APPENDIX E
BIOLOGICAL TECHNICAL REPORT

Biological Technical and Jurisdictional Delineation Report

for the Santa Ana River Parkway Project

Orange County, California

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1.0 INTRODUCTION

As part of the Santa Ana River Parkway (SAR Parkway) Extension Project (project), the County of Orange is proposing to extend and realign the Santa Ana River Bikeway and Riding and Hiking Trail to better serve users and to complete its portion of the proposed 100-mile recreational parkway adjacent to the Santa Ana River. The County desires to extend these routes and to connect with other upstream segments of the trail and bikeway system now under development in Riverside and San Bernardino Counties. The proposed project also examines locations where the trail and bikeway can connect with other regional and local trails and bikeways, including the Coal Canyon and Gypsum Canyon Regional Riding and Hiking trails. These would facilitate a variety of activities, including commuting between Orange County and western Riverside and southwestern San Bernardino Counties, and access to large open space areas (i.e., Chino Hills State Park and the Cleveland National Forest).

1.1 Project Location and Setting

The project site is located in the Santa Ana Canyon, in northeastern Orange County, near where the county line joins with the Riverside and San Bernardino county lines (Figure 1). The project study area, also known as the "Santa Ana River Narrows", traverses a two-mile length of the Santa Ana River, from Gypsum Canyon Road on the west, upstream to the junction of the Orange /Riverside /San Bernardino County Lines on the east. The study area is additionally defined by SR-91 (Riverside Freeway) on the south, and La Palma Avenue, the Villa Del Rio community and Riverbend Apartments, and the BNSF railroad right-of-way on the north. It is bounded by the cities of Yorba Linda on the north, Anaheim Hills to the south, as well as unincorporated County of Orange land and the Chino Hills State Park. This area is largely owned by three public entities (and one private), which include the Orange County Flood Control District (OCFCD); ; Orange County Parks (OC Parks); Chino Hills State Park (CHSP), and Green River Golf Club. A narrow strip of private property ownership is present along the north levee of the river, adjacent to the Villa Del Rio and Riverbend Apartment neighborhoods.

1.2 Project Description

An overview of the proposed project is provided in Appendix A.

The project description and this technical report were able to draw upon a great deal of existing information and reports. Some of the key reports include the following, which are incorporated by reference throughout this technical report.

- *Santa Ana River Interceptor Line (SARI) Protection/Relocation Final Supplemental EIS/EIR* (U.S. Army Corps of Engineers [USACE], May 2009);
- *Santa Ana River: Reach 9 Phase II Green River Golf Club Embankment Protection Final Supplemental EA* (U.S. Army Corps of Engineers, September 2009c);
- *Santa Ana River Parkway Engineer's Report and Alignment Study* (RBF Consulting, December 2010).
- *SARI Protection/Relocation Project Final Supplemental EA and Addendum to EIR IP 03-226* (U.S. Army Corps of Engineers and Tetra Tech, September 2009);
- *SARI Relocation Project Final HMMP* (U.S. Army Corps of Engineers and Tetra Tech, January 2011); and

- *SARI Relocation Project Draft Jurisdictional Waters Delineation* (U.S. Army Corps of Engineers and Tetra Tech, July 2010).

1.3 Regulatory Setting

Several regulations have been established by federal, state, and local agencies to protect and conserve biological resources. The descriptions below provide an overview of agency regulations that may be applicable to the resources that occur within the project's components, and their respective requirements. The final determination of whether permits are required is made by the regulating agencies.

1.3.1 Federal Regulations and Standards

Federal Endangered Species Act (ESA)[1]

Enacted in 1973, the federal ESA provides for the conservation of threatened and endangered species and their ecosystems. The ESA prohibits the "take" of threatened and endangered species except under certain circumstances and only with authorization from United States Fish and Wildlife Services (USFWS) through a permit under Section 4(d), 7 or 10(a) of the ESA. "Take" under the ESA is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct."

Formal consultation under Section 7 of the ESA would be required if the proposed project had the potential to affect a federally listed species that has been detected within or adjacent to the project's components.

Migratory Bird Treaty Act[2] *(MBTA)*

Congress passed the MBTA in 1918 to prohibit the kill or transport of native migratory birds, or any part, nest, or egg of any such bird unless allowed by another regulation adopted in accordance with the MBTA. The prohibition applies to birds included in the respective international conventions between the United States and Great Britain, the United States and Mexico, the United States and Japan, and the United States and Russia.

No permit is issued under the MBTA; however, the proposed project would need to employ measures that would avoid or minimize effects on protected migratory birds.

Clean Water Act[3] *(CWA)*

Under Section 404 of the CWA, USACE regulates the discharge of dredged or fill material into jurisdictional waters of the U.S., which include those waters listed in 33 Code of Federal Regulations (CFR) 328.3 (Definitions).

Section 401 of the CWA requires a water quality certification from the state for all permits issued by USACE under Section 404 of the CWA. Regional Water Quality Control Board

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1 United States Code [U.S.C.] Title 16, Chapter 35, Sections 1531–1544.

2 U.S.C. Title 16, Chapter 7, Subchapter II, Sections 703–712.

3 U.S.C. Title 33, Chapter 26, Sections 101–607

(RWQCB) is the state agency in charge of issuing a CWA Section 401 water quality certification or waiver.

A Section 404 permit from USACE would likely be required impacts across and adjacent to the Santa Ana River, and any other waters of the U.S. that an alignment may cross. A Section 401 water quality certification would be required should a Section 404 permit be required by the project.

1.3.2 State Regulations and Standards

California Fish and Game Code (CFGC)

The CFGC regulates the taking or possession of birds, mammals, fish, amphibians, and reptiles, as well as impacts to natural resources such as wetlands and waters of the state. It includes the California Endangered Species Act (CESA) (Sections 2050–2115) and Streambed Alteration Agreement regulations (Section 1600 et seq.).

Wildlife "take" is defined by the California Department of Fish and Wildlife (CDFW) as "to hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." Protection extends to the animals, dead or alive, and all their body parts. Section 2081 of CESA allows CDFW to issue an incidental take permit for state-listed threatened or endangered species, should the proposed project have the potential to "take" a state-listed species that has been detected within or adjacent to the project. Certain criteria are required under CESA prior to the issuance of such a permit, including the requirement that impacts of the take are minimized and fully mitigated.

Since project activities are proposed to occur at crossings of the Santa Ana River, tributary streams, and riparian habitats, a Streambed Alteration Agreement would be required to permit direct impacts to these features.

Porter-Cologne Water Quality Control Act

Under Section 13000 et seq., of the Porter-Cologne Act, RWQCB is the agency that regulates discharges of waste and fill material within any region that could affect a water of the state (California Water Code [CWC] 13260[a]), (including wetlands and isolated waters) as defined by CWC Section 13050(e).

A permit under the Porter Cologne Act could be required prior to project implementation, should impacts to the Santa Ana River, its tributaries, and riparian habitat occur. This requirement, though, is not likely due to the applicability of the Section 401 Water Quality Certification.

California Environmental Quality Act[4] (CEQA)

CEQA requires that biological resources be considered when assessing the environmental impacts resulting from proposed actions. This technical report provides technical backup for making various conclusions about the proposed projects' impacts to biological resources,

[4] PRC Section 21000 et seq. and the State CEQA Guidelines, California Code of Regulations, Section 15000 et seq.

including vegetation communities, special-status plants and wildlife, and jurisdictional features.

2.0 METHODOLOGY

2.1 Study Area

The project study area is in an area known as the "Santa Ana River Narrows." As shown in Appendix C, Figure 1, the study area traverses a two-mile length of the Santa Ana River, from Gypsum Canyon Road on the west, upstream to the junction of the Orange, Riverside and San Bernardino county lines on the east. The study area is additionally defined by SR-91 (Riverside Freeway) on the south, and La Palma Avenue, the Villa Del Rio community and Riverbend Apartments, and the BNSF railroad right-of-way on the north. It is bounded by the cities of Yorba Linda on the north, Anaheim Hills to the south, as well as unincorporated County of Orange land and the Chino Hills State Park. This area is largely owned by three public entities (and one private), which include the Orange County Flood Control District (OCFCD); Orange County Parks (OC Parks); Chino Hills State Park (CHSP), and Green River Golf Club. A narrow strip of private property ownership is present along the north levee of the river, adjacent to the Villa Del Rio and Riverbend Apartment neighborhoods.

