) was established by the World Meteorological Organization and United Nations Environment Programme to assess scientific, technical, and socioeconomic information relevant to the understanding of climate change, its potential impacts, and options for adaptation and mitigation. The IPCC estimates that human-induced warming reached approximately 1 degree Centigrade (°C) above pre-industrial levels in 2017, increasing at 0.2°C per decade. Under the current nationally determined contributions of mitigation from each country until 2030, global warming is expected to rise to 3°C by 2100, with warming to continue afterward (IPCC 2018). Large increases in global temperatures could have substantial adverse effects on natural and human environments worldwide and in California.

Pollutants of Concern

The principle anthropogenic (human-made) GHGs contributing to global warming are CO₂, methane (CH₄), nitrous oxide (N₂O), and fluorinated compounds, including sulfur hexafluoride, hydrofluorocarbons, and perfluorocarbons. Water vapor, the most abundant GHG, is not included in this list because its natural concentrations and fluctuations far outweigh its anthropogenic sources.

The primary GHGs of concern associated with the project are CO₂, CH₄, and N₂O. The principal characteristics of these pollutants are discussed below.

Carbon dioxide enters the atmosphere through the combustion of fossil fuels (i.e., oil, natural gas, coal), solid waste decomposition, plant and animal respiration, and chemical reactions (e.g., from cement manufacturing). CO₂ is also removed from the atmosphere (or *sequestered*) when it is absorbed by plants as part of the biological carbon cycle.

Methane is emitted during the production and transport of coal, natural gas, and oil. Methane emissions also result from livestock and agricultural practices as well as the decay of organic waste in municipal solid waste landfills.

Nitrous oxide is emitted during agricultural and industrial activities as well as the combustion of fossil fuels and solid waste.

Methods have been set forth to describe emissions of GHGs in terms of a single gas to simplify reporting and analysis. The most commonly accepted method for comparing GHG emissions is the “global warming potential” methodology defined in IPCC reference documents. IPCC defines the global warming potential of various GHG emissions on a normalized scale that recasts all GHG emissions in terms of a carbon dioxide equivalent (CO₂e), which compares the gas in question to that of the same mass of CO₂ (CO₂ has a global warming potential of 1 by definition).

Table 3.6-1 lists the global warming potential of CO₂, CH₄, and N₂O; their lifetimes; and their abundance in the atmosphere.

Table 3.6-1. Lifetimes and Global Warming Potentials of Key Greenhouse Gases

Greenhouse Gases	Global Warming Potential (100 years)	Lifetime (years)	Current Atmospheric Abundance
CO ₂	1	50–200	400 ppm
CH ₄	25	9–15	1,834 ppb
N ₂ O	298	121	328 ppb
Sources: CARB 2018; Blasing 2016			
CH ₄	= methane	ppb	= parts per billion
CO ₂	= carbon dioxide	ppm	= parts per million
N ₂ O	= nitrous oxide		

Greenhouse Gas Emission Inventories

A GHG inventory is a quantification of all GHG emissions and sinks¹ within a selected physical and/or economic boundary. GHG inventories can be performed on a large scale (e.g., for global and national entities) or on a small scale (e.g., for a particular building or person). Although many processes are difficult to evaluate, several agencies have developed tools to quantify emissions from certain sources. Table 3.6-2 outlines the most recent global, national, statewide, and local GHG inventories to help contextualize the magnitude of potential project-related emissions. Although there are GHG inventories at the county and city level, there is no GHG inventory specifically for the project area.

¹ A GHG sink is a process, activity, or mechanism that removes a GHG from the atmosphere.

Table 3.6-2. Global, National, State, and Local Greenhouse Gas Emissions (metric tons per year)

Emissions Inventory	CO₂e (rounded)
2010 IPCC Global	52,000,000,000
2016 EPA National	6,511,000,000
2016 CARB State	429,400,000
2008 County of Riverside	7,012,938
2007 City of Riverside	3,000,000
2007 City of Jurupa Valley	500,000
Sources: IPCC 2014; EPA 2018; CARB 2018; County of Riverside 2018; Western Riverside Council of Governments 2014	
CARB = California Air Resources Board	GHG = greenhouse gas
CO ₂ e = carbon dioxide equivalent	IPCC = Intergovernmental Panel on Climate Change
EPA = U.S. Environmental Protection Agency	

Potential Climate Change Effects

Climate change is a complex phenomenon that has the potential to alter local climatic patterns and meteorology. Although modeling indicates that climate change will result in sea-level rise (both globally and regionally) as well as changes in climate and rainfall, among other effects, there remains uncertainty about characterizing precise *local* climate characteristics and predicting precisely how various ecological and social systems will react to any changes in the existing climate at the local level. Regardless of this uncertainty, it is widely understood that substantial climate change is expected to occur in the future, although the precise extent will take further research to define. Specifically, significant impacts from global climate change worldwide and in California include:²

- Declining sea ice and mountain snowpack levels, thereby increasing sea levels and sea surface evaporation rates with a corresponding increase in atmospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures (California Natural Resources Agency 2018);
- Rising average global sea levels, primarily due to thermal expansion and the melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets (California Natural Resources Agency 2018);
- Changing weather patterns, including changes to precipitation, ocean salinity, and wind patterns, and more energetic episodes of extreme weather, including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones (IPCC 2013);
- Declining Sierra Nevada snowpack levels, which account for approximately half of the surface water storage in California (declining 70 to as much as 90 percent over the next 100 years) (California Environmental Protection Agency 2010);
- An increasing number of days that would be conducive to ozone formation (e.g., clear days with intense sunlight)—increasing by 25 to 85 percent, depending on the future temperature

² California's 2018 *Fourth Climate Change Assessment* includes updated climate change projections and in-depth reports on how California will be affected by climate change. Available: <http://www.climateassessment.ca.gov/>.

scenario, by the end of the 21st century in high ozone areas, including Southern California (California Environmental Protection Agency 2010);

- An increasing potential for erosion of California's coastlines and seawater intrusion into the Sacramento Delta and associated levee systems due to the rise in sea level (California Natural Resources Agency 2018);
- Exacerbation of the severity of drought conditions in California such that durations and intensities are amplified, ultimately increasing the risk of wildfires and the consequential damage incurred (California Natural Resources Agency 2018);
- Under changing climate conditions, agriculture is projected to experience lower crop yields due to extreme heat waves, heat stress, increased water needs of crops and livestock (particularly during dry and warm years), and new and changing pest and disease threats (California Natural Resources Agency 2018); and
- The impacts of climate change, such as increased heat-related events, droughts, and wildfires, pose direct and indirect risks to public health because people will experience earlier deaths and worsening illnesses. Indirect impacts on public health include increased vector-borne diseases, stress and mental trauma due to extreme events and disasters, economic disruptions, and residential displacement (California Natural Resources Agency 2018).

3.6.3 Environmental Impacts

Methods for Analysis

Implementation of the project would generate GHG emissions during construction, maintenance, and operational activities. Construction activities would occur in 2019 and 2020. Subsequent to 2020, there would be three phases of periodic maintenance: short term, long term, and in perpetuity. Operational activities would commence following completion of construction and occur permanently thereafter. Emissions were quantified using a combination of emission factors and methodologies from the California Emissions Estimator Model (CalEEMod), version 2016.3.2, and CARB's Emission Factors 2017 (EMFAC2017) model. Estimates of emissions from indirect electricity consumption were based on factors provided by Southern California Edison (SCE) (2018).

This section provides a summary of the methodology. Appendix E provides a full list of assumptions.

Construction Activities

Construction activities would generate GHG emissions, which would originate from off-road equipment exhaust as well as employee vehicle and haul truck exhaust (on-road vehicles). It is anticipated that 4 months of active construction would be required to complete each of the restoration sites; up to two sites could be constructed at the same time, for a total project construction timeline of approximately eight months. It is anticipated that construction of all four sites would not be consecutive. Lower Hole Creek and Anza Creek could be constructed at the same time; Hidden Valley Creek and Old Ranch Creek could be constructed later. Accordingly, these emissions would be temporary (i.e., limited to the construction period) and cease when construction activities are complete.

Combustion exhaust GHG emissions were estimated using a combination of emission factors and methodologies from CalEEMod, version 2016.3.2, and CARB's EMFAC2017 model, and based on

project-specific construction data (e.g., schedule, equipment, truck volumes), as described further below.

- **Off-road Equipment**—Emission factors for off-road construction equipment (e.g., loaders, graders, bulldozers) were obtained from the CalEEMod (version 2016.3.2) User's Guide appendix, which provides values per unit of activity (in grams per horsepower-hour) by calendar year (California Air Pollution Control Officers Association 2017). GHG emissions were estimated by multiplying the CalEEMod emission factors by the equipment inventory.
- **On-road Vehicles**—On-road vehicles (e.g., pickup trucks, flatbed trucks) would be required for material and equipment hauling, on-site crew and material movement, and employee commuting. Exhaust GHG emissions from on-road vehicles were estimated using the EMFAC2017 model and activity data (miles traveled per day). Emission factors for haul trucks are based on aggregated-speed emission rates for EMFAC's T7 "single-vehicle" category. Factors for on-site water trucks were based on 5-mile-per-hour emission rates for the T6 "heavy" category. Factors for employee commute vehicles are based on the weighted average of all vehicle speeds from EMFAC's light-duty automobile/light-duty truck vehicle categories.

Construction activities at each site would occur over seven phases (e.g., land clearing, invasive plant removal) in a period of 8 months. Annual GHG emissions generated in each phase were quantified using the methods described above.

Maintenance Activities

Replanting, invasive species removal, and other activities to facilitate plant establishment would occur for the first few years following construction. Once vegetation at each site has matured, maintenance activities would be limited to monitoring and occasional channel work. Emissions generated by on-site equipment (e.g., backhoes) and earthmoving were modeled using CalEEMod. Emissions generated by mobile sources (e.g., employee vehicles, haul trucks) were estimated using EMFAC2017. Maintenance activities would be the same at all four sites; therefore, emissions would be identical.

Maintenance activities would occur over three phases: short term, long term, and in perpetuity. Short-term maintenance activities were assumed to occur 120 days per year for 2 years (2021 to 2023) following construction. Long-term maintenance activities were assumed to occur 48 days per year for a period of 3 to 10 years (2023 to 2033) following short-term maintenance. In-perpetuity maintenance activities were assumed to occur 24 days per year following long-term maintenance (2033 and beyond). Maintenance activities differ across phases in terms of the amount of equipment, volume of earth moved, and days per year (frequency) of activity. All emissions were conservatively modeled using 2021 emission factors, which is the first year following completion of construction. This approach is a conservative analysis because it does not account for reduced GHG emissions in subsequent years, after 2021, due to future improvements in fuel and engine efficiencies for both on-road and off-road construction equipment as well as indirect electricity consumption. Thus, presenting emissions for the earliest possible year when the project could be implemented represents the maximum annual maintenance GHG emissions that would be generated by the project.

Operational Activities

Following completion of construction, in addition to maintenance activities, two permanent electric-powered pumps would be installed in 2021 to support perennial water wells. Estimates of emissions from indirect electricity consumption related to operation of the pumps were based on factors provided by SCE (2018). Both pumps were assumed to be 7.5-horsepower units and operating 24 hours per day (8,760 annual hours).

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment.
- Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing emissions of GHGs.

As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the initial study (see Appendix D [Notice of Preparation/Initial Study] of this Environmental Impact Report [EIR]) prepared for the proposed project considered and then eliminated several less- than- significant impacts from further analysis. Therefore, only the impacts and corresponding thresholds of significance noted below were determined to require further analysis; these are addressed in this EIR. As stated in the notice of preparation/initial study, the proposed project would evaluate all thresholds for GHG. For further discussion of the impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

State CEQA Guidelines §15064.4 provides guidance to lead agencies for determining the significance of environmental impacts pertaining to GHG emissions. State CEQA Guidelines §15064.4(a) states that a lead agency should make a good-faith effort that is based, to the extent possible, on scientific and factual data to describe, calculate, or estimate the amount of GHG emissions that would result from implementation of a project. State CEQA Guidelines §15064.4(b) also states that, when assessing the significance of impacts from GHG emissions, a lead agency should consider (1) the extent to which the project may increase or reduce GHG emissions compared with existing conditions, (2) whether the project's GHG emissions would exceed a threshold of significance that the lead agency has determined to be applicable to the project, and (3) the extent to which the project would comply with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of GHG emissions.

The State CEQA Guidelines allow lead agencies to consider thresholds of significance adopted or recommended by other public agencies, or recommended by experts, to evaluate the significance of project-generated GHG emissions, provided that the thresholds are supported by substantial evidence, and/or to develop their own significance threshold. The State CEQA Guidelines also state that the significance criteria established by the applicable air quality management district may be relied upon to make the determination.

Several agencies throughout the state, including SCAQMD, have drafted and/or adopted thresholds and guidance for analyzing GHG emissions in CEQA documents. However, none of these are binding; they are only recommendations for consideration by CEQA lead agencies. Some commonly used threshold approaches include (1) consistency with a qualified GHG reduction strategy, (2) numeric

“bright-line” thresholds, (2) performance-based reductions,³ and (4) efficiency-based thresholds. Furthermore, the California Supreme Court decision in *Centers for Biological Diversity et al. vs. California Department of Fish and Wildlife, the Newhall Land and Farming Company* (November 30, 2015, Case No. S217763) (hereafter *Newhall Ranch*) confirmed that, although efforts at framing GHG significance issues have not yet coalesced into any widely accepted set of numerical significance thresholds, a range of alternative approaches exists, and when an “agency chooses to rely completely on a single quantitative method to justify a no-significance finding, CEQA demands the agency research and document the quantitative parameters essential to that method.”

Threshold Approach

As described above, there are multiple thresholds and methods for evaluating GHG emissions. Not all thresholds are applicable to every project or emissions source. Some thresholds are appropriate only for emissions generated by stationary sources (e.g., generators), whereas other thresholds apply to emissions generated by land use development projects (e.g., residential and commercial projects). Accordingly, no one threshold is globally applicable to all activities proposed under the project.

The following sections provide additional details on thresholds as they relate to the project.

Compliance with a Qualified GHG Reduction Plan

As discussed above, the County of Riverside adopted a CAP; therefore, future projects in the county, consistent with the plan, may qualify for tiering per §15183.5 of the State CEQA Guidelines. Future projects under the Expanded Mitigation Reserve Program Phase II, consistent with the CAP, that are implemented within the horizon year could tier their GHG analyses from the environmental documents prepared for the CAP. Expanded Mitigation Reserve Program Phase II projects that can tier from adopted CAPs would have a less-than-significant GHG impact. Although CAP tiering may be an option for the Expanded Mitigation Reserve Program Phase II, the information necessary to make this determination on a project-by-project basis is not currently available.

Numeric Bright-Line Thresholds

SCAQMD has issued draft bright-line thresholds of 3,000 and 10,000 metric tons (MT) of CO₂e for non-industrial and industrial projects, respectively, where construction emissions are amortized over the life of the project (30 years) and added to operational emissions (SCAQMD 2008). SCAQMD bright-line thresholds define the level above which individual project's may cumulatively contribute to a significant GHG impact. Projects with emissions below these thresholds would have a less-than-significant GHG impact. Project-generated emissions relative to SCAQMD's bright-line thresholds are used, in part, for the project's GHG analysis.

Efficiency Based Metric

Efficiency-based thresholds represent the GHG efficiency needed for a project to achieve California's GHG emissions targets, as established under AB 32 and SB 32. Efficiency-based thresholds are

³ Performance-based reductions include the percentage below “business as usual” threshold approach and are generally based solely on statewide targets. This approach, which has been used widely in the past, was the subject of the *Newhall Ranch* case. It will remain subject to uncertainty until the issues raised by the California Supreme Court ruling are resolved.

typically calculated by dividing emissions associated with residential and commercial uses (also termed the “land use sector” in the Scoping Plan) within the state (or a certain geographic area) by the sum of jobs and residents within the same geography. The sum of jobs and residents is called the “service population,” and a project’s service population is defined as the people who work and live within the project sites. Because typical efficiency-based thresholds are based on the land use sector (residential and commercial uses) and account for only land use-related emissions and residential population and employment, they may not be appropriate to use for the proposed project.

Performance-Based Reductions

Performance-based thresholds are based on the percentage reduction from a projected future condition. The performance-based approach is based on the project’s reduction in emissions from an unmitigated condition. Other lead agencies have adopted performance-based targets that are tied to the AB 32 target of achieving 1990 levels by 2020, but the prescribed percentage reduction can vary, depending on the version of the Scoping Plan and targets that were used. With the *Newhall Ranch* decision, relating a given project to the achievement of state reduction targets very likely requires adjustments to CARB’s statewide business-as-usual (BAU) model, not only to isolate new emissions but also to consider unique geographic conditions that would be required to use the BAU performance-based methodology for a specific project. To date, this type of adjustment to the statewide BAU target has not been formulated and, therefore, is not appropriate for the project analysis.

Compliance with Promulgated Regulatory Program

Another approach for determining whether a project would result in significant GHG emission impacts is analysis of whether a proposed project would comply with regulatory programs designed to reduce GHG emissions from project activities. To the extent a project complies with or exceeds programs adopted by CARB or other state agencies, a lead agency could rely on this compliance to show less-than significant impacts. The project’s compliance with regulatory programs adopted by CARB or other state agencies is used, in part, for the project’s GHG analysis.

Impact Analyses and Mitigation Measures

Impact GHG-1: Generate GHG emissions, either directly or indirectly, that may have a significant impact on the environment (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

GHG impacts associated with construction, maintenance, and operational activities are discussed below. Construction emissions are amortized over a 30-year period and combined with operational and maintenance emissions in accordance with SCAQMD’s methodology (SCAQMD 2009). Amortized construction, operational, and maintenance emissions would have a GHG impact if (1) emissions would exceed SCAQMD’s bright-line screening threshold for non-industrial projects of 3,000 MT CO₂e per year and (2) emissions would be inconsistent with state plans. SCAQMD’s bright-line threshold was developed for the purpose of screening residential and commercial development projects with GHG emissions from on-road transportation, energy use, water use, wastewater generation, solid waste disposal, area sources, off-road emissions, and construction activities. Although the proposed habitat restoration project is not a land use development project, the sources of GHG emissions (e.g., on-road transportation, electricity use, off-road emissions, construction

activities) would be similar to the sources associated with the land use development projects that SCAQMD evaluated. Therefore, the bright-line screening threshold of 3,000 MT CO₂e per year is deemed appropriate for analysis of the proposed project's GHG emissions.

Construction Activities

Construction activities would result in exhaust GHG emissions from fuel combustion in heavy-duty construction equipment, construction workers' commute vehicles, and on-road trucks used for material deliveries or providing water.

Table 3.6-3 presents annual GHG emissions that would be generated by construction activities. Construction activities for Lower Hole Creek and Old Ranch Creek would occur concurrently, as would activities for Anza Creek and Hidden Valley Creek. The table also presents total construction emissions amortized over a 30-year period. It is anticipated that construction would occur over a period of 8 months—a 4-month period for Lower Hole Creek and Anza Creek and a later 4-month period for Hidden Valley Creek and Old Ranch Creek. Accordingly, annual emissions for the overlap between the two sites have been calculated for 2019 and 2020.

Table 3.6-3. Project Total Construction-Related Greenhouse Gas Emissions (metric tons per year)¹

Year	CO₂	CH₄	N₂O	CO₂e
2019	124	< 1	< 1	128
2020	118	< 1	< 1	124
Total	242	< 1	< 1	252
Amortized over 30-year period				8
Note: Refer to Appendix E for the emission calculations.				
¹ Emissions are rounded to the nearest whole number.				
CO ₂ = carbon dioxide; CH ₄ = methane; N ₂ O = nitrous oxide; CO ₂ e = carbon dioxide equivalent				

Maintenance Activities

Maintenance activities would generate GHG emissions from on-road motor vehicle trips and mobile and stationary equipment. Table 3.6-4 presents estimated emissions from short-term, long-term, and in-perpetuity maintenance. As previously described, short-term activities would occur for about 2 years (2021 to 2023) following construction, long-term maintenance would occur for about 3 to 10 years (2023 to 2033) following short-term maintenance, and in-perpetuity maintenance would occur permanently (2033 and beyond) following long-term maintenance. Maintenance activities would occur consecutively and not overlap. Accordingly, annual maintenance emissions shown for each maintenance activity in Table 3.6-4 would occur during separate years.

The annual maintenance emissions shown in Table 3.6-4 would be a worst-case scenario because GHG emissions would decrease in future years from statewide implementation of cleaner fuels, more efficient technology, and alternative-fuel vehicles (i.e., electrified equipment). As such, annual emissions would decrease with time. This evaluation of GHG emissions is a conservative assessment.

Table 3.6-4. Estimated Annual Maintenance-Related Greenhouse Gas Emissions (metric tons per year)¹

Maintenance Activity	CO₂	CH₄	N₂O	CO₂e
Short-Term (2021 to 2023)	192	< 1	< 1	206
Long-Term (2023 to 2033)	77	< 1	< 1	82
In Perpetuity (2033 and beyond)	25	< 1	< 1	28

Note: Refer to Appendix E for the emission calculations.
¹ Emissions are rounded to the nearest whole number.
CO₂e = carbon dioxide equivalent

Operational Activities

Following completion of construction in 2021, emissions would also be generated by indirect electricity consumption from operation of two well pumps. Emissions from the two electric pumps would occur permanently, similar to in-perpetuity maintenance activities. Based on the conservative emission factors provided by SCE for the most recent year with reported data (2017), permanent emissions associated with operation of the pumps would be 23 MT CO₂e per year. This would be a worst-case scenario because GHG emissions would decrease in future years from statewide implementation of SB 100, which sets a RPS target of 60 percent by 2030 and 100 percent by 2045. In 2017, zero-emission fuel sources made up approximately 46 percent of SCE's power mix (SCE 2018). Accordingly, under SB 100, emissions from indirect electricity used to operate the pumps would be reduced by nearly 25 percent by 2030 and further reduced to zero by 2045.

Total Emissions

Table 3.6-5 presents estimated emissions from short-term, long-term, and in-perpetuity maintenance activities in combination with operational emissions and amortized construction emissions (8 MT CO₂e per year).

Table 3.6-5. Estimated Annual Amortized Construction and Operations- and Maintenance-Related Greenhouse Gas Emissions (metric tons per year)¹

Maintenance Activity with Amortized Construction	CO₂e
Short-Term (2021 to 2023)	235
Long-Term (2023 to 2033)	113
In Perpetuity (2033 and beyond)	59

Note: Refer to Appendix E for the emission calculations.
¹ Emissions are rounded to the nearest whole number.
CO₂e = carbon dioxide equivalent

As shown in Table 3.6-5, combined amortized construction and operational emissions as well as maintenance emissions would be highest during short-term maintenance from 2021 to 2023 (235 MT CO₂e per year). Emissions would be well below SCAQMD's bright-line screening threshold of 3,000 MT CO₂e per year and further decline during long-term and in-perpetuity maintenance. Moreover, the long-term and in-perpetuity emissions are conservative estimates because they are calculated with 2021 emissions factors that do not account for reduced GHG emissions in

subsequent years after 2021 due to future improvements in fuel and engine efficiencies for both on-road and off-road construction equipment as well as indirect electricity consumption.

In addition to not exceeding SCAQMD's threshold, as discussed in Impact GHG-2, construction and maintenance activities would be consistent with, and not impede, implementation of state and local plans and policies adopted for the purpose of reducing GHG emissions. Because the Scoping Plan measures are largely not applicable to the project, the project would not conflict with applicable policies described in the Scoping Plans for AB 32 and SB 32. The project would comply with County of Riverside CAP measure R2-T8, Anti-Idling Enforcement. Other local CAP measures are largely not applicable to the project. In addition, project emissions would be consistent with, and not impede progress toward, Executive Order B-55-18. This impact would be less than significant, and no mitigation is required.

Because project emissions would not exceed SCAQMD's bright-line screening threshold or be inconsistent with state plans, GHG emissions produced by the project would not result in a significant impact. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added within each of the project sites to restore additional areas to native conditions. Potential projects include removal of nonnative plants, revegetation, improvement to a public park, habitat restoration and enhancement, floodplain expansion, and establishment of an oxbow feature. Although specific details about these projects are unknown at this time, the maximum area that would be restored in 1 year is assumed to be similar to the area of the Tributaries Restoration Project and Mitigation Reserve Program Phase I. The individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would also be similar to the Tributaries Restoration Project and Mitigation Reserve Program Phase I in terms of emission sources (e.g., off-road equipment, on-road vehicles, earthmoving, paving), intensity (i.e., amount of equipment), and frequency (i.e., hours per day and days per year of activity). Because the individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would restore a similarly sized area per year at the same emissions intensity as the Tributaries Restoration Project and Mitigation Reserve Program Phase I, GHG impacts of the Expanded Mitigation Reserve Program Phase II would be similar to those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I.

Based on the analysis of the Tributaries Restoration Project and Mitigation Reserve Program Phase I, GHG emissions from the Expanded Mitigation Reserve Program Phase II would neither exceed the SCAQMD-recommended thresholds nor conflict with implementation of state and local plans and policies adopted for the purpose of reducing GHG emissions. Therefore, the impact would be less than significant. No mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

Impact GHG-2: Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of GHGs (Less than significant)**Tributaries Restoration Project and Mitigation Reserve Program Phase I*****Assembly Bill 32 and Senate Bill 32***

AB 32 codifies the State's GHG emissions reduction targets for 2020. CARB adopted the 2008 Scoping Plan and 2014 First Update as a framework for achieving AB 32. The 2008 Scoping Plan and 2014 First Update outline a series of technologically feasible and cost-effective measures to reduce statewide GHG emissions. CARB adopted the 2017 Climate Change Scoping Plan in November 2017 as a framework for achieving the 2030 GHG reduction goal described in SB 32.

Based on CARB's 2017 Scoping Plan, many of the reductions needed to meet the 2030 target will come from state regulations, including cap-and-trade regulations, the requirement for increasing renewable energy sources in California's energy supply, updates to Title 24, and increased emission reduction requirements for mobile sources. The Scoping Plan indicates that some reductions would need to come in the form of changes pertaining to vehicle emissions and mileage standards. Some would come from changes pertaining to sources of electricity and increased energy efficiency at existing facilities. The remainder would need to come from state and local plans, policies, or regulations that will lower carbon emissions relative to BAU conditions. The 2017 Scoping Plan carries forward GHG reduction measures from the 2014 First Update as well as new potential measures to help achieve the State's 2030 target across all sectors of the California economy, including transportation, energy, and industry. Local governments will also continue to play a vital role in reducing GHG emissions at the local level. Currently, 60 percent of cities and more than 70 percent of counties have completed a GHG inventory, and 42 percent of local governments have completed a climate, energy, or sustainability plan that addresses GHG emissions (CARB 2017). The project would not impede implementation of any of these regulations.

The purpose of the project is to restore and create new wildlife habitats, which would not involve any land use development or population growth; therefore, the GHG reduction measures in the 2017 Scoping Plan are largely not applicable to the project. The project would benefit from the Scoping Plan measures, however, because it would involve the use of vehicles and require on- and off-road equipment to complete construction and maintenance activities. Vehicle emissions would be reduced by Pavley I, Pavley II, and the LCFS measures outlined in the 2017 Scoping Plan. On- and off-road construction equipment used for implementation of the project would be affected by the LCFS and the heavy-duty vehicle measures (e.g., goods movement efficiency, aerodynamic efficiency) in the 2017 Scoping Plan. These measures would lead to cleaner vehicles and equipment for construction and maintenance activities and thus lower GHG emissions. EO S-03-05 established the State's long-term goal of reducing GHG emissions to 80 percent below 1990 levels by 2050. EO B-55-18 sets a more ambitious state goal of net-zero GHG emissions by 2045. Executive orders are not binding on local jurisdictions that lack specific strategies or implementation measures to achieve their goals. Nevertheless, the goals of the executive orders are based on a report from the IPCC regarding the global emission reductions needed to stabilize the climate and provide the best available lens for examining a project's long-range impacts on climate change.

Emissions in 2045 would result from in-perpetuity maintenance and operations (i.e., indirect electricity for water pumping). Compared to the emissions estimated in Table 3.6-4, GHG emissions associated with maintenance activities would decrease in future years from statewide

implementation of cleaner fuels, more efficient technology, and alternative-fuel equipment and vehicles. Compared to the pump emissions in 2021 (23 MT CO₂e per year), GHG emissions associated with operational activities would decrease in future years given the increasing RPS targets under SB 100. It is anticipated that there would be zero emissions from indirect electricity for water pumping by 2045. Emissions from maintenance would also decrease with this suite of technology improvements and regulations. Therefore, the project would be consistent with, and not impede progress toward, the goals of EO B-55-18.

Because the Scoping Plan measures are largely not applicable to the project, the project would not conflict with applicable policies described in the Scoping Plans for AB 32 and SB 32. In addition, project emissions from maintenance and operational water pumping would be consistent with, and not impede progress toward, EO B-55-18. This impact would be less than significant, and no mitigation is required.

Regional and Local Plans

As discussed above, the County of Riverside CAP contains many GHG reduction measures that will guide reduction efforts through 2035. These measures in the CAP will reduce emissions by focusing on renewable energy, energy efficiency, water conservation, vehicle fuel efficiency, public transit expansion, travel demand strategies, waste diversion, and land use planning. Similarly, the GHG reduction measures in the City of Riverside's RRG-CAP, a plan for achieving reductions in 2035, continue to emphasize the same general focus areas as in the County of Riverside CAP (energy, water, waste, transportation, land use planning). The project would comply with County of Riverside CAP measure R2-T8, Anti-Idling Enforcement. This policy prohibits the idling of on- and off-road heavy-duty diesel vehicles for more than 5 minutes. Although this policy is aimed mostly at new commercial and industrial projects with loading docks or delivery trucks, it also requires employers who own and operate truck fleets to inform their drivers of the anti-idling policy.

Although the project would result in GHG emissions during 2 years of construction and permanently thereafter because of maintenance and operational activities, none of the project elements would conflict with the reduction measures of the County of Riverside CAP or RRG-CAP. Beyond measure R2-T8, the local CAP measures are largely not applicable to the proposed project. The purpose of the project is to restore and create new wildlife habitats, which would not involve any land use development or population growth. Because GHG reduction measures are typically designed for reducing GHG emissions associated with human elements (e.g., building energy consumption, vehicle travel, landfill waste), the GHG reduction measures are largely not applicable to the project. Therefore, the project would not conflict with implementation of regional plans enacted to reduce GHG emissions.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

Future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added within each of the project sites to restore additional areas to native conditions. Because the individual mitigation and conservation projects of the Expanded Mitigation Reserve Program Phase II would restore a similarly sized area per year at the same emissions intensity as the Tributaries Restoration Project and Mitigation Reserve Program Phase I, GHG impacts of the Expanded Mitigation Reserve Program Phase II would be similar to those of the Tributaries Restoration Project and Mitigation Reserve Program Phase I.

Similar to the Tributaries Restoration Project and Mitigation Reserve Program Phase I, the Expanded Mitigation Reserve Program Phase II would comply with County of Riverside CAP measure R2-T8, Anti-Idling Enforcement, and not conflict with local governments' climate, energy, or sustainability plans. The individual mitigation and conservation projects would not involve any land use development or population growth. As such, the GHG reduction measures in the 2017 Scoping Plan are largely not applicable to the project, and the project would not conflict with applicable policies described in the Scoping Plans for AB 32 and SB 32. The individual mitigation and conservation projects would be affected by the Scoping Plan measures, however, because future restoration opportunities may involve the use of on- and off-road construction equipment. Construction equipment that may be used for implementation of the project would be affected by the LCFS and the heavy-duty vehicle measures in the 2017 Scoping Plan. These measures would lead to cleaner vehicles and equipment for operational and maintenance activities and thus lower GHG emissions.

GHG emissions associated with energy sources would decrease in future years given the increasing RPS targets under SB 100. It is anticipated that there would be zero emissions from indirect electricity by 2045. On- and off-road vehicle emissions from would also decrease with the suite of technology improvements and statewide regulations. Therefore, the Expanded Mitigation Reserve Program Phase II would be consistent with, and not impede progress toward, the goals of EO B-55-18. This impact would be less than significant, and no mitigation is required.

Significance Determination: Less than significant. No mitigation necessary.

3.7 Hazards and Hazardous Materials

This section describes the potential hazards and hazardous materials impacts of the proposed project. It includes a discussion of existing regulatory requirements, the existing hazards and hazardous materials setting within the project area, and hazards and hazardous materials impacts that would result from implementation of the proposed project. The analysis is based on review of available hazards and hazardous materials reports, websites, and maps of the project area, including reports and information posted on the State Water Resources Control Board (SWRCB) GeoTracker database and the Department of Toxic Substances Control (DTSC) EnviroStor database, and relevant regulations. For further discussion impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Definition of Hazardous Materials: A “hazardous material” is defined as any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment (State of California Health and Safety Code Chapter 6.95, Section 25501(p)). The term “hazardous materials” refers to both hazardous substances and hazardous wastes. Under federal and state laws, any material, including wastes, may be considered hazardous if it is specifically listed by statute as such or if it is toxic (causes adverse human health effects), ignitable (has the ability to burn), corrosive (causes severe burns or damage to materials), or reactive (causes explosions or generates toxic gases) (22 California Code of Regulations [CCR] 66261.21 to 66261.24).

If improperly handled, hazardous materials can cause health hazards when released to the soil, groundwater, or air. Individuals are typically exposed to hazardous materials through inhalation or bodily contact. Exposure can come as a result of an accidental release during transport, storage, or handling of hazardous materials. Disturbance of subsurface soil during construction can also lead to exposure of workers or the public from stockpiling, handling, or transport of soils contaminated by hazardous materials from previous spills or leaks.

3.7.1 Regulatory Setting

Hazards and hazardous materials are subject to numerous federal, state, and local laws and regulations intended to protect health, safety, and the environment. The U.S. Environmental Protection Agency (EPA), DTSC, Regional Water Quality Control Board (RWQCB), County of San Bernardino, and County of Riverside are the primary agencies enforcing these regulations. Local regulatory agencies enforce many federal and state regulations through the Certified Unified Program Agency (CUPA) program. The Riverside County Fire Department (RCFD)/Riverside Department of Environmental Health Hazardous Materials (HazMat) Branch and San Bernardino County Fire Department are the lead agencies for the investigation and cleanup of leaking underground storage tank sites. RWQCB is the lead agency for other groundwater cases. DTSC can be the lead agency for cases with no groundwater issues and is the lead agency for investigation and remediation of hazardous sites.

Federal

Federal agencies with responsibility for hazardous materials management include EPA, Department of Labor (federal Occupational Health and Safety Administration [OSHA]), and U.S. Department of Transportation (US DOT). Major federal laws and issue areas include the following statutes and regulations.

Resources Conservation and Recovery Act (42 USC) 6901 et seq.)

The Resources Conservation and Recovery Act (RCRA) is the principal law governing the management and disposal of hazardous materials. The RCRA is considered a “cradle to grave” statute for hazardous wastes in that it addresses all aspects of hazardous materials from creation to disposal. The RCRA applies to this project because the RCRA is used to define hazardous materials, and offsite disposal facilities and the wastes each may accept are regulated under the RCRA.

Emergency Planning and Community Right-to-Know Act (SARA Title III)

The Emergency Planning and Community Right-to-Know Act (EPCRA) improved community access to information regarding chemical hazards and facilitated the development of business chemical inventories and emergency response plans. The EPCRA also established reporting obligations for facilities that store or manage specified chemicals. The EPCRA applies to this project because contractors who use hazardous materials (e.g., fuels, paints and thinners, solvents) would be required to prepare and implement written emergency response plans to properly manage hazardous materials and respond to accidental spills.

US DOT Hazardous Materials Transportation Act of 1975 (49 USC 5101)

US DOT, in conjunction with EPA, is responsible for enforcement and implementation of federal laws and regulations pertaining to safe storage and transport of hazardous materials. The Code of Federal Regulations (CFR) 49, 171–180, regulates the transport of hazardous materials, types of material defined as hazardous, and the marking of vehicles transporting hazardous materials. This act applies to this project because contractors would be required to comply with its storage and transportation requirements, which would reduce the possibility of spills.

The Federal Motor Carrier Safety Administration (49 CFR Part 383–397)

The Federal Motor Carrier Safety Administration, a part of US DOT, issues regulations concerning highway transport of hazardous materials, the hazardous materials endorsement for a commercial driver’s license, highway hazardous material safety permits, and financial responsibility requirements for motor carriers of hazardous materials. This act applies to this project because contractors would be required to comply with its storage and transportation requirements, which would reduce the possibility of spills.

Occupational Safety and Health Administration (29 USC 15)

OSHA is the federal agency responsible for ensuring worker safety. Its regulations provide standards for safe workplaces and work practices, including those relating to hazardous materials handling. OSHA applies to this project because contractors would be required to comply with its hazardous materials management and handling requirements, which would reduce the possibility of spills.

Federal Insecticide, Fungicide, and Rodenticide Act, 7 USC Section 136 et seq. (1996)

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) provides for federal regulation of pesticide distribution, sale, and use (“pesticides” includes any herbicide, insecticide, rodenticide, algacide, fungicide, or any combination of substances intended to prevent, destroy, or repel any pest). All pesticides distributed or sold in the United States must be registered (licensed) by EPA. Before EPA may register a pesticide under the FIFRA, the applicant must show, among other things, that using the pesticide according to specifications “will not generally cause unreasonable adverse effects on the environment.” The FIFRA defines the term “unreasonable adverse effects on the environment” to mean: (1) any unreasonable risk to man or the environment, taking into account the economic, social, and environmental costs and benefits of the use of any pesticide, or (2) a human dietary risk from residues that result from a use of a pesticide in or on any food inconsistent with the standard under section 408 of the Federal Food, Drug, and Cosmetic Act. Training is required for workers in pesticide-treated areas and certification and training is required for applicators of restricted use pesticides.

State

The primary state agencies with jurisdiction over hazardous chemical materials management are DTSC and the Santa Ana RWQCB. Other state agencies involved in hazardous materials management are the Department of Industrial Relations (State OSHA implementation), State Office of Emergency Services (OES) (California Accidental Release Prevention implementation), California Air Resources Board, California Department of Transportation, State Office of Environmental Health Hazard Assessment (Proposition 65 implementation), and California Integrated Waste Management Board. Hazardous materials management laws in California include the following statutes and regulations.

Hazardous Waste Control Act (California Health and Safety Code, Section 25100 et seq.)

The Hazardous Waste Control Act is the state equivalent of the RCRA and regulates the generation, treatment, storage, and disposal of hazardous waste. This act implements the RCRA “cradle-to-grave” waste management system in California but is more stringent in its regulation of non-RCRA wastes, spent lubricating oil, small-quantity generators, and transportation and permitting requirements, as well as in its penalties for violations.

California Accidental Release Prevention Program

The purpose of the California Accidental Release Prevention Program is to prevent accidental releases of substances that can cause serious harm to the public and the environment, to minimize the damage if releases do occur, and to satisfy community right-to-know laws. This is accomplished by requiring businesses that handle more than a threshold quantity of a regulated substance listed in the regulations to develop a Risk Management Plan. A Risk Management Plan is a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential. The Risk Management Plan contains safety information, hazards review, operating procedures, training requirements, maintenance requirements, compliance audits, and incident investigation procedures (California OES 2016).

California Hazardous Materials Release Response Plans and Inventory Law of 1985

The California Hazardous Materials Release Response Plans and Inventory Law of 1985 requires preparation of hazardous materials business plans (HMBPs) and disclosure of hazardous materials inventories, including an inventory of hazardous materials handled, plans showing where hazardous materials are stored, an emergency response plan, and provisions for employee training in safety and emergency response procedures (California Health and Safety Code, Division 20, Chapter 6.95, Article 1). Statewide, DTSC has primary regulatory responsibility for management of hazardous materials, with delegation of authority to local jurisdictions that enter into agreements with the state. Local agencies are responsible for administering these regulations.

Several state agencies regulate the transport and use of hazardous materials to minimize potential risks to public health and safety, including the California Environmental Protection Agency and California Emergency Management Agency. The California Highway Patrol and California Department of Transportation enforce regulations specifically related to the transport of hazardous materials. Together, these agencies determine container types used and license hazardous waste haulers for hazardous waste transport on public roadways.

The act applies to this project because contractors would be required to comply with its handling, storage, and transportation requirements, which would reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

Health and Safety Code, Section 2550 et seq.

This code and the related regulations in 19 CCR 2620, et seq. require local governments to regulate local business storage of hazardous materials in excess of certain quantities. The law also requires that entities storing hazardous materials be prepared to respond to releases. Those using and storing hazardous materials are required to submit an HMBP to their local CUPA and to report releases to their CUPA and the State OES. This code would apply to the project because the contractors would be required to prepare an HMBP to provide procedures for the safe handling, storage, and transport of hazardous materials.

California Division of Occupational Safety and Health

The California Division of Occupational Safety and Health (Cal/OSHA) is responsible for developing and enforcing workplace safety standards and ensuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA requires many entities to prepare injury and illness prevention plans and chemical hygiene plans, and provides specific regulations to limit exposure of construction workers to lead. Cal/OSHA applies to this project because contractors would be required to comply with its handling and use requirements, which would increase worker safety and reduce the possibility of spills, and to prepare an emergency response plan to respond to accidental spills.

Government Code Section 65962.5, Cortese List

The provisions in Government Code Section 65962.5 are commonly referred to as the “Cortese List” (after the legislator who authored and enacted the legislation). The list, or a site’s presence on the list, has bearing on the local permitting process, as well on compliance with the California Environmental Quality Act (CEQA). The list is developed with input from the State Department of Health Services, SWRCB, California Integrated Waste Management Board, and DTSC. At a minimum,

at least annually, the DTSC Control shall submit to the Secretary for Environmental Protection a list of the following:

1. All hazardous waste facilities subject to corrective action pursuant to Section 25187.5 of the Health and Safety Code.
2. All land designated as hazardous waste property or border zone property pursuant to Article 11 (commencing with Section 25220) of Chapter 6.5 of Division 20 of the Health and Safety Code.
3. All information received by DTSC pursuant to Section 25242 of the Health and Safety Code on hazardous waste disposals on public land.
4. All sites listed pursuant to Section 25356 of the Health and Safety Code.
5. All sites included in the Abandoned Site Assessment Program.
6. All underground storage tanks for which an unauthorized release report is filed pursuant to Section 25295 of the Health and Safety Code.
7. All solid waste disposal facilities from which there is a migration of hazardous waste and for which a California RWQCB has notified DTSC pursuant to subdivision (e) of Section 13273 of the Water Code.
8. All cease and desist orders issued after January 1, 1986, pursuant to Section 13301 of the Water Code, and all cleanup or abatement orders issued after January 1, 1986, pursuant to Section 13304 of the Water Code, that concern the discharge of wastes that are hazardous materials.
9. All solid waste disposal facilities from which there is a known migration of hazardous waste.

The Secretary for Environmental Protection shall consolidate the information submitted pursuant to this section and distribute it in a timely fashion to each city and county in which sites on the lists are located. The Secretary shall distribute the information to any other person upon request. The Secretary may charge a reasonable fee to persons requesting the information, other than cities, counties, or cities and counties, to cover the cost of developing, maintaining, and reproducing and distributing the information.

Utility Notification Requirements Title 8

Section 1541 of the CCR requires excavators to determine the approximate locations of subsurface utility installations (i.e., sewer, telephone, fuel, electric, water lines, or any other subsurface installations that may reasonably be encountered during excavation work) prior to opening an excavation. The California Government Code (Section 4216 et seq.) requires owners and operators of underground utilities to become members of and participate in a regional notification center. According to Section 4216.1, operators of subsurface installations who are members or participate and share in the costs of a regional notification center are in compliance with this section of the code. Underground Services Alert of Southern California (known as DigAlert) receives planned excavation reports from public and private excavators and transmits those reports to all participating members of DigAlert that may have underground facilities at the location of excavation. Members will mark or stake their facilities, provide information, or give clearance to dig. This requirement would apply to this project because any excavation would be required to identify underground utilities before excavation.

California Department of Pesticide Regulation, 3 CCR Food and Agriculture, Division 6, Pesticides and Pest Control Operations

This section of the CCR addresses the use of pesticides and pest control operations. These regulations provide pesticide registration and licensing procedures, lists of restricted materials, work and worker safety requirements, and environmental protections for groundwater, surface water, air, and aquatic environments. The applicant and its contractors would be required to comply with California Department of Pesticide Regulation regulations.

Regional and Local

County of Riverside

Certified Unified Program Agency: In 1993, Senate Bill (SB) 1082 was passed by the State Legislature to streamline the permitting process for those businesses that use, store, or manufacture hazardous materials. The passage of SB 1082 provided for the designation of a CUPA that would be responsible for the permitting process and collection of fees. The CUPA would be responsible for implementing at the local level the Unified Program, which serves to consolidate, coordinate, and make consistent the administrative requirements, permits, inspections, and enforcement activities for the following environmental and emergency management programs: Hazardous Waste; HMBP; California Accidental Release Prevention Program; Underground Hazardous Materials Storage Tanks; Aboveground Petroleum Storage Tanks/Spill Prevention Control & Countermeasure Plans; and Hazardous Waste Generator and On-Site Hazardous Waste Treatment (tiered permitting).

The HazMat Branch of the County of Riverside Department of Environmental Health and the Hazardous Materials Division of the San Bernardino County Fire Department are designated as the CUPAs responsible for implementing the above-listed program elements within their respective counties. The laws and regulations that established these programs require that businesses that use or store certain quantities of hazardous materials and submit an HMBP that describes the hazardous materials usage, storage, and disposal to the CUPA. The contractors constructing the project and the responsible agency acting as the operator of the facility would be required to prepare and implement an HMBP.

Riverside County Emergency Operations Plan: The RCFD OES governs the Emergency Management program, which is focused around the four primary phases of emergency management: Mitigation, Preparedness, Response, and Recovery. As part of the response phase, OES prepares the Riverside County Operational Area Emergency Operations Plan (EOP). The EOP is designed to establish the framework for implementation of the California Standardized Emergency Management System for Riverside County and the National Incident Management System. The EOP addresses the planned response to extraordinary emergency situations in or affecting Riverside County and describes how the Riverside County Emergency Operations Center facilitates multi-agency and multi-jurisdictional coordination during emergencies (RCFD OES 2006).

Riverside County Fire Department: Residents of Riverside County, including all of the unincorporated areas and 21 partner cities such as Wildomar, receive fire and emergency response services from RCFD. In addition to its role of providing fire protection and emergency services, RCFD helps implement hazardous materials programs within Riverside County.

Hazardous Materials Branch of Riverside County Department of Environmental Health: As the designated CUPA, the Riverside County Department of Environmental Health HazMat Branch is

responsible for overseeing the six hazardous materials programs in the county. Responsibilities include inspection of facilities that handle hazardous materials, generate hazardous waste, treat hazardous waste, own/operate underground storage tanks, own/operate aboveground petroleum storage tanks, or handle other materials subject to the California Accidental Release Program. In addition, the HazMat Branch maintains an emergency response team that responds to hazardous materials and other environmental health emergencies 24 hours a day, 7 days a week (Riverside County DEH 2016).

Hazardous Materials Fire Code Requirements: As the CUPA, the San Bernardino County Fire Department and HazMat Branch for Riverside County enforces the hazardous materials–related standards of the California Fire Code, including requirements for signage of hazardous materials storage areas, storage of flammable materials, secondary containment for storage containers, and separation of incompatible chemicals.

Riverside County Hazardous Waste Management Plan: The Riverside County Hazardous Waste Management Plan was adopted in 1989, and uses a framework of 24 programs to serve as the county’s primary planning document for the management of hazardous substances. Its policies include: compliance with federal and state laws pertaining to the management of hazardous wastes and materials; active public participation in hazardous waste and hazardous materials management decisions in Riverside County; coordination of hazardous waste facility responsibilities on a regional basis through the Southern California Hazardous Waste Management Authority; and encouragement and promotion of the programs, practices, and recommendations contained in the County Hazardous Waste Management Plan, giving the highest waste management priority to the reduction of hazardous waste at its source.

Riverside County Department of Waste Resources: The Riverside County Department of Waste Resources (RCDWR) was previously named the Waste Disposal Division of the County Road Department and the Riverside County Waste Management Department until it was renamed RCDWR in 2015. RCDWR has three divisions that manage and operate open and closed landfills: Administration, Engineering/Operations, and Environmental. RCDWR is responsible for 39 landfills, 32 of which are closed, including the first Riverside County landfill, the nearby Pedley Landfill, which opened in 1932. RCDWR provides an opportunity for Riverside County residents to keep hazardous waste out of Riverside County landfills and ensure it is properly managed.

County of Riverside General Plan

The County of Riverside General Plan discusses hazardous waste and materials within the Safety Element (County of Riverside 2016), which includes policies directed at identifying and reducing hazards in existing development and facilitates the identification and mitigation of hazards for new development. The following policy is intended to ensure that land use and siting decisions take hazardous waste management and risk reduction into account:

Policy S 6.1: Enforce the land use policies and siting criteria related to hazardous materials and wastes through continued implementation of the programs identified in the County of Riverside Hazardous Waste Management Plan including the following: (AI 98)

- a. Ensure county businesses comply with federal, state and local laws pertaining to the management of hazardous wastes and materials including all Certified Unified Program Agency (CUPA) programs.
- b. Ensure active public participation in hazardous waste and hazardous materials management decisions in Riverside County through the County’s land use and planning processes.

c. Encourage and promote the programs, practices, and recommendations contained in the Riverside County Hazardous Waste Management Plan, giving the highest waste management priority to the reduction of hazardous waste at its source.

Emergency response and evacuation within the County of Riverside are described within the Safety Element (2016):

The Riverside County Emergency Services establishes the responsibilities of the various Riverside County agencies in times of a disaster. Disaster preparedness and response planning include identifying short-term actions to reduce the scope of an emergency, and managing necessary resources in the event of a disaster. After any disaster, particularly an earthquake, short-term disaster recovery requires many operations that are less urgent than fire suppression or medical attention, but are equally important. The intent of these policies is to build Riverside County into a sustainable, disaster-resistant community by accommodating natural hazards through planning, zoning, and mitigation, while preparing to respond to disasters until this goal is achieved.

To meet the goals as described above, the County of Riverside has included several policies within the Safety Element (2016):

S 7.1: Continually strengthen the Riverside County Office of Emergency Services' Response Plan and Multi-Jurisdictional Local Hazard Mitigation Plan and maintain mutual aid agreements with federal, state, local agencies and the private sector to assist in:

- a) Clearance of debris in the event of widespread slope failures, collapsed buildings or structures, or other circumstances that could result in blocking emergency access or regress.
- b) Heavy search and rescue.
- c) Fire suppression.
- d) Hazardous materials response.
- e) Temporary shelter.
- f) Geologic and engineering needs.
- g) Traffic and crowd control.
- h) Building inspection.

S 7.3: Require commercial businesses, utilities, and industrial facilities that handle hazardous materials to: install automatic fire and hazardous materials detection, reporting and shut-off devices; and install an alternative communication system in the event power is out or telephone service is saturated following an earthquake.

S 7.6: Improve management and emergency dissemination of information using portable computers with geographic information systems and disaster-resistant Internet access, to obtain: (AI 86)

- Hazardous Materials Disclosure Program Business Plans regarding the location and type of hazardous materials;
- Real-time information on seismic, geologic, or flood hazards; and
- The locations of high-occupancy, immobile populations, potentially hazardous building structures, utilities and other lifelines.

S 7.13: Develop a system to respond to short-term increases in hazard on the southern San Andreas fault, based on probabilities associated with foreshocks. (AI 85)

S 7.14: Regularly review and clarify emergency evacuation plans for dam failure, inundation, fire and hazardous materials releases. (AI 88)

S 7.17: Adopt inundation alert and readiness levels corresponding with official forecasts by the State Office of Emergency Services, regarding earthquake prediction and potential for dam failure.

County of Riverside General Plan Jurupa Area Plan

The project area is within the Jurupa Area Plan, part of the County of Riverside General Plan (2015). According to the Jurupa Area Plan, the project area is subject to risk of fire hazards due to the

riparian vegetation of the Santa Ana River that poses conditions conducive to wildfires. The highest danger of wildfires can be found in the most rugged terrain where, fortunately, development intensity is relatively low. The County of Riverside currently operates a management plan to eradicate the invasive *Arundo donax* species within the Santa Ana River corridor. Safety-oriented organizations such as the Fire Safe Council can provide assistance in educating the public and promoting practices that contribute to improved public safety. According to the Jurupa Area Plan, part of the proposed project is within the Very High/High/Moderate Fire Hazard Severity Zone. There are two policies within the Jurupa Area Plan related to fire hazards:

JURAP 18.1 Continue abatement and mitigation programs for the removal of *Arundo Donax* within the Santa Ana River corridor.

JURAP 18.2 Protect life and property from wildfire hazards through adherence to the Fire Hazards section of the General Plan Safety Element.

County of Riverside County Code

The County of Riverside County Code indicates:

Ordinance No. 615, Hazardous Waste: Storing, Treating, Recycling, Section 4. Permit and Permit Application Requirement for Businesses where Hazardous Waste is Generated, Stored, Handled, Disposed, Treated or Recycled

No person shall operate a business where hazardous waste is generated without a valid permit issued by the CUPA. Application for a permit shall be made to the CUPA upon the written and/or electronic reporting forms provided as described in Section 4(c) of this Ordinance, and shall be accompanied by the appropriate fee as specified in Ordinance No. 640 and Section 6 of this Ordinance. A permit may be issued at any time during the year. All permits and application for permits shall expire annually on the one-year anniversary of the date of program qualification and a new permit must be applied for at least 30 days prior to the expiration of the current, valid permit. For non-permitted businesses, permit fees and completed reporting forms are due at the time hazardous waste is first produced at the business. Permit fees for previously unpermitted businesses, which have not been issued permit notices by the Department of Environmental Health, may only be collected for the period after the effective date of this Ordinance.

Ordinance No. 617, Hazardous Substances (Underground Storage Tanks), Section 5. Permit Requirement

No person shall operate, construct, install, modify, repair, or temporarily or permanently close an underground tank system unless an appropriate permit has been issued by the Department of Environmental Health.

Ordinance 651, Disclosure of Hazardous Materials & Formulation of Emergency Response Plans, Section 3. Requirements for Handling Hazardous Materials

- a) Manner of Handling: No person or business shall cause or allow the handling of hazardous materials:
 - 1. In a manner that violates any provision of this Ordinance or,
 - 2. In a manner that causes an unauthorized release of hazardous materials or,
 - 3. In a manner that poses a significant risk of unauthorized release of hazardous materials.
- b) Correction of Unsafe Conditions: Whenever the owner or an employee of a business discovers or becomes aware of any condition that is likely to cause injury to the public, employees of the business, or damage to either property or the environment, the owner or operator of the business shall immediately correct that condition. If the condition is a hazard likely to cause serious injury or death to the public, employees, or is a hazard likely to cause substantial damage to property or the environment, the business owner or operator shall, until the unsafe condition has been corrected, immediately cease the operation of the unsafe portion of the business.

- c) **Storage:** The owner or operator of a business where hazardous materials are stored shall accomplish all of the following:
 - 1. **Physical Separation of Materials.** The separation or protection of a hazardous material from any other material or factor that may cause or contribute to a fire, explosion, production of a flammable, toxic, or poisonous gas, or the deterioration of any primary or secondary containment is required.
 - 2. **Physical Separation from Buildings.** Hazardous material storage areas shall be separated by distance or physical barriers from residences and other buildings when the quantities of materials or their hazardous characteristics constitute a fire or health hazard.
 - 3. **Restricted Access.** Hazardous materials handling areas shall be secured against unauthorized entry.
- d) **Warning Signs:** Hazard identification signs specified and in conformity with the National Fire Protection Association (NFPA) Standard 704 shall be placed in locations where hazardous materials are stored or handled in quantities requiring a permit and at entrances to the business. Aboveground storage tanks containing a hazardous material shall be posted with the appropriate NFPA 704 sign on a visible side or sides, and be readable.
- e) **Posting and Labeling:** The following shall be posted with the appropriate signage: entrances and exits; hazardous materials storage areas; emergency equipment; and pesticide storage areas. Emergency contact information shall be posted in a conspicuous location. Containers holding hazardous materials shall be labeled as to the contents. Other information may be required on the label by the DEH as stipulated in the current Business Emergency Plan instructions.
- f) **Failure to Comply:** Failure or refusal of the owner or operator of any business to comply with the requirements for handling hazardous material, in this section, shall constitute a violation of this Ordinance.

City of Riverside

City of Riverside General Plan

The City of Riverside General Plan 2025 (2007) indicates that “large users and transporters of hazardous materials are monitored and regulated by the Federal Environmental Protection Agency...and other Federal, State and County regulatory agencies, such as the State Department of Toxic Substance Control and the Riverside Fire Department.” General Plan 2025 includes the following relevant hazards and hazardous materials objectives/policies:

Objective PS-3: Minimize risks associated with the storage, transport and disposal of hazardous materials.

This objective includes the following policies:

Policy PS 3-1: Ensure that hazardous materials used in business and industry are handled properly.

Policy PS 3-3: Work with responsible Federal, State, and County agencies to identify and regulate the disposal of toxic materials.

Emergency response and evacuation within the City of Riverside is described within the General Plan 2025 (2007):

The Emergency Management Office within the Riverside Fire Department coordinates emergency response, disaster preparedness and disaster recovery by activating the California Standardized Emergency Management System (SEMS) and the National Incident Management System (NIMS). The Office prepares an Emergency Operations Plan, essential to the coordination of efforts in response to a major disaster, whatever its origin. Critical components of the plan include the establishment of

multiple evacuation routes and the ability to provide emergency services in the swiftest manner possible.

To meet the goals as described above, the City of Riverside has included several policies within General Plan 2025 (2007):

Policy PS 9.1: Maintain an effective, coordinated and up-to-date community-wide emergency response plan.

Policy PS 9.8: Reduce the risk to the community from hazards related to geologic conditions, seismic activity, flooding and structural and wildland fires by requiring feasible mitigation of such impacts on discretionary development projects.

Policy PS 10.3: Ensure that public safety infrastructure and staff resources keep pace with new development planned or proposed in Riverside and the Sphere of Influence.

City of Riverside Municipal Code

The City of Riverside Municipal Code indicates:

...the Fire Department shall be responsible for implementing and enforcing four of the six Unified Programs set forth in Chapter 9.48 of the Riverside Municipal Code. The elements of the Unified Programs consist of:

- a) Hazardous Materials Release Response Plans and Inventories (Business Emergency Plans),
- b) California Accidental Release Prevention (CalARP) Program...

According to Chapter 9.48 of the City of Riverside Municipal Code, a hazardous material is:

...a material, because of its quantity, concentration, or physical or chemical characteristics, [that] poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or the environment, or a material specified in an ordinance adopted pursuant to paragraph (f). Hazardous materials include any product or waste that has been abandoned, discarded, or recycled on the property and as a result represents a continuing hazard. A hazardous material also includes any contaminated soil or groundwater.

Hazardous materials include all of the following:

- a) A substance or product for which the manufacturer or producer is required to prepare a material safety data sheet (MSDS or SDS) pursuant to the Hazardous Substances Information and Training Act (Chapter 2.5 [commencing with Section 6360] of Part 1 of Division 5 of the Labor Code) or pursuant to any applicable federal law or regulation.
- b) A substance listed as a radioactive material in Appendix B of Part 30 (commencing with Section 30.1) of Title 10 of the Code of Federal Regulations, as maintained and updated by the Nuclear Regulatory Commission.
- c) A substance listed pursuant to Title 49 of the Code of Federal Regulations.
- d) A substance listed in Section 339 of Title 8 of the California Code of Regulations.
- e) A material listed as a hazardous waste, as defined by Sections 25115, 25117, and 25316.
- f) The governing body of a unified program agency may adopt an ordinance that provides that, within the jurisdiction of the unified program agency, a material not listed by definition as a hazardous materials is a hazardous material for purposes of this article if a handler has a reasonable basis for believing that the material would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment, and requests the governing body of the unified program agency to adopt that ordinance, or if the governing body of the unified program agency has a reasonable basis for believing that the material would be injurious to the health and safety of persons or harmful to the environment if released into the workplace or the environment. The handler or the unified program agency shall notify the secretary no later than 30 days after the date an ordinance is adopted pursuant to this paragraph.

The Lower Hole Creek project site is designated according to the City of Riverside Municipal Code as a Public Facility Zone, Business Manufacturing Park Zone, and Residential Estate Zone. The designation of Business Manufacturing Park prohibits several activities within this zone related to hazardous materials as found in Municipal Code 19.130.025. However, these prohibited uses would not be undertaken with this project and are thus not applicable. Furthermore, in addition to these prohibited uses, the City also prohibits “other uses that, by written decision of the Community & Economic Development Director or his/her designee, are determined to be detrimental to the public welfare by reason of the emission of odor, dust, smoke, gas, noise, vibration or other causes (City of Riverside Ord. 7331 §7, 2016; Ord. 6966 §1, 2007).”

The Anza Creek, Old Ranch Creek, and Hidden Valley Creek project sites are designated as Public Facility zones. The City of Riverside Municipal Code Chapter 9.48 requires the disclosure of hazardous materials on Public Facility zoned sites.

City of Jurupa Valley

City of Jurupa Valley General Plan

The 2017 Draft General Plan for the city of Jurupa Valley includes several references and policies addressing hazardous materials:

CSSF 1.8-2: Development using, storing, or otherwise involved with substantial quantities of on-site hazardous materials shall not be permitted unless all standards for evaluation, anchoring, and floodproofing have been satisfied; and hazardous materials are stored in watertight containers, not capable of floating, to the extent required by state and federal laws and regulations.

CSSF 1.17: Hazardous Materials Storage. Require that facilities storing substantial quantities of hazardous materials within designated 100- or 500-year flood zones be adequately flood-proofed and that hazardous materials containers be anchored and secured to prevent flotation and contamination.

CSSF 1.31: Federal/State Laws. Comply with federal and state laws regarding the management of hazardous waste and materials.

CSSF 1.32: Hazardous Waste Storage/Disposal. Identify, assess, and mitigate safety hazards from the storage, use, and disposal of hazardous materials through the development review process.

City of Jurupa Valley Municipal Code

The Hidden Valley Creek project site is zoned as Watercourse 1 (W-1) according to the City of Jurupa Valley Municipal Code. This zoning does not permit the storage or production of hazardous materials. However, if hazardous materials are identified on site, the City of Jurupa Valley Municipal Code Section 104.1.1-2 indicates that “under the Fire Chief’s direction, the Riverside County Fire Department is authorized to enforce ordinances of the City of Jurupa Valley pertaining to the...storage, use and handling of hazardous materials.”

3.7.2 Environmental Setting

The potential for contamination in soil and groundwater within the project area is based on an environmental database review conducted to identify environmental cases, permitted hazardous materials uses, and spill sites within the boundaries of the cities within which project components would be constructed. *Environmental cases* are those sites that are suspected of releasing hazardous substances or have had cause for hazardous substances investigations and are identified on

regulatory agency lists, while *permitted hazardous materials uses* are facilities that use hazardous materials or handle hazardous wastes that operate under appropriate permits and comply with current hazardous materials and hazardous waste regulations. *Spill sites* are locations where a spill has been reported to the state or federal regulatory agencies. Such spills do not always involve a release of hazardous materials.

Historic Property Uses

The *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects Report* (2015) (included in Appendix A) provides a historical imagery analysis to document previous site conditions and understand the scale of human impacts. Refer to Appendix A for figures of the historical aerial imagery.

Old Ranch Creek

The historical image illustrates how the proposed channel at the project site would be located on land that was the active channel and floodplain of the Santa Ana River in 1931. The Tequesquite Landfill did not exist in 1931 (it is visible in the 1948 aerial) and it is located directly where the Santa Ana River used to flow. Prior to confinement by levees, the landfill, and other constraints, the condition of the site was highly dynamic in 1931 due to the shifting position of the Santa Ana River. The Old Ranch Creek drainage used to connect with the Santa Ana River based on observation of an aerial image from 1948. However, observation of a 1980 aerial shows a flood likely occurred between 1966 and 1980 that caused the Santa Ana River to shift to the south and erode the downstream half of Old Ranch Creek that connected with the river. The presence of the landfill on the upstream boundary of the site likely constrains the ability of the Santa Ana River to migrate south into the area it formerly occupied.

Anza Creek

The historical image illustrates how the present-day location of Anza Creek was the active channel and floodplain of the Santa Ana River in 1931. Water from the historic Anza Creek flowed directly into the Santa Ana River on the north side of the present-day bicycle trail. The upper 2,000 feet of the 2014 Anza Creek was the active channel of the Santa Ana River in 1931. The confluence of the present-day Anza Creek with the Santa Ana River is a dynamic area, as the exact location of the confluence changes depending on shifts in the position of the Santa Ana River in response to flood events. Observation of Google Earth historical imagery shows that as recently as 2006 the Santa Ana River at the confluence with the 2014 Anza Creek was 500 feet farther south.

Lower Hole Creek

The Pedley Landfill that is currently located on a 13.5-acre parcel along the lowermost 1,200 feet of Hole Creek's east bank and extending over to Van Buren Boulevard did not exist in 1931. The land currently occupied by Pedley Landfill was Santa Ana River and Hole Creek floodplain in 1931. The County of Riverside began a burn operation at the site based on a verbal lease of the land from the City of Riverside in 1932. Cut and fill operations at the site began in August 1957 and ended in August 1958 due to insufficient onsite soil cover. It is also evident from the 1931 aerial that the riparian corridor of Lower Hole Creek downstream of Jurupa Avenue was wider than it presently is. Not only has most of the historical floodplain been eliminated by Pedley Landfill, but the alignment of Van Buren Boulevard now travels farther south and closer to the creek than it did in 1931. In

2010, a large flood in the Santa Ana River altered the channel morphology near the confluence with Lower Hole Creek, in addition to increased storm intensity, urban run-off, and the shifting of the Santa Ana River, and caused substantial erosion and damage into the Pedley Landfill. As a result of the risk for continued erosion into the landfill, a project was initiated by the RCDWR to excavate approximately 1.3 acres of the landfill and install interlocking concrete mat on the river's south bank. The RCDWR is currently planning and permitting additional reinforcement and site improvements to protect public health by removing exposed landfilled material and armoring the landfill slope with articulated concrete blocks (ACB). While the northern slopes of the landfill adjacent to the Santa Ana River have been protected with articulated concrete blocks ~~ABC~~, the majority of the Lower Hole Creek (previously called De Anza Channel) has not been protected.

Hidden Valley Creek

The land where the proposed channel would be constructed was farmland in 1931 and the wetlands presently at the downstream end of the site did not exist. The Santa Ana River occupied a position farther to the northwest than it presently does. The subdivisions constructed on top of the hillslope plateau did not exist in 1931 and neither did the canal that delivered water to the wetlands. The alignment and shape of the Santa Ana River changes regularly at the Hidden Valley Creek site in response to flood events, as scour and fill processes lead to the creation of new channels with sand and gravel bars and the filling of previous channels. The Santa Ana River has not occupied the far southern portion of the Hidden Valley Creek site where the proposed channel would be constructed in all photos dating back to 1931.

Hazardous Materials Sites

According to SWRCB's GeoTracker, there are no known active hazardous materials sites that are within or up-gradient of the project sites. There is one closed site directly adjacent to project site.

Tequesquite Landfill

The Old Ranch Creek site is to the west of the Tequesquite Landfill. According to SWRCB GeoTracker, Tequesquite Landfill is a closed Class III solid waste disposal facility owned by the City of Riverside and located inside a 120-acre parcel in a small northeast-southwest trending valley known as Tequesquite Arroyo. Tequesquite Arroyo merges with the Santa Ana River southwest of Mount Rubidoux. Groundwater is currently monitored using a network of 16 wells that are located up-gradient, down-gradient, and cross-gradient of the landfill, and surface water is monitored at seven locations including four Santa Ana River monitoring points and three surface-water seep locations. Previous studies of Tequesquite Landfill reported that the site was operated as a burn dump from 1910 to 1947, although much of the property was inundated and washed away by severe flooding in March 1938. Burn dump activities were discontinued in favor of trench-and-bury waste disposal practices in 1948, at which time the northern border of the landfill was fortified with concrete demolition debris. Initial waste burial took place east of the landfill, southwest of well M4A, and was later expanded to the north and west.

The results of historical monitoring at wells down-gradient of Tequesquite Landfill indicate that tetrachloroethene (PCE), trichloroethene (TCE), and nitrate (as nitrogen) are regularly measured at concentrations that exceed respective California Primary Drinking Water Standards and federal Maximum Contaminant Levels. Historical monitoring has also confirmed that PCE and TCE are signature constituents in groundwater up-gradient of the landfill. As a result, the Santa Ana RWQCB

in a letter dated January 25, 2006, directed the City to complete an Environmental Management Plan in accordance with CCR Title 27. The City elected to perform a demonstration project rather than the Environmental Management Plan. The results of the demonstration project indicated the contaminants are from a source other than the landfill.

Previous studies noted that groundwater near Tequesquite Landfill occurs at relatively shallow depths (e.g., 6 to 12 feet) within alluvial sands and gravels, and over-bank deposits of fine-grained silts and sands. Groundwater elevation measurements indicate that groundwater generally flows to the west at a gradient of about 0.003 foot beneath and down-gradient of the landfill, and at a gradient of about 0.008 foot east of Tequesquite Landfill at the mouth of the Arroyo.

Current Property Uses

The site is heavily used by the homeless population in the area, entailing encampments and excessive trash littered throughout the site. In particular, trash includes multiple cathode-ray television sets that were observed smashed in the river channel. Other trash includes large and small appliances such as refrigerators and microwaves. Electronics and appliances of this kind are a source of heavy metal contamination and represent a human and wildlife health risk. Other types of trash, including concrete construction debris, clothes, and plastic, were pervasive throughout the channel but concentrated in the upstream portion. The trash on the sites may also include other household hazardous waste items including medical waste (syringes and lancets). *Household hazardous waste* refers to used or leftover contents of consumer products that contain materials with one of the four characteristics of a hazardous waste: toxicity, ignitability, corrosivity, or reactivity.

Emergency Preparedness

Disaster preparedness is important to establish the most effective and efficient ways to address hazards and minimize the effects of hazards on life and property, reduce the potential for disasters, and recover from the effects of disasters as quickly as possible. The City of Jurupa Valley has adopted a Local Hazard Mitigation Plan and participates in the County of Riverside Multi-Jurisdictional Local Hazard Mitigation Plan. The plans set goals to mitigate potential risks from natural and manmade hazards, identify vulnerabilities, provide recommendations for actions, evaluate resources, and identify future mitigation planning and maintenance of existing plan. The City of Jurupa Valley also has an EOP that addresses how the City will respond to emergency situations ranging from minor incidents to large-scale disasters.

The City of Riverside has two levels of a Hazardous Materials Response Plan: one for all responders and the second for the City of Riverside's Hazardous Materials Response Team. Riverside County has a hazardous materials response plan for multi-agency response.

3.7.3 Environmental Impacts

Methods for Analysis

The methods for analysis are based on review of the County of Riverside, City of Riverside, and City of Jurupa Valley general plans and zoning ordinances and the *Opportunities and Constraints for Tributary Restoration Sites Report* (2018) in Appendix B, design drawings, and *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* in Appendix A as well as

available hazards and hazardous materials reports, websites, and maps of the project area, including reports and information posted on the SWRCB GeoTracker database and the DTSC EnviroStor database, and relevant regulations.

The proposed project is evaluated in relation to the specific threshold of significance and impact discussion in the Initial Study as detailed below.

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials.
- Creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.
- Emission of hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school.
- Placement of project-related facilities on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and resulting creation of a significant hazard to the public or the environment.
- Placement of project-related facilities within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, resulting in a safety hazard for people residing or working in the project area.
- Placement of project-related facilities within the vicinity of a private airstrip, resulting in a safety hazard for people residing or working in the project area.
- Impairment of implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan.
- Exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.

As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this EIR) prepared for the proposed project determined that several hazards and hazardous materials impacts would be less than significant and then eliminated those impacts from further analysis on that basis. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. As stated in the Notice of Preparation/Initial Study, the proposed project would not result in creation of a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials. The proposed project would not result in emission of hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school. The proposed project does not include placement of project-related facilities on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and resulting creation of a significant hazard to the public or the environment. The proposed project

does not include placement of project-related facilities within an airport land use plan area or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, resulting in a safety hazard for people residing or working in the project area. The proposed project would not result in placement of project-related facilities within the vicinity of a private airstrip, resulting in a safety hazard for people residing or working in the project area. The proposed project would not result in impairment of implementation of or physical interference with an adopted emergency response plan or emergency evacuation plan. The proposed project would not result in exposure of people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

Impact HAZ-1: Creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

No significant hazard to the public or environment through release of hazardous materials is likely as a result of restoration work. The Anza Creek, Old Ranch Creek, and Lower Hole Creek tributary sites are bordered by former landfills, but no alterations to the landfills are proposed and the restoration work would not create reasonably foreseeable upset and accident conditions at either former landfill. Valley District and the RCDWR RCWMD will continue to coordinate regarding the proposed project and RCDWR's RCWMD's proposed improvements at the Pedley Landfill, specifically ahead of the completion of the 65 percent% project designs, to jointly pursue a long-term solution that addresses improvements that would result in increased stability of the landfill and the ecological health of the Santa Ana River adjacent to the landfill. Any disturbance or removal of landfill materials that would occur as a result of the proposed project would occur in compliance with federal and state regulations regarding landfill operations, as approved by the RCDWRRCWMD. With this coordination, including information sharing so that the proposed project design team has available design files for the RCDWR RCWMD-improvement project at the Pedley Landfill and with plan submittal review by the RCDWR RCWMD for the proposed project, impacts on the landfill would be minimized and no conflicts would result. No modifications to the historical Tequesquite Landfill landfills are proposed that would release hazardous materials.

Construction-related hazardous materials would be used during construction of the proposed project, including fuel, solvents, chemicals, and oils, for the operation of construction equipment. It is possible that any of these substances could be released in small amounts during construction activities. However, compliance with federal, state, and local regulations, in combination with construction Best Management Practices implemented from a Storm Water Pollution Prevention Program as listed in Section 3.8, *Hydrology and Water Quality*, would ensure that all hazardous materials are transported, used, stored, and disposed of properly, which would minimize potential impacts related to a hazardous materials release during the construction phase of the project.

Restoration as proposed would require removal of the homeless encampments and the associated trash that may also be considered hazardous wastes, including household hazardous and medical wastes. Homeless encampments contain not only trash but may also have vehicles, solar panels,

appliances, electronic devices, and construction and other materials. There is potential for these hazardous materials and wastes within the homeless encampments, such as electronics, fuels, and solvents, to be released during the removal process. Fuel from all vehicles on these sites must be extracted from the vehicles prior to them being hauled off the sites to ensure a leak and spill into the surface waters during transport does not occur. Removal of the human disturbances and introduced pollutants without releasing the hazardous substances into waterways and the ground would mitigate the long-term impact these encampments would have on the natural floodplain if allowed to remain in place as they currently exist. Following construction activities, the proposed project would include funding for two full-time County of Riverside park ranger positions to patrol the project sites along the Santa Ana River in order to deter homeless encampments from reoccupying the sites and potentially disposing of more trash and hazardous wastes.

Construction-related hazardous materials and removed homeless encampment wastes would be subject to regulation during construction activities. Existing homeless encampments present a threat to the Santa Ana River and surrounding natural environment, as does the removal of these encampments. The proposed project would result in the removal of the existing environmental hazards from the homeless encampments. The construction use of hazardous materials and substances and homeless encampment waste removal during construction would be subject to the federal, state, and local health and safety requirements for the handling, storage, transport, and disposal of hazardous materials, summarized in Section 3.7.1, *Regulatory Setting*. With compliance with these regulations, hazardous material impacts related to construction activities would be less than significant. As a result, the Tributaries Restoration Project and Mitigation Reserve Program Phase I would not result in creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Upon completion of the restoration sites, the operation and maintenance of the proposed project would not require the use of substantial quantities of hazardous materials. Operation and maintenance activities are not anticipated to have the potential to result in release of hazardous materials. Immediately following construction, a backhoe, trimmer, and other small equipment may be needed to remove invasive species and support plant establishment. After a couple of years, maintenance would be limited to monitoring and occasional channel work using a backhoe. Compliance with federal, state, and local regulations, in combination with hazardous materials best management practices, would ensure that all hazardous materials are transported, used, stored, and disposed of properly, which would minimize potential impacts related to a hazardous materials release during the operation and maintenance phase of the project.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve additional restoration opportunities within each of the project sites to restore additional areas to native conditions, including removing trash and other forms of destruction caused by human influence and homeless site occupation. Like the Tributaries Restoration Project and Mitigation Reserve Program Phase I, no significant hazard to the public or environment through release of hazardous materials is likely as a result of program implementation given the restoration nature of the project components.

Similar to the Tributaries Restoration Project and Mitigation Reserve Program Phase I compliance with federal, state, and local regulations, in combination with construction best management practices implemented from a Storm Water Pollution Prevention Plan as listed in Section 3.8, *Hydrology and Water Quality*, would ensure that all hazardous materials, including the removal of existing environmental hazards from other homeless encampments, are transported, used, stored, and disposed of properly, which would minimize potential impacts related to a hazardous materials release during the construction phase of the project. With compliance with these regulations, hazardous material impacts related to construction activities would be less than significant.

Upon completion of the additional opportunities for restoration at each of the sites, operation and maintenance of the Expanded Mitigation Reserve Program Phase II would not require the use of substantial quantities of hazardous materials beyond those required for small maintenance equipment. Compliance with federal, state, and local regulations, in combination with hazardous materials best management practices, would ensure that all hazardous materials are transported, used, stored, and disposed of properly, which would minimize potential impacts related to a hazardous materials release during the operation and maintenance phase of the Expanded Mitigation Reserve Program Phase II.

As a result, the Expanded Mitigation Reserve Program Phase II would not result in creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Significance Determination: Less than significant. No mitigation necessary.

3.8 Hydrology and Water Quality

This section identifies the federal, state, regional, and local policies and programs applicable to hydrology and water quality and evaluates the potential for the proposed project to result in adverse impacts related to hydrology and water quality. The analysis is based on review of available hydrologic reports and maps of the project area, the relevant regulatory framework, and a discussion of the methodology and thresholds used to determine whether the proposed project would result in significant impacts. This analysis examines potential impacts on groundwater, drainage patterns, flooding, and compatibility with water quality control plans. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Surface water hydrology refers to the occurrence, distribution, and movement of surface water, including water found in rivers, creeks, and stormwater drainage systems in urban and natural settings. Stormwater runoff is generally directed by the topography and the gradient of the land or through an engineered storm drain system. Groundwater is the water found underground in aquifers in the cracks and spaces in soil, sand, and rock. Groundwater supplies are replenished, or recharged, by precipitation that seeps into the land's surface. Floodplains are areas of land susceptible to inundation by floodwaters from any source. Typically, they are low-lying areas adjacent to waterways and subject to flooding during storm events. The 100-year floodplain differs in that it is an area adjoining a river, stream, or other waterway that has a probability of being covered by water from an event of 1 percent in any year (100-year recurrence interval).

3.8.1 Regulatory Setting

Federal

Clean Water Act

Several sections of the Clean Water Act (CWA) pertain to regulating impacts on waters of the United States. The CWA sections listed here pertain to the proposed plan. The term *waters of the United States* refers to all surface waters, such as all navigable waters and their tributaries; all interstate waters and their tributaries; all wetlands adjacent to these waters; and all impoundments of these waters. The U.S. Environmental Protection Agency (EPA) is the overarching authority for protecting the quality of waters of the United States. However, the California State Water Resources Control Board (SWRCB) administers CWA Sections 303, 401, and 402; the U.S. Army Corps of Engineers (USACE) has jurisdiction over waters of the United States under CWA Section 404.

Section 303 – Impaired Waters

The State of California adopts water quality standards to protect beneficial uses of waters of the state, as required by Section 303(d) of the CWA and the Porter-Cologne Water Quality Control Act (Porter Cologne Act). Section 303(d) of the CWA established the total maximum daily load process to guide the application of state water quality standards. To identify candidate water bodies for total maximum daily load analysis, a list of water quality-limited segments was generated by the SWRCB. These stream or river segments are impaired by the presence of pollutants and are more sensitive to

disturbance because of this impairment. In addition to the impaired water body list required by CWA Section 303(d), CWA Section 305(b) requires states to develop a report that assesses statewide surface water quality. Both CWA requirements are addressed through the development of a 303(d)/305(b) Integrated Report, which addresses both an update to the 303(d) list and a 305(b) assessment of statewide water quality. The SWRCB's statewide 2014/2016 California Integrated Report was based on Integrated Reports from each of the nine Regional Water Quality Control Boards (RWQCBs). After approval of the 303(d) List portion of the California Integrated Report by the SWRCB, the complete 2014 and 2016 California Integrated Report was approved by EPA on April 6, 2018.

Section 401 – Water Quality Certification

Section 401 of the CWA requires an applicant who pursues a federal permit for conducting an activity that may result in a discharge of a pollutant to obtain Water Quality Certification (or waiver). Water Quality Certification requires the evaluation of water quality considerations associated with dredging or the placement of fill materials into waters of the United States. Water Quality Certifications are issued by one of the nine geographically separated RWQCBs in California. Under the CWA, the RWQCB must issue Section 401 Water Quality Certification for a project to be permitted under CWA Section 404. Where a discharge to waters of the state that are not federal waters is proposed, the RWQCB may instead issue waste discharge requirements under the Porter-Cologne Water Quality Control Act as described below.

Section 402 – National Pollutant Discharge Elimination System

The 1972 amendments to the federal Water Pollution Control Act established the National Pollutant Discharge Elimination System (NPDES) permit program to control discharges of pollutants from point sources. NPDES is the primary federal program that regulates point-source and nonpoint-source discharges to waters of the United States. The 1987 amendments to the CWA created a new section that was devoted to stormwater permitting (Section 402). EPA has granted the State of California primacy in administering and enforcing the provisions of the CWA and NPDES within state boundaries. NPDES permits are issued by one of the nine RWQCBs.

Section 404 – Dredge/Fill Permitting

The discharge of dredged or fill material into waters of the United States is subject to permitting specified under Title IV (Permits and Licenses) of the CWA and, specifically, Section 404 (Discharges of Dredged or Fill Material) of the CWA. Section 404 of the CWA regulates the placement of fill materials into the waters of the United States. Section 404 permits are administered by USACE.

National Flood Insurance Program

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer-funded disaster relief for flood victims and the increasing amount of damage caused by floods. Congress also passed the Flood Disaster Protection Act of 1973. The NFIP makes federally backed flood insurance available for communities that agree to adopt and enforce floodplain management ordinances to reduce future flood damage. The Federal Emergency Management Agency (FEMA) administers the NFIP to provide subsidized flood insurance to communities that comply with FEMA regulations to limit development in floodplains. FEMA creates official community maps called Flood Insurance Rate Maps (FIRMs) that designate 100-year floodplain zones (Special

Flood Hazard Areas) and delineate flood hazard areas. A 100-year floodplain zone is the area that has a one in one hundred (1 percent) chance of being flooded in any 1 year based on historical data. Executive Order 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative.

State

Porter-Cologne Water Quality Control Act

The Porter-Cologne Act was established and implemented by the SWRCB and nine RWQCBs. The SWRCB is the primary state agency with responsibility for protecting the quality of the state's surface and groundwater, or *waters of the state*. Waters of the state are defined more broadly than *waters of the United States* (i.e., any surface water or groundwater, including saline waters, within the boundaries of the state). This includes waters in both natural and artificial channels. It also includes surface waters that are not waters of the United States or non-jurisdictional wetlands, which are essentially distinguished by whether they are navigable. If waters are not navigable, they are considered to be isolated and, therefore, fall under the jurisdiction of only the Porter-Cologne Act and not the CWA. The RWQCBs are responsible for implementing CWA Sections 303(d), 401, and 402, as mentioned previously under Federal regulations.

The Porter-Cologne Act authorizes the SWRCB to draft state policies regarding water quality. The act requires projects that are discharging, or proposing to discharge, wastes that could affect the quality of the state's water to file a Report of Waste Discharge with the appropriate RWQCB to obtain Waste Discharge Requirements. The act also requires SWRCB or a RWQCB to adopt basin plans for the protection of water quality, as described below. On April 2, 2019, SWRCB adopted a state wetlands definition and procedures for the discharge of dredged or fill material into waters of the state. Once they become effective (9 months following completion of Office of Administrative Law review), the procedures will govern Section 401 certifications and waste discharge requirement issuance for discharges of dredged or fill material.

NPDES General Construction Stormwater Permit

The General NPDES Permit for Stormwater Discharges Associated with Construction and Land Disturbance Activities (Order 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-006-DWQ) (Construction General Permit) regulates stormwater discharges related to construction activities. Dischargers whose projects disturb 1 or more acres of soil, or whose projects disturb less than 1 acre but are part of a larger common plan of development that, in total, disturbs 1 or more acres, are required to obtain coverage under the Construction General Permit. The Construction General Permit requires development and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP must list best management practices (BMPs) that the discharger will use to reduce or eliminate pollutants associated with construction activities in stormwater runoff and document the placement and maintenance of those BMPs. Additionally, the SWPPP must contain a visual monitoring program; a chemical monitoring program for "nonvisible" pollutants, to be implemented in case of a BMP failure; and a monitoring plan for turbidity and pH for projects that meet defined risk criteria. The requirements of the SWPPP are based on the construction design specifications detailed in the final design plans of a project and the hydrology and geology of the site expected to be encountered during construction. The local or lead agency requires proof of coverage under the Construction General Permit prior to building permit issuance. The SWPPP is submitted to

the SWRCB, and a copy is kept at the jobsite where it is updated during different phases of construction. The SWPPP must be available for inspection and review upon request.

NPDES General Municipal Stormwater Permit

CWA Section 402 mandates permits for municipal stormwater discharges, which are regulated under the NPDES General Permit for Municipal Separate Storm Sewer Systems (MS4s). Phase I MS4 regulations cover municipalities with more than 100,000 residents, certain industrial processes, or construction activities that disturb an area of 5 acres or more. Phase II “small” MS4 regulations require stormwater management plans to be developed by municipalities with fewer than 100,000 residents and construction activities that disturb 1 or more acres of land. The SWRCB adopted a Statewide Phase II Small MS4 General Permit in 2013 to efficiently regulate discharges from numerous qualifying small MS4s under a single permit. Small MS4s were categorized as either “traditional” or “nontraditional.” Traditional MS4s operate throughout a community. Nontraditional MS4s are similar to traditional MS4s but operate at a separate campus facility. Most nontraditional MS4s in California are not designated as having to comply with the Statewide Phase II Small MS4 General Permit, although the SWRCB reserves the right to allow the RWQCBs to designate through due process any single nontraditional MS4 if it is deemed necessary.

Riverside County is considered a Phase I MS4 permittee, and is covered under the municipal MS4 permit (National Pollutant Discharge Elimination System Permit and Waste Discharge Requirements for the Riverside County Flood Control and Water Conservation District, the County of Riverside, and the Incorporated Cities of Riverside County Within the Santa Ana Region, including the cities of Riverside and Jurupa Valley; NPDES Order No. R8-2010-0033; NPDES No. CAS618033). The Santa Ana RWQCB amended the permit on June 7, 2013 (Order No. R8-2013-0024), and the Permittees received an administrative extension of the Riverside County Municipal Stormwater Permit on January 29, 2015.

Given the restoration nature of the proposed projects, the project sites’ improvements are not subject to the MS4 Permit requirements.

General Dewatering Permit

The SWRCB has issued General Waste Discharge Requirements under Order No. R8-2015-0004, NPDES No. CAG 998001 (De Minimis Permit) governing non-stormwater construction-related discharges from activities such as dewatering, wastes associated with well installation, development, test pumping and purging, and discharges from diverted stream flows. The discharge requirements include provisions mandating notification, testing, and reporting of dewatering and testing-related discharges. The General Waste Discharge Requirements authorize such construction-related discharges so long as all conditions of the permit are fulfilled.

Sustainable Groundwater Management Act

In 2014, the California State Legislature approved a combination of bills that together formed the Sustainable Groundwater Management Act, which requires the formation of local Groundwater Sustainability Agencies that must develop Groundwater Sustainability Plans for medium- or high-priority groundwater basins in California by 2022. The goal of the Groundwater Sustainability Plans is to make groundwater basins sustainable by the year 2042. Under the Sustainable Groundwater Management Act, San Bernardino Valley Municipal Water District (Valley District) is forming a joint

Groundwater Sustainability Agency with other groundwater management agencies in the region to prepare and implement the Groundwater Sustainability Plan covering Santa Ana River Watershed groundwater basins in San Bernardino County, where water would be pumped for the water exchange with the City of Riverside Public Utilities (RPU) for the proposed project. Western Municipal Water District is the Groundwater Sustainability Agency for the portion of the Riverside-Arlington Subbasin, where the proposed project is located, that is not adjudicated and has been designated as high priority by the Department of Water Resources (DWR).

Regional and Local

Regional Water Quality Control Plan (Basin Plan)

The Santa Ana drainage basin is under the jurisdiction of the Santa Ana RWQCB. RWQCBs establish regulatory standards and objectives for water quality for waters in their respective jurisdictions in their Water Quality Control Plans (commonly referred to as basin plans). The RWQCB is required to develop, adopt (after public hearing), and implement a basin plan for its region. Basin plans are updated and reviewed every 3 years. They provide the technical basis for determining Waste Discharge Requirements, taking enforcement actions, and evaluating clean water grant proposals. A basin plan must include (1) a statement of beneficial water uses that the RWQCB will protect, (2) the water quality objectives needed to protect the designated beneficial water uses, and (3) strategies to be implemented, with time schedules for achieving the water quality objectives. The Santa Ana Region Basin Plan was updated in February 2016.

In basin plans, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set the criteria necessary to protect and support these uses. Consequently, the water quality objectives developed for particular water segments are based on the designated use and vary depending on that use. Each RWQCB has region-wide and water body-specific beneficial uses and sets numeric and narrative water quality objectives for several substances and parameters in numerous surface waters in its region. The RWQCBs have set specific water quality objectives for concentrations of chemical constituents for all bodies of water according to their designated beneficial uses for the following substances and parameters: ammonia, bacteria, biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity. For water bodies that do not have specific beneficial uses or water quality objectives designated in the basin plan, the tributary rule applies. In addition, the SWRCB identifies waters that fail to meet standards for specific pollutants, which are then state listed in accordance with CWA Section 303(d). RWQCBs are responsible for the protection of the beneficial uses of water resources within their respective regions. More information on the 303(d) impairments that apply to the proposed plan is provided in Section 3.8.2, *Environmental Setting*.

Riverside-Arlington Groundwater Management Plan

The Groundwater Management Plan was developed to inform the public of the importance of groundwater in the Riverside-Arlington Basin, as well as to develop relationships with stakeholders and discuss issues related to groundwater, and to develop plans to ensure the long-term sustainability of groundwater resources in the basin. The goals of the Groundwater Management Plan are to optimize groundwater levels, enhance water quality, and minimize land subsidence. The plan area covers approximately 23 square miles of extensively developed land that is predominantly urban. The plan area used approximately 8,600 acre-feet (AF) of groundwater in 2009, a small

portion of the greater amount of water used, but this water supply is local, reliable, and vital to the future sustainability of the plan area. This plan was developed through Western Municipal Water District per Assembly Bill 3030 and Senate Bill 1938.

County of Riverside

County of Riverside General Plan

The County of Riverside General Plan (2016) includes the Multipurpose Open Space and Safety Elements, which address, among other issues, water quality, stormwater management, and flood hazard policies.

Multipurpose Open Space Element

The following policies within the Multipurpose Open Space Element relate to hydrology, water, wastewater, and floodways (County of Riverside 2015a):

OS 1.3: Provide active leadership in the regional coordination of water resource management and sustainability efforts affecting Riverside County and continue to monitor and participate in, as appropriate, regional activities, addressing water resources, groundwater, and water quality, such as a Groundwater Management Plan, to prevent overdraft caused by population growth.

OS 3.2: Encourage wastewater treatment innovations, sanitary sewer systems, and groundwater management strategies that protect groundwater quality in rural areas.

OS 3.3: Minimize pollutant discharge into storm drainage systems, natural drainages, and aquifers.

OS 3.4: Review proposed projects to ensure compliance with the National Pollutant Discharge Elimination System (NPDES) Permits and require them to prepare the necessary Stormwater Pollution Prevention Program (SWPPP).

OS 3.5: Integrate water runoff management within planned infrastructure and facilities such as parks, street medians and public landscaped areas, parking lots, streets, etc. where feasible.

OS 4.2: Participate in the development, implementation, and maintenance of a program to recharge the aquifers underlying the county. The program shall make use of flood and other waters to offset existing and future groundwater pumping.

OS 4.3: Ensure that adequate aquifer water recharge areas are preserved and protected.

OS 4.8: Use natural approaches to managing streams, to the maximum extent possible, where groundwater recharge is likely to occur.

OS 4.9: Discourage development within watercourses and areas within 100 feet of the outside boundary of the riparian vegetation, the top of the bank, or the 100 year floodplain, whichever is greater.

OS 5.1: Substantially alter floodways or implement other channelization only as a “last resort,” and limit the alteration.

OS 5.2: If substantial modification to a floodway is proposed, design it to reduce adverse environmental effects to the maximum extent feasible.

OS 5.3: Based upon site specific study, all development shall be set back from the floodway boundary a distance adequate to address the following issues: public safety; erosion; riparian or wetland buffer; wildlife movement corridor or linkage; slopes; type of watercourse; and cultural resources.

OS 5.5: Preserve and enhance existing native riparian habitat and prevent obstruction of natural watercourses. Prohibit fencing that constricts flow across watercourses and their banks. Incentives shall be utilized to the maximum extent possible.

OS 6.3: Consider wetlands for use as natural water treatment areas that will result in improvement of water quality.

Safety Element

The County of Riverside General Plan Safety Element (2016) describes the importance of restricting construction and development for public safety while also recognizing compatible uses. The following policies detail how to achieve that balance (County of Riverside 2016):

S 4.4: Prohibit alteration of floodways and channelization unless alternative methods of flood control are not technically feasible or unless alternative methods are utilized to the maximum extent practicable. The intent is to balance the need for protection with prudent land use solutions, recreation needs, and habitat requirements, and as applicable to provide incentives for natural watercourse preservation, including density transfer programs as may be adopted.

S 4.5: Prohibit substantial modification to watercourses, unless modification does not increase erosion or adjacent sedimentation, or increase water velocities, so as to be detrimental to adjacent property, nor adversely affect adjacent wetlands or riparian habitat.

S 4.6: Direct flood control improvement measures toward the protection of existing and planned development.

S 4.7: Any substantial modification to a watercourse shall be done in the least environmentally damaging manner practicable in order to maintain adequate wildlife corridors and linkages and maximize groundwater recharge.

S 4.8: Allow development within the floodway fringe, if the proposed structures can be adequately flood-proofed and will not contribute to property damage or risks to public safety.

S 4.9: Within the floodway fringe of a floodplain as mapped by FEMA or as determined by site specific hydrologic studies for areas not mapped by FEMA, require development to be capable of withstanding flooding and to minimize use of fill. However, some development may be compatible within floodplains and floodways, as may some other land uses. In such cases, flood proofing would not be required. Compatible uses shall not, however, obstruct flows or adversely affect upstream or downstream properties with increased velocities, erosion backwater effects, or concentrations of flows.

S 4.19: Encourage periodic reevaluation of the 500-year, 100-year and 10-year flood hazard in the county by state, federal, county, and other sources, and use such studies to improve existing protection, to review protection standards proposed for new development and redevelopment, and to update emergency response plans.

S 4.20: Balance flood control mitigation with open space and environmental protection.

Jurupa Valley Area Plan

According to the County of Riverside General Plan Jurupa Area Plan (County of Riverside 2015b), the Santa Ana River is one of the most significant watercourses in the nation, partly because it serves such a major part of this entire region and is one of the most rapidly growing watersheds in the continental United States. It offers value in the area of drainage, flood control, water conservation, and natural habitat conservation and restoration.

The following policies relate to the Santa Ana River associated with the Santa Ana River.

JURAP 7.1 Protect the multipurpose open space attributes of the Santa Ana River Corridor through adherence to policies in the Flood and Inundation Hazards section of the Safety Element; the Multiple Species Habitat Conservation Plans, Wetlands and the Floodplain and Riparian Area Management sections of the Multipurpose Open Space Element; the Non-Motorized Transportation section of the

Circulation Element; and the Open Space, Habitat and Natural Resource Preservation section of the Land Use Element.

JURAP 7.5 Preserve areas subject to erosive flooding in a natural state.

JURAP 7.15 Participate in the regional planning of the Santa Ana River through the Santa Ana River Watershed Planning Authority and the Santa Ana River Watershed Group.

JURAP 17.1 Protect life and property from the hazards of flood events through adherence to the policies in the Flood and Inundation Hazards section of the General Plan Safety Element.

JURAP 17.4 Reference Santa Ana River Corridor policies (JURAP 7.1 to 7.16).

County of Riverside County Code

Riverside County Ordinance No. 754 (as amended through 754.2), known as the Riverside County Stormwater/Urban Runoff Management and Discharge Controls Ordinance, provides regulations related to stormwater, discharges to the storm drain system, and reduction of pollutants in stormwater discharges to the maximum extent practicable. Ordinance No. 458 (as amended through 458.15) provides guidance to regulate special flood hazard areas and implement NFIP.

County of Riverside County Code, Title 15, Buildings and Construction, Chapter 15.12, Uniform Building Code, Section 15.12.010, states that Riverside County adopts the 2001 California Building Code, adopted by the California Building Standards Commission into the California Code of Regulations as Title 24, Part 2, based upon the 1997 edition of the Uniform Building Code adopted by the International Conference of Building Officials.

City of Riverside

City of Riverside General Plan

Open Space and Conservation Element

Protection of Riverside's open space areas, scenic resources, and hillsides will be carried out through the following objectives and policies. The City is committed to preserving its natural resources and open spaces of the highest quality and in a cost-effective manner to enhance the living environment of all residents. The City believes that individual interests must be balanced against the general public interest and particularly the conservation of natural resources. The following objectives and policies within the Open Space and Conservation Element outline how the City plans on addressing these issues (City of Riverside 2012):

Objective OS-7: Turn the Santa Ana River Task Force "Vision" into reality.

Policy OS-7.1: Focus river improvements on the following areas: Fairmount Park and Mt. Rubidoux, Tequesquite Avenue and the Old Landfill, Martha McLean Park, Van Buren Bridge and the Hidden Valley Wildlife Area.

Policy OS-7.2: Give initial priority to the Fairmount Park wetlands enhancement project and the completion of the Santa Ana River Trail.

Policy OS-7.3: Preserve and expand open space along the Santa Ana River to protect water quality, riparian habitat and recreational uses.

Policy OS-7.6: Partner with other jurisdictions, including the Regional Water Quality Control Board and the US Army Corps of Engineers, to minimize the impact of new development on the river and bring about some of the enhancements envisioned by the Santa Ana River Task Force.

Policy OS-7.7: Explore implementation of the Santa Ana River Task Force's ideas for the five focus areas, such as:

- 3) Explore the development of water treatment wetlands that can be used for bird watching and improving water quality inputs adjacent to the river course.

Objective OS-10: Preserve the quantity and quality of all water resources throughout Riverside.

Policy OS-10.4: Develop a recommended native, low-water-use and drought-tolerant plant species list for use with open space and park development. Include this list in the landscape standards for private development.

Policy OS-10.5: Establish standards for the use of reclaimed water for landscaping.

Policy OS-10.10: Protect aquifer recharge features and areas of important aquifers from degradation of water quality and reduction of recharge.

Policy OS-10.11: Monitor the quality and quantity of groundwater and surface water resources and consider revisions to the General Plan's policies if monitoring identifies significant reductions in water quality.

Land Use and Urban Design Element

For development anticipated in the city's future, the City of Riverside has taken great care to preserve the natural and agricultural assets that make up Riverside's environment. All of Riverside's natural features are linked to one another. Identifying signs and paths connect Riverside's neighborhoods with the greenbelt, the Santa Ana River, Box Springs Mountain, and other natural assets. The following objective within the Land Use and Urban Design Element describes the City's plans to protect arroyos (City of Riverside 2018a):

LU-5: Preserve and protect the natural integrity of Riverside's arroyos.

Public Safety Element

The Public Safety Element of the City of Riverside General Plan identifies public safety issues and needs anticipated to be of ongoing concern to Riverside during the planning period. This element describes the major hazards that might affect the city, as well as the resources available to respond when an accident or emergency occurs. The element sets forth objectives and policies to address all foreseeable public safety concerns. The overall purpose of this element is to ensure that the City takes all necessary proactive measures to reduce the risk of hazards and adequately, expediently, and efficiently responds to immediate safety threats.

The Public Safety Element contains the following objective that would be applicable to the project (City of Riverside 2018b):

Objective PS-2: Reduce potential flood hazards within Riverside.

Policy PS-2.1: Reduce flood risks for residents and businesses within urbanized areas, as feasible.

Policy PS-2.2: Encourage flood control infrastructure that does not reduce the natural character or limit the use of the site.

Policy PS-2.3: Minimize additional flood risk exposure in developing areas.

Policy PS-2.5: Encourage flood control techniques along the Santa Ana River that are harmonious with potential recreational uses in the area.

Policy PS-2.7: Minimize flood risks to the City's agricultural greenbelt by working with the Riverside County Flood Control and Water Conservation District to identify and implement appropriate flood control measures where feasible.

City of Riverside Municipal Code

Section 6.28.150 - General location of water wells. It shall be unlawful for any person or entity to drill, dig, excavate or bore any water well at any location where sources of pollution or contamination are known to exist or have existed, or where substantial risk exists that water from that location may become contaminated or polluted even though the well may be properly constructed and maintained.

6.28.170 - Water well surface construction features.

- A. Check valve. A check valve shall be provided on the pump discharge line adjacent to the pump for all water wells.
- B. Sample spigot. An unthreaded sample spigot shall be provided on the pump discharge line of any water well used as a public water supply adjacent to the pump and on the distribution side of the check valve.
- C. Water well disinfection pipe. All community water supply wells and individual domestic wells shall be provided with a pipe or other effective means through which chlorine or other approved disinfecting agents may be introduced directly into the well. The pipe shall be extended at least four inches above the finished grade and shall have a threaded or equivalently secured cap on it.
- D. Water well flow meter. A flow meter or other suitable measuring device shall be located at each source facility and shall accurately register the quantity of water delivered to the distribution system from all community water supply wells serving a public water supply system.
- E. Air-relief vent. An air-relief vent, when required, shall terminate downward, be screened, and otherwise be protected from the entrance of contaminants.
- F. Backflow prevention assembly. Agricultural wells equipped with chemical feeder devices for fertilizers, pesticides or other nonpotable water treatment shall be furnished with an approved backflow prevention assembly or a sufficient air gap to insure that a cross-connection with the well does not exist.

Chapter 14.12 - Discharge Of Wastes Into The Public Sewer And Pollutants Into The Storm Drain Systems. Section 14.12.316 - Reduction of pollutants in stormwater. Any industrial discharger, discharger associated with construction activity, or other discharger subject to any NPDES permit issued by the United States Environmental Protection Agency, the State Water Resources Control Board, the Santa Ana Regional Water Quality Control Board, shall comply with all requirements of such permit. Such dischargers shall specifically comply with the following permits: the industrial stormwater general permit, the construction activity stormwater general permit, and the dewatering general permit. Proof of compliance with such NPDES general permits may be required in a form acceptable to the director prior to issuance of any county grading, building, or occupancy permits.

City of Jurupa Valley

City of Jurupa Valley General Plan

The City of Jurupa Valley Draft General Plan (2017) includes the following policies regarding water quality, water conservation, water needs, water resources, habitat conservation, aquifers, natural channels, and floodplain management.

Land Use Element Goals, Policies, and Programs

LUE 6.3 Regional Planning. Participate in regional efforts to address issues of mobility, transportation, traffic congestion, economic development, air and water quality, and watershed and habitat management with cities, local and regional agencies, stakeholders, Indian nations, and surrounding jurisdictions.

LUE 11.5 Water Conservation Techniques. Require water conservation techniques, such as groundwater recharge basins, use of porous pavement, cisterns for non-potable water uses, drought-tolerant landscaping, drought conscious irrigation systems, water recycling, and other water conservation methods to be included in new public and private development, as appropriate.

Conservation and Open Space Element, Policies, and Programs

COS 3 Working with the Jurupa Community Services District (JCSD), the Rubidoux Community Services District (RCSD), the Santa Ana Water Company, and other agencies and private companies to help meet Jurupa Valley's urban water needs without substantial harm to the natural environment or to agriculture, to help meet water needs including requiring conservation measures such as drought-tolerant landscaping and water-saving fixtures in new homes, and to:

1. Protect and maintain water quality in aquifers, the Santa Ana River, streams, and wetlands that help support beneficial uses, including domestic and commercial/industrial uses, agricultural uses, and wildlife habitat.
2. Protect and improve the quality of local water sources, including groundwater and the Santa Ana River.
3. Encourage JCSD and RCSD to retain and, where possible, expand the capacity of wells, aquifers, and other groundwater reserves.
4. Preserve natural floodways, floodplains, and wetlands, and avoid actions that adversely affect waterways or riparian areas, or that increase flood hazards to urban uses.

COS 1.1 Habitat Conservation. Conserve key habitats, including existing wetlands and California native plant communities, with a focus on protecting and restoring the following endangered species habitats:

7. Conserve riparian areas, including river basin, creeks, streams, vernal springs, seeps and other natural water features.

COS 3.1.2 Regional Cooperation. Monitor and participate in regional activities addressing water resources, groundwater, and water quality to help ensure adequate and safe water supplies for existing and future residents and businesses.

COS 3.10 Regional Cooperation. Support efforts to create additional water storage where needed, in cooperation with federal, state, community services districts, the Riverside County Flood Control District, and other water authorities. Additionally, support and/or engage in water banking in conjunction with these agencies where appropriate, as needed.

COS 3.11 Aquifer Protection. Require that aquifer water-recharge areas are preserved and protected.

COS 3.1.3 Aquifer Recharge. Participate in the development, implementation, and maintenance of a program to recharge the aquifers underlying the City and Western Riverside County, where feasible and appropriate. The program shall make use of flood and other waters to offset existing and future groundwater pumping.

COS 3.14 Natural Channels. Collaborate with the Riverside County Flood Control District to promote natural approaches to managing streams and avoid lined, non-porous channels to the maximum extent possible where groundwater recharge is likely to occur.

COS 3.16 Floodway Modification. Encourage other agencies to limit floodway modification or channelization only as a "last resort," and limit the alteration to:

1. That necessary for the protection of public health and safety, only after all other options are exhausted,
2. Essential public service projects where no other feasible construction method or alternative project location exists,
3. Projects where the primary function is improvement of fish and wildlife habitat, or
4. Private development entitlements shall be required to design floodplain and river edge treatments to simulate and ultimately regenerate natural terrain and riparian habitat, using techniques such as covering and re-planting over rip-rap embankments, and utilizing gentle contoured slopes that do not exceed 8:1 slope ratio.

COS 3.17 Environmental Mitigation. Encourage and, where possible, require that substantial modifications of a floodplain be designed to reduce adverse environmental effects to the maximum extent feasible, considering the following factors:

1. Stream scour
2. Erosion protection and sedimentation
3. Wildlife habitat and linkages
4. Groundwater recharge capability
5. Adjacent property
6. Designed to achieve a natural effect.

Examples could include soft riparian bottoms, riparian corridors within the floodway, and gentle and modulating bank slopes, wide and shallow floodways, minimization of visible use of concrete, and landscaping with California native plants to the maximum extent possible. A site-specific hydrologic study may be required.

COS 3.19 Trails. Consider designating floodway setbacks to accommodate greenways, trails, and recreation opportunities and allowing such uses within floodways, where appropriate.

COS 3.1.4 Floodway Protection and Enhancement. Working with other responsible agencies, help implement the following actions:

1. Prepare an inventory of natural areas that have been degraded and list sites in priority order, for restoration efforts.
2. Revegetate disturbed areas using native plants.
3. Eliminate sources of water pollutants and improper water diversions.
4. Work to remove invasive, non-native plant species in natural habitat areas, and prevent the introduction or spread of invasive, non-native species.
5. Strongly discourage the placement of and, where possible, remove man-made elements such as buildings, paving, structural elements, concrete lining of waterways, signs, streets, and utilities within floodways or floodplains, unless they are needed for public health or safety, or for implementation of City plans.
6. Require that suitably sized access corridors be provided and/or maintained through or under new and previously established, man-made obstacles to wildlife movement (such as appropriately sized culverts under arterial streets, highways, and other major roads).
7. Prohibit camping, off-road vehicles, hunting and other activities that are not compatible with floodplain health and preservation.
8. Remove trash, debris, and contaminants, using methods that minimally disrupt the open-space resources.

9. Provide continuing community education and outreach for all citizens, youth, and youth groups, and property owners on open space and natural resource values, programs, and responsibilities.
10. Enlist the help of volunteers, non-profits, youth and service groups, and academic programs in restoring and monitoring habitat health.

Community Safety, Services, and Facilities Elements, Policies, and Programs

CSSF 1.6 Flood Risk. In reviewing new construction and substantial improvements within the 100-year floodplain, the City shall disapprove projects that cannot minimize the flood risks to acceptable levels in areas mapped by FEMA or as determined by site-specific hydrologic studies for areas not mapped by FEMA. The City shall:

1. Prohibit the construction, location, or substantial improvement of structures in areas designated as floodways, except upon approval of a plan that provides that the proposed development will not result in any significant increase in flood levels during the occurrence of a 100-year flood; and
2. Prohibit the filling or grading of land for nonagricultural purposes and for non-authorized flood control purposes in areas designated as floodways, except upon approval of a plan, which provides that the proposed development will not result in any significant increase in flood levels during the occurrence of a 100-year flood discharge.

CSSF 1.7 Floodway Alteration. Require that any alterations of the floodway utilize naturalized edge treatments as outlined in the Conservation and Open Space Element (Policies 3.16 and 3.17).

CSSF 1.10 Floodway Alteration. Prohibit alteration of floodways and channelization unless alternative methods of flood control are not technically feasible or unless alternative methods are already utilized to the maximum extent practicable. The intent is to balance the need for protection with prudent land use solutions, recreation needs, and habitat preservation requirements, and as applicable to provide incentives for natural watercourse preservation. Preservation incentives may include density transfer programs as may be adopted.

CSSF 1.11 Modification of Water Courses. Prohibit substantial modification to water courses, unless modification does not increase erosion or adjacent sedimentation, or increase water velocities, so as to be detrimental to adjacent property, nor adversely affect adjacent wetlands or riparian habitat.

CSSF 1.12 Flood Control Improvements. Direct flood-control improvement measures toward the protection of existing and planned development.

CSSF 1.13 Environmental Protection. Ensure that any substantial modification to a watercourse is accomplished in the least environmentally damaging manner possible to maintain adequate wildlife corridors and linkages and maximize groundwater recharge

CSSF 1.19 Open Space Tools. Utilize various means of land acquisition tools and land use measures, such as density credit for open space and dedication of floodplain areas to the Riverside Conservation Agency, to create open space zoning in designated flood zones that are likely to be developed or redeveloped with uses that are more intensive.

CSSF 1.20 Risk Assessment. Continue to assess and upgrade inundation risk and protection in the City.

CSSF 1.21 Flood Hazard Zones. Encourage periodic reevaluation of the 500-year, 100-year, and 10-year flood hazard zones by state, federal, county, and other sources and use such studies to improve existing protection, review flood protection standards for new development and redevelopment, and update emergency response plans.

CSSF 2.52 Recycled Water. Encourage the continued production and expansion of recycled water for irrigation and other purposes.

CSSF 2.56 Adequate Facilities. Work with the Riverside County Flood Control and Water Conservation District to develop and maintain adequate flood control facilities to reduce the potential for flooding and protect the quality of the Santa Ana River and other natural drainage courses.

City of Jurupa Valley Municipal Code

Sec. 6.05.050. - Reduction of pollutants in storm water. Construction. (1) Any person performing construction work in the city shall comply with the provisions of this chapter, and shall control storm water runoff so as to prevent any likelihood of adversely affecting human health or the environment. City Engineer shall identify the BMPs that may be implemented to prevent such deterioration and shall identify the manner of implementation. Documentation on the effectiveness of BMPs implemented to reduce the discharge of pollutants to the MS4 shall be required when requested by the City Engineer. (2) Any person performing construction work in the city shall be regulated by the State Water Resources Control Board in a manner pursuant to and consistent with applicable requirements contained in the General Permit No. CAS000002, State Water Resources Control Board Order Number 2009-0009-DWQ. The city may notify the State Board of any person performing construction work that has a non-compliant construction site per the General Permit.

3.8.2 Environmental Setting

Santa Ana River Watershed Regional Hydrology

The proposed project is in the Santa Ana River watershed, which drains from the steep slopes of the San Bernardino Mountains to the valley floor of the Inland Empire, through the Prado Basin and on to Orange County and the Pacific Ocean. The Santa Ana River travels 75 miles from its origins near Big Bear Lake to the Pacific Ocean. In the mountainous areas, perennial surface water exists in segments of the Santa Ana River and tributaries. Big Bear Dam impounds surface water high in the mountains. Below Big Bear, Seven Oaks Dam built by USACE in the 1990s provides flood control protection to the urbanized valley below. From below the dam at the base of the mountains through the city of San Bernardino, the river is a soft-bottom channel that is generally dry in the summer but contains some seasonal flows in the winter and spring. Historically, the Santa Ana River likely exhibited perennial flows from groundwater upwelling. However, groundwater levels have declined since the 1800s, eliminating perennial flows in much of the river (Valley District 2015).

Several large tributaries join the river in San Bernardino County including City Creek, Warm Creek, Lytle Creek, Plunge Creek, Mill Creek, the Rialto Drain, and San Timoteo Creek. These tributaries are usually dry in the summer, responding only to storm events and spring runoff. Some of the smaller drainages exhibit perennial urban runoff, but these flows generally infiltrate into the ground prior to the confluence with the Santa Ana River in the San Bernardino County portion of the watershed. Treated wastewater discharges from Yucaipa Valley Water District and the city of Beaumont to San Timoteo Creek flow for a short distance and percolate into the ground (Valley District 2015).

Downstream of the city of San Bernardino to the city of Riverside, the river flows perennially due to the discharges from wastewater treatment plants serving the upper valley cities including Highland, San Bernardino, Rialto, Colton, and Loma Linda. Groundwater and urban runoff begin to enter the river as it flows past the city of Riverside. Downstream of Riverside, the river flows are increased by discharges from the city of Riverside and the city of Corona wastewater treatment plants. Near the city of Corona, the river flows through the Prado Reservoir and Dam through the Santa Ana Mountains and onto the Orange County Coastal Plain. **Figure 3.8-1** depicts the larger waterbodies within the Santa Ana River watershed (Valley District 2015).

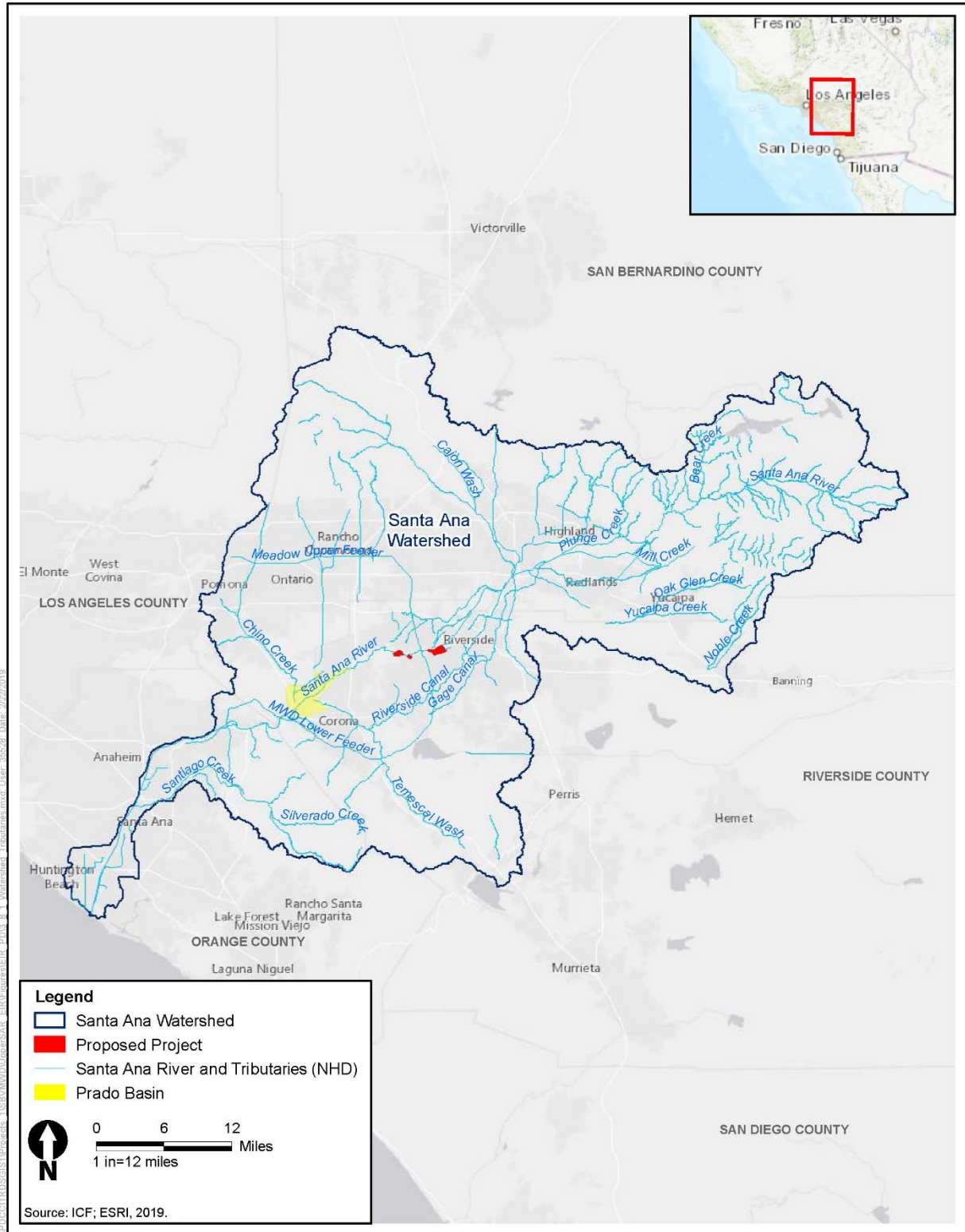


Figure 3.8-1. Santa Ana River Watershed and Waterbodies

Local Hydrology and Drainage

The proposed project is within Reach 3 of the Santa Ana River. Reach 3 is that portion of the river that extends upstream from Prado Dam to the Mission Boulevard bridge in Riverside. Reach 3 generally flows from east to west and has a natural, unlined bottom throughout most of its length; there is an approximately 3.5-mile stretch of the upper segment that has been straightened and has rip-rapped banks (SAWPA 2015). Baseflow in Santa Ana River Reach 3 consists of nuisance runoff, rising groundwater, and discharges from several Publicly Owned Treatment Works that occur in Reach 3 or upstream reaches. These Publicly Owned Treatment Works discharges include those from the city of Rialto, City of San Bernardino Rapid Infiltration and Extraction Facility, City of Riverside Water Quality Control Plant, Western Riverside County Regional Wastewater Treatment Plant, and City of Corona Municipal Wastewater Treatment Plant (SAWPA 2015).

In the Riverside Narrows area near the project area, rising groundwater (Mendez and Belitz 2002; Wildermuth Environmental, Inc. 2014) historically feeds several small tributaries (Tequesquite Arroyo, Anza Drain, Sunnyslope Channel, Hole Creek) that are important breeding and nursery areas for the native fish. Temescal, Chino, and Mill/Cucamonga Creeks in Prado Basin are also important river tributaries. Reach 3 also includes major tributaries of San Sevaine Creek, Day Creek, Cucamonga Creek, San Antonio Creek/Chino Creek, and Temescal Wash. Many of the tributaries in this reach are channelized, flood control facilities with little resemblance to natural conditions.

Anza Creek

The Anza Creek channel is a large drainage that flows along the southern edge of the site. Anza Creek has a 7,586-acre watershed¹ (see watershed map on **Figure 3.8-2**) that is highly developed and impervious in its lower portions. Approximately 4,391 acres (58 percent) of the total watershed area are upstream of Alessandro Dam and Mary Street Dam. These dams are designed to store runoff for all but the largest storm events. Approximately 2,654 acres drain to the “Line A” outlet, which is a large, 20-foot concrete box culvert under the Santa Ana River Trail Bike Path (see Table 4.8-1 for watershed areas and impervious percentages). A smaller sub-watershed of 541 acres drains to a 15-foot box culvert that enters from the southeastern corner of Martha McLean-Anza Narrows Park. The urban watershed causes rapid runoff during rain events and periodic flooding that delivers abundant trash and debris to Anza Creek. Stormwater runoff and recurrence interval flows were estimated using USACE Hydrologic Engineering Center Hydrologic Modeling System watershed hydrology analysis. The recurrence intervals for events ranging from the 1-year to 25-year recurrence are listed in Table 4.8-1.

¹ Watershed areas were determined by georeferencing and digitizing the Riverside County Flood Control and Water Conservation District stormwater maps.

Table 3.8-1. Anza Creek Watershed Acres, Impervious Acres, and Stormwater Runoff Amounts

Sub-Watershed	Acres ¹	Percent Impervious ²	Recurrence Interval Flood (cfs)				
			1-yr	2-yr	5-yr	10-yr	25-yr
Anza Creek US Alessandro Dam	3,079	26%	-	-	-	-	-
Anza Creek US Mary St. Dam	1,312	19%	-	-	-	-	-
Anza Creek Line A	2,654	42%	116	509	957	1,361	2,014
Anza Creek Martha McLean-Anza Narrows Park	541	43%	24	131	261	381	578

¹ Watershed areas were determined by georeferencing and digitizing the Riverside County Flood Control and Water Conservation District stormwater maps.

² Impervious area calculated from 2011 National Land Cover Database.

Groundwater upwelling at springs is an important contributor to base perennial surface flows in Anza Creek. Typical existing base flows in the creek are 1 cubic foot per second (cfs) or less (Appendix A). The creek becomes well defined approximately 0.6 mile upstream of the confluence with the Santa Ana River; at this location the banks are steep and ordinary high-water mark extent more confined (Appendix B).

The upper 2,000 feet of the present-day Anza Creek channel was the active channel of the Santa Ana River in 1931 and had a large meander bend that extended south up against the present-day Santa Ana River Trail Bike Path. Portions of the middle section of the present-day Anza Creek are on land that appears to be a terrace feature in the 1931 aerial (Appendix A). A flood event that occurred prior to 1980 appears to have eroded portions of this high ground where the Anza Creek channel is presently located near Martha McLean-Anza Narrows Park. The confluence of the present-day Anza Creek channel with the Santa Ana River is a dynamic area, as the exact location of the confluence changes depending on shifts in the position of the Santa Ana River in response to flood events (Appendix B). The site is heavily affected by human use including encampments, check dams, and extensive trash.

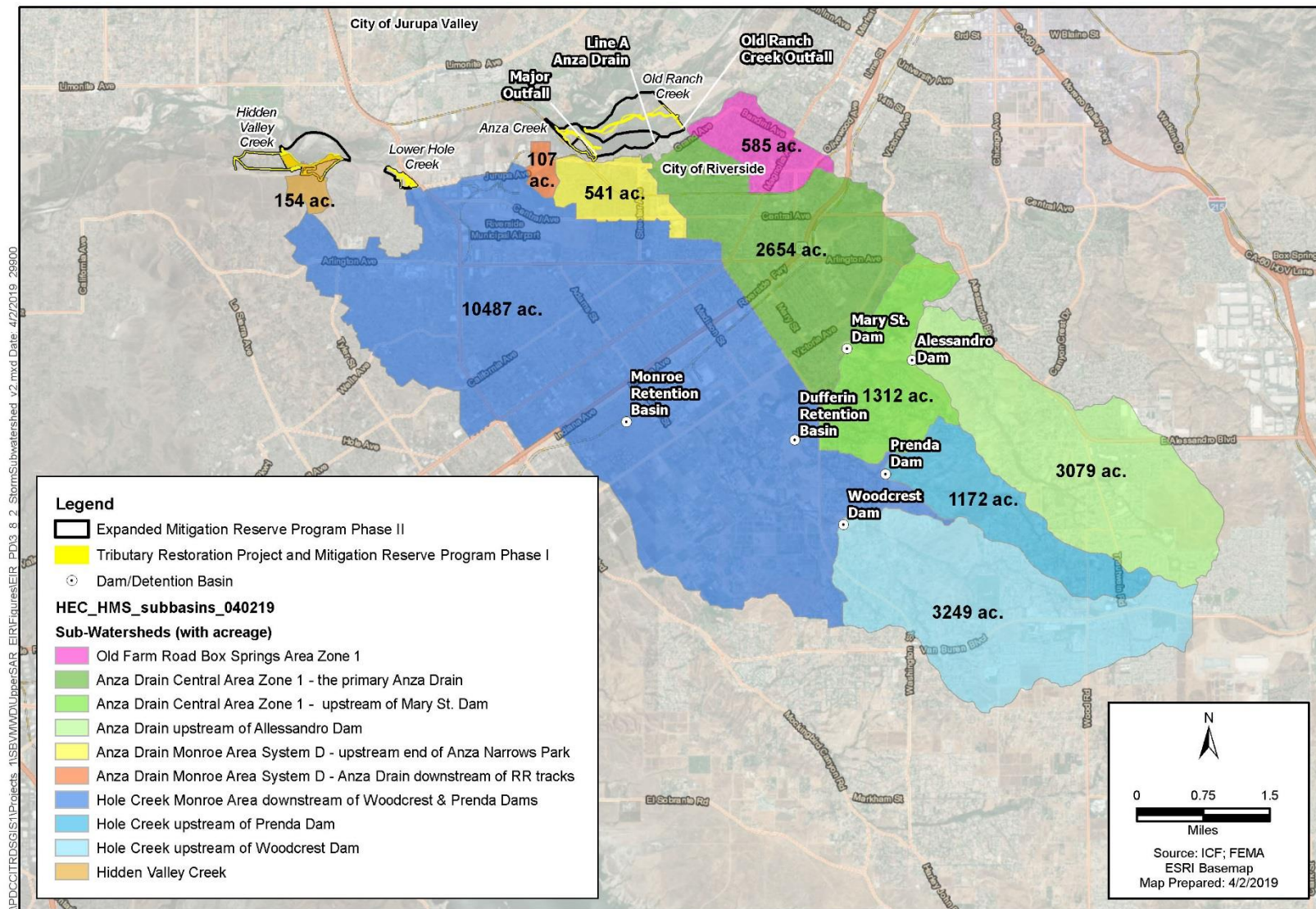


Figure 3.8-2. Stormwater Sub-Watersheds

Old Ranch Creek

Old Ranch Creek has a 585-acre watershed area and is highly impervious from urban development (Figure 3.8-2 and Table 3.8-2). Stormwater enters the Old Ranch Creek channel from a 10-foot concrete box culvert in the southeastern corner of the site. This drainage is also fed by runoff from the closed Tequesquite Landfill property to the east of the site via a culvert beneath the dirt path that runs along the eastern project boundary. The urban watershed causes rapid runoff during rain events and periodic flooding that delivers abundant trash and debris to Old Ranch Creek. Flowing water is rarely observed in the Old Ranch Creek channel and only occurs during storm events (Appendix B).

Table 3.8-2. Old Ranch Creek Watershed Acres, Impervious Acres, and Stormwater Runoff Amounts

Sub-Watershed	Acres ¹	Percent Impervious ²	Recurrence Interval Flood (cfs)				
			1-yr	2-yr	5-yr	10-yr	25-yr
Old Ranch Creek	585	42%	23	128	257	377	576

¹ Watershed areas were determined by georeferencing and digitizing the Riverside County Flood Control and Water Conservation District stormwater maps.

² Impervious area calculated from 2011 National Land Cover Database.

The Old Ranch Creek channel used to connect with the Santa Ana River based on observation of an aerial image from 1948 (Appendix A). Observation of a 1980 aerial shows that a flood likely occurred sometime between 1966 and 1980 that caused the Santa Ana River to shift to the south and erode the downstream half of the Old Ranch Creek channel that connected with the river. The signature of this previous channel alignment is still observable today by an arcing swath of dense vegetation and topographic changes. It does not appear the river has migrated south into this area since a flood that occurred prior to the 1980 aerial. The presence of Tequesquite Landfill on the eastern boundary of the site likely constrains the ability of the Santa Ana River to migrate south into the area it formerly occupied (Appendix B).

The upstream portion of the Old Ranch Creek drainage supports ordinary high water mark indicators and is vegetated predominantly with upland species. Downstream of a low-flow road crossing, the drainage turns westward, and becomes a broader and less-defined channel supporting wetland habitat dominated by native and nonnative species. The drainage crosses a well-defined dirt road/trail, approximately halfway along its length. At this point the drainage is confined in a steep channel supporting wetland habitat, with few riparian trees and dense desert wild grape. At the downstream end of the Old Ranch Creek channel, sediment accumulation has resulted in a natural berm and a subsequent shallow pool. From this point water may spill out and over the berm at high flows and enter an unnamed ephemeral. In addition, Old Ranch Creek channel also appears to split off at the upstream end where a distributary² channel heads south and connects to Anza Creek (Appendix B). The site is affected by human use including encampments and extensive trash.

² A *distributary channel* is single thread channel that branches into two or more channels.

Lower Hole Creek

Lower Hole Creek has a 14,908-acre watershed (Figure 3.8-2 and Table 3.8-3) that is highly developed and impervious in its lower portions. Approximately 4,421 acres (30 percent) of the total watershed area is upstream of Prenda Dam and Woodcrest Dam. These dams are designed to store runoff for all but the largest storm events.

Table 3.8-3. Lower Hole Creek Watershed Acres, Impervious Acres, and Stormwater Runoff Amounts

Sub-Watershed	Acres ¹	Percent Impervious ²	Recurrence Interval Flood (cfs)				
			1-yr	2-yr	5-yr	10-yr	25-yr
Hole Creek US Prenda Dam	1,172	16%	-	-	-	-	-
Hole Creek US Woodcrest Dam	3,249	22%	-	-	-	-	-
Hole Creek DS of dams	10,487	34%	270	955	1,652	2,244	3,160

¹ Watershed areas were determined by georeferencing and digitizing the Riverside County Flood Control and Water Conservation District stormwater maps.

² Impervious area calculated from 2011 National Land Cover Database.

The Lower Hole Creek site begins downstream of Jurupa Avenue where the creek passes under the road through a large, 40-foot concrete box culvert with extensive downstream protections that creates a 27-foot elevation difference between the channel upstream and downstream of the crossing. Jurupa Avenue is located where a former dam spillway impounded water to create Hole Lake upstream of the site. Lower Hole Creek consists of two drainage features: the main creek and a small tributary that delivers stormwater runoff from Van Buren Boulevard and land to the east.

The creek has perennial flow as a result of urban inputs from the upstream watershed with low flows typically less than 0.5 cfs (Appendix B). The creek's watershed is heavily urbanized and much of the runoff is piped underground to the lower reaches of the watershed. The urban watershed causes rapid runoff during rain events and periodic flooding that delivers abundant trash and debris to Lower Hole Creek.

In the downstream half of Lower Hole Creek, the channel is confined by a steep bedrock wall along the western valley wall and by the Santa Ana River Trail Bike Path to the east. Sections of the creek have bank stabilization in the form of interlocking concrete mat, and the closed Pedley Landfill on the eastern side of the stream is a major topographic constraint. The site is heavily affected by human use including encampments, check dams, and extensive trash. In addition, there are many access trails running down the banks and across the stream. The adjacent upland habitat is dominated by patchy nonnative grasses with high disturbance from unauthorized human visitation. Dense riparian vegetation is present along most of the upstream half of Lower Hole Creek and becomes less abundant along the downstream reach. There are fringing wetlands dominated by emergent species present along portions of the creek, with more substantial emergent wetlands present at the confluence with the creek and the floodplain of the Santa Ana River.

Hidden Valley Creek

The Hidden Valley Creek site is on the inside of a meander bend on the south side of the Santa Ana River. The Santa Ana River historically occupied a position farther to the northwest than it presently does, but the land that was not being farmed was active floodplain, similar to how it is today. The

alignment and shape of the Santa Ana River change regularly at the Hidden Valley Creek site in response to flood events, as scour and fill processes lead to the creation of new channels with sand and gravel bars and the filling of previous channels. Riparian vegetation colonizes new river bars and becomes more established in areas that have sufficient time for plants to grow in between flood scouring events (Appendix B).

Hidden Valley Creek gets its name from 70 acres of ponds that are immediately downstream of the project area (Figure 3.8-2 and Table 3.8-4). Approximately 100 acres of land drain to the site. Larger sub-watersheds drain directly to the Santa Ana River upstream of the site or to the Hidden Valley Ponds downstream of the creek. The ponds used to attract ducks and other migratory waterfowl to the site when they contained surface water, but they are now dry as a result of damaged infrastructure from the 2010 flood that also lowered the riverbed by up to 8 feet. The Hidden Valley Creek site and the downstream wetlands are part of the 1,500-acre Hidden Valley Nature Center wildlife area along the Santa Ana River. Currently, the Hidden Valley Creek site does not have a perennial source of water. Water at the site is limited to storm runoff generated from the surrounding hillslopes during rain events and, infrequently, the Santa Ana River during high flood events. Until infrastructure was damaged by a 2010 flood, the site contained a canal with flowing water and wetlands supported by wastewater that flowed from Riverside's Regional Water Quality Control Plant upstream. The canal still exists but has no reliable water source (Appendix B).

Table 3.8-4. Hidden Valley Creek Watershed Acres, Impervious Acres, and Stormwater Runoff Amounts

Sub-Watershed	Acres ¹	Percent Impervious ²	Recurrence Interval Flood (cfs)				
			1-yr	2-yr	5-yr	10-yr	25-yr
Hidden Valley Creek ³	154	2%	1	3	14	33	86

¹ Watershed areas were determined by georeferencing and digitizing the Riverside County Flood Control and Water Conservation District stormwater maps.

² Impervious area calculated from 2011 National Land Cover Database.

³ Area based on Monroe Area System D. Edited by ICF based on 2015 LiDAR to include additional land to the north that also drains to the proposed creek site.

Water Quality

Water quality in a typical surface water body is influenced by processes and activities that take place within the watershed. The quality of the stormwater runoff from the project area and surrounding urban areas is typical of watersheds where water quality is affected primarily by discharges from both point and nonpoint sources. Point-source discharges are discharges from specific identifiable sources, while nonpoint-source discharges generally result from diffuse sources, such as land runoff, precipitation, or seepage. Point and nonpoint sources include outfalls, winter storms, overland flow, exposed soil, roofs, parking lots, and streets. Water quality in the project area is directly affected by stormwater runoff from adjacent streets and properties that deliver fertilizers, pesticides, automobile pollutants (e.g., oil, grease, metals), sediment with associated pollutants from soil erosion, trash, and other pollutants. With the diversion of most of the Santa Ana River's natural surface flow for agricultural and domestic uses, creeks and rivers dried up, carrying only storm flows and runoff. Ultimately, treated wastewater replaced some of the flows in some streams. As a result, water quality in the Santa Ana River is effluent dominated.

The Santa Ana RWQCB uses planning, permitting, and enforcement authorities to meet the responsibility of adopting the Water Quality Control Plan for the Santa Ana River Basin (Basin Plan) (Santa Ana RWQCB 2016) to implement plans, policies, and provisions for water quality management. Beneficial uses are described in the Basin Plan and are designated for major surface waters and their tributaries, as well as groundwater. Beneficial uses form the cornerstone of water quality protection under the Basin Plan. Once beneficial uses are designated, appropriate water quality objectives can be established, and programs that maintain or enhance water quality can be implemented to ensure the protection of beneficial uses. The designated beneficial uses, together with water quality objectives, form water quality standards.

Impaired water bodies are defined as those water bodies that do not meet water quality standards. Constituents or pollutants in stormwater runoff vary with surrounding land uses, impervious surface area, and topography as well as with the intensity and frequency of rainfall or irrigation. Stormwater runoff generated at the onset of the wet season, or the “first-flush,” typically contains the highest pollutant concentrations. As shown in Table 3.8-5, pH, indicator bacteria, copper, and lead are listed as CWA Section 303(d) impairments in surface waters within Santa Ana River Reach 3 and downstream receiving waters of Prado Basin in the project area.

Table 3.8-5. 303(d) Impairments for Surface Waters in the Project Area

Water Body	Pollutant	Source	TMDL Completion Date
Santa Ana River Reach 3	Copper	Unknown	Estimated 2023
	Indicator bacteria	Dairies	05/16/2007 ¹
	Lead	Unknown	Estimated 2023
Prado Flood Control Basin	pH	Unknown	Estimated 2027

TMDL = Total Maximum Daily Load

¹ Middle Santa Ana River Water Bodies – Nitrogen Compounds TMDLs

Source: SWRCB 2018.

Beneficial Uses

The Basin Plan designates beneficial uses for waters in the Santa Ana River Watershed and provides quantitative and narrative criteria for a range of water quality constituents applicable to certain receiving water bodies in order to protect beneficial uses. The beneficial uses established in the Basin Plan for the Santa Ana River Watershed and Reach 3 are shown in Table 3.8-6.

Table 3.8-6. Beneficial Uses Designated by the Basin Plan for Reach 3, Santa Ana River Watershed

Abbreviation	Beneficial Use Definition	Reach 3
GWR	Groundwater Recharge waters are used for natural or artificial recharge of groundwater for purposes that may include, but are not limited to, future extraction, maintaining water quality, or halting saltwater intrusion into freshwater aquifers.	X
REC-1	Water Contact Recreation waters are used for recreational activities involving body contact with water where ingestion of water is reasonably possible. These uses may include, but are not limited to, swimming, wading, water skiing, skin and scuba diving, surfing, whitewater activities, fishing, and use of natural hot springs.	X
REC-2	Non-Contact Water Recreation waters are used for recreational activities involving proximity to water, but not normally body contact with water where ingestion of water would be reasonably possible. These uses may include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, and aesthetic enjoyment in conjunction with the above activities.	X
WARM	Warm waters support warm water ecosystems that may include, but are not limited to, preservation and enhancement of aquatic habitats, vegetation, fish, and wildlife, including invertebrates.	X
LWARM	Limited Warm Freshwater Habitat waters support warm water ecosystems that are severely limited in diversity and abundance.	
COLD	Cold Freshwater habitat waters support coldwater ecosystems.	
BIOL	Preservation of Biological Habitats of Special Significance waters support designated areas of habitats, including, but not limited to, established refuges, parks, sanctuaries, ecological reserves or preserves, and Areas of Special Biological Significance, where the preservation and enhancement of natural resources require special protection.	
WILD	Wildlife Habitat waters support wildlife habitats that may include, but are not limited to, the preservation and enhancement of vegetation and prey species used by waterfowl and other wildlife.	X
RARE	Rare, Threatened, or Endangered Species waters support habitats necessary for the survival and successful maintenance of plant or animal species designated under state or federal law as rare, threatened, or endangered.	X
MUN	Municipal and Domestic Supply waters are used for community, military, municipal, or individual water supply systems. These uses may include, but are not limited to, drinking water supply.	X
AGR	Agricultural Supply waters are used for farming, horticulture, or ranching. These uses may include, but are not limited to, irrigation, stock watering, and support of vegetation for range grazing.	X
IND	Industrial Service Supply waters are used for industrial activities that do not depend primarily on water quality. These uses may include, but are not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well depressurization.	
PROC	Industrial Process Supply waters are used for industrial activities that depend primarily on water quality. These uses may include, but are not limited to, process water supply and all uses of water related to product manufacture or food preparation.	

Abbreviation	Beneficial Use Definition	Reach 3
NAV	Navigation waters are used for shipping, travel, or other transportation by private, commercial, or military vessels.	
POW	Hydropower Generation waters are used for hydroelectric power generation.	
COMM	Commercial and Sport fishing waters are used for commercial or recreational collection of fish or other organisms.	
EST	Uses of water that support estuarine ecosystems including, but not limited to, preservation or enhancement of estuarine habitats, vegetation, fish, shellfish, or wildlife.	
MAR	Use of water that supports marine ecosystems including, but not limited to, preservation or enhancement of marine habitats, vegetation such as kelp, fish, shellfish, or wildlife.	
SPWN	Use of water that supports high-quality aquatic habitats suitable for reproduction and early development of fish.	
SHELL	Use of water that supports habitats suitable for the collection of filter-feeding shellfish for human consumption, commercial, or sports purposes.	
Source: Santa Ana RWQCB 2016		

Water Quality Objectives

The Santa Ana Region Basin Plan establishes water quality objectives for water bodies in the Santa Ana River Watershed to ensure the protection of Beneficial Uses. Table 3.8-7 identifies the water quality objectives for Santa Ana River Reach 3.

Table 3.8-7. Santa Ana River Reach 3 Water Quality Objectives (mg/L) from the Basin Plan

Reach	TDS	HARD	Sodium	Chloride	Nitrogen	Sulfate	Oxygen Demand
Santa Ana River Reach 3	700	350	110	140	10	150	30
Source: Santa Ana RWQCB 2016							

Floodplains

FEMA prepares FIRMs to graphically show areas prone to flooding during 100-year and 500-year frequency floods. **Figure 3.8-3** identifies the flood-prone portions of the project sites based on FEMA FIRMs. Portions of the proposed project are within the 100-year floodplain and within the floodway³ of the Santa Ana River. The project components span four FEMA flood maps (Numbers 06065C0706G, 06065C0710G, 06065C0705G, and 06065C0684G) (FEMA 2008). Figure 3.8-3 shows flood zones in relation to the proposed project components. Table 3.8-8 provides a breakdown of the acreage of each site within the 100-year flood zone and floodway of the Santa Ana River.

³ A *regulatory floodway* means the channel of a river or other watercourse and the adjacent land areas that must be reserved in order to discharge the base flood without cumulatively increasing the water surface elevation more than a designated height (FEMA 2019).

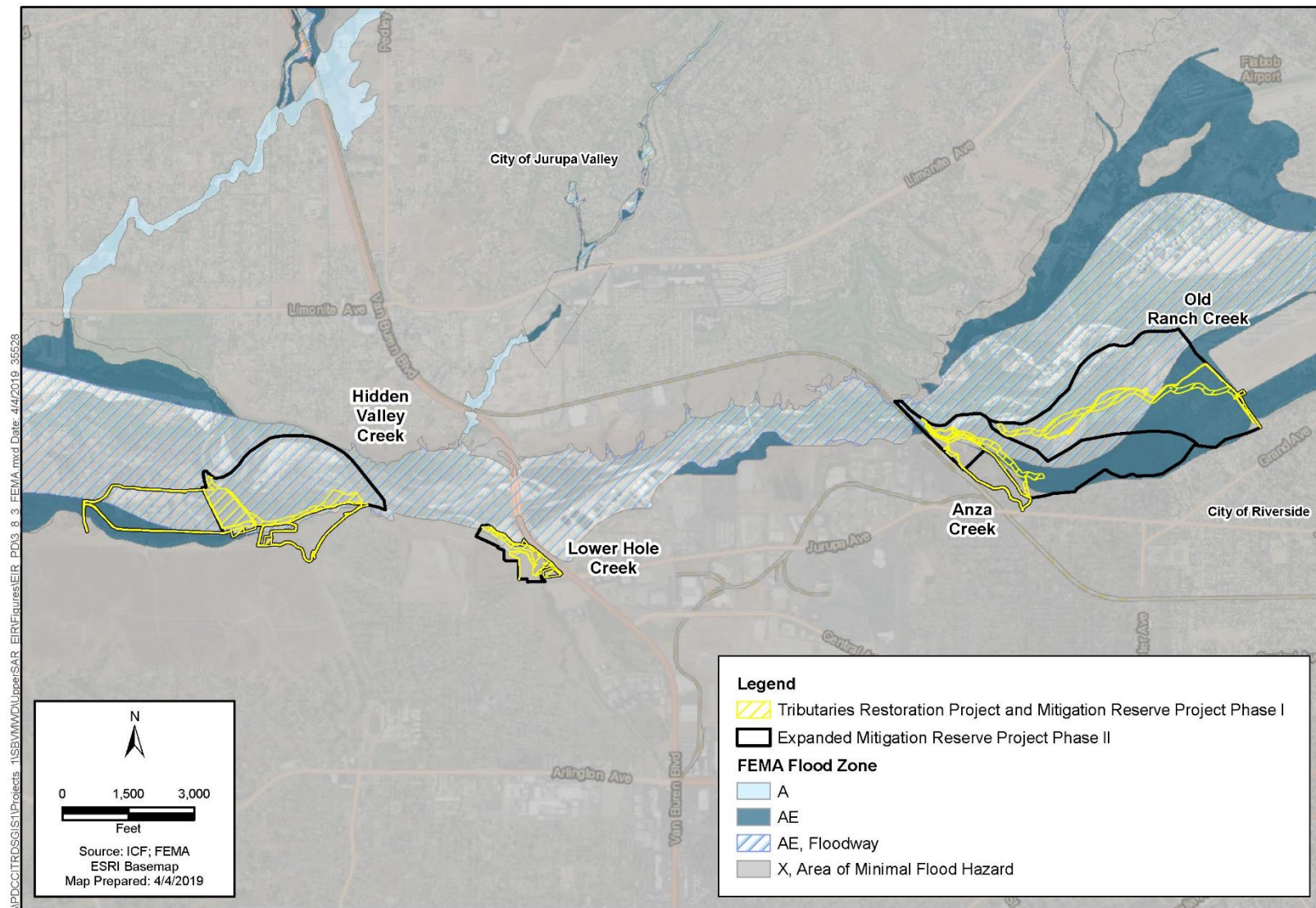


Figure 3.8-3. Floodplain

Table 3.8-8. Flood Zone Acreage by Project Component

Project Site	Flood Zone AE (outside of Floodway)	Flood Zone AE (within Floodway)	Zone X (0.2 Percent Chance of Flood Hazard)
Tributaries Restoration Project and Mitigation Reserve Program Phase I			
Old Ranch Creek	6.64	11.86	0.29
Anza Creek	3.10	4.26	2.51
Lower Hole Creek	0.0	2.43	5.73
Hidden Valley Creek	1.66	26.12	2.67
Total	11.4	44.67	11.2
Expanded Mitigation Reserve Program Phase II			
Old Ranch Creek	72.13	115.79	1.18
Anza Creek	60.92	40.46	4.76
Lower Hole Creek	0.0	3.04	8.56
Hidden Valley Creek	0.0	104.80	0.0
Total	133.05	264.09	14.39

The Santa Ana River Watershed has experienced flooding on numerous occasions in the American era, including floods in 1825, 1862, 1884, 1914, 1916, 1927, 1938, 1965, 1969, 1980, 1983, 1995, 2005, and 2010. In 1938, nearly all bridges across the Santa Ana River were swept away, including the Van Buren Bridge, Riverside Bridge, and the Norco Bridge. The city of Riverside was particularly hard hit by the uncontrolled Santa Ana River, forcing people from their homes in the northern sector of the city (Riverside County Flood Control District 2019).

Two storm periods in January and February of 1969 produced flood peaks in the Santa Ana River at Riverside greater than any in the previous 31 years. The 10-day storm period, January 19–29, produced more than 7 inches of rainfall in Riverside. This was noteworthy, as the annual average rainfall for the previous 89 years was 11 inches. Above-normal rainfall occurred throughout western Riverside County, causing significant flood damage. The northbound lane fill section of Van Buren Boulevard Bridge over the Santa Ana River washed out on January 28, 1969. The President of the United States declared Riverside County, along with 35 other California counties, a disaster area on January 26. February 1969 storm flows caused much more damage than those of January. Antecedent (January) rainfall had rendered watersheds saturated and surface materials loose. This scenario encouraged damaging flows for longer periods and resulted in increased debris volumes. Both southerly concrete spans of the Van Buren Boulevard bridge over the Santa Ana River collapsed. The river also washed out part of the River Road (Auburndale) bridge downstream. (Riverside County Flood Control District 2019).

More recently, from December 2018 through February 2019 during heavy winter storms, emergency services were called to airlift many homeless out of the rising river waters, as these people were being fully surrounded by floodwaters and were stranded; flooding during heavy rains can pose safety hazards to anyone living illegally in the Santa Ana River floodplain area.

Surface Water Allocation

The Santa Ana River Watermaster prepares an annual report required by the Stipulated Judgment in the case of Orange County Water District v. City of Chino, et al., Case No. 117628-County of Orange (Judgment) that became effective on October 1, 1970. The Judgment designated four public agencies to represent the Upper and Lower Areas and gave them the responsibility to meet the obligations set forth in the Judgment to implement the physical solution. Orange County Water District represents the Lower Area while Valley District, Western Municipal Water District, and Inland Empire Utilities Agency represent the Upper Area. Valley District has an obligation to ensure an average annual Adjusted Base Flow 42,000 AF at Prado Dam, inclusive of 15,250 AF at Riverside Narrows, which is located in the project area. Adjusted BASE Flow refers to the actual base flow each year adjusted for water quality pursuant to formulas specified in the Judgment (Valley District 2015).

Groundwater

The Upper Santa Ana River watershed is located in the Upper Santa Ana Valley groundwater basin. Upper Santa Ana Valley is a westward-sloping valley in the Coast Range Mountains of San Benito County. The elevation ranges from 800 to 1,200 feet. Several westward-flowing tributary streams of Santa Ana Creek collect surface drainage, which exits the valley through a narrow gap near the Indart Ranch. The basin is mapped as Quaternary alluvium and is bounded on all sides by Cretaceous marine sediments. The basin boundary confidence is considered high due to clear geologic contacts despite a lack of information regarding groundwater occurrence or movement. Average precipitation is 15 inches.

Groundwater is a major source of water supply in the watershed and is a key component for each agency in the watershed. Protection of this source is critical to maintain the viability of local water supplies. None of the managed groundwater basins from which supply is sourced are in jeopardy of overdraft. There are, however, many key groundwater quality issues in the watershed, including the management of salt, nitrates, and contamination plumes, as well as the presence of nitrates, arsenic, perchlorate, and hexavalent chromium (chromium-6) in water supply wells. The Santa Ana RWQCB's Basin Plan identifies 39 groundwater management zones in the watershed (SAWPA 2019).

The configuration of bedrock and the extensive faulting in the watershed area strongly affect the groundwater in the watershed. Most groundwater basins are unconfined, much like a bowlful of sand that has had water poured in halfway to the top. However, the area's geology, including the variable depth to bedrock and the presence of faults, causes pressure zones where water flows toward, or all the way up to, the surface. In general, groundwater flows in the same direction as surface waters: from the mountains in the east/north to the Pacific Ocean in the west. There are about 40 groundwater basins in the watershed, many of which are interrelated. Some of the largest groundwater basins include the Chino Basin (Chino/Ontario/Fontana area), the Orange County Basin, the Bunker Hill Basin (San Bernardino), the San Timoteo Basin (Yucaipa/Banning/Beaumont area), and the San Jacinto/Hemet Basins.

Anza Creek, Old Ranch Creek Lower Hole Creek, and the eastern portion of Hidden Valley Creek are within the Riverside-Arlington groundwater basin. The western portion of Hidden Valley Creek is within the Chino groundwater basin. **Figure 3.8-4** shows the groundwater basins. In addition, because the proposed project would result in a groundwater pumping exchange between Valley District and RPU, a description of the San Bernardino Basin Area (SBBA) is also provided.

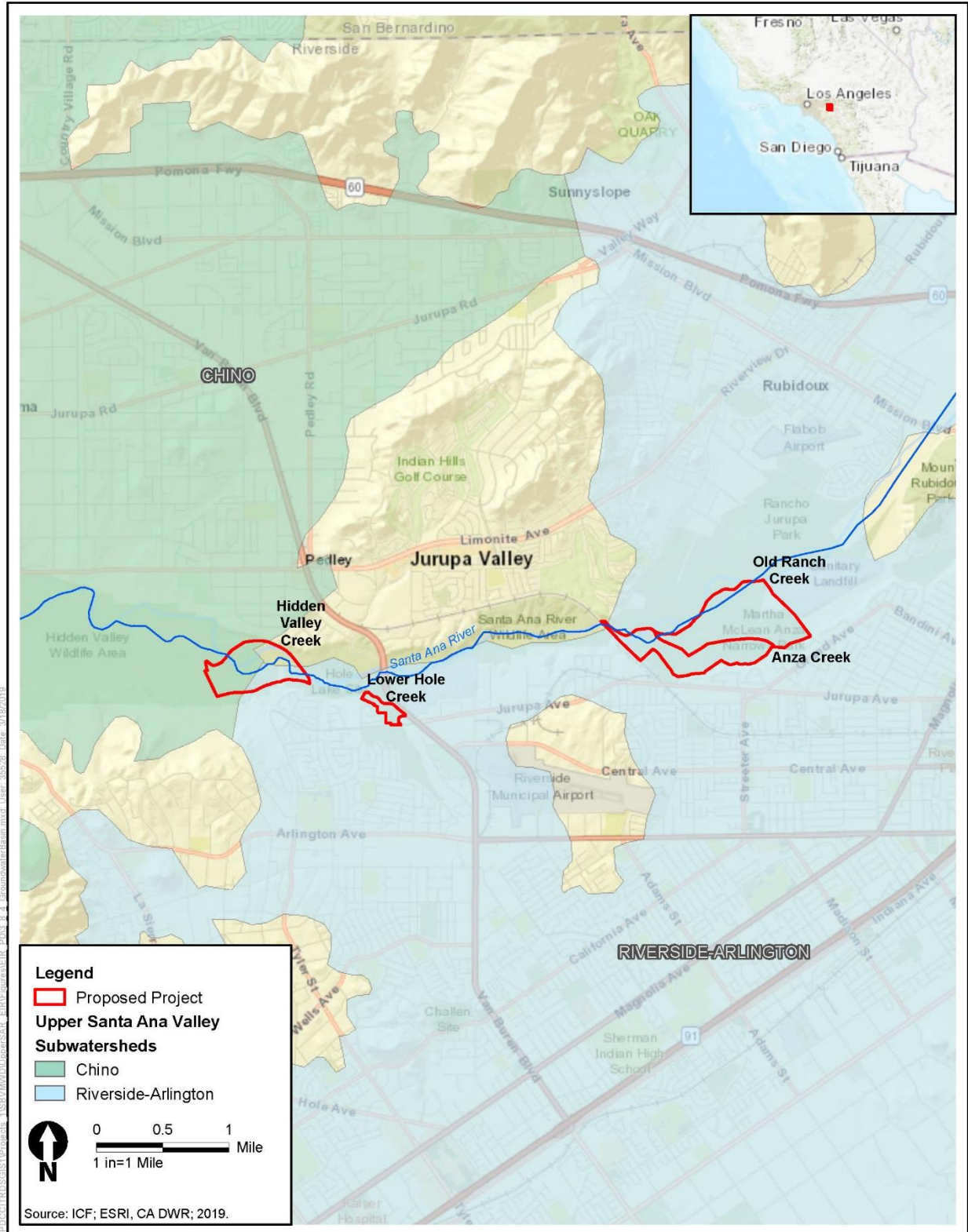


Figure 3.8-4. Groundwater Basins

Riverside-Arlington Subbasin

The Riverside-Arlington Subbasin is within the larger Upper Santa Ana Valley groundwater basin (DWR 2016). This subbasin is bound by impermeable rocks of Box Springs Mountains on the southeast, Arlington Mountain on the south, La Sierra Heights and Mount Rubidoux on the northwest, and the Jurupa Mountains on the north. The northeastern boundary is formed by the Rialto-Colton fault, and a portion of the northern boundary is a groundwater divide beneath the community of Bloomington. The Santa Ana River flows over the northern portion of the subbasin.

The Riverside-Arlington Subbasin is further subdivided by a groundwater divide that roughly parallels the northwest to southeast Monroe and Adams Streets (IEUA 2018). The Arlington Subbasin is to the southwest and the Riverside Subbasin is to the northeast. Groundwater provides only a small portion of the water supplies for the Riverside-Arlington area. Approximately 8,600 AF of groundwater were produced from the area in 2009, with 19 percent coming from private wells for use within the basin and the remaining 81 percent coming from Western Municipal Water District's Arlington Desalter wells. Other water supply sources, including all supplies for municipal use, include groundwater from nearby groundwater basins, such as Rialto-Colton, Riverside, and Bunker Hill; imported water; and recycled water.

Groundwater in the subbasin is generally unconfined and found in alluvial deposits of depths up to 250 feet in the center of the subbasin (IEUA 2018). The Quaternary alluvial deposits consist of gravel, sand, silt, and clay. These materials were deposited by the ancestral Santa Ana River and other surface channels in a bedrock canyon formed by ancient drainage systems running from south to north, emptying into the main portion of the Santa Ana Basin near Colton. Groundwater is produced from the alluvial sediments in the subbasin with recharge from precipitation, applied water, and subsurface flow from the surrounding watersheds. Groundwater flow is toward the southwest (IEUA 2018).

Riverside-Arlington Subbasin Groundwater Quality

Water quality is poor, particularly with respect to ambient water quality related to total dissolved solids (TDS) (on average greater than 950 milligrams per liter [mg/L]) and nitrate (on average greater than 20 mg/L, as nitrogen) (IEUA 2018). TDS and nitrate concentrations have shown little long-term variability since at least the 1950s. The TDS Basin Plan Water Quality Objective is 980 mg/L and the recommended secondary Maximum Contaminant Level is 500 mg/L. The Basin Plan Water Quality Objective for nitrate is 10 mg/L.

Chino Basin

The Chino Basin covers approximately 235 square miles of the upper Santa Ana River watershed. The basin is bounded by the Cucamonga Basin and the San Gabriel Mountains to the north; the Rialto-Colton Basin to the northeast; the chain of Jurupa, Pedley, and La Sierra Hills to the southeast; the Temescal Basin to the south; the Chino and Puente Hills to the southwest; and the San Jose Hills and the Pomona and Claremont Basins to the northwest (IEUA 2018). As one of the largest groundwater basins in Southern California, the Chino Basin contains about 5,000,000 AF of water and has an unused storage capacity of about 1,000,000 AF. The Chino groundwater basin supplies groundwater for municipal and industrial uses, including supplying impaired water for treatment at the Chino Basin Desalter. The Chino Basin Desalter converts unusable groundwater that does not meet potable water standards into reliable potable water supply, provides hydraulic control over

the lower Chino Basin, prevents migration of poor-quality water into the Santa Ana River, and enhances groundwater yield for Chino Basin.

Chino Basin Groundwater Quality

The general water chemistry of groundwater in the Chino Basin is predominantly a calcium-sodium bicarbonate type. The current RWQCB Basin Plan TDS objective is 280 mg/L, based on the maximum concentration of TDS that could be present in water without causing adverse effects on bodies of water within the Chino Basin. The average TDS concentration in the Chino Basin is 484 mg/L and ranges between 200 and 600 mg/L (IEUA 2018).

The Basin Plan nitrate objective for the Chino Basin is 5 mg/L. Similar to TDS, areas with significant irrigated land use or dairy waste disposal histories overlie groundwater with elevated nitrate concentrations. The primary areas of nitrate degradation are the areas formerly or currently overlain by citrus in the northern parts of the Chino Basin.

San Bernardino Basin Area

The 1969 Western-San Bernardino Judgment defines an area known as the SBBA. This area is defined as the “area above Bunker Hill Dike [San Jacinto fault], but excluding certain mountainous regions and the Yucaipa, San Timoteo, Oak Glen and Beaumont Basins.” The SBBA traditionally refers to two groundwater subbasins: Bunker Hill and Lytle Creek (IRWMP 2015).

Bunker Hill Subbasin is the largest subbasin in the Upper Santa Ana River watershed. The basin is bordered on the northwest by the San Gabriel Mountains and Cucamonga fault zone; on the northeast by the San Bernardino Mountains and San Andreas fault zone; on the east by the Banning fault and Crafton Hills; and on the south by a low, east-facing escarpment of the San Jacinto fault and the San Timoteo Badlands. Groundwater in the Bunker Hill Subbasin generally flows in a southwesterly direction from the San Bernardino Mountains to the Colton Narrows. The San Jacinto fault generally runs perpendicular to the groundwater flow and acts as a partial barrier, resulting in water level differences across the fault. This phenomenon also contributes to the high groundwater located within the city of San Bernardino, commonly referred to as the “pressure zone.” In the past, water levels in the pressure zone were raised high enough to cause artesian conditions (IRWMP 2015).

Lytle Creek Subbasin is not mapped in DWR Bulletin 118; however, the subbasin is an integral part of the Upper Santa Ana Valley groundwater basin and a major recharge area for both the Bunker Hill and Rialto-Colton Subbasins. The Lytle Creek Subbasin is adjoined on the west by the Rialto-Colton Subbasin along the Lytle Creek fault, and on the east and southeast by the Bunker Hill Subbasin along the Loma Linda fault and Barrier G. The northwestern border of the subbasin is delineated by the San Gabriel Mountains, and runoff from the mountains flows south/southeast through Lytle and Cajon Creeks into the basin. Historically, local agencies have recognized Lytle Creek Subbasin as a distinct groundwater subbasin (IRWMP 2015).

The Lytle Creek Subbasin contains Lytle Creek, with extensive headwaters in the adjacent mountain areas and a river channel comprising deep, porous alluvial deposits. Sediments within the Lytle Creek Subbasin are, for the most part, highly permeable, and the aquifer has a high specific yield. Water levels in the Lytle Creek Subbasin have fluctuated in excess of 200 feet over relatively short periods (fewer than 5 years) and in select wells (e.g., City of Rialto’s City No. 1 well) (IRWMP 2015).

The entire SBBA has a surface area of approximately 141 square miles or 90,000 acres and lies between the San Andreas and San Jacinto faults. The numerous faults surrounding the SBBA impede the movement of groundwater and produce springs and a high water table in several areas. The SBBA is uniquely constrained by shallow groundwater levels when the basin is too full and causes a liquefaction hazard (IRWMP 2015).

Estimates of the change in groundwater volume, or storage, in the SBBA are made annually. The SBBA has an estimated storage capacity of 5,976,000 AF. In general, the far eastern and northwestern portions of the Bunker Hill Subbasin show the largest decreases in groundwater elevation, while the rest of the subbasin shows mostly stable or increasing elevations (IRWMP 2015).

Percolation from streams is the major source of recharge in the SBBA. Recharge occurs both in the stream channels and in nearby artificial recharge basins. As a result of the highly permeable river channel deposits and the artificial recharge operations, nearly all of the flow in the smaller streams is recharged to the upper and middle aquifers close to the mountain front (IRWMP 2015).

3.8.3 Environmental Impacts

Methods for Analysis

This analysis utilizes available hydrology data, floodplain data, and groundwater data produced by planning and resource agencies, including FEMA and local governments, to determine the effect the proposed project would have on hydrology, and analyzes the significance of such impacts based on the potential for the proposed project to affect groundwater resources and result in additional flooding or alter drainage patterns. As described below, criteria from Appendix G of the California Environmental Quality Act (CEQA) Guidelines were used to determine whether the proposed project would have a significant impact on hydrology and water quality. Impacts related to hydrology and water quality were assessed by comparing baseline conditions, as described in Section 3.8.2, *Environmental Setting*, to conditions during construction and/or operation of the proposed project and reviewing applicable documents such as the County of Riverside and cities of Riverside and Jurupa Valley general plans.

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Violation of any water quality standards or waste discharge requirements.
- Substantial depletion of groundwater supplies or substantial interference with groundwater recharge, resulting in a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted).
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on site or off site.

- Substantial alteration of the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantial increase in the rate or amount of surface runoff in a manner that would result in flooding on site or off site.
- Creation or contribution of runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff.
- Other substantial degradation of water quality.
- Placement of housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map.
- Placement of structures that would impede or redirect floodflows within a 100-year flood hazard area.
- Exposure of people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam.
- Contribution to inundation by seiche, tsunami, or mudflow.

As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this Environmental Impact Report) prepared for the proposed project considered and then eliminated a number of thresholds determined to be less than significant from further analysis. The proposed project would not: violate any water quality standards or Waste Discharge Requirements or otherwise substantially degrade surface or groundwater quality; create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; release pollutants due to project inundation from flood hazard, tsunami, or seiche zones; otherwise substantially degrade water quality; and place housing within a 100-year flood hazard area. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

Impact HYD-1: Substantial depletion of groundwater supplies or substantial interference with groundwater recharge (Less-than-significant impact)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Anza Creek and Lower Hole Creek currently have sufficient perennial flows to support Santa Ana sucker populations. These sites would continue to function as they do today, albeit with improved flow conveyance to the Santa Ana River. However, the Hidden Valley Creek and Old Ranch Creek restoration sites do not have a perennial (e.g., continually recurring) source of water and the restored tributaries would require a consistent and reliable source of water to support Santa Ana sucker populations. Old Ranch Creek used to convey more water than it currently does, and currently the drainage is dry most of the year and typically only receives water during storm events (Appendix A). The Hidden Valley Creek site was previously supplied with treated wastewater from the City of Riverside's Regional Water Quality Control Plant nearby at 5950 Acorn Street in the city of Riverside, but the conveyance systems to the site have been damaged, cutting off the supply of wastewater to the site (Appendix A). At Anza Creek, surface water is currently supplied by natural

springs to create perennial flows. Typical existing flows in the creek are 1 cfs or less (Appendix A). Stormwater also enters the site from another culvert outfall at the far southeast corner of Martha McLean-Anza Narrows Park. Stormwater from Anza Drain flowing under the Santa Ana River Trail Bike Path encounters an alluvial fan as it enters the site, causing the water to spread out into different flow paths, with some of the water directed to the northwest toward the Anza Creek channel and some flowing to the north and east away from the channel. The exact distribution of the flow changes with flow level and the configuration of the fan, which also changes in response to sedimentation and vegetation. This currently results in not all of the water delivered to the site by Anza Drain ultimately making its way into the Anza Creek channel. However, this water would be redirected into the newly defined channel with implementation of the Tributaries Restoration Project and Mitigation Reserve Program Phase I and would provide sufficient water flows for the channel.

Lower Hole Creek's current water sources include treated effluent and urban runoff, including runoff from Van Buren Boulevard that enters the site from the east downstream of Jurupa Avenue, runoff from the Greenbelt area (south of Victoria), locally rising groundwater, and occasional flow from the Riverside Canal. These sources provide enough water for Lower Hole Creek to be a perennial channel throughout the year with low flows typically less than 0.5 cfs (Appendix A). The urban watershed causes rapid runoff during rain events and periodic flooding. In some reaches of the creek, particularly immediately downstream of Jurupa Avenue, the channel is hydrologically connected to a floodplain that allows flood flows to overbank, spread out, and reduce the overall channel velocity and erosive energy. Therefore, there would be sufficient water flows for the channel to remain wet but conditions would be improved following the proposed channel work.

New groundwater wells and pumps would be constructed at the upstream extent of the Old Ranch Creek and Hidden Valley Creek channels to provide perennial flows. The exact locations and capacities of the new pumps have not yet been determined but would be within the RPU service area, as described further in Section 3.13, *Utilities and Service Systems*. Construction of the groundwater wells would require subsurface borehole drilling, well construction, well development, well testing, and site upgrades. Site upgrades would include the construction of a small well building to house the pump, discharge piping, and electrical equipment. Future groundwater studies would be conducted to determine the precise locations and achievable flow rates from the new pumps. For Hidden Valley Creek, the current estimate would be in the range of 1 to 3 cfs or a maximum of 2,330 acre-feet per year (AFY). For Old Ranch Creek, it is anticipated that it would also be in the range of 1 to 3 cfs or a maximum amount of 2,171 AFY. The new pumps would have the ability to vary flow rates so that pulses of higher flows can be periodically routed down the channels to flush fine sediment accumulations on gravel substrate.

The groundwater wells would be constructed within the Riverside-Arlington groundwater basin, which is outside Valley District's service area and within the RPU and Western Municipal Water District's service area. Valley District is currently working on a water exchange agreement with RPU to construct the groundwater wells within its service area and pump up to 4,501 AFY to supply groundwater to the Hidden Valley Creek and Old Ranch Creek channels. The water pumped within the RPU service area for the proposed project would be exchanged through a bucket-for-bucket in-lieu program, which would provide RPU the same amount of groundwater at a location of its preference within the SBBA. This water exchange agreement would allow RPU greater flexibility in its distribution system given that RPU currently has limitations on the amount of water that can be pumped from the SBBA. By allowing Valley District to pump from its extraction rights in the

Riverside-Arlington groundwater basin, RPU can secure a supply higher in the watershed, allowing for flexibility in the distribution of supplies to customers in its service area and resulting in efficiencies in water use and an overall cost savings.

The agreement with RPU and Valley District would essentially exchange the groundwater pumping locations. Because RPU would be pumping the groundwater from the SBBA, it would not need to pump groundwater from the Riverside-Arlington groundwater basin, allowing Valley District to instead use that water for the proposed project. Therefore, the proposed project would not result in additional groundwater withdrawals from the Riverside-Arlington groundwater basin. As described further in Section 3.13, *Utilities and Service Systems*, Valley District has surplus groundwater supplies within the SBBA to support the proposed project's additional pumping from the SBBA by RPU. As such, the implementation of the groundwater wells and withdrawal of up to 4,501 AFY would not result in substantial depletion of groundwater supplies from the Riverside-Arlington groundwater basin or SBBA, and impacts would be considered less than significant.