2.2 Literature and GIS Data Search

This assessment of biological resources associated with the project is based largely on information that was obtained from a variety of sources. These sources provided data related to the existing (and historic) conditions of the project site and surrounding areas, including the vegetation communities, the characteristic plant and wildlife composition, the location of special status plants and wildlife or potential habitat for special status species, and the presence of wetlands, waterways and other jurisdictional features,

Sources that were particularly useful in the compiling of biological resource data include the following:

- Santa Ana River Canyon Habitat Management Plan Maintenance and Monitoring Reports (LSA Associates, Inc., February 2013);
- Santa Ana River Parkway Engineer's Report and Alignment Study (RBF Consulting, December 2010);
- Santa Ana River Mitigation Sites, 2010 Annual Report (AECOM, December 2010); and
- Santa Ana River Interceptor Line (SARI) Protection/Relocation SEIS/EIR (USACE, May 2009).

In addition, the California Natural Diversity Data Base (CNDDB), administered by the California Department of Fish and Wildlife's Biogeographic Data Branch (CDFW 2014) was used to identify special status species and vegetation communities that were potentially present in, and adjacent to, the study area.

2.3 Plant Community Mapping

During the last five years, vegetation mapping has been conducted at least four times along the portion of the Santa Ana River that includes the project's study area. The plant community exhibits in this document were derived primarily from the most recent mapping effort that was conducted for the area: the Santa Ana River Canyon Habitat Management

Plan Maintenance and Monitoring Project (LSA 2013). Classifications of plant communities in the study area were based on criteria and definitions of the Orange County Habitat Classification System [see LSA (2013)]. In specific portions of the study area, vegetation or land cover types were refined, during site visits conducted by AECOM's Dr. Erik Larsen. These site visits were conducted on the dates of January 13 and 14, and February 4 and 5, 2014. In particular, vegetation mapping was updated at the location of Bridge 2 (Figure 1). Thus, the vegetation spatial data includes the past LSA (2013) data as well as AECOM (2014) updated data.

2.4 General Plant and Wildlife Inventory

The account describing the characteristic plants and wildlife of the study area was based on the data obtained from the literature review, as well as that derived from a number of site visits conducted by AECOM biologists in recent years, for unrelated projects; these AECOM site visits were conducted at different times of the year.

2.5 Special Status Species and Habitats

No focused surveys for special status plant or wildlife species were conducted specifically for this biological resources technical report. However, this report summarizes results of several biological surveys conducted in recent years, for multiple projects that overlapped this project's study area. Several of the surveys associated with the studies identified in Section 2.2 provided data on the status and location of special status species and habitats in the study area. In addition, the CNDDB search yielded additional information on special status species and habitats.

Regarding potential impacts to riparian habitat in particular, hydraulic modeling was performed using the geo-referenced WEST HEC-RAS model, which had been modified by AECOM (2014). The modeling was performed in order to understand the potential hydraulic impact of Bridges No. 1 and 2 on adjacent riparian habitat. Once the model runs were completed for the existing and proposed conditions, the HEC-GeoRAS GIS plug-in was used to extract the geo-referenced velocity and depth distribution data (AECOM 2014). After the model data was extracted into GIS, the difference between the existing and proposed velocity and depth were calculated. The model output differences were overlain with geo-referenced habitat data provided by LSA (2013) and augmented with data from AECOM to assess which habitat types would be impacted by the proposed changes, and to calculate the areas of those impacts.

2.6 Approach to Mapping Jurisdictional Waters and Wetlands

Standard methods were used for the delineation of jurisdictional waters, wetlands, and riparian habitat within the study area (CDFG-ESD 1994; EL 1987; USACE 2008; Lichvar and McColley 2008; Curtis and Lichvar 2010; USDA-NRCS 2010, USACE 2014a,b; and USDA-NRCS 2014a,b).

Although it was initially thought that previous technical work (e.g., USACE and Tetra Tech, 2011) would overlap with the SAR Parkway project to a great extent, this was found to not be the case. Thus, mapping of jurisdictional areas included more effort than originally planned. In addition, the discovery of wetlands around culverts along the northern bank of the Santa Ana River focused delineation effort in that location. In addition, a potential jurisdictional area was initially mapped within the golf course area (see "PIWA" – Potential

Irrigated Wetland Area – in Appendix C JD Table 2), though this feature was determined to not be a true jurisdictional feature.

2.7 Ongoing Projects within Study Area

During the preparation of this technical report, including fieldwork throughout the study area, it was evident that portions of the study area were being directly impacted by the ongoing SARI project and the SAR Reach 9 Phase 3 project. The impact areas were located along the entire southern bank of the Santa Ana River (from Gypsum Canyon Bridge upstream to the Bridge 2 location; Figure 1). Thus, the actual existing condition for the SAR Parkway study area involved a disturbed setting along the southern bank. With the SAR Parkway proposed project being planned for several years in the future, a second "future condition" was considered. In this case, the SARI contractor may restore impacted areas per applicable regulatory permits, which then could be impacted by the SAR Parkway project. Coordination with County staff (personal communication, OC Public Works, Santa Ana River Project; May 2014), provided assistance with understanding the hydroseed mixes used in riparian and upland areas along the study area. Where previous mapping showed disturbed areas around the location of Bridge 2, the areas have now been hydroseeded with a basic native mix for the purpose of erosion control.

3.0 EXISTING CONDITIONS

3.1 Setting

The project study area encompasses an area in what is referred to as the "Santa Ana River Narrows" area of Orange County. The floodplain here in the Santa Ana Canyon is relatively narrow, bordered on the north and south by moderately to very steep terrain. The elevation within the project study area varies only slightly, from approximately 375 to 425 feet (above mean sea level [msl]). However, south of the study area the northern extent of the Santa Ana Mountains abruptly terminates at the Santa Ana River. Sierra Peak, for example, roughly only two miles to the southeast of the project study area, lies at 3,000 feet elevation. To the north lies Chino Hills State Park, with the closest foothills rising to just over 1,000 feet elevation less than 0.75 mile from the study area.

The study area is largely in a natural state, supporting a variety of riverine type habitats. The Santa Ana River channel has had various flood control improvements along the banks, and portions of the river bed continue to be used for agricultural interests (i.e., several small groves of citrus). In addition, the eastern quarter of the study area is dominated by the Green River Golf Club. Despite the study area being bordered by residential development, the BNSF railroad right-of-way, and the Riverside Freeway, much of the surrounding land to the north and south is dominated by open space.

3.2 Plant Communities and Land Cover Types

The vegetation and land cover types in this area have been mapped for several different projects over the last five years, with the most recent mapping effort conducted in 2012 for the Santa Ana River Canyon Habitat Management Plan (LSA 2013). Vegetation and land cover mapping for this document (Table 1; Appendix A, Figures 1 and 2) was largely based on results of the 2012 mapping effort. Site visits, however, were conducted in 2014 by AECOM's Dr. Erik Larsen, to confirm the current status of the vegetation and land cover types, and refine or update the mapping as needed. The vegetation classification designations follow those used by LSA (2013), which is based on the Orange County Habitat Classification System.

Despite the overall riverine system that dominates the project study area, there is a fairly broad variety of plant communities present. The study area has undergone several events in recent years that have had significant effects on vegetative communities and land cover types currently present. These include floods events during the winter of 2004/2005 and 2011, the 2008 Freeway Complex Fire, and the bank stabilization projects along the active channel of the Santa Ana River, in the vicinity of the Green River Golf Club. Riparian plant communities are adapted to periodic disturbances (especially flooding), and are typically capable of recovering relatively rapidly. Some of the more upland portions of the Santa Ana River floodplain in the study area contain a significant percentage of non-native vegetation, much of which poses an increase fire hazard.

TABLE 1. VEGETATION COMMUNITY MAPPING WITHIN STUDY AREA - EXISTING CONDITIONS	
VEGETATION COMMUNITY TYPES	**TOTAL (Acres)**
(2.3.10) Mixed Scrub	10.77
(2.3.6) Sagebrush Scrub	0.33
(2.3.7) Buckwheat Scrub	0.53
(2.6) Scale-Broom Scrub	6.11
(2.9) Scrub-Eucalyptus Planting	0.91
(2.10) Yerba Santa Scrub	2.22
Subtotal	**20.86**
(4.1) Annual Grassland	0.61
(4.6) Ruderal Grassland	38.29
(4.10) Salt Grass Grassland	0.22
(4.11) Giant Reed Grassland	12.00
Subtotal	**51.12**
(6.4) Freshwater Marsh	0.39
(7.1) Herbaceous Riparian	12.49
(7.2) Willow Riparian Scrub	11.40
(7.3) Mulefat Scrub	15.89
(7.4) Sycamore Riparian Woodland	5.98
(7.6) Arroyo Willow Riparian Forest	1.00
(7.7) Black Willow Riparian Forest	2.28
(7.8) Cottonwood-Willow Riparian Forest	51.28
(7.12) Barren Riparian	3.46
Subtotal	**103.78**
(8.1) Coast Live Oak Woodland	3.86
(8.2) California Walnut Woodland	0.42
(8.4) Mexican Elderberry Woodland	17.08
(8.5) Nonnative Woodland	1.48
Subtotal	**22.84**
(12.1) Open Water	0.26
(13.1) Perennial Rivers and Streams	17.85