The restoration activities would include defining channels and drainage patterns to create habitat while enhancing connection to the floodplain to prevent channel downcutting and bank erosion. This could lead to modifying groundwater infiltration during dry-weather and wet-weather conditions. The groundwater pumped would be used as surface flow in the channels and then the water would be returned to the mainstem Santa Ana River to flow downstream. Part of the pumped groundwater used as surface flows would infiltrate back into the groundwater basin from within the new or restored creek beds and within the Santa Ana River. While up to 4,501 AFY would be used as surface flow in the Tributaries Restoration Project and Mitigation Reserve Program Phase I component, not all of the water would be consumed by native vegetation in the channels and evapotranspiration. Overall groundwater infiltration during storm events would likely increase compared to existing conditions through the proposed restoration of floodplain connectivity with the channels and establishing new ones in certain areas. Existing storm flows would be able to better spread across a wider area and infiltrate throughout the restoration area instead of being confined to a steep, narrow channel and rapidly conveyed downstream as currently exists at the sites. The return surface flows not infiltrated into the channels and Santa Ana River would also be recaptured by regional facilities designed to recharge the groundwater basin, such as at Prado Dam, which is also within the Upper Santa Ana Valley groundwater basin. Most of the pumped groundwater would ultimately be infiltrated back into the watershed and within the Upper Santa Ana Valley groundwater basin. In addition, establishing native plant species throughout the restoration area would potentially increase groundwater recharge as well compared to the existing nonnative species. Typically, plant species native to Southern California use water more efficiently than nonnative species and could increase the availability of shallow groundwater in the restoration areas. As such, the proposed project would not result in substantial interference with groundwater recharge and impacts would be considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be expanded in scope in order to recover sites to natural conditions and restore habitat while increasing mitigation credits available within the Expanded Mitigation Reserve Program Phase II project area. The Anza Creek and Old Ranch Creek sites are likely to be affected through opportunities for alkali marsh rehabilitation, upland

rehabilitation, floodplain extension, and further management of invasive wildlife species. In the Lower Hole Creek site, impacts are likely to involve activities for restoring upland vegetation and controlling nonnative invasive plant and wildlife species. The Hidden Valley Creek site may be affected by excavations for the enhanced floodplain habitat, oxbow feature, and management of invasive wildlife species. The Expanded Mitigation Reserve Program Phase II component would not result in the need for additional groundwater supplies and would not result in a substantial interference with groundwater recharge. The Expanded Mitigation Reserve Program Phase II impacts on groundwater supplies and groundwater recharge would be considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Impact HYD-2: Substantial alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on site or off site (Less-than-significant impact)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The proposed project restoration sites would be designed to restore existing channels and create new channels in portions of the restoration sites that do not currently have an existing channel, or have a poorly defined channel, and thus would require new channel construction. Each of the restoration sites currently exhibits some form of erosion or siltation within the channels. The proposed project would include floodplain construction in channel reaches that would allow flood water that is currently confined to spill out of the channel, thereby reducing the flow's energy and reducing the potential for future channel incision and bank erosion.

During construction, the drainage pattern of the site or area may be temporarily altered and could result in local (on-site) and temporary erosion, or siltation. However, the proposed project would comply with the Construction General Permit and would implement a SWPPP to reduce the potential for erosion or siltation on site/off site as a result of altering existing drainage patterns. As part of the SWPPP, erosion and sediment control measures, such as silt fences and straw wattles, would be implemented to prevent sediment from entering surface waters during construction. Furthermore, efforts would be made to conduct the majority of land-disturbing work outside of the typical wet season and minimize the potential for large rain events to mobilize loose sediment during construction. Following construction and other ground-disturbing activities, drainage patterns would be stabilized with temporary erosion control BMPs and vegetation to prevent erosion and siltation.

The lowermost 600 feet of the Anza Creeks channel's bank are lined with rip-rap, with some sections grouted in concrete. This section of bank parallels the Santa Ana River Trail Bike Path and was constructed to protect against future erosion from the Santa Ana River. Approximately 800 feet upstream of the confluence with the Santa Ana River, Anza Creek's bank that adjoins Martha McLean-Anza Narrows Park exhibits extensive erosion. The section of fine-grained eroding and largely unvegetated bank is about 580 feet long with typical bank heights of 10 feet. A deep pool about 150 feet long and several feet deep is located at the base of the eroding bank. The tall, steep, and eroding bank would be recontoured as part of the proposed project to reduce the bank steepness and its susceptibility to continued erosion. The large and deep pool would be recontoured to provide more ideal habitat to support Santa Ana sucker populations. Additional areas of floodplain would be created along sections of Anza Creek that would further increase floodplain

connectivity and opportunities for flood flow to spread out rather than being confined to the channel.

The Jurupa Avenue crossing at the upstream boundary of Lower Hole Creek traps sediment that, in combination with increased peak flows from urbanization, has likely exacerbated channel downcutting in Lower Hole Creek downstream of the crossing. The channel downcutting created many sections of tall, oversteepened, and unstable banks that deliver fine-grained sediment into the channel and diminish the quality of the gravel material desirable for Santa Ana sucker habitat. Approximately 575 linear feet of channel bank, split into five different areas located throughout Lower Hole Creek downstream of Jurupa Avenue, exhibit excessive erosion. Many of these areas are along the toes of steep and tall hillslopes where floodplain excavation is not feasible. Bank stabilization in these areas would incorporate bank excavation to reduce steepness and methods of placing rock, large wood, and plantings along the toe to build a narrow bench that separates the active channel from the eroding bank and provides a buffer to keep erosive shear stresses away from the erodible soil that makes up the hillslopes. The proposed project would result in floodplain creation to provide additional areas where overbank flows can spread out into riparian zones and reduce shear stress in the channel that contributes to channel downcutting and bank erosion.

The Hidden Valley Creek site was previously supplied with treated wastewater from the City of Riverside's Regional Water Quality Control Plant upstream. The wastewater was routed alongside the Santa Ana River low-flow channel, separated by a berm, until it reached the upstream end of the site and entered a headworks structure and a 4,000-foot-long canal that routed the water to the site. The canal is narrow and deep with steep banks that are unvegetated and eroding in sections. A major storm in 2010 led the Santa Ana River to erode the berm separating the wastewater from the river, damaged the headworks infrastructure, and lowered the riverbed by about 8 feet, thereby cutting off the supply of gravity-fed wastewater. Using water from the river would have required a pump to overcome the elevational change to supply the water. Therefore, Hidden Valley Creek does not currently contain a tributary channel or connection to the Santa Ana River. A new channel would be constructed as part of this project. The new channel's alignment would take a similar alignment as the existing canal on the site that formerly conveyed the treated wastewater to the west. The new channel would be designed to have a floodplain and provide new opportunities for flood flow to spread out rather than be confined to the channel.

A commonality among each restoration site is that the existing channels are often relatively deep and confined due to human alteration and degradation, with reduced opportunities for floodplain inundation. As a result, flood flows are largely confined to the channel and the erosive shear stresses exerted on the channel bed and banks are heightened. The restored and newly created channels would be designed to convey flood flows in earthen channels connected to floodplains that would enhance resiliency to channel erosion and avoidance of siltation. The proposed project would result in net excavation and removal of earth from each of the sites, thereby creating additional floodplain conveyance beyond existing conditions. The additional conveyance would reduce channel downcutting, bank erosion, and siltation both on site and downstream in the Santa Ana River. Additionally, there would be recontouring, bank stabilization, and revegetation work in the restoration areas to treat previously eroded areas. Collectively, the proposed work would lead to less erosion or siltation on site or off site when compared to existing conditions. As such, the proposed project would not result in substantial erosion or siltation on site or off site and impacts would be considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be expanded in scope in order to recover sites to natural conditions and restore habitat while increasing mitigation credits available within the Expanded Mitigation Reserve Program Phase II project area. The project sites are largely dominated by nonnative species that do not support local native habitat and species. As identified above, the Expanded Mitigation Reserve Program Phase II component would result in the implementation of additional native habitat that would support native species. The change in vegetation within the Expanded Mitigation Reserve Program Phase II areas would not result in substantial alteration of existing drainage patterns in a manner that would result in substantial erosion or siltation on site or off site, and impacts would be considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Impact HYD-3: Substantial alteration of existing drainage patterns in a manner that would result in flooding on site or off site (Less-than-significant impact)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

As described in Chapter 2, *Project Description*, the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites are existing drainages that receive runoff from the surrounding areas and are tributaries to the Santa Ana River. The Anza Creek and Old Ranch Creek sites occupy the same overall area on the Santa Ana River's south floodplain. The Lower Hole Creek site begins downstream of Jurupa Avenue where the stream passes under the road through a large 40-foot concrete box culvert. Lower Hole Creek meets the Santa Ana River at the downstream end. The Hidden Valley Creek site is on the inside of a meander bend on the south side of the Santa Ana River.

The proposed project would alter the existing drainage pattern in certain parts of the tributary restoration sites through the creation of new channel and enhancement of existing channels, but not in a manner that would result in flooding. The proposed project is designed to simulate the historical conditions on the project sites to reestablish connectivity of each of the tributaries to the Santa Ana River, with the exception of Hidden Valley Creek. The restored and newly created channels would be designed to convey flood flows in earthen channels connected to floodplains. The proposed project would result in net excavation and removal of earth from each of the sites, thereby creating additional floodplain conveyance beyond existing conditions. All future flooding would occur within the designated restoration areas that all have land uses compatible with flooding. Flood flow paths would continue to follow the same alignment as they currently do and no infrastructure would be put at additional risk of flooding due to the project.

Construction of new floodplains would allow flood water that is currently confined to spill out of the channel, thereby reducing the flow's energy and reducing the potential for future channel incision and bank erosion. Floodplain construction would also create the hydrologic conditions necessary to support certain native riparian species that cannot exist in upland environments. The new floodplain would be constructed by excavating the ground adjacent to the channel to lower the elevation of the top of the channel's bank and increase the frequency with which flood water would be able to spill out of the channel and overbank onto the new floodplain. Anza Creek has several reaches where the channel is confined by steep and tall banks with little to no floodplain connectivity. Approximately 1.1 acres of new floodplain bench would be created, spread out over five different areas, by excavating the high ground adjacent to the low-flow channel. The typical

width of the inset floodplain areas would be 20–40 feet, and the average excavation depth would be 2–3 feet. At Old Ranch Creek, approximately 0.6 acre of floodplain bench would be created. A new riparian corridor would be created, adjacent to which nonnative plants would be removed and new native vegetation would be planted. The riparian corridor would be approximately 100 feet wide (50 feet on either side of the channel). At Lower Hole Creek, approximately 0.5 acre of new floodplain would be created, spread out over nine different areas, by excavating the high ground adjacent to the low-flow channel. The typical width of the inset floodplain areas would be 25–75 feet, and the average excavation depth would be 3–4 feet. The floodplain creation would provide additional areas where overbank flows can spread out into riparian zones and reduce the shear stress levels in the channel that contribute to channel downcutting and bank erosion. At Hidden Valley Creek, approximately 1.3 acres of floodplain bench would be created. Future design work would use hydraulic modeling to aid in refining elevations, widths, and gradients of constructed floodplain features.

Habitat for native species would be created by restoring existing channels and establish new ones in certain areas. In addition, local flood conveyance would be improved by creating new floodplain and riparian corridors and making the channel's hydraulic capacity more efficient when compared to its existing degraded state. The proposed project would not introduce new flood flows to the project tributaries. The proposed project would not result in changes to the existing stormwater flows that discharge into each of the sites. As a result, the proposed project would improve drainage conditions for each of the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites and would improve the creek's capacity to absorb flood flows prior to discharging into the Santa Ana River, similar to natural historical conditions within the watershed.

During construction, the drainage pattern of the site or area may be temporarily altered and could result in local (on-site) and temporary flooding. However, implementation of the SWPPP would reduce the potential for flooding on site/off site as a result of altering existing drainage patterns. As part of the SWPPP, runoff control measures, such as stream diversions, would be implemented during construction. Furthermore, efforts would be made to conduct the majority of land-disturbing work outside of the typical wet season and minimize the potential for large rain events to flood the project construction area. Following construction and other ground-disturbing activities such as floodplain enhancement, drainage patterns would be restored and improved. As a result, the proposed project would not result in substantial alteration of existing drainage patterns in a manner that would result in flooding on site or off site, and impacts would be considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

As identified above, the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be expanded in scope in order to recover sites to natural conditions and restore habitat while increasing mitigation credits available within the Expanded Mitigation Reserve Program Phase II project area. The change in vegetation within the Expanded Mitigation Reserve Program Phase II areas would not result in substantial alteration of existing drainage patterns in a manner that would result in substantial flooding on site or off site, and impacts would be considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Impact HYD-4: Placement of structures that would impede or redirect floodflows within a 100-year flood hazard area (Less-than-significant impact)**Tributaries Restoration Project and Mitigation Reserve Program Phase I**

The proposed project is within the 100-year floodplain and within the floodway of the Santa Ana River. Table 3.8-4 provides a breakdown of the acreage of each site within the 100-year flood zone and floodway of the Santa Ana River. The restoration site designs include construction of wood and rock habitat structures to add immediate habitat to the enhancement sites. Several structures have been designed specifically for the Tributaries Restoration Project and Mitigation Reserve Program Phase I and would be appropriately sized for the small channels in which they would be constructed. The objective of the wood and rock structures is to create a flow obstruction that would alter hydraulics in a manner necessary to keep sand from accumulating on the gravel substrate in the vicinity of the structure. The structures would also provide deeper pools and overhang for cover for Santa Ana suckers. One instream woody material structure would be constructed for approximately every 200 feet of channel to aid in diversifying hydraulic conditions that would create and sustain habitat complexity at each of the restoration sites. Figure 2-10, as shown in Chapter 2, *Project Description*, shows the types of habitat structures for the restoration sites. The instream woody material structures are considered a natural structure found in creek habitats necessary to support fish species and are not considered a permanent structure that would impede or redirect flood flows. Importantly, the habitat structures are designed to alter hydraulics of bankfull or lower flows. At high flows during storm events, the flood water would overtop the structures and the effect of the structures on flow resistance would be diminished.

Restoring existing channels and floodplain connectivity would enhance natural flood-carrying functions of each of the tributaries in restoration areas that would serve to lower flood elevations. As shown in Table 3.8-9, the proposed project would create a new channel, enhance an existing channel, remove sediment to recreate the channel and floodplain, create channel pools and in-stream habitat structures, and create floodplain bench and riparian habitat at each of the tributary restoration sites. These estimates are based on the current design (Appendix C) and are subject to change based on future design work and habitat changes at each of the sites.

Table 3.8-9. Tributary Floodplain Improvements

Project Site	Linear Feet of New Channel	Linear Feet of Enhanced Channel	Cubic Yards of Sediment Removal	Number of Channel Pools	Number of In-Stream Habitat Structures	Acres Floodplain	Acres Riparian Habitat
Tributaries Restoration Project and Mitigation Reserve Program Phase I							
Old Ranch	3,870	3,144	5,357	28	84	0.6	2.5
Anza Creek	1,107	2,322	1,735	11	21	1.1	2.1
Lower Hole Creek	-	442	4,875	17	14	0.5	1.7
Hidden Valley Creek	2,538	1,782	18,506	14	85	1.3	6.3
Total	7,515	7,690	30,473	70	204	3.5	12.6

Source: Appendix C

While the restoration areas are within the 100-year flood hazard area of the Santa Ana River, the proposed bank stabilization and habitat structure construction on the four tributaries would have a

negligible or positive effect on the Santa Ana River 100-year flood hazard area. The proposed project would not introduce new flood flows to the project tributaries. The proposed project would not result in changes to the existing stormwater flows that discharge into each of the sites or within the Santa Ana River. The restored and newly created channels are designed to convey flood flows in earthen channels connected to floodplains. The proposed project would result in net excavation and removal of earth from each of the tributary restoration sites, thereby creating additional floodplain conveyance beyond existing conditions (Table 3.8-9). The flood attenuation benefits that would be created by excavation of new floodplain would more than compensate for any local rise in water surface elevation created by construction of the proposed habitat structures. All future flooding would occur within the designated restoration areas that all have land uses compatible with flooding. Flood flow paths would continue to follow the same alignment as they currently do and no infrastructure would be put at additional risk of flooding due to the project. Because the proposed project would not result in the placement of structures that would impede or redirect flood flows within a 100-year flood hazard area, impacts would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

As identified above, the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be expanded in scope in order to recover sites to natural conditions and restore habitat while increasing mitigation credits available within the Expanded Mitigation Reserve Program Phase II project area. The Expanded Mitigation Reserve Program Phase II component would result in the implementation of additional native habitat that would support native species. The new habitat is anticipated to be less dense than the current nonnative habitat, which would help flood flows spread out farther within the native vegetation and potentially reduce the flood flows from the Santa Ana River compared to existing conditions. The change in vegetation within the Expanded Mitigation Reserve Program Phase II areas would not result in placement of structures that would impede or redirect flood flows within a 100-year flood hazard area, and impacts would be considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Impact HYD-5: Exposure of people or structures to significant risk involving flooding, including flooding as a result of the failure of a levee or dam (Less-than-significant impact)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The Santa Ana River mainstem includes the Seven Oaks Dam as a major feature. The proposed project is downstream of the Seven Oaks Dam. Seven Oaks Dam, a 550-foot-high and 2,980-foot long rockfill dam with a gross capacity of 145,600 AF, was constructed in the upper Santa Ana Canyon. The dam reduced the Reservoir Design Flood inflow of 85,000 cfs to a controlled outflow of 7,000 cfs, to provide 350-year flood protection. The Seven Oaks Dam is operated in tandem with Prado Dam, also on the Santa Ana River 38 miles downstream of Seven Oaks Dam (and downstream of the proposed project), to provide flood protection to Orange County. The Seven Oaks Dam is designed to resist an earthquake measuring 8.0 magnitude on the Richter scale. The proposed project would not result in modifications to Seven Oaks Dam or Prado Dam.

The proposed project does not involve any flood control structures, such as levees or dams that would be relied upon to protect people or structures from significant risk of loss, injury, or death

involving flooding. There are no proposed water-bearing structures as part of the project that could fail and release large volumes of water. The primary flood risk in the area is the Santa Ana River and the proposed project would have a negligible or positive impact on Santa Ana River flood risk. The proposed project focuses on restoring existing channels and the existing floodplain tributaries and enhancing existing riparian and floodplain habitats to provide native fish habitat on tributaries of the Santa Ana River. The proposed project would not present any additional flood risk to people or structures over existing conditions and would provide a positive effect on flood flows within the four tributaries. Therefore, the proposed project would not expose people or structures to significant risk involving flooding, including flooding as a result of the failure of a levee or dam, and impacts would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

As identified above, the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be expanded in scope in order to recover sites to natural conditions and restore habitat while increasing mitigation credits available within the Expanded Mitigation Reserve Program Phase II project area. The change in vegetation within the Expanded Mitigation Reserve Program Phase II areas would not expose people or structures to significant risk involving flooding, including flooding as a result of the failure of a levee or dam, and impacts would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Impact HYD-6: Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan (New CEQA Threshold) (Less-than-significant impact)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The Santa Ana Region Basin Plan applies to the project sites. The proposed project would not introduce any new pollutant sources that could degrade water quality within the Santa Ana River or its tributaries. The proposed project would include floodplain construction in channel reaches that would allow flood water that is currently confined to spill out of the channel, thereby reducing the flow's energy and reducing the potential for future channel incision and bank erosion. As a result, the proposed project would result in a reduction of erosion and sedimentation compared to existing conditions and would have a positive effect on water quality within the tributaries. The project would create conditions for more natural function of the tributaries within the restoration areas with interactions between floodplain and channel that do not currently exist. This would allow some treatment of stormwater during rain events from riparian vegetation as the flood flows over onto the newly created floodplain and riparian areas. Overall, the proposed project would result in a positive effect on water quality. As such, the proposed project would not conflict with or obstruct implementation of a water quality control plan, and impacts would be considered less than significant.

During ground-disturbing or construction activities, stormwater BMPs would be implemented as required by federal, county, and local policies to minimize degradation of water quality associated with erosion, stormwater runoff, or construction-related pollutants. In addition, construction and maintenance activities would be in compliance with local stormwater and grading and erosion

control ordinances, and regional Waste Discharge Requirements. As part of compliance with the Construction General Permit, for instance, standard erosion and sediment control measures and other housekeeping BMPs, such as vehicle and equipment maintenance, and solid waste management would be identified in the required SWPPP. Other measures in the SWPPP would include a range of stormwater control BMPs (e.g., installing silt fences, staked straw wattles, or geofabric to prevent silt runoff to waterways). The Construction General Permit also requires stormwater discharges not to contain pollutants that cause or contribute to an exceedance of any applicable water quality objectives or water quality standards, including designated beneficial uses. Therefore, construction and operational impacts of the proposed project would not conflict with or obstruct implementation of a water quality control plan, and impacts would be less than significant.

The project area is within the Riverside-Arlington Subbasin, which was designated high priority by the DWR. The Western Municipal Water District became the Groundwater Sustainability Agency for the subbasin and a Groundwater Sustainability Plan is anticipated to be completed in 2021. As identified in Impact HYD-1, the proposed project would utilize groundwater for surface flow in the channels and then the water would be returned to the mainstem Santa Ana River to flow downstream. Up to 4,501 AFY would be used as surface flow in the Tributaries Restoration Project and Mitigation Reserve Program Phase I component; however, not all of that water would be consumed by native vegetation in the channels and evapotranspiration. Part of the pumped groundwater used as surface flows would be infiltrated back into the groundwater basin from within the new or restored creeks beds and within the Santa Ana River. Overall groundwater infiltration would likely increase compared to existing conditions through the proposed restoration of floodplain connectivity with the channels and establishing new floodplain areas that would enhance opportunities for groundwater recharge. Existing storm flows would be able to better spread across a wider area and infiltrate throughout the restoration area instead of being confined to a steep, narrow channel and conveyed downstream, as currently exists at many locations throughout the sites. The return surface flows not infiltrated into the channels and Santa Ana River would also be recaptured by regional facilities designed to recharge the groundwater basin, such as at Prado Dam, which is within the same Upper Santa Ana Valley groundwater basin. Most of the pumped groundwater would ultimately be infiltrated back into the watershed. In addition, as identified in Section 3.13, *Utilities and Service Systems*, Valley District is currently working on a water exchange agreement with RPU in which groundwater would be exchanged through a bucket-for-bucket in-lieu program, allowing RPU to pump the same amount of groundwater from the SBBA rather than the Riverside-Arlington groundwater basin. This water exchange agreement would allow RPU greater flexibility in its distribution system given that RPU has limitations on the amount of water that can be pumped from the SBBA. RPU would have the benefit of being able to pump groundwater farther up in the watershed allowing for flexibility in the distribution of supplies to customers in its service area, resulting in cost savings. This would ultimately allow for greater efficiencies of groundwater supplies throughout the region that would ultimately support restoration for threatened and endangered fish species. As such, the proposed project would not conflict with or obstruct implementation of a sustainable groundwater management plan, and impacts would be considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

Similar to the Tributaries Restoration Project and Mitigation Reserve Program Phase I, the Expanded Mitigation Reserve Program Phase II would need to comply with local stormwater and

grading and erosion control ordinances, and the Construction General Permit. The Expanded Mitigation Reserve Program Phase II component would not result in the need for additional groundwater supplies and would not result in a substantial interference with groundwater recharge. The Expanded Mitigation Reserve Program Phase II impacts would not conflict with or obstruct implementation of a sustainable groundwater management plan, and impacts would be considered less than significant.

Significance Determination: Less than significant. No mitigation necessary.

3.9 Noise

This section addresses the potential noise and vibration impacts of the proposed project. It includes a discussion of existing regulatory requirements, the existing noise setting within the project area, and noise and vibration impacts that would result from implementation of the proposed project. Supporting technical information and analyses are hereby incorporated by reference and included as Appendix G of this Environmental Impact Report (EIR). The project would not cause any alteration to existing airport noise levels or be located in the vicinity of a private airstrip. As the project's issues relate to the generation of noise and groundborne vibration in excess of applicable standards or permanent, temporary, or periodic increases in ambient noise levels, the focus of the discussion, setting, and impacts is noise and groundborne vibration. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

3.9.1 Noise Fundamentals

Sound can be described as the mechanical energy of a vibrating object transmitted by pressure waves through a liquid or gaseous medium (e.g., air) to a hearing organ, such as a human ear. Noise is often defined as sound that is objectionable because it is unwanted, disturbing, or annoying.

In the science of acoustics, the fundamental model consists of a sound (or noise) source, a receptor, and the propagation path between the two. The loudness of the noise source and the obstructions or atmospheric factors, which affect the propagation path to the receptor, determine the sound level and the characteristics of the noise perceived by the receptor.

The following sections provide an explanation of key concepts and acoustical terms used in the analysis of environmental and community noise.

Frequency, Amplitude, and Decibels

Continuous sound can be described by its *frequency* (pitch) and *amplitude* (loudness). A low-frequency sound is perceived as low in pitch; a high-frequency sound is perceived as high-pitched. Frequency is expressed in terms of cycles per second, or Hertz (Hz) (e.g., a frequency of 250 cycles per second is referred to as 250 Hz). High frequencies are sometimes more conveniently expressed in kilohertz (kHz), or thousands of Hz. The audible frequency range for humans is generally between 20 Hz and 20,000 Hz.

The amplitude of pressure waves generated by a sound source correlates with the loudness of that source. The amplitude of a sound is typically described in terms of *sound pressure level*, also referred to simply as the sound level. The sound pressure level refers to the root-mean-square (rms)¹ pressure of a sound wave and is measured in units called microPascals (μPa). One μPa is approximately one hundred-billionth (0.0000000001) of normal atmospheric pressure. Sound pressure amplitudes for different kinds of noise environments can range from less than 100 to over 100,000,000 μPa. Because of this large range of values, sound is rarely expressed in terms of μPa.

¹ Root-mean-square (rms) is defined as the square root of the mean (average) value of the squared amplitude of the noise signal.

Instead, a logarithmic scale is used to describe the sound pressure level in terms of decibels, abbreviated dB. The decibel is a logarithmic unit that describes the ratio of the actual sound pressure to a reference pressure (20 μ Pa is the standard reference pressure level for acoustical measurements in air). Specifically, a sound pressure level, in decibels, is calculated as follows:

$$SPL = 20 \times \log_{10} \left(\frac{X}{20 \mu Pa} \right)$$

where X is the actual sound pressure and 20 μ Pa is the reference pressure. The threshold of hearing for young people is about 0 dB, which corresponds to 20 μ Pa.

Decibel Calculations

Because decibels represent noise levels using a logarithmic scale, sound pressure levels cannot be added, subtracted, or averaged through ordinary arithmetic. On the dB scale, a doubling of sound energy corresponds to a 3-dB increase. In other words, when two identical sources are each producing sound of the same loudness, their combined sound level at a given distance would be 3 dB higher than one source under the same conditions. For example, if one bulldozer produces a sound pressure level of 80 dB, two bulldozers would not produce a combined sound level of 160 dB. Rather, they would combine to produce 83 dB. The cumulative sound level of any number of sources, such as excavators, can be determined using decibel addition. The same decibel addition is used for A-weighted decibels described below.

Similarly, the arithmetic mean (average) of a series of noise levels does not accurately represent the overall average noise level. Instead, the values must be averaged using a linear scale before converting the result back into a logarithmic (dB) noise level. This method is typically referred to as calculating the “energy average” of the noise levels.

A-Weighting

The dB scale alone does not adequately characterize how humans perceive noise. The dominant frequencies of a sound have a substantial effect on the human response to that sound. Although the intensity (energy per unit area) of the sound is a purely physical quantity, the loudness or human response is determined by characteristics of the human ear.

Human hearing is limited in the range of audible frequencies as well as in the way it perceives the sound pressure level in that range. In general, people are most sensitive to the frequency range of 1,000 to 8,000 Hz and perceive sounds within that range better than sounds of the same amplitude at higher or lower frequencies. To approximate the response of the human ear, sound levels of individual frequency bands are weighted (i.e., adjusted), depending on human sensitivity to those frequencies. The resulting sound pressure level is expressed in A-weighted decibels, or dBA.

The A-weighting scale approximates the frequency response of the average young ear when listening to most ordinary sounds. When people make judgments regarding the relative loudness or annoyance of a sound, their judgments correlate well with the A-weighted sound levels of those sounds. Table 3.9-1 describes typical A-weighted sound levels for various noise sources.

Table 3.9-1. Typical A-Weighted Sound Levels

Common Outdoor Noise Source	Sound Level (dBA)	Common Indoor Noise Source
	— 110 —	Rock band
Jet flying at 1,000 feet		
	— 100 —	
Gas lawn mower at 3 feet		
	— 90 —	
Diesel truck at 50 feet at 50 mph		Food blender at 3 feet
	— 80 —	Garbage disposal at 3 feet
Noisy urban area, daytime		
Gas lawn mower at 100 feet	— 70 —	Vacuum cleaner at 10 feet
Commercial area		Normal speech at 3 feet
Heavy traffic at 300 feet	— 60 —	
		Large business office
Quiet urban daytime	— 50 —	Dishwasher in next room
Quiet urban nighttime	— 40 —	Theater, large conference room (background)
Quiet suburban nighttime		
	— 30 —	Library
Quiet rural nighttime		Bedroom at night
	— 20 —	
		Broadcast/recording studio
	— 10 —	
Lowest threshold of human hearing	— 0 —	Lowest threshold of human hearing

Source: California Department of Transportation 2013a

Noise Descriptors

Because sound levels can vary markedly over a short period of time, various descriptors or noise “metrics” have been developed to quantify environmental and community noise. These metrics generally describe either the average character of the noise or the statistical behavior of the variations in the noise level. Some of the most common metrics used to describe environmental noise, including those metrics used in this report, are described below.

Equivalent Sound Level (L_{eq}) is the most common metric used to describe short-term average noise levels. Many noise sources produce levels that fluctuate over time; examples include mechanical equipment that cycles on and off or construction work, which can vary sporadically. The L_{eq} describes the average acoustical energy content of noise for an identified period of time, commonly 1 hour. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustical energy over the duration of the exposure. For many noise sources, the L_{eq} will vary, depending on the time of day. A prime example is traffic noise, which rises and falls, depending on the amount of traffic on a given street or freeway.

Maximum Sound Level (L_{\max}) and **Minimum Sound Level (L_{\min})** refer to the maximum and minimum sound levels, respectively, that occur during the noise measurement period. More specifically, they describe the rms sound levels that correspond to the loudest and quietest 1-second intervals that occur during the measurement.

Percentile-Exceeded Sound Level (L_{xx}) describes the sound level exceeded for a given percentage of a specified period. For example, the L_{50} is the sound level exceeded 50 percent of the time (such as 30 minutes per hour), and L_{25} is the sound level exceeded 25 percent of the time (such as 15 minutes per hour).

Community Noise Equivalent Level (CNEL) is a measure of the 24-hour average A-weighted noise level that is also time-weighted to “penalize” noise that occurs during the evening and nighttime hours when noise is generally recognized to be more disturbing (because people are trying to rest, relax, and sleep during these times). 5 dBA is added to the L_{eq} during the evening hours of 7 p.m. to 10 p.m., and 10 dBA is added to the L_{eq} during the nighttime hours of 10 p.m. to 7 a.m. and the energy average is then taken for the whole 24-hour day.

Day-Night Sound Level (L_{dn}) is very similar to the CNEL described above. L_{dn} is also a time-weighted average of the 24-hour A-weighted noise level. The only difference is that no “penalty” is applied to the evening hours of 7 p.m. to 10 p.m. 10 dBA is added to the L_{eq} during the nighttime hours of 10 p.m. to 7 a.m. and the energy average is then taken for the whole 24-hour day.

It is noted that various federal, state, and local agencies have adopted CNEL or L_{dn} as the measure of community noise. While not identical, CNEL and L_{dn} are normally within 1 dBA of each other when measured in typical community environments, and many noise standards/regulations use the two interchangeably.

Sound Propagation

When sound propagates over a distance, it changes in both level and frequency content. The manner in which noise is reduced with distance depends on the following important factors.

Geometric Spreading. Sound from a single source (i.e., a “point” source) radiates uniformly outward as it travels away from the source in a spherical pattern. The sound level attenuates (or drops off) at a rate of 6 dBA for each doubling of distance. Highway noise is not a single stationary point source of sound. The movement of vehicles on a highway makes the source of the sound appear to emanate from a line (i.e., a “line” source) rather than from a point. This results in cylindrical spreading rather than the spherical spreading resulting from a point source. The change in sound level (i.e., attenuation or decrease) from a line source is 3 dBA per doubling of distance.

Ground Absorption. Usually the noise path between the source and the observer is very close to the ground. The excess noise attenuation from ground absorption occurs due to acoustic energy losses on sound wave reflection. Traditionally, the excess attenuation has also been expressed in terms of attenuation per doubling of distance. This approximation is done for simplification only; for distances of less than 200 feet, prediction results based on this scheme are sufficiently accurate. For acoustically “hard” sites (i.e., sites with a reflective surface, such as a parking lot or a smooth body of water, between the source and the receptor), no excess ground attenuation is assumed because the sound wave is reflected without energy losses. For

acoustically absorptive or “soft” sites (i.e., sites with an absorptive ground surface, such as soft dirt, grass, or scattered bushes and trees), an excess ground attenuation value of 1.5 dBA per doubling of distance is normally assumed. When added to the geometric spreading, the excess ground attenuation results in an overall drop-off rate of 4.5 dBA per doubling of distance for a line source and 7.5 dBA per doubling of distance for a point source.

Atmospheric Effects. Research by the California Department of Transportation (Caltrans) and others has shown that atmospheric conditions can have a major effect on noise levels. Wind has been shown to be the single most important meteorological factor within approximately 500 feet, whereas vertical air temperature gradients are more important over longer distances. Other factors, such as air temperature, humidity, and turbulence, also have major effects. Receptors downwind from a source can be exposed to increased noise levels relative to calm conditions, whereas receptors upwind can have lower noise levels. Increased sound levels can also occur because of temperature inversion conditions (i.e., increasing temperature with elevation, with cooler air near the surface, where the sound source tends to be and the warmer air above acts as a cap, causing a reflection of ground level-generated sound).

Shielding by Natural or Human-Made Features. A large object or barrier in the path between a noise source and a receptor can substantially attenuate noise levels at the receptor. The amount of attenuation provided by this shielding depends on the size of the object, proximity to the noise source and receptor, surface weight, solidity, and the frequency content of the noise source. Natural terrain features (such as hills and dense woods) and human-made features (such as buildings and walls) can substantially reduce noise levels. Walls are often constructed between a source and a receptor with the specific purpose of reducing noise. A barrier that breaks the line of sight between a source and a receptor will typically result in at least 5 dB of noise reduction. A higher barrier may provide as much as 20 dB of noise reduction.

Human Response to Noise

Noise can have a range of effects on people including hearing damage, sleep interference, speech interference, performance interference, physiological responses, and annoyance. Each of these is briefly described below:

Hearing Damage. A person exposed to high noise levels can suffer hearing damage, either gradual or traumatic. Gradual hearing loss occurs with repeated exposure to excessive noise levels and is most commonly associated with occupational noise exposures in heavy industry or other very noisy work environments. Traumatic hearing loss is caused by sudden exposure to an extremely high noise level, such as a gunshot or explosion at very close range. The potential for noise-induced hearing loss is not generally a concern in typical community noise environments. Noise levels in neighborhoods, even in very noisy airport environs, are not sufficiently loud as to cause hearing loss.

Sleep Interference. Exposure to excessive noise levels at night has been shown to cause sleep disturbance. Sleep disturbance refers not only to awakening from sleep, but also to effects on the quality of sleep such as altering the pattern and stages of sleep. Interior noise levels between 50 and 55 dBA L_{max} during nighttime hours (10 p.m. to 7 a.m.) were found to result in sleep disturbance and annoyance (Nelson 1987).

Speech Interference. Speech interference can be a problem in any situation where clear communication is desired, but is often of particular concern in learning environments (such as

schools) or situations where poor communication could jeopardize safety. Normal conversational speech is in the range of 60 to 65 dBA and any noise in this range or louder may interfere with speech. As background noise levels rise, the intelligibility of speech decreases and the listener will fail to recognize an increasing percentage of the words spoken. A speaker may raise his or her voice in an attempt to compensate for higher background noise levels, but this in turn can lead to vocal fatigue for the speaker.

Performance Interference. Excessive noise has been found to have various detrimental effects on human performance, including information processing, concentration, accuracy, reaction times, and academic performance. Intrusive noise from individual events can also cause distraction. These effects are of obvious concern for learning and work environments.

Physiological Responses. Noise has been shown to cause measureable physiological responses in humans, including changes in stress hormone levels, pulse rate, and blood pressure. The extent to which these responses cause harm or signs of harm is not clearly defined, but they could contribute to stress-related diseases, such as hypertension, anxiety, and heart disease.

Annoyance. The subjective effects of annoyance, nuisance, and dissatisfaction are possibly the most difficult to quantify and no completely satisfactory method exists to measure these effects. This difficulty arises primarily from differences in individual sensitivity and habituation to sound, which can vary widely from person to person. What one person considers tolerable can be quite unbearable to another of equal hearing acuity. An important tool in estimating the likelihood of annoyance due to a new sound is by comparing it to the existing baseline or “ambient” environment to which that person has adapted. In general, the more the level or tonal (frequency) variations of a sound exceed the previously existing ambient sound level or tonal quality, the less acceptable the new sound will be.

In most cases, effects from sounds typically found in the natural environment would be limited to annoyance or interference. Physiological effects and hearing loss would be more commonly associated with manmade noise, such as in an industrial or an occupational setting.

Studies have shown that under controlled conditions in an acoustics laboratory, a healthy human ear is able to discern changes in sound levels of 1 dBA. In the normal environment, the healthy human ear can detect changes of about 2 dBA; however, it is widely accepted that a doubling of sound energy, which results in a change of 3 dBA in the normal environment, is considered just noticeable to most people. A change of 5 dBA is readily perceptible, and a change of 10 dBA is perceived as being twice as loud. Accordingly, a doubling of sound energy (e.g., doubling the volume of traffic on a highway) resulting in a 3 dBA increase in sound would generally be barely detectable.

Noise-Sensitive Land Uses

Noise-sensitive land uses are the locations most likely to be adversely affected by excessive noise levels. As defined by the General Plan Noise Elements of the surrounding municipalities (County of Riverside [2015], City of Riverside [2018], and City of Jurupa Valley [2017]), these uses include residential uses, schools, hospitals, assisted living facilities, rest homes, long-term care facilities, mental care facilities, places of worship, libraries, passive recreation areas (such as parks), outdoor spectator sports facilities, performing arts facilities, and hotels and motels.

3.9.2 Groundborne Vibration Fundamentals

This section describes basic concepts related to groundborne vibration. Groundborne vibration is a small, rapidly fluctuating motion transmitted through the ground. The effects of groundborne vibrations are typically limited to causing nuisance or annoyance to people, but at extreme vibration levels damage to buildings may also occur.

In contrast to airborne sound, groundborne vibration is not a phenomenon that most people experience every day. The ambient groundborne vibration level in residential areas is usually much lower than the threshold of human perception. Most perceptible indoor vibration is caused by sources within buildings, such as mechanical equipment while in operation, people moving, or doors slamming. Typical outdoor sources of perceptible groundborne vibration are heavy construction activity (such as blasting, pile driving, or earthmoving), steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible, even in locations close to major roads. The strength of groundborne vibration from typical environmental sources diminishes (or attenuates) fairly rapidly over distance.

For the prediction of groundborne vibration, the fundamental model consists of a vibration source, a receptor, and the propagation path between the two. The power of the vibration source and the characteristics and geology of the intervening ground, which affect the propagation path to the receptor, determine the groundborne vibration level and the characteristics of the vibration perceived by the receptor.

The following sections provide an explanation of key concepts and terms used in the analysis of environmental groundborne vibration.

Displacement, Velocity, and Acceleration

Vibration sources (blasting, dynamic construction equipment, train, etc.) impart energy to the ground, creating vibration waves that propagate away from the source along the surface and downward into the earth. As vibration waves travel outward from a source, they excite the particles of rock and soil through which they pass and cause them to oscillate. The distance that these particles move is referred to as the *displacement* and is typically very small, usually only a few ten-thousandths to a few thousandths of an inch. *Velocity* describes the instantaneous speed of the motion and *acceleration* is the instantaneous rate of change of the speed. Each of these measures can be further described in terms of *frequency* and *amplitude*, as discussed below.

Although displacement is generally easier to understand than velocity or acceleration, it is rarely used to describe groundborne vibration because most transducers used to measure vibration directly measure velocity or acceleration, not displacement.

Frequency and Amplitude

The frequency of a vibrating object describes how rapidly it is oscillating. The unit of measurement for the frequency of vibration is Hz (the same as used in the measurement of noise), which describes the number of cycles per second.

The amplitude of displacement describes the distance that a particle moves from its resting (or equilibrium) position as it oscillates and can be measured in inches. The amplitude of vibration

velocity (the speed of the movement) can be measured in inches per second (in/sec). The amplitude of vibration acceleration (the rate of change of the speed) can be measured in in/sec squared.

Vibration Descriptors

As noted above, there are various ways to quantify groundborne vibration based on its fundamental characteristics. Because vibration can vary markedly over a short period of time, various descriptors have been developed to quantify vibration. The two most common descriptors used in the analysis of groundborne vibration are vibration velocity level and peak particle velocity, each of which are described below:

Peak Particle Velocity (PPV) is defined as the maximum instantaneous positive or negative peak amplitude of the vibration velocity. The unit of measurement for PPV is in/sec. Unlike many quantities used in the study of environmental acoustics, PPV is typically presented using linear values and does not employ a dB scale. Because it is related to the stresses that are experienced by buildings, PPV is generally accepted as the most appropriate descriptor for evaluating the potential for building damage (both Federal Transit Administration and Caltrans guidelines recommend using PPV for this purpose). It is also used in many instances to evaluate the human response to groundborne vibration (Caltrans guidelines recommend using PPV for this purpose).

Vibration Velocity Level (L_v) describes the rms vibration velocity. Due to the typically small amplitudes of groundborne vibrations, vibration velocity is often expressed in decibels, calculated as follows.

$$L_v = 20 \times \log_{10} \left(\frac{V}{V_{ref}} \right)$$

where V is the actual rms velocity amplitude and V_{ref} is the reference velocity amplitude. It is important to note that there is no universally accepted value for V_{ref} , but the accepted reference quantity for vibration velocity in the United States is 1 micro-inch per second (1×10^{-6} inches/second). The abbreviation VdB is commonly used for vibration decibels to distinguish from noise level decibels. L_v is often used to evaluate human response to vibration levels (Federal Transit Administration guidelines recommend using L_v for this purpose).

Vibration Propagation

Vibration energy spreads out as it travels through the ground, causing the vibration level to diminish with distance away from the source. High-frequency vibrations reduce much more rapidly than low frequencies so that low frequencies tend to dominate the spectrum at large distances from the source. The propagation of groundborne vibration is not as simple to model as airborne noise. This is because noise in the air travels through a relatively uniform medium, while groundborne vibrations travel through the earth, which may contain significant geological differences. Geological factors that influence the propagation of groundborne vibration include the following:

Soil Conditions. The type of soil is known to have a strong influence on the levels of groundborne vibration. Among the most important factors are the stiffness and internal damping of the soil. Hard, dense, and compacted soil; stiff clay soil; and hard rock transmit vibration more efficiently than loose, soft soils; sand; or gravel.

Depth to bedrock. Shallow depth to bedrock has been linked to efficient propagation of groundborne vibration. One possibility is that shallow bedrock acts to concentrate the vibration energy near the surface, reflecting vibration waves back toward the surface that would otherwise continue to propagate farther down into the earth.

Soil strata. Discontinuities in the soil strata (i.e., soil layering) can also cause diffractions or channeling effects that affect the propagation of vibration over long distances.

Frost conditions. Vibration waves typically propagate more efficiently in frozen soils than in unfrozen soils. Propagation also varies depending on the depth of the frost.

Water conditions. The amount of water in the soil can effect vibration propagation. The depth of the water table in the path of the propagation also appears to have substantial effects on groundborne vibration levels.

Specific conditions at the source and receiver locations can also affect the vibration levels. For instance, how the source is connected to the ground (e.g., direct contact, through rails, or via a structure) will affect the amount of energy transmitted into the ground. There are also notable differences when the source is underground (such as in a tunnel) versus on the surface. At the receiver, vibration levels can be affected by variables such as the foundation type, the building construction, and the acoustical absorption inside the rooms where people are located. When vibration encounters a building, a ground-to-foundation coupling loss will usually reduce the overall vibration level. However, under certain circumstances, the ground-to-foundation coupling may also amplify the vibration level due to structural resonances of the floors and walls.

Effects of Groundborne Vibration

Vibration can result in effects that range from annoyance to structural damage. Annoyance or disturbance of people may occur at vibration levels substantially below those that would pose a risk of damage to buildings. Each of these effects is discussed below.

Potential Building Damage

When groundborne vibration encounters a building, vibrational energy is transmitted to the structure causing it to vibrate and, if the vibration levels are high enough, damage to the building may occur. Depending on the type of building and the vibration levels, this damage could range from cosmetic architectural damage (e.g., cracked plaster, stucco, or tile) to more severe structural damage (e.g., cracking of floor slabs, foundations, columns, beams, or wells). Buildings can typically withstand higher levels of vibration from transient sources than from continuous or frequent intermittent sources. Transient sources are those that create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment. Older, fragile buildings (which may include important historical buildings) are of particular concern. Modern commercial and industrial buildings can generally withstand much higher vibration levels before potential damage becomes a problem.

Human Disturbance or Annoyance

Groundborne vibration can be annoying to people and can cause serious concern for nearby neighbors of vibration sources, even when vibration is well below levels that could cause physical

damage to structures. Groundborne vibration is almost exclusively a concern inside buildings and is rarely perceived as a problem outdoors, where the motion may be discernible, but there is less adverse reaction without the effects associated with the shaking of a building. The normal frequency range of most groundborne vibration that can be felt generally starts from a low frequency of less than 1 Hz to a high of about 200 Hz.

When groundborne vibration waves encounter a building, vibrational energy is transmitted to the building foundation and then propagates throughout the remainder of the structure, causing building surfaces (walls, floors, and ceilings) to vibrate. This movement may be felt directly by building occupants and may also generate a low-frequency rumbling noise as sound waves are radiated by the vibrating surfaces. At higher frequencies, building vibration can cause other audible effects such as rattling of windows, building fixtures, or items on shelves or hanging on walls. These audible effects due to groundborne vibration are referred to as *groundborne noise*. Groundborne vibration levels that result in groundborne noise are often experienced as a combination of perceptible vibration and low-frequency noise. However, sources that have the potential to generate groundborne noise are likely to produce airborne noise impacts that mask the radiated groundborne noise. Any perceptible effect (vibration or groundborne noise) can lead to annoyance. The degree to which a person is annoyed depends on the activity in which they are participating at the time of the disturbance. For example, someone sleeping or reading will be more sensitive than someone who is engaged in any type of physical activity. Reoccurring vibration effects often lead people to believe that the vibration is damaging their home, although vibration levels are well below minimum thresholds for damage potential (Caltrans 2013b).

Numerous studies have been conducted to characterize the human response to vibration and, over the years, numerous vibration criteria and standards have been suggested by researchers, organizations, and governmental agencies. These studies suggest that the thresholds for perception and annoyance vary according to duration, frequency, and amplitude of vibration. For transient vibration sources (single, isolated vibration events such as blasting), the human response to vibration varies from barely perceptible at a PPV of 0.04 in/sec, to distinctly perceptible at a PPV of 0.25 in/sec, and severe at a PPV of 2.0 in/sec. For continuous or frequent intermittent vibration sources (such as impact pile driving or vibratory compaction equipment), the human response to vibration varies from barely perceptible at a PPV of 0.01 in/sec, to distinctly perceptible at a PPV of 0.04 in/sec, and severe at a PPV of 0.4 in/sec (Caltrans 2013b).

Vibration-Sensitive Land Uses

The potential effects of groundborne vibration can be divided into two categories: building damage and potential human annoyance. Because building damage would be considered a permanent negative effect at any building, regardless of land use, any type of building would typically be considered sensitive to this type of impact. Fragile structures, which often include historical buildings, are most susceptible to damage and are of particular concern.

Human annoyance effects from groundborne vibration are typically only considered inside occupied buildings and not at outside areas such as residential yards, parks, or open space. Buildings that would be considered sensitive for human annoyance caused by vibration are generally the same as those that would be sensitive to noise. The City of Riverside General Plan Noise Element does not identify specific vibration-sensitive land uses, but the City of Jurupa Valley and County of Riverside Noise Elements list the following land uses as vibration sensitive: residential uses, schools, hospitals,

libraries, concert halls, vibration-sensitive research operations, and offices. Additional detail regarding local regulations is provided in Section 3.9.3, *Regulatory Setting*.

3.9.3 Regulatory Setting

Federal

There are no federal noise or vibration regulations that directly apply to the proposed project.

State

California requires each local government entity to perform noise studies and implement a noise element as part of its general plan. The purpose of the noise element is to limit the exposure of the community to excessive noise levels; the noise element must be used to guide decisions concerning land use. California provides guidelines for evaluating the compatibility of various land uses as a function of community noise exposure. The local government entities found within the project study area include the County of Riverside, the City of Riverside, and the City of Jurupa Valley. Summaries of the relevant content found in each jurisdiction's noise element are discussed below.

California Department of Transportation

None of the local laws and regulations discussed below provide any quantitative criteria regarding groundborne noise and vibration. Therefore, while the proposed project would not be subject to Caltrans oversight, guidance published by the agency nonetheless provides groundborne vibration criteria that are useful in establishing thresholds of impact. Caltrans' widely referenced *Transportation and Construction Vibration Guidance Manual* (Caltrans 2013b) provides guidance for two types of potential impact: (1) damage to structures, and (2) annoyance to people. Guideline criteria for each are provided in Tables 3.9-2 and 3.9-3.

Table 3.9-2. Caltrans Guideline Vibration Damage Criteria

Structure and Condition	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Extremely fragile historic buildings, ruins, ancient monuments	0.12	0.08
Fragile buildings	0.2	0.1
Historic and some old buildings	0.5	0.25
Older residential structures	0.5	0.3
New residential structures	1.0	0.5
Modern industrial/commercial buildings	2.0	0.5
Source: Caltrans 2013b.		
Notes:		
Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.		

Table 3.9-3. Caltrans Guideline Vibration Annoyance Criteria

Human Response	Maximum PPV (in/sec)	
	Transient Sources	Continuous/Frequent Intermittent Sources
Barely perceptible	0.04	0.01
Distinctly perceptible	0.25	0.04
Strongly perceptible	0.9	0.10
Severe	2.0	0.4

Source: Caltrans 2013b.
Notes:
Transient sources create a single isolated vibration event, such as blasting or drop balls. Continuous/frequent intermittent sources include impact pile drivers, pogo-stick compactors, crack-and-seat equipment, vibratory pile drivers, and vibratory compaction equipment.

Regional and Local

The proposed project sites span three local municipalities: the County of Riverside, the City of Riverside, and the City of Jurupa Valley. The noise standards for each are described in the following sections. Because all of the closest noise- and vibration-sensitive receptors considered in the analysis are in either the City of Riverside or the City of Jurupa Valley, the noise standards of those two cities are used as the primary source for establishing thresholds of significance.

County of Riverside General Plan

The County of Riverside General Plan Noise Element contains various policies to address citywide noise issues. The following are relevant to the proposed project:

- Policy N 1.1: Protect noise-sensitive land uses from high levels of noise by restricting noise-producing land uses from these areas. If the noise-producing land use cannot be relocated, then noise buffers such as setbacks, landscaping, or block walls shall be used.
- Policy N 1.5: Prevent and mitigate the adverse impacts of excessive noise exposure on the residents, employees, visitors, and noise-sensitive uses of Riverside County.
- Policy N 1.8: Limit the maximum permitted noise levels that cross property lines and impact adjacent land uses, except when dealing with noise emissions from wind turbines...
- Policy N 2.3: Mitigate exterior and interior noises to the levels listed in Table [3.9-4] below to the extent feasible, for stationary sources:

Table 3.9-4. [Reproduced from County of Riverside Noise Element Table N-2] Stationary Source Land Use Noise Standards¹

Land Use	Interior Standards	Exterior Standards
Residential		
10:00 p.m. to 7:00 a.m.	40 Leq (10 minute)	45 Leq (10 minute)
7:00 a.m. to 10:00 p.m.	55 Leq (10 minute)	65 Leq (10 minute)

1. These are only preferred standards; final decision will be made by the Riverside County Planning Department and Office of Public Health.

- Policy N 3.5: Require that a noise analysis be conducted by an acoustical specialist for all proposed projects that are noise producers. Include recommendations for design mitigation if the project is to be located either within proximity of a noise-sensitive land use, or land designated for noise-sensitive land uses.
- Policy N 13.1: Minimize the impacts of construction noise on adjacent uses within acceptable practices.
- Policy N 13.2: Ensure that construction activities are regulated to establish hours of operation in order to prevent and/or mitigate the generation of excessive or adverse noise impacts on surrounding areas.
- Policy N 13.4: Require that all construction equipment utilizes noise reduction features (e.g. mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.

Jurupa Area Plan

According to the County of Riverside General Plan Jurupa Area Plan (2015), the project area is within the airport influence areas of Riverside Municipal Airport and Flabob Airport (Figure 5, Jurupa Area Plan Airport Influence Areas). Refer to Chapter 6, *Effects Not Found Significant*, for further discussion of airport noise. There are no noise- or vibration-specific policies for the Santa Ana River Corridor Policy Area.

County of Riverside County Code

Chapter 9.52, Noise Regulations, of the County of Riverside County Code regulates noise from both construction and operational sources, as described below. However, the code also states, "This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act and no such thresholds are established."

Exemptions

The County Code specifies various categories of construction, maintenance, and operations that are either entirely exempt from the municipal code noise standards, or are exempt during certain hours. Exemptions that would potentially apply to the proposed project are listed in Sections 9.52.020(A), 9.52.020(B), 9.52.020(C), 9.52.020(H), 9.52.020(I), and 11.05.020(J) of the County Code, which state that sound emanating from the following sources is exempt:

- A Facilities owned or operated by or for a governmental agency
- B Capital improvement projects of a governmental agency
- C The maintenance or repair of public properties
- H Private construction projects located one-quarter of a mile or more from an inhabited dwelling
- I Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that:
 - 1. Construction does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September, and

2. Construction does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May.

- J Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.

Construction Noise

Based on the exemptions described above, various categories of construction noise are either entirely exempt from the municipal code noise standards, or are exempt during certain hours. The County Code does not provide any specific noise limits for construction activity. Therefore, it is assumed that any non-exempt construction activity would be subject to the County's typical noise standards as described below (under *Operational Noise*).

Operational Noise

Some of the County Code exemptions described above could also apply to project operations. These exemptions would be A (facilities owned or operated by or for a governmental agency), C (the maintenance or repair of public properties), and J (property maintenance between the hours of 7:00 a.m. and 8:00 p.m.)

Non-exempt stationary (non-transportation) noise sources would be regulated by Section 9.52.040 of the County Code. For the noise-sensitive land uses considered in this EIR, the applicable exterior noise limits are summarized in Table 3.9-5.

Table 3.9-5. County of Riverside Exterior Noise Standards

Noise Level that May Not Be Exceeded for...	Noise Metric Descriptor	Residential		Open Space Recreation Facility (Any Time)
		Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)	
Anytime (i.e., maximum noise level)	L_{max}	55 dBA	45 dBA	45 dBA

City of Riverside General Plan

The City of Riverside General Plan Noise Element contains various policies to address citywide noise issues. The following are relevant to the proposed project:

Policy N-1.1: Continue to enforce noise abatement and control measures particularly within residential neighborhoods.

Policy N-1.3: Enforce the City of Riverside Noise Control Code to ensure that stationary noise and noise emanating from construction activities, private developments/residences and special events are minimized.

City of Riverside Municipal Code

The City of Riverside Municipal Code regulates noise from both construction and operational sources, as described below.

Construction Noise

Construction noise is controlled by limits on the hours during which construction activity is permitted. Section 7.35.010 B.5. prohibits “[o]perating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, grading or demolition work between the hours of 7:00 p.m. and 7:00 a.m. on week days and between 5:00 p.m. and 8:00 a.m. on Saturdays or at any time on Sunday or federal holidays.” Section 7.35.020 G. provides an explicit exemption from the City’s noise standards for “[n]oise sources associated with construction, repair, remodeling, or grading of any real property; provided a permit has been obtained from the City as required; and provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday.”

Operational Noise

Stationary (non-transportation) noise sources associated with project operation are regulated by section 7.25.010 of the municipal code. For the noise-sensitive land uses considered in this EIR, the applicable exterior noise limits are summarized in Table 3.9-6.

Table 3.9-6. Applicable City of Riverside Exterior Noise Standards

Noise Level that May Not Be Exceeded for More than...	Noise Metric Descriptor	Residential		Public Recreation Facility (Any Time)
		Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)	
30 minutes in any hour	L ₅₀	55 dBA	45 dBA	65 dBA
15 minutes in any hour	L ₂₅	60 dBA	50 dBA	70 dBA
5 minutes in any hour	L _{8.33}	65 dBA	55 dBA	75 dBA
1 minute in any hour	L _{1.67}	70 dBA	60 dBA	80 dBA
Anytime (i.e., maximum noise level)	L _{max}	75 dBA	65 dBA	85 dBA
- If the measured ambient noise level exceeds that permissible within any of the first four noise limit categories, the allowable noise exposure standard shall be increased in 5-dB increments in each category as appropriate to encompass the ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.				

City of Jurupa Valley General Plan

The City of Jurupa Valley General Plan Noise Element contains various policies to address citywide noise issues. The following are relevant to the proposed project:

- Policy NE 1.3: New or Modified Stationary Noise Sources. Noise created by new stationary noise sources, or by existing stationary noise sources that undergo modifications that may increase noise levels, shall be mitigated so as not exceed the noise level standards of Figure 7-3 [of the Noise Element]. This policy does not apply to noise levels associated with agricultural operations existing in 2017.
- Policy NE 3.1: Noise Analysis. Require that a noise analysis be conducted by an acoustical specialist for all proposed development projects that have the potential to generate significant noise near a noise-sensitive land use, or on or near land designated for

noise-sensitive land uses, and ensure that recommended mitigation measures are implemented

Policy NE 3.4: Construction Equipment. Require that all construction equipment utilize noise reduction features (i.e., mufflers and engine shrouds) that are at least as effective as those originally installed by the equipment's manufacturer.

Policy NE 3.5: Construction Noise. Limit commercial construction activities adjacent to or within 200 feet of residential uses to weekdays, between 7:00 a.m. and 6:00 p.m., and limit high-noise-generating construction activities (e.g., grading, demolition, pile driving) near sensitive receptors to weekdays between 9:00 a.m. and 3:00 p.m.

City of Jurupa Valley Municipal Code

Chapter 11.05, Noise Regulations, of the City of Jurupa Valley Municipal Code regulates noise from both construction and operational sources, as described below. However, the code also states, "This chapter is not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act...and no such thresholds are established."

Exemptions

The municipal code specifies various categories of construction noise, maintenance, and operations that are either entirely exempt from the municipal code noise standards, or are exempt during certain hours. Exemptions that would potentially apply to the proposed project are listed in Sections 11.05.020(1), 11.05.020(2), 11.05.020(3), 11.05.020(8), 11.05.020(9), and 11.05.020(10) of the municipal code, which state that sound emanating from the following sources is exempt:

- (1) Facilities owned or operated by or for a governmental agency
- (2) Capital improvement projects of a governmental agency
- (3) The maintenance or repair of public properties
- (8) Private construction projects located one-quarter of a mile or more from an inhabited dwelling
- (9) Private construction projects located within one-quarter of a mile from an inhabited dwelling, provided that:
 - (a) Construction does not occur between the hours of 6:00 p.m. and 6:00 a.m. during the months of June through September; and
 - (b) Construction does not occur between the hours of 6:00 p.m. and 7:00 a.m. during the months of October through May.
- (10) Property maintenance, including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.

Construction and Property Maintenance Noise

Based on the exemptions described above, various categories of noise associated with construction and property maintenance are either entirely exempt from the municipal code noise standards, or are exempt during certain hours. The municipal code does not provide any specific noise limits for construction activity. Therefore, it is assumed that any non-exempt construction activity would be subject to the City's typical noise standards as described below (under *Operational Noise*).

Operational Noise

Some of the municipal code exemptions described above could also apply to project operations. These exemptions would be 1 (facilities owned or operated by or for a governmental agency), 3 (the maintenance or repair of public properties), and 10 (property maintenance between the hours of 7:00 a.m. and 8:00 p.m.)

Non-exempt stationary (non-transportation) noise sources are regulated by Section 11.05.040 of the municipal code. For the noise-sensitive land uses considered in this EIR, the applicable exterior noise limits are summarized in Table 3.9-7.

Table 3.9-7. Applicable City of Jurupa Valley Exterior Noise Standards

Noise Level that May Not Be Exceeded for...	Noise Metric Descriptor	Residential		Open Space Recreation Facility (Any Time)
		Daytime (7:00 a.m. to 10:00 p.m.)	Nighttime (10:00 p.m. to 7:00 a.m.)	
Anytime (i.e., maximum noise level)	L_{max}	55 dBA	45 dBA	45 dBA

3.9.4 Environmental Setting

The existing noise environment in the study area is varied but generally fairly quiet at the nearest noise-sensitive receptors because they are not located close to major noise sources such as freeways, railroads, or industrial activities. Noise sources currently affecting the study area include traffic on local streets, aircraft overflights, sporadic railroad activity, livestock, general neighborhood sources (e.g., air conditioners and landscaping activities), and natural background noise (e.g., bird song and rustling leaves).

The closest noise-sensitive land uses to the project sites consist of residences, golf courses, and parks. The closest vibration-sensitive buildings are the residences (the exterior areas of golf courses and parks are not considered vibration sensitive and the buildings at these uses, such as clubhouses, are not close to the project construction zones). The closest homes are approximately 265 feet north and 250 feet south of Hidden Valley Creek, immediately west of Lower Hole Creek, 650 feet north of Anza Creek, and immediately south of Anza Creek and Old Ranch Creek. Paradise Knolls Golf Course is approximately 1,660 feet northwest of Hidden Valley Creek, Van Buren Golf Center is approximately 1,050 feet southeast of Lower Hole Creek, and Jurupa Hills Country Club is approximately 175 feet north of Anza Creek. Rutland Park is approximately 150 feet southwest of Lower Hole Creek, Martha McLean–Anza Narrows Regional Park is immediately west of Anza Creek (the park itself is also part of the proposed project), and Rancho Jurupa Park is approximately 1,650 feet north of Old Ranch Creek.

The closest places of worship to the project sites are New Joy Baptist Church and the Church of Jesus Christ of Latter Day Saints, which are approximately 600 feet south of Anza Creek and 1,200 feet south of Old Ranch Creek, respectively. These receivers are separated from the project sites by intervening rows of residences (i.e., the homes discussed above). As a result, project-related noise levels at these locations would be substantially lower than at the closer homes.

There are several homeless encampments with individuals living within the project areas. However, these are not legal residential locations and are not considered to be sensitive receptors for the purposes of assessing potential noise impacts. As stated in Section 3.10, *Population and Housing*, to mitigate potential impacts on the homeless populations occupying the project sites, relocation of transient individuals, removal of homeless encampments, and cleanup of remaining refuse would be coordinated between the County of Riverside, City of Riverside Office of Homeless Solutions, City of Jurupa Valley, and San Bernardino Valley Municipal Water District. Furthermore, these encampment sites would be removed from the project area prior to the start of construction and, consequently, would no longer exist at the time of project implementation.

Noise Monitoring

In order to quantify the existing ambient noise conditions at noise-sensitive land uses closest to the project sites, noise monitoring was conducted at five locations in the project vicinity between August 1 and August 3, 2018. The locations were selected to represent the closest residential land uses to the project sites. Long-term noise monitoring was conducted at four locations, designated LT1, LT2, LT3, and LT4, and short-term noise monitoring was conducted at one location, designated ST1. All measurement locations are indicated on **Figure 3.9-1**. Long-term measurements were conducting using Type 2 sound level meters.² The short-term measurement was conducted using a Type 1 sound level meter.³ All sound level meters were field-calibrated prior to each measurement to ensure accuracy, using a Larson Davis CAL200 acoustical calibrator; the calibration was also re-checked at the conclusion of each measurement. The measurement results are summarized in Table 3.9-8.

Table 3.9-8. Summary of Noise Measurement Results

Site#	Location	Date	Time of Day	Range of Hourly Leq Values (Average), dBA
LT1	Residential rear yard at 9076 Kennedy Street, Jurupa Valley	8/1/18 to	Daytime (7 a.m. to 10 p.m.)	44.7-56.7 (49.9)
		8/3/18	Nighttime (10 p.m. to 7 a.m.)	40.1-50.6 (45.5)
LT2	Residential rear yard at 7298 Idyllwild Lane, Riverside	8/1/18 to	Daytime (7 a.m. to 10 p.m.)	42.6-51.9 (48.3)
		8/3/18	Nighttime (10 p.m. to 7 a.m.)	39.3-53.3 (44.8)
LT3	Adjacent to residential rear yard at 7124 Bradford Street, Riverside	8/1/18 to	Daytime (7 a.m. to 10 p.m.)	53.6-59.9 (57.2)
		8/3/18	Nighttime (10 p.m. to 7 a.m.)	53.4-64.6 (59.2)
LT4	Residential rear yard at 5385 Grassy Trail Drive, Riverside	8/1/18 to	Daytime (7 a.m. to 10 p.m.)	43.3-51.3 (47.0)
		8/3/18	Nighttime (10 p.m. to 7 a.m.)	41.1-47.0 (44.3)
ST1	Adjacent to residence at 6691 Ave Juan Diaz, Riverside	8/1/18	1:05 p.m. to 1:20 p.m.	50.8

² Models NL-21 and NL-22 manufactured by Rion, and model Piccolo SLM-P3 manufactured by Soft dB. Type 2 sound level meters are considered general purpose grade for field use.

³ Model 831 manufactured by Larson Davis. Type 1 sound level meters are considered precision grade.

3.9.5 Environmental Impacts

Methods for Analysis

For the Tributaries Restoration Project and Mitigation Reserve Program Phase I, 11 receiver locations were selected to represent the closest noise- and/or vibration-sensitive land use(s) to each restoration site. As stated previously, the closest noise-sensitive land uses to the project sites consist of residences, golf courses, and parks. These locations along with the 11 receiver locations are illustrated on **Figure 3.9-2** and described in Table 3.9-9. As discussed previously, not all noise-sensitive land uses include buildings that would be affected by project-generated vibration. In the case of the golf courses and parks considered in the analysis, they are not analyzed for vibration impacts because they either do not contain any habitable buildings at all, or the buildings (such as clubhouses) are at such large distances from the project site that project-related vibration would be completely imperceptible.

Table 3.9-9. Analyzed Receiver Locations

Receiver #	Description/Receiver Type	Location (City)	Noise-Sensitive?	Vibration-Sensitive?
01	Paradise Knolls Golf Course	Northwest of Hidden Valley Creek (Jurupa Valley)	Yes	No
02	Single-Family Residential	South of Hidden Valley Creek (Riverside)	Yes	Yes
03	Single-Family Residential	North of Hidden Valley Creek (Jurupa Valley)	Yes	Yes
04	Rutland Park	Southwest of Lower Hole Creek (Riverside)	Yes	No
05	Single-Family Residential	West of Lower Hole Creek (Riverside)	Yes	Yes
06	Van Buren Golf Center	Southeast of Lower Hole Creek (Riverside)	Yes	No
07	Jurupa Hills Country Club and Single-Family Residential	North of Anza Creek (Jurupa Valley)	Yes	Yes (residential only)
08	Martha McLean-Anza Narrows Regional Park	West of Anza Creek (Riverside)	Yes	No
09	Single-Family Residential	South of Anza Creek (Riverside)	Yes	Yes
10	Rancho Jurupa Park	North of Old Ranch Creek (Jurupa Valley)	Yes	No
11	Single-Family Residential	South of Old Ranch Creek (Riverside)	Yes	Yes

As described in Chapter 2, *Project Description*, possible improvements for the Expanded Mitigation Reserve Program Phase II may occur over a larger area than is planned for the Tributaries Restoration Project and design details are currently unavailable. Therefore, the locations of potential impacts associated with the program are described more generally. The analysis focuses primarily on the noise-sensitive land uses closest to the boundaries of the program area.

Construction Noise

For the Tributaries Restoration Project and Mitigation Reserve Program Phase I, potential noise impacts associated with project construction activities were evaluated based on the proposed project's construction equipment schedule and phasing information provided by the project design team. Construction noise was analyzed using data and modeling methodologies from the Federal Highway Administration's Roadway Construction Noise Model (FHWA 2008), which predicts average noise levels at nearby receptors by analyzing the type of equipment, the distance from source to receptor, and usage factor (the fraction of time the equipment is operating in its noisiest mode while in use). This methodology calculates the composite average noise levels for multiple equipment items scheduled during each construction phase. As a result of the acoustically soft ground conditions around the project site (i.e., unpaved ground with grass, trees, and other plants), it was assumed that construction noise levels would be reduced at a rate of 7.5 dB per doubling of distance from the source.⁴ However, to provide a conservative analysis, potential barrier effects provided by topography, walls, fences, buildings, and other objects that would further attenuate noise levels and thereby reduce construction noise around the project site were not included in the calculations.

The average construction noise level for an 8-hour work day (i.e., 8-hour L_{eq}) during each phase of construction was calculated at a reference distance of 50 feet. The reference noise levels were then adjusted for each receiver based on the closest distance from each phase of construction to each receiver. These distances were estimated using project plans (Appendix C of this EIR) and aerial photography (Google Earth). For activities that would be confined to a limited location (such as culvert construction or possible well drilling), the distance to the center of the specific work area was used; for phases that would occur throughout the project site, the distance to the closest construction boundary was used, plus 50 feet to reflect that equipment would be mobile and spread across an area rather than operating at a single point. Where the construction schedule indicated that multiple phases of construction would occur simultaneously, the noise levels from overlapping phases were added together to determine the combined construction noise levels. The proposed project includes the possibility of using an impact hammer to drill new groundwater wells at the Old Ranch Creek and/or Hidden Valley Creek Tributaries Restoration Sites. These wells have been identified as a potential project element that may not, ultimately, be included as part of the proposed project. Nonetheless, they are studied to assess potential impacts that may occur in the event that they are constructed. The drilling was assumed to occur during the "channel and floodplain earthwork" phase of construction. Construction noise from activities occurring more than 2 miles from any specific receiver were not included in the calculations for that receiver because, at this distance, the noise levels would be extremely low relative to those from closer activities. Details of the construction noise analyses are provided in Appendix G.

For the Expanded Mitigation Reserve Program Phase II, the same general noise analysis methodology was used, except that assumptions were made regarding the types of equipment that could be used on site (because project-level data have not yet been developed). In addition, the distances considered in the analysis were based on the entire footprint of the Expanded Mitigation Reserve Program Phase II rather than the more limited area considered for the Tributaries Restoration Project and Mitigation Reserve Program Phase I analysis.

⁴ This includes a basic noise attenuation of 6 dB due to geometric spreading plus an excess attenuation of 1.5 dB per doubling of distance.



Figure 3.9-1. Ambient Noise Measurement Locations

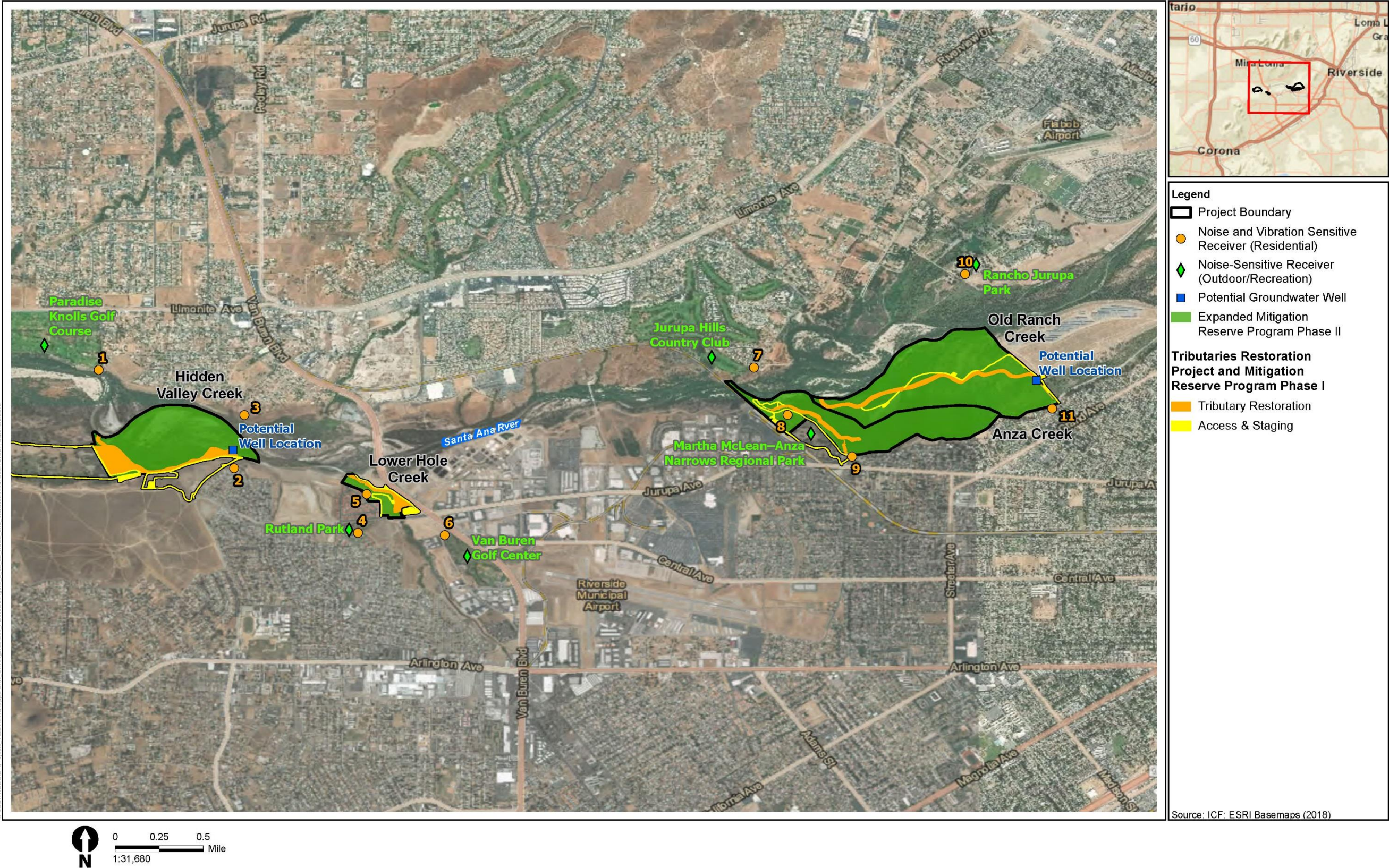


Figure 3.9-2. Noise and Vibration Analysis Locations

Construction Vibration

For the Tributaries Restoration Project and Mitigation Reserve Program Phase I, construction-related vibration was analyzed using data and modeling methodologies provided by Caltrans' *Transportation and Construction Vibration Guidance Manual* (Caltrans 2013b). This guidance manual provides typical vibration source levels for various types of construction equipment, as well as methods for estimating the propagation of groundborne vibration over distance. Table 3.9-10 provides the PPV levels of construction equipment expected to be used by the proposed project; the levels are provided for a reference distance of 25 feet.⁵ All of the analyzed equipment is classified as continuous/frequent intermittent vibration sources.

Table 3.9-10. Construction Equipment Vibration Source Levels

Equipment Item	Reference PPV at 25 feet, in/sec ¹
Hydraulic/impact hammer ²	0.650
Large bulldozer ³	0.089
Loaded trucks (on rough terrain)	0.076
Small bulldozer ⁴	0.003
Notes:	
¹ Obtained from Caltrans 2013b.	
² For well drilling, based on impact pile driving.	
³ Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.	
⁴ Considered representative of smaller equipment such as small skid steers and mini excavators.	

The following equation from the guidance manual was used to estimate the change in PPV levels over distance:

$$PPV_{rec} = PPV_{ref} \times (25/D)^n$$

where PPV_{rec} is the PPV at a receptor; PPV_{ref} is the reference PPV at 25 feet from the equipment; D is the distance from the equipment to the receiver, in feet; and n is a value related to the vibration attenuation rate through ground (the default recommended value for n is 1.1). This equation was used to estimate the PPV at each of the closest vibration-sensitive receivers based on the worst-case (closest) distance between each source and receiver. For the hydraulic/impact hammer, the distance to the potential well site was used. For all other vibration sources, the distance to the closest construction boundary was used.

For the Expanded Mitigation Reserve Program Phase II, the same general vibration analysis methodology was utilized, except that assumptions were made regarding the types of equipment that could be used on site (because project-level data have not yet been developed). In addition, the distances considered in the analysis were based on the entire footprint of the Expanded Mitigation Reserve Program Phase II rather than the more limited area considered for the Tributaries Restoration Project and Mitigation Reserve Program Phase I analysis.

⁵ 25 feet is the standard reference distance used by several agencies, including Caltrans and the Federal Transit Administration, for characterizing vibration source levels from construction equipment.

Maintenance Activities

For the Tributaries Restoration Project and Mitigation Reserve Program Phase I, periodic maintenance activities would be carried out using a mix of hand tools and/or mechanized equipment such as excavators, chainsaws, all-terrain vehicles (ATVs), trimmers, backhoes, and lawnmowers. The specific type of equipment utilized would be dependent on the nature of the maintenance activity. For purposes of this analysis, noise levels were estimated using the same methodologies described above for the construction noise analysis. Maintenance work on the project site is anticipated to be temporary in nature and occur only on an as-needed basis to ensure that the habitat continues to meet the defined success criteria consistent with the regulatory agency permitting requirements. It is anticipated that maintenance activities would occur in only limited areas of the project site and on an infrequent basis, likely no more than several times per year. As such, noise associated with as-needed maintenance work would not affect the recurring ambient noise levels in the project site. Details of the maintenance noise assumptions and analyses are provided in Appendix G.

For the Expanded Mitigation Reserve Program Phase II, the same general noise analysis methodology and equipment assumptions were used as described above. The primary difference in the analysis was that the distances considered in the analysis were based on the entire footprint of the Expanded Mitigation Reserve Program Phase II rather than the more limited area considered for the Tributaries Restoration Project and Mitigation Reserve Program Phase I analysis.

Operational Noise

In addition to maintenance activities, the only permanent noise sources that would be introduced as a result of the Tributaries Restoration Project and Mitigation Reserve Program Phase I would be groundwater wells at Old Ranch Creek and Hidden Valley Creek (one well at each site). Based on preliminary guidance information provided by the project design team, it was assumed that each well would employ a 100 horsepower electrically powered pump and that the pump could operate at any time during the day or night. Using published prediction algorithms (Barron 2003), it was estimated that the total sound power from each pump (including contributions from both the electric motor and the pump itself) would be 108 dBA at a reference distance of 1 meter (3.3 feet). Because of the acoustically soft ground conditions around the project site, it was assumed that pump noise levels would be reduced at a rate of 7.5 dB per doubling of distance from the source. However, to provide a conservative analysis, potential barrier effects provided by topography, walls, fences, buildings, and other objects that would further attenuate noise levels and thereby reduce operational noise around the project site were not included in the calculations. The reference pump noise level was adjusted for each receiver based on the distance from the anticipated well site to each receiver. These distances were estimated using project plans and aerial photography (Google Earth). The two potential well sites are separated by a distance of nearly 4 miles. Therefore, the analysis for each pump was limited to the receivers within 2 miles.

No operational noise sources are proposed as part of the Expanded Mitigation Reserve Program Phase II. Therefore, no analysis of operational noise sources is required.

Operational Vibration

Neither the Tributaries Restoration Project and Mitigation Reserve Program Phase I nor the Expanded Mitigation Reserve Program Phase II would include any major permanent sources of

vibration. Operation of the pumps and motors that would potentially be installed for groundwater wells as part of the Tributaries Restoration Project and Mitigation Reserve Program Phase I would cause some localized vibration that might be perceptible at close range. However, the closest vibration-sensitive receptors would be several hundred feet away and there would be no perceptible vibration at those locations. As a result, no detailed analysis of operational vibration is required and none was conducted.

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a potentially significant effect if it would result in any of the conditions listed below.

- Exposure of persons to or generation of noise levels in excess of standards established in a local general plan or noise ordinance or applicable standards of other agencies.
- Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels.
- Generation of a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Generation of a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.
- Placement of project-related activities within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport and exposure of people residing or working in the project area to excessive noise levels.
- Placement of project-related activities in the vicinity of a private airstrip and exposure of people residing or working in the project area to excessive noise levels.

As noted in Section Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this EIR) prepared for the proposed project determined that several impacts would be less than significant and then eliminated those impacts from further analysis on that basis. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. The proposed project would not result in placement of project-related activities within an airport land use plan area, or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport, nor in exposure of people residing or working in the project area to excessive noise levels. The proposed project would not result in placement of project-related activities in the vicinity of a private airstrip nor in exposure of people residing or working in the project area to excessive noise levels. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

Impact NOI-1: Exposure of persons to or generation of noise levels in excess of applicable standards (Less-than-significant impact with mitigation incorporated)

As described below, the primary sources of noise associated with the project are construction, intermittent maintenance activities, and operation of onsite groundwater wells (i.e., pumps and motors). The applicable standards for each of these noise sources are provided by the local municipal codes. While the Riverside County Code and the City of Jurupa Valley Municipal Code states that it is “not intended to establish thresholds of significance for the purpose of any analysis required by the California Environmental Quality Act,” it does not prohibit lead agencies from using these standards to develop thresholds on a case-by-case basis. For the proposed project thresholds, these local standards are considered appropriate for two main reasons. First, there are no other local standards that are more relevant or applicable to the proposed project actions. Second, from a practical perspective it is sensible to ensure that the project comply with the City’s standards, and failure to do so could lead to future code violations and potential enforcement actions against the project. Therefore, the local municipal codes are used as thresholds of impact for the following analysis. Because the project study area spans multiple jurisdictions (County of Riverside, City of Riverside, and City of Jurupa Valley), it is helpful to establish the circumstances under which each jurisdiction’s standards are used in the event of a possible conflict. For the purposes of this analysis, the standards are applied based on the jurisdiction in which each sensitive receptor is located (i.e., based on the location of the noise receiver rather than the noise source).

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Construction Activities

Construction activities associated with the project would occur intermittently on the project site over the construction duration and would generate a temporary increase in noise levels on the project site and in the project vicinity. To assess potential construction noise impacts, sensitive receptors and their relative exposure were identified and described below.

Construction work in the city of Jurupa Valley would be subject to Chapter 11.05 of the Jurupa Valley Municipal Code. Various categories of construction noise and property maintenance noise are either entirely exempt from the municipal code noise standards, or are exempt during certain hours. Specifically, noise emanating from the following sources is exempt from the City of Jurupa Valley’s noise requirements: private construction projects within 0.25 mile from an inhabited dwelling, provided that construction work does not occur between certain restricted hours as provided under the municipal code; facilities owned or operated by or for a governmental agency; capital improvement projects of a governmental agency; the maintenance or repair of public properties; and property maintenance including, but not limited to, the operation of lawnmowers, leaf blowers, etc., provided such maintenance occurs between the hours of 7:00 a.m. and 8:00 p.m.

Construction work in the city of Riverside would be subject to Section 7.35 of the Riverside Municipal Code, which regulates noise associated with construction and operation activities. Section 7.35.010 B.5. prohibits “[o]perating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, grading or demolition work between the hours of 7:00 p.m. and 7:00 a.m. on week days and between 5:00 p.m. and 8:00 a.m. on Saturdays or at any time on Sunday or federal holidays.” Furthermore, Section 7.35.020 G. provides an explicit exemption from

the City's noise standards for "[n]oise sources associated with construction, repair, remodeling, or grading of any real property; provided a permit has been obtained from the City as required; and provided said activities do not take place between the hours of 7:00 p.m. and 7:00 a.m. on weekdays, between the hours of 5:00 p.m. and 8:00 a.m. on Saturdays, or at any time on Sunday or a federal holiday."

Construction work in the County of Riverside would be subject to Section 9.52 of the County Code. As discussed above, the County Code specifies various categories of construction, maintenance, and operations that are either entirely exempt from the County Code noise standards, or are exempt during certain hours subject to compliance with the County Code requirements.

Construction work associated with the proposed project would comply with all requirements under the City of Riverside Municipal Code, City of Jurupa Valley Municipal Code, and Riverside County Code with respect to noise standards. As further discussed below, there would be no impacts related to the short-term noise associated with construction of the proposed project.

Two types of short-term noise impacts could occur during project construction. First, construction vehicles would incrementally increase noise levels on access roads. This would include construction worker vehicles and haul trucks traveling to and from the project site. Although certain construction activities could result in an intermittent, relatively high single-event noise level (e.g., passing trucks at 50 feet would generate up to 77 dBA), the effect on longer-term ambient noise levels would be small. The noise construction activities would comply with all requirements of the City of Riverside Municipal Code, City of Jurupa Valley Municipal Code, and Riverside County Code. Therefore, there would be no impacts related to the short-term noise associated with commuting construction workers and transporting equipment and materials to the project site.

The second category of construction noise would be noise generated during onsite project construction. Detailed construction noise analysis tables are provided in Appendix G of this EIR. The tables include the construction equipment and phasing, individual noise source levels, noise levels for each phase of construction, assumed construction schedule, source-to-receiver distances, and combined noise levels for overlapping construction phases. The construction noise levels at any single receiver would change over time as different construction phases occur. The results are summarized in Table 3.9-11, which indicates the anticipated range of noise levels over the course of project construction. The results are reported for construction scenarios both with and without the potential use of an impact hammer for well drilling.

The results indicate a large range of noise levels over the course of construction. The lowest noise levels (in the range of 20 to 30 dBA) would likely be inaudible or barely noticeable over existing ambient conditions. The highest noise levels generated by well drilling activities (in the range of 60 to 74 dBA) would be clearly audible. The highest noise levels would be limited to time periods when construction is occurring closest to an individual receiver and the noise levels would decrease as construction moves to more distant portions of the project sites. The addition of well drilling would lead to minimal or modest increases (0 to 2 dB) at most receivers. Well drilling would lead to larger noise increases (4 to 6 dB) at receivers closest to the anticipated well sites at Old Ranch Creek and Hidden Valley Creek (i.e., receivers 2, 3, 10, and 11). Receiver 2 is approximately 0.1 mile from Hidden Valley Creek and receiver 3 is approximately 0.3 mile from Hidden Valley Creek. Receiver 10 is approximately 0.7 mile from Old Ranch Creek and receiver 11 is approximately 0.17 mile from Old Ranch Creek. Receivers could anticipate noise levels up to 71 dBA, as shown in Table 3.9-11.

In all cases, construction would be conducted only within the daytime hours permitted by the City of Riverside Municipal Code and would be exempt from any specific noise limits of the City of Riverside or the City of Jurupa Valley. All construction noise would be temporary and would cease once project construction is complete. The impact during construction would be less than significant.

Improvement measure IM-NO-1 is suggested to further reduce noise emitted by construction and maintenance equipment and to schedule high noise-producing activities appropriately.

Significance Determination: Less than significant. No mitigation necessary.

Improvement Measures

Improvement Measure NOI-1: Construction and Maintenance Noise Minimization and Notification

In order to minimize disruption and potential annoyance during project construction and maintenance, the project sponsor should implement the following construction and maintenance activity noise minimization measures:

- (a) Maintain all mechanized equipment to be used at the project site in good working order.
- (b) Ensure that all mechanized equipment utilizes noise reduction features (e.g., mufflers and engine shrouds) that are no less effective than those originally installed by the manufacturer.
- (c) Mechanized equipment shall be operated only when necessary, and shall be switched off when not in use.
- (d) Schedule high noise-producing activities during times when they would be least likely to interfere with the noise-sensitive activities of the neighboring land uses, when possible.
- (e) Provide advance notification to surrounding land uses disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period.
- (f) The construction contractor shall provide the name and telephone number of an onsite construction liaison. If construction noise is found to be intrusive to the community (complaints are received), the construction liaison shall investigate the source of the noise and require that reasonable measures be implemented to correct the problem.

The lead agency may choose to impose improvement measure IM-NO-1 on the proposed project as a condition of project approval.

Table 3.9-11. Estimated Range of Tributaries Restoration Project and Mitigation Reserve Program Phase I Construction Noise Levels

Receiver #	Description/Receiver Type	Location (City)	Range of Noise Levels, 8-hour Leq, dBA	
			Without Well Drilling	With Well Drilling
01	Paradise Knolls Golf Course	Northwest of Hidden Valley Creek (Jurupa Valley)	22 to 50	22 to 51
02	Single-Family Residential	South of Hidden Valley Creek (Riverside)	32 to 68	32 to 71
03	Single-Family Residential	North of Hidden Valley Creek (Jurupa Valley)	31 to 56	31 to 62
04	Rutland Park	Southwest of Lower Hole Creek (Riverside)	29 to 57	29 to 57
05	Single-Family Residential	West of Lower Hole Creek (Riverside)	26 to 74	26 to 74
06	Van Buren Golf Center	Southeast of Lower Hole Creek (Riverside)	18 to 55	18 to 55
07	Jurupa Hills Country Club and Single Family-Residential	North of Anza Creek (Jurupa Valley)	36 to 55	36 to 55
08	Martha McLean-Anza Narrows Regional Park	West of Anza Creek (Riverside)	44 to 73	44 to 73
09	Single-Family Residential	South of Anza Creek (Riverside)	39 to 66	39 to 66
10	Rancho Jurupa Park	North of Old Ranch Creek (Jurupa Valley)	28 to 45	28 to 50
11	Single-Family Residential	South of Old Ranch Creek (Riverside)	29 to 70	29 to 70

Maintenance Activities

As described above, for purposes of this analysis, maintenance activity noise levels were estimated using the same methodologies described for the construction noise analysis. Maintenance work on the project site is anticipated to be temporary in nature and occur only on an as-needed basis to ensure that the habitat continues to meet the defined success criteria consistent with the regulatory agency permitting requirements. It is anticipated that maintenance activities would occur in only limited areas of the project site and on an infrequent basis, likely no more than several times per year. As such, noise associated with as-needed maintenance work would not affect the recurring ambient noise levels in the project site.

Maintenance activity would be considered construction or maintenance as regulated by the City of Riverside and City of Jurupa Valley municipal codes and the Riverside County Code and, as such, would be exempt from any specific noise limits provided that the work occurs within the hours permitted by the codes and complies with any permitting requirements thereunder. Because maintenance work associated with the proposed project would be temporary and would be conducted in compliance with the applicable local noise ordinances applicable to construction noise,

there would be no impacts related to the short-term noise associated with maintenance work for the proposed project. The impact during maintenance would be less than significant.

Nevertheless, for informational purposes only, detailed maintenance noise analysis tables are provided in Appendix G of this EIR. The tables include the assumed equipment, individual noise source levels, noise levels for period of maintenance (short-term, long-term, in perpetuity), and source-to-receiver distances. The worst-case (i.e., closest) distances are considered for each receptor. The results are summarized in Table 3.9-12. The daily equipment schedule for short-term and long-term maintenance is the same, resulting in the same noise levels for each. The difference between the two scenarios would be in the anticipated frequency of the activity, with short-term activity occurring an estimated 120 days per year and long-term activity occurring an estimated 48 days per year. In perpetuity activity would be less intensive and would occur an estimated 24 days per year. The results indicate a large range of noise levels based on the widely varying distances between the maintenance work and the receivers. These estimates provide for a highly conservative analysis, as all maintenance activities are anticipated to be periodic and temporary in nature, likely occurring only several times per year on an as-needed basis. As such, impacts would be less than significant.

Significance Determination Prior to Mitigation: Less than significant. No mitigation necessary.

Improvement Measures

Improvement measure IM-NO-1 is suggested to further reduce noise emitted by maintenance equipment and to schedule high noise-producing activities appropriately.

Table 3.9-12. Estimated Worst-Case Tributaries Restoration Project and Mitigation Reserve Program Phase I Maintenance Noise Levels

Receiver #	Description/ Receiver Type	Location (City)	Estimated Worst-Case Noise Levels, L ₅₀ , dBA							
			Short-Term and Long-Term Maintenance				In Perpetuity Maintenance			
			Hidden Valley Creek	Lower Hole Creek	Anza Creek	Old Ranch Creek	Hidden Valley Creek	Lower Hole Creek	Anza Creek	Old Ranch Creek
01	Paradise Knolls Golf Course	Northwest of Hidden Valley Creek (Jurupa Valley)	41.8	28.3	-- ¹	-- ¹	39.4	25.9	-- ¹	-- ¹
02	Single-Family Residential	South of Hidden Valley Creek (Riverside)	59.9	37.9	-- ¹	-- ¹	57.5	35.5	-- ¹	-- ¹
03	Single-Family Residential	North of Hidden Valley Creek (Jurupa Valley)	48.5	36.8	-- ¹	-- ¹	46.1	34.4	-- ¹	-- ¹
04	Rutland Park	Southwest of Lower Hole Creek (Riverside)	34.9	48.2	-- ¹	-- ¹	32.5	45.8	-- ¹	-- ¹
05	Single-Family Residential	West of Lower Hole Creek (Riverside)	35.9	65.3	24.0	-- ¹	33.5	63.0	21.6	-- ¹
06	Van Buren Golf Center	Southeast of Lower Hole Creek (Riverside)	30.5	46.9	25.6	24.2	28.1	44.5	23.2	21.8
07	Jurupa Hills Country Club and Single Family-Residential	North of Anza Creek (Jurupa Valley)	-- ¹	24.9	46.4	42.3	-- ¹	22.5	44.0	39.9
08	Martha McLean-Anza Narrows Regional Park	West of Anza Creek (Riverside)	-- ¹	24.6	64.9	50.1	-- ¹	22.2	62.5	47.7
09	Single-Family Residential	South of Anza Creek (Riverside)	-- ¹	-- ²	57.1	45.0	-- ¹	-- ¹	54.8	42.6
10	Rancho Jurupa Park	North of Old Ranch Creek (Jurupa Valley)	-- ¹	-- ¹	30.7	37.6	-- ¹	-- ¹	28.3	35.3
11	Single-Family Residential	South of Old Ranch Creek (Riverside)	-- ¹	-- ¹	32.1	61.8	-- ¹	-- ¹	29.7	59.4
1 Noise level not calculated for source to receiver distances in excess of 2 miles.										

Operational Activities

The only permanent noise sources that would potentially be introduced as a result of the project would be groundwater well pumps at Old Ranch Creek and Hidden Valley Creek (one well at each site). The pumps would likely qualify as “facilities owned or operated by or for a governmental agency,” which would make them entirely exempt from the noise standards of the City of Jurupa Valley Municipal Code. However, as the pumps would operate up to 24 hours a day and would affect the most noise-sensitive periods (nighttime and weekends) when other ambient sources (such as traffic) are typically lowest and nearby residents are relaxing and sleeping, the use of City of Jurupa Valley standards as a threshold of impact would be appropriate. No exemptions for pump noise would apply for receptors located in the city of Riverside, and the City’s operational noise limits would apply.

The potential noise level from each pump was analyzed at the closest noise-sensitive receptors. It was assumed that the pump would run continuously for at least an hour and that it could run at any time of day or night. Because a pump is a fairly constant and consistent noise source, it was assumed that the noise level would be the same for all applicable metrics (L_{50} , L_{25} , $L_{8.33}$, $L_{1.67}$, and L_{max} for the City of Riverside and L_{max} for the City of Jurupa Valley). For the purposes of assessing impacts, the City of Riverside L_{50} noise limits and the City of Jurupa Valley L_{max} limits are the most stringent. Therefore, these two metrics are used for the purposes of assessing compliance with the standards. The full analysis is provided in Appendix G and Table 3.9-13 summarizes the results and assessment of impact for both pump sites. As summarized in Table 3.9-13, the pumps would comply with the applicable noise limits at all receivers except two. Groundwater pump noise levels are anticipated to exceed nighttime noise standards by up to 8 dB at the closest homes to the south of the potential groundwater well at Hidden Valley Creek. The noise levels are also anticipated to exceed nighttime noise standards by up to 2 dB at the closest homes to the south of the potential groundwater well at Old Ranch Creek. The impact at these locations would be potentially significant.

Table 3.9-13. Estimated Noise Levels from Tributaries Restoration Project and Mitigation Reserve Program Phase I Groundwater Well Pumps and Motors

Receiver #	Description/Location (City)	Well Noise Level, Hourly L_{50} or L_{max} , dBA		Applicable Noise Standard	Potentially Significant Impact?
		From Hidden Valley Creek	From Old Ranch Creek		
01	Paradise Knolls Golf Course Northwest of Hidden Valley Creek (Jurupa Valley)	31	--	Daytime & Nighttime: 45 dBA L_{max}	No
02	SFR South of Hidden Valley Creek (Riverside)	53	--	Daytime: 55 dBA L_{50} Nighttime: 45 dBA L_{50}	No Yes
03	SFR North of Hidden Valley Creek (Jurupa Valley)	45	--	Daytime: 55 dBA L_{max} Nighttime: 45 dBA L_{max}	No No

Receiver #	Description/Location (City)	Well Noise Level, Hourly L ₅₀ or L _{max} , dBA		Applicable Noise Standard	Potentially Significant Impact?
		From Hidden Valley Creek	From Old Ranch Creek		
04	Rutland Park Southwest of Lower Hole Creek (Riverside)	31	--	Daytime & Nighttime: 65 dBA L ₅₀	No
05	SFR West of Lower Hole Creek (Riverside)	32	--	Daytime: 55 dBA L ₅₀ Nighttime: 45 dBA L ₅₀	No No
06	Van Buren Golf Center Southeast of Lower Hole Creek (Riverside)	27	--	Daytime & Nighttime: 65 dBA L ₅₀	No
07	Jurupa Hills Country Club (Jurupa Valley)	--	25	Daytime & Nighttime: 45 dBA L _{max}	No
	SFR North of Anza Creek (Jurupa Valley)	--	25	Daytime: 55 dBA L _{max} Nighttime: 45 dBA L _{max}	No No
08	Martha McLean-Anza Narrows Regional Park West of Anza Creek (Riverside)	--	26	Daytime & Nighttime: 65 dBA L ₅₀	No
09	SFR South of Anza Creek (Riverside)	--	28	Daytime: 55 dBA L ₅₀ Nighttime: 45 dBA L ₅₀	No No
10	Rancho Jurupa Park North of Old Ranch Creek (Jurupa Valley)	--	32	Daytime & Nighttime: 45 dBA L _{max}	No
11	SFR South of Old Ranch Creek (Riverside)	--	47	Daytime: 55 dBA L ₅₀ Nighttime: 45 dBA L ₅₀	No Yes
SFR = single-family residential					

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Implementation of mitigation measure NOI-1 would reduce this impact to a less-than-significant level.

Mitigation Measure NOI-1: Reduce Groundwater Well Pump Noise to Comply with the City of Riverside Municipal Code

This mitigation measure would only apply if the groundwater wells are utilized by the project. If either the Hidden Valley Creek or Old Ranch Creek groundwater wells are eliminated from the project, then their associated noise impact would also be eliminated and this mitigation measure

would no longer be necessary for the eliminated location(s). In the event that the groundwater pumps are included as part of the project, they must be designed and installed to ensure that their operation complies with the City of Riverside's noise limits at the closest residential receptors. This may be achieved using one or more of the following methods:

- (a) Specify a well design at Hidden Valley Creek that limits combined pump and motor noise levels to a total sound pressure of 100 dBA or less at a distance of 1 meter, and a well design at Old Ranch Creek that limits combined pump and motor noise levels to a total sound pressure of 106 dBA or less at a distance of 1 meter. Techniques for achieving these specifications may include, but are not limited to:
 - Selecting quieter pumps and motors.
 - Shielding pumps and motors with noise barriers or enclosures. The design of such shielding should be based on final location details and pump/motor noise data; or
- (b) Provide an acoustical study based on final plans and pump/motor noise data that demonstrates compliance with the City's noise ordinance; or
- (c) Restrict pump operation to the daytime hours of 7:00 a.m. to 10:00 p.m. in order to avoid the affected nighttime hours.

Level of Significance Following Mitigation: Less than significant.

Expanded Mitigation Reserve Program Phase II

Construction Activities

As with the Tributaries Restoration Project and Mitigation Reserve Program Phase I, all construction activities associated with the Expanded Mitigation Reserve Program Phase II would comply with all requirements under the City of Riverside Municipal Code, City of Jurupa Valley Municipal Code, and Riverside County Code with respect to noise standards for any work occurring within each respective jurisdiction. As further discussed below, there would be no impacts related to the short-term noise associated with construction of the Expanded Mitigation Reserve Program Phase II.

Two types of short-term noise impacts could occur during project construction. First, construction vehicles would incrementally increase noise levels on access roads. This would include construction worker vehicles and haul trucks traveling to and from the project site. Although certain construction activities could result in an intermittent, relatively high single-event noise level (e.g., passing trucks at 50 feet would generate up to 77 dBA), the effect on longer-term ambient noise levels would be small. The noise construction activities would comply with all requirements under the City of Riverside Municipal Code, City of Jurupa Valley Municipal Code, and Riverside County Code. Therefore, there would be no impacts related to the short-term noise associated with commuting construction workers and transporting equipment and materials to the project site.

The second category of construction noise would be noise generated during onsite project construction. Future projects have not yet been defined and construction details and precise locations are not available. The potential area for improvement under the Expanded Mitigation Reserve Program Phase II is much larger than the area included in the Tributaries Restoration Project and includes locations that are much closer to nearby sensitive receptors. Some areas would be immediately adjacent to residential property lines. As a result, worst-case construction noise levels would potentially be substantially higher than those reported above for the Tributaries

Restoration Project and Mitigation Reserve Program Phase I. Assuming the range of potential construction activities would be similar to that identified for the Tributaries Restoration Project, noise levels at a distance of 50 feet could range from approximately 76 to 86 dBA (8-hour L_{eq}). (These noise levels correspond to the various construction phases analyzed for the Tributaries Restoration Project in Appendix G of this EIR.) Noise levels for activity at more distant locations within the program area would be substantially lower.

In all cases, construction would be conducted only within the daytime hours permitted by the City of Riverside Municipal Code, City of Jurupa Valley Municipal Code, and Riverside County Code with respect to noise standards for any work occurring within each respective jurisdiction. All construction noise would be temporary and would cease once project construction is complete. The impact during construction would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Improvement Measures

Improvement measure IM-NO-1 is suggested to further reduce noise emitted by construction equipment and to schedule high noise-producing activities appropriately.

Maintenance Activities

Specific design details for mitigation activities associated with the Expanded Mitigation Reserve Program Phase II are not available at this time. However, as the potential area for improvement is a larger than the area included in the Tributaries Restoration Project and Mitigation Reserve Program Phase I and includes additional locations that are also in proximity to nearby sensitive receptors within the city of Riverside, it is anticipated that worst-case maintenance noise levels would potentially be similar to or higher than those reported above for the Tributaries Restoration Project and Mitigation Reserve Program Phase I.

As described above regarding maintenance noise associated with the Tributaries Restoration Project and Mitigation Reserve Program Phase I, for purposes of this analysis, maintenance activity noise levels were estimated using the same methodologies described for the construction noise analysis. Maintenance work on the project site is anticipated to be temporary in nature and occur only on an as-needed basis to ensure that the habitat continues to meet the defined success criteria consistent with the regulatory agency permitting requirements. It is anticipated that maintenance activities would occur in only limited areas of the project site and on an infrequent basis, likely no more than several times per year. As such, noise associated with as-needed maintenance work for the Expanded Mitigation Reserve Program Phase II would not affect the recurring ambient noise levels in the project site.

Maintenance activity associated with the Expanded Mitigation Reserve Program Phase II would be considered construction or maintenance as regulated by the City of Riverside and City of Jurupa Valley municipal codes and Riverside County Code and, as such, would be exempt from any specific noise limits provided that the work occurs within the hours permitted by the codes and complies with any permitting requirements thereunder. Because maintenance work associated with the proposed project would be temporary and would be conducted in compliance with the applicable local noise ordinances, there would be no impacts related to the short-term noise associated with maintenance work for the proposed project. The impact during maintenance would be less than significant.

Significance Determination Prior to Mitigation: Less than significant. No mitigation necessary.

Improvement Measures

Improvement measure IM-NO-1 is suggested to further reduce noise emitted by maintenance equipment and to schedule high noise-producing activities appropriately.

Operational Activities

The Expanded Mitigation Reserve Program Phase II does not currently propose any permanent operational noise sources such as pumps. No impact would occur.

Significance Determination: No impact. No mitigation necessary.

Impact NOI-2: Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels (Less-than-significant impact with mitigation incorporated)

As noted previously, the analysis of potential vibration impacts is limited to the closest vibration-sensitive structures, which are all homes. The exterior areas of golf courses and parks are not considered vibration sensitive and are not included in the analysis. Two types of potential impacts are considered: human annoyance and potential building damage. All of the vibration sources used during project construction would be continuous or frequent intermittent sources. The thresholds of impact for human annoyance are based on the Caltrans criteria for *continuous/frequent intermittent sources* summarized in Table 3.9-3; any predicted vibration in the *distinctly perceptible* category (0.04 in/sec PPV) or higher would be considered a potentially significant impact for human annoyance. The thresholds of impact for potential building damage are based on the Caltrans criteria for *continuous/frequent intermittent sources* summarized in Table 3.9-2; any predicted vibration levels that exceed the criterion for the applicable structure category would be considered a potentially significant impact for potential building damage. For the purposes of this analysis, all of the closest structures are conservatively categorized as *older residential structures*, with a resulting threshold of 0.3 in/sec PPV, as compared to *newer residential structures* that have a damage threshold of 0.5 in/sec.

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Construction Activities

Heavy construction equipment would generate groundborne vibration that could affect nearby structures or residents. Vibration source levels are listed in Table 3.9-10 and detailed vibration analyses are provided in Appendix G and summarized in Table 3.9-14. The table also compares the calculated PPV with the human perceptibility criteria from Table 3.9-3 in order to assess the potential for human annoyance. Referring to Table 3.9-14, all of the predicted PPV values are below 0.04 in/sec and fall within the *barely perceptible* range or lower. None of the predicted vibration would be *distinctly perceptible*. Furthermore, all vibration-generating construction would be conducted only during the daytime construction hours permitted by local ordinances. Therefore, the vibration impacts with respect to human annoyance would be less than significant.

All of the predicted PPV values in Table 3.9-14 are also well below the applicable building damage threshold of 0.3 in/sec. Therefore, the vibration impact with respect to potential building damage would be less than significant.

Table 3.9-14. Estimated Range of Groundborne Vibration from Tributaries Restoration Project and Mitigation Reserve Program Phase I Construction

Receiver #	Description/Location (City)	Range of Predicted PPV, in/sec	Worst-Case Human Response
02	SFR South of Hidden Valley Creek (Riverside)	0.00018–0.02259	Barely perceptible
03	SFR North of Hidden Valley Creek (Jurupa Valley)	0.00005–0.01032	Barely perceptible
05	SFR West of Lower Hole Creek (Riverside)	0.00034–0.01015	Barely perceptible
07	SFR North of Anza Creek (Jurupa Valley)	0.00004–0.00131	None (below barely perceptible)
09	SFR South of Anza Creek (Riverside)	0.00013–0.00380	None (below barely perceptible)
11	SFR South of Old Ranch Creek (Riverside)	0.00022–0.01217	Barely perceptible

SFR = single-family residential

Significance Determination: Less than significant. No mitigation necessary.

Maintenance Activities

Periodic maintenance activities would be carried out using a mix of hand tools and/or mechanized equipment such as excavators, chainsaws, ATVs, trimmers, backhoes, and lawnmowers. Because this activity would be similar to the original construction activity, but on a much reduced scale, typical vibration levels would be lower than those reported in Table 3.9-14 and would occur less frequently and for shorter periods of time. All maintenance activity would also be limited to the days and hours permitted by the local jurisdiction in which that work is being performed. The impact would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Operational Activities

The project does not include any major permanent sources of vibration. Operation of the pumps and motors that would potentially be installed for groundwater wells as part of the project would cause some localized vibration that might be perceptible at close range. However, the closest vibration-sensitive receptors would be several hundred feet away and there would be no perceptible vibration at those locations. The impact would be less than significant.

Significance Determination: No impact. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

Construction and Maintenance Activities

Both construction and maintenance activities would potentially use the same types of vibration-generating equipment, affect the same locations, and be subject to the same thresholds of impact. Therefore, the following analysis, findings, and mitigation measures apply to both construction and maintenance activities associated with the Expanded Mitigation Reserve Program Phase II.

Potential future projects under the Expanded Mitigation Reserve Program Phase II have not yet been defined and construction and maintenance details and precise locations are not available. The potential area for improvement under the Expanded Mitigation Reserve Program Phase II is much larger than the area included in the Tributaries Restoration Project and Mitigation Reserve Program Phase I and includes locations that are closer to nearby sensitive receptors. To provide for a conservative analysis, it is assumed that some areas would be adjacent to residential property lines. As a result, worst-case vibration levels would potentially be substantially higher than those levels for the Tributaries Restoration Project and Mitigation Reserve Program Phase I. The potential sources of vibration would generally be the same as those considered for the Tributaries Restoration Project and Mitigation Reserve Program Phase I except that, because no additional groundwater wells are anticipated, impact hammering would not be required. To quantify the potential for significant groundborne vibration impacts, the impact distances from various pieces of construction equipment were estimated. These are the distances at which vibration levels would exceed the thresholds of impact for human annoyance or potential building damage. Vibration source levels are listed in Table 3.9-10 and detailed vibration analyses are provided in Appendix G and summarized in Table 3.9-15.

Table 3.9-15. Potential Groundborne Vibration Impact Distances from Expanded Mitigation Reserve Program Phase II Construction

Equipment Type	Impact Distance for Human Annoyance (0.04 in/sec PPV)	Impact Distance for Potential Building Damage (0.3 in/sec PPV)
Large bulldozer ¹	52 feet	9 feet
Loaded Trucks (on rough terrain)	45 feet	8 feet
Small bulldozer ²	3 feet	1 feet

¹ Considered representative of other heavy earthmoving equipment such as excavators, graders, backhoes, etc.

² Considered representative of smaller equipment such as mini excavators and bobcats.

Based on a review of the project mapping, locations where buildings are within the identified distances of the Expanded Mitigation Reserve Program Phase II area are limited to homes in the city of Riverside immediately west of Lower Hole Creek, and immediately south of Anza Creek and Old Ranch Creek. Depending on the type of equipment used and the exact location of activities, structures to the west of Lower Hole Creek could be inside the impact distances for both potential damage and human annoyance. Structures to the south of Anza Creek and Old Ranch Creek are all outside of the impact distances for potential damage, but a few are inside the impact distances for human annoyance. As a result, impacts at these locations would be potentially significant.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Implementation of the avoidance measures in mitigation measure NOI-2 would reduce the impact to less-than-significant levels.

Mitigation Measure NOI-2: Implement Measures to Avoid Groundborne Vibration

Implement the following measures to avoid groundborne vibration impacts at the nearby residential structures.

- (a) During all construction and maintenance activities, avoid the use of full-size earthmoving equipment (e.g., excavators, graders, backhoes) within 9 feet of any building or 52 feet of any habitable structure (auxiliary buildings such as garages, sheds, etc. are not considered to be habitable structures).
- (b) During all construction and maintenance activities, avoid the use of loaded trucks on rough terrain within 8 feet of any building or 45 feet of any habitable structure (auxiliary buildings such as garages, sheds, etc. are not considered to be habitable structures). Alternately, loaded trucks shall use paved roads or travel at low speeds (10 miles per hour or less) on properly maintained dirt roads.
- (c) During all construction and maintenance activities, avoid the operation of small earthmoving equipment (e.g., skid steers, mini excavators, bobcats) within 1 foot of any building or 3 feet of any habitable structure (auxiliary buildings such as garages, sheds, etc. are not considered to be habitable structures).
- (d) If the avoidance distances specified in (a), (b), or (c) above cannot be observed, then additional steps shall be taken on a project-by-project basis to reduce impacts. These steps may include, but are not limited to:
 - Notification and coordination with potentially affected residents to provide advance notice of potential groundborne vibration, including the dates and times when it may occur.
 - Site-specific analyses that include additional details such as specific soil conditions, specific equipment to be used, and details of the potentially affected structure(s) (e.g., age, conditions).
 - Assessment by a qualified structural or geotechnical engineer to determine if there are any risks to buildings from the vibration. If the engineer identifies any potential risks, it may be prudent to survey (including photographing and/or videotaping) the potentially affected buildings in order to provide a record of the existing conditions before construction.
 - If considered appropriate by the structural/geotechnical engineer, tests, observations, or monitoring should be performed on site during the construction activities to ensure the structural stability of the buildings. This may include vibration measurements obtained inside or outside of the buildings.

Level of Significance Following Mitigation: Less than significant.

Operational Activities

The Expanded Mitigation Reserve Program Phase II does not currently propose any permanent operational vibration sources. No impact would occur.

Significance Determination: No impact. No mitigation necessary.

Impact NOI-3: Generation of a substantial permanent increase in existing ambient noise levels in the project vicinity (Less-than-significant impact with mitigation incorporated)**Tributaries Restoration Project and Mitigation Reserve Program Phase I*****Construction and Maintenance Activities***

Construction and maintenance activities would be temporary or periodic and, as such, would not cause any permanent increase in existing ambient noise levels. No impact would occur.

Significance Determination: No impact. No mitigation necessary.

Operational Activities

The only permanent noise sources that would potentially be introduced as a result of the project would be a groundwater well at Old Ranch Creek and/or Hidden Valley Creek. In order to quantify noise increases generated by the pumps and motors associated with these wells, the predicted noise levels shown in Table 3.9-13 were compared with the average daytime and nighttime ambient noise levels shown in Table 3.9-8. A potentially significant impact would occur if the pump and motor noise exceeds the applicable local ordinance standards (see Impact NOI-1 above) and the combined noise level (pump and motor noise + ambient noise) exceeds the ambient level by more than 3 dB (a barely noticeable increase to most people). The results of the analysis, which are included in Appendix G and summarized in Table 3.9-16, indicate that noticeable noise increases with groundwater well noise levels exceeding local ordinance standards would occur during nighttime hours at receivers 2 and 11. These receivers represent the closest homes to the south of the potential groundwater well at Hidden Valley Creek and the closest homes to the south of the potential groundwater well at Old Ranch Creek. The impact at these locations would be potentially significant.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures**MM NOI-1: Reduce Groundwater Well Pump Noise to Comply with the City of Riverside Municipal Code**

Level of Significance Following Mitigation: Less than significant.

Expanded Mitigation Reserve Program Phase II***Construction and Maintenance Activities***

Construction and maintenance activities would be temporary or periodic and, as such, would not cause any permanent increase in existing ambient noise levels. No impact would occur.

Significance Determination: No impact. No mitigation necessary.

Operational Activities

The Expanded Mitigation Reserve Program Phase II does not currently propose any permanent operational noise sources such as pumps. No impact would occur.

Significance Determination: No impact. No mitigation necessary.

Table 3.9-16. Estimated Increase in Ambient Noise Levels Due to Groundwater Well Pumps and Motors for the Tributaries Restoration Project and Mitigation Reserve Program Phase I

Receiver #	Description/Location (City)	Well Noise Level, Hourly Leq, dBA	Time Period	Complies with Local Ordinance?	Average Ambient Noise Level, Leq, dBA	Combined Noise Level, Leq, dBA	Noise Increase, dB	Potentially Significant Impact?
01	Paradise Knolls Golf Course Northwest of Hidden Valley Creek (Jurupa Valley)	31	Daytime	Yes	49.9	49.9	0.0	No
			Nighttime	Yes	45.5	45.6	0.1	No
02	SFR South of Hidden Valley Creek (Riverside)	53	Daytime	Yes	48.3	54.1	5.8	No
			Nighttime	No	44.8	53.4	8.6	YES
03	SFR North of Hidden Valley Creek (Jurupa Valley)	45	Daytime	Yes	49.9	51.1	1.2	No
			Nighttime	Yes	45.5	48.3	2.8	No
04	Rutland Park Southwest of Lower Hole Creek (Riverside)	31	Daytime	Yes	57.2	57.2	0.0	No
			Nighttime	Yes	59.2	59.2	0.0	No
05	SFR West of Lower Hole Creek (Riverside)	32	Daytime	Yes	57.2	57.2	0.0	No
			Nighttime	Yes	59.2	59.2	0.0	No
06	Van Buren Golf Center Southeast of Lower Hole Creek (Riverside)	27	Daytime	Yes	57.2	57.2	0.0	No
			Nighttime	Yes	59.2	59.2	0.0	No
07	Jurupa Hills Country Club and SFR North of Anza Creek (Jurupa Valley)	25	Daytime	Yes	47.0	47.0	0.0	No
			Nighttime	Yes	44.3	44.3	0.0	No
08	Martha McLean–Anza Narrows Regional Park West of Anza Creek (Riverside)	26	Daytime	Yes	47.0	47.0	0.0	No
			Nighttime	Yes	44.3	44.4	0.1	No
09	SFR South of Anza Creek (Riverside)	28	Daytime	Yes	47.0	47.1	0.1	No
			Nighttime	Yes	44.3	44.4	0.1	No
10	Rancho Jurupa Park North of Old Ranch Creek (Jurupa Valley)	32	Daytime	Yes	47.0	47.1	0.1	No
			Nighttime	Yes	44.3	44.5	0.2	No
11	SFR South of Old Ranch Creek (Riverside)	47	Daytime	Yes	47.0	49.9	2.9	No
			Nighttime	No	44.3	48.7	4.4	YES
SFR = single-family residential								

Impact NOI-4: Creation of a substantial temporary or periodic increase in existing ambient noise levels in the project vicinity (Less-than-significant impact)

Temporary or periodic noise levels would occur as a result of construction and maintenance activities. A potentially significant impact would occur if the construction or maintenance activities do not comply with the applicable local ordinances (see Impact NOI-1 above) and the combined noise level (activity + ambient noise) exceeds the ambient level by more than 10 dB (a perceived doubling of the sound level).

Tributaries Restoration Project and Mitigation Reserve Program Phase I***Construction***

As discussed in Impact NOI-1 above, construction work associated with the proposed project would comply with all requirements of the City of Riverside Municipal Code, City of Jurupa Valley Municipal Code, and Riverside County Code with respect to noise standards for any construction work occurring within each respective jurisdiction.

In order to quantify construction noise increases associated with the Tributaries Restoration Project and Mitigation Reserve Program Phase I that would generate a substantial temporary or periodic increase in the existing ambient noise levels in the project vicinity, the predicted noise levels shown in Table 3.9-11 were compared with the average daytime ambient noise levels shown in Table 3.9-8. To provide a conservative analysis, it was assumed that construction would include the potential well drilling at Old Ranch Creek and Hidden Valley Creek. The results of the analysis, which are included in Appendix G and summarized in Table 3.9-17, indicate that noise increases in the range of 0 to 26 dB would occur at the 11 receivers considered in the analysis. Temporary increases of more than 10 dB would occur at receivers 2, 5, 8, 9, and 11. These receivers represent Martha McLean–Anza Narrows Regional Park as well as the closest homes to the south of Hidden Valley Creek, west of Lower Hole Creek, south of Anza Creek, and south of Old Ranch Creek. While these noise increases would be clearly audible and may cause some short-term nuisance, it is noted that the largest increases would be limited to the periods when construction activity is occurring closest to each affected receiver, and noise levels would decrease as construction moves to more distant portions of the project sites.

In all cases, construction would occur only within the daytime hours permitted by the City of Riverside Municipal Code and would be exempt from any specific noise limits of the City of Riverside or City of Jurupa Valley. All construction noise would be temporary and would cease once project construction is complete. The impact during construction would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Improvement Measures

Improvement measure IM-NO-1 is suggested to further reduce noise emitted by construction equipment and to schedule high noise-producing activities appropriately.

Table 3.9-17. Estimated Increase in Ambient Noise Levels Due to Construction of the Tributaries Restoration Project and Mitigation Reserve Program Phase I

Receiver #	Description/Location (City)	Range of Construction Noise Levels, 8-hour L_{eq} , dBA	Complies with Local Ordinances? ¹	Average Ambient Noise Level, L_{eq} , dBA	Combined Noise Level Range, L_{eq} , dBA	Noise Increase Range, dB	Potentially Significant Impact?
01	Paradise Knolls Golf Course Northwest of Hidden Valley Creek (Jurupa Valley)	22 to 51	Yes	50	50 to 53	0 to 3	No
02	SFR South of Hidden Valley Creek (Riverside)	32 to 71	Yes	48	48 to 68	0 to 20	No
03	SFR North of Hidden Valley Creek (Jurupa Valley)	31 to 62	Yes	50	50 to 57	0 to 7	No
04	Rutland Park Southwest of Lower Hole Creek (Riverside)	29 to 57	Yes	57	57 to 60	0 to 3	No
05	SFR West of Lower Hole Creek (Riverside)	26 to 74	Yes	57	57 to 74	0 to 17	No
06	Van Buren Golf Center Southeast of Lower Hole Creek (Riverside)	18 to 55	Yes	57	57 to 59	0 to 2	No
07	Jurupa Hills Country Club and SFR North of Anza Creek (Jurupa Valley)	36 to 55	Yes	47	47 to 56	0 to 9	No
08	Martha McLean–Anza Narrows Regional Park West of Anza Creek (Riverside)	44 to 73	Yes	47	49 to 73	2 to 26	No
09	SFR South of Anza Creek (Riverside)	39 to 66	Yes	47	48 to 66	1 to 19	No
10	Rancho Jurupa Park North of Old Ranch Creek (Jurupa Valley)	28 to 50	Yes	47	47 to 49	0 to 2	No
11	SFR South of Old Ranch Creek (Riverside)	29 to 70	Yes	47	47 to 70	0 to 23	No

Notes:

¹ Compliance requires that construction activities be limited to the days and hours permitted by the local ordinances and any permitting requirements (Cities of Riverside and Jurupa Valley and County of Riverside).

SFR = single-family residential

Maintenance Activities

Periodic maintenance activities would be carried out using a mix of hand tools and/or construction equipment such as backhoes. Because this activity would be similar to the original construction activity, but on a much-reduced scale, average noise levels and the associated noise increases would be lower than those reported in Table 3.9-17 and would occur for shorter periods of time. Much of the maintenance work would likely be inaudible at the surrounding receivers, but the use of mechanized equipment, including vehicles used to move crews and material to and from the sites, would periodically be noticeable. As discussed above with respect to construction noise impacts, while these noise increases would be clearly audible and may cause some short-term annoyance, it is noted that the largest increases would be limited to the periods when construction activity is occurring closest to each affected receiver, and noise levels would decrease as construction moves to more distant portions of the project sites. In all cases, maintenance work would be temporary and would be conducted only within the daytime hours permitted by the applicable local noise ordinances and subject to any permitting requirements therein. The impact during maintenance activities would be less than significant. No mitigation measures are required.

Significance Determination Prior to Mitigation: Less than significant. No mitigation necessary.

Improvement Measures

Improvement measure IM-NO-1 is suggested to further reduce noise emitted by maintenance equipment and to schedule high noise-producing activities appropriately.

Operational Activities

Operational activities would be permanent and, as such, would not cause any temporary or periodic increase in existing ambient noise levels. No impact would occur.

Significance Determination: No impact. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II***Construction Activities***

As discussed in Impact NOI-1 above, construction work associated with the Expanded Mitigation Reserve Program Phase II would comply with all requirements under the City of Riverside Municipal Code, City of Jurupa Valley Municipal Code, and Riverside County Code with respect to noise standards for any construction work occurring within each respective jurisdiction.

Future improvements as part of the Expanded Mitigation Reserve Program Phase II have not yet been defined and construction details and precise locations are not available. The potential area for improvements is much larger than the area included in the Tributaries Restoration Project and Mitigation Reserve Program Phase I and includes locations that are much closer to nearby sensitive receptors. It is possible that some construction activities could occur in areas adjacent to residential property lines. As a result, worst-case construction noise levels and the associated noise increases would potentially be substantially higher than those reported above for the Tributaries Restoration Project and Mitigation Reserve Program Phase I. Nonetheless, in all cases, construction would be conducted only within the daytime hours permitted by the City of Riverside Municipal Code and would be exempt from any specific noise limits of the City of Riverside or the City of Jurupa Valley.

All construction noise would be temporary and would cease once project construction is complete. The impact during construction would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Improvement Measures

Improvement measure IM-NO-1 is suggested to further reduce noise emitted by construction equipment and to schedule high noise-producing activities appropriately.

Maintenance Activities

As discussed in Impact NOI-1 above, periodic maintenance activities would occur within the Expanded Mitigation Reserve Program Phase II area.

As discussed above for construction, details of the Expanded Mitigation Reserve Program Phase II are not available, but the potential area for improvement is larger than the area included in the Tributaries Restoration Project and Mitigation Reserve Program Phase I and includes locations that are much closer to nearby sensitive receptors. As a result, worst-case maintenance noise level increases would potentially be higher than those reported above for the Tributaries Restoration Project and Mitigation Reserve Program Phase I. Because this activity would be similar to the original construction activity, but on a much-reduced scale, average noise levels and the associated noise increases would be lower than those reported in Table 3.9-17 and would occur for shorter periods of time. Much of the maintenance work would likely be inaudible at the surrounding receivers, but the use of mechanized equipment, including vehicles used to move crews and material to and from the sites, would periodically be noticeable. As discussed above with respect to construction noise impacts, while these noise increases would be clearly audible and may cause some short-term annoyance, it is noted that the largest increases would be limited to the periods when construction activity is occurring closest to each affected receiver, and noise levels would decrease as construction moves to more distant portions of the project sites. In all cases, maintenance work would be temporary and would be conducted only within the daytime hours permitted by the applicable local noise ordinances and subject to any permitting requirements therein. The impact during maintenance activities would be less than significant. No mitigation measures are required.

Significance Determination Prior to Mitigation: Less than significant. No mitigation necessary.

Improvement Measures

Improvement measure IM-NO-1 is suggested to further reduce noise emitted by maintenance equipment and to schedule high noise-producing activities appropriately.

Operational Activities

The Expanded Mitigation Reserve Program Phase II does not currently propose any permanent operational noise sources such as pumps. No impact would occur.

Significance Determination: No impact. No mitigation necessary.

3.10 Population and Housing

This section addresses the population and housing impacts of the proposed project. It includes a discussion of existing regulatory requirements, the population and housing setting within the project area, and population and housing impacts that would result from implementation of the proposed project. This section identifies the regulatory requirements applicable to population and housing and describes the potential for impacts to be present on the project sites. As the project's issues related to population and housing relate to homelessness and temporary shelters in the project area, the focus of the discussion, setting, and impacts is related to homelessness. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

3.10.1 Regulatory Setting

Federal

Federal regulations are generally applicable to a project if it involves a federal agency license, permit, approval, or funding, and/or crosses federal lands.

Uniform Relocation Assistance and Real Property Acquisition Policies Act

The Uniform Relocation Assistance and Real Property Program ensures that persons displaced as a result of a federal action or by an undertaking involving federal funds are treated fairly, consistently, and equitably. This helps to ensure persons will not suffer disproportionate injuries as a result of projects designed for public benefits. However, the project would not receive federal funding, and this act would not apply.

State

California Housing Element Law

California's housing element law (California Department of Housing and Community Development 2019) acknowledges that, in order for the private market to adequately address the housing needs and demand of Californians, local governments must adopt plans and regulatory systems that provide opportunities for (and do not unduly constrain) housing development. As a result, housing policy in California rests largely upon the effective implementation of local general plans and, in particular, local housing elements. The cities of Jurupa Valley and Riverside and the County of Riverside all have adopted Housing Elements that are utilized as part of this analysis.

California Relocation Act

Similar to the federal law, the California Relocation Act requires state and local governments to provide relocation assistance and benefits to displaced persons as a result of projects undertaken by state or local governments that do not involve federal funds. The project would not result in the displacement of people in permanent residence. As such, this act would not apply.

Regional and Local

County of Riverside

County of Riverside General Plan

The County of Riverside General Plan discusses homelessness within the County in the 2013–2021 Housing Element, which details specific policies and actions that the County is undertaking to solve this issue. The following policies within the General Plan aim to direct the County's actions to provide housing for the homeless population:

Policy 1.4: Assist in the development of additional housing for the mentally disabled.

Policy 1.5: Assist in the development of additional emergency, transitional, and permanent supportive housing for homeless persons and families.

Policy 1.6: Support self-help housing programs (e.g., Habitat for Humanity and Coachella Valley Housing Coalition).

Each policy has one or more associated actions to specify how the policy will be implemented. Each action within the Housing Element was reviewed over the 2013–2017 period to assess the achievements made and provide recommendations where appropriate. The actions associated with the above policies, as well as current progress, are described below:

Action 1.4a: Maintain a Mental Health Housing Coordinator or services coordination by a nonprofit organization.

- The Housing Opportunities Partnerships and Education program manages services offered to the homeless or those at risk of homelessness, including the mentally ill.

Action 1.4b: Support current legislation for block grant funding to aid Supportive Housing Program and Shelter Plus Care Program Funds.

- Between 2013 and 2016, the County provided assistance through the Shelter Plus Care Housing Program to 128 qualified units for sheltering homeless persons with disabilities.

Action 1.4c: Develop design criteria for housing suitable for the mentally disabled for use by affordable housing developers.

- For projects assisting mentally disabled individuals, Mental Health Services Act funds are used to design and build the supportive housing units consistent with the Riverside University Health System – Behavioral Health Community Services and Support Plan. These units are designed to accommodate the homeless or those at risk of homelessness as well as those individuals with severe and persistent mental illness. A total of 15 units of such qualifying housing are integrated into each project using Mental Health Services Act funds. From 2013 through 2016, a total of 60 supportive units were provided.

Action 1.4d: Promote the integration of special needs housing into affordable housing communities.

- Home Investment Partnership Act (HOME), Redevelopment Agency for the County of Riverside, and CalHome funds have been used to fund projects and activities targeting persons of low- and moderate-income and their families throughout the county, including those in special needs categories such as homeless persons.

Action 1.4e: Continue to participate in the Continuum of Care Supportive Housing Program and Shelter Plus Care Program. Continue the Shelter Plus Care Program through addition of permanent housing facilities for the mentally disabled, as funding is available, and implement a new program to provide safe havens to the mentally ill.

- The Riverside University Health System – Behavior Health offers housing programs that utilize a safe haven model in their services, such as The Place and The Path, which are further described under *County of Riverside Homeless Programs* below.

Action 1.5a: In cooperation with nonprofits and local jurisdictions, assist in the development of transitional housing facilities in established regions of the county where the need is highest.

- No new transitional housing facilities were developed or expanded in 2016.

Action 1.5b: Assist with the expansions of the number of emergency shelters in identified areas of Riverside County in cooperation with nonprofit organizations and local jurisdictions.

- No new emergency shelters were developed or expanded in 2016.

Action 1.5c: Process an amendment to Ordinance No. 348 to add the current definition of transitional housing and supportive housing and to permit transitional and supportive housing types as residential uses and subject only to those restrictions that apply to other residential uses of the same type in the same zone.

- Zoning code amendment in progress to ensure that transitional and supportive housing will be permitted by right in residential zones.

Action 1.6a: Continue to work with nonprofit organizations in providing homeownership opportunities through the Rural Development Self Help program and other self-help construction programs within Riverside County as Community Housing Development Organizations under the HOME program.

- In 2016, the County completed one self-help project in the community of North Shore in the unincorporated area of the county (11 units). In, 2016, the County provided HOME assistance for construction of 22 homes for low-income families to support a developer's self-help program. Each of the 22 households also received assistance from the U.S. Department of Agriculture's Rural Development Self Help Program.

Action 3.3b: Continue to utilize the following programs to assist special needs households:

1. Housing Choice Voucher Program (Section 8 Certificates)
 2. Family Unification Program
 3. Family Self Sufficiency Program
 4. Housing Opportunities for Persons with AIDS
 5. Veteran's Affairs Supportive Housing Program
 6. Foster Care Youth Program
 7. Tenant Based Rental Assistance Program
- The Veteran's Affairs Supportive Housing Program provided 451 homeless veterans with monthly rental assistance in 2016. The Housing Authority continues to provide rapid re-housing

and homeless prevention services to homeless families and families at imminent risk of homelessness. During the 2015–16 fiscal year, 25 persons received rapid re-housing and 81 persons received homeless prevention assistance.

Action 3.3d: The Housing Authority shall continue its collaborative agreement with Riverside County Department of Mental Health to administer Shelter Plus Care housing assistance for mentally ill homeless persons in the City of Riverside and within western and eastern Riverside County, as funding is awarded. Services should be expanded to include western Riverside County during the planning period.

- The County has continued to administer the Shelter Plus Care Program throughout the county, as further described below.

In addition to the development of affordable housing, the Riverside Sheriff's Department created a Homeless Outreach Team to identify homeless individuals, reduce the homeless population, and coordinate the delivery of resources to the homeless. The Sheriff's Department coordinates homeless outreach with a number of additional agencies including, but not limited to, the City of Jurupa Valley, the Riverside County Department of Social Services, the Probation Department, the U.S. Department of Veterans Affairs (VA), and the Riverside County Flood Control and Water Conservation District.

Jurupa Area Plan

According to the County of Riverside General Plan Jurupa Area Plan (2015), housing choices from rural to suburban neighborhoods to custom estates are as broad as the demand for housing requires in the County of Riverside. Choices include entry-level housing for first time buyers, apartments, seniors' housing, and golf communities. The pattern of growth concentrates development in key areas rather than spreading it uniformly throughout Riverside County. The almost doubling of Riverside County's population in approximately 20 years has been met by focusing growth in areas that are well served by public facilities and services or where they can readily be provided.

County of Riverside County Code

Homeless individuals residing in public open spaces are likely in violation of codes regulating park hours, camping on public property, fires, litter, and dumping of waste (County of Riverside County Codes 6.04.080, 9.04.300, 9.04.600, 9.08.070, 9.16.030, 9.16.080, 9.16.200).

County of Riverside Homeless Programs

In addition to the programs listed in the County of Riverside General Plan policies, County of Riverside implements homeless programs as described below.

Veterans Administration Supportive Housing Initiative

The VA is working in collaboration with the U.S. Department of Housing and Urban Development (HUD) to provide targeted housing choice vouchers to homeless veterans throughout the County of Riverside. Locally, the VA Loma Linda is working in collaboration with the Housing Authority of the County of Riverside, the Homeless Street Outreach Team, and other partners to assist homeless veterans with moving off the streets and into permanent supportive housing.

Riverside Emergency Shelter

A 64-bed facility, operated by Path of Life (POL) Ministries in partnership with the County and City of Riverside, provides a 30-day shelter program coupled with case management services for homeless men and women. Furthermore, between the cold weather months of December and April, an additional 72 beds are provided on a night-by-night basis. The Riverside Access Center is also home to the pet kennel that offers a safe place for Emergency Shelter and Riverside Access Center guests to house their companion animals during their stay, allowing homeless people with pets to access services.

Shelter Plus Care Program with Operation SafeHouse Harrison House

The Housing Authority of Riverside County, in partnership with Operation SafeHouse, has established a shelter plus care permanent housing project for transitional age youth program called Harrison House. Harrison House provides six units of permanent supportive housing to serve chronically homeless transitional age youth (18–23) in the Coachella Valley. These units are funded through Project Based Shelter Plus Care rental certificates and are located at Operation SafeHouse's comprehensive services campus in Thousand Palms, California. The Housing Authority of Riverside County serves as the official project sponsor and directly administers the project-based rental assistance. Operation SafeHouse is the provider and coordinator of supportive services to project participants. This program is not located in the project vicinity and would not likely serve homeless populations adjacent to the Santa Ana River in western Riverside County.

Transitional Housing Dual Diagnosis

The Transitional Housing Dual Diagnosis program serves homeless individuals affected by co-occurring mental illness and substance abuse and provides a total of 30 beds; 24-hour supervision and security; and supportive services to address mental illness and substance abuse treatment and recovery. The target population is defined as a homeless individual with mental or emotional impairments expected to be of long/continued and indefinite duration that impedes their ability to live independently, compounded by substance abuse (dually diagnosed). The availability of transitional housing and psychiatric care provides a safety net to ensure that dually diagnosed individuals obtain the treatment services necessary to move along the continuum to permanent, affordable housing in the community. The goal of the project is to provide up to 24 months of treatment (relapse prevention) and supportive services to foster the potential for independent living in permanent housing.

"The Place" Safe Haven Supportive Housing and Drop-In Center

The Place is operated by Jefferson Transitional Programs in partnership with the County of Riverside Department of Mental Health, and provides 25 permanent supportive housing beds and a 24-hour drop-in center for chronically homeless individuals with severe mental illness.

"The Path" Safe Haven Supportive Housing and Drop-In Center

The Path, located in the eastern end of the county in north Palm Springs, was opened in 2009 and provides 25 permanent supportive housing beds and a 24-hour drop-in center for chronically homeless individuals with severe mental illness. This program is not located in the project vicinity and would not likely serve homeless populations adjacent to the Santa Ana River in western Riverside County.

Path of Life

POL's Rapid Re-housing project targets homeless families with children, with or without disabilities, in all of Riverside County. The maximum assistance is up to 18 months. The project provides a comprehensive rapid re-housing intervention for families, which includes: (1) outreach/engagement; (2) housing first approach; (3) Coordinated Assessment with Housing Placement; and (4) home-based case management. Navigators work with existing outreach teams to identify and engage families living in the streets and emergency shelters.

POL received a HUD Continuum of Care award under the application of Riverside City and County. POL uses a tenant-based rental assistance (TBRA), which is a rental subsidy that will be used to help homeless families with children afford housing costs such as rent and security deposits. POL provides 80 units (92 beds). TBRA is offered as long as needed and provides rental costs by making up the difference between what the household can afford and the amount of the unit's fair market value. Supportive services are available by choice and tenants are encouraged to utilize them in maintaining housing and reaching self-arrived goals. The rental assistance will be up to 18 months with a planned reduction in assistance each quarter. Case management is available by choice of the homeless individual or family. Once in housing, case managers/navigators provide the sustainability services at the wish of the population addressing barriers that threaten long-term housing like healthcare, financial management, and insufficient income. The supportive services include mainstream benefits, employment placement, and healthcare.

Health To Hope Clinics

Health to Hope provides health care services to the extremely low- to low-income population within the County of Riverside. These services include general primary medical care including health screenings, family planning, immunizations, well child visits, nutrition, and cardiology. They also provide mental health services that include crisis intervention; psychiatric evaluation; medication monitoring; mental health assessment; substance abuse services; education and outreach; individual, couples, family, and therapy; case management; and collaboration with hospitals and social service agencies.

City of Riverside**City of Riverside General Plan**

The City of Riverside General Plan 2025 (City of Riverside 2007a) highlights the significant challenge of homelessness in Riverside. In 2003, to address this issue the City of Riverside implemented the Riverside Community Broad-Based Homeless Action Plan. This plan includes "30 strategies, including hiring a homeless services coordinator and street outreach workers, opening a new emergency shelter, developing a homeless services access center, expanding funding for community-based service agencies, identifying funding for prevention strategies, strengthening collaboration with faith-based service providers, and creating more affordable housing." The following policies within the General Plan aim to direct the City's actions to provide housing for the homeless population:

Policy H-4.4: Housing for Homeless People. Support adequate opportunities for emergency, transitional, and permanent supportive housing through the implementation of land use and zoning practices and, where feasible, financial assistance.

Policy H-4.6: Supportive Services. Continue to fund the provision of supportive services for persons with special needs to further the greatest level of independence and equal housing opportunities.

City of Riverside Municipal Code

The Riverside Municipal Code imposes restrictions regarding the use of public and recreation open spaces, including regulations regarding park hours, camping on public property, fires, litter, and dumping of waste (City of Riverside Municipal Codes 9.04.080, 9.04.600, 9.08.080, 9.08.100, 9.08.110, 9.08.160, 9.16.030).

City of Riverside Homeless Programs

Housing First Initiative

The City of Riverside is working with community partners to implement the best practice “Housing First” approach, which emphasizes moving people into housing as quickly as possible and providing the appropriate level of services to support housing stabilization and retention. The Housing First approach focuses on rapid re-housing and home-based case management to facilitate client stabilization leading to self-sufficiency. This effort currently includes the HUD-funded Permanent Supportive Housing Program; the Veteran’s Administration Supportive Housing initiative administered by the VA Loma Linda, the Housing Authority of the County of Riverside, and the City’s Home Investment Partnerships Program-funded Tenant-Based Rental Assistance program.

Permanent Supportive Housing Program

The City of Riverside utilizes \$240,000 in funding annually awarded through the HUD Continuum of Care Supportive Housing Program to support the development and operations of two permanent supportive housing projects providing housing for 16 individuals/households. One of the projects provides supportive housing specifically to chronically homeless individuals and the second project provides supportive housing for homeless persons with disabling conditions and their families (where applicable). Ongoing case management and supportive services are provided to participants to help ensure housing stability and the achievement of self-sufficiency goals. The City is working in partnership with a local nonprofit housing developer, Riverside Housing Development Corporation, as well as supportive service providers to implement these two projects.

Tenant-Based Rental Assistance Program

The Riverside City Council allocated funding to establish the TBRA Program to help address the need for permanent housing solutions for individuals and families who are homeless or on the verge of homelessness in the city of Riverside. The TBRA program, administered by the Housing Authority of the County of Riverside, provides eligible homeless and at-risk households in Riverside with move-in assistance or short- and medium-term rental subsidies coupled with home-based case management. The TBRA program includes a “street to home” pilot project, which provides a target group of chronically homeless individuals with housing and case management provided by the City of Riverside’s Homeless Street Outreach Team.

City of Jurupa Valley

City of Jurupa Valley General Plan

The City of Jurupa Valley Draft General Plan (2017) acknowledges that within the city of Jurupa Valley “most of the homeless persons are residing in and near the Santa Ana River Basin, which runs along the City’s east and south boundaries.” The City of Jurupa Valley Draft General Plan also includes a Housing Action Plan, including aims for improvement and conservation of housing, including affordable housing stock; assistance with the development of housing to meet the needs of very low, low, and moderate income households; and promotion of equal housing opportunities for all persons. This Housing Action Plan includes several objectives to establish homeless shelters (HE 1.1.13), issues with safety, health, and sanitation (HE 1.1.14), and incentives to develop affordable housing (HE 1.1.15).

In addition to the development of affordable housing, the City of Jurupa Valley Draft General Plan indicates that the City works with the Riverside Sheriff’s Department, along with additional agencies, to conduct homeless outreach.

City of Jurupa Valley Municipal Code

The Jurupa Valley Municipal Code imposes restrictions regarding the use of public and recreation open spaces, including regulations on city park use, camping and park closure hours, the use of vehicles in park areas, and dumping of trash outside of receptacles (Codes 6.85.010, 6.85.020 and 11.45.010).

3.10.2 Environmental Setting

County of Riverside

Population

Riverside County borders San Bernardino County to the north, Los Angeles County to the west, and Orange County to the southwest. The cities of Riverside and Jurupa Valley are within Riverside County. The County’s current population is 2,415,955 (CDOF 2018a). By 2035, the County’s population is expected to rise to 3,015,808 (CDOF 2018b).

Demographics

According to the 2012–2016 American Community Survey (ACS) 5-year estimates (U.S. Census Bureau 2016), the racial breakdown of Riverside County’s population is as follows:

- 47.5 percent Hispanic or Latino
- 37.2 percent White
- 6.0 percent Asian
- 5.9 percent Black/African American
- 0.4 percent American Indian and Alaska Native
- 0.3 percent Native Hawaiian and Other Pacific Islander

- 0.2 percent some other race
- 2.5 percent two or more races

Income

The 2016 median household income in the County of Riverside was \$57,972 according to the 2012–2016 ACS 5-year estimates (U.S. Census Bureau 2016). In 2012, the median household income was \$57,096, which shows that the income level increased approximately 0.7 percent over the past 4 years. Table 3.10-1 shows the median household incomes for 2-person, 3-person, and 4-person households.

Table 3.10-1. 2017 Riverside County Area Median Household Income Classification in US Dollars

Income Status	2-person household	3-person household	4-person household
Extremely Low Income	\$16,240	\$20,420	\$24,600
Very Low Income	\$26,800	\$30,150	\$33,500
Low Income	\$42,900	\$48,250	\$53,600
Median Income	\$52,000	\$58,500	\$65,000

Source: California Department of Housing and Community Development 2017

Housing

There are approximately 820,300 housing units in Riverside County, with an average household size of 3.20 people for owner-occupied units and 3.33 people for renter-occupied units (U.S. Census Bureau 2016). Table 3.10-2 lists the total housing units within Riverside County.

According to the 2012–2016 ACS 5-year estimates, the County homeowner vacancy rate is 2.0 percent and the rental vacancy rate is 5.7 percent. These rates are similar to the corresponding national rates (1.8 percent of homeowners and 6.2 percent of rentals). Vacancy rates are an indicator of housing market balance in the County, where high vacancy rates demonstrate low demand and/or high prices, and low vacancy rates demonstrate high demand and/or low prices in the housing market. The County's vacancy rates are comparable to the national level, indicating a relatively low demand for housing in the region.

Table 3.10-2. 2016 Riverside County Housing Units

Unit Type	Number	Percentage
Single-family detached	557,551	68.0
Single-family attached	48,388	5.9
Multi-family (2-4 units)	39,320	4.8
Multi-family (5+ units)	99,324	12.1
Mobile homes, boat, RV	75,717	9.2
Total	820,300	100

Source: U.S. Census Bureau 2016

Cities of Jurupa Valley and Riverside

The proposed project sites are within the cities of Riverside and Jurupa Valley. The Hidden Valley Creek and Lower Hole Creek restoration sites are within Census Tract 410.04, in the city of

Riverside. The Anza Creek and Old Ranch Creek restoration sites are within Census Tract 402.01 in the city of Jurupa Valley.

The city of Jurupa Valley is primarily a residential and industrial community that spans over 44 square miles. The city's population in 2016 was 100,737 (U.S. Census Bureau 2016). Within Jurupa Valley, Census Tract 402.01 had a population of 6,525 in 2016. The Anza Creek and Old Ranch Creek sites are bounded to the north by the Santa Ana River, to the east by the closed Tequesquite Landfill, and to the south and west by the Santa Ana River Trail Bike Path and Martha McLean-Anza Narrows Park. Single-family homes are located beyond the Santa Ana River Trail Bike Path to the south of the sites.

The city of Riverside is primarily a residential community that spans over 85 square miles. The city's population in 2016 was 318,678 (U.S. Census Bureau 2016). Within the city of Riverside, Census Tract 410.04 had a population of 5,071 in 2016. The primary land uses to the north and south of the Hidden Valley Creek restoration site within Census Tract 410.04 are single-family residences and open space. The land use to the east and west of the restoration site is open space. The Lower Hole Creek restoration site, also within Census Tract 410.04, is surrounded by commercial buildings and the continuation of Lower Hole Creek to the south, the Riverside Water Quality Control Plant to the east, and the Santa Ana River north of the restoration site.

Demographics

The demographic data for the cities and census tracts provided by the U.S. Census Bureau have been organized into five categories: Hispanic (individuals identifying primarily with a Hispanic ethnicity), White (individuals identifying primarily with a Non-Hispanic, White ethnicity), Black (individuals identifying primarily with a Black ethnicity), Asian (individuals identifying primarily with an Asian ethnicity), and Other (individuals identifying primarily with all other ethnicities not aforementioned, as well as those identifying with more than one ethnicity). According to the U.S. Census Bureau, "minorities" are defined as all individuals that are not Non-Hispanic, single-race whites. For purposes of this analysis, an area is considered to have a significantly greater minority population if the affected census tract or group of tracts has a minority population at least 10 percent greater on average than the overall city.

As shown in Table 3.10-3, Census Tract 410.04 has a 10.2 percent greater Hispanic population than the overall city of Riverside. Census Tract 402.01 has a lower percentage of Hispanic population as compared to the city of Jurupa Valley.

Table 3.10-3. Population and Demographic Distribution by City

City/Census Tract	Population	Hispanic %	White %	Black %	Asian %	Other %
City of Jurupa Valley	100,737	69.2	23.5	2.6	2.7	1.7
Census Tract 402.01	6,525	67.1	25.2	4.2	2.5	1.0
City of Riverside	318,678	52.0	31.9	5.7	6.7	3.2
Census Tract 410.04	5,071	62.2	24.9	3.5	5.6	3.5

Source: U.S. Census Bureau 2016

Income

The 2012–2016 ACS 5-year estimates data indicated that median household income in the city of Jurupa Valley is \$58,849. An estimated 9.6 percent of households had income below \$15,000 a year

while another 8.2 percent had income over \$150,000 or more (U.S. Census Bureau 2016). The California Department of Housing and Community used income and population distribution in each county and defined low-income as 80 percent of the median family level. For this project, the affected census tract must have an average median household income at least \$10,000 below that of the overall city to be considered significantly lower income. The national poverty level or threshold is determined each year by the U.S. Census Bureau. The affected tract within the city of Jurupa Valley had a higher median income (about \$20,000 higher), indicating the project area is a relatively higher income area than the city. The census tract, as further described in Table 3.10-4, also shows a smaller percentage of the population living below poverty level than in the city of Jurupa Valley. Within the city of Riverside, Census Tract 410.04 has a lower median household income (about \$9,500 lower), indicating the project area is a lower income area than the city of Riverside. However, the percentage of the population living below poverty level is lower within the census tract as compared to the city of Riverside.

Table 3.10-4. Median Household Income and Poverty Status in 2016 by City and Census Tract

City/Census Tract	Median Household Income	Percent Below Poverty Level (Individuals)
City of Jurupa Valley	\$58,849	17.8
Census Tract 402.01	\$74,315	12.9
City of Riverside	\$58,979	17.8
Census Tract 410.04	\$49,622	14.7

Source: U.S. Census Bureau 2016

Housing

There are approximately 27,000 housing units in the city of Jurupa Valley and the breakdown is shown in Table 3.10-5. The average household size is 3.99 people for owner-occupied units and 3.80 people for renter-occupied units (U.S. Census Bureau 2016). As for housing tenure, 63.5 percent of the City's units are owner-occupied, while 36.5 percent of units are renter-occupied.

Table 3.10-5. 2016 City of Jurupa Valley Housing Units

Unit Type	Number	Percentage
Single-family detached	20,526	76.0
Single-family attached	950	3.5
Multi-family (2-4 units)	727	2.7
Multi-family (5+ units)	2,808	10.4
Mobile homes, boat, RV	1,989	7.4
Total	27,000	100

Source: U.S. Census Bureau 2016

There are approximately 98,109 housing units in the city of Riverside and the breakdown is shown in Table 3.10-6. The average household size is 3.44 people for owner-occupied units and 3.22 people for renter-occupied (U.S. Census Bureau 2016). As for housing tenure, 54.5 percent of the city's units are owner-occupied, while 45.5 percent of units are renter-occupied.

Table 3.10-6. 2016 City of Riverside Housing Units

Unit Type	Number	Percentage
Single-family detached	63,041	64.3
Single-family attached	3,802	3.9
Multi-family (2-4 units)	5,472	5.6
Multi-family (5+ units)	23,562	24.0
Mobile homes, boat, RV	2,232	2.3
Total	98,109	100

Source: U.S. Census Bureau 2016

Homeless Populations

Homelessness and homeless people living in public rights-of-way or in natural open space or recreational areas is a concern throughout the state of California, the county of Riverside, the cities of Jurupa Valley and Riverside, and specifically near the Santa Ana River in the project area. Major factors that can contribute to homelessness include lack of employment opportunities and affordable housing, a decline in available public assistance, lack of affordable health care, and other circumstantial issues such as domestic violence, mental illness, and drug or alcohol addiction.

County of Riverside

According to the County of Riverside General Plan Housing Element (2013–2021), the homeless population in Riverside County is concentrated around urbanized cities where homeless services and transportation are readily available. The large numbers of homeless persons, the high cost of housing, and the number of people living in poverty create a complex, serious situation. The County acknowledges the need for emergency or transitional shelters in unincorporated areas of the county, as none currently exist. However, the County does provide services to homeless persons in both the incorporated and unincorporated areas of the county, through the Department of Public Health and Department of Public Social Services. The County described commitment to working with area nonprofit agencies and addressing homeless problems from all sides, which includes providing prevention, outreach, and shelter services.

City of Jurupa Valley

The City of Jurupa Valley Draft General Plan (2017) Housing Element discusses homelessness within the Santa Ana River Basin, which includes portions of the proposed project area. In the 2017 Point-In-Time Count conducted by Riverside County, 129 unsheltered, homeless individuals were documented in the city of Jurupa Valley. This is the third highest number of homeless persons among incorporated and unincorporated areas in Riverside County. Most of the homeless persons are residing in and near the Santa Ana River Basin, which runs along the city's eastern and southern boundaries, as well as on public and private property along State Route 60 and in other areas of the city.

As described in the General Plan, Appendix 13.0, the causes of homelessness are varied and complex, and not readily resolved. The City has already set aside a zone that allows homeless shelters without discretionary review. In addition, the Housing Element includes a program calling for the City to actively work with neighboring jurisdictions to achieve regional cooperation to reduce homelessness. Homelessness is associated with a number of negative issues, including crime, blight,

trash, unsanitary conditions, and illegal fires. In 2014, the Sheriff's Department created a Homeless Outreach Team to identify homeless individuals, reduce the homeless population, and coordinate the delivery of resources to the homeless. The Sheriff's Department coordinates homeless outreach with a number of additional agencies including, but not limited to, the City of Jurupa Valley, the Riverside County Department of Social Services, the Probation Department, the Department of Veterans Affairs, and the Riverside County Flood Control and Water Conservation District.

City of Riverside

The City of Riverside has been implementing ongoing efforts to relocate homeless individuals from the Santa Ana River Basin because of safety concerns (City of Riverside 2018a). Safety concerns include flood danger and fire risk from heat and cooking fires. The City of Riverside has a Homeless Outreach Team that conducts daily outreach and helps to provide immediate assistance to the homeless population within the city. The Homeless Outreach Team works in tandem with city staff, local service providers, health professionals, law enforcement, and the community at large. In the 2017 Point-In-Time Count conducted by Riverside County, 389 unsheltered, homeless individuals were documented in the city of Riverside. This is a 50 percent increase in unsheltered homelessness since 2016. Approximately 26 percent of surveyed unsheltered, homeless individuals identified as Hispanic or Latino and 64 percent identified as male.

At the local level, the City of Riverside provides outreach, programs, and resources with the overall goal of reducing homelessness by providing an array of housing options and programs based on community needs (City of Riverside 2016). Among these programs, the City is providing periodic site cleanups of homeless encampment sites throughout the city and specifically along the Santa Ana River where human influence can pollute the river and destroy natural resources including fish and natural vegetation. The City of Riverside manages the costs for cleanup, which can range from approximately \$12,000 per day for one cleanup effort involving approximately 20 encampments, to approximately \$100,000 for larger cleanups (for example, the City cleaned up 75 encampment sites including hazardous materials near Jurupa Valley in 2015/2016 at a cost of approximately \$100,000) (City of Riverside 2018a). It is estimated that there are currently as many as 120 encampment sites requiring removal and those sites contain trailers, vehicles, solar panels, electronic devices like televisions, etc. (City of Riverside 2018a).

Project Area Setting

The proposed project is located within the floodplain of the Santa Ana River and is designated as Parks and Open Space area per the City of Riverside General Plan 2025 (City of Riverside 2007a), and as Open Space Water and Open Space Recreation in the City of Jurupa General Plan (City of Jurupa Valley 2018). The project sites are designated as Open Space-Conservation and Open Space-Water in the County of Riverside General Plan Jurupa Area Plan (County of Riverside 2015). The area surrounding the project is medium-density residential housing with some industrial and business uses to the south of the proposed project sites. There are currently no existing housing structures within the project sites. However, there have been homeless encampments established within the project sites and floodplain.

Anza Creek and Old Ranch Creek

Access roads and the Santa Ana River Trail Bike Path cross the sites and provide feeders to numerous pedestrian trails that zigzag throughout the sites, with a heavy concentration on the

northeastern corner where multiple large homeless encampments currently exist. The Old Ranch Creek site is zoned as PF (Public Facilities) with a land use designation of P (Public Park) by the City of Riverside, and is zoned as W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-R (Open Space Recreation) by the City of Jurupa Valley. The Anza Creek site is zoned as PF (Public Facilities) with a land use designation of P (Public Park) by the City of Riverside; as W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-W (Water) and OS-R (Open Space Recreation) by the City of Jurupa Valley; and as W-1 (Water) with a land use designation of W (Water) by the County of Riverside.

Homeless activity is prevalent along Anza Drain, which has led to blockages of the channel from log footpath and dam construction and excessive garbage, shopping carts, and other debris accumulations (San Bernardino Valley Municipal Water District 2015).

Lower Hole Creek

The primary land use south and west of the restoration site is single-family residences. Commercial buildings and the continuation of Lower Hole Creek are also south of the restoration site. The primary land use to the east is the Van Buren Golf Center and the Santa Ana River is north of the restoration site. Jurupa Avenue is the dividing line between two Lower Hole Creek areas—Lower Hole Creek and Hole Lake. The site has the following City of Riverside zoning designations: Public Facilities, Business and Manufacturing Park Zone, and Residential Estate Zone; and these land use designations: Open Space, Commercial, and Multi Density Residential. The site currently supports dense riparian vegetation along most of the upstream half of the creek and is heavily affected by human use, particularly the homeless population in the area, as evidenced by the numerous encampments and extensive trash at the site. There are many access trails running down the banks and across the stream.

Lower Hole Creek's water sources include treated effluent and urban runoff, including runoff from Van Buren Boulevard that enters the site from the east downstream of Jurupa Avenue, runoff from the Greenbelt area (south of Victoria), locally rising groundwater, and occasionally flow from the Riverside Canal. These sources provide enough water for Lower Hole Creek to be a perennial channel throughout the year. The urban watershed causes rapid runoff during rain events and periodic flooding that delivers abundant trash and debris to Lower Hole Creek, along with the use by the homeless encampments.

Hidden Valley Creek

Neighboring land uses upstream and downstream along the Santa Ana River include Hidden Valley Nature Center, community open space, and urban residential communities. Adjacent, developed uplands may also be a source of nuisance species such as feral dogs and cats or nonnative vegetation. The site has the following City of Riverside zoning designation: PF (Public Facilities) with a land use designation of OS (Open Space/Natural Resources); and the following City of Jurupa Valley zoning designation: W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-W (Water) and OS-R (Open Space Recreation). County of Riverside zoning designation for the site is W-1 (Water) with a land use designation of W (Water) and CH (Conservation Habitat).

3.10.3 Environmental Impacts

Methods for Analysis

The methods for analysis include review and documentation of relevant City of Riverside, City of Jurupa Valley, and County of Riverside General Plans, Zoning Ordinances, and homeless task force policies and measures in relation to the proposed project. San Bernardino Valley Municipal Water District (Valley District) has been coordinating directly with the City of Riverside and City of Jurupa Valley, among other entities focused on addressing homeless needs as well as cleanup activities at the project sites. Project-related measures and coordinated agency actions have been incorporated into the methods of analysis to address environmental impacts under the California Environmental Quality Act (CEQA).

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Inducement of substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure).
- Displacement of a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere.

As noted in Section Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this EIR) prepared for the proposed project considered and then eliminated several less-than-significant impacts from further analysis. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. As stated in the Notice of Preparation/Initial Study, the proposed project would not induce substantial population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure). For further discussion impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

Impact POP-1: Displacement of a substantial number of existing people or housing, necessitating the construction of replacement housing elsewhere (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The proposed project is not expected to displace any existing permanent housing, as this project would not include removal or construction of any permanent residences. The project area is within public open space areas and is not zoned or designed for residential uses by the cities of Riverside and Jurupa Valley or by Riverside County. However, the area is populated with homeless individuals living in temporary encampments, also known as transient camps, which are constructed in public open space areas. It is estimated that there are currently as many as 120 individual encampments sites near the Santa Ana River within the two cities; however, the exact number of homeless populations within each of the project sites is unknown and likely fluctuates depending upon

weather conditions and other factors. These encampments have resulted in trash and human waste placed in the area of the restoration sites and damage to the existing natural vegetation on site.

Difficulties associated with policing homelessness activities have led to documented instances of dangerous public health and safety conditions and events within the Santa Ana River Basin. For example, on December 21, 2017, wildfire erupted under the Mission Inn Avenue bridge, adjacent to Mount Rubidoux. Numerous properties were threatened by the 50-acre blaze, which forced the evacuation of dozens of nearby homes before it was contained hours later. A homeless cooking fire was believed to be the source of this fire (mynewsLA.com 2018). Closer to the proposed project area, a small fire at an encampment site between the Santa Ana River and a bike trail just east of the Van Buren Bridge occurred on May 9, 2017, prompting the evacuation of 20 homeless people before the fire was contained (Press Enterprise 2017). This fire was caused by an open barbecue.

In addition to fire risks, homeless encampments have ongoing environmental impacts. In addition to the discharge of human waste into the river, for example, many of the encampments include structures such as trailers. They may also include vehicles, solar panels, electronic devices (e.g., televisions), fencing materials, and other items that could result in the discharge of pollutants into the Santa Ana River.

It is expected that the proposed project's post-restoration conditions would affect the intensity and distribution of encampments on or around the project sites, thus reducing the impacts associated with those encampments. For example, the restoration activities themselves would involve the introduction of heavy equipment and personnel into occupied areas. Homeless encampments and associated structures would be removed from construction areas by local jurisdictional authorities, subject to applicable local and state law, prior to the start of construction activities, consistent with existing homeless encampment removals. Moreover, because the proposed project would result in changes to vegetation cover and hydrology (e.g., restoration of waters to floodplains that may exclude human use of certain areas during storm events), significant portions of the project sites may become unamenable to the maintenance of homeless encampments. Most significantly, because the proposed project would result in greater public recreational use of the restoration areas, the maintenance of existing encampments and the creation of new encampments would become less viable. Nonetheless, without increased patrol of the project sites, the impacts of these encampments are likely to continue.

As outlined in the project description, the project includes implementation of a long-term solution for maintaining the restored project areas of the Santa Ana River and preventing the re-establishment of new homeless encampments. City of Riverside Public Works staff currently patrols areas along the Santa Ana River approximately twice per week; however, additional patrols would be required to deter the creation of new encampment sites once the project sites have been restored. Part of the proposed approach for long-term maintenance for restoration success is deterrence and prevention rather than continual cleanup and removal. As part of the proposed project, Valley District proposes to fund two full-time County of Riverside park ranger positions to patrol the project sites areas along the Santa Ana River (funded at approximately \$175,000 each) plus part-time maintenance staff. This would help ensure the restored habitats are protected from degradation caused by human influence.

The complex issue of homeless encampments in these open space riparian areas requires the involvement and coordination of multiple local agencies, including the City of Riverside as to its "Homeless Taskforce Plan" (Tool H-22; City of Riverside 2007b). The cities of Riverside and Jurupa

Valley currently implement existing city programs involving transient populations being relocated to safer, more sanitary shelters or more permanent residences, including solutions for people that choose to not stay in homeless shelters for varying reasons (e.g., because of drug dependency or pets that are not allowed in some shelters).

The removal of unpermitted structures, debris, or materials associated with homeless encampments would be environmentally beneficial for the Santa Ana River Basin, both reducing human hazards and eliminating trash and other sources of waste in and around the area. Relocation of transient individuals, removal of homeless encampments, and cleanup of remaining refuse would be coordinated and conducted among the County of Riverside, City of Riverside Office of Homeless Solutions, and City of Jurupa Valley prior to construction. The City of Riverside provides outreach, programs, and resources with the overall goal of reducing homelessness by providing an array of housing options and programs based on community needs (City of Riverside 2018b). Including the existing local programs described in Section 3.10.1, the City of Riverside had almost \$1.8 million in homeless services resources funds for the 2017–18 fiscal year (City of Riverside 2017). Given the homeless would be relocated by local jurisdictions and encampments would be removed prior to construction activities, the Tributaries Restoration Project and Mitigation Reserve Program Phase I would result in a less-than-significant impact on homeless populations.

Significance Determination Prior to Mitigation: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The potential implementation of an Expanded Mitigation Reserve Program Phase II would not affect population and housing in the cities of Riverside and Jurupa Valley and would not result in the displacement of people or housing elsewhere. However, as with the Tributaries Restoration Project and Mitigation Reserve Program Phase I, relocation of transient individuals, removal of homeless encampments, and cleanup of remaining refuse would be coordinated prior to construction activities among the County of Riverside, City of Riverside Office of Homeless Solutions, and City of Jurupa Valley. Given the homeless would be relocated by local jurisdictions and encampments would be removed prior to construction activities, the Expanded Mitigation Reserve Program Phase II would result in a less-than-significant impact on homeless populations.

Significance Determination Prior to Mitigation: Less than significant. No mitigation necessary.

3.11 Recreation

This section describes the recreation impacts of the proposed project. It includes a discussion of regulatory requirements, the existing recreation setting within the project area, and recreation impacts that would result from implementation of the proposed project. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Recreation is a pastime, diversion, exercise, or other activity for relaxation and enjoyment. Areas used for recreation generally include public parks and recreational open spaces, including greenbelts, pedestrian and bicycle trails, playfields, and school district play areas available for public use during non-school hours.

3.11.1 Regulatory Setting

State

California Public Park Preservation Act

The California Public Park Preservation Act provides that a public agency that acquires public parkland for nonpark use must either pay compensation that is sufficient to acquire substantially equivalent substitute parkland or provide substitute parkland of comparable characteristics. However, the project would not acquire parkland for nonpark use, and this act would not apply.

Regional and Local

County of Riverside

County of Riverside General Plan

Land Use Element

The County of Riverside General Plan Land Use Element (2017) emphasizes the importance of “open space, including hillsides, arroyos, riparian areas, and other natural features as amenities that add community identity, beauty, recreational opportunities, and monetary value to adjacent developed areas.” Additionally, the County specifically addresses the need to permanently preserve open space areas with natural resources, water features, and watercourses, as well as incorporate riding, hiking, and biking within scenic areas. The following policies within the Land Use Element would be applicable to the project (County of Riverside 2017):

LU 9.1: Provide for permanent preservation of open space lands that contain important natural resources, cultural resources, hazards, water features, watercourses including arroyos and canyons, and scenic and recreational values.

LU 14.2: Incorporate riding, hiking, and bicycle trails and other compatible public recreational facilities within scenic corridors.

Multipurpose Open Space Element

Riverside County maintains 35 regional parks, encompassing roughly 23,317 acres. Other parks within the county fall under the jurisdiction of Riverside County Recreation and Park Districts, which serves areas such as Anza Valley and the Jurupa Valley area. The County states that open space and recreation areas offer residents and visitors recreational opportunities while also providing a valuable buffer between urbanized areas. The protection and preservation of open space and recreation areas from urbanization is an increasingly important issue for the County of Riverside. The following policies within the Multipurpose Open Space Element relate to parks and recreation (County of Riverside 2015a):

OS 20.3: Discourage the absorption of dedicated park lands by non-recreational uses, public or private. Where absorption is unavoidable, replace park lands that are absorbed by other uses with similar or improved facilities and programs. (AI 74)

OS 20.4: Provide for the needs of all people in the system of the County recreation sites and facilities, regardless of their socioeconomic status, ethnicity, physical capabilities or age.

OS 20.5: Require that development of recreation facilities occurs concurrent with other development in an area. (AI 3)

OS 20.6: Require new development to provide implementation strategies for the funding of both active and passive parks and recreational sites. (AI 3)

Healthy Communities Element

The County recognizes that a multi-use open space network, including parks and trails, promotes recreation and physical activity. Physical activity reduces certain health risks and, therefore, the County aims to make parks and trails accessible and safe for residents. The following policies within the Healthy Communities Element outline how the County plans to achieve its commitments (County of Riverside 2015b):

HC 10.1: Provide residents of all ages and income levels with convenient and safe opportunities for recreation and physical activities.

HC 10.2: Increase access to open space resources by:

- a. Supporting a diversity of passive and active open spaces throughout the County of Riverside.
- b. Facilitating the location of additional transportation routes to existing recreational facilities.
- c. Locating parks in close proximity to homes and offices.
- d. Requiring that development of parks, trails, and open space facilities occur concurrently with other area development.

HC 10.3: Encourage the expansion of facilities and amenities in existing parks.

HC 10.4: Encourage the construction of new parks and open spaces.

HC 10.5: Incorporate design features in the multi-use open space network that reflect the sense of place and unique characteristics of the community.

HC 10.6: Address both actual and perceived safety concerns that create barriers to physical activity by requiring adequate lighting, street visibility, and defensible space.

HC 10.7: When planning communities, encourage the location of parks near other community facilities such as schools, senior centers, recreation centers, etc.

HC 10.8: Encourage joint-use agreements with school districts that allow school properties to be used during non-school hours.