TABLE 1. VEGETATION COMMUNITY MAPPING WITHIN STUDY AREA - EXISTING CONDITIONS	
VEGETATION COMMUNITY TYPES	**TOTAL (Acres)**
(14.3) Orchard and Vineyard	21.63
(15.1) Urban and Commercial	16.69
(15.5) Ornamental Landscaping	67.86
Subtotal	**84.55**
(16.1) Disturbed or Barren	39.92
(16.2.1) Disturbed Scrub	0.70
(16.2.2) Disturbed Riparian	4.94
(16.2.3) Disturbed Woodland	0.06
Subtotal	**45.62**
TOTAL	**368.91**

Based on the study conducted in 2012 (LSA 2013), there were nine major classifications of plant communities within the SAR Parkway. These include scrub; grassland; marsh; riparian; woodland; watercourses; agriculture; developed; and disturbed. Within these major vegetation classifications are 27 subtypes. These are discussed below:

SCRUB

Vegetation in this classification typically consists of drought deciduous, relatively low-growing, soft-leaved shrubs. It generally is found in the foothills, below 3,000 feet elevation, growing on gentle to steep slopes, where shallow soils are present. In the more coastal areas of southern California, scrub habitats are often recognized as Coastal Sage Scrub (CSS). Scrub habitats are considered fire-adapted, and being relatively short-lived, occurrences of fires in scrub habitats are fairly frequent in comparison to other native plant communities. CSS is known for its association with several threatened and endangered plant and animal species, and therefore it is recognized as a special-status vegetation type.

There are many subtypes of scrub vegetation, which are categorized by their species composition, and especially by the dominant or co-dominant plant species. The five subtypes of scrub vegetation found in the study area include sagebrush scrub, buckwheat scrub, mixed sage scrub, scale-broom scrub and yerba santa scrub.

Sagebrush Scrub. Sagebrush scrub is almost exclusively dominated by coastal sagebrush, and is usually found on mesic slopes. It usually occurs as small patches within grasslands or with other CSS subtypes that support coastal sagebrush as a codominant. Sagebrush scrub is an upland habitat type and, with the study area, is found primarily on the upper terraces of the river, well away from the main streamcourse. These areas have not likely experienced any flow within the active channel of the Santa Ana River for decades.

Buckwheat Scrub. Buckwheat scrub is characterized by nearly pure stands of California buckwheat, with coastal sagebrush usually not present. Other CSS shrub species may occur at low densities. It occurs throughout the foothills of Orange County and most often found in areas that have been disturbed within the last 10 years. It is an upper habitat type, and in the study area is usually on the upper terraces of the river banks.

Mixed Sage Scrub. Mixed sage scrub is dominated by an even mix of each of several CSS species, especially sages. CSS species that may make up mixed sage scrub are California buckwheat, black sage, purple sage, white sage and California bush sunflower and bush monkey flower. Like buckwheat scrub, mixed sage scrub is an upland habitat type, and in the study area is usually on the upper terraces of the river banks.

Scale-Broom Scrub. Scale-broom scrub (or alluvial/floodplain sage scrub) consists of deep-rooted and upland shrubs that occupy infrequently flooded and scoured habitats such as floodplain and alluvial fans. This scrub type is dominated by scale-broom, although other species that can be present in this habitat include California buckwheat, California brickellbush, mulefat, coastal sagebrush and laurel sumac. Unlike most CSS subtypes, scale-broom scrub is primarily associated with streamcourses. Within the study area, this community is primarily found on the south side of the river, at the confluence with the Coal Canyon Wash.

Yerba Santa Scrub. Yerba santa scrub is not a category present within the HCS. Yerba santa scrub is dominated by either thick-leaf or hairy yerba santa. This is a scarce habitat type that is found on sandy river terraces along the Santa Ana River.

GRASSLAND

Native grasslands have largely been replaced by the invasion of nonnative annual grasses and forbs (of mostly Mediterranean origin). These nonnative plants, generally regarded as weeds, include grasses such as bromes, wild oats, barley and herb species such as mustards and thistles. The subtypes of grasslands within the study area include annual grassland, ruderal grassland, elderberry savanna and giant reed grassland.

Annual Grassland. Annual grasslands are dominated by nonnative annual grasses, such as bromes, wild oats, fescues and barleys. Many species of native forbs and bulbs are found in annual grasslands, with native forb species including common fiddleneck, California popcorn flower, California milkweed, common cryptantha and fascicled tarwee. Annual grassland is relatively scarce within the study area.

Ruderal Grassland. This grassland subtype consists of early successional grassland dominated by pioneering herbaceous plants that readily colonize disturbed ground. Ruderal grassland is dominated by many grassland species and species of the genera *Centaurea*, *Brassica*, *Malva*, *Salsola*, *Eremocarpus*, *Amaranthus* and *Atriplex*. Ruderal grassland typically occurs at sites that have been disturbed by either natural or human causes. Within the study area, giant reed is also present within this subtype, but is not a dominant species. Dominant species within the study area includes tocalote and shortpod mustard.

Elderberry Savanna. Elderberry savanna consists of annual grassland with widely scattered Mexican elderberry trees/shrubs (5-20 percent canopy cover). This habitat type is similar to elderberry woodland, but with a lower percent cover of elderberry. This habitat type is found on the upper terraces of the study area and integrades with elderberry woodland and either annual grassland or ruderal grassland.

Giant Reed Grassland. This grassland subtype is dominated by dense stands of giant reed (*Arundo donax*). Giant reed is an invasive species found throughout the study area. The removal of giant reed is a high management priority with the Santa Ana River Canyon Habitat Management Plan (LSA 2013).

MARSH

Marsh habitats consist of permanently or seasonally flooded or saturated areas dominated by persistent herbaceous plants that are obligate hydrophytes. Only one type of marsh habitat, **Freshwater Marsh**¸ is found in the study area. Freshwater marsh is dominated by cat-tail or bul-rush species with other perennial or annual obligate hydrophyte species present as subdominants.

RIPARIAN

Riparian habitats consist of trees, shrubs or herbs that occur along watercourses and bodies of water. The vegetation is adapted to flooding and soil saturation during at least a portion of its growing season. Riparian communities are recognized as special-status

habitats by CDFW (Holland 1986). In the study area there are up to eight subtypes present. These include herbaceous riparian, willow riparian scrub, mulefat scrub, sycamore riparian woodland, arroyo willow riparian forest, black willow riparian forest, cottonwood-willow riparian forest and barren riparian (Table 2).

Herbaceous riparian. This riparian habitat is an early successional stage of riparian scrub and forest. Flooding or other disturbances often scours away woody riparian vegetation, and the site is rapidly colonized by pioneer wetland herbaceous plants, such as western verbena, California mugwort, sweet clover, cat-tails, sedges, rabbitfoot grass, Bermuda grass, common plantain, cocklebur and prickly sow-thistle. Within the study area, areas of herbaceous riparian typically occur in those areas that experienced flooding/scouring in either 2005 or 2011.

Willow Riparian Scrub. Willow riparian scrub is dominated by willow species and saplings of other riparian forest trees. Typical dominants in this habitat include arroyo willow and narrow-leaved willow, with lesser amounts of mulefat and black willow. Weedy species found in this community include castor bean, giant reed, tree tobacco and pampas grass.

Mulefat Scrub. Mulefat scrub consists of dense stands of mulefat and lesser amounts of willow. It usually occupies areas with intermittent streambeds or seeps. Other plants characteristic of this habitat include Bermuda grass, California mugwort, lamb's quarters, western ragweed, Douglas' nightshade and cocklebur. This is a common habitat type in the study area.

Sycamore Riparian Woodland. This riparian community consists of open to dense woodlands dominated by western sycamore, with coast live oak, scale-broom, mulefat or willows as understory species. The more open areas often have grassland present, typically dominated by bromes. This habitat is limited in the study area, though it was likely more prevalent prior to the 2008 Freeway Complex fire. Many of the sycamores present appear to have died in the fire, though a number of these trees are crown-sprouting.

Arroyo Willow Riparian Forest. This riparian forest has a closed-canopy of arroyo willows, with an understory often of mulefat, hoary nettle, poison oak, California mugwort and Douglas' nightshade. The habitat develops on floodplains along major rivers and streams.

Black Willow Riparian Forest. Black willow riparian forest is a multilayered forest with a canopy dominated by black willow, with often some red and arroyo willow. The subcanopy layer often contains arroyo willow and mulefat. The understory is similar to arroyo willow riparian forest. Coast live oak and western sycamore are occasionally present on the outer margins of this forest. The habitat develops on floodplains along major rivers and streams.