HC 10.9: When feasible, coordinate with public entities to allow easements to be used as parks and trails.

Safety Element

The County of Riverside Safety Element (2016) describes the importance of restricting construction and development for public safety while also recognizing compatible uses. The following policies detail how to achieve that balance (County of Riverside 2016):

S 4.3: Prohibit construction of permanent structures for human housing or employment to the extent necessary to convey floodwaters without property damage or risk to public safety. Agricultural, recreational, or other low intensity uses are allowable if flood control and groundwater recharge functions are maintained. (AI 25)

S 4.4: Prohibit alteration of floodways and channelization unless alternative methods of flood control are not technically feasible or unless alternative methods are utilized to the maximum extent practicable. The intent is to balance the need for protection with prudent land use solutions, recreation needs, and habitat requirements, and as applicable to provide incentives for natural watercourse preservation, including density transfer programs as may be adopted. (AI 25, 60)

Jurupa Area Plan

According to the Jurupa Area Plan, part of the County of Riverside General Plan (2015), the Santa Ana River is one of the most significant watercourses in the nation, partly because it serves such a major part of this entire region and is one of the most rapidly growing watersheds in the continental United States. It offers value in the area of drainage, flood control, water conservation, and natural habitat conservation and restoration, and it represents a significant recreational, habitat, and visual resource. The Jurupa Area Plan reinforces these values through the pattern of recreation and open space designations in combination with Santa Ana River specific policies.

The Santa Ana River is an integral part of Riverside County's multipurpose open space system. It includes the Santa Ana River Trail, a national recreation trail designated within this corridor that, if completed, will incorporate 110 miles of trail system from San Bernardino County in the north to Orange County in the south.

The following policies relate to recreational features associated with the Santa Ana River:

JURAP 7.2 Require development, where allowable, to be set back an appropriate distance from the top of bluffs, in order to protect the natural and recreational values of the river and to avoid public responsibility for property damage that could result from soil erosion or future floods.

JURAP 7.3 Encourage future development that borders the Policy Area to design for common access and views to and from the Santa Ana River.

JURAP 7.6 Encourage recreation development, such as parks and golf courses, along the river banks above and out of erosive flooding areas.

JURAP 7.7 Establish trails and related facilities for riding, hiking, and bicycling for the entire reach of the river connecting to the state- and nationally-designated Orange County and San Bernardino Santa Ana River trails and connected with the countywide system of trails.

JURAP 7.8 Provide for recreational trail use under bridge structures crossing the river, where feasible.

JURAP 7.9 Require private development along the river to provide for riding, hiking, and biking trails and for connection to the countywide system of trails.

JURAP 7.14 Prohibit recreational uses that restrict stream flows in the river in order that such flows will be adequate year round for the maintenance of fish and wildlife.

JURAP 14.1 Develop a system of local trails that enhances Jurupa's recreational opportunities, links activity centers, and connects with the Riverside County regional trails system.

JURAP 14.2 Implement the Trails and Bikeway System, Figure 7, as discussed in the Non-motorized Transportation section of the General Plan Circulation Element.

City of Riverside

City of Riverside General Plan

Parks and Recreation Element

Enhancing Riverside's existing park and recreation facilities, as well as creating new recreational opportunities, will be carried out through the following objectives and policies. The City will continue to maintain its existing recreation programs and facilities, as well as making those resources accessible to all Riverside citizens. Access to park facilities and connections between open space resources through pedestrian, bicycle, and equestrian trails are important to enhancing Riverside's recreational experiences.

The Parks and Recreation Element of the City of Riverside General Plan contains the following objective that would be applicable to the project (City of Riverside 2007):

Objective PR-2: Increase access to existing and future parks and expand pedestrian linkages between park and recreational facilities throughout Riverside.

Open Space and Conservation Element

Protecting Riverside's open space areas, scenic resources, and hillsides will be carried out through the following objectives and policies. The City is committed to preserving its natural resources and open spaces of the highest quality and in a cost-effective manner to enhance the living environment of all residents. The City believes that individual interests must be balanced against the general public interest and particularly the conservation of natural resources. The following objectives within the Open Space and Conservation Element outline how the City plans on addressing these issues (City of Riverside 2007):

Objective OS-1: Preserve and expand open space areas and linkages throughout the City and sphere of influence to protect the natural and visual character of the community and to provide for appropriate active and passive recreational uses.

Policy OS-1.1: Protect and preserve open space and natural habitat wherever possible.

Policy OS-1.3: Work with Riverside County and adjacent cities, landowners and conservation organizations to preserve, protect and enhance open space and natural resources.

Policy OS-1.4: Support efforts of State and Federal agencies and private conservation organizations to acquire properties for open space and conservation uses. Support efforts of nonprofit preservation groups, such as the Riverside Land Conservancy, to acquire properties for open space and conservation purposes.

Policy OS-1.5: Require the provision of open space linkages between development projects, consistent with the provisions of the Trails Master Plan, Open Space Plan and other environmental considerations including the MSHCP.

Policy OS-1.9: Promote open space and recreation resources as a key reason to live in Riverside.

Policy OS-1.10: Utilize a combination of regulatory and acquisition approaches in the City's strategy for open space preservation.

City of Riverside Park and Recreation Master Plan Update

The Park and Recreation Master Plan Update comprehensively addresses the adequacy of Riverside's park and recreation facilities, as well as future needs and opportunities. It also addresses the Trails Master Plan and makes recommendations to the trails system as it pertains to park, recreation, and open space connections. The Master Plan will also serve as a resource for the update of the City's Park, Recreation, and Open Space elements of the General Plan.

The policies that have been developed in the Master Plan are intended to provide a framework of support and guidance. They are for the benefit of City staff, as well as the community, as a tool for decision-making about all parks and recreation programs and resources that affect the City. Policies and implementation strategies for the Master Plan include the following:

- Parklands and Park Facilities
- Trails and Parkways
- Open Space
- Natural Resource Management
- Maintenance
- Community Participation & Stewardship
- Funding and Improvements

City of Jurupa Valley

City of Jurupa Valley Draft General Plan

As described in the City of Jurupa Valley Draft General Plan (2017), the City of Jurupa Valley aims to protect, enhance, and develop "areas that have recreational, ecological, and scenic value." Policies from the general plan outline the City's approach to recreational and open space development, including the following policies:

COS 8.1: Environmental Resource Protection. Preserve and maintain open space that protects environmental resources and protects public health and safety.

COS 8.7: Public Access. Provide public access to open space resources when doing so is consistent with protection of the resources, and with the security and privacy of affected landowners and occupants. Access will generally be limited to non-vehicular movement, and may be restricted in sensitive areas.

COS 8.9: Open Space Enhancement and Restoration. Encourage, and, as budget resources allow, support the enhancement and restoration of permanently dedicated open space and trail easements. Enhancements may include trail clearing, erosion protection, drainage, fencing, revegetation, trash clean up, directional and interpretive signage, and other improvements the City Council determines necessary for public health and safety.

COS 9.1: Protect scenic resources, especially skylines, undeveloped ridgelines, rocky hillsides, river view corridors, and outstanding scenic vistas not designated for urban uses from development, and maintain those resources in their current patterns of use.

3.11.2 Environmental Setting

Regional Setting

In 1955, the Santa Ana River was recommended to the State Parks Commission as a multipurpose recreation area. Since that time, the river corridor has been viewed by many as an important regional recreation and open space resource. Within the City of Riverside General Plan Planning Area, the banks of the Santa Ana River are protected as permanent open space by the County of Riverside Parks and Open Space District as the Santa Ana River Regional Park.

The Santa Ana River provides opportunities for recreation uses in both developed and undeveloped locations. In the immediate vicinity of the project restoration sites, developed locations and features include Martha McLean-Anza Narrows Park, Rancho Jurupa Regional Park, Hidden Valley Wildlife Area, and the Santa Ana River Trail. Undeveloped areas are found throughout much of the river area and may be accessed from existing parks and trails. Trail and recreation plans are addressed in the City of Riverside General Plan, City of Jurupa Draft General Plan, and County of Riverside General Plan.

Recreational Opportunities

Recreational opportunities in the project area are listed in Table 3.11-1, with descriptions for each resource below.

Table 3.11-1. Recreational Resources in the Project Area

Resource	Amenities	Location
Martha McLean-Anza Narrows Park	Picnic facilities, hiking, bicycle and equestrian trails	West; adjacent to and within Anza Creek site
Santa Ana River Trail	Picnic shelters/gazebos, BBQ grill, cinder running track, Frisbee golf course, horse corrals, jogging/ running/biking trail, playground area, restrooms	Crosses through lower eastern portions of both the Old Ranch Creek and Anza Creek sites
Rancho Jurupa Regional Park	Splash pad for water play, a rock climbing playground, miniature golf surrounded by waterfalls, a disc golf course, two fishing lakes, two campgrounds	0.6 mile north of Old Ranch Creek site
Hidden Valley Wildlife Area	Hiking and equestrian trails, educational ponds, picnic areas	Adjacent to southwest corner of Hidden Valley Creek site
Fairmount Park	Playgrounds, hiking trails, and event venues	2.5 miles northeast of Old Ranch Creek site
Golf courses (Paradise Knolls Golf Course; Van Buren Golf Center)	Golf course, chipping and putting greens, shop	0.4 mile north of Hidden Valley Creek site and 0.3 mile south of Lower Hole Creek site, respectively
Project restoration and mitigation site uses (proposed)	Trails, educational signage, outreach, outdoor activities, seating, improved ecological site conditions	Within project area

Martha McLean-Anza Narrows Park and Santa Ana River Trail

The Rivers & Lands Conservancy leads organized recreational and outreach activities that regularly occur within and near the developed locations and features. As an example, Rivers & Lands Conservancy regularly leads cleanup activities along the river and the Santa Ana River Trail and is working with the City of Riverside Parks, Recreation and Community Services Department to establish native planting areas within Martha McLean-Anza Narrows Park. Rivers & Lands Conservancy has also been instrumental in revitalizing the Santa Ana River Trail through its Santa Ana River Trust program. This program has been especially effective in developing projects that enhance the usage of the Santa Ana River Trail while being mindful of impacts that recreation activities have on important ecological resources. Maintaining public access to the proposed project area is essential in order for the Rivers & Lands Conservancy to continue its work to restore and maintain recreation opportunities along the Santa Ana River.

The Santa Ana River Trail is a 12-foot-wide, 50.3-mile-long path following the Santa Ana River, a waterway that is cement-lined through much of Orange County but predominantly free flowing in Riverside and San Bernardino counties (TrailLink n.d.). A gap exists in the trail at the Hidden Valley Wildlife Area east of Norco. From Hidden Valley, the trail continues east through both industrial and residential sections of Riverside, with scenic views of the Santa Ana River. All four sites and the alternative site are bordered by the Santa Ana River Trail Bike Path. Future plans for the trail may involve eventually running for 110 uninterrupted miles from Big Bear Lake in the San Bernardino Mountains to the Pacific Coast in Huntington Beach, with the gap in the trail to be filled from Corona to Norco.

Rancho Jurupa Regional Park

Rancho Jurupa Regional Park is situated along the Santa Ana River and located behind Mt. Rubidoux just west of historic downtown Riverside. The 200-acre recreational area provides many amenities including a splash pad for water play, a rock climbing playground, miniature golf surrounded by waterfalls, a disc golf course, and two fishing lakes. Overnight stays are allowed on two campgrounds, Lakeview and Cottonwood.

Hidden Valley Wildlife Area

Hidden Valley Wildlife Area is located along the Santa Ana River, east of Norco on Arlington Avenue, 1 mile west of La Sierra Avenue, in the city of Riverside. It is set on 1,500 acres and has access to 25 miles of hiking and equestrian trails. Bicyclists have access to ride along the 8-mile stretch of the Santa Ana River Trail that links the San Bernardino Mountains to the Pacific Ocean.

The Anza Creek, Old Ranch Creek, and Hidden Valley Creek tributaries restoration sites are used for recreation, including river swimming/wading in the Santa Ana River, horseback riding, and other trail-related uses. Historically, the nearby Hidden Valley ponds area provided a variety of recreational opportunities, including hiking, hunting, fishing, bird watching, and public education; however, after the ponds dried out they no longer support many of these recreational opportunities. The Lower Hole Creek site has easy accessibility to both the stream channel and adjacent floodplain native communities and currently supports a short trail along the eastern side; however, the site is not utilized by the general public, as safety issues associated with the homeless encampments are a high concern.

Fairmont Park

Fairmont Park is currently heavily used for recreational purposes, including playgrounds, hiking trails, and event venues. Evans Lake is also experiencing safety issues related to homeless encampments, similar to the proposed project sites.

Golf Courses

Golf courses in the project area include the Paradise Knolls Golf Course and the Van Buren Golf Center. The Paradise Knolls Golf Course in the city of Jurupa Valley contains 6,243 yards of course grounds adjacent to the Santa Ana River. The Van Buren Golf Center is across from the Riverside Municipal Airport in the city of Riverside and is open day and night. Both facilities are privately owned and operated.

Project Restoration and Mitigation Site Uses (Proposed)

The proposed project would include improvements for public education, interpretive signage, and outreach that would enhance and be developed in partnership with existing educational programs such as the Rivers & Lands Conservancy, City of Riverside Parks, Recreation and Community Services Department, and the Riverside County Parks staff at the Hidden Valley Nature Center. Community education opportunities proposed at all project sites include trails and signage. The goal of the project improvements would be to enhance safe site access for recreational purposes and promote the protection of ecological resources. The proposed project involves improvements to open space areas that are consistent with County of Riverside, City of Riverside, and City of Jurupa Valley general plans and municipal codes.

3.11.3 Environmental Impacts

Methods for Analysis

The methods for analysis are based on review of the County of Riverside, City of Riverside, and City of Jurupa Valley general plans and municipal codes. This impact analysis considers the potential recreation impacts associated with the construction, operation, and maintenance of the proposed project.

Thresholds of Significance

In accordance with Appendix G of the California Environmental Quality Act Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Increased use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.
- Construction or expansion of recreational facilities that might have an adverse physical effect on the environment.

Impact and Mitigation Measures

Impact REC-1: Increased use of existing recreational facilities, resulting in substantial physical deterioration (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The Hidden Valley Creek site is managed as part of the 1,500-acre Hidden Valley Nature Center wildlife area along the Santa Ana River and currently supports a trail along the southern side. Habitat enhancement and public education included in the proposed project have the potential for increasing the use of the existing Hidden Valley Nature Center. The Santa Ana River Trail traverses the project area. On-site and adjacent recreational uses would need to be considered for long-term management strategies of the sites. However, the proposed project through restoration activities would result in beneficial impacts on the Hidden Valley Nature Center, Santa Ana River Trail, and other natural areas with public access.

Martha McLean-Anza Narrows Park within the Anza Creek site currently has limited recreational activity due to safety issues associated with homeless encampments found throughout the site. There are several pedestrian paths at this location, although most are used to access the encampments established by the homeless population and not for recreational purposes. The Santa Ana River Trail travels east to west along this site. The proposed project includes restoring habitat along the Santa Ana River Trail, adding a new pedestrian path along the north side of the river as well as a vista point garden and picnic area in the southern portion of the site, improving the parking lot and restroom facilities, and improving safety through regular patrols.

The proposed project would include improvements for public education, interpretive signage, and outreach that would enhance and be developed in partnership with existing educational programs such as the Rivers & Lands Conservancy, City of Riverside Parks, Recreation and Community Services Department, and the Riverside County Parks staff at the Hidden Valley Nature Center. Community education opportunities proposed at all project sites include trails and signage. The goal of the improvements would be to enhance safe site access for recreational purposes and promote the protection of ecological resources. The proposed project would involve improvements to open space areas and is consistent with County of Riverside, City of Riverside, and Jurupa Valley general plans and municipal codes.

Improvements to the proposed project sites would be expected to result in an increase in recreational use by the public. This increase in recreational use would be an overall benefit to the community. Additionally, increased recreational use at the proposed project sites would include trail signage as well as patrols conducted by County of Riverside park rangers to further protect recreational resources. These improvements are beneficial impacts on recreation resulting from the proposed project.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added into the Expanded Mitigation Reserve Program Phase II within this project area to improve parks and recreational facilities through restoration of habitat, safety patrols, and new pedestrian paths, among other upgrades. As

with the Tributaries Restoration Project and Mitigation Reserve Program Phase I, parks and recreational facility use would be increased with the Expanded Mitigation Reserve Program Phase II in the county of Riverside and the cities of Riverside and Jurupa Valley; however, this would be an overall benefit to the community and would not result in substantial physical deterioration of any parks or recreational facilities. Therefore, the impacts are less than significant, and no mitigation measures are required.

Significance Determination: Less than significant. No mitigation necessary.

Impact REC-2: Construction or expansion of recreational facilities that might have an adverse physical effect on the environment (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

The proposed project would include improvements at Anza Narrows Park, including the construction of a new pedestrian trail, river-themed playground and water play area, Americans with Disabilities Act access ramp, parking lot, and restroom plaza with storage. The physical impacts associated with the construction of these improvements, including but not limited to short-term construction-related impacts (e.g., air quality, noise, water quality) as well as long-term operational impacts (e.g., noise, drainage), are discussed under various sections of this Environmental Impact Report.

The proposed project restoration sites would be designed to increase the amount and quality of habitat for the Santa Ana sucker and other native species and enhance jurisdictional aquatic resources; restore existing channels and an existing floodplain tributary; enhance existing riparian and floodplain habitats; limit human disturbance; and control nonnative invasive species. The Anza Creek site is currently disturbed and has limited ecological value, but provides an opportunity for a restored site that would contribute to increased ecosystem functions and benefits to the Santa Ana sucker and aquatic resources. Implementation of the proposed project at Martha McLean-Anza Narrows Park would improve existing environmental conditions and have the beneficial effect of reducing demand at off-site parks and recreational facilities.

Additionally, the proposed project includes public education opportunities. Community education opportunities at Lower Hole Creek include trails, signage, outdoor activities, and seating. Public education is also anticipated for the Hidden Valley Creek site, including educational signage as well as outdoor activities and seating.

The proposed project would support recreation and outreach activities conducted by Rivers & Lands Conservancy. The proposed project would be consistent with Rivers & Lands Conservancy's goal of restoring and connecting green spaces and increasing recreational value of open spaces along the Santa Ana River. Recreational activity along the bike path and designated hiking trails would not be restricted. These educational opportunities along with restoration activities are beneficial impacts of the proposed project, and construction and expansion of recreational facilities would not have an adverse physical effect on the environment.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added into the credit or bank program

within this project area to provide beneficial effects on the physical environment of parks and recreational facilities. Like the Tributaries Restoration Project and Mitigation Reserve Program Phase I, the Expanded Mitigation Reserve Program Phase II would involve restoration of degraded parks and recreational facilities within the county of Riverside and the cities of Riverside and Jurupa Valley, which would be an overall benefit to the community and would not result in adverse effects on the environment. Therefore, the impacts are less than significant, and no mitigation measures are required.

Significance Determination: Less than significant. No mitigation necessary.

3.12 Tribal Cultural Resources

This section describes existing conditions and applicable laws and regulations pertaining to Tribal Cultural Resources (TCRs), with an analysis of the potential impacts on Tribal Cultural Resources that could result from implementation of the proposed project. The analysis and assessment are based on consultation with Native American tribes traditionally and culturally affiliated with the project area and the cultural resources study conducted by ICF (ICF 2018). Refer to Section 3.4, *Cultural Resources*, of this Draft Environmental Impact Report (EIR) for additional details regarding archaeological and historical resources on the project sites.

A TCR is a site, feature, place, cultural landscape, sacred place, or object that is of cultural value to a recognized Native American tribe. The resource may be on or eligible for the California Register of Historical Resources (CRHR) or a local historic register or a lead agency chose to treat a resource as a tribal cultural resource.

3.12.1 Regulatory Setting

Federal

National Environmental Policy Act

As amended, the National Environmental Policy Act (NEPA) (42 United States Code [USC] Sections 4321–4347) establishes a federal policy of protecting important historic, cultural, and natural aspects of our national heritage during federal project planning. All federal or federally assisted projects requiring action pursuant to Section 102 of NEPA must consider the effects on cultural resources. The President’s Council on Environmental Quality has adopted regulations and other guidance that provide detailed procedures that federal agencies must follow to implement NEPA. However, the Council on Environmental Quality has not adopted regulations or other guidance that establish procedures for addressing cultural resources, specifically. In 2013, the Council on Environmental Quality and the Advisory Council on Historic Preservation issued guidance on integrating NEPA and Section 106 of the National Historic Preservation Act. This guidance reflects a long-standing practice of incorporating the Section 106 technical findings into NEPA to address project impacts on historic and cultural resources, and provides options for coordinating or, if planned in advance, substituting Section 106 and NEPA reviews.

Section 106 of the National Historic Preservation Act

Section 106 of the National Historic Preservation Act (16 USC Section 470f) requires that effects on historic properties be taken into consideration in any federal undertaking. “Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places (NRHP) maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization that meet the NRHP criteria” (36 Code of Federal Regulations [CFR] Part 800.16(l)). Implementing regulations at 36 CFR Part 800 outline the process whereby federal agencies, in consultation with the State Historic Preservation Officer (SHPO) and

other consulting parties, identify historic properties within the proposed project area and make a finding of effect. If the project is determined to have an adverse effect on historic properties, the federal agency is required to consult further with SHPO and the Advisory Council on Historic Preservation to develop methods to resolve the adverse effects. The Section 106 process has five basic steps.

1. Initiate the Section 106 process, including the identification of consulting parties, such as Native American tribes.
2. Identify the area of potential effects, in consultation with the SHPO and other consulting parties.
3. Assess the effects of the undertaking on historic properties within the area of potential effects.
4. If historic properties may be subject to an adverse effect, the federal agency, the SHPO, and any other consulting parties (including Native American tribes and the Advisory Council on Historic Preservation) continue consultation to seek ways to avoid, minimize, or mitigate the adverse effect. A Memorandum of Agreement is usually developed to document the measures agreed upon to resolve adverse effects. Alternatively, the federal agency may prepare and execute a Programmatic Agreement with the aforementioned parties to comply with 36 CFR Part 800, particularly in the context of complex undertakings that entail years of implementation actions or where the undertaking's effects on historic properties cannot be well characterized during the planning phase.
5. Proceed in accordance with the terms of the Memorandum of Agreement or Programmatic Agreement.

Criteria for Eligibility for the National Register of Historic Places

Cultural resources are eligible for the NRHP if they have integrity and significance as defined in the regulations for the NRHP. Four primary criteria define significance; a property may be significant if it displays one or more of the following characteristics:

- A. It is associated with events that have made a significant contribution to the broad pattern of our history; or
- B. It is associated with the lives of people significant in our past; or
- C. It embodies the distinct characteristics of a type, period, or method of construction, or that represents the work of a master, or that possesses high artistic values, or it represents a significant and distinguishable entity whose components may lack individual distinction; or
- D. It has yielded, or is likely to yield, information important in prehistory or history (36 CFR 60.4).

Some types of cultural resources are not typically eligible for the NRHP. These resources consist of cemeteries, birthplaces, graves of historical figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, properties primarily commemorative in nature, and properties that have achieved significance within the past 50 years. These property types may be eligible for the NRHP, however, if they are integral parts of eligible districts of resources or meet the criteria considerations described in 36 CFR 60.4.

In addition to possessing significance, a property must also have integrity to be eligible for listing in the NRHP. The principle of integrity has seven aspects: location, design, setting, materials, workmanship, feeling, and association (36 CFR 60.4). To retain historic integrity, a property will always possess several, and usually most, of the qualities of integrity (U.S. Department of the Interior 1995:44).

Native American Graves Protection and Repatriation Act of 1990 – Code of Federal Regulations

The Native American Graves Protection and Repatriation Act (NAGPRA) provides a process for federal agencies to determine custody of Native American cultural items to lineal descendants and culturally affiliated Indian tribes. NAGPRA defines the ownership of Native American human remains and funerary materials excavated on lands owned or controlled by the federal government. NAGPRA establishes a hierarchy of ownership rights for Native American remains identified on these lands (25 USC Section 3002(a)):

- Where the lineal descendants can be found, the lineal descendants own the remains.
- Where the lineal descendants cannot be found, the remains belong to the Indian tribe or Native Hawaiian organization on whose land the remains were found.
- If the remains are discovered on other lands owned or controlled by the federal government and the lineal descendants cannot be determined, the remains belong to the Indian tribe or Native Hawaiian organization that is culturally affiliated with the remains, or the tribe that aboriginally occupied the land where the remains were discovered.

Under NAGPRA, intentional excavation of Native American human remains on lands owned or controlled by the federal government may occur (25 USC Section 3002(c)) only under the following circumstances.

- With a permit issued under the Archaeological Resources Protection Act (16 USC Section 470cc); and;
- After documented consultation with the relevant tribal or Native American groups.
- Ownership and disposition follow NAGPRA for all human remains and associated artifacts (25 1 USC Section 3001 and 43 CFR Section 10.6).

NAGPRA also provides guidance on inadvertent discoveries of Native American or Hawaiian human remains on lands owned or controlled by the federal government. When an inadvertent discovery on these lands occurs in association with construction, construction must cease. The party that discovers the remains must notify the relevant federal agency, and the remains must be transferred according the ownership provisions above (25 USC Section 3002(d)).

State

California Environmental Quality Act and Public Resources Code Section 5024.1 (California Register of Historical Resources)

The California Environmental Quality Act (CEQA) requires public agencies to evaluate the implications of their project(s) on the environment and includes significant cultural resources as part of the environment. Public agencies must treat any cultural resource as significant unless the preponderance of evidence demonstrates that it is not historically or culturally significant

(California Code of Regulations [CCR] Title 14 §15064.5). A cultural resource is considered significant if it meets the definition of a historical resource or unique archaeological resource, as defined below.

Unique Archaeological Resources

A unique archaeological resource is defined in Section 21083.2 of the Public Resources Code (PRC) as an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria.

- Contains information needed to answer important scientific research questions and for which there is a demonstrable public interest
- Has a special and particular quality such as being the oldest of its type or the best available example of its type
- Is directly associated with a scientifically recognized important prehistoric or historic event or person

In most situations, a resource that meets the definition of a unique archaeological resource must also meet the definition of a historical resource. As a result, it is current professional practice to evaluate cultural resources for significance based on their eligibility for listing in the CRHR. For the purposes of this CEQA cultural resources study, a resource is considered significant if it meets the CRHR eligibility (significance and integrity) criteria. Individual resource assessments of eligibility are provided in this document.

Even without a formal determination of significance and nomination for listing in the CRHR, the CEQA lead agency can determine that a resource is potentially eligible for such listing, to aid in determining whether a significant impact would occur. The fact that a resource is not listed in the CRHR, or has not been determined eligible for such listing, and is not included in a local register of historic resources, does not preclude a CEQA lead agency from determining that a resource may be a historical resource for the purposes of CEQA.

Assembly Bill 52

On September 25, 2014, California Governor Jerry Brown signed into law Assembly Bill (AB) 52, which amended PRC Section 5097.94 and added Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3 to establish a new category of environmental resources that must be considered under CEQA: TCRs. This amendment took effect on July 1, 2015. TCRs are defined as either (1) sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are included in the CRHR or a local register of historical resources, or that are determined to be eligible for inclusion in the CRHR; or (2) resources determined by the lead agency, in its discretion, to be significant based on the criteria for listing in the CRHR. For projects with applications filed on or after July 1, 2015, lead agencies are also required to consult with California Native American tribes that are traditionally and culturally affiliated with the geographic area of a proposed project, including tribes that may not be federally recognized, if the tribe requested to the lead agency, in writing, to be informed by the lead agency of proposed projects in that geographic area, and the tribe requests consultation, prior to determining whether a negative declaration, mitigated negative declaration, or environmental impact report is required for a project.

Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures “capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource.” Furthermore, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects on tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2(a)). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3(a)).

Public Resources Code Section 5097

PRC Section 5097 addresses archaeological, paleontological, and historic sites on state land as well as the cooperative efforts with the Native American Heritage Commission (NAHC) that are to be undertaken as part of a project being evaluated under CEQA. PRC Section 5097 specifies the procedures to be followed in the event of the unexpected discovery of human remains on nonfederal public lands. PRC Section 5097.5 considers it a misdemeanor to knowingly and willfully excavate upon or remove, destroy, injure, or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, rock art, or any other archaeological, paleontological, or historical feature situated on public lands, except with the express permission of the public agency having jurisdiction over the lands. The disposition of Native American burials falls within the jurisdiction of the NAHC, which prohibits willfully damaging any historic, archaeological, or vertebrate paleontological site or feature on public lands (PRC Section 5097.9). PRC Section 5097.98 stipulates that whenever the NAHC receives notification of a discovery of Native American human remains from the county coroner, it shall immediately notify those people it believes to be the most likely descendants of the deceased Native American. The descendants may inspect the site of discovery and make recommendations on the removal or reburial of the remains.

Health and Safety Code 7050.5

Health and Safety Code 7050.5 addresses the protection of human remains discovered in any location other than a dedicated cemetery and makes it a misdemeanor for any person who knowingly mutilates or disinters, wantonly disturbs, or willfully removes any human remains in or from any location other than a dedicated cemetery without authority of law, except as provided in PRC Section 5097.99. It further states that in the event of discovery or recognition of any human remains in any location other than a dedicated cemetery, there shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent remains until the coroner of the county in which the human remains are discovered has determined that the remains are not subject to the provisions concerning investigation of the circumstances, manner, and cause of any death, and the recommendations concerning the treatment and disposition of the human remains have been made to the person responsible for the excavation, or to his or her authorized representative, in the manner provided in PRC Section 5097.98. If the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the human remains to be those of a Native American, or has reason to believe that they are those of a Native American, he or she shall contact, by telephone within 24 hours, the NAHC.

California Government Code Section 6254(r) and 6254.10

California Government Code Section 6254(r) and Section 6254.10 of the California Public Records Act were enacted to protect archaeological sites from unauthorized excavation, looting, or vandalism. Section 6254(r) explicitly authorizes public agencies to withhold information from the public relating to “Native American graves, cemeteries, and sacred places maintained by the Native American Heritage Commission.” Section 6254.10 specifically exempts from disclosure requests for “records that relate to archaeological site information and reports, maintained by, or in the possession of the Department of Parks and Recreation, the State Historical Resources Commission, the State Lands Commission, the Native American Heritage Commission, another state agency, or a local agency, including the records that the agency obtains through a consultation process between a Native American tribe and a state or local agency.”

California Native American Graves Protection and Repatriation Act of 2001

The California Native American Graves Protection and Repatriation Act conveys to American Indians, of demonstrated lineal descent, human remains, and funerary items that are held by state agencies and museums. Human remains require special handling and must be treated with dignity. Procedures for the handling of human remains are pursuant to §15064.5e of the State CEQA Guidelines, Section 5097.98 of the PRC, and Section 87.429 of the County’s Grading Ordinance. In the event of the discovery of human remains and/or funerary items, the following procedures, as outlined by the NAHC, must be followed (14 CCR 15000 et seq.).

1. There shall be no further excavation or disturbance of the site or any nearby area reasonably suspected to overlie adjacent human remains until:
 - a. The County Coroner must be contacted to determine that no investigation of the cause of death is required, and
 - b. If the Coroner determines that the remains are Native American:
 - i. The Coroner shall contact the NAHC within 24 hours.
 - ii. The NAHC shall identify the person or persons it believes to be the most likely descended from the deceased Native American.
 - iii. The MLD [most likely descendant] may make the recommendations to the landowner or the person responsible for the excavation work, for means of treating or disposing of, with appropriate dignity, the human remains and any associated grave goods as provided in Public Resources Code, Section 5097.98, or
2. Where the following conditions occur, the landowner or his authorized representative shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location not subject to further disturbance.
 - a. The NAHC is unable to identify an MLD or the MLD failed to make a recommendation within 24 hours after being notified by the commission;
 - b. The descendant identified fails to make a recommendation; or
 - c. The landowner or his authorized representative rejects the recommendation of the descendant, and the mediation by the NAHC fails to provide measures acceptable to the landowner.

Local

County of Riverside

County of Riverside General Plan

The General Plan for the County of Riverside follows both federal and state laws and guidelines for the definition of significance and sensitivity of cultural resources. Cultural resources may include objects, buildings, structures, sites, area, places, records, or manuscripts. They also may include places that have historic or traditional associations or important for traditional cultural uses.

The cultural history of Riverside County is divided chronologically into time periods associated with European contact, before and after contact. Native American populations that predate European contact extend back over 10,000 years in history, which can be seen from numerous archaeological sites in the county.

The County of Riverside has enacted the following policies to ensure that cultural resources are appropriately considered:

OS 19.1: Cultural resources (both prehistoric and historic) are a values part of the history of the County of Riverside.

OS 19.2: The County of Riverside shall establish a cultural resources program in consultation with Tribes and the professional cultural resources consulting community. Such a program shall, at a minimum, address each of the following: application processing requirements; information database(s); confidentiality of site locations; content and review of technical studies; professional consultant qualifications and requirements; site monitoring; examples of preservation and mitigation techniques and methods; and the descendant community consultation requirements of local, state and federal law. (AI 144)

OS 19.3: Review proposed development for the possibility of cultural resources and for compliance with the cultural resources program.

OS 19.4: To the extent feasible, designate as open space and allocate resources and/or tax credits to prioritize the protection of cultural resources preserved in place or left in an undisturbed state. (AI 145)

OS 19.5: Exercise sensitivity and respect for human remains from both prehistoric and historic time periods and comply with all applicable laws concerning such remains.

County of Riverside County Code

The County of Riverside County Code, Chapter 2.100, Emergency Management Organization, includes tribal governments in emergency management organizations. This code states that the Riverside County Emergency Management Organization consists of all officers and employees of the County of Riverside; its agencies, cities, tribal governments, and special districts of Riverside County; and all volunteers and all groups, organizations, and persons commandeered under the provisions of the act; and that all equipment and material publicly owned, volunteered, commandeered, or in any way under the control of the aforementioned personnel can be used for the support of the aforementioned personnel in the conduct of emergency operations.

Chapter 2.100 – Emergency Management Organization**2.100.020 – Purpose**

The declared purpose of this chapter is to provide for the coordination of disaster mitigation, preparation, response and recovery activities for the protection of persons and property within the County of Riverside in the event of an emergency or disaster; the establishment and direction of the emergency management organization; and the coordination of the emergency related activities of the County of Riverside, functioning as the operational area, with all other stakeholders including but not limited to public agencies, tribal partners, private non-government organizations, and the whole community.

2.100.050 – Emergency Management Organization

The Riverside County Emergency Management Organization consists of all officers and employees of the County of Riverside, its agencies, cities, tribal governments and special districts of Riverside County, together with all volunteers and all groups, organizations and persons commandeered under the provisions of the act and this chapter, with all equipment and material publicly owned, volunteered, commandeered or in any way under the control of the aforementioned personnel, for the support of the aforementioned personnel in the conduct of emergency operations.

2.100.060 Disaster Council

A. The Riverside County Disaster Council is hereby created and shall consist of the following:

(12) The director of emergency services from each tribe within Riverside County as appointed by the tribal council.

City of Riverside**City of Riverside General Plan 2025, Historic Preservation Element**

The purpose of the Historic Preservation Element of the City of Riverside General Plan is to “provide guidance in developing and implementing activities that ensure that the identification, designation, and protection of cultural resources are part of the City of Riverside’s community planning development, and permitting processes” (City of Riverside 2012). The Preservation Element acknowledges that the California SHPO has recognized Riverside’s historic preservation program with a designation as a Certified Local Government. The Historic Preservation Element provides historic context with themes important for identifying and evaluating cultural resources within the city. The General Plan 2025 Final EIR includes two cultural resources-related sensitivity maps that use a ranking of unknown, low, medium, and high for archaeological sensitivity and prehistoric cultural resources sensitivity. The Historic Preservation Element outlines several policies called Objectives to reduce the impacts on cultural resources within the city:

Objective HP-1.0: To use historic preservation principles as an equal component in the planning and development process.

Objective HP-2.0: To continue an active program to identify, interpret and designate the City’s cultural resources.

Objective HP-3.0: To promote the City’s cultural resources as a means to enhance the City’s identity as an important center of Southern California history.

Objective HP-4.0: To fully integrate the consideration of cultural resources as a major aspect of the City’s planning, permitting and development activities.

Objective HP-5.0: To ensure compatibility between new development and existing cultural resources.

Objective HP-6.0: To actively pursue funding for a first-class historic preservation program, including money needed for educational materials, studies, surveys, staffing, and incentives for preservation by private property owners.

Objective HP-7.0: To encourage both public and private stewardship of the City's cultural resources.

City of Riverside Municipal Code

The City of Riverside Municipal Code, Title 20, Cultural Resources, provides guidelines for the application, enforcement, and public awareness of the city's historic preservation regulations, as enforced by the city's planning department. The purpose of this title is to promote the public health, safety, and general welfare by providing for the identification, protection, enhancement, perpetuation, and use of improvements, buildings, structures, signs, objects, features, sites, places, areas, districts, neighborhoods, streets, works of art, natural features, and significant permanent landscaping having special historical, archaeological, cultural, architectural, community, aesthetic, or artistic value in the City of Riverside (Section 20.05.010). The criteria to designate, modify the status of, or de-designate Landmarks, Structures, or Resources of Merit and Historic Districts, and to modify or de-designate Neighborhood Conservation Areas, are set forth in their definitions in Chapter 20.50 (Ord. 7108 §1, 2010; Ord. 6263 §1 (part), 1996).

Consultant requirements for cultural resources survey, studies, and reports are outlined by the City of Riverside's Community Development Department. All consultants completing studies, surveys, or reports for cultural resources in compliance with the Planning Department's CEQA process shall include the following. This applies to prehistoric archaeological, historic archaeological, and historic resources.

1. Evaluation for eligibility for any applicable designation program:
 - a. Listing in the National Level: National Register of Historic Places, National Historic Landmark, etc.
 - b. Listing at the State Level: California Register of Historical Resources, California Points of Historical Interest, State Landmarks, etc.
 - c. Local designation: City of Riverside Municipal Code Title 20 (Cultural Resources Ordinance), County Landmark, etc.
2. Evaluation of potential impacts to identified cultural resources.
3. Recommendation of mitigation measures where potential impacts have been identified.
4. For larger surveys a project database shall be submitted in Microsoft Access format.
5. Completion of the appropriate State of California Historic Resources Inventory (DPR) forms. Photographs shall be in digital format.
6. Completion of a final report shall include, but not be limited to: executive summary, project location with map, project description, research and field methodology, architectural description, definition of area history, statement of significance, recommendations, resumes of authors and/or contributors, DPR forms (as an appendix), list of sources, discussion of potential impacts, proposed mitigation measures, current setting, evaluation of significance in accordance with the criteria listed in (1) above, copy of the records search from the Eastern Information Center (EIC),

record of contact with appropriate Native American group(s), and contact with the Native American Heritage Commission for a Sacred Lands File (SLF) search.

7. Project Deliverables shall include:
 - a. Two (2) copies of the final report.
 - b. Two (2) original copies of the DPR forms.
8. Upon acceptance of the final report, one (1) copy shall be submitted to the Eastern Information Center, Department of Anthropology, University of California, Riverside, 92521.

All work shall be completed in accordance with the Secretary of the Interior's Standards and Guidelines for Archaeology and Historic Preservation including standards for planning, identification, evaluation, registration, historical documentation, archaeological documentation, and professional qualifications as published in the Federal Register, September 29, 1983 (Vol. 48, No. 190 pp. 44716 et seq.).

City of Jurupa Valley

City of Jurupa Valley General Plan

The City of Jurupa Valley's Draft General Plan was adopted in April of 2017, and outlines policies for the protection and treatment of cultural resources in the Conservation and Open Space Element. The general plan also provides maps showing known historic resources. In addition to a set of policies governing development within the city, the general plan describes several historic preservation programs. The policies guiding development are as follows:

COS 7.1 Preservation of Significant Cultural Resources. Identify, protect, and, where necessary, archive significant paleontological, archaeological, and historical resources.

COS 7.2 Public Information. Encourage programs that provide public information on the City's history and cultural heritage, and participate with other agencies to help educate students about the City's rich natural and man-made environment.

COS 7.3 Development Review. Evaluate project sites for archaeological sensitivity and for a project's potential to uncover or disturb cultural resources as part of development review.

COS 7.4 Site Confidentiality. Protect the confidentiality and prevent inappropriate public exposure or release of information on locations or contents of paleontological and archaeological resource sites.

COS 7.5 Native American Consultation. Refer development projects for Native American tribal review and consultation as part of the environmental review process, in compliance with state law.

COS 7.6 Non-Development Activities. Prohibit activities that could disturb or destroy cultural resource sites, such as off-road vehicle use, site excavation or fill, mining, or other activities on or adjacent to known sites, or the unauthorized collection of artifacts.

COS 7.7 Qualified archaeologist present. Cease construction or grading activities in and around sites where archaeological resources are discovered until a qualified archaeologist knowledgeable in Native American cultures can determine the significance of the resource and recommend alternative mitigation measures.

COS 7.8 Native American Monitoring. Include Native American participation in the City's guidelines for resource assessment and impact mitigation. Native American representatives should be present during archaeological excavation and during construction in an area likely to contain cultural resources. The Native American community shall be consulted as knowledge of cultural resources expands and as the City considers updates or significant changes to its General Plan.

COS 7.9 Archaeological Resources Mitigation. Require a mitigation plan to protect resources when a preliminary site survey finds substantial archaeological resources before permitting construction. Possible mitigation measures include presence of a qualified professional during initial grading or trenching; project redesign; covering with a layer of fill; and excavation, removal and curation in an appropriate facility under the direction of a qualified professional.

COS 7.10 Historically significant buildings. Prohibit the demolition or substantial alteration of historically significant buildings and structures unless the City Council determines that demolition is necessary to remove an imminent threat to health and safety and other means to eliminate or reduce the threat to acceptable levels are physically infeasible. Additional unlisted historic resources may also be present and must be evaluated and protected, pursuant to CEQA requirements.

City of Jurupa Valley Municipal Code

The City of Jurupa Valley established a municipal code in order to provide a system of organization for the classification and grouping of ordinances. While the Municipal Code provides guidance for the establishment of Historic Preservation Districts (Sec. 8.55.010 and 8.55.030), a Local Review Board (8.55.040), and the Application for Certificate of Historic Appropriateness (Sec. 8.55.060), it does not include any TCR-specific codes or ordinances.

3.12.2 Environmental Setting

The Upper Santa Ana River Restoration Project and Mitigation Reserve Program Phase I and Expanded Mitigation Reserve Program Phase II comprise four sites in three locations in the Santa Ana River watershed in the cities of Riverside and Jurupa Valley and the County of Riverside, California. Topography, soils, vegetation communities, and historic modifications to the landscape vary somewhat for each of the locations; therefore, they are presented individually below. However, because the Anza Creek and Old Ranch Creek sites occupy the same overall area, they are discussed together.

Anza Creek/Old Ranch Creek Site

The Old Ranch Creek site and Anza Creek site occupy the same overall area on the Santa Ana River's south floodplain about 2 miles downstream of Mount Rubidoux. The combined area of both sites is approximately 294 acres. The Old Ranch Creek project location is generally the eastern half of the site while the Anza Creek site occupies the western half. Elevations at the site range from 742 feet in the southeast corner near the bicycle trail to 712 feet in the Santa Ana River channel in the northwestern portion of the site. The upstream portion of the proposed Old Ranch Creek channel takes an alignment that generally follows the path of the 1931 Santa Ana River channel. The middle portion of the proposed channel is located on what used to be farm land on the floodplain of the inside of a large meander bend in the 1931 Santa Ana River channel. The fine-grained, sandy soils at the Old Ranch Creek site are linked to the alluvial processes of the Santa Ana River channel that used to occupy the site. The Old Ranch Creek site currently supports disturbed Southern Riparian Forest, which is composed of a mixture of native and nonnative vegetation.

Lower Hole Creek

The Lower Hole Creek site is bounded to the north by the Santa Ana River, to the east by the Pedley Landfill and Van Buren Boulevard, and to the west by a former canal, steep hillslope, and subdivisions. Elevations at the site range from 671 feet where Hole Creek empties into the Santa Ana River channel to 740 feet on the plateau above the upper portion of Hole Creek upstream of Jurupa

Avenue. The entire present-day Hole Creek channel upstream of Jurupa Avenue was a part of Hole Lake in 1931. Jurupa Avenue crosses Hole Creek at the same location as the former lake's spillway. The dam that created Hole Lake was constructed in 1915 by Willits J. Hole with the objective of providing irrigation water for his alfalfa and barley fields in the area now known as La Sierra and Arlanza. The Pedley Landfill that is currently located on a 13.5-acre parcel along the lowermost 1,200 feet of Hole Creek's east bank and extending over to Van Buren Boulevard did not exist in 1931. The historic floodplain been eliminated by Pedley Landfill, and the alignment of Van Buren Boulevard now travels farther south and closer to the creek than it did in 1931. Hole Creek upstream of Jurupa Avenue is a densely vegetated channel with bed elevations inset 25–30 feet below the top of the terrace slopes. Hole Creek is located in terrace escarpment soils for nearly its entire length in the site. The terrace escarpment soils are generally shallow, poorly developed, and rocky in nature. The Lower Hole Creek site currently supports disturbed Southern Riparian Forest, which is composed of a mixture of native and nonnative vegetation.

Hidden Valley Creek

The Hidden Valley Creek site is located on the inside of a meander bend on the south side of the Santa Ana River on an approximate 77-acre site. The Hidden Valley Creek site is bounded to the north and east by the Santa Ana River, to the south by a steep hillslope, and to the west by former wetlands. Elevations at the site range from 675 feet at the far upstream end to 655 feet at the far downstream end at the Santa Ana River's low-flow channel. Site elevations generally slope from upstream to downstream, elevations along the south side of the site are similar to the north, and remnant channels are visible in LiDAR images that were recorded in 2014, all which indicate the Santa Ana River has occupied positions throughout the entire site at some time in the past. The Hidden Valley Creek site does not currently have a perennial source of water. Water sources to the site are limited to storm runoff generated from the surrounding hillslopes during rain events. Review of historic aerial photographs shows that portions of the site was farmland in 1931 and the wetlands presently at the downstream end of the site did not exist. The Santa Ana River occupied a position farther to the northwest than it presently does but the land that was not being farmed was active floodplain like it is today. The fine-grained, sandy soils at the Hidden Valley Creek site are linked to the alluvial processes of the Santa Ana River channel that routinely shifts position and forms new channels and floodplain at the site in response to flood events. The Hidden Valley Creek site currently supports a patchy matrix of Southern Riparian Forest, which is composed of a mixture of native and nonnative vegetation.

Geology

The proposed project is underlain primarily by younger Quaternary Alluvium with some older Quaternary deposits exposed in the southern margin of Anza Creek and Lower Hole Creek restoration areas. Plutonic igneous rocks occur on the far western portion of Anza Creek and the southeastern margin of Hidden Valley Creek restoration area.

Younger Quaternary Alluvium (Holocene to late Pleistocene) consists of unconsolidated cobble and sandy alluvium and is mostly gray and poorly sorted (Morton and Cox 2001). These sediments have been recently transported and deposited in the river channels, and alluvial plains. Older Quaternary deposits (Pleistocene began 1.8 million years ago) are moderately consolidated and derived primarily as alluvial fan deposits from the more elevated terrain to the west. Igneous rocks are those that solidified from magma and formed below the surface of the earth (Norris and Webb 1990). As

they are trapped deep below the surface, and cool very slowly over millions of years until solid, they do not contain fossils (McLeod 2018).

Cultural Resources

Prehistoric, ethnographic, and historic period background is provided in Section 3.4, *Cultural Resources*, of this Draft EIR, which also includes a detailed discussion of the archaeological resources within the project area.

The effort to identify cultural resources, some of which may be tribal cultural resources, in the project area included records searches of previous cultural resource investigations and recorded sites; background research, a review of literature relevant to the prehistory, ethnography, and history of the project area vicinity; consultation with local Native American groups, and a pedestrian survey of the project area. Historic maps including 1901, 1905, 1911, 1927, 1939, 1942, 1955, 1960, 1962, 1969, and 1975 U.S. Geological Survey quadrangle maps, were also examined. Historic aerial photographs dated to 1948, 1966, 1967, 1994, and 2002 were also reviewed using NETROnline at www.historic.aerials.com. Detailed descriptions of each of the archaeological and built environment resources are provided in Section 3.4, *Cultural Resources*, of this Draft EIR.

3.12.3 Environmental Impacts

Methods for Analysis

Efforts to identify TCRs included a SLF search with the NAHC, consultation with Native American Tribes through AB 52, an archaeological records/literature search, and pedestrian surveys of the proposed project areas.

Conducting consultation early in the CEQA process allows tribal governments, lead agencies, and project proponents to discuss the level of environmental review, identify and address potential adverse impacts on TCRs, and reduce the potential for delay and conflict in the environmental review process (see PRC Section 21083.3.2). Information may also be available from the NAHC's SLF per PRC Section 5097.96 and the California Historical Resources Information System administered by the California Office of Historic Preservation. Please also note that PRC Section 21082.3(c) contains provisions specific to confidentiality.

ICF contacted the NAHC on July 26, 2018, requesting a search of the SLF and a listing of potentially interested Native American Groups and Individuals. The NAHC responded on August 2, 2018, stating that a search of the SLF revealed no Sacred Lands or traditional cultural properties in proximity to the proposed project area. The NAHC also provided a list of 30 Native American contacts who might have knowledge of cultural resources in the project area.

California Native American tribes traditionally and culturally affiliated with the project area are required to be consulted pursuant to PRC Section 21080.3.1.

On April 25, 2018, San Bernardino Valley Municipal Water District (Valley District) sent out AB 52 letters to three Native American groups to seek recommendations or concerns regarding the project. Letters were sent to Raymond Huaute representing the Morongo Band of Mission Indians, Jessica Mauck representing the San Manuel Band of Mission Indians, and Andrew Salas representing the Gabrieleño Band of Mission Indians – Kizh Nation. Mr. Raymond Huaute and Mr. Travis Armstrong responded for the Morongo Band of Mission Indians, and Ms. Jessica Mauck responded for San

Manuel Band of Mission Indians. Mr. Andrew Salas of the Gabrieleño Band of Mission Indians – Kizh Nation did not respond. On May 1, 2018, Ms. Jessica Mauck, a Cultural Resources Analyst representing the San Manuel Band of Mission Indians, responded stating that the project area is outside of the Serrano ancestral territory, and as such, did not request consulting party status or elect to participate in the project any further.

On May 9, 2018, Mr. Raymond Huaute, Tribal Historic Preservation Officer for Morongo Band of Mission Indians, responded to Valley District's request for consultation. Mr. Huaute stated that "the project is located within the Tribe's aboriginal territory or in an area considered to be a traditional use area or one in which the Tribe has cultural ties." Additionally, Mr. Huaute requested that a records search be conducted at the California Historical Resources Information System Information Center, that the results be provided to the tribe, and that tribal monitoring participation be considered during the initial pedestrian field survey of the Phase I study of the project. Mr. Huaute also requested a copy of the results of that study.

Consultation meetings were also held with Mr. Travis Armstrong, Consulting Archaeologist with the Morongo Band of Mission Indians, and ICF, on two separate occasions: June 21, 2018, and August 21, 2018. Mr. Armstrong described archaeological site P-33-000884 as a pictograph site that had been vandalized with spray-painted graffiti within the project area. Mr. Armstrong also stated that he had discussed potential mitigation of this resource including cleanup of the graffiti and revegetation of the area surrounding the site with poison oak or another native plant that would keep people away and protect the resource. Mr. Armstrong also discussed that he had tried to visit other resources in the vicinity, but that a significant number of homeless people live in the area and that the area was overgrown with brush. These impediments curtailed his ability to visit the sites. Mr. Armstrong also requested that he be informed when cultural resources surveys were to take place. Mr. Armstrong was contacted prior to ICF conducting the surveys, but he declined to join due to other commitments.

Other than consultation with Mr. Armstrong, representing Morongo Band of Mission Indians, and Ms. Mauck, representing San Manuel Band of Mission Indians, no other Native American individuals or tribes responded to requests for consultation by Valley District.

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Potential to cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC section 5020.1(k).
- Potential to cause a substantial adverse change in the significance of a tribal cultural resource, defined in PRC Section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is a resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1. In applying the criteria set

forth in subdivision (c) of PRC Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.

As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this EIR) prepared for the proposed project considered and then eliminated several less-than-significant impacts from further analysis. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. As stated in the Notice of Preparation/Initial Study, the proposed project would evaluate all thresholds found for tribal cultural resources. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

Impact TCR-1: Potential to cause a substantial adverse change in the significance of a tribal cultural resource with cultural value to a California Native American tribe and that is listed or eligible for listing in the CRHR or in a local register of historical resources as defined in PRC Section 5020.1(k) (Less than significant after mitigation)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

While no TCRs were identified through AB 52 consultation or through a search of the records held by the NAHC, one archaeological site was identified within the project area that has cultural value to a California Native American tribe and is potentially eligible for inclusion in the CRHR. Archaeological site P-33-000884 consists of a large boulder marked with Native American pictographs. Consultation with Consulting Archaeologist Travis Armstrong representing the Morongo Band of Mission Indians indicated that this resource is a significant resource, and recommended that measures be taken to preserve the site, restore it (if possible), and protect it from further damage. The site has been disturbed by vandals who have spray-painted graffiti over the pictographs. It is unknown whether the graffiti can be removed and whether the pictographs can be restored to their pre-vandalized state. Mr. Armstrong made several suggestions as to how to protect this resource, as did ICF as part of the recommendations and mitigation measures presented in Section 3.4, *Cultural Resources*, of this Draft EIR and the Cultural Resources Technical Report (Valley District 2019). Additionally, Mr. Armstrong has requested that measures be undertaken to protect the site from further damage. Mr. Armstrong suggested the planting of poison oak surrounding the large boulder that the pictographs are on (poison oak currently covers some portions of this feature). Additional measures could include the placement of protective fencing and signage identifying the location as an Environmentally Sensitive Area (see mitigation measures CUL-1 and CUL-2 in Section 3.4, *Cultural Resources*).

Site P-33-000884 would potentially be affected by the proposed project. Ground disturbance would take place immediately adjacent to the site boundary, and therefore would have the potential to cause a significant adverse change in the significance of this resource. As such, mitigation measures CUL-1, Retain a Qualified Archaeologist, and CUL-2, Avoidance Through Establishment of Environmentally Sensitive Areas (ESAs), have been incorporated in Section 3.4, *Cultural Resources*, and would be implemented. It is possible that unknown resources such as buried archaeological deposits may be associated with P-33-000884. Ground-disturbing activities in this location could potentially affect such resources (if they exist). While avoidance of the resources (known and unknown) is the preferred method of treatment, if avoidance of the resource and any unknown TCRs

associated with it is not feasible, then mitigation measures CUL-3, Development and Implementation of an Archaeological Treatment Plan (ATP); CUL-4, Provide Archaeological and Native American Monitoring; and CUL-5, Treatment of Unanticipated Discoveries, would be implemented. These mitigation measures would be implemented to ensure that the project would result in less-than-significant impacts on both known and unknown TCRs under CEQA. In addition, mitigation measure TCR-1, Protection of P-33-000884 (CA-RIV-884), described below, is recommended as a more permanent means of protection for this resource that would require ongoing consultation to take place with the Morongo Tribe of Mission Indians to discuss the potential impacts on Site P-33-000884 if impacts on the resource cannot be avoided.

Implementation of mitigation measures CUL-1 through CUL-5 and TCR-1 would reduce this impact to a less-than-significant level. Refer to Section 3.4, *Cultural Resources*, for mitigation measures CUL-1 through CUL-5.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Mitigation measures CUL-1, CUL-2, CUL-3, CUL-4, and CUL-5 in Section 3.4, *Cultural Resources*, and TCR-1 would reduce this impact to a less-than-significant level.

Mitigation Measure TCR-1: Protection of P-33-000884 (CA-RIV-884)

Based on recommendations from consultation with a representative of the Morongo Tribe of Mission Indians, TCR-1 would be implemented prior to project-related ground disturbance to protect archaeological site P-33-000884. Because P-33-000884 has already been damaged by vandalism, additional protective measures are necessary to preserve this site. Protective measures can include, but are not limited to, the placement of protective fencing surrounding the feature and/or the planting of repellent plant species such as poison oak to prevent further vandalism of the site.

Level of Significance Following Mitigation: Less than significant.

Expanded Mitigation Reserve Program Phase II

Site P-33-000884 is within the boundaries of both the Expanded Mitigation Reserve Program Phase II area and the Tributaries Restoration Project and Mitigation Reserve Program Phase I; as such, the discussion detailed in the Tributaries Restoration Project and Mitigation Reserve Program Phase I also applies to the Expanded Mitigation Reserve Program Phase II component.

Site P-33-000884 would potentially be affected by the proposed project. Ground disturbance would take place immediately adjacent to the site boundary, and therefore would have the potential to cause a significant adverse change in the significance of this resource. As such, mitigation measures CUL-1 and CUL-2 would be required, as stated as previously. If avoidance from project activities associated with implementation of the Expanded Mitigation Reserve Program Phase II for site P-33-000884 or for any unknown TCRs is not feasible, then mitigation measures CUL-3, CUL-4, and CUL-5 would be implemented to ensure that the project would result in less-than-significant impacts on unknown TCRs under CEQA. In addition, mitigation measure TCR-1 is recommended as a more permanent means of protection for this resource (P-33-000884, CA-RIV-884) and would require

ongoing consultation to take place with the Morongo Tribe of Mission Indians to discuss the potential impacts on Site P-33-000884 if impacts on the resource cannot be avoided.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Mitigation measures CUL-1, CUL-2, CUL-3, CUL-4, and CUL-5, in Section 3.4, *Cultural Resources*, and TCR-1 would reduce this impact to a less-than-significant level.

Level of Significance Following Mitigation: Less than significant.

Impact TCR-2: Potential to cause a substantial adverse change in the significance of a tribal cultural resource with cultural value to a California Native American tribe and that is a resource determined by the lead agency to be significant pursuant to criteria set forth in subdivision (c) of PRC Section 5024.1 (Less than Significant After Mitigation)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

As discussed above, archaeological site P-33-000884 has been recommended as eligible for inclusion on the CRHR and NRHP, and because it is Native American in origin, is considered a resource with cultural value to a California Native American tribe. It is unknown whether there is a subsurface component of cultural value associated with archaeological site P-33-000884. Because the proposed project would involve ground disturbance adjacent to the resource, it is possible that the project could cause a substantial adverse impact on buried archaeological deposits associated with this site (if they exist). Incorporating the recommendations of Mr. Travis Armstrong, mitigation measure TCR-1 is proposed to both preserve and protect the site as much as is feasible. In Section 3.4, *Cultural Resources*, of this Draft EIR, mitigation measures CUL-1, CUL-3, CUL-4, and CUL-5 provide for treatment and Native American monitoring as a mitigation measure to reduce potential impacts to a less-than-significant level. Mitigation measure CUL-2 in Section 3.4, *Cultural Resources*, relates to the treatment of unanticipated discoveries during the monitoring process, and would also apply here. Mitigation measure CUL-6, Human Remains and Associated or Unassociated Funerary Objects, involves the treatment of human remains or associated or unassociated funerary objects that may be uncovered during ground-disturbing activities for the proposed project. Mitigation measure CUL-6 in Section 3.4, *Cultural Resources*, is presented as a means to lessen potential impacts to less-than-significant levels.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Mitigation measures TCR-1, CUL-1, CUL-2, CUL-3, CUL-4, CUL-5, and CUL-6 would reduce this impact to a less-than-significant level.

Level of Significance Following Mitigation: Less than significant.

Expanded Mitigation Reserve Program Phase II

As discussed above, an archaeological site has been recommended as eligible for inclusion on the CRHR and NRHP, and because it is Native American in origin, is considered a resource with cultural value to a California Native American tribe. Site P-33-000884 is within the boundaries of both the Expanded Mitigation Reserve Program Phase II area and the Tributaries Restoration Project and

Mitigation Reserve Program Phase I; as such, the discussion detailed in the Tributaries Restoration Project and Mitigation Reserve Program Phase I also applies to the Expanded Mitigation Reserve Program Phase II component.

Mitigation measure TCR-1 is proposed to both preserve and protect the site as much as is feasible. In Section 3.4, *Cultural Resources*, there are a number of relevant mitigation measures, including mitigation measures CUL-1, CUL-2, CUL-3, CUL-4, and CUL-5, to provide for treatment for archaeological and Native American monitoring to reduce potential impacts to a less-than-significant level. Mitigation measure CUL-6 relates to the treatment of unanticipated discoveries during the monitoring process, and would also apply here. Mitigation measure CUL-6 involves the treatment of human remains or associated or unassociated funerary objects that may be uncovered during ground-disturbing activities for the proposed project. Mitigation measure CUL-6 is presented as a means to lessen potential impacts to less-than-significant levels.

Significance Determination Prior to Mitigation: Potentially significant.

Mitigation Measures

Mitigation measures TCR-1, CUL-1, CUL-2, CUL-3, CUL-4, CUL-5, and CUL-6 would reduce this impact to a less-than-significant level.

Level of Significance Following Mitigation: Less than significant.

3.13 Utilities and Service Systems

This section focuses on water facilities and water supplies. As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix D [Notice of Preparation/Initial Study] of this Environmental Impact Report [EIR]) prepared for the proposed project considered and then eliminated from further analysis the topics of wastewater treatment, stormwater drainage, and solid waste disposal impacts. This section describes the potential utilities and service systems impacts of the proposed project, specifically related to new water facilities or expansion of existing facilities, and water supply. It includes a discussion of regulatory requirements, the existing setting within the project area, and utilities and service systems impacts that would result from implementation of the proposed project. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Water supply is the provision of water by public utilities, private utility companies, or individual users, usually through a system of pumps, pipes, or wells. Irrigation is the application of water in controlled amounts for the purpose of watering plants and fields or agricultural crops, or to maintain landscapes or revegetate disturbed soils when soils are dry.

3.13.1 Regulatory Setting

State

Section 15155 of the State CEQA Guidelines Water Supply Assessment

Section 10910 et seq. of the California Water Code, as reflected in the California Environmental Quality Act (CEQA) Guidelines §15155, requires preparation of a Water Supply Assessment for certain projects subject to CEQA in which the lead agency is a city or county (see California Water Code Section 10910(a)). California Water Code Section 10912(a), as amended by Senate Bill No. 267 (2011–2012), states that a project requires a Water Supply Assessment if it is one or more of the following:

1. A proposed residential development of more than 500 dwelling units.
2. A proposed shopping center or business establishment employing more than 1,000 persons or having more than 500,000 square feet of floor space.
3. A proposed commercial office building employing more than 1,000 persons or having more than 250,000 square feet of floor space.
4. A proposed hotel or motel, or both, having more than 500 rooms.
5. (A) Except as otherwise provided in subparagraph (B), a proposed industrial, manufacturing, or processing plant, or industrial park planned to house more than 1,000 persons, occupying more than 40 acres of land, or having more than 650,000 square feet of floor area.

(B) A proposed photovoltaic or wind energy generation facility approved on or after the effective date of the amendments made to this section at the 2011–12 Regular Session is not a project if the facility would demand no more than 75 acre-feet of water annually.

6. A mixed-use project that includes one or more of the projects defined above.
7. A project that would demand an amount of water equivalent to, or greater than, the amount of water required by a 500-dwelling unit project.

The Riverside Public Utilities (RPU) interim water use target calculated for 2015 is 239 gallons per capita per day (City of Riverside 2016). As shown in Section 3.10, *Population and Housing*, the average occupancy per household in the city of Riverside is approximately 3.44 persons. On average, a 500-dwelling unit project would consume roughly 461 acre-feet per year (AFY) of water. However, Water Code Section 10910 et seq. applies only to projects carried out by a city or county as lead agency. San Bernardino Valley Municipal Water District (Valley District), the lead agency for the project, is a regional water supply agency and not a city or county. Accordingly, Water Code Section 10910 et seq. does not apply to the proposed project and a Water Supply Assessment is not required.

Additionally, as a practical matter, the tributary channels are not a typical development project that would consume the groundwater pumped, as most of the groundwater used within the Tributaries Restoration Project and Mitigation Reserve Program areas would be returned as flow to the Santa Ana River and could later be recaptured for reuse. The groundwater to be used by the project would not ultimately be consumed as would that of a typical 500-dwelling unit development project. Furthermore, the overall intent of California Water Code Section 10912(a) is in relation to standard development projects that would result in the consumptive uses of municipal water, e.g., residential, commercial, and industrial. The proposed project is a restoration project that would temporarily use the water for supporting threatened and endangered aquatic species and most of the same water would be returned back to the watershed for reuse. For each and all of these reasons, Valley District, as lead agency, has determined that a Water Supply Assessment is not required for the project. Nonetheless, CEQA does require an analysis of project-related impacts on water supply, and those impacts are evaluated below as appropriate.

Regional and Local

San Bernardino Valley Municipal Water District

San Bernardino Valley Regional Urban Water Management Plan

The San Bernardino Valley Regional Urban Water Management Plan (SBVRUWMP) provides a summary of anticipated water supplies and demands for the years 2015 to 2040 (Valley District 2018). The SBVRUWMP was prepared for Valley District, as well as the East Valley Water District, the City of Loma Linda, the City of Redlands, the City of San Bernardino Municipal Water Department, the West Valley Water District, the Yucaipa Valley Water District, the City of Colton, the City of Rialto, and the Riverside Highland Water Company. The purpose of the SBVRUWMP is to provide background on existing water resources and to estimate water supply and demand from the years 2015 through 2040 for Valley District's member agencies. The SBVRUWMP was used to identify available water sources to support the proposed project.

Western Judgment

In the 1960s, dry conditions resulted in the over-commitment of water resources in the Santa Ana River watershed, which led to lawsuits between water users in the upper and lower watersheds regarding both surface flows and groundwater (Valley District 2018). The lawsuits culminated in

1969 in the Orange County and Western Judgments. The San Bernardino Basin Area (SBBA) was defined, and adjudicated in gross, by the Western-San Bernardino Judgment (Western Judgment) in 1969. The Western Judgment identifies regional representative agencies to be responsible, on behalf of the numerous parties bound thereby, for implementing the replenishment obligations and other requirements of the judgment. The representative entities for the Western Judgment are Valley District on behalf of San Bernardino County agencies identified above and Western Municipal Water District of Riverside County (Western) on behalf of Riverside County agencies. Western includes the City of Riverside, Riverside Highland Water Company, Meeks & Delay Water Company, and Gage Canal Company.

The Western Judgment settled rights within the upper Santa Ana River watershed to ensure that those resources would be sufficient to meet the flow obligations in the lower Santa Ana River, as set by the Orange County Judgment (described below). The Western Judgment determined the natural safe yield of the SBBA to be 232,100 AFY for both surface water diversions and groundwater extractions. Safe yield is generally considered equal to the average replenishment rate of the aquifer from natural and artificial recharge. Surface water is diverted from Mill Creek, Lytle Creek, and the Santa Ana River. Specific amounts of water that can be extracted from the SBBA were also established. Western was allocated 64,862 acre-feet (AF), or 27.95 percent of safe yield. San Bernardino agencies are allocated 167,238 AF, or 72.05 percent of safe yield. Valley District is allowed to extract more than 167,238 AF from the SBBA, as long as it imports and recharges a like amount of water into the SBBA. Valley District has received an increase in pumping rights by participating in “new conservation.” New conservation is defined as any increase in replenishment from natural precipitation that results from operation of works and facilities not in existence as of 1969, other than works installed to offset losses from flood control channelization. In 2013, both Valley District and Western agreed to participate in the cost to capture water that historically flowed to the ocean. This new conservation project was due to the construction and operation of the Seven Oaks Dam. For Valley District, participation in this new conservation project resulted in an additional allocation of 5,507 AF, bringing the adjusted right to a total of 172,745 AF.

Orange County Judgment

The Orange County Judgment imposes a physical solution that requires parties in the upper Santa Ana River watershed to deliver a minimum quantity of water to points downstream including Riverside Narrows and Prado Dam (Valley District 2018). A provision of the Orange County Judgment related to conservation establishes that, once the flow requirements are met, the Upper Area parties “may engage in unlimited water conservation activities, including spreading, impounding, and other methods, in the area above Prado Reservoir.” The Orange County Judgment is administered by the five-member Santa Ana River Watermaster that reports annually to the court and the four representative agencies. Valley District, the Inland Empire Utilities Agency, and Western nominate one member each to the Watermaster; Orange County Water District nominates two members; and members are appointed by the court. The judgments resolved the major water rights issues that had prevented the development of long-term, region-wide water supply plans and established specific objectives for the management of the groundwater basins.

Seven Oaks Accord

On July 21, 2004, Valley District, Western, the City of Redlands, East Valley Water District, Bear Valley Mutual Water Company, Lugonia Water Company, North Fork Water Company, and Redlands Water Company signed a settlement agreement known as the Seven Oaks Accord (Accord) (Valley

District 2018). The Accord calls for Valley District and Western to recognize the prior rights of the water users for a portion of the natural flow of the Santa Ana River. In exchange, the water users agree to withdraw their protests to the water right application submitted by Valley District on behalf of itself and Western. All the parties to the Accord have agreed to support the granting of other necessary permits to allow Valley District and Western to divert water from the Santa Ana River. By means of the Accord, Valley District agreed to modify its water right applications to incorporate implementation of the Accord. Additionally, the Accord requires Valley District and Western to develop a groundwater spreading program in cooperation with other parties “that is intended to maintain groundwater levels at the specified wells at relatively constant levels, in spite of the inevitable fluctuations due to hydrologic variation.” In response, local agencies included groundwater management in the Upper Santa Ana River Watershed (USARW) Integrated Regional Water Management Plan (IRWMP) and have collectively prepared a Regional Water Management Plan annually since 2008.

Upper Santa Ana River Watershed Integrated Regional Water Management Plan

The Valley District service area is incorporated into two Integrated Regional Water Management Plans: the SBVRUWMP described above and the 2015 USARW IRWMP.

The USARW IRWMP discusses the unique water management challenges and issues that the Upper Santa Ana River faces (Valley District 2015). The purpose of the USARW planning process is to focus on local issues specific to the upper watershed and to assess water management opportunities in greater detail. This collaborative process addresses some of the long-term water management strategies of the Upper Santa Ana River watershed and aims to protect and enhance reasonable and beneficial uses of the watershed’s water resources. The USARW IRWMP Region covers 852 square miles of the Santa Ana River watershed (approximately 32 percent of the watershed), and is primarily located in San Bernardino and Riverside Counties. The IRWMP identifies four key goals: improve water supply reliability, balance flood management and increase stormwater recharge, improve water quality, and improve habitat and open space.

The USARW IRWMP stakeholders formed a Basin Technical Advisory Committee (BTAC) to facilitate implementation of the IRWMP. The BTAC develops the annual water management plan. The BTAC works cooperatively and strives to make decisions by consensus. It focuses on long-term management of water resources by implementing the strategies in the USARW IRWMP. Currently, BTAC meets monthly with the primary purpose of providing technical advice for the management of local resources to the Western-San Bernardino Watermaster agencies, Western and Valley District. Valley District, Western, and the San Bernardino Valley Water Conservation District entered into a settlement agreement on August 9, 2005, whereby the agencies would work cooperatively to develop an annual groundwater management plan. Because both parties are members of the BTAC, this requirement is being met by the BTAC’s Regional Water Management Plan, which largely emphasizes groundwater management.

Emergency Response Network of the Inland Empire

Water supplies may be interrupted or reduced significantly through drought, natural disaster such as earthquake, a regional power outage, or a toxic spill that prevents delivery due to poor water quality. All of the participating agencies adopted the USARW IRWMP, which includes strategies and projects to overcome water shortages during emergencies. The Emergency Response Network of the Inland Empire is a water/wastewater mutual aid network within San Bernardino and Riverside

counties. Many water agencies participate, including Valley District, Santa Ana Watershed Project Authority, Western, Eastern Municipal Water District, and the City of Riverside's Public Works and Public Utilities Departments, among others (Valley District 2015). The Emergency Response Network of the Inland Empire meets monthly and provides regular training for utilities in emergency response and long-term emergency planning.

County of Riverside

County of Riverside General Plan

The County recognizes that there is a need for a long-term water supply plan that reduces reliance on the Colorado River and the State Water Project (County of Riverside 2017). The following policies related to water supply from the General Plan are relevant to the proposed project:

Policy OS 1.1: Balance consideration of water supply requirements between urban, agricultural, and environmental needs so that sufficient supply is available to meet each of these different demands.

Policy OS 1.3: Provide active leadership in the regional coordination of water resource management and sustainability efforts affecting Riverside County and continue to monitor and participate in, as appropriate, regional activities, addressing water resources, groundwater, and water quality, such as a Groundwater Management Plan, to prevent overdraft caused by population growth.

Policy OS 1.4: Promote the use of recycled water for landscape irrigation.

Groundwater resources in the County of Riverside are defined by quality and quantity. The County has developed the following policies related to high quality groundwater recharge that are applicable to this project:

Policy OS 4.1: Support efforts to create additional water storage where needed, in cooperation with federal, state, and local water authorities. Additionally, support and/or engage in water banking in conjunction with these agencies where appropriate, as needed. (AI 56, 57)

Policy OS 4.2: Participate in the development, implementation, and maintenance of a program to recharge the aquifers underlying the county. The program shall make use of flood and other waters to offset existing and future groundwater pumping, except where: a. The groundwater quality would be reduced; b. The available groundwater aquifers are full; or c. Rising water tables threaten the stability of existing structures. (AI 56, 57)

Policy OS 4.3: Ensure that adequate aquifer water recharge areas are preserved and protected. (AI 3, 56, 57)

Policy OS 4.4: Incorporate natural drainage systems into developments where appropriate and feasible. (AI 3)

Inefficient landscape practices account for the majority of the region's water waste; therefore, the County of Riverside General Plan's Multipurpose Open Space Element (2015) implemented the following water conservation policies, as applicable to the project:

Policy OS 2.3: Seek opportunities to coordinate water-efficiency policies and programs with water service providers.

Policy OS 2.4: Support and engage in educational outreach programs with other agencies, the public, homebuilders, landscape installers, and nurseries that promote water conservation and wide-spread use of water-efficient technologies.

Policy OS 2.5: Encourage continued agricultural water conservation and recommend the following practices where appropriate and feasible: lining canals, recovering tail water at the end of irrigated fields, and appropriate scheduling of water deliveries.

Jurupa Area Plan

The County of Riverside General Plan Jurupa Area Plan (2015) recognizes utilities within the Jurupa Area Plan with the following policy:

Policy JURAP 7.13 Discourage utility lines within the river corridor. If approved, lines shall be placed underground where feasible and shall be located in a manner to harmonize with the natural environment and amenity of the river.

City of Riverside**City of Riverside General Plan**

The City of Riverside General Plan, Public Facilities and Infrastructure Element (2012), addresses the following service systems important to the city: water service and supply, wastewater, stormwater control, solid waste, electric power, telecommunications, medical facilities, and community centers. The following objectives and associated policies within the City's general plan are applicable to the proposed project:

Objective PF-1: Provide superior water service to customers.

Policy PF-1.2: Support the efforts of the Riverside Public Utilities Department, Eastern Municipal Water District and Western Municipal Water District to work together for coordination of water services.

Policy PF-1.4: Ensure the provision of water services consistent with the growth planned for the General Plan area, including the Sphere of Influence, working with other providers.

Policy PF-1.5: Implement water conservation programs aimed at reducing demands from new and existing development.

Policy PF-1.7: Protect local groundwater resources from localized and regional contamination sources such as septic tanks, underground storage tanks, industrial businesses and urban runoff.

Objective PF-2: Find new and expanded uses for recycled wastewater.

Policy PF-2.1: Expand the use of reclaimed water for irrigation and other applications.

Policy PF-2.2: Continue to monitor and study the costs of extending recycled water service to developing areas for accepted applications.

Riverside Public Utilities Water Division Urban Water Management Plan

The RPU Urban Water Management Plan (UWMP) projects retail and wholesale water demands and characterizes the source waters available to meet those demands for the years 2020 to 2040 (City of Riverside 2016). The plan also describes the reliability of RPU's water supplies and discusses RPU's water shortage contingency plan during a catastrophic event or drought conditions.

Riverside-Arlington Groundwater Management Plan

The Groundwater Management Plan was developed to inform the public of the importance of groundwater in the Riverside-Arlington Basin, develop relationships with stakeholders and discuss issues related to groundwater, and develop plans to ensure the long-term sustainability of groundwater resources in the basin. The goals of the Groundwater Management Plan are to optimize groundwater levels, enhance water quality, and minimize land subsidence. The plan area covers approximately 23 square miles of extensively developed land that is predominantly urban. This plan was developed through Western per Assembly Bill 3030 and Senate Bill 1938.

City of Jurupa Valley

City of Jurupa Valley General Plan

The following policies and goals within the City of Jurupa Valley Draft General Plan (2017) are applicable to the proposed project:

Policy LUE 6.3 Regional Planning. Participate in regional efforts to address issues of mobility, transportation, traffic congestion, economic development, air and water quality, and watershed and habitat management with cities, local and regional agencies, stakeholders, Indian nations, and surrounding jurisdictions.

Policy LUE 12.1 Service Capacity. Ensure that development does not exceed the City's or the community services districts' or special districts' ability to adequately provide supporting infrastructure and services, such as water, wastewater treatment, energy, solid waste and public services such as police/ fire/emergency medical services, recreational facilities, and transportation systems.

Policy LUE 12.3 Urban Water Management Plans. Review all projects for consistency with the appropriate community services district's urban water management plans.

Goal COS 3 Working with the Jurupa Community Services District (JCSD), the Rubidoux Community Services District (RCSD), the Santa Ana Water Company, and other agencies and private companies to help meet Jurupa Valley's urban water needs without substantial harm to the natural environment or to agriculture, to help meet water needs including requiring conservation measures such as drought-tolerant landscaping and water-saving fixtures in new homes, and to:

1. Protect and maintain water quality in aquifers, the Santa Ana River, streams, and wetlands that help support beneficial uses, including domestic and commercial/industrial uses, agricultural uses, and wildlife habitat.
2. Protect and improve the quality of local water sources, including groundwater and the Santa Ana River.
3. Encourage JCSD and RCSD to retain and, where possible, expand the capacity of wells, aquifers, and other groundwater reserves.
4. Preserve natural floodways, floodplains, and wetlands, and avoid actions that adversely affect waterways or riparian areas, or that increase flood hazards to urban uses.

Policy COS 3.1 Water Use Planning. Adopt and strive for the most efficient available water conservation practices in the City's operations and planning, and encourage community services districts and other agencies to do the same. "Most efficient available practices" means actions and equipment that use the least water for a desired outcome, considering available equipment, lifecycle costs, social and environmental side effects, and the regulations of other agencies.

Policy COS 3.2 Multi-Use Consideration. Consider, in planning, land use decisions, and municipal operations, the effects of water supply on urban growth, wildlife habitat, agriculture, and stream flows, and seek to ensure continued water availability for these uses in planning for long-term water supplies. The City will encourage individuals, organizations, and other agencies to follow this policy.

Policy COS 3.6 Landscaping with California Native Plants. Encourage the use of California native plants for drought-resistant landscape planting.

Policy COS 3.10 Regional Cooperation. Support efforts to create additional water storage where needed, in cooperation with federal, state, community services districts, the Riverside County Flood Control District, and other water authorities. Additionally, support and/or engage in water banking in conjunction with these agencies where appropriate, as needed.

Policy COS 3.11 Aquifer Protection. Require that aquifer water-recharge areas are preserved and protected.

Jurupa Community Service District Urban Water Management Plan

The Jurupa Community Service District (JCSD) UWMP provides a summary of anticipated water supplies and demands for the years 2015 to 2040 (JCSD 2016). The UWMP discusses water supply reliability within its service area and describes the water shortage contingency planning of JCSD. The UWMP also describes JCSD's conservation efforts and demand management measures that are to be implemented.

3.13.2 Environmental Setting

Water Supplies

The proposed project is within Riverside County and the cities of Riverside and Jurupa Valley. The project sites are outside of Valley District's service area, as described below and shown on Figure 3.13-1, but within the service area of Valley District's partner agencies, RPU and Western. RPU and JCSD serve municipal water to portions of the project sites. Anza Creek, Old Ranch Creek, Lower Hole Creek, and a small portion of Hidden Valley Creek are within the RPU service area. A small portion of Hidden Valley Creek is also within the JCSD service area. Additionally, a portion of Old Ranch Creek and Hidden Valley Creek near the Santa Ana River are outside of these service areas and are not within the boundaries of a water service provider.

The water supplies for the Tributaries Restoration Project and Mitigation Reserve Program Phase I would be provided by Valley District partner RPU and its wholesale supplier, Western. However, Valley District is a wholesale water agency capable of providing in-lieu exchange water to the supply systems operated by RPU and Western in order to replace water delivered to the tributaries by its partner agencies. Because the project sites are physically located within RPU's service area, groundwater supplies pumped for the Tributaries Restoration Project and Mitigation Reserve Program Phase I are considered RPU's supplies, as discussed below. In addition, a description of JCSD is provided below but its water supplies are not anticipated to be used for the proposed project components.

San Bernardino Valley Municipal Water District

Valley District was formed as a California Special District to provide an adequate long-term, long-range water supply for the San Bernardino Valley (Valley District 2019). Valley District's service area covers about 325 square miles mainly in southwestern San Bernardino County, as shown on Figure 3.13-1. Valley District is a wholesale water supplier to nine participating retail water purveyors: City of Colton, East Valley Water District, City of Loma Linda, City of Redlands, City of Rialto, Riverside Highland Water Company, City of San Bernardino Municipal Water Department, West Valley Water District, and Yucaipa Valley Water District. The proposed project sites are approximately 4 miles south of its service area in Riverside County, the city of Riverside, and the city of Jurupa Valley.

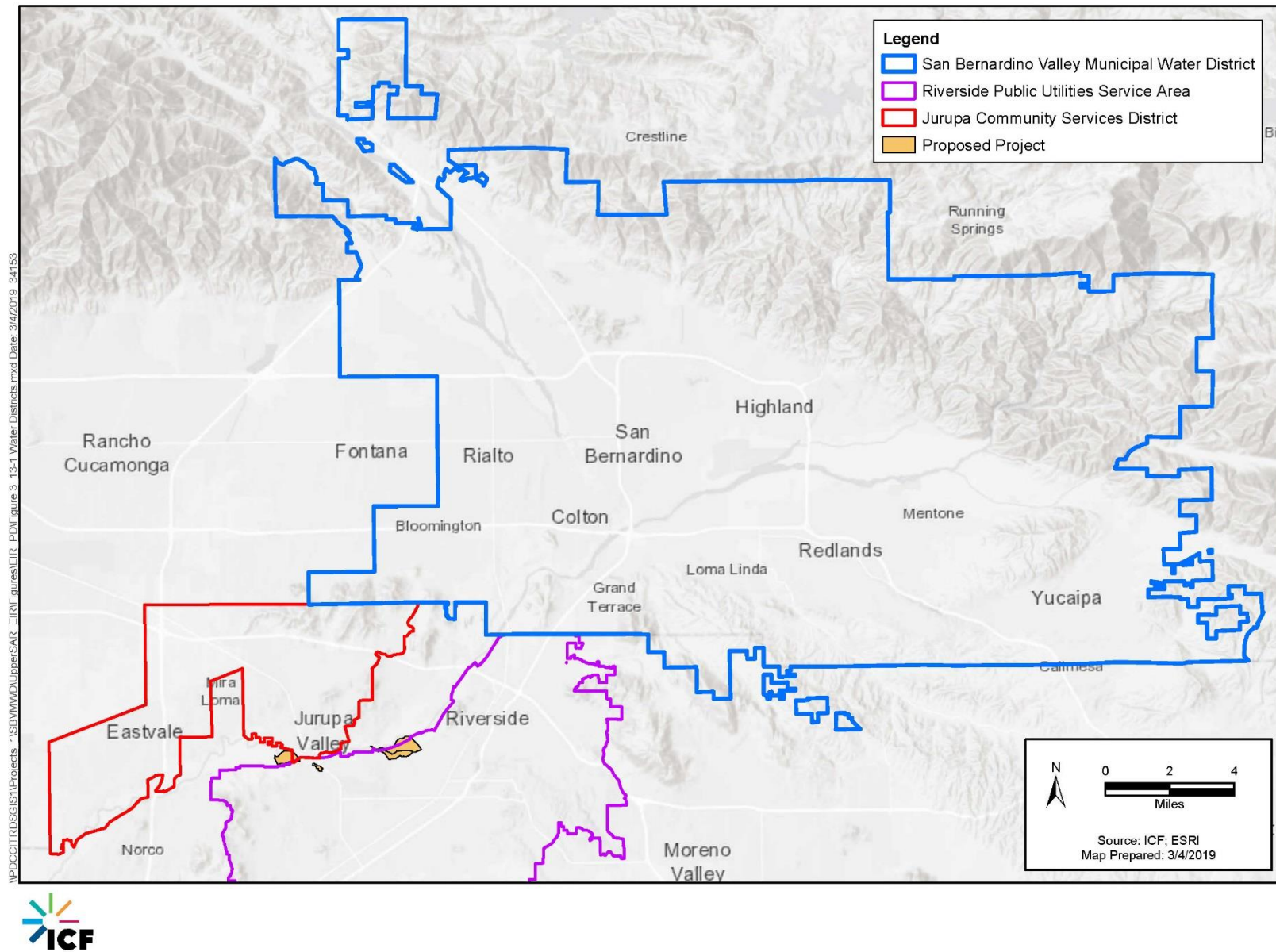


Figure 3.13-1. Water Districts

Valley District is responsible for importing supplemental water from Northern California via the State Water Project, capturing local stormwater supplies, managing the storage of most groundwater basins within its boundaries, and monitoring groundwater extraction over the amount specified in the Orange County and Western Judgments (Valley District 2018). Valley District also has specific responsibilities for monitoring groundwater supplies in the SBBA and for a portion of the minimum Santa Ana River flow required at the Riverside Narrows, which is located within the project area. Under the terms of the Western and Orange County Judgments, Valley District is responsible for providing a portion of the specified Santa Ana River base flow to Orange County and for replenishing the SBBA under certain conditions. If the conditions of either judgment are not met by the natural water supply, including new conservation, Valley District is required to deliver supplemental water to offset the deficiency.