Cottonwood-Willow Riparian Forest. Cottonwood-willow riparian forest is a multilayered forest community dominated by cottonwoods and willows. It is typically lower on the floodplain than the other forest types. An understory layer of mulefat, poison oak, blackberry and wild grape is often found. Several invasive weedy species, principally giant reed, castor bean and tree tobacco are also often present. This community is found on floodplains of major rivers and streams.

Barren (Disturbed) Riparian. Barren areas within riparian communities have recently experienced a significant flood event that has left them devoid of vegetation. The soils

within these areas are dominated by cobble and coarse sands. Fine sediments are absent. This category has been added in order to distinguish these areas from other disturbed or barren areas that occur as a result of direct human activity. These barren areas were found in locations where scouring occurred within riparian habitats, such as during the 2005 flooding.

TABLE 2. RIPARIAN VEGETATION COMMUNITY MAPPING - EXISTING CONDITIONS.

RIPARIAN VEGETATION COMMUNITY TYPES	TOTAL (Acres)
(2.6) Scale-Broom Scrub	6.11
(4.10) Salt Grass Grassland	0.22
(4.11) Giant Reed Grassland	12.00
Subtotal	**12.22**
(6.4) Freshwater Marsh	0.39
(7.1) Herbaceous Riparian	12.49
(7.12) Barren Riparian	3.46
(7.2) Willow Riparian Scrub	11.40
(7.3) Mulefat Scrub	15.89
(7.4) Sycamore Riparian Woodland	5.98
(7.6) Arroyo Willow Riparian Forest	1.00
(7.7) Black Willow Riparian Forest	2.28
(7.8) Cottonwood-Willow Riparian Forest	51.28
Subtotal	**103.78**
(8.4) Mexican Elderberry Woodland	17.08
(12.1) Open Water	0.26
(13.1) Perennial Rivers and Streams	17.85
(16.2.2) Disturbed Riparian	4.94
TOTAL	**162.63**

WOODLAND

Woodland communities consist of multilayered vegetation with a canopy that is 20 to 80 percent tree cover. In the study area there are four subtypes of woodland communities, including coast live oak woodland, California walnut woodland, Mexican elderberry woodland and nonnative woodland.

Coast Live Oak Woodland. Coast live oak woodland is dominated by coast live oak, with associated shrubs such as scrub oak, holly-leaved redberry, toyon, Mexican elderberry and poison oak. This woodland is significant to a wide variety of wildlife: a variety of birds forage and find shelter in the canopy; several bird of prey species utilize the more mature, denser trees for nesting sites; many animals depend on the acorns for an important food source (e.g., deer, acorn woodpeckers). Coast live oak woodland is very limited in the study area, and is often considered a special-status plant community, due to its importance to wildlife.

California Walnut Woodland

Mexican Elderberry Woodland. The Mexican elderberry woodland is an open woodland found on stream benches characterized by Mexican elderberry, with scattered laurel sumac, toyon and lemonade berry sometimes present as well. It is often associated with sycamore woodland. It is fairly common within the study area, typically occurring on upper elevation terraces.

Nonnative Woodland. Nonnative woodland is characterized by dense stands of nonnative tree species. Within the study area, nonnative tees that comprise this community are typically eucalyptus, Peruvian pepper, tamarisk and tree of heaven. This habitat type is usually found on the upper benches of the study area and often has an understory dominated by annual grasslands and ruderal plant species.

WATERCOURSES

Watercourses include flood control channels, streams and rivers.

Perennial Rivers and Streams. This is the only type of watercourse present within the study area. This habitat type specifically pertains to the unvegetated, open-water portion of the Santa Ana River.

AGRICULTURE

Examples of this vegetation community would include annual crops, vineyards, orchards, dairies and stockyards. In the study area, the only type of agriculture present is **orchards**.

DEVELOPED

Developed sites include urban areas, roads, parks and cleared or graded sites. There are two types of developed land within the study area: urban and commercial and ornamental landscaping.

Urban and Commercial. This land cover type includes all buildings, pavement and road rights-of-way. Within the study area, all paved surfaces and flood protection features were mapped as urban and commercial.

DISTURBED

There are two types of disturbed land within the study area.

Disturbed or Barren. Disturbed or barren (cleared or graded) areas either lack vegetation or are dominated by sparse cover of ruderal vegetation, such as tocalote, wild oats, black mustard, prickly sow-thistle and prickly lettuce. Within the study area, all dirt access road and current or recent construction areas were mapped as disturbed or barren.

Other Disturbed Areas. Other disturbed areas are sites that have disturbed soil but do not fall under the disturbed or barren category.

3.3 Special-Status Biological Resources

The only surveys conducted by AECOM specifically for this biological resources technical report were the field visits by Dr. Erik Larsen. These visits were completed to verify and update the most recent plant community mapping for the study area, and to assess the potential for wetlands and jurisdictional waters that may be within the direct disturbance limits of the proposed project. No focused surveys were conducted by AECOM for this project, to assess the potential presence of special-status plant and wildlife species, or special-status plant communities/habitats in the study area. This report, however, summarizes results of several biological surveys conducted during approximately the last five years, for projects that overlapped the proposed project's study area. Several of these surveys (see Section 2.2) provided data on the status and location of special status species and habitats in the study area. In addition, the CNDDB search yielded additional information on special status species and habitats.

The CNDDB review for the most recent distribution information for special-status plant and wildlife species and sensitive natural communities was conducted over a five-mile radius from the study area (CDFW 2014). This review covered parts of six USGS quadrangles: Yorba Linda, Prado Dam, Corona North, Corona South, Black Star Canyon and Orange.

Additional information on special-status plant and wildlife species was gained through a review of:

- *Inventory of Rare and Endangered Plants of California* (California Native Plant Society [CNPS] 2013);
- *State and Federally Listed Endangered, Threatened, and Rare Plants of California* (CDFW 2013b);
- *Special Vascular Plants, Bryophytes, and Lichens List* (CDFW 2013c);
- *State and Federally Listed Endangered and Threatened Animals of California* (CDFW 2013d);
- *Endangered and Threatened Wildlife and Plants, Proposed Rule* (USFWS 1996, 1997, 2001, 2004, 2011, 2012); and
- Special Animals List (CDFG 2011).

3.3.1 Special-Status Plants

Table B-1(of Appendix B) provides information regarding special-status plants that may have potential to occur in the study area. These include chaparral sand-verbena (*Abronia villosa* var. *aurita*), Braunton's milk-vetch (*Astragalus brauntonii*), southern tarplant (*Centromadia parryi* ssp. *australis*), intermediate mariposa lily (*Calochortus weedii* var. *intermedius*), Payson's jewel-flower (*Caulanthus simulans*), long-spined spineflower (*Chorizanthe polygonoides* var. *longispina*), Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*), Robinson's pepper-grass (*Lepidium virginicum* var. *robinsonii*), chaparral nolina (or beargrass)(*Nolina cismontana*), white rabbit-tobacco (*Pseudognaphalium leucocephalum*), Coulter's matilija poppy (*Romneya coulteri* var. *coulteri*) and salt Spring checkerbloom (*Sidalcea neomexicana*). Of these, only one plant has been recorded in the study area (Coulter's matilija poppy), while the remaining species are considered to have low potential of occurring.

Two of the plant species are listed as federally endangered: Braunton's milk-vetch and Santa Ana River woollystar, while the woollystar is also state-listed as endangered. The milk-vetch is considered to have low potential to occur in the study area due to a lack of suitable habitat. Although there may be patches of potential habitat for the woollystar in the study area, there is only one old (1927) record, which is believed to be approximately where Weir Canyon Road crosses the Santa Ana River. This location is roughly 2.5 miles downstream of the western terminus of the study area. There have been no subsequent observations of this relatively distinct, and easy to detect species.

3.3.2 Special-Status Wildlife

Table B-2 (of Appendix B) provides information regarding special-status wildlife that may have potential to occur in the study area (one fish, one amphibian, two reptiles, and 13 birds). These include Santa Ana sucker (*Catostomus santaanae*), arroyo toad (*Anaxyrus (=Bufo) californicus*), western pond turtle (*Actinemys (=Emys) marmorata*), two-striped garter snake (*Thamnophis hammondi*), Cooper's hawk (*Accipiter cooperii*), bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), long-eared owl (*Asio otus*), northern harrier (*Circus cyaneus*), western yellow-billed cuckoo (*Coccyzus americanus occidentalis*), southwestern willow flycatcher (*Empidonax traillii extimus*), least Bell's vireo (*Vireo bellii pusillus*), Clarke's marsh wren (*Cistothorus palustris clarkae*), coastal California gnatcatcher (*Poliptila californica californica*), yellow warbler (*Dendroica petechia brewsteri*), yellow-breasted chat (*Icteria virens*) and tricolored blackbird (*Agelaius tricolor*).