Valley District is legally required to maintain a flow equivalent to approximately 15,250 AFY at Riverside Narrows on the Santa Ana River. Riverside Narrows is located within the project area. This requirement is currently met with about 18,050 AFY of treated wastewater from the cities of San Bernardino, Colton, and Rialto that are discharged to the Santa Ana River via the Rapid Infiltration and Extraction facility, which is operated by the City of San Bernardino Municipal Water Department. Valley District has an agreement with the San Bernardino Water Department that obligates its treated wastewater flows to meet this requirement. As a result of this treated waste water discharge and normal surface stream flow in the Santa Ana River, Valley District has never had to use imported water to augment flows in the Santa Ana River. Valley District has provided water at Riverside Narrows in amounts greater than its obligation and has accumulated a credit for the excess amounts during prior years. It could, if needed and not restricted by environmental constraints, use these water credits to meet a portion of its legal obligation during dry years, subject to the minimum annual flow of 12,420 AF at Riverside Narrows (Valley District 2019). Western is also required to maintain a flow equivalent to approximately 15,250 AFY at Prado Basin, which is met by treated wastewater flows from the City of Riverside's Riverside Water Quality Control Plant.

Valley District does not deliver water directly to retail water customers but, instead, is a wholesale water supplier to retail water agencies within its service area (Valley District 2018). Most of Valley District's water supply comes from a local groundwater basin, which is replenished by infiltrating imported state water, when available, and local surface water as it percolates through the Santa Ana River alluvial fan. Groundwater meets about 60 percent of the regional demand in an average year. The Western Judgment established the natural safe yield of the SBBA to be 232,100 AFY for both surface water diversions and groundwater extractions. As of 2013, Valley District has rights to 172,745 AF of water, which includes the additional new conservation allocation. Imported water is available to Valley District from the California State Water Project. Recycled water makes up a relatively small part of existing supplies; however, a number of programs are being planned that would increase the use of recycled water. Table 3.13-1 shows the anticipated future regional water supply allocation by water source for normal-year conditions and the anticipated future demand as identified in the SBVRUWMP. The table demonstrates that adequate regional supplies are anticipated for years 2020 to 2040 under normal/average conditions.

Table 3.13-1. Anticipated Future Regional Water Supply in the Valley District Service Area under Normal-Year Conditions (AFY)

Water Source	2020	2025	2030	2035	2040
Surface Water	51,627	51,627	51,627	51,627	51,627
Groundwater	188,012	188,012	188,012	188,012	188,012
State Water Project Water	76,179	76,460	76,593	76,861	76,629
Recycled Water	21,951	29,260	36,320	43,280	50,340
Total Water Supplies	337,769	345,359	352,552	359,780	366,608
Total Water Demands	236,799	247,969	259,104	269,563	276,818
Difference (Supply Minus Demand)	100,990	97,390	93,448	90,217	89,780

Source: Valley District 2018

The San Bernardino Basin is managed whereby total safe yield is a combination of surface water and groundwater totaling 239,743 AFY. Per the Western Judgment, supply available to the Valley District service area is 172,745 AFY. A decrease in available surface water in any given year does not change available yield from the basin.

Valley District is an active partner in regional multi-agency planning efforts for future water supply projects (Valley District 2018). These projects include the regional use of recycled water, conjunctive use projects, stormwater capture, and groundwater recharge. The following projects are currently in the planning phases to increase water supply reliability through 2040:

- Upper Santa Ana River Habitat Conservation Plan: Development of a comprehensive plan that provides sufficient surface flow water for riverine-dependent species and allows for the water agencies to construct their projects.
- Regional Recycled Water Concept Study: Targeted development of 10,000 to 12,000 AFY of new recycled water supply in the near term, with that volume expanding in the future as population growth in the area generates additional recycled water supply.
- Conjunctive Use Projects: The watershed-scale program is called the Santa Ana River Conservation and Conjunctive Use Program and the local program is called the Bunker Hill Conjunctive Use Program. The programs will collectively store up to 112,500 AF in the SBBA, which will provide up to 37,500 AFY of dry-year yield initially for up to 3 consecutive years. The portion of these projects available to agencies in Valley District's service area is 88,500 (36,000 + 52,500) AF of storage and 29,500 (12,000 + 17,500) AF of dry year yield.
- Imported Water for Recharge
 - Waterman Basins Recharge
 - Cactus Basin Recharge
 - Devil Basins Recharge
- Stormwater Capture for Recharge
 - Santa Ana River Enhanced Recharge Project: This project is estimated to provide up to 12,000 AFY.
 - Active Recharge Project: Envisioned to help better manage surface water available to the SBBA.

- **Riverside North Aquifer Storage and Recovery:** This project is estimated to provide up to 12,800 AFY.

Riverside Public Utilities

The City of Riverside established its own water utility, RPU, in 1913 (City of Riverside 2016). The RPU service area is approximately 75 square miles, approximately 70 square miles of which are within Riverside's city boundaries. The RPU service area, as shown on Figure 3.13-1, is bounded on the north by utility services provided by the City of Colton; on the east by the Riverside Highland Water Company and Western; on the south by Western; and on the west by Home Gardens County Water District, City of Corona, City of Norco, Rubidoux Community Services District, and JCSD. RPU's water supply consists primarily of groundwater from the Bunker Hill Basin, Riverside North, and Riverside South sub-basins. Additional sources of water available to RPU include groundwater from the Rialto-Colton Basin, recycled water from the Riverside Water Quality Control Plant, and imported water from Western through a connection at the Metropolitan Water District of Southern California's Henry J. Mills Treatment Plant. As previously identified, the Western Judgment determined the natural safe yield of the SBBA to be 232,100 AFY for both surface water diversions and groundwater extractions. Specific amounts of water that can be extracted from the SBBA were also established. Western, whose representation includes RPU, was allocated 64,862 AF, or 27.95 percent of safe yield from SBBA.

In 2015, RPU obtained 72,033 AF of its domestic water supply from groundwater sources, 5,300 AF from imported water sources, and 200 AF from recycled water sources. As of 2004, RPU provided water service to approximately 62,000 customers. RPU's potable distribution system delivers water to RPU retail customers, the Gage Canal Company, Home Gardens County Water District, and Western. RPU's non-potable distribution system delivers water to the Gage Canal Company and Western. RPU's recycled distribution system delivers recycled water to RPU retail customers.

All proposed project sites are within the Riverside Arlington and Colton Sub-Basins (Department of Water Resources Groundwater Basin Number 8-02.03) of the Upper Santa Ana Valley Groundwater Basin. However, water is anticipated to be pumped from the Riverside Arlington Sub-basin. The Riverside Arlington Sub-Basin has a groundwater storage capacity of 243,000 AF. Portions of the Riverside Arlington Sub-Basin are adjudicated, and the Anza Creek and Old Ranch Creek sites are within the adjudicated portion (Riverside South Basin). RPU extracts water from the adjudicated Riverside South Basin. RPU planned to extract 15,074 AFY from the Riverside South Basin in 2015 and increase extraction to 32,674 AFY in 2035. The numerical groundwater model of the Riverside and Arlington Basins determined the safe yield to be 35,100 AF in the Riverside South Basin. For the Riverside South Basin, the Western Judgment set a 5-year base period extraction of 29,663 AF for use in Riverside County. In the Riverside South Basin, should extractions exceed the base period extraction over a 5-year period or by more than 20 percent in a single year, Western is responsible for replenishment in the following year equal to the excess extractions over 20 percent peaking allowance, unless credits are available from previous years due to production below the base period extraction or to importing water. RPU's extraction rights from the Riverside South Basin are 16,880 AFY. As of the 2015 Watermaster Annual Report, Western had total credits of 466,040 AF for the Rialto-Colton and Riverside Basins (City of Riverside 2016). Recharge associated with RPU's planned conjunctive use projects will allow RPU to increase groundwater production from the Riverside Basin without adversely affecting the sustainability of this water resource (City of Riverside 2016).

Table 3.13-2 shows the anticipated future water supply allocation by water source for normal-year conditions and the anticipated future demand as identified in RPU's UWMP. The table demonstrates that adequate supplies are anticipated for years 2020 to 2040 under normal/average conditions (City of Riverside 2016).

Table 3.13-2. Anticipated Future Water Supply in the RPU Service Area under Normal Year Conditions (AFY)

Water Source	2020	2025	2030	2035	2040
Groundwater Riverside South	16,880	16,880	16,880	16,880	16,880
Groundwater (all other basins)	71,893	76,893	79,693	79,693	79,693
Purchased or Imported	21,700	21,700	21,700	21,700	21,700
Recycled Water	6,430	6,430	6,430	6,430	6,430
Total Water Supplies	116,903	121,903	124,703	124,703	124,703
Total Water Demands	95,221	96,534	99,015	101,589	104,257
Difference (Supply Minus Demand)	21,682	25,369	25,668	23,144	20,446

Source: City of Riverside 2016

Jurupa Community Services District

According to the City of Jurupa Valley Draft General Plan, Jurupa Valley does not rely on imported water to provide its domestic needs and relies on local groundwater from the Chino and Riverside Groundwater Basins. However, all of these sources can, and are, being used by other agencies in the Chino Basin, in particular the Chino Basin Watermaster, to recharge the groundwater basin.

A small portion of the Hidden Valley Creek site is within the service area of JCSD, as shown on Figure 3.13-1. However, the Tributaries Restoration Project and Mitigation Reserve Program Phase I component is outside the JCSD service area and would not utilize its water supplies. JCSD was formed in 1956 for the purpose of providing a sewer system to the community of Jurupa Valley (JCSD 2016). Water service with JCSD began in 1966. The JCSD service area covers 40.5 square miles of northwestern Riverside County and includes the city of Eastvale and a majority of the city of Jurupa Valley. JCSD purchases water wholesale from the Chino Desalter Authority. JCSD's potable and non-potable water supply primarily consists of groundwater pumped from the Chino Basin, and is supplemented with water from the Riverside-Arlington (Riverside South) Basin.

Under current groundwater recharge programs, groundwater is artificially replenished in wet years with surplus imported water. Water is then extracted during drought years or during emergencies. Groundwater recharge that may also involve the recharge of reclaimed water enhances the City of Jurupa Valley's ability to meet water demand during years of short supply and increases overall local supply reliability.

3.13.3 Environmental Impacts

Methods for Analysis

City and County General Plans and the SBVRUWMP, USARW IRWMP, RPU UWMP, and JCSD UWMP were consulted to obtain the information required for the environmental and regulatory setting

related to water supplies. This impact analysis considers the potential water supply impacts associated with the construction, operation, and maintenance of the proposed project. In addition, coordination with Greg Herzog at RPU's Water Planning and Resources Department occurred regarding available water supplies for the proposed project and current obligations to the Judgment and other agreements.

Thresholds of Significance

In accordance with Appendix G of the State CEQA Guidelines, the proposed project would be considered to have a significant effect if it would result in any of the conditions listed below.

- Exceedance of wastewater treatment requirements of the applicable Regional Water Quality Control Board.
- Construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects.
- Creation of a need for new or expanded entitlements to ensure sufficient water supplies to serve the project.
- A determination by the wastewater treatment provider that serves or may serve the project that it does not have adequate capacity to serve the project's projected demand in addition to the provider's existing commitments.
- Project-related exceedance of the relevant landfill's permitted capacity to accommodate the project's solid waste disposal needs.
- Inconsistency with federal, state, and local statutes and regulations related to solid waste.

As noted in Chapter 1, *Introduction*, the analysis and conclusions contained in the Initial Study (see Appendix A of this EIR) prepared for the proposed project considered and then eliminated a number of less-than-significant impacts from further analysis. Therefore, only those impacts and corresponding thresholds of significance noted below were determined to require further analysis and are addressed in this EIR. As stated in the Notice of Preparation/Initial Study, the proposed project would not produce wastewater or stormwater and, therefore, would not exceed capacity of facilities or requirements of the Regional Water Quality Control Board. In addition, the proposed project would not result in generation of solid waste or exceed solid waste disposal needs. For further discussion of impacts found to be less than significant and eliminated from further discussion on that basis, refer to Chapter 6, *Effects Not Found Significant*.

Impacts and Mitigation Measures

Impact UT-1: Construction of new water facilities or expansion of existing facilities, with the potential to cause significant environmental effects (Less than significant)

Tributaries Restoration Project and Mitigation Reserve Program Phase I

Anza Creek and Lower Hole Creek currently have sufficient perennial (e.g., continually recurring) flows to support Santa Ana sucker populations and would not require a supplemental source of water for these restoration sites to function, as described below. However, the Hidden Valley Creek

and Old Ranch Creek restoration sites do not have a perennial source of water and the restored tributaries would require a consistent and reliable source of water to support Santa Ana sucker populations. Old Ranch Creek used to convey more water than it currently does, and the drainage is now dry most of the year and typically only receives water during storm events (Appendix A). The Hidden Valley Creek site was previously supplied with treated wastewater from the City of Riverside's Regional Water Quality Control Plant located nearby at 5950 Acorn Street in the city of Riverside, but the conveyance systems to the site have been damaged, cutting off the supply of recycled water to the site (Appendix A). The proposed project would result in the construction of up to three new groundwater wells and pumps in the county and city of Riverside, but no new water treatment facilities would be constructed. The proposed groundwater wells and pumps would provide a perennial source of water at the Hidden Valley Creek and Old Ranch Creek restoration sites.

At Anza Creek, surface water is currently supplied by natural springs to create perennial flows. Typical existing flows in the creek are 1 cubic foot per second or less (Appendix A). Stormwater also enters the site from another culvert outfall at the far southeast corner of Martha McLean-Anza Narrows Park. Stormwater from Anza Drain flowing under the bicycle trail encounters an alluvial fan as it enters the site, causing the water to spread out into different flow paths, with some of the water directed to the northwest toward the Anza Creek channel and some flowing to the north and east away from the channel. The exact distribution of the flow changes with flow level and the configuration of the fan, which also changes in response to sedimentation and vegetation. This currently results in not all of the water delivered to the site by Anza Drain ultimately making its way into the Anza Creek channel. However, this water would be redirected into the newly defined channel with implementation of the Tributaries Restoration Project and Mitigation Reserve Program Phase I and would provide sufficient water flows for the channel.

Lower Hole Creek's current water sources include treated effluent and urban runoff, including runoff from Van Buren Boulevard that enters the site from the east downstream of Jurupa Avenue, runoff from the Greenbelt area (south of Victoria), locally rising groundwater, and occasional flow from the Riverside Canal. These sources provide enough water for Lower Hole Creek to be a perennial channel throughout the year with low flows typically less than 0.5 cubic foot per second (Appendix A). The urban watershed causes rapid runoff during rain events and periodic flooding. In some reaches of the creek, particularly immediately downstream of Jurupa Avenue, the channel is hydrologically connected to a floodplain that allows flood flows to overbank, spread out, and reduce the overall channel velocity and erosive energy. Therefore, there would be sufficient water flows for the channel.

New groundwater wells and pumps would be constructed at the upstream extent of the Old Ranch Creek and Hidden Valley Creek channels. The exact locations and capacities of the new pumps have not yet been determined but would be within the RPU service area. Construction of the groundwater wells would require subsurface borehole drilling, well construction, well development, well testing, and site upgrades. Site upgrades would include the construction of a small well building to house the pump, discharge piping, and electrical equipment. Future groundwater studies would be conducted to determine the precise locations and achievable flow rates from the new pumps. For Hidden Valley Creek, the current estimate is that it would be in the range of 1 to 3 cubic feet per second or a maximum of 2,330 AFY. There is a potential at the Hidden Valley Creek site to repair an existing inoperative groundwater pump that was damaged in a flood event in 2010 rather than install a new groundwater well and pump. For Old Ranch Creek, it is anticipated that it would also be in the range

of 1 to 3 cubic feet per second or a maximum amount of 2,171 AFY. The new pumps would have the ability to vary flow rates so that pulses of higher flows can be periodically routed down the channels to flush fine sediment accumulations on gravel substrate.

Groundwater would be pumped from new or repaired groundwater wells within the RPU service area within the Riverside South and Arlington groundwater basins. Valley District is currently working on a water exchange agreement with RPU to pump up to 4,501 AFY to supply groundwater to the Hidden Valley Creek and Old Ranch Creek channels. In return, Valley District would provide in-lieu exchange water to a location of RPU's choosing within the SBBA or deliver it directly to RPU's water supply system. The water exchange agreement with RPU includes a "bucket-for-bucket" replacement for the same amount of groundwater pumped for use in the tributaries restoration channels. A meter would be installed on the new groundwater wells to monitor the amount of groundwater withdrawn, because it is anticipated to vary throughout the year and to account for the in-lieu exchange program. This water exchange agreement would allow RPU greater flexibility in its distribution system, given that RPU has limitations on the amount of water that can be taken from the SBBA but it is beneficial to have more water supply higher in the watershed for delivery purposes. By allowing Valley District to pump from the Riverside South and Arlington groundwater basins, RPU can then receive a greater amount of SBBA water higher in the watershed, which increases energy efficiencies for RPU's distribution of the water to its customers, resulting in cost savings.

Table 3.13-3 provides the RPU water supplies and demands for a normal year from 2020 through 2040 and the proposed project's anticipated water supply needs for the Hidden Valley Creek and Old Ranch Creek channels. According to Table 3.13-3, adequate local supplies are anticipated within the RPU service area for years 2020 to 2040 under normal-year conditions to supply the proposed project with up to 4,501 AFY. Because the groundwater pumped for the proposed project would be offset by groundwater pumped from the SBBA, no net effect on RPU supplies would occur. The amount of groundwater anticipated to be pumped is an overly conservative estimate of water use because most of the groundwater would not be consumed in a typical development fashion. The groundwater pumped would be used as surface flow in the channels and then water would be returned to the mainstem Santa Ana River to flow downstream. The surface flows would gradually be recaptured in the groundwater basin through infiltration of the creeks and riverbeds or it would be captured and used by regional downstream facilities, such as the Prado Dam for use by Orange County. Very little of the 4,501 AFY would be "consumed" or eliminated from the surface/groundwater system by the Tributaries Restoration Project and Mitigation Reserve Program Phase I. The only component that actually uses water is the evapotranspiration of vegetation within the riparian buffer along each creek. As such, the proposed project would consume very little of the overall groundwater pumped. The majority of the water would travel downstream through the stream channels to support the Santa Ana sucker populations before reaching the river or recharging watershed groundwater.

For the Riverside South groundwater basin, the Western Judgment set a 5-year base period extraction of 29,663 AF for use in Riverside County (City of Riverside 2016). As described previously for the Riverside South Basin, Western is responsible for replenishment of any extractions exceeding the base period extraction over a 5-year period or by more than 20 percent in a single year equal to the excess extractions over 20 percent peaking allowance, unless credits are available from previous years. RPU's extraction rights from the Riverside South Basin are 16,880 AFY (City of Riverside 2016). The Tributaries Restoration Project and Mitigation Reserve Program Phase I would not result

in an increase of pumping within the Riverside South groundwater basin given that RPU would likely need to pump less in that project area because it would receive replacement water of the same amount of groundwater from the SBBA. As previously stated, the groundwater pumped for the channels would be recaptured for reuse or recharge back to the groundwater basin and the proposed project would not result in an overall significant increase of extractions. As such, the proposed project would be consistent with the Western Judgment regarding Riverside South groundwater basin extractions.

Table 3.13-3. Riverside Public Utilities Normal Year Supply and Demand Comparison (AF)

Totals	2020	2025	2030	2035	2040
Supply Totals	116,903	121,903	124,703	124,703	124,703
Demand Totals	95,221	96,534	99,015	101,589	104,257
Difference (Supply Minus Demand)	21,682	25,369	25,668	23,144	20,446
Project Needs, Hidden Valley Creek and Old Ranch Creek	4,501	4,501	4,501	4,501	4,501
Difference (Supply minus Demand minus Project)¹	21,682	25,369	25,668	23,144	20,446

¹ There is no difference shown in the total supplies with the proposed project because RPU demands would not change because the additional groundwater pumping would occur under Valley District's supplies in the SBBA.
Source: City of Riverside 2016

As previously stated, Valley District is currently working on a water exchange agreement with RPU to construct the groundwater wells within its service area and pump up to 4,501 AFY to supply groundwater to the Hidden Valley Creek and Old Ranch Creek channels and allow RPU to pump this amount from the SBBA. Table 3.13-4 provides the Valley District regional water supplies and demands for a normal year from 2020 through 2040 and the proposed project's anticipated water supply needs for the Hidden Valley Creek and Old Ranch Creek channels. According to Table 3.13-4, adequate regional supplies are anticipated within the Valley District service area for years 2020 to 2040 under normal-year conditions to exchange water with RPU supplies used for the proposed project. The water required by the proposed project would represent approximately 5 percent of Valley District's total supply surplus through 2040. Again, this analysis represents an overly conservative assumption of water use.

Table 3.13-4. Valley District Normal Year Supply and Demand Comparison (AF)

Totals	2020	2025	2030	2035	2040
Supply Totals	337,769	345,359	352,552	359,780	366,608
Demand Totals	236,799	247,969	259,104	269,563	276,818
Difference (Supply Minus Demand)	100,990	97,390	93,448	90,217	89,780
Project Needs, Hidden Valley Creek and Old Ranch Creek	4,501	4,501	4,501	4,501	4,501
Difference (Supply minus Demand minus Project)	96,489	92,889	88,947	85,716	85,279

Source: Valley District 2018

Under the terms of the Orange County and Western Judgments, Valley District and Western are directly responsible for ensuring that groundwater and surface water are effectively managed. The Orange County Judgment requires entities in the upper watershed (above Prado Flood Control Basin) to deliver specific quantities of flow in the Santa Ana River at Riverside Narrows and at Prado Dam. The Western Judgment establishes entitlements to groundwater extractions from the SBBA and requires Valley District's replenishment of the basin when surface diversions and groundwater extractions exceed the determined safe yield. The proposed project water supply needs would not result in an exceedance of the Western Judgment natural safe yield of the SBBA. In the event that more than 172,745 AFY of water are extracted from the SBBA cumulatively, Valley District would replace the excess water used in accordance with the Western and Orange County Judgments. Furthermore, the Seven Oaks Accord requires Valley District and Western to develop and manage a groundwater spreading program that stipulates groundwater levels at a number of specified monitoring wells. As such, groundwater levels in the project area would be managed in compliance with the Accord.

The proposed project would not result in impacts on Valley District's legal requirement to maintain a flow equivalent to approximately 15,250 AFY at Riverside Narrows on the Santa Ana River, in accordance with the Orange County Judgment. The groundwater used within the Hidden Valley Creek and Old Ranch Creek channels would continue to be discharged to the Santa Ana River; as such, it anticipated that these flows would contribute to compliance with the flow requirement. The Western Judgment contemplates that the parties would undertake "new conservation," which is defined as any increase in replenishment from natural precipitation that results from operation of works and facilities not in existence as of 1969. The Western Judgment specifies that the parties to the judgment have the right to participate in any new conservation projects and, provided their appropriate shares of costs are paid, water rights under the judgment are increased by the respective shares in new conservation. Valley District is currently an active partner in regional plans for future water supply projects (Valley District 2015). The proposed conservation projects identified in the environmental setting discussion, which include the regional use of recycled water, conjunctive use projects, groundwater recharge, and stormwater capture, are anticipated to increase water supplies available to Valley District in the near- and long-term future, thereby ensuring a sustainable water source for the proposed project. Therefore, impacts on water supply from the groundwater wells would be less than significant.

Potable water may be required during construction and groundwater may be used during revegetation establishment periods for each of the proposed restoration areas. A temporary irrigation system may be required to enhance the survivorship of newly installed native plants and seed when plants have been grown in nursery conditions, when they are planted under initially dry or drought conditions, or when planting does not occur within an ideal seasonal planting time frame. Approximately up to 4.33 AFY of water would be required, which could be taken from the groundwater wells for the Hidden Valley Creek and Old Ranch Creek sites. Use of potable water may be required at the Anza Creek and Lower Hole Creek sites. Any system installed would be designed for temporary use for at least 3 years and discontinued once plant establishment is meeting plan goals. Ideally, the irrigation system would be shut off by the end of the third year of the 5-year maintenance and monitoring period. Irrigation system components would be entirely removed from the restoration site at the end of the maintenance and monitoring period in compliance with the Habitat Management Plan. The amount of water required for the replanting and establishment period is considered to be minor in comparison to available supplies and would be considered a temporary use for the first 3 years. Following establishment, no further use of groundwater would

be required for the plants. Therefore, impacts on water supply from temporary vegetation establishment would be less than significant.

The proposed project would not require expansion of existing water facilities, as Valley District has existing water supplies and water infrastructure to support the implementation of the proposed project and water exchange with RPU. There would be no need for alterations to water treatment infrastructure, service would not be required from a facility that has insufficient capacity, and the project would not cause an exceedance of available capacity from existing water treatment facilities. Therefore, overall impacts on water supply would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added into the credit program within the Expanded Mitigation Reserve Program Phase II project area to recover sites to natural conditions and restore habitat. The Anza Creek and Old Ranch Creek sites are likely to be affected through opportunities for alkali marsh rehabilitation, upland rehabilitation, floodplain extension, and further management of invasive wildlife species. In the Lower Hole Creek site, impacts are likely to involve activities for restoring upland vegetation and controlling nonnative invasive plant and wildlife species. The Hidden Valley Creek site may be affected by excavations for the enhanced floodplain habitat, oxbow feature, and management of invasive wildlife species. The Expanded Mitigation Reserve Program Phase II component would not result in the need for new permanent water supplies, water facilities, or expanded existing facilities.

The Expanded Mitigation Reserve Program Phase II water needs would be limited to during construction and post-construction periods for vegetation reestablishment. Similar to the Tributaries Restoration Project and Mitigation Reserve Program Phase I component, the Expanded Mitigation Reserve Program Phase II may require the use of a temporary irrigation system to enhance the survivorship of newly installed native plants and seed when plants have been grown in nursery conditions, when they are planted under initially dry or drought conditions, or when planting does not occur within an ideal seasonal planting time frame. Approximately 18 AFY of potable water could be required for the first 3 years following restoration activities. Any system installed would be designed for temporary use for at least 3 years and discontinued once vegetation establishment is meeting plan goals. Ideally, the irrigation system would be shut off by the end of the third year of the 5-year maintenance and monitoring period. Irrigation system components would be removed entirely from the restoration site at the end of the maintenance and monitoring period in compliance with the Habitat Management Plan. The amount of water required for the replanting and establishment period is anticipated to be minor in comparison to available supplies and would be considered a temporary use. Following establishment, no further use of groundwater would be required for the plants within the Expanded Mitigation Reserve Program Phase II area. Therefore, impacts on water supply from temporary vegetation establishment within the Expanded Mitigation Reserve Program Phase II area are considered less than significant, and no mitigation measures are required.

Significance Determination: Less than significant. No mitigation necessary.

Impact UT-2: Creation of a need for new or expanded entitlements or resources for sufficient water supply (Less than significant)**Tributaries Restoration Project and Mitigation Reserve Program Phase I**

The project aims to supplement natural water sources and stream functions on site with flows provided through groundwater wells and pumps. Groundwater would be pumped from the proposed project sites within the RPU service area; however, Valley District would exchange the same amount of water used by the proposed project with RPU pumping from the SBBA. As described above in the discussion for Impact UT-1, Valley District has enough water supplies in the SBBA to exchange the groundwater anticipated to be used by the proposed project within the RPU service area. Therefore, impacts on water supply from the groundwater wells would be less than significant.

Significance Determination: Less than significant. No mitigation necessary.

Expanded Mitigation Reserve Program Phase II

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added into the credit program within this project area to recover sites to natural conditions and remove trash and other forms of destruction caused by human influences. The Expanded Mitigation Reserve Program Phase II would not result in the need for additional water supplies or expansion of existing facilities, similar to the Tributaries Restoration Project and Mitigation Reserve Program Phase I. As described above in Impact UT-1, the Expanded Mitigation Reserve Program Phase II water needs would be limited to during construction and post-construction periods for vegetation reestablishment. The amount of water required for the replanting and establishment period is anticipated to be minor in comparison to available supplies and would be considered a temporary use. Following establishment, no further use of groundwater would be required for the vegetation within the Expanded Mitigation Reserve Program Phase II area. Therefore, the impacts are considered less than significant, and no mitigation measures are required.

Significance Determination: Less than significant. No mitigation necessary.

4.1 CEQA Analysis Requirements

A cumulative impact is created as a result of the combination of multiple projects causing related impacts. The California Environmental Quality Act (CEQA) Guidelines require that environmental impact reports (EIRs) discuss the cumulative impacts of a project when the project's incremental effect is "cumulatively considerable," meaning that the project's incremental effects are considerable when viewed in connection with the effects of past, present, and probable future projects. According to State CEQA Guidelines §15130(a) and (b), the purpose of this section is to provide a discussion of significant cumulative impacts that reflects "the severity of the impacts and their likelihood of occurrence."

State CEQA Guidelines §15130(b) identifies the following elements as necessary for an adequate discussion of cumulative effects:

- Cumulative context in the form of a list of past, present, and probable future projects producing related or cumulative impacts, including, if necessary, those projects outside the control of the agency, or a summary of projections contained in an adopted general plan or related planning document, or in a prior environmental document that has been adopted or certified and that described or evaluated regional or area-wide conditions contributing to the cumulative impact
- The geographic scope of the area affected by the cumulative effect and a reasonable explanation for the geographic limitation used
- A summary of the expected environmental effects to result from those projects with specific reference to additional information stating where that information is available
- A reasonable analysis of the cumulative impacts of the relevant projects. An EIR shall examine reasonable, feasible options for mitigating or avoiding the project's contribution to any significant cumulative effects.

This analysis relies on a list of projects that have the potential to contribute to cumulative impacts in the project area.

As stated in the State CEQA Guidelines §15130(a)(1), the cumulative impacts discussion in an EIR need not discuss impacts that do not result in part from the project evaluated in the EIR. Therefore, those resource areas for which there would be no impact from the proposed project are not further discussed in this section. These include:

- Aesthetics
- Energy
- Land Use and Planning
- Mineral Resources
- Public Services

- Transportation
- Wildfire

For any potentially significant cumulative impacts to which the proposed project would contribute, the EIR must determine whether the project contribution is considerable. If the project contribution is not considerable, then neither further analysis of the issue nor identification of feasible mitigation measures is required. If, however, the proposed project's contribution to the significant cumulative effect is cumulatively considerable, then the EIR must describe potentially feasible mitigation measures, if available, that would avoid or reduce the magnitude of the contribution to a less-than-considerable level. If such measures are not available and the project contribution remains considerable after application of all feasible mitigation measures, then the impact is deemed cumulatively significant and unavoidable.

4.2 Related Projects

This analysis considers the impacts of the proposed project in combination with potential environmental effects of other projects in the project area. "Other projects," also referred to as "cumulative projects," include recently approved projects, projects currently under construction, and projects recently completed. The potential for projects to have a cumulative impact depends on both geographic location and project schedule.

4.2.1 Geographic Scope

The geographic area affected by cumulative projects varies depending on the environmental topic. For example, construction noise impacts would be limited to areas directly affected by construction noise, whereas the area affected by a project's air emissions generally includes the entire air basin, and impacts associated with hydrology and groundwater could include the affected watershed.

This chapter considers the potential cumulative effects of the project in combination with other local development and infrastructure projects generally occurring within a 5-mile radius of the project sites. Five miles was considered appropriate because the majority of impacts are considered temporary construction impacts. The analysis of cumulative effects in this chapter focuses on the effects of concurrent construction of the proposed project with other spatially and temporally proximate projects within a 5-mile radius of the project sites, with ~~two~~ five exceptions. First, because this project would affect aquatic resource species and water resources that extend beyond a 5-mile radius, projects that would affect similar aquatic resource species and are hydrologically connected to the site (both upstream and downstream in the Santa Ana River) were included in the project list. Additionally, cumulative air quality impacts were evaluated within the South Coast Air Basin.

The 5-mile buffer for cumulative projects in the Upper Santa Ana River watershed includes portions of the cities of Jurupa Valley, Riverside, San Bernardino, Colton, Redlands, Rialto, Highland, and Fontana. Other agencies with projects occurring within a 5-mile radius around the project sites or beyond the 5-mile buffer for similar water resource cumulative projects include Metropolitan Water District, Riverside Public Utilities, Western Municipal Water District, West Valley Water District, Santa Ana Watershed Project Authority, Inland Empire Utilities Agency, ~~and~~ Orange County Water District, and California Public Utilities Commission/Southern California Edison.

4.2.2 Project Timing

As noted, projects considered in this analysis include those that have recently been completed, are currently under construction, were recently approved, or are in the planning stages. A project's schedule is particularly relevant to the consideration of cumulative construction-related impacts because construction impacts tend to be relatively short term. However, for probable future projects, construction schedules are often broadly estimated and can be subject to change. Although the timing of the probable future projects described in Section 4.2.4 is likely to fluctuate because of schedule changes or other unknown factors, this analysis assumes several of these projects would be implemented concurrently with construction of the proposed project, between 2019 and 2022.

4.2.3 Type of Projects Considered

As described in the sections in Chapter 3 of this EIR, the majority of impacts associated with implementation of the proposed project are short term and related to construction, rather than long term and related to operation. Therefore, the project could contribute to cumulative effects when considered in combination with impacts of other construction projects in the region. For this analysis, other past, present, and reasonably foreseeable future construction projects, particularly other infrastructure and water resource projects, in the area have been identified. Long-term cumulative impacts of the project in conjunction with the other projects in the area are assessed as well.

4.2.4 Description of Cumulative Projects

Table 4-1 lists current and proposed projects that could potentially contribute to similar cumulative impacts within the project area within a 5-mile radius and beyond (as noted). In addition to the projects listed in Table 4-1, additional development and supporting infrastructure that has not been identified as of this time could occur within the project area, as planned by the cities of Riverside, Jurupa Valley, San Bernardino, Colton, Redlands, Rialto, Highland, and Fontana, as well as Metropolitan Water District, Riverside Public Utilities, Western Municipal Water District, West Valley Water District, Santa Ana Watershed Project Authority, Inland Empire Utilities Agency, ~~and~~ Orange County Water District, and California Public Utilities Commission/Southern California Edison. Figure 4-1 displays the locations of the ~~69-72~~ known projects listed in the table below in relation to the proposed project sites. The related projects consist of a variety of land uses, including roadway improvements, residential development, habitat reconstructions, water treatment, storm drainage and infrastructure improvements, electrical transmission projects, commercial development, and recreation.

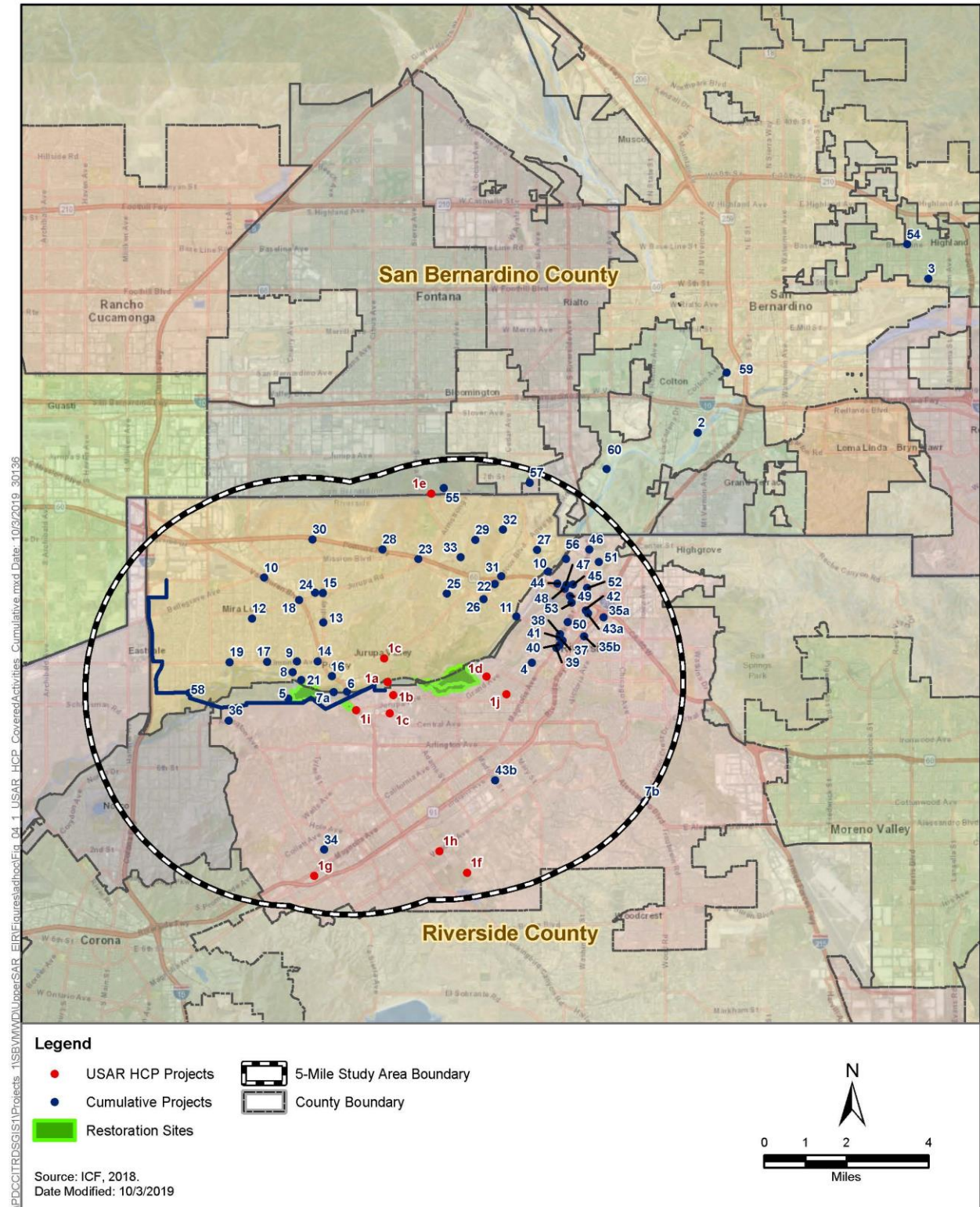


Figure 4-1. Cumulative Projects

Table 4-1. Cumulative Project List

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
San Bernardino Municipal Valley District						
1	Upper SAR <u>Habitat Conservation Plan (HCP)</u>	Multiple locations in the upper Santa Ana River watershed	Habitat conservation plan pursuant to Section 10 of the Endangered Species Act	Valley District is preparing the HCP that will include multiple projects within the upper Santa Ana River to permit proposed water infrastructure projects and implement a landscape-scale conservation strategy to include creation and enhancement of aquatic and riparian habitat.	In planning	Yes, see <i>Upper SAR HCP Covered Activities</i> below for projects within 5 miles.
2	Riverside North Aquifer Storage and Recovery Project	City of Colton	Stormwater Capture and Recharge project	Riverside Public Utilities (RPU) will capture and recharge stormwater to the Rialto-Colton and Riverside groundwater basins for extraction and municipal use. The project consists of an inflatable dam with a diversion structure, off-channel recharge facilities, and conveyance facilities.	In planning	No, upstream (but included on map)
3	Sterling Natural Resource Center	City of Highland, City of San Bernardino, and City of Redlands	Water Treatment Facility	Construct and operate the SNRC to treat wastewater generated within EVWD's service area to provide tertiary treatment to produce recycled water. Website: https://www.sterlingnrc.com/174/Documents	Approved	No, upstream (but included on map)
4	Purple Pipe	City of Riverside	Recycled water project	Recycled water project in the City of Riverside. Western portion at Van Buren Boulevard and Jurupa Boulevard.	In planning	Yes
5	Hidden Valley Wetland Ponds Project	City of Riverside	Habitat restoration for Santa Ana sucker	Habitat restoration activities to support the Santa Ana sucker and other aquatic resources.	In planning	Yes
Metropolitan, Riverside Public Utilities, Western, West Valley (Upper SAR HCP Covered Activities)						
1a	Upper Feeder SAR Bridge Project	City of Jurupa Valley	Wells and water infrastructure	Maintenance work on this section of the pipe, bridge, and access roads would include vegetation management beneath and adjacent to the Santa Ana River Bridge Crossing and the north access road maintenance program. Metropolitan would routinely maintain vegetation along the dirt access road on the north side of the river and along the entire length of the bridge.	In planning	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
1b	Pipeline Maintenance	City of Riverside	General property and facility maintenance, wells, and water infrastructure	Metropolitan's operations and maintenance activities are conducted on a regular basis and are intended to maintain existing pipelines and appurtenant pipeline structures throughout San Bernardino and Riverside counties.	In planning	Yes
1c	ROW and Patrol Road Maintenance	City of Jurupa Valley	General property and facility maintenance	Maintenance activities are generally performed periodically and include actions such as minor construction, earth-moving, or vegetation clearing activities that can affect listed species.	In planning	Yes
1d	Pipelines-Recycled	City of Riverside	Wells and water infrastructure	Construction of new pipelines for recycled water distribution.	In planning	Yes
1e	Maintenance of Supply Transmission Mains	City of Jurupa Valley	Wells and water infrastructure	The project objective is to conduct general maintenance activities for RPU's supply transmission mains. There are a few river crossings that could potentially have environmental impacts should they become exposed following a large storm event and require repairs or replacement. It is not anticipated that additional coverage on distribution pipelines would be needed within the City limits.	In planning	Yes
1f	Pipeline Rehabilitation/Replacement Program	City of Riverside	Wells and water infrastructure	The Pipeline Rehabilitation and Replacement Program will be an evaluation and replacement of aging pipeline within Western's retail service area of southeastern Riverside County. The project will begin with inspecting the condition of the existing pipelines to determine whether pipeline rehabilitation (relining), spot repair, or replacement may be identified. The pipe condition assessment does not have a physical disturbance except along potential access roads that occur in natural areas, as well as small excavations (estimated to be less than 500 square feet of impact area along the pipeline for access at test station locations with an estimated three to four per mile of pipeline). A multi-year pipeline rehabilitation and replacement project will be developed based on the condition assessment.	In planning	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
1g	Water Delivery and Wastewater Collection System Operation	City of Riverside	Wells and water infrastructure	The facilities in the water delivery and wastewater collection system include pipelines, tanks, pumping stations, valves, hydrants, air release valves, blow-offs, and other appurtenances required to operate these systems. These facilities provide critical services to Western customers for potable water and wastewater collection. The systems continue to expand with new development, but new pipelines are almost entirely within existing ROW on public roads. Maintenance and repair of these facilities is continually required to ensure proper operation. Maintenance and repair activities for these facilities occur year-round. Repair and maintenance activities would generally be completed within hours or days for a specific issue/area.	In planning	Yes
1h	Arlington Basin Water Quality Improvement Project	City of Riverside	Recharge basins	Western is planning to construct new artificial recharge basins at three different stormwater channels within the Arlington groundwater basin to provide additional water supply to the cities of Norco and Corona. The selected sites are in the immediate vicinity of the Arlington Desalter.	In planning	Yes
1i	Riverside Corona Feeder Project	City of Riverside	Wells and water infrastructure	The Riverside-Corona Feeder is a conjunctive use project consisting of up to 20 new and existing wells and 28 miles of new pipeline that will capture, store, and deliver water in wet years in order to increase firm water supplies, reduce water costs, and improve water quality. Wellhead treatment will remediate perchlorate and other contaminants. This water will come from local runoff, including releases from Seven Oaks Dam and the State Water Project.	In planning	Yes
1j	Facilities Maintenance	City of Riverside	General property and facility maintenance	Pipeline maintenance would include pipeline section and/or valve replacement, as needed. An approximately 30-foot by 200-foot temporary maintenance work area would be used by heavy equipment and service trucks in order to complete the repairs. Maintenance would be expected to occur approximately once every 10 years per pipeline, amounting to temporary ground disturbance.	In planning	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
Santa Ana Watershed Project Authority (SAWPA)						
6	Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement Project	55 feet upstream of the Van Buren Boulevard Bridge crossing over the Santa Ana River, within the City of Jurupa Valley	Habitat restoration for Santa Ana sucker	The proposed project involves the construction of a partially submerged rock groin habitat structure within Santa Ana River.	Approved/In construction	Yes
Inland Empire Utilities Agency (partnering agencies include Orange County Water District and Western Municipal Water District)						
7	Santa Ana River Conservation and Conjunctive Use Project (SARCCUP)	City of Montclair, City of Riverside, Riverside County, and Santa Ana River	Water infrastructure	Collaborative program designed to improve the Santa Ana River watershed's water supply resiliency and reliability by implementing various watershed-wide projects that would increase available dry-year yield from local groundwater basins.	Environmental review	Yes, see <i>SARCCUP Covered Activities</i> below for projects within 5 miles.
SARCCUP Covered Activities (Covered by IEUA, OCWD, and WMWD)						
7a	Santa Ana River Arundo Removal	Santa Ana River in City of Riverside	Habitat restoration	Approximately 640 acres of arundo would be removed along the Santa Ana River and its tributaries. The arundo removal project would occur at locations along the Santa Ana River between Prado Basin and the State Route 60 crossing in Riverside.	Vegetation removal: September 2019 to June 2021 (36 months) Maintenance and monitoring continuing through June 2023.	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
7b	WMWD Pump Station	City of Riverside	Water infrastructure	Design an interconnection and pump station for a potable water well. The Cannon Pump Station will be designed to move 10 cubic feet per second from the Riverside or Bunker Hill groundwater basins. WMWD will relocate the existing Crest Booster Station and construct a new pump station and associated pipelines in the Riverside-Arlington Basin. Both facilities would be located off the intersection of Alessandro Boulevard and Overlook Parkway within an undeveloped vegetated area.	Implementation planned April 2019 – March 2021	Yes
City of Jurupa Valley						
8	Proposed Recreation Area at 64 th and Downey	City of Jurupa Valley	Improvements to an existing recreation area	The City of Jurupa Valley has prepared a Research Report and a Conceptual Plan based on surveys of requested improvements of the area by pedestrian and equestrian user groups. The conceptual plan proposes outdoor facilities, trails and signage, and a trail separation.	In planning	Yes
9	Limonite Ave. Widening (13-E.A)	City of Jurupa Valley	Roadway improvements	The rehabilitation of approximately 300,000 sq. ft. of AC pavement by grind and overlay with isolated removal and reconstruction.	On hold	Yes
10	Van Buren Blvd. Pavement Rehabilitation (13-E.B)	City of Jurupa Valley	Roadway improvements	The rehabilitation of approximately 180,000 sq. Ft. Of AC pavement by grind and overlay with isolated removal and reconstruction.	On hold	Yes
11	Market St. Bridge, Crossing Santa Ana River (13-H.1)	Between the cities of Jurupa Valley and Riverside	Bridge replacement	Remove and replace existing bridge crossing the Santa Ana River between the cities of Jurupa Valley and Riverside.	Project Approval/ Environmental Document (PA/ED)	Yes
12	Mission Boulevard Bridge, Crossing Santa Ana River	Between the cities of Jurupa Valley and Riverside	Bridge replacement	Remove and replace existing bridge crossing the Santa Ana River between the cities of Jurupa Valley and Riverside.	PA/ED	Yes
13	Bain St. Pavement Rehabilitation, Limonite to Bellegrave	City of Jurupa Valley	Roadway improvements	Complete reconstruction of the roadway surface while providing two 12-foot travel lanes and 2-foot paved shoulders as well as rehabilitating the existing gravel shoulder.	PA/ED	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
14	Pedley Rd. Improvement Project, Limonite to Jurupa	City of Jurupa Valley	Roadway improvements	Add left turn lanes and widen the storm drain crossing.	PA/ED and Plans, Specifications and Estimate (PS&E)	Yes
15	Signing and Striping Improvements along the Limonite Ave Corridor	City of Jurupa Valley	Signing and striping improvements	Signing and striping improvements.	Under construction	Yes
16	Traffic Signal Installation, Pedley And Jurupa	City of Jurupa Valley	Traffic signal installation	Widen the existing intersection of Pedley/Jurupa while improving the existing at-grade crossing of the Union Pacific Railroad in order to construct a new traffic signal.	PA/ED	Yes
17	Van Buren Blvd. Widening, Santa Ana River To Limonite	City of Jurupa Valley	Roadway improvements	Widen existing roadway to 6 through travel lanes. The project will also construct curb and gutter while rehabilitating the AC pavement and adding roadway lighting.	PA/ED	Yes
18	Limonite Ave. Widening, Bain to Homestead	City of Jurupa Valley	Roadway improvements	Widen existing roadway to 4 through travel lanes with a raised center median, including curb and gutter, equestrian trail on the north side, a multi-use path on the south side and roadway lighting. The project also includes modification to the existing storm drain crossing under the roadway.	PA/ED	Yes
19	Jurupa Rd./Van Buren Blvd. Grade Separation	City of Jurupa Valley	Grade separation	Grade separate the existing roadways of Van Buren Blvd. and Jurupa Rd. from the Union Pacific Railroad Tracks with associated improvements and modification.	PA/ED	Yes
20	Horse Crossing Signal, Limonite	City of Jurupa Valley	Full traffic signal or a pedestrian hybrid beacon	This project includes the study of Limonite Ave between Troth and Marlatt in order to determine the safest location and type of crossing. Upon completion of the study, plans will be prepared and construction will commence for either a full traffic signal or a pedestrian hybrid beacon at the recommended location.	PA/ED	Yes
21	Downey St. and 64th St. Park Improvements	City of Jurupa Valley	Park improvements	Construct/install facility improvements at existing park site. Amenities may include permanent restrooms, paved parking lots, equestrian arena, improved walking/riding trails picnic areas as more.	PA/ED	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
22	Rubidoux Blvd. Pavement Rehabilitation, Mission to 29th	City of Jurupa Valley	Roadway improvements	The rehabilitation of approximately 275,000 sq. ft. of AC pavement by grind and overlay with isolated removal and reconstruction.	In planning	Yes
23	Mission Blvd. and Valley Way Intersection Improvements	City of Jurupa Valley	Intersection improvements	The project is to create a pedestrian refuge space with signal actuation to allow pedestrians to make the crossing of Mission Boulevard in two movements and allow for the traffic signals to be timed in a manner that does not require a pedestrian clearance interval that assumes a full crossing of Mission Boulevard.	In planning	Yes
24	Filly Ln. Drainage Improvements	City of Jurupa Valley	Drainage improvements	Remove localized ponding on Filly Ln. Improvement may include installing a new pipe from Filly Ln out to an existing catch basin on Jurupa Rd.	In planning	Yes
25	Pacific Ave. Sr2s Sidewalk Project, Mission To 45th	City of Jurupa Valley	Roadway improvements	Modify Pacific Ave to have one through lane each way, a median left-turn lane, bike lanes, on-street parking, full-length sidewalks, pedestrian flashers, and intersection enhancements to provide safer pedestrian crossings.	In planning	Yes
26	Mission Blvd. And Rubidoux Blvd. Intersection Improvements	City of Jurupa Valley	Intersection improvements	Create pedestrian refuge spaces with signal actuation to allow pedestrians to make the crossing of Mission Blvd in two movements and allow for the traffic signals to be timed in a manner that does not require a pedestrian clearance interval that assumes a full crossing of Mission Blvd.	In planning	Yes
27	Market St. Widening, Santa Ana River to Rubidoux	City of Jurupa Valley	Roadway widening	Widen existing roadway to 4 through travel lanes, including curb and gutter.	In planning	Yes
28	Granite Hill Dr. Pavement Rehabilitation	City of Jurupa Valley	Roadway improvements	The rehabilitation of existing AC pavement by grind and overlay with isolated removal and reconstruction.	In planning	Yes
29	Tentative Tract Map 31894 "Highland Park"	North of Canal Street and Union Pacific Railroad and east of Sierra Avenue/20 th Street, near Rattlesnake Mountain/Rock Quarry	Residential subdivision	General Plan amendment, change of zone, and tentative tract map (TTM31894) for a residential subdivision on approximately 168.3 acres involving 408 single-family residential lots, several water quality treatment basins, and associated open space.	Approved	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
30	Pedley Shopping Center	Southeast corner of SR-60 and Pedley Road in Jurupa Valley	Commercial development	300,000 sq. ft. of a retail commercial shopping center	Approved	Yes
31	Emerald Meadows Ranch Specific Plan (No. 337)	Just south of 30th Street on the east side of Rubidoux Boulevard	Mixed-Use development	Specific plan for a mixed use community on 278 acres. Approved for 1,196 dwelling units (density of 4.3 dwelling units per acre) and 186,000 sq. ft. of retail commercial uses.	Approved	Yes
32	Conditional Use Permit 1401, Alpha Materials Inc.	6170 20th Street	Industrial	Continue an existing concrete business and expand an aggregate materials storage and handling facility with truck parking on 9.73 acres.	Approved	Yes
33	Rio Vista Specific Plan	Between Armstrong Road and Rubidoux Boulevard	Residential and mixed-use development	Specific plan for a master planned community of 1,697 homes (density of 1.8 du/ac), parks, schools, and commercial uses on 918 acres; proposed amendment would reduce development by approximately 1,200 dwelling units.	Approved	Yes
City of Riverside						
34	Cochran Avenue Storm Drain Improvements	City of Riverside	Storm drain improvements	Storm drain, curb, and gutter improvements - Cochran Avenue easterly from intersection of Skofstad Street to approximately 60 linear feet easterly of Jones Avenue. https://riversideca.legistar.com/LegislationDetail.aspx?ID=3138472&GUID=76BDD606-B78C-4577-8563-EF8AA0DDC8BC&Options=&Search=	Approved	Yes
35	Street Improvements at BNSF Rail Crossings at Third Street and Spruce Street	City of Riverside	Street Improvements	Street improvements at Burlington Northern Santa Fe Railway crossings at Third and Spruce Streets. https://riversideca.legistar.com/LegislationDetail.aspx?ID=3523002&GUID=AC190403-4AF8-4289-88D0-553D705CA6EB&Options=&Search=	Under Construction	Yes
36	Arlington Avenue Widening from Westerly City Limits to Fairhaven Drive	City of Riverside	Roadway improvements	Street widening, repavement, street light installation, guardrails, and additional striping - Arlington Avenue from westerly City limits to Fairhaven Drive. https://riversideca.legistar.com/LegislationDetail.aspx?ID=3202858&GUID=9CDE2266-25E1-4678-9288-001EA882FFFA&Options=&Search=	Under Construction	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
37	Chow Alley	City of Riverside	Dining venue	Walkable outdoor and active urban dining venue to include multiple foods and commercial vendors, which could blend individual retired and refurbished shipping containers, carts, and quasi-permanent micro-kitchens with ample shared seating areas.	In Planning	Yes
38	Riverside Food Lab	3605 Market Street, Riverside, CA 92501	Dining venue	Riverside Food Lab will be a culinary showcase bringing together multiple independent eateries that specialize in locally-grown, artisanal, organic, and handcrafted foods and beverages.	Constructed	Yes
39	Imperial Hardware	3750 Main St, Riverside, CA 92501	Mixed-use development	Mixed use, multi-story residential/commercial building.	Constructed	Yes
40	Main and Ninth Lofts	9th & Main Street, City of Riverside	Mixed-use development	Mixed use, multi-story residential/commercial building.	Under Construction	Yes
41	Stalder Plaza	Mission Inn Avenue and Market Street, City of Riverside	Mixed-use development	Mixed use, multi-story residential/commercial building.	Under Construction	Yes
42	The Exchange Project	City of Riverside (downtown)	Mixed-use development	Proposed mixed-use development, on 35.4 acres, consisting of the following uses: 1) 482 multi-family residential dwelling units; 2) 49,500 square feet of commercial lease space; 3) two hotels with 229 guest rooms; 4) recreational vehicle overnight parking; 5) incidental outdoor entertainment and activities (e.g., farmers market, car shows); and 6) freeway oriented signs. Page 11 of this PDF: https://www.riversideca.gov/planning/pdf/eir/exchange/Environmental-Initial-Study.pdf	Environmental review	Yes
43	2015-2016CDBG Street Improvements for Holding Street, Lime Street and Evans Street	City of Riverside	Street improvements	2015-2016CDBG Street Improvements for Holding Street, Lime Street and Evans Street.	Unknown	Yes
44	TM 35004 (P06-1096)	Westerly terminus of Rivera Street near the Santa Ana River in Riverside	Industrial/ mixed-use development	TM 35004 recorded to create 8 lots on 2.41 acres for industrial/condo purposes.	Unknown	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
45	TM-32292 (P07-0370)	4054 Strong Street in Riverside	Residential development	TM 32292 to create 48 single-family residential units	In Planning	Yes
46	PM 35354 (P07-0101 and P07-0099)	Southeasterly corner of Main Street and Garner Road in Riverside	Industrial development	PM 35354 and Design Review to create six lots for industrial purposes totaling 207,744 sq. ft.	Unknown	Yes
47	P07-0682 and P07-0683	4300–4371 Latham Street, 4500–4590 Allstate Drive, 1950–2000 Market Street, 1919 Atlas Street	General plan amendment and zone change	General plan amendment and rezoning for 13 parcels from B/OP to the O General Plan and from CR to the O Zone.	Unknown	Yes
48	P10-0219	4183 Fairgrounds Street	Conditional use permit	Conditional use permit for a church with 180 fixed seats within an existing building.	Constructed	Yes
49	Stealth Wireless Telecommunications Facility	2300 Market Street, situated on the corner of Market Street and Fairmount Boulevard	Conditional use permit	Minor conditional use permit to allow for a wireless telecommunications facility within three existing rooftop towers on an approximately 3.45-acre site currently developed with a 3-story office building.	In Planning	Yes
50	Centerpointe @ Market Apartments	3189 Market Street, 3130 and 3144 Fairmount Boulevard, and 3867 Second Street	Multi-family residential development	Development of a multi-family residential project consisting of 125 units (42 one-bedroom units, 76 two-bedroom units, and 7 three-bedroom units) within a five-story building.	Draft Mitigated Negative Declaration Prepared	Yes
51	Smart Code Specific Plan for Former Riverside Golf Club and AB Brown Sports Complex	Former Riverside Golf Club at 1011 N. Orange Street and AB Brown Sports Complex at 3700 Placentia Lane	Specific plan	Smart Code Specific Plan, Program EIR, and Northside Neighborhood Vision Plan for 179 acres of vacant property within the Northside Neighborhood.	Approved	Yes
52	Single Family Residential/TM 33550	3719 Strong Street	Rezoning multi-family residential to single-family residential	TTM 33550 and Rezoning of vacant parcels within a multi-family zone to establish nine single-family residential lots.	Approved	Yes
53	Senior Housing Facility	2450 Market Street	Construction of a senior housing facility	Conditional use permit to establish a 77-unit senior housing facility within an existing three-story, approximately 51,321 sq. ft. building.	Approved	Yes

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
City of San Bernardino						
54	Clean Water Factory	City of San Bernardino including the RIX wastewater treatment plant	Recycled water project	The project would divert treated water from RIX to recharge basins north of the city. The water would recharge groundwater basins for potable reuse with advanced treated water.	In planning	No, upstream (but included on the map)
Multiple Jurisdictions						
55	Agua Mansa Industrial Corridor Specific Plan	Bounded by I-10 to the north, Santa Ana River and Rancho Avenue to the east, Rubidoux Boulevard and Market Street to the southwest, and Bloomington to the west	Specific plan	Specific plan prepared as a master economic development plan for 4,285 acres within portions of Colton, Rialto, and counties of San Bernardino and Riverside	Specific plan adopted in 1986	Yes
56	La Rivera Development – Surface Drainage Improvement Project (P11-0415)	Southern terminus of Salmon River Road in the La Rivera residential development	Drainage improvements	Proposal to improve existing drainage conditions due to storm flow runoff and installation of storm drains adjacent to the Santa Ana River.	Mitigated Negative Declaration prepared by the City of Riverside in 2012	No but included on map Yes
57	Rialto Commerce Center	North of El Rivino Road at Cactus Road, in Rialto (previously unincorporated San Bernardino County)	Construction of a commerce center	3.6 million sq. ft. of warehouse space on 164 acres including the 129-acre El Rivino golf course property, recently annexed by the City of Rialto.	EIR certified and project approved in 2011	Yes
58	<u>Riverside Transmission Reliability Project (RTRP)</u>	<u>Multiple locations in Jurupa Valley, Riverside and Riverside County</u>	<u>New and relocated overhead and underground transmission lines</u>	<u>Construction, relocation, and operation of new overhead and underground 230-kilovolt double-circuit transmission lines and other modifications proposed by California Public Utilities Commission (CPUC) in conjunction with Southern California Edison (SCE) and RPU (Application No. A.15-04-013). RTRP component Distribution Line Relocation #7 is nearest the proposed project at the Santa Ana River Trail.</u>	<u>CPUC to make a decision on Subsequent Final EIR in late 2019</u>	<u>Yes</u>

ID #	Project Name	Project Location	Project Type	Project Description	Status	Within 5 Mile-Buffer?
59	<u>Rialto's Change Petition</u>	<u>City of Rialto</u>	<u>Recycled Water Project</u>	<u>The Change Petition proposes to reduce wastewater flows to the Santa Ana River. The City proposes the reuse of recycled water in its service area as well as the marketing of surplus recycled water to water agencies outside of the Rialto municipal service area.</u>	<u>Pending before the State Water Resources Control Board</u>	<u>No, but included on map</u>
60	<u>Rialto Channel Regional Flood Control System</u>	<u>City of Rialto, City of San Bernardino, City of Colton</u>	<u>Stormwater drainage improvements</u>	<u>The Rialto Channel project would increase channel capacity and reduce impediments to flow between I-210, Cactus Basins, and the Santa Ana River. The design may include routing of local roadway drainage and development within the existing Rialto Airport to the Cactus Basins.</u>	<u>In planning</u>	<u>No, but included on map</u>

Sources: San Bernardino Municipal Valley Water District: Current Valley District Projects Website: <https://sbvmwd.maps.arcgis.com/apps/Shortlist/index.html?appid=14ff0ef31b3940059029a20e9e556fff> (accessed September 1, 2018); *San Bernardino Municipal Valley Water District Draft Upper SAR HCP*, Chapter 2, Covered Activities, April 2018; City of Jurupa Valley Capital Improvement Plan & Major Projects Website: <http://www.jurupavalley.org/Departments/Development-Services/Public-Works-and-Engineering/Capital-Improvement-Projects> (accessed September 1, 2018); City of Riverside Planned Construction Projects Website: <https://www.riversideca.gov/publicworks/engineering/planned-construction.asp>; Santa Ana Watershed Project Authority. December 2017. *Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement Project Final Initial Study/Mitigated Negative Declaration*. SCH #2017101064l; San Bernardino Valley Municipal Water District. *Sterling Natural Resource Center Final EIR*, March 2017. Available: <http://www.sbvmd.com/reports/reports/-folder-1080>; Inland Empire Utilities Agency, Draft Santa Ana River Conservation Conjunctive Use Program EIR, November 2018. Available: <https://18x37n2ovtbb3434n48jhbs1-wpengine.netdna-ssl.com/wp-content/uploads/2018/11/Santa-Ana-River-Conservation-and-Conjunctive-Use-Project-Draft-EIR-2018-11-05.pdf>; *State Of California Public Utilities Commission, Southern California Edison's Riverside Transmission Reliability Project website*, <https://www.cpuc.ca.gov/Environment/info/panoramaenv/RTRP/index.html#FSEIR>.

4.3 Cumulative Impacts Analysis

The following impacts analysis considers whether the proposed project would make a considerable contribution to significant cumulative impacts on agriculture, air quality, biological resources, cultural resources, paleontological resources, greenhouse gas emissions, hazards and hazardous materials, hydrology, land use, noise, tribal cultural resources, and utilities.

4.3.1 Significance Criteria

Based on Appendix G of the State CEQA Guidelines, a project may be deemed to have a significant effect on the environment if the project has impacts that are individually limited but cumulatively considerable, meaning that the incremental effects of the project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. The potential cumulative contribution of the proposed project in conjunction with the other identified projects is discussed in this section by environmental topic area.

4.3.2 Resource Topics

Agriculture and Forestry Resources

There is no designated Prime Farmland, Unique Farmland, or Farmland of Statewide Importance, nor lands zoned as forest, timberland, or timberland production within the project sites. However, there is designated Farmland of Local Importance within and adjacent to the project sites. Although this project would result in active channels flowing through areas designated as Farmland of Local Importance, these channels are compatible with the use of those farmlands. Moreover, none of the areas within the project sites are currently zoned as agriculture or used for agricultural purposes and the proposed project would not remove existing agricultural lands (fallow or active) and would result in a beneficial effect on these lands from restoration and mitigation activities and installation of new channels, floodplains, and native vegetation. Because the project would have a less-than-significant impact on existing agricultural resources, and no impact on forest resources, the project would not contribute to cumulative agriculture impacts.

In fact, the proposed project may contribute to a positive cumulative benefit to agricultural resources. There are 70 acres of wetlands just south of the Santa Ana River next to the Hidden Valley Creek site, called the Hidden Valley Ponds, that dried up in 2010 after a severe storm washed out parts of the channel and rearranged the pipes that helped feed the ponds. A coalition of local officials and conservationists have been working together since 2016 on a plan to refill the ponds and lure back birds like mallards, egrets, herons, and other water-loving birds to the ponds (Press-Enterprise 2016). Although this is not considered typical farmland or agricultural uses, there would be coordination with the land manager for the nearby Hidden Valley Ponds to facilitate water delivery from the Hidden Valley Creek site to the ponds for the use of crops that support migratory wildlife and for other benefits. The Riverside Transmission Reliability Project (RTRP) would have significant and adverse impacts involving the loss of agricultural land designated as Farmland of Statewide Importance; however, these impacts are not within the project area (the nearest RTRP impact area

is east of Wilderness Avenue south of the Santa Ana River) and no cumulative impact would result with the proposed project.

Significance Determination: The proposed project's agriculture and forestry impacts would not result in a cumulatively considerable contribution to a cumulative impact.

Air Quality

The State CEQA Guidelines indicate that, where available, the significance criteria established by local air districts may be relied upon to make the impact determinations. South Coast Air Quality Management District (SCAQMD) guidance on addressing cumulative impacts for air quality states that: "Projects that exceed the project-specific significance thresholds are considered by the SCAQMD to be cumulatively considerable. This is the reason project-specific and cumulative significance thresholds are the same. Conversely, projects that do not exceed the project-specific thresholds are generally not considered to be cumulatively significant" (SCAQMD 2003). This corresponds with State CEQA Guidelines §15064(h)(4), which states that "the mere existence of significant cumulative impacts caused by other projects alone shall not constitute substantial evidence that the project's incremental effects are cumulatively considerable." SCAQMD cumulative significance thresholds are the same as project-specific significance thresholds.

Based on the analysis in Impact AQ-1 through AQ-5 for the Tributaries Restoration Project and Mitigation Reserve Program Phase I, and Expanded Mitigation Reserve Program Phase II, there would be no project-specific significant air quality impacts. The project would be consistent with applicable SCAQMD and Southern California Association of Governments policies, and Impact AQ-1 would be less than significant. The criteria pollutant air quality significance thresholds of Table 3.2-2 would not be exceeded, and Impact AQ-2 would be less than significant. Project-specific impacts would not be cumulatively considerable, and Impact AQ-3 would be less than significant. The project would not expose sensitive receptors to substantial DPM concentrations or health risks in excess of SCAQMD thresholds, and Impact AQ-4 would be less than significant. The project would not cause nuisance odors, and Impact AQ-5 would be less than significant.

Therefore, impacts of the project would not be cumulatively considerable, and this impact would be less than significant. No mitigation is required.

Significance Determination: The proposed project's air quality impacts would not result in a cumulatively considerable contribution to a cumulative air quality impact.

Biological Resources

This cumulative impact analysis considers the potential cumulative effects of the project in combination with other local development and infrastructure projects generally occurring within a 5-mile radius of the tributary restoration sites. Five miles is considered appropriate because most proposed project impacts are considered temporary construction impacts and in most cases are not expected to intensify or otherwise contribute to impacts from other projects occurring outside this spatial range. However, this project could affect fish and other aquatic species that use contiguous aquatic habitat extending beyond a 5-mile radius of the restoration sites, as well as regional groundwater upon which some biological resources may depend. The analysis of cumulative impacts on biological resources therefore considers the effects of concurrent construction of the proposed project with other spatially and temporally proximate projects, as well as projects that would affect similar aquatic resources and are hydrologically connected to the site (both upstream

and downstream in the Santa Ana River) beyond a 5-mile radius of the project sites (see Figure 4-1). Additionally, this cumulative impact analysis considers effects of the proposed project on groundwater and potential groundwater-dependent ecosystems (GDEs) in the project area and elsewhere in the groundwater basin. Table 4-1 lists the cumulative projects considered in this analysis.

Past and present activities by humans have substantially changed aquatic, riparian, and wetland habitats in the Santa Ana River and tributaries in the project limits of disturbance compared to historical conditions. Numerous factors have contributed to these impacts, including water development resulting in highly altered flow regimes and substantial flow reductions; urbanization; habitat loss and degradation; isolation of floodplains from the river channel by channelization and land conversion; substantial reductions in the frequency, magnitude, and duration of floodplain inundation; habitat fragmentation by physical barriers; introduction of nonnative species; and poor water quality. Historical agricultural practices, urbanization, and development in the project limits of disturbance have resulted in the loss of open space and the alteration of native terrestrial habitats that historically supported populations of unique or rare species. These activities have adversely affected the extent, species composition, and functioning of aquatic and riparian habitat, wetlands, upland habitats, and other sensitive communities and resulted in overall significant adverse impacts on the distribution, abundance, and species composition of native fish and wildlife species that rely on these habitats. The threatened and endangered status of numerous animal and plant species in the project limits of disturbance are evidence of these significant adverse effects. However, as described in Section 3.3.2, several special-status plants and wildlife species are known to occur or have potential to occur in the project limits of disturbance. In addition, native plant communities, riparian and wetland habitats that support special-status species, and other wildlife are present at the tributaries restoration sites. Designated critical habitat for the federally listed Santa Ana sucker includes the Santa Ana River in the project limits of disturbance but does not extend into the tributaries at the restoration sites.

Aquatic, riparian, and wetland habitats in the project limits of disturbance, some of which may be considered GDEs, may also be experiencing adverse effects related to pumping of groundwater from the regional aquifer. The project limits of disturbance, including the Old Ranch Creek and Hidden Valley Creek sites, are within the Upper Santa Ana Valley–Riverside–Arlington groundwater basin. This groundwater basin is considered a high priority basin for development of a groundwater sustainability plan pursuant to the Sustainable Groundwater Management Act (SGMA), based on results of the Draft 2018 SGMA Basin Prioritization Process (DWR 2018). The high priority rating reflects groundwater conditions and trends in the basin, including the density of wells currently in use, the overall reliance on groundwater for multiple uses, the basin's population density and growth rate, and the declining trend in groundwater levels in the basin (DWR 2018). The California Department of Water Resources has identified vegetation, wetlands, and aquatic habitats in the project limits of disturbance that are considered potential GDEs (DWR 2018), but their reliance on groundwater has not been verified and thus their status as GDEs has not been confirmed. Because the effects of declining groundwater levels on the potential GDEs in the basin have not been analyzed, it is not known whether adverse impacts are occurring and if such impacts would constitute a significant existing cumulative impact. Nevertheless, the effects of the proposed project on groundwater depletion and GDEs are considered in this cumulative impact analysis.

A variety of development and water and electrical infrastructure projects are underway or reasonably foreseeable in the vicinity of the project limits of disturbance (Table 4-1). Planned

projects also include activities that would be covered under the Upper Santa Ana River Habitat Conservation Plan and several habitat restoration projects currently being planned or implemented. Some of these projects could potentially result in the alteration or loss of natural habitat and could directly and indirectly impact plant and wildlife species. Projects within the Santa Ana River watershed, particularly those involving construction and uses of surface water or groundwater within the river-riparian corridor or in wetland areas, would have impacts similar to those of the proposed project and could contribute to cumulative adverse impacts on biological resources. Several planned projects involving wells and water infrastructure could contribute to declining groundwater levels and adversely impact GDEs including local aquatic, riparian, and wetland habitats. In adjudicated groundwater basins, groundwater levels will be managed by the court-ordered watermasters to ensure groundwater extraction complies with the requirements of the adjudications. In non-adjudicated basins, groundwater sustainability plans required by the 2014 SGMA will identify potential impacts on GDEs and include measures to avoid undesirable results (i.e., adverse impacts) to GDEs and other groundwater-related beneficial uses.

The proposed project would provide net benefits to natural communities and local populations of special-status species by creating and enhancing habitat for Santa Ana sucker and other native fish and wildlife species. The Santa Ana Watershed Project Authority Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement Project and the City of Riverside's Hidden Valley Wetland Ponds Project would benefit the Santa Ana sucker and other native aquatic species. The Santa Ana River Conservation and Conjunctive Use Program's Santa Ana River Arundo Removal component would improve aquatic and riparian habitat function, increase the amount of habitat available for special-status species, and enhance aquatic-upland habitat linkages in the Santa Ana River watershed, thus providing benefits to regional biological resources. Groundwater recharge and reduced water demand provided by the City of Colton's Riverside North Aquifer Storage and Recovery Project, the City of Riverside's Purple Pipe Project, and other water infrastructure projects may reduce aquifer depletion and benefit GDEs.

Analysis

The majority of impacts on biological resources associated with implementation of the proposed project would be short term and related to construction. Temporary construction-related impacts could potentially impact special-status species and/or their associated habitat, including aquatic, riparian, and wetland habitat as well as terrestrial natural communities. Some impacts resulting from habitat modifications at the restoration sites would be temporary, with habitat replacement and enhancement resulting in overall benefits. The short-term direct and indirect impacts associated with the proposed project would be relatively minor.

As described in Section 3.3.3, the long-term effects of the proposed project would be largely beneficial. The project would create or enhance habitat for Santa Ana sucker and other special-status species through restoration of four Santa Ana River tributary sites, although small portions of some habitats currently suitable for sensitive species may be converted to other habitat types suitable for other native species. Overall, the proposed project is expected to result in a net gain in aquatic and riparian habitat, and result in a net improvement in aquatic, riparian, and upland habitat quality to support the special-status species likely to occur at the project sites.

Long-term impacts related to operations and maintenance of the proposed project could result from groundwater pumping to provide perennial stream flows at the Old Ranch Creek and Hidden Valley Creek sites. These two tributaries do not currently have a perennial source of water. Construction

and operation of a groundwater well pump at Old Ranch Creek and/or Hidden Valley Creek has been identified as a potential project element that may not, ultimately, be included as part of the proposed project should recycled water become available to the sites via the Purple Pipe Project (see Table 4-1). If constructed, a well and pump would be installed at one or both of these restoration sites to pump groundwater from the local aquifer in order to provide surface water flow in the restored stream channels. The well specifications, pumping volumes, and operational time periods have not yet been determined, but the amount of groundwater pumped from the new well at the Hidden Valley Creek site is expected to be in the range of 1 to 3 cubic feet per second (see Chapter 2, Section 2.6.2). It is expected that pumping would occur on an as-needed basis to maintain continuous surface flows in both creeks, with most pumping occurring during summer and fall when stream flows are not likely to be substantially fed by precipitation and runoff. For purposes of this analysis, it is assumed that pumping at both the Old Ranch Creek and Hidden Valley Creek sites would occur for 8 months each year (April–November) at a continuous rate of 3 cubic feet per second. This would result in extraction of approximately 2,915 acre-feet of water annually for both wells, representing 3.8 percent of the 76,607 acre-feet pumped annually from the entire Upper Santa Ana Valley–Riverside-Arlington groundwater basin (DWR 2018). Although groundwater pumping at the Old Ranch Creek and Hidden Valley Creek sites could cause minor depletion of the local aquifer, the water would not be used for consumptive purposes. Instead, the pumped water would support aquatic and riparian species and habitats in and adjacent to these creeks and downstream portions of the Santa Ana River, including those classified as potential GDEs (DWR 2018). The pumped water would flow through natural-bottom stream and river channels, which would allow percolation into the underlying aquifer, potentially contributing to local groundwater recharge. Due to the small volume of potential groundwater pumping and its use to support native species and GDEs, as well as the potential for groundwater recharge, the effects on biological resources and groundwater in the vicinity of the project limits of disturbance would be minor and would not contribute considerably to cumulative adverse impacts.

Significant project impacts would be avoided or mitigated to a less-than-significant level through implementation of mitigation measures BIO-1 through BIO-28. After mitigation, incremental impacts of the proposed project would not contribute considerably to adverse cumulative impacts on biological resources.

Significance Determination: With mitigation, the proposed project's biological resources impacts would not contribute considerably to adverse cumulative impacts on biological resources.

Cultural Resources

Historical Resources

Past projects have resulted in cumulatively significant impacts on historic resources throughout Riverside County as a result of physical demolition, destruction, relocation, or alteration of historical resources. In order to proactively protect and consider the potential for impacts on historical resources, federal, state, and local regulations have been created, including Public Resources Code (PRC) Section 5097; California Penal Code, Section 622; the Mills Act; California Health and Safety Code, Section 18950–18961; and the Secretary of the Interior's Standards for Rehabilitation and Standards for the Treatment of Historic Properties; and future projects would be required to comply with these regulations, which would contribute to a reduction in cumulative impacts on historical resources. Because both the Tributaries Restoration Project and the Mitigation Reserve Program

project components would not result in any adverse historical resources impacts, neither project component would contribute to any cumulative impacts on historical-period resources.

Archaeological Resources

Past projects have resulted in cumulatively significant impacts on archaeological resources throughout Riverside County as a result of demolition, destruction, relocation, or alteration of land throughout the county. In order to proactively protect and consider the potential for impacts on archaeological resources, federal, state, and local regulations have been created, including PRC Section 5097; California Penal Code, Section 622; the Mills Act; and California Health and Safety Code, Sections 18950–18961, and future projects would be required to comply with these regulations, which would contribute to a reduction in cumulative impacts on archaeological resources.

The region surrounding the project area is rich with archaeological resources. These resources include a wide variety of prehistoric and historical-period archaeological sites, buried human remains, and other archaeological resources. Archaeological resources have been identified within the proposed project area, and some would potentially be adversely affected by activities associated with the project. Because some of the effects would be unknown, the proposed project has the potential to affect resources through demolition or destruction to as-yet unknown archaeological sites or components of sites, and demolition or destruction to as-yet unknown buried human remains that could not be feasibly identified in advance of ground disturbance associated with the proposed Tributaries Restoration Project and Mitigation Reserve Program. With the implementation of mitigation measures CUL-1 through CUL-6, as necessary, proposed project-related impacts would be reduced to a less-than-significant level under CEQA. As such, the incremental effects of the proposed project components, after mitigation, would not contribute to a significant adverse cumulative impact on archaeological resources.

Significance Determination: The proposed project's contribution to significant cumulative cultural resources impacts would be rendered less than cumulatively considerable under CEQA.

Geology, Soils, and Paleontological Resources

Paleontology

No known paleontological resources have been identified on the proposed project sites or in the immediate vicinity. Any cumulative impacts on paleontological resources would be reduced by compliance with applicable regulatory requirements in the event of an unanticipated discovery. In addition, in association with CEQA review, related projects would be required to comply with the same paleontological regulatory requirements to determine and mitigate any potential impacts on paleontological resources.

Mitigation measures GEO-1 and GEO-2 would reduce potential project-related impacts. These mitigation measures include monitoring, recovery, treatment, and deposition of fossil remains in a recognized repository. The incremental effects of the proposed project, after mitigation, would not contribute to a significant adverse cumulative impact on paleontological resources. With mitigation, all project-related impacts would be reduced to a less-than-significant level, and the proposed project would not contribute to significant cumulative impacts.

Significance Determination: The proposed project's paleontological resources impacts would not result in a cumulatively considerable contribution to a significant cumulative impact.

Greenhouse Gas Emissions

Climate change is a global problem, and greenhouse gases (GHGs) are global pollutants, unlike criteria air pollutants (such as ozone precursors), which are primarily pollutants of regional and local concern. Given the long atmospheric lifetimes of GHGs, GHGs emitted by many sources worldwide accumulate in the atmosphere. No single emitter of GHGs is large enough to trigger global climate change on its own. Rather, climate change is the result of the individual contributions of countless past, present, and potential future sources. Thus, GHG impacts are inherently cumulative, and the analysis above is inclusive of cumulative impacts.

GHGs and climate change are cumulatively considerable, even though the contribution may be individually limited (SCAQMD 2008). SCAQMD methodologies and thresholds are thus cumulative in nature. If annual emissions of GHGs do not exceed established thresholds, then the proposed project would not result in a cumulatively considerable contribution to GHG emissions or a cumulatively significant impact on global climate change.

Based on the analysis in Impact GHG-1 and GHG-2 for the Tributaries Restoration Project and Mitigation Reserve Program Phase I and Expanded Mitigation Reserve Program Phase II, there would be no project-specific significant GHG impacts. The project would not generate direct or indirect GHG emissions in excess of SCAQMD's thresholds, and Impact GHG-1 would be less than significant. As discussed in Impact GHG-2, the project would neither conflict with applicable policies described in the Scoping Plans for Assembly Bill 32 and Senate Bill 32 nor conflict with implementation of the regional plans enacted to reduce GHG emissions. Impact GHG-2 would be less than significant. Therefore, the impacts of the project would not be cumulatively considerable. This impact would be less than significant. No mitigation is required.

Significance Determination: The proposed project's GHG impacts would result in a cumulatively considerable contribution to a cumulative impact.

Hazards and Hazardous Materials

Although small amounts of fuel, solvents, chemicals, and oils would be transported, used, and disposed of during the construction phase, these materials are typically used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials. Construction-related hazardous materials would be subject to regulation during construction activities. The proposed project would not result in creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment.

Because the project would have a less-than-significant impact, the proposed project would not contribute to cumulative hazards and hazardous materials impacts.

Significance Determination: The proposed project's hazards and hazardous materials impacts would not be cumulatively considerable.

Hydrology and Water Quality

Generally, the listed cumulative projects would result in new construction within the watershed that could increase the need for water supplies or result in a change in impervious/pervious surfaces. Several of the projects identified would result an increase of available water supplies regionally, including the Upper Santa Ana River Habitat Conservation Plan, Riverside North Aquifer Storage and Recovery Project, Sterling Natural Resource Center, Purple Pipe Project, Arlington Basin Water Quality Improvement Project, Riverside Corona Feeder Project, Santa Ana River Conservation and Conjunctive Use Project, and Clean Water Factory. Collectively, these projects would improve the Santa Ana River watershed's water supply resiliency and reliability by implementing various watershed-wide projects that would increase available dry-year yield from local groundwater basins. In addition, several other projects, including Hidden Valley Wetland Ponds, Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement Project, and Santa Ana River Arundo Removal, would result in additional restoration and habitat improvement projects that would increase the overall health of the watershed.

Reclaimed water could be provided to the project sites by the City of Riverside's Regional Water Quality Control Plant via the "Purple Pipe" project, which could supply a drought-proof water supply for the restoration and mitigation sites. The Purple Pipe project could also supply additional flows to the Anza Creek and Lower Hole Creek sites to increase water flows in these creeks. As an added benefit, the recycled water that would be delivered from the treatment plant to the head of each tributary would supply a much cleaner source of water than the current flow, which is impaired by runoff constituents. The status of this recycled water pipeline project is currently unknown and there is uncertainty regarding the feasibility of using reclaimed water to provide supplemental flows at restoration sites because the reclaimed water would need to be dechlorinated before being discharged into each project site. However, it is likely that if the Purple Pipe project was approved and constructed, the groundwater pumps proposed as part of the proposed project would become a backup water source in case of service interruption of the Purple Pipe, or to occasionally serve as a source of supplemental water for flushing flows rather than the proposed project's primary source of water in the future. In this scenario, there would be a lessened effect on the groundwater basin supplies due to the use of recycled water over the pumped groundwater, thus reducing the effects of the proposed project regarding the need for water supply at the Old Ranch Creek and Hidden Valley Creek sites. In addition, use of the recycled water at Anza Creek and Lower Hole Creek would supplement existing flows and create a greater chance for recharge within the streams as well as an additional source of water for the Santa Ana sucker populations and riparian habitats that support other wildlife species. Use of recycled water would result in a positive effect for long-term use on these sites.

Similarly, the Rialto Change Petition could potentially supply recycled water to the project area, although the delivery of the water has yet to be determined. The reuse of Rialto's recycled water would reduce the demand for both imported water and groundwater in areas that could be served by the Change Petition project. As mentioned for the Purple Line project, the Rialto Change Petition project could lessen effects on the groundwater supplies due to the reuse of water and would result in a positive effect for long-term availability of water that could be used by the proposed project. The Rialto Change Petition has been filed with the State Water Resources Control Board under Wastewater Change Petition WW0079.

Some of the projects in the cumulative list also include roadway improvements, infrastructure improvements, residential development, and commercial development, which could increase

impervious surfaces in the watershed and utilize additional water supplies. However, these projects would be required to comply with the local municipal separate storm sewer system permits and implement Low-Impact Development best management practices (BMPs) and potentially post-construction BMPs to reduce the discharge of stormwater and pollutants associated with those developments. As such, impacts would be expected to be less than significant with compliance with local stormwater regulations. Because the proposed project along with other cumulative restoration projects in the watershed would help to increase water supply and enhance existing natural environments, the proposed project's cumulative effects is anticipated to result in an overall net positive benefit to the watershed in terms of water supply and ecosystem health.

Significance Determination: The proposed project's hydrology and water quality impacts would not result in a cumulatively considerable contribution to a cumulative impact.

Noise

Cumulative noise or vibration impacts can occur when two or more projects are under construction simultaneously or generate operational noise or vibration at the same time. Multiple sources of noise may create a combined noise effect. Because noise and vibration are localized effects that decrease with distance from the source, significant cumulative impacts do not typically occur unless two or more projects are in close proximity to a single receiver. The presence of existing natural or manmade barriers (hills, topography, walls, buildings, etc.) between a project site and a receiver will increase the rate of noise reduction over distance and serve to further reduce any cumulative noise levels. Most construction equipment noise would attenuate to reasonable background levels at a distance of approximately 1,500 feet or 0.3 mile. As such, the majority of the projects listed in Table 4-1 are well beyond this distance and would not combine to result in cumulative noise impacts.

Related projects in the vicinity of the noise- and vibration-sensitive receivers considered in this EIR would include construction activities that could occur simultaneously with construction of the proposed project, depending on project timing. For the reasons discussed above, construction noise and vibration levels at any single receiver are typically dominated by the closest construction activity. As a result, the chances of construction noise from more distant related project sites making a substantial contribution to overall noise levels at the same receiver during construction of the proposed project is generally considered to be low. Nonetheless, incremental increases in total construction and/or maintenance noise levels could occur.

Because vibration impacts are assessed based on instantaneous peak levels of peak particle velocity (PPV), worst-case groundborne vibration levels from construction are generally determined by whichever individual piece of equipment generates the highest vibration levels. As a result, the vibrations from multiple construction sites, even if they occur in close proximity, do not generally combine to raise the maximum PPV, and the cumulative impact is no more severe than the impact from the largest individual contribution. This fact, coupled with the results of the vibration analyses reported in this EIR (i.e., groundborne vibration that is barely perceptible at the closest receivers during the Tributaries Restoration Project and Mitigation Reserve Program Phase I, and that is mitigated to less-than-significant levels during the Expanded Mitigation Reserve Program Phase II), means that the project would not contribute to any cumulatively considerable groundborne vibration impact and the cumulative impact would be less than significant.

The proposed project's groundwater pumps may not continue to be used as part of the proposed project should recycled water become available to the Hidden Valley Creek and Old Ranch Creek

restoration sites through a separate project, the Purple Pipe Project. Should the Purple Pipe Project be constructed prior to or concurrent with the proposed project, it may eliminate the need for construction of the groundwater wells and would remove the associated impacts of the proposed project. If the Purple Pipe Project is constructed after construction of the groundwater wells, the groundwater wells would become a redundant source of water for the sites and would not be operated on a consistent basis. Therefore, should the Purple Pipe Project be implemented, depending on the timing, it could lessen the construction and operational noise impacts associated with the proposed project. Therefore, the cumulative effect of the Purple Pipe Project would result in an overall reduction of noise levels in the project area associated with the proposed project.

For Anza Creek and Old Ranch Creek, projects that would have the potential to result in cumulative effects include Upper Santa Ana River Habitat Conservation Plan projects, specifically Pipelines-Recycled. This project would be undertaken by the City of Riverside. The Pipelines-Recycled project would result in construction of new pipelines. These activities would be anticipated to result in higher levels of noise for construction given the types of construction activities expected from construction of new pipelines and could combine with the proposed project to create higher than usual noise levels in the project area. However, operational impacts are anticipated to be negligible.

For Lower Hole Creek, projects that would have the potential to result in cumulative effects include Upper Santa Ana River Habitat Conservation Plan projects, specifically Riverside Corona Feeder Project; Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement Project; and Santa Ana River Conservation and Conjunctive Use Project, specifically Santa Ana River Arundo Removal. These activities would be undertaken within the cities of Riverside and Jurupa Valley. All four of these projects are unlikely to undergo construction at the same time. However, the Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement Project and Santa Ana River Arundo Removal could combine with the proposed project to result in a cumulative noise effect on sensitive receptors in the city of Jurupa Valley. The Riverside Corona Feeder Project and the proposed project could combine with the proposed project to result in a cumulative construction noise effect on sensitive receptors in the city of Riverside. However, operational impacts are anticipated to be negligible.

For Hidden Valley Creek, projects that would have the potential to result in cumulative effects include Proposed Recreation Area at 64th and Downey; the Santa Ana River Conservation and Conjunctive Use Project, specifically Santa Ana River Arundo Removal; and Hidden Valley Wetland Ponds Project. Geographically, these projects are located on opposite ends of Hidden Valley Creek but could combine to result in cumulative noise effects with the proposed project to affect sensitive receptors in the cities of Riverside and Jurupa Valley. However, operational impacts are anticipated to be negligible.

An additional project that could affect sensitive receptors adjacent to the Lower Hole Creek and Hidden Valley Creek restoration project sites, RTRP, is located near the residential areas along Bradford Street and Auld Street in the city of Riverside, and temporary construction impacts could be significant if pile driving was needed. However, alternate methods such as drilled piles, shoring sleds and shields, and hydraulic jacks would be used by the RTRP to shore walls instead of using a pile driver. As such, the impact of temporary construction noise from RTRP Distribution Line Relocation #7 would be less than significant. As RTRP construction at this location would last only a few days and noise would cease after construction is complete, construction impacts are anticipated to be short term and minimized with alternative methods of construction and implementation of mitigation measures. The RTRP could combine with the proposed project to result in a cumulative construction noise effect on sensitive receptors in the city of Riverside. However, operational

impacts are anticipated to be negligible for any form of infrequent maintenance that might be required.

All construction activities from the proposed project would be restricted to the hours permitted by the local municipal codes and, as a result, would be exempt from local noise limits. By definition, any simultaneous construction and/or maintenance activity from related projects would have to occur during the same hours and would also be exempt. Consequently, there would be no significant construction noise impact from either the individual or combined activities and the cumulative noise impact would be less than significant.

Many of the closest related projects in the vicinity of the noise- and vibration-sensitive receivers considered in this EIR are restoration projects that would not include permanent operational noise sources. As a result, there would be no cumulative operational noise impacts associated with those projects. Other related projects would include new or altered operational noise sources such as mechanical equipment (wells, pump stations, HVAC equipment, etc.) or traffic. The proposed project would generate negligible traffic, so cumulative traffic noise impacts would not occur. As stated in Chapter 6, Section 6.1.13, *Transportation*, the construction phase of the project is not expected to result in a noticeable increase in traffic volumes. After the completion of the restoration and mitigation activities and maintenance process, the project is not anticipated to generate any additional vehicular traffic and the amount of vehicle miles traveled would not noticeably change levels of service from existing conditions. The receivers that are potentially exposed to operational noise (well pumps/motors) from the proposed project are all located along the Santa Ana River. Related projects located outside of the Santa Ana River are separated from those receivers by distances of approximately 500 to 1,500 feet, as well as intervening buildings and topography, which would serve to eliminate substantial cumulative noise impacts related to those projects. Although the details are currently unknown, there is the possibility that related water or electrical infrastructure projects could introduce new noise-generating equipment in the vicinity of noise-sensitive receivers affected by the proposed project. In this scenario, operational noise levels from the proposed and related projects could combine to increase noise levels at nearby receivers. The cumulative operational noise among these projects would likely vary from month to month, and from year to year. As with the proposed project, each of these future projects would be required to mitigate potentially significant noise impacts on sensitive receptors. Because noise mitigation measures for the proposed project would ensure compliance with local municipal code noise limits and would minimize the potential increase in ambient noise, the proposed project's contribution to cumulative operational noise levels would not be substantial and the cumulative impact would be less than significant.

Significance Determination: The proposed project's noise impacts would not result in a cumulatively considerable contribution to a cumulative impact.

Population and Housing

Homelessness and homeless people living in public rights-of-way or in natural open space or recreational areas is a concern throughout the state of California, the County of Riverside, the city of Riverside, and specifically near the Santa Ana River in the project area.

In general, implementation of the proposed project is not anticipated to have any impact on population or housing in the surrounding area, nor is it anticipated to result in the displacement of any permanent residences. Therefore, the project would not contribute to any significant cumulative

impacts related to population or housing. However, the Santa Ana River within and near the project area contains approximately 120 homeless encampments, some of which would be removed as part of the proposed restoration activities. These encampments are illegally constructed in public open space areas and in areas not zoned or designated for residential uses by the County of Riverside and the cities of Riverside and Jurupa Valley. The City of Riverside and City of Jurupa Valley in coordination with the County of Riverside and other local agencies have established homeless programs to address the relocation of homeless people to suitable housing along with human and social service needs. As such, the proposed project would not contribute to significant cumulative population and housing impacts.

Significance Determination: The proposed project's population and housing impacts would not result in a cumulatively considerable contribution to a cumulative impact.

Recreation

The proposed project involves improvements to open space areas that are consistent with County of Riverside, City of Riverside, and City of Jurupa Valley general plans and municipal codes.

The proposed project would create beneficial impacts on recreation through restoration activities and educational improvements. Future enhancements proposed by the expansion of the Santa Ana River Trail would create benefits to recreationalists enjoying the expansion of recreational opportunities along the Santa Ana River.

Because the project would result in beneficial impacts on recreation, the project would not contribute to cumulative recreation impacts.

Significance Determination: The proposed project's recreation impacts would not be cumulatively considerable.

Tribal Cultural Resources

No tribal cultural resources (TCRs) have been identified on the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I or within the boundary of the Expanded Mitigation Reserve Program Phase II or within the immediate vicinity. Any cumulative impacts on TCRs would be reduced by compliance with applicable regulatory requirements in the event of an unanticipated discovery. In addition, in association with CEQA review, related projects would be required to comply with the consultation requirements of Assembly Bill 52 to determine and mitigate any potential impacts on TCRs. Mitigation measures TCR-1, CUL-1, CUL-2, CUL-3, CUL-4, CUL-5 (if necessary), and CUL-6 (if necessary) would be implemented during construction of the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I and the Expanded Mitigation Reserve Program Phase II to reduce potential project impacts on TCRs. Therefore, cumulative impacts on TCRs would be less than significant and would not be cumulatively considerable.

Significance Determination: The proposed project's TCR impacts would not result in a cumulatively considerable contribution to a cumulative impact.

Utilities and Service Systems

Generally, the listed cumulative projects would not result in new construction with a substantial increase in demand for utilities or public services. Several of the projects identified would result in an increase of water supplies regionally, including the Upper Santa Ana River Habitat Conservation Plan, Riverside North Aquifer Storage and Recovery Project, Sterling Natural Resource Center, Purple Pipe, Arlington Basin Water Quality Improvement Project, Riverside Corona Feeder Project, Santa Ana River Conservation and Conjunctive Use Project, and Clean Water Factory. Collectively, these projects would improve the Santa Ana River watershed's water supply resiliency and reliability by implementing various watershed-wide projects that would increase available dry-year yield from local groundwater basins. In addition, several other projects, including Hidden Valley Wetland Ponds, Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement Project, and Santa Ana River Arundo Removal would result in further restoration and habitat improvement that would increase the overall health of the watershed. While these projects would have construction impacts, overall these projects would result in a net positive benefit to the watershed in terms of water supply and ecosystem health.

Similar to the proposed project, the Hidden Valley Wetland Ponds Project, Santa Ana Sucker Habitat Protection and Beneficial Use Enhancement Project, and Santa Ana River Arundo Removal would also have a fairly minimal demand for the provision of water supplies and would generally not have a permanent need for a significant source of water. In addition, some cumulative projects would serve to improve or replace old or failing water utility infrastructure in the area, such as the Riverside Corona Feeder Project, Facilities Maintenance, Arlington Production Wells and Pipeline, and Western Pump Station, further enhancing the resiliency of the water supply system.

Reclaimed water could be provided to the project sites by the City of Riverside's Regional Water Quality Control Plant via a conceptual recycled water project, "the Purple Pipe," that could supply the needed flow requirements for the restoration and mitigation sites. The status of this pipeline project is currently unknown and there is uncertainty regarding the feasibility of using reclaimed water to provide supplemental flows at restoration sites because the reclaimed water would need to be dechlorinated before being discharged into each project site. However, it is likely that if the Purple Pipe project was approved and constructed, the groundwater pumps proposed as part of the proposed project would become a redundant form of water supply to the restoration sites and thus would be used infrequently as a backup water supply. In this scenario, there would be a lessened effect on the groundwater basin supplies due to the use of recycled water over the pumped groundwater, thus reducing the effects of the proposed project regarding the need for water supply at the Old Ranch Creek and Hidden Valley Creek sites. Use of recycled water would result in a positive effect for long-term use on these sites.

The other nearby Hidden Valley Wetland Ponds project site would have altered natural hydrology from excavation to provide groundwater connection to the site and levee removal to restore connection to the floodplain. However, there is also potential to provide supplemental flows from either refurbished groundwater pumps, new groundwater pumps, or reclaimed water from the Purple Pipe project delivered to the site to supplement natural flows at the proposed project sites. Other projects, including Rialto's Change Petition, may propose to reduce wastewater flow to the Santa Ana River upstream. Temporary irrigation would occur during the planting and establishment phase of the proposed project. Because the Tributaries Restoration Project and the Mitigation Reserve Program would not result in the need for new systems or substantial alterations to existing systems that would have environmental impacts, the proposed project in conjunction with other

reasonably foreseeable projects would not contribute to cumulative utilities and service systems impacts and are anticipated to have an overall positive effect on the regional water supplies for the Santa Ana River watershed.

Significance Determination: The proposed project's water supply impacts would not be cumulatively considerable.

Chapter 5

Other CEQA Considerations

This chapter presents the evaluation of other types of environmental impacts required by the California Environmental Quality Act (CEQA) that are not covered within the other chapters of this Environmental Impact Report (EIR). The other CEQA considerations discusses mandatory findings of significance regarding cumulative impacts pursuant to State CEQA Guidelines §15065(a), significant and unavoidable adverse impacts, significant irreversible environmental changes that would be caused by the project, and growth-inducing impacts.

5.1 Significant and Unavoidable Adverse Environmental Impacts

As required by Section 15126.2 (b) of the State CEQA Guidelines, an EIR must identify any significant environmental effects that cannot be avoided if the proposed project is implemented. Chapter 3, *Impact Analysis*, provides a description of the potential environmental impacts of the project and recommends various mitigation measures to reduce impacts, to the extent feasible. Chapter 4, *Cumulative Impacts*, determines whether the incremental effects of this project would be significant when viewed in connection with the effects of past projects, other current projects, and probable future projects. After implementation of the recommended mitigation measures, all of the impacts associated with development of the proposed project would be reduced to a less-than-significant level. The proposed project would not result in significant and unavoidable impacts.

5.2 Significant Irreversible Environmental Effects

State CEQA Guidelines §15126.2(c) provides the following direction for the discussion of irreversible changes:

Uses of nonrenewable resources during the initial and continued stages of the project may be irreversible since a large commitment of such resources makes removal or nonuse thereafter unlikely. Primary impacts and, particularly, secondary impacts (such as highway improvement which provides access to a previously inaccessible area) generally commit future generations to similar uses. Also irreversible damage can result from environmental accidents associated with the project. Irretrievable commitments of resources should be evaluated to assure that such current consumption is justified.

Generally, a project would result in significant irreversible environmental changes if:

- The primary and secondary impacts would generally commit future generations to similar uses;
- The project would involve a large commitment of nonrenewable resources;
- The project involves uses in which irreversible damage could result from any potential environmental accidents associated with the project; or
- The proposed consumption of resources is not justified.

The proposed project would result in an irreversible commitment of energy resources, primarily fossil fuels for heavy construction equipment and materials processing (e.g., fuel, oil, natural gas, gasoline), and the consumption or destruction of other nonrenewable or slowly renewable resources (e.g., gravel, wood, water). These commitments of resources are temporary and are not large.

The proposed project would construct new channels, restore existing channels, excavate floodplains, remove nonnative habitat, and add gravel to channel sections. As construction progresses, the previously disturbed areas would be restored with native vegetation to support overall ecological value. Furthermore, the Expanded Mitigation Reserve Program Phase II is proposed that would convert the footprint of the project and surrounding restored lands to a Conservation Bank or Advance Mitigation sites managed in perpetuity by the San Bernardino Valley Municipal Water District (Valley District) or its contracted entity. These changes are positive aspects of the project that would add value to the ecology and public recreational value of the landscape.

Construction activities related to the habitat restoration of the project areas would not involve substantial quantities of building materials and energy, some of which are nonrenewable. The proposed habitat restoration would temporarily increase the local demand for finite energy resources, such as petroleum and gravel. Use and consumption of such materials and energy is associated with any restoration project, and these commitments are not unique or unusual to this project or region. The proposed project would also result in a temporary increase in automobile and truck trips during construction and minor permanent increases in truck trips during operation, specifically for long-term management and maintenance of the sites as well as park ranger patrols of the project areas to deter unauthorized visitors to the site from disturbing and/or destroying the project area. These additional trips, plus construction activities related to restoration at the sites, would also require the use of fossil fuels and other nonrenewable resources, such as oil and petroleum products for the construction equipment. The quantity of construction materials used during implementation (e.g., boulders, large woody debris, gravels, cobbles) of the proposed project would not result in a significant impact because (1) the natural materials have been recycled from past Valley District projects or sourced from other local projects, and (2) these types of resources are anticipated to be in adequate supply into the foreseeable future. Therefore, impacts due to irretrievable and irreversible commitments of resources would be less than significant.

5.3 Growth-Inducing Impacts

The State CEQA Guidelines (§15126.2(d)) require that an EIR evaluate the growth-inducing impacts of a proposed action. Section 15126.2(d) calls for the EIR to:

Discuss the way in which a proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment. Included in this are projects which would remove obstacles to population growth (a major expansion of a wastewater treatment plant might, for example, allow for more construction in service areas). Increases in the population may tax existing community service facilities, requiring construction of new facilities that could cause significant environmental effects. Also discuss the characteristic of some projects which may encourage and facilitate other activities that could significantly affect the environment, either individually or cumulatively. It must not be assumed that growth in any area is necessarily beneficial, detrimental, or of little significance to the environment.

This analysis evaluates whether the proposed project would directly or indirectly induce economic, population, or housing growth in the surrounding environment.

5.3.1 Population

A project would directly induce growth if it would involve development of new housing or remove barriers to population growth, for example, by changing a jurisdiction's general plan and zoning ordinance to allow new residential development to occur. The proposed project would not involve the development of new housing, nor would it change the general plan or zoning ordinance in a way that would encourage and facilitate offsite economic activities. The growth anticipated in the region has been identified in local general plans prepared by local land use agencies and municipalities, including the County of Riverside and the cities of Riverside and Jurupa Valley. Implementation of the proposed project would not have direct growth inducement effects, as it does not propose development of new housing that would attract additional population, nor would project construction extend roads or other infrastructure that could indirectly induce growth. The proposed project's impact on local populations was analyzed in Section 3.10, *Population and Housing*, of this EIR. Also refer to Section 3.10, *Population and Housing*, for a description of population projections for the project area. Project construction is not expected to involve employment opportunities substantially beyond the level normally available to construction workers in the area, and, in general, workers are expected to be drawn from the local labor pool. Therefore, the proposed project would not directly induce growth.

A project would indirectly induce growth if it would increase the capacity of the infrastructure in an area where the available public services meet existing demand. Examples would be increasing the capacity of a sewer treatment plant or a roadway beyond what is needed to meet existing demand. The proposed project is designed to improve the tributaries to the Santa Ana River and restore degraded native habitat within the project area such that it would support a variety of aquatic and terrestrial species in perpetuity. As such, the capacity of existing infrastructure in the project area would not be expanded to accommodate the proposed project. Therefore, the proposed project would not indirectly induce population growth.

5.4 Mandatory Findings of Significance

State CEQA Guidelines §15065(a) requires a finding of significance if a project has the potential to affect the quality of the environment, affect fish or wildlife species, affect historic resources, affect long-term environmental goals, create cumulatively considerable impacts, or create substantial adverse effects on human beings.

5.4.1 Quality of the Environment

State CEQA Guidelines §15065(a)(1) requires a finding of significance if a project "has the potential to substantially degrade the quality of the environment." In practice, this is the same standard as a significant effect on the environment, which is defined in State CEQA Guidelines §15382 as "a substantial or potentially substantial adverse change in any of the physical conditions within the area affected by the project including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance."

As described in Chapter 3, *Impact Analysis*, the proposed project would have no impact or a less-than-significant impact with respect to agricultural resources, air quality, greenhouse gases, hazards and hazardous materials, hydrology and water quality, population and housing, recreation, and utilities and service systems. Environmental impacts associated with biological resources, cultural resources, geology, soils and paleontological resources, noise, and tribal cultural resources are considered less than significant or less than significant with mitigation.

5.4.2 Impact on Species

State CEQA Guidelines §15065(a)(1) states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to (1) substantially reduce the habitat of a fish or wildlife species; (2) cause a fish or wildlife population to drop below self-sustaining levels; or (3) substantially reduce the number or restrict the range of an endangered, rare, or threatened species. Section 3.3, *Biological Resources*, of this EIR fully addresses any impacts that might relate to the reduction of a fish or wildlife habitat, reduction of fish or wildlife populations, and reduction or restriction of the range of special-status species as a result of project implementation. The proposed project would have either no impact, a less-than-significant impact, or a less-than-significant impact with mitigation with respect to the potential to substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal.

5.4.3 Impacts on Historical Resources

State CEQA Guidelines §15065(a)(1) states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to eliminate important examples of a major period of California history or prehistory. State CEQA Guidelines §15065(a)(1) amplifies Public Resources Code Section 21001(c) by requiring preservation of major periods of California history for the benefit of future generations. It also reflects the provisions of Public Resources Code Section 21084.1 in requiring a finding of significance for substantial adverse changes to historical resources. State CEQA Guidelines §15064.5 establishes standards for determining the significance of impacts on historical resources and archaeological sites that are a historical resource. Section 3.4, *Cultural Resources*, of this EIR fully addresses impacts related to California history and prehistory, historic resources, archaeological resources, and paleontological resources. The proposed project would have either a less-than-significant impact or a less-than-significant impact with mitigation with respect to the potential to eliminate important examples of the major periods of California history or prehistory.

5.4.4 Long-Term Impacts

State CEQA Guidelines §15065(a)(2) states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the project has the potential to achieve short-term environmental goals to the disadvantage of long-term environmental goals. The significant irreversible environmental effects analysis described above addresses the short-term and irretrievable commitment of natural resources to ensure that the consumption is justified on a long-term basis. Lastly, the growth-inducing impacts analysis described above identifies any long-term environmental impacts caused by the proposed project with respect to economic or population growth.

5.4.5 Impacts on Human Beings

State CEQA Guidelines §15065(a)(4) states that a lead agency shall find that a project may have a significant effect on the environment where there is substantial evidence that the environmental effects of a project will cause substantial adverse effects on human beings, either directly or indirectly. As described in Section 3.7, *Hazards and Hazardous Materials*, and Chapter 6, *Effects Found Not Significant*, the proposed project would have no impact or a less-than-significant impact associated with human beings such as seismic hazards (geology and soils) and hazardous and hazardous materials. Environmental impacts associated with water quality, noise, and utilities and service systems are considered less than significant or less than significant with mitigation.

6.1 Introduction

In the course of this evaluation, certain impacts of the project were found to be less than significant due to the inability of a project of this scope to create such impacts or the absence of project characteristics producing effects of this nature. This chapter provides a brief description of effects found not to be significant based on the analysis conducted through the Environmental Impact Report (EIR) preparation process. Also included are relevant provisions of the California Environmental Quality Act (CEQA) thresholds and Appendix G checklist questions that were added as a part of the updated State CEQA Guidelines that became effective on December 28, 2018, after the release and publication of the Notice of Preparation/Initial Study for the proposed project in July 2018 (Appendix D). For the convenience of the reader, such changes in CEQA thresholds and Appendix G questions made in 2018 are noted with parentheticals indicating, where appropriate, that the threshold is a “modified CEQA threshold” or a “new CEQA threshold.” Some thresholds and Appendix G questions were deleted in 2018, and those are also labeled as such.

6.1.1 Aesthetics

Would the project have a substantial adverse effect on a scenic vista? *Level of Significance: No impact.*

The proposed project involves restoration and mitigation activities adjacent to and associated with the Santa Ana River in the cities of Riverside and Jurupa Valley and Riverside County. According to the City of Riverside General Plan EIR Aesthetics section, “The most notable scenic vistas in the City include the La Sierra/Norco Hills, Sycamore Canyon Wilderness Park, and Box Springs Mountain Regional Park” (City of Riverside 2007a). Because the Santa Ana River and floodplain are visible from these scenic vistas, the proposed project would also be visible from these scenic vistas. Proposed restoration and mitigation activities would include invasive plant removal, removal of homeless encampments and trash, native habitat plantings, mitigation program implementation, and stream restoration such that in the long term, public views of the sites would include views of restored native habitat instead of degraded habitat including invasive plant species and homeless encampments throughout the project area. The City of Jurupa Valley Draft General Plan (2017) designates the Hidden Valley Creek site as a scenic resource within the Santa Ana River Overlay zone, although it is not designated as a scenic vista.

According to the County of Riverside General Plan Jurupa Area Plan (2015a), the Santa Ana River represents a significant recreational, habitat, and visual resource. Large swaths of open space line the Santa Ana River corridor, providing an expansive natural buffer between the cities of Riverside and Jurupa Valley. In the project area, interconnecting trails provide access to a scenic wildlife setting. The project sites are within the Santa Ana River Corridor and any new development is encouraged to design for common access and views to and from the Santa Ana River (JURAP 7.3). Although not within the project sites, Mount Rubidoux serves as a prominent visual landmark for recreationalists and residents near the project area.

The project would not have a substantial adverse effect on scenic vistas of the project sites due to the short-term, phased nature of construction activities associated with the tributaries restoration and mitigation program implementation. In the long term, construction and operational activities of the project, specifically restoration and mitigation of the project area, would improve scenic views by improving site conditions as compared to the existing setting. No impact would occur.

Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings along a scenic highway? *Level of Significance: Less-than-significant impact.*

The Santa Ana River floodplain's native habitat is considered a scenic visual resource. Views of the Santa Ana River floodplain from neighboring residential areas and the Santa Ana River Trail are described in the County of Riverside General Plan Jurupa Area Plan (2015a) as a "scenic wildlife setting" and the cities of Riverside and Jurupa Valley General Plans as "scenic." According to the City of Riverside General Plan, the Santa Ana River watercourse and riverbed are described as prominent scenic resources extending along the City's northern boundary. "The Santa Ana River is a place of natural beauty...a place of significant natural habitat for many species of birds and other animals, as well as being a prominent visual landmark for visitors and residents" (City of Riverside 2007a). Within and adjacent to the proposed project area, Van Buren Boulevard is identified in the City of Jurupa Valley Draft General Plan (2017) as a scenic corridor. As described in the City of Jurupa Valley Draft General Plan, the proposed project is located along the southern boundary of Jurupa Valley where the Santa Ana River represents a significant recreational, habitat, and visual resource. The Santa Ana River drains southwest toward Prado Dam, and serves as a prominent natural buffer between Jurupa Valley and the cities of Riverside and Norco in Riverside County. Several natural and channelized drainage courses connect with the river. In addition to their fundamental water-related functions, these watercourses provide visual corridors through developed land and link open spaces together.

There are no state-designated scenic highways, vistas, or other resources in the portions of the project sites located in either the County or the City of Riverside, and no impacts are anticipated. Views would be improved once cleanup of the sites and restoration and mitigation have been completed to improve views from scenic resources like the Santa Ana River Trail to the project sites. The City of Jurupa Valley Draft General Plan (2017) designates the Hidden Valley Creek site as a scenic resource within the Santa Ana River Overlay zone, and Van Buren Boulevard is designated as a scenic corridor. Views of trees and rock outcroppings from Van Buren Boulevard would also be improved through the implementation of this project. The proposed project includes restoration and mitigation activities to enhance habitat within the Santa Ana River floodplain. Additionally, there are no historic buildings within the project sites that would be directed affected by project activities. Therefore, the proposed project would improve designated scenic resources compared with existing conditions. As such, the proposed project would not substantially damage scenic resources along a state scenic highway or a trail. Impacts would be less than significant.

Would the project substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality? *Level of Significance: Less-than-significant impact. (Modified CEQA Threshold)*

The Santa Ana River provides opportunities for recreation uses in both developed and undeveloped locations. In the immediate vicinity of the restoration and mitigation sites, developed locations and features include Martha McLean-Anza Narrows Park, Rancho Jurupa Regional Park, Hidden Valley Wildlife Area, and the Santa Ana River Trail. Undeveloped areas are found throughout much of the river area and may be accessed from existing parks and trails. The Santa Ana River Trail also traverses the project area. The project sites are natural features surrounded by urban areas, and these natural Santa Ana River areas can be viewed by people adjacent to these sites.

The project sites are currently natural but disturbed areas, with large areas of invasive species and the influence of homeless encampments scattered throughout the project sites. Views of the sites during the construction phase would not substantially affect a scenic vista because site disturbance activities would be temporary, phased, and limited to invasive species removal, grading, watering, planting, and other associated improvements.

Habitat enhancement, implementation of a mitigation program, and public education included in the proposed project have the potential to increase the use of the existing nearby recreational resources that could be viewed from distinct vantage points. Through the removal of invasive species, restoration of native habitat, removal of the existing homeless encampments and trash from the sites, and the potential for future mitigation, the existing visual character and quality of the sites would be improved after implementation. The proposed project would also result in beneficial impacts on the Hidden Valley Nature Center, Santa Ana River Trail, and other natural areas with public access as a result of site improvements that improve the visual quality of the project sites. Implementation of the proposed project would require the collaboration of San Bernardino Valley Municipal Water District (Valley District), the cities of Riverside and Jurupa Valley, Riverside County, and other stakeholder agencies to ensure that the homeless population in the proposed project sites would not relocate to adjacent natural areas where additional natural areas could be disturbed. As a result, the proposed project would not substantially degrade the character or quality of the sites or their surroundings, and impacts related to visual quality of the project sites would be less than significant.

Would the project create a new source of substantial light or glare that would adversely affect daytime or nighttime views in the area? *Level of Significance: No impact.*

The project would involve the removal of invasive species, implementation of a mitigation program, and restoration of native habitat. The proposed project would not install any lighting, nor would the implementation, monitoring, and maintenance effort require any lighting because all such work would be conducted during daylight hours, consistent with the codes and ordinances of Riverside County and the cities of Riverside and Jurupa Valley. Furthermore, no glare would be produced because there would be no reflective surfaces proposed as part of the restoration or mitigation effort. As there would be no structures or lighting constructed in the project area, no impact from lighting or glare would occur.

6.1.2 Agricultural and Forestry Resources

Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract? *Level of Significance: No impact.*

The Hidden Valley Creek, Old Ranch Creek, and Lower Hole Creek areas of the Tributaries Restoration Project and Mitigation Reserve Program Phase I component and, similarly, the Expanded Mitigation Reserve Program Phase II are within and adjacent to areas of Farmland of Local Importance per Farmland Mapping and Monitoring Program data for Riverside County. There are 26.42 acres of Farmland of Local Importance within three of the project sites: Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek. According to the City of Jurupa Valley Draft General Plan, a portion of the Hidden Valley Creek site is designated as Unique Farmlands (Figure 4.13 of the City of Jurupa Valley Draft General Plan, 2017). Although a portion of land in the Hidden Valley Creek site is designated as Unique Farmlands, this area is zoned for W-1 (Watercourse, Watershed, and Conservation Areas) by the City of Jurupa Valley and no agricultural activities occur in the area. Refer to Section 3.1, *Agricultural and Forestry Resources*, for additional details regarding any conversion of important farmland to nonagricultural use.

The project areas are not zoned for agricultural uses and there are no Williamson Act contracts on the project sites. No agricultural activities currently occur in these areas and project activities in the project sites would be limited to removal of invasive species, implementation of a mitigation program, and restoration of native habitat. There is no existing zoning for agricultural use or Williamson Act contracts in the project sites or surrounding areas, and no conflicts would occur. Therefore, no impacts would occur.

Would the project conflict with existing zoning for, or cause rezoning of forest land (as defined in Public Resources Code Section 12220(g)), timberland (as defined by Public Resources Code Section 4526), or timberland zoned Timberland Production (as defined by Government Code Section 51104(g))? *Level of Significance: No impact.*

There is no existing zoning for forest land, timberland, or a Timberland Production Zone within the project sites; therefore, the project would not conflict with existing zoning or cause rezoning of forest land or timberland. No impact would occur.

Would the project result in the loss of forest land or conversion of forest land to non-forest use? *Level of Significance: No impact.*

The project would not result in the loss of forest land or conversion of forest land to non-forest use because there is no forest land within the project sites. No impact would occur.

Would the project involve other changes in the existing environment that, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use? *Level of Significance: No impact.*

The project would not result in conversion of farmland to non-agricultural use or conversion of forest land to non-forest use because the project would not change the existing zoning, would not convert any farmland to other uses, and there is no forest land within the project sites. No impact would occur.

6.1.3 Biological Resources

Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance? *Level of Significance: Less-than-significant impact.*

Riverside County Ordinance No. 559 Regulating the Removal of Trees, Section 1, states that no person shall remove any living native tree on any parcel or property greater than 0.5 acre in size, located in an area above 5,000 feet in elevation and within the unincorporated area of the County of Riverside, without first obtaining a permit to do so, unless exempted by the provisions of Section 4 of this ordinance. The proposed project would not occur in any areas above 5,000 feet in elevation and, as such, would not conflict with Riverside County Ordinance No. 559. All other local policies protecting biological resources, including the County of Riverside Oak Tree Management Guidelines and the Stephens' Kangaroo Rat Mitigation Fee Ordinance (Riverside County Ordinance No. 663.10), are set forth and evaluated in Section 3.3, *Biological Resources*.

According to the Jurupa Area Plan that is part of the County of Riverside General Plan (2015a), there are individual polices for wetlands and wetlands functions (JURAP 16.1), Santa Ana woolly-star (JURAP 16.2), many-stemmed dudleya (JURAP 16.3), least Bell's vireo and southwestern willow flycatcher (JURAP 16.4), continuous linkage along the Santa Ana River (JURAP 16.5), habitat blocks consisting of coastal sage scrub, chaparral, and grasslands to support known locations of coastal California gnatcatcher (JURAP 16.6), grassland and coastal sage scrub supporting known populations of San Bernardino kangaroo rat (JURAP 16.7), and grasslands adjacent to sage scrub for foraging habitat for raptors (JURAP 16.8). The evaluation of relevant individual biological resources is provided in Section 3.3, *Biological Resources*.

The proposed project would involve the removal of invasive species, implementation of a mitigation program, and restoration of native habitat. The project would not result in the removal of native trees or oak trees and would be required to pay any required Stephens' kangaroo rat mitigation fee, specifically \$500.00 per gross acre of the parcels proposed for development per Riverside County. Therefore, no conflicts with local tree preservation policies or ordinances, including but not limited to the County of Riverside Tree Removal Ordinance, County of Riverside Oak Tree Management Guidelines, and the Stephens' Kangaroo Rat Mitigation Fee Ordinance, are anticipated under the proposed project. The proposed project includes enhancement of water, vegetation, and wildlife habitat in open space and would not conflict with goals and principles of any of the above-mentioned local policies or ordinances to protect biological resources. Impacts would be less than significant.

6.1.4 Energy

Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation? *Level of Significance: No impact. (New CEQA Threshold)*

The Tributaries Restoration Project and Mitigation Reserve Program Phase I component would require electricity for operation of the groundwater pumps or wells. Average daily operations are estimated to use approximately 268 kilovolts per day or 98 megawatts per year in perpetuity if water is provided exclusively from groundwater through installation of a new well. Electricity

needed to operate the groundwater pumps or wells would be provided by Southern California Edison from a nearby existing power line that would be extended to the groundwater pump locations; it is anticipated that there would be two or three for the project sites. The groundwater pumps would require electricity from the local grid. Valley District would coordinate with Southern California Edison to construct the necessary improvements to access the power. Although the proposed project would result in a commitment of energy resources in the form of diesel fuel, gasoline, and electricity during construction and operation, the project would not result in the wasteful, inefficient, or unnecessary consumption of energy. These types of resources are anticipated to be in adequate supply into the foreseeable future and their use under the proposed project would not differ from the use of these resources for any other type of project.

Included in the cumulative project analysis, a nearby recycled water project may be implemented in the future and would provide recycled water to the project sites, thereby reducing the need for groundwater and its associated electricity use to operate the groundwater pumps. If the City of Riverside Recycled Water Project (Purple Pipe Project) is approved and constructed, the groundwater pumps would no longer be utilized regularly to supply water to the project sites and would thereby become a backup source of water for the restoration and mitigation sites.

The future implementation of the Expanded Mitigation Reserve Program Phase II would involve individual mitigation and conservation projects that could be added into the Expanded Mitigation Reserve Program Phase II within this project area. The construction of the restoration activities associated with the Expanded Mitigation Reserve Program Phase II would be similar to that of the Tributaries Restoration Project and Mitigation Reserve Program Phase I components described above in terms of the commitment of energy resources in the form of diesel fuel and gasoline during construction. However, the operation of proposed restoration activities associated with the Expanded Mitigation Reserve Program Phase II would be considered passive use and would not require electricity. Therefore, no additional impacts on energy sources are anticipated with implementation of the Expanded Mitigation Reserve Program Phase II. Energy consumption during construction and operation would not substantially contribute to an increase in energy and therefore would not substantially affect local and regional energy supplies or result in wasteful or inefficient use of energy. Impacts would be less than significant.

Conflict with or obstruct a state or local plan for renewable energy or energy efficiency? *Level of Significance: No impact. (New CEQA Threshold)*

Riverside County has a program to coordinate and encourage eligible renewable energy resource development (County of Riverside n.d.) in the county at the General Plan level. The Desert Renewable Energy Conservation Plan identifies 2,147,000 acres within Riverside County that are potentially suitable for renewable energy development. However, the project area is not included within this planning area. Valley District is interested in exploring potential changes to its electrical supply and expanding opportunities for renewable energy projects, per its *Assessment of Renewable Energy Supply Options* white paper (Strategic Resource Advisors, LLC 2018). Local jurisdictions like the cities of Riverside and Jurupa Valley have energy efficiency programs for residential and commercial development but not for individual local energy plans.

The proposed project would use a minimal amount of energy during construction and maintenance, which would not lead to a conflict with or obstruction of a state or local plan for renewable energy or energy efficiency. No impact would occur.

6.1.5 Geology, Soils, and Paleontological Resources

Would the project directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:

1) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42. *Level of Significance: No impact. (Modified CEQA Threshold)*

No Fault-Rupture Hazard Zones, as designated by the California Department of Conservation's Alquist-Priolo Earthquake Fault Zones (2010), exist within the proposed project area. There are no known seismic faults within the cities of Riverside and Jurupa Valley, and the cities are not within a mapped Alquist-Priolo Earthquake Fault Zone (City of Riverside 2007a; City of Jurupa Valley 2017). According to the County of Riverside General Plan Jurupa Area Plan (2015a), compared to other portions of Southern California, localized seismic hazard potential is considered relatively slight, and there are no known seismic faults within the project area. However, the project area is in a region with several active fault lines including the San Jacinto and Elsinore faults. The San Andreas fault lies in the County of San Bernardino northeast of the project sites and would not pose a fault-rupture risk to the sites due to distance. While the potential earthquake risk is considered low, regional faults such as the Rialto-Colton, San Jacinto, and Chino faults, as well as the more distant San Andreas fault, pose earthquake risks to western Riverside County.

The restoration and mitigation reserve project sites are not mapped on the California Geological Survey's Earthquake Fault Zone regulatory maps, including Alquist-Priolo Earthquake Fault Zoning maps. However, the proposed project is in the vicinity of several active fault lines including the San Jacinto and Elsinore faults. No structures are proposed as part of the project. Because no known active faults traverse the project area, fault rupture is unlikely to occur during implementation of the proposed project. Additionally, the project area is not within a State of California Alquist-Priolo Earthquake Fault Hazard Zone (California Department of Conservation 2010), and project features do not include the addition of new structures meant for human occupancy within 50 feet of the nearest fault. As such, people or structures would not be exposed to substantial adverse effects from a rupture of a known earthquake fault. No impact would occur.

2) Strong seismic ground shaking? *Level of Significance: Less-than-significant impact.*

As with most Southern California regions, the project sites would be subject to strong ground shaking in the event of a major earthquake. Three major fault zones and some subordinate fault zones are found in the Peninsular Ranges Geomorphic Province where the proposed project is located. The project areas have a potential for strong seismic ground shaking according to the State of California Seismic Safety Commission map "Earthquake Shaking Potential for the Los Angeles Metropolitan Region, Counties, Summer, 2003" (http://ssc.ca.gov/forms_pubs/la_county_print.pdf). This map shows the relative intensity of ground shaking and damage in the greater Los Angeles metropolitan region from anticipated future earthquakes. As a result, the proposed project could be subject to future seismic shaking and strong ground motion resulting from seismic activity, and damage could occur.

Due to the nature of the proposed project, it is not expected to draw a substantial amount of people, either during project implementation activities or permanently. No structures intended for human

occupation (or otherwise) would be built, and the potential risk to people as a result of strong seismic ground shaking would be extremely limited, while potential impacts on property would not occur. As a result, the project would not expose people or structures to potential substantial adverse effects involving strong seismic ground shaking. Impacts would be less than significant.

3) Seismic-related ground failure, including liquefaction? *Level of Significance: Less-than-significant Impact.*

Liquefaction occurs when saturated, low-density, loose materials (e.g., sand or silty sand) are weakened and transformed from a solid to a near-liquid state as a result of increased pore water pressure. The increase in pressure is caused by strong ground motion from an earthquake. Liquefaction more often occurs in areas underlain by silts and fine sands and where shallow groundwater exists. According to the City of Riverside General Plan EIR (City of Riverside 2007a, Figure PS-2, Liquefaction Zones) and City of Jurupa Valley Draft General Plan (2017), the major geologic hazards associated with ground shaking include liquefaction and ground failure. For example, most of Jurupa Valley and the area surrounding it have a high groundwater table and are considered to have “High” liquefaction potential.

Implementation of the proposed project would not expose people or structures to substantial adverse effects from seismic-related ground failure, including liquefaction. The proposed project is not expected to draw a substantial amount of people, either during project implementation activities or permanently. Furthermore, no structures intended for human occupation or residence would be built and the potential risk to people as a result of ground failure or liquefaction would be extremely limited, while potential impacts on property would not occur. As a result, impacts would be less than significant.

4) Landslide? *Level of Significance: Less-than-significant impact.*

According to the City of Riverside General Plan EIR (2007a) and City of Jurupa Valley Draft General Plan (2017), seismically induced landslides and rockfalls would be expected in the Santa Ana River floodplain in the event of a major earthquake or substantial ground disturbance caused by human activity. Strong ground motions can also worsen existing unstable slope conditions, particularly if coupled with saturated ground conditions. Factors contributing to the stability of slopes include slope height and steepness, engineering characteristics of the earth materials composing the slope, and intensity of ground shaking. A ground acceleration of at least 0.10 gravitational acceleration (g) in steep terrain is necessary to induce earthquake-related rockfalls, although exceeding this value does not guarantee that rockfalls would occur. Because there are several faults capable of generating peak ground accelerations of over 0.10 g in Riverside County, there is a high potential for seismically induced rockfalls and landslides to occur. Construction crews and other onsite personnel could be exposed to landslide risk during project construction and maintenance. However, the proposed project is not expected to draw a substantial amount of people, either during project implementation activities or permanently. These impacts would be temporary and would be less than significant.

Would the project result in substantial soil erosion or the loss of topsoil? *Level of Significance: Less-than-significant impact.*

There is potential for soil erosion or the loss of topsoil from restoration activities, but controls on erosion and runoff implemented during construction and the vegetation establishment periods

would avoid or minimize adverse impacts. This work proposes to restore areas with substantial existing erosion, debris, and sedimentation issues, with the intent of leading to less erosion or siltation on site or off site when compared to existing conditions. Restoration and mitigation activities would include bank stabilization, which is designed to substantially reduce erosion relative to existing conditions. Restoration and mitigation activities would also include removal of invasive and nonnative plant species that could temporarily contribute to soil erosion or the loss of topsoil during and immediately following removal. Erosion and sediment control best management practices (BMPs) would be put in place to limit erosion and prevent sediment impacts on adjacent aquatic habitat through compliance with the State Water Resources Control Board's (SWRCB's) National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Constructions and Land Disturbance Activities.

The proposed project would include restoring the interaction between the Santa Ana River tributaries and floodplains to increase native fish habitat and reduce channel incision. The existing conditions in the tributaries include confined channels with steep and tall banks that have little to no floodplain connectivity. The objective of floodplain creation is to provide additional areas where overbank flows can spread out into riparian zones and reduce the erosive force in the channel that contributes to channel downcutting and bank erosion. The proposed project would also enhance resiliency to channel erosion and provide connectivity to floodplain areas. By reducing channel downcutting and bank erosion, the proposed project would reduce erosion and siltation both on site and downstream. Overall these channel modifications would improve soil erosion in the system. As a result, impacts would be less than significant.

Would the project be located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in an onsite or offsite landslide, lateral spreading, subsidence, liquefaction, or collapse? *Level of Significance: Less-than-significant impact.*

The proposed project is within the County of Riverside and the cities of Riverside and Jurupa Valley, which lie within the northern end of the Peninsular Ranges, approximately 12 miles south of the intersection with the Transverse Range. The Santa Ana Mountains are approximately 15 miles south and southwest of the project sites, while the San Jacinto Mountains are approximately 10 miles east and northeast of the project sites. The San Bernardino Mountains are about 20 miles north of the project sites. A series of hills and small mountains surround the project area. These hills and mountains are between the two dominant San Jacinto and Santa Ana mountain ranges. They include La Sierra/Norco Hills, Mount Rubidoux, Box Springs Mountains, Sycamore Canyon, and the many smaller ranges south of the project sites. Surface elevations are approximately 700 feet above mean sea level at the Santa Ana River.

The proposed project area and the hills in the project vicinity are made up of granite and adamellite (gra), Mesozoic granitic rock (gr), granodiorite (grg), Mesozoic basic intrusive rocks (bi), and alluvium (Qal) (located around the Santa Ana River). Most date from the Mesozoic period, except for the alluvium, which dates from the Quaternary. Landslides and rockfalls occur most often on steep, eroded or undercut, or disturbed hillsides; however, the project sites are in the valley at a lower elevation, within the floodplain.

Two of the project sites are currently incised and unstable (Lower Hole Creek and Anza Creek). The restoration work would focus on stabilizing existing erosive banks and restoring natural stream function. The project would not result in landslides, lateral spreading, subsidence, liquefaction, or

collapse because project activities include stabilization of existing erosive banks. As a result, impacts would be less than significant.

Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property? *Level of Significance: Less-than-significant Impact. (Modified CEQA Threshold)*

Implementation of the proposed project would not create substantial risks to life or property as a result of expansive soils. Expansive soils are fine-grained soils (generally high-plasticity clays) that can undergo a significant increase in volume with an increase in water content as well as a significant decrease in volume with a decrease in water content. Changes in the water content of highly expansive soils can result in severe distress for structures constructed on or against the soils. However, due to the nature of the proposed project, it is not expected to draw a substantial amount of people, either during project implementation activities or permanently. Furthermore, no structures intended for human occupation would be built; therefore, potential risk to people would be extremely limited, while potential impacts on property would not occur. As a result, impacts would be less than significant.

Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems in areas where sewers are not available for the disposal of wastewater? *Level of Significance: No impact.*

The project would not include any installation or use of septic tanks or alternative wastewater disposal systems. No impact would occur.

6.1.6 Hazards and Hazardous Materials

Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials? *Level of Significance: Less-than-significant impact.*

A hazardous material is any material that because of its quality, concentration, or physical or chemical characteristics poses a significant potential hazard to human health or safety or to the environment. Hazardous materials are used in urban areas for a variety of purposes. The most common large users include manufacturers, medical clinics, agriculture, dry cleaners, pest controllers, film processors, and automotive-related business. No transport, use, or disposal of hazardous materials is proposed as part of the restoration or mitigation activities during operation. Three sites (Anza Creek, Old Ranch Creek, and Lower Hole Creek) are bordered by former landfills, but no alterations to the landfills are proposed. The landfills are elevated above the Santa Ana River floodplain and their slopes are armored. There is a large capped landfill (Tequesquite Landfill) immediately upstream of the Anza Creek and Old Creek sites with an expansive solar grid. The proposed project, particularly in the vicinity of the Santa Ana River at the Anza Creek and Old Ranch Creek sites, would be designed to avoid impacts on the landfill.

Construction of the proposed project would involve the transport, use, and disposal of hazardous materials such as fuel, solvents, chemicals, and oils associated with operating construction equipment. Such transport, use, and disposal must comply with applicable regulations such as the federal Resource Conservation and Recovery Act, which regulates the generation, transport, treatment, storage, and disposal of hazardous waste; California Department of Transportation

Hazardous Materials Regulations, which cover all aspects of hazardous materials packaging, handling, and transportation; and the local Certified Unified Program Agency regulations. Although these materials would be transported, used, and disposed of during the construction phase, these materials are typically used in construction projects and would not represent the transport, use, and disposal of acutely hazardous materials. However, compliance with federal, state, and local regulations, in combination with construction BMPs implemented from a Stormwater Pollution Prevention Plan (SWPPP) as listed in Section 3.8, *Hydrology and Water Quality*, would ensure that all hazardous materials are transported, used, stored, and disposed of properly, which would minimize a significant hazard to the public during the construction phase of the project. As such, any impact would be less than significant.

Would the project emit hazardous emissions or involve handling hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school? *Level of Significance: Less-than-significant impact.*

No hazardous emissions or handling hazardous materials are proposed at any of the project sites. There is the potential for hazardous emissions or handling of hazardous materials, such as gas, oil, hydraulic fluid, or degreaser, from construction equipment. Terrace Elementary School is within 0.25 mile of the Lower Hole Creek site, but no other schools are within 0.25 mile of any of the other project sites. The proposed project would not emit hazardous emissions or involve handling of hazardous materials or waste, with the exception of minimal amounts of hazardous emissions or handling of hazardous materials from construction equipment during the short term. As such, any impact would be considered less than significant.

Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment? *Level of Significance: No impact.*

According to SWRCB's GeoTracker, there are no known active hazardous materials sites that are within or up-gradient of the project sites. There is one closed site (Tequesquite Landfill) directly adjacent to the west of the Old Ranch Creek site. According to GeoTracker, Tequesquite Landfill is a closed Class III solid waste disposal facility owned by the City of Riverside and located inside a 120-acre parcel in a small northeast-southwest trending valley known as Tequesquite Arroyo. Additional details can be found in Section 3.7, *Hazards and Hazardous Materials*. As the project is not located on a site included on the Government Code Section 65962.5 list of hazardous material sites, no impact would occur.

Would the project be located within an airport land use plan area or, where such a plan has not been adopted, be within two miles of a public airport or public use airport, and result in a safety hazard or excessive noise for people residing or working in the project area? *Level of Significance: Less-than-significant impact. (Modified CEQA Threshold)*

The Riverside Municipal Airport and Flabob Airport are within 2 miles of the project sites. The closest public airport to the proposed project sites is Riverside Municipal Airport, which accommodates general aviation aircraft. Riverside Municipal Airport is approximately 0.4 mile east of the Lower Hole Creek site, 1.5 miles southeast of the Hidden Valley Creek site, and 1 mile southwest of the Anza Creek and Old Ranch Creek sites. Flabob Airport, a public use airport in the unincorporated Riverside County community of Rubidoux, is northwest of the project sites across the Santa Ana River and features a 3,200-foot runway. The facility primarily supports private

recreational and business air travel. Flabob Airport is approximately 1 mile north of the Anza Creek and Old Ranch Creek sites, 3.4 miles northeast of the Lower Hole Creek site, and 3.8 miles northeast of the Hidden Valley Creek site. The project sites are within the Flight Corridor Buffers and Airport Influence Areas for these two airports according to the Riverside County Airport Land Use Compatibility Plan. During construction and maintenance of the proposed project, workers would be subject to safety hazards due to prolonged daily presence within the Flight Corridor Buffers and Airport Influence Areas. This impact would be temporary and would be considered less than significant.

The proposed project would involve restoration, mitigation, and enhancement of the native habitat within the boundaries of the project sites and, therefore, would not include elevated features that could interfere with navigable airspace. No residences are proposed as part of the project, so the project would not result in a safety hazard for people residing in the project area. Site preparation, planting, and maintenance and monitoring activities would have no effect on air traffic patterns. Therefore, the proposed project would not result in a change in air traffic patterns or result in a safety hazard or excessive noise for people working in the project area.

Would the project be located within the vicinity of a private airstrip and result in a safety hazard for people residing or working in the project area? *Level of Significance: No impact. (No longer a CEQA Threshold)*

The Riverside Municipal Airport and Flabob Airport are within 2 miles of the project sites. The proposed project would involve restoration, mitigation, and enhancement of the native habitat within the boundaries of the project sites and, therefore, would not result in a safety hazard for people working or residing in the project area. There are no private airstrips in the project vicinity, and no impact would result.

Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan? *Level of Significance: No impact.*

Under the Disaster Mitigation Act of 2000 (Public Law 106-390), state, local and Tribal governments are required to develop a hazard mitigation plan to be eligible for certain federal disaster assistance. Disaster preparedness is important to Jurupa Valley to establish the most effective and efficient ways to address hazards and minimize the effects of hazards on life and property, reduce the potential for disasters, and recover from the effects of disasters as quickly as possible. The City of Jurupa Valley has adopted a Local Hazard Mitigation Plan and participates in the County of Riverside Multi-Jurisdictional Local Hazard Mitigation Plan. The plans set goals to mitigate potential risks from natural and man-made hazards, identify vulnerabilities, provide recommendations for actions, evaluate resources, and identify future mitigation planning and maintenance of existing plans. The City also has an Emergency Operations Plan that addresses how it will respond to emergency situations ranging from minor incidents to large-scale disasters.

The City of Riverside's Emergency Management Office is actively coordinating the City's response to disasters as well as assisting residents to prepare for major events such as earthquakes, floods, hazardous material spills, plane crashes, train derailments, Africanized honey bees, and civil unrest. Riverside is conducting a 5-year update to the 2017 Local Hazard Mitigation Plan to help reduce or remove long-term risk and protect people and property from the effects of events like earthquakes, fires, floods, and terrorism.

The project sites are mostly within natural areas and the restoration and mitigation work would not alter any roadways that could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. None of the restoration or mitigation activities would involve modifications to facilities that are critical to emergency response, such as police, fire, and hospital facilities, and restoration would not impede access to these facilities in an emergency. No impact would result.

Would the project expose people or structures, either directly or indirectly, to a significant risk of loss, injury, or death involving wildland fires? *Level of Significance: Less-than-significant impact. (Modified CEQA Threshold)*

No part of the project area is immune from fire danger. Structural and automobile fires represent the most common types of fire in urbanized areas and can be caused by a variety of human, mechanical, and natural factors. Urban fires have the potential to spread to other structures or areas, particularly if not extinguished promptly. Proactive efforts, such as fire sprinkler systems, fire alarms, fire-resistant roofing, and construction methods, can collectively lessen the likelihood and reduce the severity of urban fires. Areas of dense, dry vegetation, particularly in canyon areas and on hillsides, pose the greatest potential for wildfire risks. The major urban/rural interface areas of high fire risk include Mount Rubidoux, the Santa Ana River Basin, Lake Hills, Mockingbird Canyon/Monroe Hills, Sycamore Canyon, Box Springs Mountain, and La Sierra/Norco Hills. Development into this natural landscape would increase the potential risk of fire damage to people and personal property (City of Riverside Fire Department 2017).

The project sites are heavily used by the homeless population currently in the area. Wildland fires are common in the Santa Ana River watershed from natural causes, arson, and unintended incidents. For example, on December 21, 2017, wildfire erupted under the Mission Inn Avenue bridge, adjacent to Mount Rubidoux. Numerous properties were threatened by the 50-acre blaze, which forced the evacuation of dozens of nearby homes before it was contained hours later. A homeless cooking fire was believed to be the source of this fire (mynewsla.com 2018). Closer to the proposed project area, a small fire at an encampment site between the Santa Ana River and a bike trail just east of the Van Buren Bridge occurred on May 9, 2017, prompting the evacuation of 20 homeless people before the fire was contained (Press-Enterprise 2017). This fire was caused by an open barbecue. There have been several attempts to relocate transient populations from the Santa Ana River bottom, but the area continues to draw many chronically homeless people to the area.

The proposed restoration and mitigation activities could potentially reduce the incidences of arson through removal of homeless encampments from the project sites. Post-construction monitoring would also be conducted through park ranger patrol of the project area and other areas along the Santa Ana River to deter unauthorized human disturbances, including garbage disposal and homeless encampments, from disturbing and destroying restoration and mitigation sites or adjacent areas. Additionally, there would be no substantial increase in naturally caused fires due to maintaining similar natural, open spaces as currently exist at the sites and through the provision of additional water to the sites to ensure success of newly installed vegetation. Because there would be no exposure to significant risk of loss, injury, or death involving wildland fires, the project would not exacerbate wildfire risk because similar natural, open spaces would be maintained as currently exists in the area and no permanent placement of people or structures in the project area are proposed. As such, impacts would be less than significant.

6.1.7 Hydrology and Water Quality

Would the project violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality? *Level of Significance: Less-than-significant impact. (Modified CEQA Threshold)*

Sources of possible contaminants in the water supply include garbage disposal from transient encampments, septic systems, composting activities, and business practices. At present, the water supplied by the Riverside Public Utilities Department (RPU) typically meets or exceeds state and federal water regulations and guidelines. RPU staff monitors the quality of the water supply and complies with state and federal regulatory activity requirements (City of Riverside 2007b).

There would be no pollutant discharges associated with the project. During construction there would be removal of nonnative plant species and grading work to establish or enhance channels in the restoration areas as well as provide a connection between the channel and floodplain. There would be protections in place to prevent sediment related to construction activities from migrating into stream channels and the Santa Ana River as well as hazardous materials (e.g., gasoline, oils) from construction equipment that could be accidentally released.

The proposed project would disturb over 1 acre of land and is subject to the SWRCB's National Pollutant Discharge Elimination System General Permit for Stormwater Discharges Associated with Constructions and Land Disturbance Activities. This permit requires implementation of BMPs during construction and development of a SWPPP to reduce or eliminate stormwater discharges during construction. In the long term, the restoration work would enhance natural hydrologic function of the tributaries and establish native vegetation, resulting in improved sediment transport and water quality. As a result, impacts would be less than significant.

Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner that would:

- **Create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff? *Level of Significance: No impact. (Modified CEQA Threshold)***

The project would not create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff. The Santa Ana River is the primary discharge point for all altered drainage patterns in the project areas and stormwater infrastructure is not relied upon to convey storm water from the project sites to the Santa Ana River. Alterations to drainage patterns would occur outside of the stormwater drainage system and no water sources that could contain polluted runoff are included in the project. No impact would occur.

In flood hazard, tsunami, or seiche zones, would the project risk release of pollutants due to project inundation? *Level of Significance: No impact. (Modified CEQA Threshold)*

The project would not contribute to inundation by seiche, tsunami, or mudflow. The Santa Ana River and its tributaries are not currently subject to inundation by seiche or tsunami; therefore, the project would have no impact. The project would include restoration and mitigation work that

would stabilize degraded river banks and improve resiliency to flooding as compared to existing conditions. No impact would occur.

Would the project otherwise substantially degrade water quality? *Level of Significance: No impact. (No Longer a CEQA Threshold)*

The proposed project would not introduce any sources that could degrade water quality within the Santa Ana River or its tributaries. The project would allow some treatment of water through settling of flood flows and groundwater recharge during rain events, potentially improving downstream water quality. Also, the installation of native habitat could improve water quality by the newly installed habitat naturally filtering out pollutants from the water. Good water quality is a requirement for native fish habitat to be suitable, so it is the purpose of the project to improve water quality compared to existing conditions. The project would not substantially degrade water quality because the purpose of the project is to improve water quality as compared to existing conditions. No impact would occur.

Would the project place housing within a 100-year flood hazard area, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map? *Level of Significance: No impact. (No Longer a CEQA Threshold)*

The proposed project is within the 100-year floodplain and within the floodway of the Santa Ana River. The proposed project sites, along the Santa Ana River, are also designated as within a special flood hazard area in the County of Riverside General Plan. However, the proposed project does not include any new housing development. Existing housing in the vicinity of the restoration areas is located well above the top of stream banks and substantially higher than the existing flood elevations that occur during rain events.

The project would not increase flows during the 100-year flood event and would not significantly alter or increase flood risk. The project areas are all within the 100-year flood hazard area of the Santa Ana River and any changes to localized drainage patterns of the tributaries within the project areas would be negligible during a 100-year storm event. Because the proposed project would not result in the placement of housing within a 100-year flood hazard area, no impact would occur.

6.1.8 Land Use and Planning

Would the project physically divide an established community? *Level of Significance: No impact.*

The project would not physically divide an established community because the proposed improvements involve creation, re-establishment, mitigation, and/or enhancement of degraded aquatic, riparian, or upland habitat within historical channels. The Santa Ana River influences the sites by creating a natural barrier between land uses north and south of the Santa Ana River, with all project sites located south of the river. While some areas of the proposed project are adjacent to or near established residential communities, no new urban development is proposed as part of the project. The sites would remain as undeveloped, natural, open spaces with only minimal other development that would support the restoration, mitigation, recreation, and education functions of the proposed project. No impact would occur.

Would the project cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect? *Level of Significance: No impact. (Modified CEQA Threshold)*

The proposed study areas for the Anza Creek and Hidden Valley Creek sites are within the jurisdiction of the cities of Riverside and Jurupa Valley and the County of Riverside (Figure 2-1 in Chapter 2, *Project Description*). The Old Ranch Creek site is within the cities of Riverside and Jurupa Valley. The Lower Hole Creek site is within the city of Riverside. The area surrounding the restoration tributaries sites are influenced by urban uses and development. The Santa Ana River Trail traverses the project area and provides access to the area as well as human influences and activities. There is a large capped landfill (Tequesquite Landfill) upstream of the sites with an expansive solar grid. Additional project location details are provided in Section 2.3, *Project Location*.

The Old Ranch Creek site is zoned as PF (Public Facilities) with a land use designation of P (Public Park) by the City of Riverside, and is zoned as W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-R (Open Space Recreation) by the City of Jurupa Valley. The Anza Creek site is zoned as PF (Public Facilities) with a land use designation of P (Public Park) by the City of Riverside; is zoned as W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-W (Water) and OS-R (Open Space Recreation) by the City of Jurupa Valley; and is zoned as W-1 (Water) with a land use designation of W (Water) by the County of Riverside. The Lower Hole Creek site has the following City of Riverside zoning designations: PF (Public Facilities), BMP (Business and Manufacturing Park Zone), and RE (Residential Estate Zone); and these land use designations: (OS) Open Space, C (Commercial), and MDR (Multi Density Residential). The Hidden Valley Creek site has the following City of Riverside zoning designation: PF (Public Facilities) with a land use designation of OS (Open Space/Natural Resources); the following City of Jurupa Valley zoning designation: W-1 (Watercourse, Watershed, and Conservation Areas) with a land use designation of OS-W (Water); and the following County of Riverside zoning designation: W-1 (Water) with a land use designation of W (Water) and CH (Conservation Habitat). Most of the Hidden Valley Creek land is owned by the California Department of Fish and Wildlife and managed by the Riverside County Regional Parks and Open Space District. The Anza Creek, Old Ranch Creek, and Hidden Valley Creek restoration sites are located within the City of Jurupa Valley Santa Ana River Overlay.

The proposed project would be consistent with the City of Riverside General Plan and Zoning Ordinance. Creation, enhancement, mitigation, and restoration of native habitat areas within the Santa Ana River floodplain are considered to be consistent with the City of Riverside's General Plan and Zoning Ordinance. No changes to existing designations or zoning are proposed. The Hidden Valley Creek site is within the City of Jurupa Valley Draft General Plan (2017) Open Space-Water, Open Space Conservation Habitat, and Open Space Recreation designations as well as the Santa Ana River Overlay Zone, which primarily includes the Santa Ana River and its floodplain. The proposed project's activities are consistent with maintenance of long-term habitat and riparian values. No changes to or conflicts with existing City of Jurupa Valley Draft General Plan or Zoning designations would occur. The proposed project also would be consistent with the land uses and zoning for Riverside County for water and conservation habitat, and no changes or conflicts would result with project implementation.

The project would not conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. The project is consistent with the City of Riverside General Plan and Zoning

Ordinance and no changes to existing designations or zoning are proposed. The project is also consistent with the City of Jurupa Valley Draft General Plan (2017) Open Space-Water, Open Space Conservation Habitat, and Open Space Recreation designations, as well as the Santa Ana River Overlay Zone. Riverside County designates the land for water or conservation habitat, which is consistent with its current use as well as its proposed condition. No changes to existing designations or zoning are proposed. No impact would occur.

Would the project conflict with any applicable habitat conservation plan or natural community conservation plan? *Level of Significance: No impact. (No Longer a CEQA Threshold)*

The proposed project is proposed to be a Covered Activity within the proposed Upper Santa Ana River Habitat Conservation Plan and as such would be aligned with the goals and objectives of that Habitat Conservation Plan. No impact would occur.

6.1.9 Mineral Resources

Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state? *Level of Significance: No impact.*

The Anza Creek and Old Ranch Creek project sites are within the state-classified mineral resource zone (MRZ) 3 identified in the City of Riverside General Plan EIR (2007a). Anza Creek, Old Ranch Creek, and Hidden Valley Creek are within an MRZ-3 zone in the City of Jurupa Valley Draft General Plan (2017). The Anza Creek site is also designated as an MRZ-3 zone in the County of Riverside General Plan (2015b). The MRZ-3 designation indicates that the area contains known or inferred mineral occurrences of undetermined mineral resource significance. Valuable mineral resources in the region include granitic rock and deposits of other rock products including feldspar, silica, and limestone. While the quarrying of granitic rock was a significant industry in Riverside historically, these operations have not been active for decades.

The construction phase of the project would not result in the disturbance of any known mineral resource that would be of value to the region and the residents of the state. No impact would occur.

Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan? *Level of Significance: No impact.*

The construction phase of the project would not result in the loss of availability of any locally important mineral resource that would be of value to the region. Anza Creek, Old Ranch Creek, and Hidden Valley Creek are within MRZ-3, which is a zone that contains known or inferred mineral occurrences of undetermined mineral resource significance. The project sites would remain as undeveloped, natural, open spaces with only minimal other development that would support the restoration and enhancement function of the project. The project would not result in the loss of availability of a locally important mineral resource recovery site as identified in the County of Riverside General Plan, the City of Riverside General Plan, or the City of Jurupa Valley Draft General Plan. No impact would occur.

6.1.10 Noise

Would the project be located within the vicinity of a private airstrip or an airport land use plan, or, where such a plan has not been adopted, within two miles of a public airport or public use airport and expose people residing or working in the project area to excessive noise levels? *Level of Significance: Less-than-significant impact. (Modified CEQA Threshold)*

The closest public airport to the proposed project sites is Riverside Municipal Airport, located approximately 0.4 mile east of the Lower Hole Creek site, 1.5 miles southeast of the Hidden Valley Creek site, and 1 mile southwest of the Anza Creek and Old Ranch Creek project sites. The project sites all lie outside of the 65 decibel (dB) Community Noise Equivalent Level (CNEL) contour as illustrated in the Riverside County Airport Land Use Compatibility Plan (2004) exhibit RI-3.

Flabob Airport, a public use airport, is just northwest of the project sites across the Santa Ana River in the unincorporated Riverside County community of Rubidoux. The facility primarily supports private recreational and business air travel. Flabob Airport is approximately 1 mile north of the Anza Creek and Old Ranch Creek tributaries sites, 3.4 miles northeast of the Lower Hole Creek site, and 3.8 miles northeast of the Hidden Valley Creek site. The project sites all lie outside of the 65 dB CNEL contour as illustrated in the Riverside County Airport Land Use Compatibility Plan (2004) exhibit FL-3.

Due to the proximity of the nearby airports, there is a potential for people working on the project (during construction and maintenance) to be exposed to elevated noise levels from aircraft operations; however, the exposure would be temporary and short term. The project would not cause any alteration to existing airport noise levels and would not construct any new homes or other noise-sensitive structures. Therefore, the impact would be less than significant.

Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project? *Level of Significance: Less-than-significant impact. (No Longer a CEQA Threshold)*

Construction noise from the proposed project would be temporary and thus not result in a permanent increase in ambient noise levels in the project vicinity above levels existing without the project. After completion of the restoration and mitigation activities, the proposed project is not anticipated to generate any persistent operational noise or increase traffic in the area. Long-term maintenance activities and associated noise impacts would be intermittent in nature, occurring periodically in project areas, and would not involve heavy equipment. Therefore, permanent noise impacts would be less than significant.

Would the project be located in the vicinity of a private airstrip and expose people residing or working in the project area to excessive noise levels? *Level of Significance: No impact. (No Longer a CEQA Threshold)*

The Riverside Municipal Airport and Flabob Airport are within 2 miles of the project areas. The proposed project would involve restoration, mitigation, and enhancement of the native habitat within the boundaries of the project sites and, therefore, would not result in a safety hazard for people working or residing in the project area. There are no private airstrips in the project vicinity. No impact would occur.

6.1.11 Population and Housing

Would the project induce substantial unplanned population growth in an area, either directly (e.g., by proposing new homes and businesses) or indirectly (e.g., through extension of roads or other infrastructure)? *Level of Significance: No impact. (Modified CEQA Threshold)*

The project would not construct any homes or businesses, extend roads, or involve the addition of any other infrastructure that would facilitate population growth. The area surrounding the project is medium-density residential housing with some industrial and business uses to the south of the proposed project sites. There are currently no housing structures within the project sites. However, there have been homeless encampments established within the floodplain, which is evaluated in Section 3.10, *Population and Housing*. No impact would occur.

6.1.12 Public Services

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or a need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services:

Fire protection? *Level of Significance: No impact.*

The riparian vegetation of the Santa Ana River poses conditions conducive to wildfires. However, the major areas of high-fire risk near the project sites include the Santa Ana River Basin, Mount Rubidoux, Lake Hills, Mockingbird Canyon/Monroe Hills, Sycamore Canyon, Box Springs Mountain, and La Sierra/Norco Hills. Development into this natural landscape would increase the potential risk of fire damage to people and personal property. Distribution locations, also known as points of service delivery, are established to ensure the rapid deployment of fire resources to intervene in routine emergencies and provide the appropriate emergency response. The Anza Creek and Old Ranch Creek project locations lie within the City of Riverside Fire Department fire responder Areas 1 and 5. The Hidden Valley Creek and Lower Hole Creek locations lie within fire responder area 7 (City of Riverside Fire Department 2017).

The proposed project would restore native habitat and remove trash and invasive species. The removal of homeless encampments from the project sites would lower the risk of a fire spreading from a homeless encampment, as with the Skirball Fire in Los Angeles (2017), on a large scale, and thus would reduce the need for new or physically altered fire protection facilities in the vicinity of the project sites. At the local level, on December 21, 2017, wildfire erupted under the Mission Inn Avenue bridge, adjacent to Mount Rubidoux. Numerous properties were threatened by the 50-acre blaze, which forced the evacuation of dozens of nearby homes before it was contained hours later. A homeless cooking fire was believed to be the source of this fire (mynews1a.com 2018). Closer to the proposed project area, a small fire at an encampment site between the Santa Ana River and a bike trail just east of the Van Buren Bridge occurred on May 9, 2017, prompting the evacuation of 20 homeless people before the fire was contained (Press-Enterprise 2017).

The project would reduce the need for new or physically altered fire protection facilities in the vicinity of the project sites through the removal of homeless encampments and the potential for human-caused illegal fires occurring on the project sites. No buildings or habitable structures that

would require fire protection services are proposed; therefore, the project would not result in an increased need for new or physically altered governmental facilities. No impact would occur.

Police protection? *Level of Significance: Less-than-significant impact.*

Riverside Police Department facilities have largely been centralized, with the headquarters building located at 4102 Orange Street in downtown Riverside serving as the department's administrative center and housing the office of the Chief of Police, the administrative division (personnel and training), the records branch, the Communications Bureau, and the Community Services Bureau (City of Riverside 2007a). The City of Jurupa Valley is a contract city with the Riverside County Sheriff's Department. The personnel assigned to Jurupa Valley operate out of the Jurupa Valley Station at 7477 Mission Boulevard in Jurupa Valley.

Homelessness is associated with a number of negative issues, including crime, blight, trash, unsanitary conditions, and illegal fires. In 2014, the Sheriff's Department created a Homeless Outreach Team to identify homeless individuals, reduce the homeless population, and coordinate the delivery of resources to the homeless. The Sheriff's Department coordinates homeless outreach with a number of additional agencies including, but not limited to, the City of Jurupa Valley, the Riverside County Department of Social Services, the Probation Department, the Department of Veterans Affairs, and the Riverside County Flood Control and Water Conservation District. As discussed in Section 3.10, *Population and Housing*, the proposed project would require the removal of homeless encampments and conduct outreach for the provision of available services to help identify homeless individuals, reduce the homeless population, and coordinate the delivery of resources to the homeless.

The removal of the encampments prior to construction activities may require police services and protection. However, any need for police services to remove the homeless encampments would not require new or physically altered governmental facility construction to maintain acceptable service ratios, response times, or other performance objectives because the need would be short term in nature. In the long term, the project could lower the number of homeless encampments and thus could reduce the need for police services at or near the project sites. Post-construction monitoring would also be conducted through park ranger patrol of the project area and other areas along the Santa Ana River to deter unauthorized human disturbances, including garbage disposal and homeless encampments, from disturbing and destroying restoration and mitigation sites. A less-than-significant impact would occur.

Schools? *Level of Significance: No impact.*

Terrace Elementary School, Norte Vista High School, and Rosemary Kennedy Elementary School are within 1 to 1.5 miles to the south of the Hidden Valley Creek project location. Peralta Elementary School is to the north of the Anza Creek and Old Ranch Creek project locations. The project would not result in adverse impacts on schools. Impacts on schools are usually associated with population growth due to the development of new housing units, which can result in greater demands for school facilities. This project would have no effect on population growth. No impact would occur.

Other public facilities? *Level of Significance: No impact.*

The project would involve restoration, mitigation, and enhancement of the native habitat within the boundaries of the project sites and, thus, would not include the need for new or physically altered governmental and public facilities. As discussed in Section 3.10, *Population and Housing*, the

proposed project would require the removal of homeless encampments and conduct outreach for the provision of available services to help identify homeless individuals, reduce the homeless population, and coordinate the delivery of resources to the homeless. The project would not result in adverse physical impacts associated with the provision of new or physically altered public facilities. No impact would occur.

6.1.13 Transportation

Would the project conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities? *Level of Significance: Less-than-significant impact. (Modified CEQA Threshold)*

The project sites of Hidden Valley Creek and Lower Hole Creek are west of the intersection of the Santa Ana River and Van Buren Boulevard (four-lane 100-foot arterial), while the Anza Creek and Old Ranch Creek tributaries sites are north of Jurupa Avenue (four-lane 88-foot transitioning to 110-foot arterial) and Grand Avenue (two-lane 66-foot collector) and west of Rubidoux Avenue. All four sites are bordered by the Santa Ana River Trail Bike Path.

The proposed project would not involve alterations to the existing traffic or circulation system in the project area or nearby communities. Construction activities may temporarily interfere with the Santa Ana River Trail Bike Path that transects the proposed project sites. All construction vehicles interfering with traffic along the bike path would be guided by personnel using signs and flags to direct traffic. Due to the temporary nature of the construction phase of the project, long-term impacts on the flow of bicycle and pedestrian traffic that utilize the bike path would be considered less than significant.

The construction phase of the project is not expected to result in a noticeable increase in traffic volumes. Construction traffic would likely access the sites via Jurupa Avenue. Any potential increases to the traffic volume in the surrounding areas would be limited to trips taken by construction vehicles to remove trash, invasive plant material, and construction debris from the project locations to local county landfills in the area, such as the Lamb Canyon Landfill and El Sobrante Landfill; the El Sobrante Landfill is approximately 23 miles south of the proposed project sites. In the long term, after the completion of the project improvements, the proposed project is not anticipated to generate any additional vehicular traffic except for routine maintenance, which would be intermittent and as needed, similar to current conditions, or park patrol monitoring. No impact related to operational traffic would result with implementation of the proposed project. As such, overall impacts of the project on traffic of the surrounding area would be less than significant.

Would the project conflict or be inconsistent with State CEQA Guidelines section 15064.3, subdivision (b)? *Level of Significance: Less-than-significant impact. (New CEQA Threshold)*

State CEQA Guidelines §15064.3(b) generally requires CEQA documents for land use and transportation projects to evaluate impacts of such projects on vehicle miles traveled. This guideline applies prospectively and is effective statewide as of July 2019. As a restoration project, this project would not generate additional operational vehicular traffic and thus would not generate additional vehicle miles traveled. Short-term traffic associated with project construction is not anticipated to significantly affect the traffic levels of the surrounding areas or cause congestion, as construction vehicles would be mainly contained on site and would be present temporarily.

Van Buren Boulevard is one of the main crossings of the Santa Ana River in the vicinity of the project areas. Short-term traffic associated with project construction is not anticipated to significantly affect the traffic levels of the surrounding areas, as construction vehicles would be mainly contained on site. Most staging and parking would be along the Santa Ana River trail, which is closed to traffic except for maintenance vehicles, and, therefore would not contribute to congestion or the amount and distance of automobile travel attributable to the project. As such, short-term impacts would be less than significant. After the completion of the restoration and mitigation activities, the proposed project is not anticipated to generate any additional vehicular traffic and the amount of vehicle miles traveled would not noticeably change from existing conditions. No impact related to operational traffic would result with implementation of the proposed project.

Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)? *Level of Significance: Less-than-significant impact. (Modified CEQA Threshold)*

No safety concerns relative to construction activities would be expected due to typical construction signage, flagging, and health and safety construction plans and procedures associated with construction contracts and permit conditions. Active construction activities would maintain access to pedestrians using the Santa Ana River Trail Bike Path and would be planned to minimize impacts. Therefore, short-term impacts would be less than significant and would not have any long-term effect on the use of the bike path by pedestrians or cyclists. After the completion of the restoration and mitigation activities, the proposed project is not anticipated to generate any additional vehicular traffic and the amount of vehicle miles traveled would not noticeably change from existing conditions. The project would not result in increased hazards or incompatible uses. No change to the local circulation network, including a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment), is anticipated. Therefore, impacts would be less than significant.

e) Would the project result in inadequate emergency access? *Level of Significance: No Impact.*

The project would not impair emergency access to the project location. As discussed above, traffic in the surrounding areas is anticipated to be minimal and limited to onsite construction-related equipment entering and exiting the project area. As such, implementation of the project would not result in inadequate access for any emergency response entities. Because no habitable structures or buildings are proposed, and the project would only improve the existing onsite natural habitat, emergency access would be adequate, similar to existing conditions. Therefore, no impact would occur.

Would the project conflict with an applicable congestion management program, including, but not limited to, level-of-service standards and travel demand measures or other standards established by the county congestion management agency for designated roads or highways? *Level of Significance: No impact. (No Longer a CEQA Threshold)*

Short-term traffic associated with project construction is not anticipated to significantly affect the traffic levels of the surrounding areas or cause congestion, as construction vehicles would be mainly contained on site and would be present temporarily. After the completion of the restoration and mitigation activities and maintenance process, the project is not anticipated to generate any additional vehicular traffic and the amount of vehicle miles traveled would not noticeably change

levels of service from existing conditions. Therefore, no impact or traffic congestion related to operational traffic would result with implementation of the project.

Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks? *Level of Significance: No impact. (No Longer a CEQA Threshold)*

The proposed project areas of Lower Hole Creek and Hidden Valley Creek lie approximately 1 mile north of the Riverside Municipal Airport. The Old Ranch Creek and Anza Creek project locations are approximately 1.5 miles northwest of the Riverside Municipal Airport. Flabob Airport is just northwest of the project sites across the Santa Ana River.

The project would involve restoration, mitigation, and enhancement of the native habitat within the boundaries of the project sites and, therefore, would not include elevated features that could interfere with navigable airspace. Site preparation, planting, and maintenance and monitoring activities would have no effect on air traffic patterns. Therefore, the project would not result in a change in air traffic patterns or increase safety risks. No impact would occur.

Would the project conflict with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities? *Level of Significance: Less-than-significant impact. (No Longer a CEQA Threshold)*

Construction activities may affect the use of the Santa Ana River Trail Bike Path that transects the project sites. As stated previously, short-term traffic associated with project construction is not anticipated to significantly affect the traffic levels of the surrounding areas, as construction vehicles would be mainly contained on site. Most staging and parking would be along the Santa Ana River trail, which is closed to traffic except for maintenance vehicles and, therefore, would not contribute to congestion or decrease the performance or safety of existing transportation facilities. No safety concerns relative to construction activities would be expected due to typical construction signage, flagging, and health and safety construction plans and procedures associated with construction contracts and permit conditions. Active construction activities would maintain access to pedestrians using the Santa Ana River Trail Bike Path and would be planned to minimize impacts. This impact is expected to be short term in duration and would not have any long-term impacts on the use of the bike path by pedestrians or cyclists. Any construction or maintenance activity that would impede the usage of this bike path would be addressed by adequate signage and construction flagging, and any impacts would be short term. Therefore, the impact would be less than significant.

6.1.14 Utilities and Service Systems

Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments? *Level of Significance: No impact.*

The project would not include demand for wastewater services because restoration and mitigation activities would not include a need for wastewater services, such that capacity would need to be expanded to support the project. The project would not involve the development of land uses that would generate wastewater. No impacts would occur.

Would the project generate solid waste in excess of state or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste goals? *Level of Significance: Less-than-significant impact. (Modified CEQA Threshold)*

The City of Riverside Public Works Department collects trash from approximately 38,500 households (70 percent of all households), largely using automated trash collection trucks. All non-hazardous solid waste collected is taken to the Robert A. Nelson Transfer Station, which is owned by the County of Riverside and operated under a 20-year franchise by a private company. Waste is then transferred to the Badlands Landfill for disposal. However, local trash haulers may dispose of collected waste at other county landfills in the area, such as the Lamb Canyon Landfill and El Sobrante Landfill. All Riverside County landfills are Class III disposal sites permitted to receive non-hazardous municipal solid waste. Waste and recycling disposal in Jurupa Valley are provided by private companies. Trash from Jurupa Valley is transported to the Agua Mansa Transfer Station and Material Recovery Facility at 1830 Agua Mansa Road. From there, recyclable materials are transferred to third-party providers, and waste materials are transported to various landfills in Riverside County.

Any potential increases to the traffic volume in the surrounding areas would be limited to trips taken by construction vehicles to remove trash, invasive plant material, and construction debris from the project location to the El Sobrante Landfill, approximately 23 miles south of the proposed project sites. In the long term, after the completion of the project, the proposed project is not anticipated to generate any additional vehicular traffic except for routine maintenance, which would be intermittent and as needed, similar to current conditions.