Of the special-status wildlife species, six are listed as threatened or endangered (by either USFWS or CDFW). These include the Santa Ana sucker, arroyo toad, western yellow-billed cuckoo, southwestern willow flycatcher, least Bell's vireo and coastal California gnatcatcher. Two of these species are not expected to be present, due to unsuitable habitat and lack of any recent records in the area (arroyo toad, western yellow-billed cuckoo). There is considered to be a low potential for southwestern willow flycatcher due to very marginally suitable habitat in the study area. The potential for the presence of Santa Ana sucker is considered low to moderate; although suitable habitat may potentially exist in the study area, there appears to be no established population downstream of Prado Dam. Although there are known occurrences of California gnatcatchers in multiple locations in the vicinity of the study area, there is very limited suitable breeding habitat for this species within the study area. Therefore, although there may be moderate potential for a juvenile

gnatcatcher to occasionally occur in the study area, during post-breeding dispersal of young birds from breeding territories in the vicinity, the potential for a breeding pair of California gnatcatchers to occur is considered low. Over the last two decades the status of Least Bell's vireo in southern California has been responding favorably to conservation efforts for this species, and the numbers of vireo territories throughout Orange County have risen substantially. Riparian habitat along the Santa Ana River is one of the areas being actively colonized by this species in the county. A significant portion of the study area is known to have supported breeding territories of least Bell's vireo in recent years, including where suitable habitat is present near the proposed sites for Bridges 1 and 2.

The remaining non-listed special-status wildlife species have either a low to moderate potential to occur within the study area (western pond turtle, two-striped garter snake, golden eagle, bald eagle, long-eared owl, northern harrier, Clarke's marsh wren, yellow warbler and yellow-breasted chat), or are not expected to occur (tricolored blackbird), due to lack of suitable habitat. Cooper's hawk has been regularly observed in the study area, including during the breeding season, and is likely an uncommon resident there. Although there are records for bald eagle, golden eagle and northern harrier in the study area, all have been occurrences outside the breeding season. No breeding habitat for any of these species is considered present in the study area.

3.3.3 Special-Status Natural Communities

The resource agencies consider vegetation types or communities that support concentrations of special-status plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife, to be special-status. In addition to providing an inventory of special-status plant and wildlife species, the CNDDB also provides an inventory of vegetation communities that are considered special-status by State and Federal resource agencies, academic institutions and various conservation groups (such as the CNPS). Although these vegetation communities are not afforded legal protection unless they support protected plant or wildlife species, potential impacts on these communities may increase concerns and mitigation suggestions by the resource agencies. In addition, due to their special-status, impacts to these communities are often considered significant under CEQA analysis.

Of the 27 plant community subtypes, the following 13 are considered species-status communities: sagebrush scrub, buckwheat scrub, mixed sage scrub, scale-broom scrub, coast live oak woodland, California walnut woodland, willow riparian scrub, mulefat scrub, sycamore riparian woodland, arroyo willow riparian forest, black willow riparian forest, cottonwood-willow riparian forest, and freshwater marsh.

3.4 Critical Habitat

There are no areas of designated critical habitat within the study area.

3.5 Wildlife Movement

"Wildlife movement corridors" are connections between habitat patches and resource areas that allow for physical and genetic exchange between animal populations. These connections may be local, such as between foraging, nesting or denning areas, or of regional importance. As undisturbed habitats become surrounded by urban development, they become isolated from neighboring areas. Movement corridors provide critical linkages

between islands of open space, isolated foraging and breeding habitats and other important wildlife use areas. Drainage courses and adjacent upland habitats, including ridgelines (for greater ease of movement for larger mammals), typically function as movement corridors. These corridors can also provide water and significant cover for many animals.

In the Santa Ana River Parkway Engineer's Report and Alignment Study (RBF 2010), Exhibit 3-1 illustrates the wildlife movement corridors that are present in the project area. The study area includes a regionally significant north-south wildlife movement corridor where the Coal Canyon drainage joins with the Santa Ana River. This corridor links the Cleveland National Forest and the Santa Ana Mountains to the south of SR-91 Freeway, by way of Coal Canyon, with Chino Hills State Park north of the Santa Ana River. The main wildlife movement is through the Coal Canyon underpass of the SR-91 Freeway, and across the relatively small Chino Hills State Park parcel within the study area, and across the Santa Ana River to the north (including Brush Canyon). This is an important wildlife movement corridor for numerous species, especially mountain lion and mule deer. Other, more secondary, movement corridors include Gypsum Canyon, where it connects with the Santa Ana River at the far western limits of the study area, facilitating movement between the Santa Ana Mountains and the river. There are also several small culverts under SR-91 that allow small mammals to travel between the Santa Ana Mountains/Cleveland National Forest and Chino Hills State Park. Brush Canyon provides access from the Santa Ana River to the more westerly portions of Chino Hills State Park. The Santa Ana River itself allows considerable freedom of movement for wildlife moving east to west, allowing connection between both Chino Hills State Park and the Santa Ana Mountains with the somewhat limited resources downstream along the river (e.g, Featherly Regional Park and the Horseshoe Bend area of the river).

3.6 Habitat Conservation Plans

The study area is not currently within any Habitat Conservation Plan (HCP) or Natural Communities Conservation Plan (NCCP). Two HCP/NCCP plans were developed for other areas in Orange County- the Central Coastal HCP/NCCP and the Southern Subregion NCCP/Master Streambed Alteration Agreement (MSAA)/HCP (County of Orange 1996, 2006)- both of which occur to the southwest, south, and southeast of the project. The Western Riverside County Multi-Species Habitat Conservation Plan (MSHCP) applies to projects within Riverside County, and applies to the USACE's Reach 9 project as it straddles both Orange and Riverside Counties (USACE 2009c). Because the project only applies to the Orange County portion, the Western Riverside County MSHCP would not apply.

Santa Ana River Canyon Habitat Management Plan (SARCHMP; OCFCD 1997; LSA 2013) is a regional conservation plan developed for both the SAR (from Prado Dam downstream to the Weir Canyon overpass). Section 5.3.3 of the SARCHMP describes conservation measures for maintenance and management of riparian habitat downstream of the Prado Dam (to the Weir Canyon overpass). The primary goal is the maintain the baseline amount of native riparian habitat, which is to be mapped in ten-year intervals. Projects implemented by the County of Orange within the SARCHMP area are to maintain the habitat, or provide mitigation such that the riparian habitat is maintained and can support sensitive species over the long term. The proposed project is designed to be in compliance with the SARCHMP, and any impacts on sensitive vegetation communities and species will be mitigated in order to ensure the continued conservation of riparian habitat.

3.7 Jurisdictional Waters, Wetlands, and Riparian Habitats

Aquatic resources, including riparian areas, wetlands, and certain aquatic vegetation communities, are considered sensitive biological resources that can fall under the jurisdiction of several regulatory agencies.

Under Section 404 of the CWA, USACE exerts jurisdiction over waters of the U.S., including, but not limited to, all waters that are subject to the ebb and flow of tide; wetlands, and other waters such as lakes, rivers, streams (including intermittent or ephemeral streams), mudflats, sandflats, sloughs, prairie potholes, vernal pools, wet meadows, playa lakes, or natural ponds, and tributaries of the above features. The extent of a stream that falls under USACE jurisdiction is generally defined as that portion that falls within the limits of the ordinary high water mark (OHWM). Field indicators of OHWM include clear and natural lines on opposite sides of the banks, scouring, sedimentary deposits, drift lines, exposed roots, shelving, destruction of terrestrial vegetation, and the presence of litter or debris. In general, the width of waters corresponds to the 2-year flood event.

Wetlands, including swamps, bogs, seasonal wetlands, seeps, marshes, and similar areas, are defined by USACE as "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (33 CFR 328.3 [b]; 40 CFR 230.3 [t]). Indicators of three wetland parameters (hydric soils, hydrophytic vegetation, and wetland hydrology as determined by field investigation) must be present for a site to be classified as a wetland by USACE (Environmental Laboratory 1987; USACE 2008).

Pursuant to Section 401 of the CWA and Environmental Protection Agency 404(b)(1) guidelines, in order for a USACE permit applicant to conduct any activity, which may result in discharge into navigable waters, they must provide a certification from the RWQCB that such discharge will comply with state water quality standards. Under the Porter-Cologne Water Quality Control Act (CWC Sections 13000–14920), RWQCB is authorized to regulate the discharge of waste that could affect the quality of the state's waters. RWQCB jurisdiction corresponds with that of USACE and, typically, with that of CDFW along a river, stream, or creek. RWQCB also asserts jurisdiction over aquatic features that are considered "isolated" from federal jurisdiction features.

CDFW exercises jurisdiction over waters of the state, including wetland and riparian resources associated with rivers, streams, and lakes under CFGC Sections 1600–1607. CDFW has the authority to regulate work that will substantially divert, obstruct, or change the natural flow of a river, stream, or lake; substantially change the bed, channel, or bank of a river, stream, or lake; or use material from a streambed. CDFW jurisdiction along a river, stream, creek, or other water body is usually bounded by the top-of-bank or the outermost edges of riparian vegetation (i.e., the "drip line").

Potential waters of the U.S. and State are present along the proposed project area. Permits from USACE, CDFW, and RWQCB authorizing installation of the proposed project at river crossings would be required. Potentially jurisdictional features are present within the study area, and are shown in Appendix C, Tables 1 and 2, as well as Figures 1 – 7.

4.0 IMPACTS ON BIOLOGICAL RESOURCES

4.1 Categories of Potential Impacts

Biological resources may be either directly or indirectly impacted by a project. Direct and indirect impacts may be either permanent or temporary in nature. These impact categories are defined below.

- **Direct**: Any alteration, physical disturbance, or destruction of biological resources that would result from project-related activities is considered a direct impact. Examples would include clearing vegetation, encroaching into wetlands or a river, and the loss of individual species and/or their habitats.
- **Indirect**: As a result of project-related activities, biological resources may also be affected in a manner that is ancillary, or subsequent, to physical impacts. Examples would include elevated noise and dust levels, soil compaction, startle effects related to increased human activity, decreased water quality, and the introduction of invasive or nonnative wildlife (e.g., pets) and plants.
- **Permanent**: All impacts that result in the long-term or irreversible removal of biological resources are considered permanent impacts. Examples would include the construction of permanent facilities, such as buildings, bridges or roads in an area containing biological resources. Some permanent impacts would be expected to result from the construction of the proposed project.
- **Temporary**: Any impacts considered to have reversible effects on biological resources can be viewed as temporary. Examples would include the generation of fugitive dust during construction, or removing vegetation for the preparation of a stream bank stabilization project, followed by revegetation of the impact area after construction is completed. Project-related activities that remove vegetation and disturb the soil is considered a long-term temporary impact because of slow natural recovery, especially in arid ecosystems. It is anticipated for there to be temporary impacts (both direct and indirect) associated with the construction of the bikeway and hiking and riding trails, and associated project components.

4.2 Thresholds for Determining Potential Significance

For biological resources, riparian habitat, and wetlands, thresholds include the following questions - Would the project:

a. *Have 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 the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

b. *Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

c. *Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

d. *Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?*

e. *Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?*

f. *Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?*

4.3 Summary of Impacts

Impacts on biological resources due to the proposed project are described in this section. It is anticipated that the proposed project will result in permanent, direct impacts, such as from the removal or degradation of vegetation and wildlife habitat. Direct impacts would most likely be associated with some of the project components, such as the bridge crossings of the Santa Ana River and the Gypsum Canyon Channel, and the staging areas. Some of these direct impacts may be considered temporary, such as when native plant communities are removed during construction and then revegetated and restored to pre-project conditions following construction. Examples of indirect impacts may include temporary displacement of wildlife due to construction noise and activity, or long-term disturbance to wildlife in habitat adjacent to the project as a result of increased human activity following project completion. Other indirect effects may be related to night lighting, colonization of disturbed areas by nonnative, invasive plant species, and increased dust, emissions, trash, etc., that could impact the health of nearby vegetation and wildlife.

The proposed trail alignments will primarily be confined to existing/proposed service roads, the existing Class I Bikeway, the Green River Golf Club, developed and disturbed areas, and park and ornamental plantings. Generally, the majority of the project would be kept to the Santa Ana River's banks and would utilize existing pavement. Therefore, direct impacts on vegetation and wildlife habitat associated with the trail alignments would generally be minimized. Bridge 1 and 2's proposed footings and abutments would be setback from the active channel. Bridge 3 would span the entire width of the Gypsum Canyon Channel. However, construction of the proposed project would result in the loss of native habitat, including special-status plant communities, and habitat that provides valuable nesting, foraging, roosting, sheltering and denning opportunities for a wide variety of local wildlife species. The proposed project, with all project components, could result in removal or encroachment on native habitats and associated wildlife habitat, several special-status plant and wildlife species, special-status natural communities and wildlife movement. These impacts include both those that would be direct and indirect, as well as permanent and temporary.

4.3.1 Plant Community and Land Cover Types

Table 3 identifies the plant communities that are expected to be directly impacted (removed) from within the construction footprint of the proposed project. In total, 27 plant communities and land cover types were mapped within the study area limits.

Upland vegetation

Implementation of the proposed project is expected to impact a variety of native, as well as nonnative upland plant communities. Native upland plant communities that would be directly impacted by the project include Mixed Scrub, Sagebrush Scrub, Yerba Santa Scrub, Coast Live Oak Woodland, Mexican Elderberry Woodland. Nonnative upland vegetation/communities in the impact footprint for the project include Nonnative Woodland, Annual Grassland, Ruderal Grassland, Orchards and Ornamental Landscaping. Mixed Scrub, Sagebrush Scrub and Yerba Santa Scrub are recognized as special-status plant communities, due to their limited extent and use by several special-status plants and wildlife species. Therefore impacts to these would be considered significant. Mitigation for such impacts would be determined [through consultation with regulatory agencies]. Implementation of compensatory mitigation would be expected to reduce project impacts on these upland communities to a level less than significant.

Indirect effects to upland vegetation may include increased fugitive dust, trash and introduction invasive plants. With implementation of avoidance and minimization measures, indirect effects to upland vegetation and habitats would be avoided and minimized, and not be considered significant.

Riparian/Wetland Vegetation

Implementation of the proposed project is expected to impact a variety of native riparian and wetland plant communities (Table 4). Riparian/wetland communities that would be directly impacted by the project include Herbaceous Riparian, Mulefat Scrub, Sycamore Riparian Woodland, Arroyo Willow Riparian Forest, Cottonwood-Willow Riparian Forest, Disturbed Riparian and Perennial Rivers and Streams. Most native riparian or wetland plant communities are recognized as special-status habitats by the resource agencies (see discussion under Special-status Natural Communities, below).

Impacts to these communities would be considered significant, due to their limited extent, their value to a wide variety of wildlife, including several special-status species, and their regulation by resource agencies. Mitigation for such impacts would be determined through consultation with regulatory agencies during project permitting. Implementation of compensatory mitigation would be expected to reduce impacts from the project to a level less than significant.

Indirect effects to riparian vegetation would be similar to those described above for upland vegetation. With implementation of avoidance and minimization measures, indirect effects to riparian/wetland vegetation and habitats would be avoided and minimized, and not be considered significant.

TABLE 3. VEGETATION COMMUNITY MAPPING - TEMPORARY AND PERMANENT IMPACTS					
VEGETATION COMMUNITY TYPE	**TOTAL (Acres)**	**TEMPORARY IMPACTS (Acres)**	**PERCENT OF TOTAL**	**PERMANENT IMPACTS (Acres)**	**PERCENT OF TOTAL**
(2.3.10) Mixed Scrub	10.77	1.06	10	0.43	4
(2.3.6) Sagebrush Scrub	0.33	0.14	43	0.05	17
(2.3.7) Buckwheat Scrub	0.53	0	0	0	0
(2.6) Scale-Broom Scrub	6.11	0	0	0	0
(2.9) Scrub-Eucalyptus Planting	0.91	0.28	31	0.28	31
(2.10) Yerba Santa Scrub	2.22	0.10	4	0.04	2
Subtotal	**20.86**	**1.57**	**8**	**0.81**	**4**
(4.1) Annual Grassland	0.61	0.01	2	0.01	1
(4.6) Ruderal Grassland	38.29	2.26	6	1.36	4
(4.10) Salt Grass Grassland	0.22	0	0	0	0
(4.11) Giant Reed Grassland	12.00	0	0	0	0
Subtotal	**51.12**	**2.27**	**4**	**1.37**	**3**
(6.4) Freshwater Marsh	0.39	0	0	0	0
(7.1) Herbaceous Riparian	12.49	1.69	14	1.56	12
(7.2) Willow Riparian Scrub	11.40	0.26	2	0.25	2
(7.3) Mulefat Scrub	15.89	1.06	7	0.17	1
(7.4) Sycamore Riparian Woodland	5.98	0.40	7	0.08	1
(7.6) Arroyo Willow Riparian Forest	1.00	0.34	34	0.14	14
(7.7) Black Willow Riparian Forest	2.28	0.00	0	0.00	0
(7.8) Cottonwood-Willow Riparian Forest	51.28	0.72	1	0.20	0
(7.12) Barren Riparian	3.46	0	0	0	0
Subtotal	**103.78**	**4.47**	4	**2.39**	2
(8.1) Coast Live Oak Woodland	3.86	0.58	15	0.15	4
(8.2) California Walnut Woodland	0.42	0	0	0	0
(8.4) Mexican Elderberry Woodland	17.08	0.74	4	0.73	4
(8.5) Nonnative Woodland	1.48	0	0	0	0
Subtotal	**22.84**	**1.32**	6	**0.88**	4