The project would not generate solid waste in excess of state or local standards or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste goals. There are no exceptional waste requirements that would require an exception to any goals related to solid waste during project construction or operations. The proposed project would not significantly affect the capacity of a landfill or require the expansion of local infrastructure by accommodating the proposed project's solid waste disposal needs. During site preparation and removal of invasive species, green waste would be generated and completely removed from the project sites and disposed of at the closest acceptable landfill or composting facility in Riverside County. Except for routine maintenance associated with ensuring the health of the vegetation, the proposed project would not generate waste of any kind once operational. Therefore, the proposed project would have a less-than-significant impact related to solid waste.

Would the project comply with federal, state, and local management and reduction statutes and regulations related to solid waste? *Level of Significance: Less-than-significant impact. (Modified CEQA Threshold)*

The project would comply with all federal, state, and local management and reduction laws and regulations related to the disposal of solid waste. There are no exceptional waste requirements that would require an exception to any statutes and regulations related to solid waste during project construction or operations. The proposed project would not significantly affect a landfill through accommodation of the proposed project's solid waste disposal needs. During site preparation and removal of invasive species, green waste would be generated and completely removed from the project sites and disposed of at the closest acceptable landfill or composting facility in Riverside County. Except for routine maintenance associated with ensuring the health of the vegetation, the

proposed project would not generate waste of any kind once operational. Therefore, the proposed project would have a less-than-significant impact related to solid waste.

Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board? *Level of Significance: No impact. (No Longer a CEQA Threshold)*

The City of Riverside Public Works Department provides for the collection, treatment, and disposal of wastewater generated within the area of the project within the city of Riverside, through the City of Riverside Water Quality Control Plant (RWQCP), and complies with state and federal requirements governing the treatment and discharge of wastewater. The Jurupa Community Services District and the Rubidoux Community Services District provide wastewater service to most of Jurupa Valley. Primary, secondary, and tertiary treatment of wastewater from the Jurupa, Rubidoux, and Edgemont Community Services Districts is transported to two nearby municipal wastewater treatment plants, including the nearby RWQCP.

The project would not generate any wastewater. During construction activities, a portable toilet may be provided for construction workers. The toilet would be hauled away and the waste disposed of at an approved facility, such as the RWQCP Septic Hauler Station. As such, no project impacts would occur related to wastewater treatment requirements.

Would the project require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects? *Level of Significance: No impact. (No Longer a CEQA Threshold)*

The Santa Ana River drains a watershed of over 2,700 square miles, which includes Orange County, the northwestern corner of Riverside County, the southwestern corner of San Bernardino County, and a small portion of Los Angeles County. The proposed project is within the historic Santa Ana River floodplain and is low gradient with undulating surface topography as a result of historic flood flows as well as human activities, including foot trails. The proposed project would involve recontouring, bank stabilization, and revegetation work in select highly erosive areas as well as at the confluence between the Santa Ana River and the tributaries within the restoration and mitigation areas. This project proposes to restore areas with existing erosion, debris, and sedimentation issues, with the intent of leading to less erosion or siltation on site or off site when compared to existing conditions. The proposed project would also enhance resiliency to channel erosion and provide connectivity to floodplain areas. By reducing channel downcutting and bank erosion, the proposed project would reduce erosion and siltation both on site and downstream and provide a beneficial impact.

Urban stormwater flows directly into the City of Riverside's storm drain system, which then discharges into the Santa Ana River. The Riverside County Flood Control and Water Conservation District operates a series of storm drains and channels throughout Jurupa Valley and the project area that collect runoff water and ultimately direct it to the Santa Ana River.

The project would not divert any stormwater to an existing stormwater system. The project sites are situated within the Santa Ana River floodplain. Implementation of the project would involve restoration, mitigation, and enhancement of the hydrology of the river and channels and native habitat within the boundaries of the proposed project sites. There would be temporary stormwater controls and a SWPPP in place during construction, but permanent stormwater control facilities would not be required. In the long term, the restoration and mitigation work would enhance natural hydrologic function of the tributaries and establish native vegetation, resulting in improved

sediment transport and water quality. The project would not require or result in the construction of new stormwater drainage facilities or expansion of existing facilities. As such, no project impacts would occur related to stormwater drainage facilities.

6.1.15 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones:

Would the project substantially impair an adopted emergency response plan or emergency evacuation plan? *Level of Significance: No impact. (New CEQA Threshold)*

According to the California Department of Forestry and Fire Protection (CAL FIRE), the project area is within a Local Responsibility Area – Unincorporated for fire hazards. According to the County of Riverside General Plan and the City of Riverside General Plan (Figure PS-7, Fire Hazard Areas), the project area is not within a Very High Fire Hazard Severity Zone. There are Very High Fire Hazard Severity Zones approximately 0.5 mile north and 0.5 mile east of the project area. As stated previously in Section 6.1.6, *Hazards and Hazardous Materials*, above, the project area is mostly within natural areas and the restoration and mitigation work would not alter any roadways that could impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan. The project would not involve modifications to facilities that are critical to emergency response, such as police, fire, and hospital facilities, and project improvements would not impede access to these facilities in an emergency. All access points, storage, and staging areas would be located in a manner that has the least impact on vehicular and pedestrian traffic. Therefore, the proposed project would not affect an adopted emergency response plan or emergency evacuation plan and no impacts would occur.

Due to slope, prevailing winds, and other factors, would the project exacerbate wildfire risks of, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire? *Level of Significance: Less-than-significant impact. (New CEQA Threshold)*

No part of the project area is immune from fire danger. Structural and automobile fires represent the most common types of fire in urbanized areas and can be caused by a variety of human, mechanical, and natural factors. Urban fires have the potential to spread to other structures or areas, particularly if not extinguished promptly. Proactive efforts, such as fire sprinkler systems, fire alarms, fire-resistant roofing, and construction methods, can collectively lessen the likelihood and reduce the severity of urban fires. Areas of dense, dry vegetation, particularly in canyon areas and on hillsides, pose the greatest potential for wildfire risks. The major urban/rural interface areas of high fire risk include the Santa Ana River Basin, Mount Rubidoux, Lake Hills, Mockingbird Canyon/Monroe Hills, Sycamore Canyon, Box Springs Mountain, and La Sierra/Norco Hills. Development into this natural landscape would increase the potential risk of fire damage to people and personal property. The Anza Creek and Old Ranch Creek project locations lie within the City of Riverside Fire Department fire responder Areas 1 and 5. The Hidden Valley Creek and Lower Hole Creek locations lie within fire responder area 7 (City of Riverside Fire Department 2017).

Riverside County has a long history of significant wildland fires. CAL FIRE is the forestry agency assigned to the unincorporated areas of Riverside County. The City of Riverside Fire Department has working automatic and mutual aid agreements with CAL FIRE to assist in fire protection. Vegetation

often called “chaparral” located in close proximity to development increases the risk. When a fire occurs, the weather, topography, type/nature of vegetation, access, and water supply have a significant impact on severity and outcome. Large, catastrophic wildland fires in Southern California are usually driven by Santa Ana winds. These dry/hot winds can blow at 60 to 100 miles per hour and can last several days. Houses that interface with the wildland areas are at risk from burning vegetation. The weight and speed of initial attack for wildland fires is dependent on location, weather, topography, and fuels (City of Riverside Fire Department 2017).

The project sites are heavily used by the homeless population currently in the area. Wildland fires are common in the Santa Ana River watershed from natural causes, arson, and unintended incidents. For example, on December 21, 2017, wildfire erupted under the Mission Inn Avenue bridge, adjacent to Mount Rubidoux. Numerous properties were threatened by the 50-acre blaze, which forced the evacuation of dozens of nearby homes before it was contained hours later. A homeless cooking fire was believed to be the source of this fire (mynews1a.com 2018). Closer to the proposed project area, a small fire at an encampment site between the Santa Ana River and a bike trail just east of the Van Buren Bridge occurred on May 9, 2017, prompting the evacuation of 20 homeless people before the fire was contained (Press-Enterprise 2017). This fire was caused by an open barbecue. There have been several attempts to relocate transient populations from the Santa Ana River bottom, but the area continues to draw many chronically homeless people to the site.

The proposed restoration and mitigation activities could potentially reduce the incidences of arson through removal of homeless encampments from the project sites. Post-construction monitoring would also be conducted through park ranger patrol of the project area and other areas along the Santa Ana River to deter unauthorized human disturbances, including garbage disposal and homeless encampments, from disturbing and destroying restoration and mitigation sites. Additionally, there would be no significant increase in naturally caused fires due to maintaining similar natural, open spaces as currently exist at the sites and through the provision of additional water to the sites to ensure success of newly installed vegetation. Because there would be no exposure to significant risk of loss, injury, or death involving wildland fires, the project would not exacerbate wildfire risk or expose occupants to pollutant concentrations from a wildfire. As such, impacts would be less than significant.

Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines, or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts on the environment? *Level of Significance: Less-than-significant impact. (New CEQA Threshold)*

Implementation of the proposed project would involve restoration, mitigation, and enhancement of the hydrology of the river and channels and native habitat within the boundaries of the project sites. The proposed project would not construct buildings, power lines or other utilities, or permanent roads. All access points, storage, and staging areas during construction would be located in a manner that has the least impact on native vegetation as well as vehicular and pedestrian traffic. An irrigation system (i.e., a groundwater well) may be required to enhance the survivorship of newly installed native plants and seed when plants have been grown in nursery conditions, when they are planted under initially dry or drought conditions, or when planting does not occur within an ideal seasonal planting time frame. This additional infrastructure is not anticipated to exacerbate fire risk in the project area.

The project would improve the existing onsite natural habitat, and fire risk would not increase with the project in operation. As stated previously, proposed restoration and mitigation activities could potentially reduce the incidences of arson through removal of homeless encampments from the project sites. Therefore, impacts would be less than significant.

Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?
Level of Significance: Less-than-significant impact. (New CEQA Threshold)

No buildings or habitable structures are proposed as part of the project. Existing housing in the vicinity of the restoration and mitigation areas is well above the top of stream banks and significantly higher than the existing flood elevations that occur during rain events. The proposed project would result in the displacement of homeless encampments in order to conduct and maintain tributaries restoration and mitigation activities; however, these encampments are illegally installed in public open space areas, in areas not zoned or designed for residential uses by the cities of Riverside and Jurupa Valley or the County of Riverside, and no permanent residences or structures would be displaced with the proposed project. These illegal temporary encampments are not suitable as permanent residences and there are no utility connections or direct access routes to get homeless people safely to and from the encampment sites. The project sites are in natural, open space areas dominated by river waters and are generally considered as unsafe living conditions. In December 2018 and January and February 2019 during heavy winter storms, emergency services were called to airlift many homeless out of the rising river waters as these people were being fully surrounded by floodwaters and were stranded, because flooding during heavy rains in addition to fires in dry conditions can pose safety hazards to anyone living in the Santa Ana River area.

The proposed project would restore these natural tributaries and provide cleanup of trash and other forms of destruction of the sites caused by human influences to recover the project sites to a more natural and sustainable condition. Post-construction monitoring would also be conducted through park ranger patrol of the project area and other areas along the Santa Ana River to deter unauthorized human disturbances, including garbage disposal and homeless encampments, from disturbing and destroying restoration and mitigation sites. Furthermore, no other modifications are proposed in these areas besides armoring the bank in select areas and providing connection between the channel and floodplain that would serve to lower flood elevations by allowing spreading of storm flows over a wider floodplain when compared to existing conditions. The project sites might be susceptible to seismically induced rockfalls and landslides, as stated earlier in Section 6.1.5, *Geology, Soils, and Paleontological Resources*; however, landslide hazards related to post-fire instability in the lower level valley area of the project sites are not likely to expose people or structures to significant risk. Therefore, the project would not expose people or structures to significant risks of flooding or landslides, and a less-than-significant impact would occur.

The California Environmental Quality Act (CEQA) Guidelines §15126.6 require that an Environmental Impact Report (EIR) describe and comparatively evaluate a range of alternatives to the proposed project. The lead agency is given substantial latitude in determining the range of “reasonable” alternatives under the general guidance that alternatives must be “feasible” and “shall be selected and described in a manner to foster meaningful public participation and informed decision making.” The analysis of the environmental effects of the alternatives is intended to be less detailed than the analysis of the proposed project and to be primarily comparative.

7.1 Project Alternatives Summary

According to the State CEQA Guidelines, an EIR must describe a reasonable range of alternatives to a project that could feasibly attain most of the basic project objectives, and would avoid or substantially lessen the project’s significant environmental effects. This alternatives analysis summarizes the alternatives screening process conducted to identify feasible alternatives that meet project objectives. As required by CEQA, this analysis first considers which alternatives can meet most of the basic project objectives, and then to what extent those remaining alternatives can avoid or reduce the environmental impacts associated with the project.

The range of alternatives required in an EIR is governed by a “rule of reason” that requires the EIR to set forth only those potentially feasible alternatives necessary to foster informed public participation and an informed and reasoned choice by the decision-making body (State CEQA Guidelines §15126.6(f)). Therefore, an EIR does not need to address every conceivable alternative or consider infeasible alternatives. CEQA generally defines “feasible” to mean the ability to be accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, technological, and legal factors. The following factors may also be considered: site suitability, economic viability, availability of infrastructure, general plan consistency, other plans or regulatory limitations, jurisdictional boundaries, and the ability of the proponent to attain site control (State CEQA Guidelines §15126.6(f)(1)). An EIR does not need to consider an alternative whose impact cannot be reasonably ascertained and whose implementation is remote and speculative.

Three alternatives were selected for detailed analysis.

- Alternative A: No Project
- Alternative B: Proposed Project Plus Evans Creek Site
- Alternative C: Reduced Proposed Project Alternative (Removal of the Expanded Mitigation Reserve Program Phase II)

The goal for evaluating these alternatives is to identify alternatives that would avoid or lessen the significant environmental effects of the project, while attaining most of the project objectives. The following sections provide a general description of each alternative, its ability to meet the project objectives, and a qualitative discussion of its comparative environmental impacts. As provided in

§15126.6(d) of the State CEQA Guidelines, the significant effects of these alternatives are identified in less detail than the analysis of the proposed project.

7.1.1 Project Alternatives Selected for Analysis

As stated previously, three alternatives including the no project alternative and two build alternatives were selected for detailed analysis. These are described below.

7.1.1.1 Alternative A: No Project Alternative

An analysis of the No Project Alternative is required under State CEQA Guidelines §15126.6(e). According to §15126.6(e)(2) of the State CEQA Guidelines, the “no project” analysis must discuss “what is reasonably expected to occur in the foreseeable future if the project were not approved, based on current plans and consistent with available infrastructure and community services.”

The No Project Alternative represents a “no build” scenario in which the proposed project would not be constructed or operated. It assumes that the proposed restoration components of the four project sites would not be implemented and no project components would be constructed. Under the No Project Alternative, the project sites would continue to be degraded and would not support Santa Ana sucker habitat or connect with the Santa Ana River. There would be no creation and enhancement of channels and floodplains, and the project sites would continue to be dominated by nonnative species. Any site cleanup effort would occur sporadically and when funding is available or when disturbance and destruction of the sites along the Santa Ana River cause them to become so degraded as to require emergency cleanup. The No Project Alternative would not improve the condition of the Upper Santa Ana River habitat and water quality, and these challenges noted previously within the upper Santa Ana River watershed would continue.

7.1.1.2 Alternative B: Proposed Project Plus Evans Creek Site Alternative

In addition to the four restoration sites described in Chapter 2, *Project Description*, an additional site, Evans Creek, would be considered as an alternative for implementation of greater restoration activities, as described further below. The Proposition 84 grant program provides funding to construct the four sites (Old Ranch Creek, Anza Creek, Hole Creek, and Hidden Valley Creek) identified by the proposed project. The restoration work proposed at Evans Creek was not included in the Proposition 84 grant application, as there was not sufficient funding for this additional site, and this and other sites were not included in the evaluation of the proposed project. However, Evans Creek is being evaluated as an alternative restoration site in this section.

The Evans Creek site burned in 2017 and now provides an immediate opportunity for restoration and enhancement. The Evans Creek site was previously evaluated as part of the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* (Appendix A of this EIR), with additional details provided here for context. This alternative would involve all elements of the proposed project, both the Tributaries Restoration Project and Mitigation Reserve Program Phase I and Expanded Mitigation Reserve Program Phase II, and the addition of the Evans Creek site as a fifth tributaries restoration site.

The Evans Creek site covers approximately 115 acres in the city of Riverside’s Fairmount Park and is the farthest upstream on the Santa Ana River of the restoration sites as compared to the four restoration sites proposed as a part of the project. It is bounded to the northeast by Evans Lake, to

the west by the levee along the Santa Ana River, and to the east and south by the Santa Ana River Trail Bike Path. Evans Creek channel receives water from Evans Lake, either through the sluice gate that allows water to flow into the low-flow channel or from water that flows over the spillway and into the spillway channel. The land at the Evans Creek site is owned by the City of Riverside.

When Evans Creek reaches the Santa Ana River levee, it flows through two parallel 48-inch reinforced concrete circular barrels with concrete aprons and wingwalls. The levee has a depressed spillway just north and about 11 feet higher than the culvert inverts to allow conveyance of high flows over the levee. A grouted rock drop structure connects the downstream concrete apron with the earthen channel in the Santa Ana River floodway. The Santa Ana River's low-flow channel is presently located on the north side of the floodway; thus, the outfall from the Evans Creek does not connect directly with the mainstem Santa Ana River. Instead, it flows down a formerly active channel of the Santa Ana River in a southwesterly direction paralleling the levee. The bed elevation of the earthen channel downstream of the drop structure is 7 feet higher than the concrete invert apron of the culvert 180 feet upstream. The culvert is not passable by Santa Ana sucker under most flow conditions because of insufficient depths and excessive velocities.

Improvements at Evans Creek would include a new groundwater well and pump, new riparian corridor, new bank, channel bed complexity and rock and woody structures, fish passage, new channel, and recreational and educational amenities for Fairmount Park. The following key enhancement features are noted for the Evans Creek site, as shown on **Figure 7-1**.

1. The existing channel at Evans Creek does not have a reliable source of water from Evans Lake. If the lake elevation drops below the elevation of the sluice box at Dexter Drive, or the sluice box is not functioning correctly, little to no water spills from the lake to Evans Creek. A new groundwater well and pump would be constructed at the upstream extent of the channel near Dexter Drive to provide water. The exact capacity of the new pump has not yet been determined but the plan is for a minimum flow of 200 gallons per minute, which is 0.45 cubic foot per second. Minimum flows of 2 cubic feet per second may be required for limited durations to provide the flow depths necessary for sucker passage based on the preliminary fish passage designs. Future studies would need to be conducted to determine the achievable flow rate from the new pump. Ideally, the new pump would have the ability to vary flow rates so that pulses of higher flows can be periodically routed down the channel to flush fine sediment accumulations on gravel substrate.
2. A new native riparian corridor would be created in which nonnative plants would be removed and replaced with native vegetation planting. The riparian corridor would be approximately 100 feet wide (50 feet on either side of the channel), for a total of 8.5 acres. The actual width of the corridor could be changed in future designs as additional details are provided on actual mitigation needs.
3. Over 1,000 feet of new bank would be constructed on the channel's left bank to confine water to the enhanced channel and increase flow depths and velocities rather than allowing it to spread out into relatively flat, depressional areas to the south.
4. Channel bed complexity would be created by adding pools and riffles in channel reaches that would have sufficient flow velocities to maintain suitable coarse substrate for sucker habitat. Gravel would be added to new riffle sections that would have sufficient flow velocities to maintain suitable coarse substrate for Santa Ana sucker habitat.

5. Rock and woody material structures would be added that would create and sustain habitat complexity.
6. A fish passage would be added at the barrier created by the culvert under the Santa Ana River levee to allow Santa Ana sucker to migrate from the Santa Ana River into the enhanced Evans Creek channel to access additional habitat and find refugia from changing hydrologic conditions in the mainstem.
7. The existing channel in the mainstem Santa Ana River that heads south along the levee and under the Mission Boulevard bridge would be plugged with rock and wood and a new 280-foot-long channel would be excavated through a sediment berm in order to make a continuous channel connection between Evans Creek and the Santa Ana River.
8. In coordination with the City of Riverside Parks and Recreation Department, recreational and educational amenities would be created at the site to enhance public use of Fairmount Park. Refer to **Figure 7-1** for proposed conceptual improvements that would be considered at the site and adjacent park.
9. Restoration and native vegetation enhancement would occur where vegetation burned in the 2017 fire through similar construction and operational activities as those of the proposed Tributaries Restoration Project and Mitigation Reserve Program Phase I.

Creation of fish passage at the barrier created by the culvert under the Santa Ana River levee would allow Santa Ana sucker to migrate from the Santa Ana River into the enhanced Evans Creek to access additional habitat and find refugia from changing hydrologic conditions in the mainstem. Full details of the preliminary fish passage designs are contained in a report prepared by Northwest Hydraulic Consultants (see Appendix A of this EIR). In summary, two concept designs were developed to provide upstream passage for adults (and potentially juvenile Santa Ana sucker).

- **Option 1:** A vertical slot or orifice fishway downstream of the culvert outlet apron that would provide sufficient backwater to allow passage through the north culvert barrel (see Figure 5 in Appendix A of this EIR).
- **Option 2:** A roughened channel (rock ramp) fishway downstream of the culvert outlet that would create backwater to the pipe outlet with baffles in the south culvert barrel to provide passage (see Figure 6 in Appendix A of this EIR).

Completely replacing the existing culverts was also considered but is considered less feasible due to the logistics of cutting or tunneling through the flood control levee and the potential for blockage with changes in the Santa Ana River bed elevations. Conceptually, this option would replace the existing culverts at a lower elevation, such that they would connect with the invert elevation of the channel in the Santa Ana River bed. The culverts could have a natural bottom by countersinking oversized barrels, and a roughened channel fish passage could be constructed upstream of the culvert inlet to connect to the invert elevation of the channel upstream. Alternatively (depending on channel morphology and slope upstream), the upstream channel might be allowed to degrade 2 to 3 feet to match the new culvert elevation (Appendix A of this EIR).

The typical cross-section developed for the Evans Creek site shows several proposed enhancements to the creek. Under the existing condition, the site is nearly all nonnative plants and the channel is shallow, poorly defined, and overgrown with vegetation in many areas. The post-project condition cross-section shows how a new bank would be constructed to confine water to the enhanced channel so that flow depths and velocities would be increased. Large woody material would be

added to the channel along with gravel substrate to enhance habitat conditions and a new riparian vegetation corridor would be planted with native vegetation. Refer to **Figure 7-1** for the location and conceptual improvements proposed.

Additional information regarding site conditions at Evans Creek in a standalone opportunities and constraints analysis for Evans Creek currently in development.

In addition, the City of Riverside Parks, Recreation & Community Services Department proposes to add community facilities within the project site (e.g., educational nature trails and bike paths, amphitheater, archery range, interpretive garden, educational signage, challenge course or other educational amenity, community demonstration garden or incubation farm, group camping and day use area, parking, picnic benches, restrooms). Final design for the Evans Creek site has not been developed and this analysis takes into account options for the site's buildout, which may involve a combination of restoration and recreational opportunities.

In summary, this alternative would involve all elements of the proposed project, both the Tributaries Restoration Project and Mitigation Reserve Program Phase I and Expanded Mitigation Reserve Program Phase II, and the addition of the Evans Creek site as a fifth tributaries restoration site, utilizing similar construction and operational elements as the proposed project. This alternative is being considered to evaluate the environmental effects of the additional restoration opportunities on an existing disturbed site along the Santa Ana River.

7.1.1.3 Alternative C: Reduced Proposed Project Alternative (Removal of the Expanded Mitigation Reserve Program Phase II)

This alternative would remove other restoration opportunities associated with the mitigation and conservation bank, also known as the Expanded Mitigation Reserve Program Phase II, from the proposed project. This alternative would involve including only the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program Phase I as a project component, which includes the smaller project area of 67.3 acres in comparison to the Expanded Mitigation Reserve Program Phase II area, which includes 411.16 acres that would be removed from consideration in this alternative. The Tributaries Restoration Project and Mitigation Reserve Program Phase I component of the proposed project restoration sites would be designed to increase the amount and quality of habitat for the Santa Ana sucker and other native species and enhance jurisdictional aquatic resources; restoration of existing channels and an existing floodplain tributary; enhancements to existing riparian and floodplain habitats; limiting of human disturbance; and control of nonnative invasive species. The four restoration sites are Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek. The Expanded Mitigation Reserve Program Phase II, which is evaluated at a programmatic level, is considered for removal with this alternative to result in a smaller project area, which could reduce project environmental impacts.

7.1.2 Alternatives Considered but Rejected at this Time

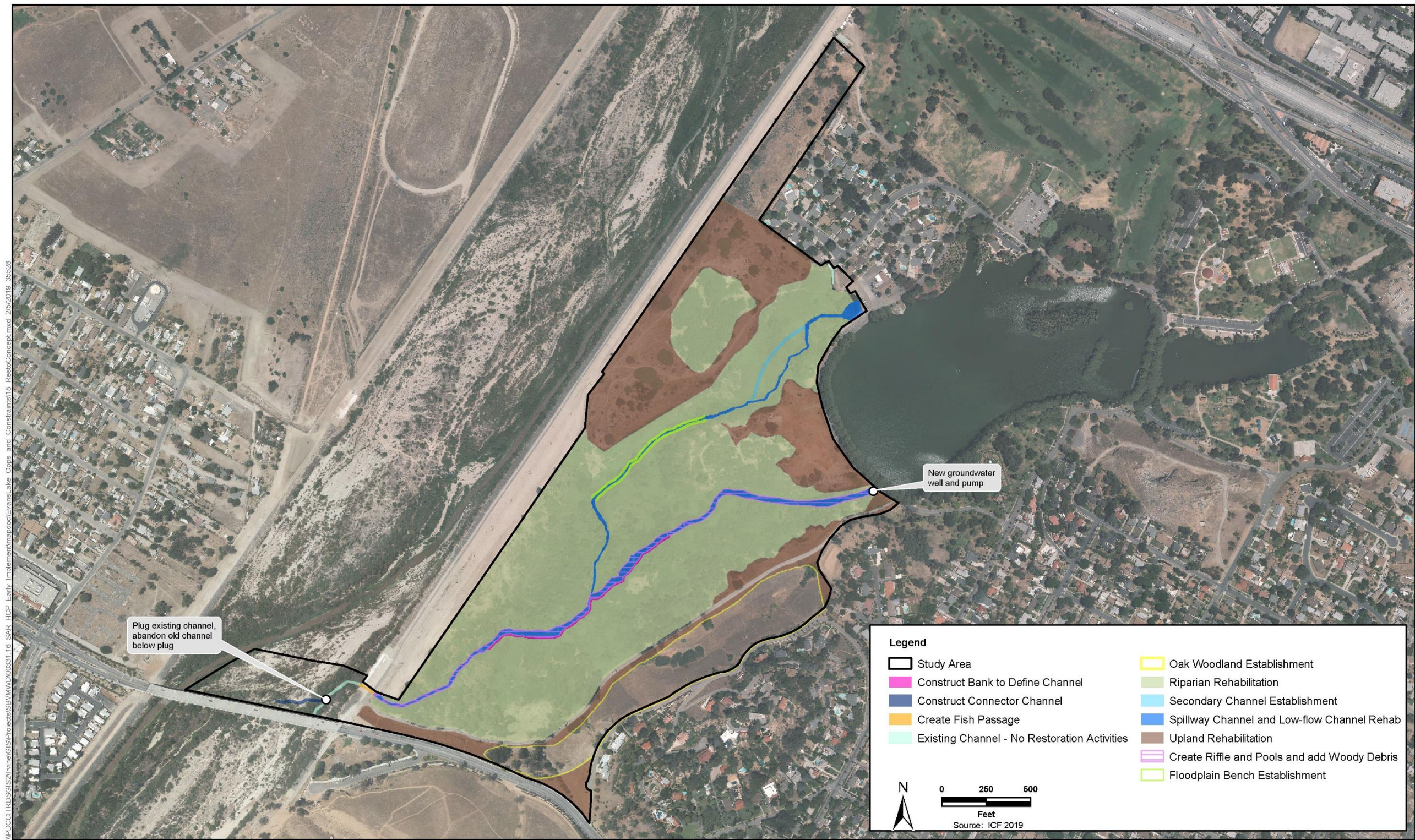
In addition to the project alternatives listed above, several alternatives were considered but rejected from further analysis in the EIR because they did not accomplish most of the basic proposed project objectives, they would be infeasible to construct, and/or they did not provide the same benefits to threatened and endangered species.

According to CEQA, an EIR must briefly describe the rationale for selection and rejection of alternatives. The lead agency may make an initial determination as to which alternatives are potentially feasible and, therefore, merit in-depth consideration, and which are clearly infeasible. Alternatives that are remote or speculative, or the effects of which cannot be reasonably predicted, need not be considered (State CEQA Guidelines §15126.6(f)(3)). This section identifies alternatives considered by the lead agency but rejected as infeasible at this time, and provides a brief explanation of the reasons for their exclusion. Alternatives may be eliminated from detailed consideration in the EIR if they fail to meet most of the project objectives, are infeasible, or do not avoid any significant environmental effects (State CEQA Guidelines §15126.6(c)).

This section describes those alternatives.

7.1.2.1 Addition of an Expanded Mitigation Reserve Program Phase II (Additional Restoration Opportunities) Alternative

This alternative would involve the addition of other restoration opportunities through a mitigation or conservation bank within the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program Phase I area, utilizing the same study area of the proposed project. Through evaluation of the project, project objectives, and the project area, the proposed project was modified to include an official Expanded Mitigation Reserve Program Phase II as a component of the project rather than just identifying restoration opportunities within the larger study area of the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. As such, this alternative was rejected as an alternative and instead evaluated as a part of the proposed project in this Draft EIR as the Expanded Mitigation Reserve Program Phase II, which is evaluated at a programmatic level. Refer to Section 2.7 for additional project component information and Chapter 3, *Impacts Analysis*, for the environmental evaluation of the Expanded Mitigation Reserve Program Phase II project components. Refer to discussion in Section 7.1.3.3 below for an evaluation of the Reduced Proposed Project Alternative with the removal of the Expanded Mitigation Reserve Program Phase II.



* Recreation facilities (e.g. trails, camp site, picnic area, nature center, etc.) will be incorporated into the site plan which will reduce restoration opportunities shown in this figure.

Figure 7-1
Restoration Concept
Upper Santa Ana River Tributaries Restoration Project and
Mitigation Reserve Program

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7.1.2.2 Alternative Location for the Proposed Project (Tributaries Restoration Project and Mitigation Reserve Program Phase I and Expanded Mitigation Reserve Program) Alternative

This alternative would involve the addition of other restoration opportunities through restoration or a mitigation or conservation bank outside of the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program Phase I and Expanded Mitigation Reserve Program Phase II project area. Through evaluation of the project, project objectives, and the project area, the proposed project sites were determined to be the appropriate location to increase the amount and quality of habitat for the Santa Ana sucker and other native species and enhance jurisdictional aquatic resources. The proposed project sites were selected through collaboration with the Upper Santa Ana River Habitat Conservation Plan Biological Technical Advisory Committee, Upper Santa Ana River Hydrology Technical Advisory Committee, and other technical experts to determine the appropriate locations for the project that would provide the most benefits. The restoration design team worked closely with these technical specialists to define habitat requirements for the Santa Ana sucker and ensure the restoration design features developed would provide habitat needs for aquatic and terrestrial species in a sustainable manner. Other areas outside the proposed project area, with the exception of Evans Lake under Alternative B, would not likely provide the same habitat requirements or habitat needs as those found in the project area and would not provide the same or similar benefits as those of the proposed project. As such, this alternative was considered and rejected from further evaluation in the Draft EIR.

7.1.2.3 Reduced Tributaries Restoration Alternative

This alternative would involve implementing a reduced amount of restoration activities, either in the form of fewer sites or in the creation of less impactful restoration, that would minimize impacts on biological species or aquatic resources; as such, this alternative was considered to reduce potential environmental impacts. However, there would be less restoration potential, fewer benefits to the quality of habitat for the Santa Ana sucker and other native species, and fewer enhancements to jurisdictional aquatic resources. As the proposed project was developed to include the right balance of restoration for a much larger area of influence for the Upper Santa Ana River, this alternative would result in fewer improvements to the project site. As such, this alternative was considered and rejected from further evaluation in the Draft EIR.

7.1.2.4 Enhanced Passage for Santa Ana Sucker Alternative

This alternative involving enhanced passage for Santa Ana sucker at two locations would be in addition to the proposed project, including the implementation of both the Tributaries Restoration Project and Mitigation Reserve Program Phase I and Expanded Mitigation Reserve Program Phase II project components.

Sucker Passage at Levee Culvert/Evans Creek Alternative

When the Evans Lake Drain channel reaches the Santa Ana River levee, it flows through two parallel 48-inch reinforced concrete circular barrels with concrete aprons and wingwalls. The levee has a depressed spillway just north and about 11 feet higher than the culvert inverts to allow conveyance of high flows over the levee. The Santa Ana River's low-flow channel is currently located on the north side of the floodway, and the Evans Lake Drain channel does not connect directly with the

mainstem Santa Ana River; rather, it flows down a formerly active channel of the Santa Ana River paralleling the levee. The bed elevation of the earthen channel downstream of the drop structure is 7 feet higher than the concrete inert apron of the culvert 180 feet upstream. The culvert is not passable by Santa Ana sucker under most flow conditions because of insufficient depths and excessive velocities. These concepts are presented in the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* (Appendix A of this EIR).

Adding fish passage at the barrier created by the culvert under the Santa Ana River levee would allow Santa Ana sucker fish to migrate from the Santa Ana River into the Evans Creek channel to access additional habitat and adjust to changing hydrologic conditions. Improvements for Santa Ana sucker passage at the Evans Creek outlet are feasible from an engineering standpoint, although several design challenges are present that may limit the duration of the passage window as well as their success rate. Furthermore, the existing channel at Evans Lake does not have a reliable source of water. Due to the uncertainty of using a new passage structure at Evans Creek for fish and the availability, magnitude, and timing of flow in addition to the engineering challenges of building enhanced passage amid the site's challenges in elevation and flow amounts and connections, this alternative was considered and rejected from further evaluation in the Draft EIR.

Jurupa Avenue Sucker Passage Alternative

The Jurupa Avenue crossing forms a complete barrier to Santa Ana sucker passage. It is a complicated structure that includes a rock rip-rap forebay, a concrete inlet apron, three reinforced concrete box culverts, a concrete outlet apron and stilling basin, and a steep (37 percent slope), loose rip-rap drop structure that ties into the earthen channel on the downstream end. Overall the structure creates a 27-foot elevation drop between the upstream and downstream ends. Creation of fish passage at the barrier created by Jurupa Avenue would allow Santa Ana sucker fish to migrate from the Santa Ana River and into upper Hole Creek to access additional habitat and adjust to changing hydrologic conditions. Two concept designs were developed and evaluated for their feasibility to provide upstream passage for adults (and potentially juveniles). These concepts are presented in the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration Projects* (Appendix A of this EIR).

Although potentially feasible from an engineering standpoint, providing passage for Santa Ana suckers at the Jurupa Avenue site would be a challenging project and may not be preferred among other options that could much more easily provide access for the fish to additional habitat in the area without the creation of complicated passage structures that may not be successful. Furthermore, the Santa Ana sucker fish would need to swim in hydraulic conditions that are much different than that of their preferred habitat, which may reduce the success rate of this passage enhancement. Smaller passage projects, from which information on species-specific behavior and swimming ability in similar fish passage structures could be obtained, would be preferable prior to this option. Similar to the Sucker Passage at Levee Culvert/Evans Creek Alternative, this alternative would also be challenging to implement from an engineering and design standpoint, and there would be uncertainty regarding the success of the new passage due to the site's elevation and anticipated cost (potentially up to \$1.7 million). As such, this alternative was considered and rejected from further evaluation in the Draft EIR.

7.1.3 Alternatives Impact Analysis

7.1.3.1 Alternative A: No Project Alternative

Alternative A: No Project Alternative represents a “no build” scenario in which the proposed project would not be constructed or operated. Alternative 1 would avoid the significant impacts of the proposed project but would not meet any of the project objectives. In addition, under this alternative, the project sites would continue to be degraded and would not support Santa Ana sucker habitat or connect with the Santa Ana River. The current set of environmental constraints (invasive species, garbage disposal on site, homeless encampments, and other evidence of human disturbance) would continue to limit the quality and productivity of the Santa Ana River. There would be no creation and enhancement of channels, floodplains, and wildlife habitat, and the project sites would continue to be dominated by nonnative species. Any site cleanup effort would occur sporadically and when funding is available or when disturbance and destruction of the sites along the Santa Ana River cause them to become so degraded as to require emergency cleanup.

Agriculture and Forestry Resources

There is designated Farmland of Local Importance within the project sites; however, none of the project areas are currently zoned as agriculture or used for agricultural purposes. The proposed project would not remove existing agricultural lands (fallow or active) and would not result in any significant impacts on agriculture resources. Similarly, Alternative A would have no impact on agricultural resources, as there would be no change to the project areas.

Air Quality

The proposed project would result in temporary construction-related emissions (from construction activities, vehicles, and equipment) and short-term operational and maintenance-related emissions, and less-than-significant impacts on air quality would occur. Under Alternative A, there would be no construction-related emissions and no operational emissions. As construction and operation of the project would not occur, there would be no potential impacts associated with construction and operation. Therefore, this alternative would have fewer impacts on air quality compared to the proposed project.

Biological Resources

The proposed project would result in less-than-significant impacts during construction and during maintenance and operations. Under Alternative A, there would be no restoration and no site improvements, and no impacts would occur on sensitive habitats or special-status plant and wildlife species during the short term, although mitigation would reduce any impacts caused by the project. Alternative A would not modify existing habitat within the proposed project sites and would therefore not meet the any of the project objectives such as the creation of new or improved aquatic habitat for native aquatic species (including the Santa Ana sucker, the arroyo chub, and the Santa Ana speckled dace); implementation of site improvements to create and enhance sustaining native fish habitat; provision of responsible access and use of public recreation areas within the Upper Santa Ana River; education of the public on responsible use and value of the natural resources on site; long-term maintenance of the restored sites; and the creation of an Expanded Mitigation Reserve Program Phase II for future improvements to the sites.

Temporary construction impacts under Alternative A would not occur, which would reduce the risk of invasive species introduction. No direct impacts on special-status plants or animal species present within the proposed project area would occur. No impacts on any sensitive habitats or jurisdictional waters and wetlands would occur. The Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek sites would continue to function as constrained wildlife corridors to the same extent as under the existing conditions. However, there would be no creation and enhancement of channels and wildlife habitat, the project sites would continue to be dominated by nonnative species, and the same project site disturbances caused by human influences would continue within the Upper Santa Ana River watershed. Alternative A would not improve the condition of the Upper Santa Ana River habitat or resiliency of the Santa Ana sucker and other species found within the Santa Ana River influence area. This alternative would have fewer short-term impacts on biological resources compared to the proposed project, although impacts under both would be less than significant. Furthermore, this alternative would provide fewer benefits to wildlife habitat and species like the Santa Ana sucker without restoration and mitigation improvements on site.

Cultural Resources

The proposed project has the potential to encounter cultural and archaeological resources during construction of the project areas, including ground-disturbing activities. Ground disturbance would take place immediately adjacent to an archaeological resource site boundary, and therefore could have the potential to cause a significant adverse change in the significance of this resource. Under Alternative A, no ground-disturbing activities would occur to affect any known or unknown historical or archaeological resources. Therefore, this alternative would have fewer impacts on cultural resources compared to the proposed project.

Geology, Soils, and Paleontological Resources

The proposed project has the potential to encounter paleontological resources during ground-disturbing activities. Under Alternative A, no ground-disturbing activities would occur to affect any known or unknown paleontological resources. Therefore, this alternative would have fewer impacts on paleontological resources compared to the proposed project.

Greenhouse Gas Emissions

The proposed project would result in a less-than-significant impact related to greenhouse gas (GHG) emissions. Under Alternative A, there would be no restoration or increases in GHG emission releases from construction or operational activities. Therefore, this alternative would result in fewer effects related to GHG emissions as compared to the proposed project.

Hazards and Hazardous Materials

The proposed project would result in a less-than-significant impact on hazards and hazardous materials. Under Alternative A, no construction-related hazardous materials, including fuel, solvents, chemicals, and oils, would be brought to the sites and the generation of hazardous wastes would not occur. As such, this alternative would result in fewer impacts related to hazards and hazardous materials during construction with the use of fewer construction-related hazardous materials as compared to the proposed project. However, the proposed project would involve additional restoration opportunities within the project sites to restore areas to natural conditions, including removing trash and other forms of destruction caused by human influence and homeless site

occupation. This cleanup effort, maintenance, and site monitoring to keep sites from further destruction may not occur with Alternative A, or it may occur sporadically when funding and resources are available. Therefore, the impact would be similar in comparison to the proposed project; specifically, Alternative A would have fewer impacts during construction but potentially greater impacts long term without additional cleanup and restoration of the proposed project areas.

Hydrology and Water Quality

The proposed project would result in a less-than-significant impact on hydrology and water quality. Under Alternative A, there would be no restoration and thus no changes to the existing drainage patterns of the sites or positive benefits to the existing drainage systems associated with the Upper Santa Ana River. Alternative A would not improve the condition of the Upper Santa Ana River tributaries through restoration and enhancement activities aimed at improving site conditions, water quality, and flood conveyance; and these challenges noted previously within the Upper Santa Ana River watershed would continue. This alternative would result in fewer surface water quality impacts during construction, but would not benefit hydrology and water quality in the long term.

Noise and Vibration

The proposed project would result in a less-than-significant impact with mitigation and improvement measures for operations and maintenance activities and for temporary construction noise. Under Alternative A, there would be no restoration and no change to existing ambient noise levels. No noise and vibration impacts would occur under Alternative A. Therefore, this alternative would result in fewer impacts from noise and vibration compared to the proposed project.

Population and Housing

The proposed project would result in a less-than-significant impact on population and housing. Similar to the proposed project, Alternative A would not result in the need for new housing or induce growth. However, homeless encampments are found scattered throughout the Santa Ana River floodplain. Under Alternative A, construction and operation of the project would not occur, and accordingly the existing homeless encampments could remain on site until local jurisdictions have available funding and resources to clean up garbage and encampments from the project area, which would also involve preventing transients from continuing to directly disturb the floodplain. Local jurisdictions like the cities of Riverside and Jurupa Valley and the County of Riverside are currently working to aid homeless in their respective jurisdictions. As such, local jurisdictions would provide outreach and ample services, as identified in Section 3.10, *Population and Housing*, to assist in providing supportive housing, medical care, mental health services, etc. to homeless individuals and place them in safer conditions, which could also benefit the chronically homeless population along the Santa Ana River. The beneficial effect of site management proposed by the project would not occur and transient populations could remain on site. Also as part of the proposed project, two full-time County of Riverside park rangers would patrol the project sites areas along the Santa Ana River and part-time maintenance staff would be added, which may not occur with Alternative A. Monitoring the Santa Ana River areas would keep homeless populations from building semi-permanent structures and protect the restored habitats from degradation caused by human influence within the Santa Ana River floodplain. It should be noted that this alternative would result in the continuation of current site conditions, which include disturbed habitat and continued disturbance caused by the homeless population. Even though the proposed project would result in benefits that would not occur with Alternative A, local jurisdictions would continue to support the

effort of improving conditions for homeless populations and providing them with necessary services, which would occur with and without the proposed project.

Recreation

The proposed project would result in a less-than-significant impact on recreation. Under Alternative A, there would be no restoration or improvements to the site, including the addition of recreational and educational opportunities. While the beneficial effects of project improvements would not occur under this alternative, the continuation of existing conditions as a result of Alternative A would result in less-than-significant impacts associated with recreation. The difference is Alternative A would involve fewer recreational opportunities but fewer impacts during construction regarding site disturbance and access disruption in comparison to the project. The proposed project would have greater benefits once construction has been completed, with greater recreational opportunities; however, Alternative A would have more impacts than the proposed project during the short term.

Tribal Cultural Resources

The proposed project would result in a less-than-significant impact on tribal cultural resources with mitigation, as there are archaeological sites that could be affected by the proposed project. Under Alternative A, no ground-disturbing activities would occur to affect any known or unknown tribal cultural resources. Therefore, this alternative would have fewer impacts on tribal cultural resources compared to the proposed project.

Utilities

Under Alternative A, construction involving restoration and mitigation activities would not occur, and no change would occur to utility systems or service demands. Under Alternative A, there would be no restoration and therefore no increased demand for water resources. Impacts related to utilities would not occur; however, the beneficial effects of providing water to the Santa Ana River and its tributaries also would not occur.

7.1.3.2 Alternative B: Proposed Project Plus Evans Creek Site

Alternative B: Proposed Project Plus Evans Creek Site represents an alternative that fully includes the proposed project plus one additional site, Evans Creek. In addition to the four restoration sites described in Chapter 2, *Project Description*, Alternative B would be considered as an alternative for implementation of more restoration activities and would provide additional benefits to the Santa Ana River than would occur with only implementation of the proposed project. The Evans Creek site is approximately 65 acres and is north of Mission Inn Avenue within the city of Riverside. The site is in the city of Riverside's Fairmount Park and is bounded to the northeast by Evans Lake, to the west by the levee along the Santa Ana River, and to the east and south by the Santa Ana River Trail Bike Path. Evans Creek channel receives water from Evans Lake, either through the sluice gate that allows water to flow into the low-flow channel or from water that flows over the spillway and into the spillway channel. The land at the Evans Creek site is owned by the City of Riverside.

The Evans Creek site was burned in a homeless encampment fire in 2017 and the site now provides an opportunity for restoration and enhancement. The Evans Creek site was previously evaluated as part of the *Site Characteristics and Preliminary Design of Santa Ana River Tributary Restoration*

Projects (Evans Creek opportunities and constraints memorandum current in development), with additional details provided here for context. An opportunities and constraints analysis specific to Evans Lake was also prepared in 2019, with details included here (ICF 2019). This alternative would involve all elements of the proposed project, both the Tributaries Restoration Project and Mitigation Reserve Program Phase I and Expanded Mitigation Reserve Program Phase II, and the addition of the Evans Creek site as a fifth tributaries restoration site.

This alternative would meet all the project objectives; however, additional environmental impacts could result due to the expanded area that would be included in the Alternative B project footprint and additional construction activity that would be associated with implementation of Alternative B in comparison to the proposed project and its alternatives; however, it would also have the greatest beneficial impacts on the watershed due to the increased restoration. The current set of environmental constraints (invasive species, garbage disposal on site, homeless encampments, and other evidence of human disturbance) would continue to limit the quality and productivity of the Santa Ana River at the Evans Creek site. However, with Alternative B, these environmental constraints would be reduced with the additional restoration of the site plus the addition of new recreational activities and opportunities. Without this alternative, any site cleanup effort at the Evans Creek site would occur sporadically and when funding is available or when disturbance and destruction of the sites along the Santa Ana River cause them to become so degraded as to require emergency cleanup.

When Evans Creek reaches the Santa Ana River levee, it flows through two parallel 48-inch reinforced concrete circular barrels with concrete aprons and wingwalls. The levee has a depressed spillway just north and about 11 feet higher than the culvert inverts to allow conveyance of high flows over the levee. A grouted rock drop structure connects the downstream concrete apron with the earthen channel in the Santa Ana River floodway. The Santa Ana River's low-flow channel is presently located on the north side of the floodway; thus, the outfall from the Evans Creek does not connect directly with the mainstem Santa Ana River. Instead, it flows down a formerly active channel of the Santa Ana River in a southwesterly direction paralleling the levee. The bed elevation of the earthen channel downstream of the drop structure is 7 feet higher than the concrete invert apron of the culvert 180 feet upstream. The culvert is not passable by Santa Ana sucker under most flow conditions because of insufficient depths and excessive velocities.

The largest restoration opportunity at the Evans Creek site is the rehabilitation of the riparian, stream, wetland, transitional, and upland habitats. The site is currently vegetated with several different invasive species, including but not limited to Brazilian pepper (*Schinus terebinthifolia*), palm (*Phoenix canariensis* and *Washingtonia robusta*), tamarisk (*Tamarix* spp.), eucalyptus (*Eucalyptus* spp.), fig (*Ficus carica*), mustard (*Brassica* spp.), fennel (*Foeniculum vulgare*), and nonnative grasses. In addition, due to the presence of homeless encampments and transients there are substantial amounts of trash, debris, and illegal trails throughout the site. Removing the invasive species, trash, and debris; reclaiming the illegal trails; and replanting with native species would result in rehabilitation of the entire site. Other restoration opportunities include rehabilitation of walnut woodland, oak woodland, and black willow woodland; laying back the channel banks in a portion of the spillway channel; creating a secondary/high-flow channel in the spillway channel; creating floodplain benches in the low-flow channel; creating riffles and pools and adding wood structure to the low-flow channel; providing supplemental flow to the low-flow channel; creating a new low-flow channel west of the Santa Ana River levee; and constructing a fish passage structure at the Santa Ana River levee.

The site is heavily used by humans, including recreational day-users and the homeless. The site is currently fenced on the western side along the Santa Ana River Trail Bike Path; however, several holes have been cut in the chain link fence. An asphalt foot/bike path exists on the southeastern side of the site and Evans Lake, a popular park and fishing location, is located to the west. Both of these areas are unfenced and allow easy access to humans. Homeless encampments were observed throughout the site, with a heavier concentration in the central and southern areas. As evidenced by burn scars on the palm trees, the site has burned several times in the last few years due to human activities, including in 2017. This poses a substantial risk to restoration for Evans Creek as a successful restoration site because human use is difficult to control without continued support from the local community and law enforcement, whereas the lack of such control imperils the integrity of restoration improvements and reduces the value of the site as habitat. Management of human use on the site would likely involve a substantial long-term cost, and careful site planning and design would be needed to minimize that expense.

An environmental assessment was prepared to evaluate the potential impacts at the Evans Creek Site as compared to the proposed project. The results of the environmental assessment are included in Appendix H of this EIR.

Agriculture and Forestry Resources

There is designated Farmland of Local Importance within the Evans Creek site, similar to the proposed project sites; however, none of the alternative's project areas are currently zoned as agriculture or used for agricultural purposes. Alternative B would not remove existing agricultural lands (fallow or active) and would not result in any significant changes to agricultural resources. Similar to the proposed project, Alternative B would have a less-than-significant impact on agricultural resources and a slightly greater impact in comparison to the proposed project, as there would be additional areas designated as Farmland of Local Importance that would be affected by Alternative B.

Air Quality

The proposed project would result in more temporary construction-related air quality emissions (from construction activities, vehicles, and equipment) and short-term operational and maintenance-related emissions than Alternative B; however, a less-than-significant impact on air quality would occur under the proposed project. Under Alternative B, there would be greater construction-related emissions and operational emissions with a larger project area, which is also located within Fairmount Park, a sensitive land use. Therefore, this alternative would have greater impacts on air quality compared to the proposed project.

Biological Resources

Under Alternative B, there would be additional restoration activities and site improvements, and impacts would occur on sensitive habitats or special-status plant and wildlife species during the short term, although mitigation would reduce any impacts caused by the project. However, there would be more creation and enhancement of channels and wildlife habitat, and the Evans Creek site would no longer be dominated by nonnative species. While there are impacts on biological resources for the development of this site, the benefits of the Evans Creek site would exceed the impacts and would result in a net benefit to biological resources, as stated below.

The Evans Creek site would likely provide habitat, currently and/or with restoration, for up to 10 species, listed in Table 7-1. Only two of these species are expected to occur prior to restoration: least Bell's vireo and yellow-breasted chat. Alternative B would result in permanent and temporary impacts during construction and operations on existing vegetation communities, many of which provide suitable habitat for special-status wildlife species.

Table 7-1. Species with Potential to Occur at the Evans Creek Site for Alternative B

Species	Habitat Suitability
Santa Ana River Woolly-star (<i>Eriastrum densifolium</i> ssp. <i>sanctorum</i>)	Existing known or potentially occupied
Santa Ana Sucker (<i>Catostomus santaanae</i>)	Future potentially occupied post restoration
Arroyo Chub (<i>Gila orcutti</i>)	Future potentially occupied post restoration
Santa Ana Speckled Dace (<i>Rhinichthys osculus</i> ssp.)	Future potentially occupied post restoration
Western Pond Turtle (<i>Actinemys marmorata</i>)	Future potentially occupied post restoration
South Coast Garter Snake (<i>Thamnophis sirtalis</i> sp.)	Future potentially occupied post restoration
Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>)	Future potentially occupied post restoration
Least Bell's Vireo (<i>Vireo bellii pusillus</i>)	Existing known or potentially occupied
Yellow-breasted Chat (<i>Icteria virens</i>)	Existing known or potentially occupied
Los Angeles Pocket Mouse (<i>Perognathus longimembris brevinasus</i>)	Future potentially occupied post restoration
San Diego Black-tailed Jackrabbit (<i>Lepus californicus bennettii</i>)	Future potentially occupied post restoration

The Evans Creek site would likely provide habitat, currently and/or with restoration, for one plant species (Table 7-1). Existing known or potentially occupied habitat for the Santa Ana River woolly-star was identified within the Evans Creek site. The proposed Alternative B would result in permanent and temporary impacts during construction and operations on existing vegetation communities, some of which would provide suitable habitat for special-status plant species, specifically the Santa Ana River woolly-star.

Least Bell's vireo, yellow-breasted chat, white-tailed kite, and yellow warbler are known, or expected, to nest within the Evans Creek site. Because the habitat quality suitable for special-status wildlife is expected to be increased, no permanent direct impacts on special-status wildlife are anticipated. These species would not have access to nesting and foraging opportunities in areas where vegetation is removed, and would likely remain out of these areas for an indeterminate period as restored vegetation becomes denser and more mature. If sensitive species are present, construction activities involving removal or modification of vegetation from the riparian, grassland, scrub, forest, woodland, and/or wetland plant communities could disturb, injure, or kill individuals or cause nest failure. All vegetation communities within the site and adjacent buffer areas also have the potential to support nesting birds. Alternative B would have the potential to directly affect least Bell's vireo, yellow-breasted chat, white-tailed kite, and yellow warbler individuals, nests, and occupied habitat with active territories during construction in the nesting season. Direct permanent impacts on special-status wildlife from Alternative B are expected to be the same as those described for the proposed project. Alternative B would result in similar impacts on special-status wildlife as the proposed project, but with slightly more habitat affected.

Creation and enhancement of aquatic and riparian habitat for Alternative B, including installation of a perennial water source, would increase the quantity and quality of stream habitat used by special-status fishes, semi-aquatic species, and other riparian species, resulting in long-term benefits to these species. Enhancements of other existing vegetation communities would improve functions and values for other special-status wildlife. Impacts are associated with activities that would restore existing disturbed habitat to high-quality aquatic and riparian habitat for focal, special-status species through channel creation and enhancement, installation of instream habitat features, and riparian vegetation planting. In their current state, these vegetation communities have the potential to support special-status riparian bird species, aquatic and semi-aquatic species, and terrestrial species. Although temporary, the impacts on approximately 17 acres of native vegetation would displace special-status species from suitable habitat.

Despite an expected overall increase in the amount and quality of riparian habitat and sensitive natural vegetation communities, Alternative B could result in permanent loss of native vegetation communities. However, through restoration of channel morphology and hydrologic functioning of the Santa Ana River tributaries, limiting of human disturbance, and removal of nonnative invasive species, the quality and quantity of riparian and other natural habitats within the five restoration sites would result in a beneficial impact.

Overall, impacts for Alternative B project would be considered significant prior to the implementation of mitigation measures BIO-1 through BIO-28, as described in the proposed project and in Section 3.4, *Biological Resources*. The implementation of these measures would reduce these impacts to a less-than-significant level for Alternative B. As proposed, Alternative B would increase the amount and quality of habitat for the Santa Ana sucker and other sensitive native species; enhance jurisdictional aquatic resources; restore existing channels and an existing floodplain tributary; enhance existing riparian and floodplain habitats; limit human disturbance; and control nonnative invasive species, and would be considered to result in a beneficial effect. This alternative would have greater short-term impacts on biological resources compared to the proposed project, although impacts under both would be less than significant with mitigation proposed. Furthermore, this alternative would provide greater benefits to wildlife habitat and species like the Santa Ana sucker without the proposed project and without the addition of the Evans Creek site.

Cultural Resources

Similar to the proposed project, Alternative B has the potential to encounter historical and archaeological resources during construction of the Evans Creek restoration site. According to the City of Riverside General Plan 2025 Program Recirculated Draft EIR (City of Riverside 2007), the Evans Creek site is located within an unknown archaeological sensitivity area but in a medium prehistoric cultural resources sensitivity area. A cultural assessment has not been conducted at the site; however, cultural resources are known to occur in the vicinity of the site. A cultural assessment should be conducted in the future to determine if resources are on site and if there are any associated constraints. Ground disturbance would occur in the Evans Creek area, and therefore could have the potential to cause a significant adverse change in the significance of a cultural resource. Under Alternative B, the potential for ground-disturbing activities to result in impacts on any known or unknown historical or archaeological resources could result in a significant impact. Therefore, this alternative would have greater impacts on cultural resources compared to the proposed project.

Geology, Soils, and Paleontological Resources

Similar to the proposed project, Alternative B has the potential to encounter paleontological resources during construction and excavation of areas within the Evans Creek restoration site. According to the City of Riverside General Plan 2025 Program Recirculated Draft EIR (City of Riverside 2007), the Evans Creek site is located within a medium prehistoric cultural resources sensitivity area. A paleontological assessment has not been conducted at the site; however, paleontological assessment should be conducted in the future to determine if resources are on site and if there are any associated constraints. Ground disturbance would occur in the Evans Creek area, and therefore could have the potential to cause a significant adverse change in the significance of a paleontological resource. Under Alternative B, the potential for ground-disturbing activities to result in impacts on any known or unknown paleontological resources could result in a significant impact. Therefore, this alternative would have greater impacts on paleontological resources compared to the proposed project.

Greenhouse Gas Emissions

Under Alternative B, there would be similar types of restoration activities at Evans Creek compared to other proposed tributary restoration sites. Alternative B would result in additional temporary construction-related GHG emissions (from construction activities, vehicles, and equipment) and short-term operational and maintenance-related GHG emissions than the proposed project with the addition of the Evans Creek site; however, less-than-significant impacts related to GHG emissions would likely occur. Under Alternative B, there would be greater construction-related and operational GHG emissions with a larger project area, which is also located within Fairmount Park, a sensitive land use. Therefore, this alternative would have greater impacts regarding GHG emission releases compared to the proposed project.

Hazards and Hazardous Materials

The proposed project would result in a less-than-significant impact on hazards and hazardous materials. Under Alternative B, construction-related hazardous materials would be brought to the Evans Creek site and the generation of additional project-related hazardous wastes would occur. Therefore, this alternative would result in greater impacts related to hazards and hazardous materials as compared to the proposed project. However, the proposed project would involve additional restoration opportunities within the Evans Creek site to restore areas to natural conditions, including removing trash and other forms of destruction caused by human influence and homeless site occupation, which would be seen as a benefit. The cleanup effort, maintenance, and site monitoring proposed for Alternative B would improve this additional site along with the proposed project sites. Therefore, this alternative would have greater impacts during construction with additional cleanup and restoration of the Evans Creek site.

Hydrology and Water Quality

The watershed area upstream of Evans Lake is approximately 9 square miles with two major drainage channels, Spring Brook Wash and University Wash, providing most of the runoff to Evans Lake (Evans Creek opportunities and constraints memorandum current in development). These channels were constructed by the U.S. Army Corps of Engineers and are maintained by Riverside County Flood Control and Water Conservation District. Locally high groundwater elevations likely supported the lake's water historically but with the declines in groundwater levels, the lake's water

is now maintained by pumping from wells to support recreation (Evans Creek opportunities and constraints memorandum current in development).

Hydrology of the site has been severely manipulated over the last century. Prior to construction of Fairmount Park and Evans Lake, sometime prior to 1931, Spring Brook Wash ran through the Evans Creek site unhindered (as can be seen in 1942 and earlier U.S. Geological Survey topography maps) (ICF 2019). Groundwater levels of the wash were likely near the surface or artesian and the site may have served as seasonal spawning and rearing habitat for Santa Ana sucker. Portions of the site were also within the floodplain of the Santa Ana River, as shown in the 1931 historic imagery (Figure 3 in the Evans Creek opportunities and constraints memorandum current in development) and likely received flood flows from the river in larger storm events, depending on the size of the storm and the location of the primary channel in relation to the Evans Creek site at the time of the storm. Today, the site's hydrology is manipulated and dependent on outflows from Evans Lake, which is maintained by pumping groundwater into the lake, and flows from Spring Brook Wash through the culvert in the spillway channel. In addition, the Santa Ana River levee is now located toward the western end of the site and the Santa Ana River is completely cut off from the site. As such, re-establishing the site to historic hydrologic and hydraulic conditions is not possible.

Primary inputs to the site are from three sources: a culvert that carries flows from Spring Brook Wash into the spillway channel; a spillway/low water crossing over Dexter Drive that feeds the spillway channel and spills during storm events, both of which are located at the northeastern end of the site; and a riser/outflow box within Evans Lake that carries flows into the low-flow channel at the southeastern end of the site. Flows in the site are likely perennial (or at least intermittent) due to the developed watershed upstream and urban runoff, and during August and October 2018 site visits, water was seen flowing in both channels. However, flows are likely not consistent or predictable throughout the year and may be reduced in the low-flow channel if the lake level drops below the elevation of the outflow box or the box is not functioning properly. Inconsistent and potentially reduced flows can create problems when trying to create habitat for the Santa Ana sucker. Therefore, as discussed previously, a groundwater pump and well are proposed to provide additional flows. However, there may be some potential issues with providing a source of water that is controlled via machinery or a structure. In addition, constructing a fish passage at the Santa Ana River levee that works properly to allow sucker and other fish to access the site has some design and hydraulic hurdles that would need to be worked out in further design.

The proposed project would result in a less-than-significant impact on hydrology and water quality. Under Alternative B, there would be additional restoration and site improvements at the Evans Creek site and thus changes to the existing drainage patterns of the site would occur, which could also contribute positive benefits to the existing drainage systems associated with the Upper Santa Ana River. Alternative B would improve the condition of the Upper Santa Ana River habitat through restoration and mitigation activities at five instead of four sites aimed at improving site conditions and hydrology, although the Upper Santa Ana River watershed would continue to experience those challenges noted previously. This alternative would result in greater surface water quality impacts during construction and the need for groundwater, but would also benefit hydrology and water quality in the long term.

Noise and Vibration

Under Alternative B, there would be additional project activities with the inclusion of the Evans Creek site and greater changes to existing ambient noise levels during construction, operations, and

maintenance activities because of the proximity of Fairmount Park, a sensitive land use. As such, greater noise and vibration impacts would occur. Therefore, Alternative B would result in greater impacts from noise and vibration compared to the proposed project.

Population and Housing

Similar to the proposed project, Alternative B would not result in the need for new housing or induce growth. However, homeless encampments are found scattered throughout the Santa Ana River floodplain, including within the Evans Creek site. Under Alternative B, construction and operation of the project would be expanded to Evans Creek, and cleanup of garbage and encampments from the project area would occur, which would also prevent transients from continuing to directly disturb the floodplain. As such, the beneficial effect of site cleanup and site management would occur with this alternative. Local jurisdictions would provide ample services as identified in Section 3.10, *Population and Housing*, such as the effort involving the Fairmont Park/Mount Rubidoux Santa Ana River Task Force, to provide assistance (supportive housing, medical care, mental health services, etc.) to homeless individuals and place them in safer conditions, which could also benefit the chronically homeless population along the Santa Ana River. Even though this alternative would result in benefits (e.g., site management) that would not occur without the proposed project and the addition of Evans Creek, local jurisdictions would continue to support the effort of improving conditions for homeless populations and providing them with necessary services, which would occur with and without this alternative. As such, this alternative would result in similar impacts as those of the proposed project but with additional benefits in providing safe conditions for homeless and other recreation visitors at Evans Creek. Without implementation of Alternative B, the continuation of impacts on the native habitat at the Evans Creek site would continue to occur as compared to the proposed project. Local jurisdictions would continue to provide assistance to homeless populations found within the Evans Creek site.

Recreation

The Evans Creek site is within Fairmount Park in the city of Riverside, which supports fishing, small non-motorized boating, and general recreation. There is also an undeveloped Boy Scout camp located at the site. To the south of the site lies an asphalt walking/bike trail and to the west of the site lies the Santa Ana River levee and bike bath.

The City of Riverside Parks, Recreation, and Community Services Department, a partner to San Bernardino Valley Municipal Water District, proposes to add community facilities within the Evans Creek site (e.g., a nature trail, amphitheater, archery/bb gun range, community garden, camping, and day use area). These facilities would be constructed outside of the most sensitive areas of the Evans Creek site and many would incorporate community outreach and education about the natural resources of the site. The specific facilities and their location are not known at this time; however, the City of Riverside Parks, Recreation, and Community Services Department has prepared a preliminary design of possible facility locations (Figure 7-1). Depending on the facilities that are constructed, their use, and location, they could negatively affect biological and aquatic resources. These facilities could be located away from sensitive areas depending on final design, and the mitigation and recreational needs and compatibility should be considered in the final site design.

The proposed project would result in a less-than-significant impact on recreation. Under Alternative B, there would be additional recreational uses and opportunities, including improvements to the Evans Creek site. Recreational uses would be incorporated into the site, with an opportunity for

education. The siting and design of these facilities would need to be further refined and compatibility with restoration and mitigation credits determined. While the beneficial effects of additional project improvements would occur under this alternative, the disturbance of existing conditions through construction as a result of the Alternative B would occur. This alternative would involve greater recreational opportunities but greater impacts during construction regarding site disturbance and access disruption in comparison to the proposed project.

Tribal Cultural Resources

The proposed project would result in a less-than-significant impact on tribal cultural resources with mitigation, as there are archaeological sites that could be affected by the proposed project. Under Alternative B, there would be additional ground-disturbing activities that could occur to affect potentially unknown tribal cultural resources, as cultural resources are known to occur in the vicinity of the Evans Creek site. Therefore, this alternative would have greater impacts on tribal cultural resources compared to the proposed project.

Utilities

Primary inputs to the site are from three sources: a culvert that carries flows from Spring Brook Wash into the spillway channel; a spillway/low water crossing over Dexter Drive that feeds the spillway channel and spills during storm events, both of which are located at the northeastern end of the site; and a riser/outflow box within Evans Lake that carries flows into the low-flow channel at the southeastern end of the site. Flows in the site are likely perennial (or at least intermittent) due to the developed watershed upstream and urban runoff, and during August and October 2018 site visits, water was seen flowing in both channels. However, flows are likely not consistent or predictable throughout the year and may be reduced in the low-flow channel if the lake level drops below the elevation of the outflow box or the box is not functioning properly. Inconsistent and potentially reduced flows can create problems when trying to create habitat for the Santa Ana sucker. Therefore, as discussed previously, a groundwater pump and well are proposed to provide additional flows. However, there may be some potential issues with providing a source of water that is controlled via machinery or a structure. Similar to the proposed project, groundwater pumped for the Alternative B Evans Creek site would be returned as surface flows to the Santa Ana River and would be recaptured for reuse or recharge back to the groundwater basin. Similarly, Alternative B would not result in an overall significant increase of groundwater extractions. In addition, constructing a fish passage at the Santa Ana River levee that works properly to allow Santa Ana sucker and other fish to access the Evans Creek site has some design and hydraulic hurdles that would need to be worked out in further design.

Providing additional water to the site is essential for successful restoration of Santa Ana sucker and other fish species habitat, whether through groundwater or some other source. According to the opportunities and constraints analysis for Evans Lake (ICF 2019), the most likely future source for water supply is the Regional Recycled Water Project (the Purple Pipe project); however, much remains to be determined with regard to the volume available and the need to dechlorinate the water prior to discharging at the site. Additionally, the Purple Pipe project is considered a cumulative project and has not been designed, and no CEQA approval has been granted for implementation of the Purple Pipe project. Current estimates are 1–3 cubic feet per second base perennial flows, with 5–6 cubic feet per second for flushing flows, but the volume available for baseline and flushing would not be determined until more project design is completed. A preliminary feasibility study of the Purple Pipe project is in progress. This study should help

determine if the Purple Pipe project remains a viable option, or if using groundwater pumps to supply water to the sites would need to be further evaluated. Complete design for the Purple Pipe project is not anticipated until late 2019 at the earliest. Future designs can maintain some flexibility to accommodate a range of anticipated flows, but precise flow amounts and timing would be important for final restoration project design and would also need to be taken into account for monitoring and adaptive management of the site. As such, it would be important that the water agencies continue to closely coordinate to ensure that the source, volume, and seasonal distribution of water available from the Purple Pipe project informs integrated site plans.

For the Santa Ana sucker-specific restoration activities, which target the creation of perennial drainages that support Santa Ana sucker and creation of fish passage from the Santa Ana River to the Evans Creek site, the water source and presence of the levee and culvert system are the largest constraints. The site currently does not have a reliable perennial flow. Gaining more certainty with regard to the amount of water available to augment existing flows would be important to determine site design and potential management implications (e.g., methods to flush sediment from the channel to maintain substrate suitability for Santa Ana sucker). The cost of water-related infrastructure and pumping costs could also be a constraint.

Under Alternative B, restoration and mitigation activities could involve the need for additional water sources to serve the Evans Creek site in addition to the project sites, which would involve increased utility systems or service demands specific to water supply. Impacts related to utilities and increased demand for water resources would occur, and additional beneficial effects of providing water to the Santa Ana River and its tributaries, including to the Evans Creek site, would improve conditions for Santa Ana sucker and other species dependent on the Santa Ana River. Even though Alternative B would result in additional benefits at the Evans Creek site, potential impacts on water supply would be greater than the proposed project.

7.1.3.3 Alternative C: Reduced Proposed Project Alternative (Removal of the Expanded Mitigation Reserve Program Phase II)

This alternative would remove other restoration opportunities associated with the mitigation and conservation bank, also known as the Expanded Mitigation Reserve Program Phase II, from the proposed project. This alternative would involve including only the Upper Santa Ana River Tributaries Restoration Project and Mitigation Reserve Program Phase I as a project component, which includes the smaller project area of 67.3 acres in comparison to the Expanded Mitigation Reserve Program Phase II area, which includes 411.16 acres that would be removed from consideration in this alternative. The four restoration sites are Anza Creek, Old Ranch Creek, Lower Hole Creek, and Hidden Valley Creek. The Expanded Mitigation Reserve Program Phase II, which is evaluated at a programmatic level, is considered for removal with this alternative to result in a smaller project area, which could reduce project environmental impacts.

The discussion of impacts for the Tributaries Restoration Project and Mitigation Reserve Program Phase I is provided in Sections 3.1 through 3.13. The discussion below is a summary of the impacts and a comparison of the proposed project and Alternative C.

Agriculture and Forestry Resources

The Tributaries Restoration Project and Mitigation Reserve Program Phase I would not result in conversion of existing agricultural land to non-agricultural land and impacts would be less than

significant. Similarly, Alternative C would have the same impact on agriculture resources; however, more areas designated as Farmland of Local Importance could be affected with the inclusion of the Expanded Mitigation Reserve Program Phase II under the proposed project. As such, Alternative C would have fewer impacts than the proposed project.

Air Quality

The Tributaries Restoration Project and Mitigation Reserve Program Phase I would result in temporary construction-related emissions (from construction activities, vehicles, and equipment) and short-term operational and maintenance-related air quality emissions, resulting in a less-than-significant impact. Similar to the Tributaries Restoration Project and Mitigation Reserve Program Phase I, regional and localized emissions from the Expanded Mitigation Reserve Program Phase II would not exceed the South Coast Air Quality Management District–recommended localized thresholds for construction and maintenance activities (e.g., off-road equipment, on-road vehicles, earthmoving, paving), intensity (i.e., number of equipment), and frequency (i.e., hours per day and days per year of activity). Impacts without the Expanded Mitigation Reserve Program Phase II would be less than significant.

Under Alternative C, there would be fewer construction-related emissions and operational emissions without the potential for additional construction and maintenance activities within the Expanded Mitigation Reserve Program Phase II area. As fewer construction and operational activities of the project would occur, there would be fewer potential impacts associated with construction and operational emissions and odors. Therefore, this alternative would have similar but fewer impacts on air quality compared to the proposed project.

Biological Resources

The proposed project would result in less-than-significant short-term impacts during construction and during maintenance and operations. Under Alternative C, there would be less site disturbance and fewer site improvements. Impacts would occur on sensitive habitats or special-status plant and wildlife species during the short term, although mitigation would reduce any impacts caused by the project. However, there would not be creation and enhancement of channels and wildlife habitat, and the project sites would continue to be dominated by nonnative species. Alternative C would not improve the condition of the Upper Santa Ana River habitat within the Expanded Mitigation Reserve Program Phase II area or improve resiliency of the Santa Ana sucker and other species found within the larger Expanded Mitigation Reserve Program Phase II area. The same project site disturbances caused by human influences could continue within the Upper Santa Ana River watershed. This alternative would have fewer short-term impacts on biological resources compared to the proposed project, although impacts under both would be less than significant. However, this alternative would also provide fewer benefits to wildlife habitat and species like the Santa Ana sucker and to aquatic resources without restoration and mitigation improvements within the Expanded Mitigation Reserve Program Phase II area.

Geology, Soils, and Paleontological Resources

The Tributaries Restoration Project and Mitigation Reserve Program Phase I, specifically the southeastern portion of the Hidden Valley Creek site, is in an area of high paleontological sensitivity, and there is the potential for deeper excavations to affect unique (significant) paleontological resources. Mitigation measures would be implemented to ensure that the proposed project would

result in less-than-significant impacts on unique paleontological resources or sites or unique geologic features. Alternative C would involve fewer areas with paleontological sensitivity, including the western margins of the Lower Hole Creek site and the southernmost portion of the Anza Creek/Old Ranch Creek sites that contain older Quaternary deposits, which have elevated paleontological sensitivity. These areas would not be affected by ground disturbance with implementation of Alternative C and, as such, impacts would be reduced in comparison to the proposed project.

Greenhouse Gas Emissions

The Tributaries Restoration Project and Mitigation Reserve Program Phase I would result in temporary construction-related emissions (from construction activities, vehicles, and equipment) and short-term operational and maintenance-related GHG emissions, resulting in a less-than-significant impact. Similar to the Tributaries Restoration Project and Mitigation Reserve Program Phase I, GHG emissions from the Expanded Mitigation Reserve Program Phase II would not exceed established thresholds for construction and maintenance activities. Impacts without the Expanded Mitigation Reserve Program Phase II would be less than significant.

Under Alternative C, there would be fewer construction-related emissions and operational emissions without the potential for additional construction and maintenance activities within the Expanded Mitigation Reserve Program Phase II area. As fewer construction and operational activities of the project would occur, there would be fewer potential impacts associated with construction and operational GHG emissions. Therefore, this alternative would have similar but fewer impacts on GHG emissions compared to the proposed project.

Hazards and Hazardous Materials

The Tributaries Restoration Project and Mitigation Reserve Program Phase I would not result in creation of a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. No significant hazard to the public or environment through release of hazardous materials is likely as a result of program implementation given the restoration nature of the project components.

The implementation of the Expanded Mitigation Reserve Program Phase II would involve additional restoration opportunities within each of the project sites to restore additional areas to natural conditions, including removing trash and other forms of destruction caused by human influence and homeless site occupation. Construction-related hazardous materials would be used during construction of the proposed project, including fuel, solvents, chemicals, and oils, for the operation of construction equipment. It is possible that any of these substances could be released in small amounts during construction activities. There would be fewer impacts with Alternative C through the use of fewer hazardous materials during construction in a smaller project area; however, there would also be fewer benefits without the removal of trash and encampment sites within Expanded Mitigation Reserve Program Phase II areas, which could continue until additional mitigation would occur. As such, the impact would be similar in comparison to the proposed project; specifically, Alternative C would have fewer impacts during construction but greater impacts long term without additional cleanup and restoration of the Expanded Mitigation Reserve Program Phase II areas.

Hydrology and Water Quality

The Tributaries Restoration Project and Mitigation Reserve Program Phase I would result in a less-than-significant impact on hydrology and water quality. Under Alternative C, there would be less restoration and fewer improvements to the project area. Alternative C would not contribute as many positive benefits to the existing habitat and ecosystem associated with the Upper Santa Ana River in the Expanded Mitigation Reserve Program Phase II area, including removal of invasive species that utilize more groundwater compared to native species. Alternative C would not improve the condition of the Upper Santa Ana River habitat through restoration and mitigation activities aimed at improving site conditions within the Expanded Mitigation Reserve Program Phase II. This alternative would result in fewer surface water quality impacts during construction, but would not result in as many ecological benefits to the watershed in the long term.

Noise and Vibration

Under Alternative C, there would be fewer project activities with the elimination of the Expanded Mitigation Reserve Program Phase II and less change to existing ambient noise levels during construction, operations, and maintenance activities. As such, fewer noise and vibration impacts would occur. Therefore, Alternative C would result in fewer impacts from noise and vibration compared to the proposed project.

Population and Housing

The Tributaries Restoration Project and Mitigation Reserve Program Phase I would result in focused site cleanup, which may involve the displacement of homeless encampments that are illegally constructed in public open space areas, in areas not zoned or designed for residential uses, and no permanent residences would be displaced with the proposed project. Local jurisdictions would continue to provide outreach to the homeless populations occupying the project sites to inform them of the upcoming project and need for relocation. However, construction of replacement housing units elsewhere is unlikely, as the displaced homeless population would be transitioned into suitable residences by existing local agency homeless programs and services. Impacts are considered less than significant.

Alternative C would involve a smaller project area than the proposed project and fewer site improvements would be implemented. As part of the proposed project, two full-time County of Riverside park rangers would patrol the project sites areas along the Santa Ana River and part-time maintenance staff would be added. Monitoring the Santa Ana River areas would keep homeless populations from building semi-permanent structures and protect the restored habitats from degradation caused by human influence. With a smaller project footprint, there could be fewer areas to monitor for restoration success; however, the park rangers would likely still be required to monitor the extent of project areas around the Santa Ana River to ensure that homeless encampments are not reestablished. As such, this alternative would have similar impacts as those of the proposed project.

Recreation

Improvements to the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites would result in an increase in recreational uses, which would be considered an overall benefit to the community. These improvements are considered beneficial impacts on recreation resulting from the

proposed project. Educational opportunities also are considered beneficial impacts of the proposed project, and construction and expansion of recreational facilities would not have an adverse physical effect on the environment. With implementation of Alternative C, there would be fewer opportunities for recreational benefits within the Expanded Mitigation Reserve Program Phase II area, specifically at Martha McLean-Anza Narrows Park, and fewer improvements to recreational facilities would occur. There would be temporary impacts on park areas during construction but there would be greater benefits once construction has been completed. As such, this alternative would have fewer temporary impacts than the proposed project during the short term but also fewer recreational opportunities and benefits for the long term.

Tribal Cultural Resources

The proposed project would result in a less-than-significant impact on tribal cultural resources with mitigation, as there are archaeological sites that could be affected by the proposed project. Under Alternative C, ground-disturbing activities would occur only at the Tributaries Restoration Project and Mitigation Reserve Program Phase I sites. Therefore, this alternative would have fewer impacts on tribal cultural resources compared to the proposed project, as there would be fewer areas affected by construction activities like excavation that could affect tribal cultural resources.

Utilities

Under Alternative C, construction involving restoration would occur, and water would be needed to serve the Tributaries Restoration Project and Mitigation Reserve Program Phase I only. With this alternative, there would be less demand for water resources as compared to the proposed project, as water would not be needed for the construction activities of the Expanded Mitigation Reserve Program Phase II. Less-than-significant impacts related to utilities would occur.

7.2 Environmentally Superior Alternative

CEQA requires the identification of an environmentally superior alternative (State CEQA Guidelines §15126.6(a) and (e)(2)). The environmentally superior alternative is the alternative that results in the fewest significant environmental impacts from among the other alternatives evaluated if the proposed project has significant impacts that cannot be mitigated to a less-than-significant level. Based on the analysis presented in Chapter 3, *Impacts Analysis*, the project would not result in any significant impacts that cannot be mitigated to a less-than-significant level. Nevertheless, this information is presented for informational purposes.

Based on the analysis presented in Chapter 3, *Impacts Analysis*, and in this chapter, the environmentally superior alternative is Alternative A (No Project/No Build), as it would result in no change to existing environmental conditions and, consequently, no new significant environmental impacts. However, pursuant to §15126.6(e)(2) of the State CEQA Guidelines, if the environmentally superior alternative is the “no project” alternative, then the EIR must also identify another environmentally superior alternative among the list of alternatives. As such, the environmentally superior alternative is Alternative C (Reduced Proposed Project Alternative: Removal of the Expanded Mitigation Reserve Program Phase II). Impacts associated with implementation of Alternative C would be greater than those of the No Project Alternative but less than those of the proposed project due to the reduced area that would be included in the Alternative C project footprint and reduced construction activity that would be associated with implementation of

Alternative C. Notably, Alternative C would have fewer beneficial impacts on the watershed due to the decreased restoration associated with implementation of Alternative C. Alternative B (Proposed Project Plus Evans Creek Site) would provide for a greater level of restoration, but would also generate a higher degree of impacts due to the expanded area that would be included in the Alternative B project footprint and additional construction activity that would be associated with implementation of Alternative B in comparison to the proposed project and its alternatives; however, it would also have the greatest beneficial impacts on the watershed due to the increased restoration. Alternative B would meet all project objectives and would provide additional restoration of areas near the Santa Ana River. Table 7-2 includes a summary comparison of the proposed project and its alternatives.

Table 7-2. Summary of Comparison of Alternatives Impacts

Environmental Issue Area	Proposed Project	Alternative A No Project/ No Build	Alternative B Proposed Project Plus Evans Creek Site	Alternative C Reduced Proposed Project Alternative
Agricultural and Forestry Resources	Less than Significant	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project (but less than significant)	Reduced Impact Compared to Proposed Project
Air Quality	Less than Significant	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project (but less than significant)	Reduced Impact Compared to Proposed Project
Biological Resources	Less than Significant with Mitigation	Reduced (Temporary Impacts) Compared to the Proposed Project but No Beneficial Impacts From Restoration	Greater (Temporary Impacts) Compared to the Proposed Project (but less than significant); and Greater Beneficial Impacts Due to Increased Restoration)	Reduced (Temporary Impacts) Compared to the Proposed Project but Fewer Beneficial Impacts From Restoration
Cultural Resources	Less than Significant with Mitigation	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project	Reduced Impact Compared to Proposed Project
Geology, Soils and Paleontological Resources	Less than Significant with Mitigation	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project (but less than significant)	Reduced Impact Compared to Proposed Project
Greenhouse Gases	Less than Significant	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project (but less than significant)	Reduced Impact Compared to Proposed Project
Hazards and Hazardous Materials	Less than Significant	Reduced (Temporary Impacts) Compared to Proposed Project	Greater (Temporary Impacts) Compared to Proposed Project (but less than significant)	Reduced (Temporary Impacts) Compared to Proposed Project
Hydrology and Water Quality	Less than Significant	Reduced (Temporary Impacts) Compared to Proposed Project	Greater (Temporary Impacts) Compared to Proposed Project (but less than significant) and Greater Beneficial Impacts Due to Increased Restoration	Reduced (Temporary Impacts) Compared to Proposed Project
Noise	Less than Significant with Mitigation	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project	Reduced Impact Compared to Proposed Project

Environmental Issue Area	Proposed Project	Alternative A No Project/ No Build	Alternative B Proposed Project Plus Evans Creek Site	Alternative C Reduced Proposed Project Alternative
Population and Housing	Less than Significant	Similar Impact Compared to Proposed Project but No Site Monitoring Benefits	Similar Impact Compared to Proposed Project (but less than significant) and Greater Beneficial Impacts for Site Monitoring	Similar Impact Compared to Proposed Project
Recreation	Less than Significant	Reduced (Temporary Impacts) Compared to Proposed Project but No Beneficial Recreation Impacts	Greater (Temporary Impacts) Compared to Proposed Project (but less than significant) and Greater Beneficial Impacts on Recreation	Reduced (Temporary Impacts) Compared to Proposed Project
Tribal Cultural Resources	Less than Significant with Mitigation	Reduced Impact Compared to Proposed Project	Greater Impact Compared to Proposed Project	Reduced Impact Compared to Proposed Project
Utilities and Service Systems	Less than Significant	Reduced Impact Compared to Proposed Project but No Water Supply Benefits	Greater Impact Compared to Proposed Project (but less than significant) and Greater Water Supply Benefits	Reduced Impact Compared to Proposed Project

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