TABLE 3. VEGETATION COMMUNITY MAPPING - TEMPORARY AND PERMANENT IMPACTS					
VEGETATION COMMUNITY TYPE	**TOTAL (Acres)**	**TEMPORARY IMPACTS (Acres)**	**PERCENT OF TOTAL**	**PERMANENT IMPACTS (Acres)**	**PERCENT OF TOTAL**
(12.1) Open Water	0.26	0	0	0	0
(13.1) Perennial Rivers and Streams	17.85	0.13	1	0.08	0
(14.3) Orchard and Vineyard	21.63	1.06	5	1.32	6
(15.1) Urban and Commercial	16.69	3.34	20	1.85	11
(15.5) Ornamental Landscaping	67.86	2.75	4	0.97	1
Subtotal	**84.55**	**6.09**	7	**2.81**	3
(16.1) Disturbed or Barren	39.92	4.79	12	4.00	10
(16.2.1) Disturbed Scrub	0.70	0	0	0	0
(16.2.2) Disturbed Riparian	4.94	0.04	1	0.07	1
(16.2.3) Disturbed Woodland	0.06	0	0	0	0
Subtotal	**45.62**	**4.83**	11	**4.07**	9
TOTAL	**368.91**	**21.75**	**6**	**13.73**	**4**

TABLE 4. RIPARIAN VEGETATION COMMUNITY MAPPING - TEMPORARY AND PERMANENT IMPACTS.					
RIPARIAN VEGETATION COMMUNITY TYPES	**TOTAL (Acres)**	**TEMPORARY IMPACTS (Acres)**	**PERCENT OF TOTAL**	**PERMANENT IMPACTS (Acres)**	**PERCENT OF TOTAL**
(2.6) Scale-Broom Scrub	6.11	0	0	0	0
(4.10) Salt Grass Grassland	0.22	0	0	0	0
(4.11) Giant Reed Grassland	12.00	0	0	0	0
Subtotal	**12.22**	**0**	**0**	**0**	**0**
(6.4) Freshwater Marsh	0.39	0	0	0	0
(7.1) Herbaceous Riparian	12.49	1.69	13.52	1.56	12.50
(7.12) Barren Riparian	3.46	0	0	0	0
(7.2) Willow Riparian Scrub	11.40	0.26	2.25	0.25	2.20
(7.3) Mulefat Scrub	15.89	1.06	6.68	0.17	1.07
(7.4) Sycamore Riparian Woodland	5.98	0.40	6.68	0.08	1.29
(7.6) Arroyo Willow Riparian Forest	1.00	0.34	34.09	0.14	13.72
(7.7) Black Willow Riparian Forest	2.28	0	0	0	0
(7.8) Cottonwood-Willow Riparian Forest	51.28	0.72	1.40	0.20	0.38
Subtotal	**103.78**	**4.47**	**4.30**	**2.39**	**2.30**
(8.4) Mexican Elderberry Woodland	17.08	0.74	4.32	0.73	4.28
(12.1) Open Water	0.26	0	0	0	0
(13.1) Perennial Rivers and Streams	17.85	0.13	0.75	0.08	0.44

TABLE 4. RIPARIAN VEGETATION COMMUNITY MAPPING - TEMPORARY AND PERMANENT IMPACTS.					
RIPARIAN VEGETATION COMMUNITY TYPES	**TOTAL (Acres)**	**TEMPORARY IMPACTS (Acres)**	**PERCENT OF TOTAL**	**PERMANENT IMPACTS (Acres)**	**PERCENT OF TOTAL**
(16.2.2) Disturbed Riparian	4.94	0.04	0.83	0.07	1.45
TOTAL	**162.63**	**5.38**	**3.31**	**3.27**	**2.01**

4.3.2 Special-Status Plant Species

No federal or state listed plant species have been observed or reported during recent field surveys in the study area (for a variety of unrelated projects). However, several special-status species have low potential to occur in the study area (Table B-1). As there are limited areas of potential habitat for the Santa Ana River woollystar, surveys will be conducted for this species by qualified biologists to determine presence or absence in areas potentially impacted by the project. Braunton's milk-vetch is the only other listed species that was recorded on the CNDDB record search for the project. This species has not been recorded in the study area, and there is low potential for this species to occur within the study area due to a general lack of suitable habitat. Although populations of Coulter's matilija poppy have been found within the study area, the project is not expected to impact areas where this species occurs.

Indirect impacts on special-status plant species could result from construction-related habitat loss and modification of sensitive natural communities, and through the potential spread of noxious and invasive plant species into these communities. However, by implementing and adhering to avoidance and minimization measures outlined in Section 5, no significant indirect effects to special-status plant species are anticipated.

4.3.3 Special-Status Wildlife

Elements of the project could potentially affect wildlife and wildlife habitat, including indirect effects related to noise and activity disturbance from construction activities, including operation of heavy equipment, pile-driving, etc. These short-term effects may involve wildlife avoidance of areas immediate adjacent to the construction zone, and potentially disrupt wildlife movement corridors. Vegetation removal and ground disturbance would directly impact wildlife habitat, and potentially result in wildlife mortality (especially fossorial animals or those with limited mobility).

One federally listed wildlife species is known to occur in the riparian habitats associated with the Santa Ana River (Table B-2), including several locations within the study area. A few other listed animals have been recorded in the vicinity of the study area as well. Several non-listed special-status wildlife species have also been recorded in the study area, or have moderate potential to occur.

4.3.4 Fish

The Santa Ana sucker, a federally listed threatened species, has been found in the project vicinity as recently as 1996 (Table B-2), and five miles further downstream as recently as 2000. Potential habitat may be present in the study area, including the location of the proposed bridge crossings of the Santa Ana River, although no established population appears to be present downstream of Prado Dam (CNDDB 2014). Currently, the potential for Santa Ana sucker to be present in the study area is considered low to moderate. Project-related impacts to this species would be considered significant, and therefore prior to disturbance to potential sucker habitat, pre-construction surveys would be conducted by a qualified biologist to determine the presence or absence of this species in the area of impact.

4.3.5 Amphibians

Although potential habitat is considered to be present within the study area for one federally listed (threatened) amphibian species, arroyo toad (Table B-2), there are no records for this species in this area (including the five-mile CNDDB record search). Therefore, arroyo toad is not expected to occur in the study area.

4.3.6 Reptiles

Two special-status reptile species, western pond turtle and two-striped garter snake, both California Species of Special Concern (SSC), are considered to have low to moderate potential to occur within the project components (Table B-2). Potentially suitable permanent freshwater habitat for western pond turtle and two-striped garter snake is present at proposed bridge crossings of the Santa Ana River. No records were found of either species occurring in the study area, or its vicinity, although these species are known from portions of the Santa Ana River upstream of Prado Basin.

4.3.7 Birds

Thirteen special-status birds may have at least some potential to occur in the study area, and are evaluated here for potential impacts (Table B-2). Some of these have been recorded in the study area, based on the CNDDB records and results of recent surveys that have conducted in the area. Others, however, have only been recorded in the general area (e.g., within the five-mile CNDDB record search area), or are based only on historically records. The 13 special-status birds that are reviewed in this section include Cooper's hawk, bald eagle, golden eagle, northern harrier, long-eared owl, western yellow-billed cuckoo, southwestern willow flycatcher, least Bell's vireo, Clarke's marsh wren, coastal California gnatcatcher, yellow warbler, yellow-breasted chat and tricolored blackbird.

Special-Status Raptors. Of the 13 special-status bird to be evaluated, five raptor species (i.e., Cooper's hawk, bald eagle, golden eagle, northern harrier and long-eared owl) have either been recorded in the study area or the vicinity, or have at least moderate potential to occur within the study area. Cooper's hawk is on the CDFW "Watch List", which are generally species that have been SSCs, but are now considered to be less at risk than was previously thought. Bald Eagle is state listed as endangered, where nesting or wintering birds may be present. Golden eagle is a state "Fully Protected" species, primarily where nest sites are known, or year-round territories are present. Long-eared Owl is an SSC, where nesting sites are present. There is potentially suitable foraging habitat for all five

raptor species in and near the project site. Of these five raptor species, Cooper's hawk would be the only one that is expected to breed in the study area. Cooper's hawks typically nest wherever mature trees with adequate cover for nest concealment may be present. It is anticipated that the proposed project will not significantly remove nesting habitat for Cooper's hawks. This species does not specifically require any particular woodland or riparian habitat type, and are increasingly known to nest in mature trees in urban parks and neighborhood settings (Hamilton and Willick 1996). Pre-construction nesting bird surveys will ensure that no active nest of Cooper's hawk, or other native bird species, would be directly impacted by the project. To avoid significant indirect impacts to any active Cooper's hawk nest, nest protection buffers may need to be established around active nests, until the young have fledged and the nests are no longer active. By conducting pre-construction surveys, conducting vegetation clearing outside the breeding season, monitoring construction during the raptor breeding season, and adhering to avoidance and minimization mitigation measures, no significant impacts to Coopers hawk nests are anticipated. Therefore, the project is not expected to result in any significant impacts to active nests or nesting habitat for Cooper's hawk.

The other four raptor species include bald eagle, golden eagle, northern harrier and long-eared owl. These would only be expected to occur as occasional non-breeding visitors, as there is no suitable breeding habitat for these in the study area. As substantial foraging habitat for these raptors will remain in the study area, no significant impacts are expected from the project on these other four special-status raptors.

Project-related construction noise and activities may have indirect effects on raptor species that occur in the project area, whether or not they are special-status species. If raptors are detected nesting in the vicinity of the project prior to or during construction, nest protection buffers may need to be established around active nests, until the young have fledged and the nests are no longer active. By conducting pre-construction surveys for nesting raptors (concurrent with other bird species), conducting vegetation clearing outside the breeding season, monitoring construction during the raptor breeding season, and adhering to avoidance and minimization mitigation measures, no significant impacts to special-status or general raptor species are anticipated.

Least Bell's Vireo (federal and state listed endangered). Numerous focused and general surveys for riparian birds have been conducted in the study area during recent years, for a variety of unrelated projects. These avian surveys, which have generally also included areas of suitable habitat upstream and downstream of the study area, have primarily focused on least Bell's vireo. The majority and most comprehensive of these recent focused avian surveys have been conducted by biologists with the Santa Ana Watershed Association (SAWA). Data that has been reviewed for the Santa Ana River Parkway project has included SAWA surveys conducted in 2005, 2007, 2010, 2011 and 2012. Based on these studies, least Bell's vireo breeding territories have been present throughout much of the study area, wherever areas of suitable vireo habitat exist. SAWA vireo survey data for the general area (Featherly Regional Park east to the Green River Golf Club) showed a slight decline over the years of 2010 to 2012, but have otherwise remained relatively consistent. For example, there were 40 vireo territories in this area in 2010, 33 in 2011, and 36 in 2012.

Wherever the proposed project comes in contact with riparian habitat dominated by willows, including riparian woodland or scrub type vegetation, there is the chance of direct or indirect impacts to least Bell's vireo. Limiting removal of potential vireo nesting habitat to the non-

breeding season (roughly September 1 to March 14 for this species) would avoid the potential for direct impacts to active vireo nests. However, depending on results of surveys conducted just prior to project implementation, there is still the possibility of the project removing habitat located within known vireo breeding territories. In addition, there may be the possibility of indirect impacts on active vireo nests, or occupied habitat, whenever work is progressing in areas adjacent to suitable nesting habitat for the vireo. These indirect impacts may result from construction activities (e.g., noise and startle effects from the operation of heavy equipment), which may cause vireos to avoid portions of their territory, or abandon active nests. These impacts would be considered significant.

Coastal California gnatcatcher (federally threatened). Suitable habitat for the California gnatcatcher is extremely limited in the study area, especially in terms of breeding habitat. Although there has been observations of gnatcatchers in the project vicinity (Table B-2), currently the study area would seem to be most beneficial to this species in its potential to facilitate dispersal of young, and interchange of individuals between regional populations north and south of the Santa Ana River. Therefore, although there may be moderate potential for juvenile gnatcatchers to occasionally occur in the study area (primarily during post-breeding dispersal of young birds from breeding pairs that potentially occur in the vicinity), the potential for a breeding pair of California gnatcatchers to occur in the study area is considered low. In the event, however, that pre-construction surveys find that coastal California gnatcatchers occupy habitat within or near the project disturbance limits, any impacts to this species would be considered significant.

Other Special-Status Birds. Six additional special-status birds may have some potential to occur in the study area, or have been recorded historically, based on the CNDDB records and results of recent surveys that have been conducted in the area. These include western yellow-billed cuckoo (state listed endangered), southwestern willow flycatcher (federally listed endangered), Clarke's marsh wren (SSC), yellow warbler (SSC), yellow-breasted chat (SSC) and tricolored blackbird (SSC).

There currently is no suitable habitat for yellow-billed cuckoo in the study area, and therefore this species is not expected to be present. Additionally, breeding habitat for the southwestern willow flycatcher is considered marginally suitable, and therefore would have a low potential to be present in the study area. Pre-construction surveys will be conducted for the flycatcher, concurrently with surveys for least Bell's vireo, to determine whether this species could be directly or indirectly impacted by the project. Any impacts to habitat occupied by the flycatcher would be considered significant. As there is moderate potential for breeding individuals of Clarke's marsh wren, yellow warbler and yellow-breasted chat to occur in the study area, the project may have potential impacts on these species. Although these species would not be expected to have substantial populations in the area, impacts to active nests would be considered significant, and are further protected by the MBTA. Therefore, pre-construction nesting bird surveys would be conducted to ensure no active nests for these species would be impacted. Suitable breeding habitat for these species, however, is not protected by the resource agencies, and removal of potential habitat would not be considered significant. No breeding habitat for the tricolored blackbird is expected in the study area, and therefore the project is not expected to have impacts on this species.

Nesting Birds

Birds protected by the MBTA and CFGC have the potential to nest in and near the project components. A variety of habitats suitable for nesting birds, including both native and

nonnative plant communities, are present in or near all project components. Clearing of vegetation during the nesting season could cause the direct loss of active nests of native birds. By adhering to avoidance and minimization measures (e.g., clearing of vegetation outside the breeding season), the impacts of vegetation removal on nesting birds would not be considered significant.

Indirect impacts to nesting birds within the vicinity of the project could occur as a result of noise, increased human presence, and vibrations and other startle effects resulting from construction activities. Disturbances related to construction could result in increased nestling mortality due to nest abandonment or decreased incubation or feeding frequency. By adhering to avoidance and minimization measures, such impacts to nesting birds are not anticipated.

4.3.8 Special-status Natural Communities

The resource agencies consider vegetation types or communities that support concentrations of special-status plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife, to be special-status. In addition to providing an inventory of special-status plant and wildlife species, the CNDDB also provides an inventory of vegetation communities that are considered special-status by State and Federal resource agencies, academic institutions and various conservation groups (such as the CNPS). Although these vegetation communities are not afforded legal protection unless they support protected plant or wildlife species, potential impacts on these communities may increase concerns and mitigation suggestions by the resource agencies. In addition, due to their special-status, impacts to these communities are often considered significant under CEQA analysis.

Of the 32 plant community subtypes that were mapped within the study area, the following 14 are considered species-status communities: sagebrush scrub, buckwheat scrub, mixed sage scrub, scale-broom scrub, coast live oak woodland, California walnut woodland, willow riparian scrub, mulefat scrub, sycamore riparian woodland, arroyo willow riparian forest, black willow riparian forest, cottonwood-willow riparian forest, perennial rivers and streams, and freshwater marsh. Of these 14 special-status plant communities in the study area, it is anticipated that the proposed project may impact nine communities (sagebrush scrub, mixed scrub, yerba santa scrub, mulefat scrub, sycamore riparian woodland, arroyo willow riparian forest, cottonwood-willow riparian forest, coast live oak woodland, perennial rivers and streams). Where direct removal of any of these nine special-status natural communities cannot be avoided by the proposed project, these impacts would be considered significant. Some of these impacts may be considered temporary, where impacted vegetation can be restored to pre-construction conditions.

The results of the hydraulic modeling analysis indicate that potential indirect impacts to riparian habitat are primarily limited to the cottonwood-willow riparian forest, especially upstream from Bridge No. 1. There are 2.4 acres of discernible impacts to the flood regime that would occur to the cottonwood-willow riparian forest vegetation community from the proposed project during the design storm (i.e., defined as 30,000 cubic feet per second). These impacts are limited to decreases in velocity between -0.25 to -1.0 feet per second (fps). A decrease in flow velocity means that on the upstream side of the bridges, water would have a tendency to slow down, back up (or pool) and spread out laterally over the floodplain. This effect would not be considered an adverse impact, as these riparian communities are adapted to periodic flooding during storms (or releases from Prado Dam).

No increase in velocity is expected to impact this habitat type during the design storm. This type of impact is usually associated with hydromodification (i.e., changes to the peak and duration of flood flows due to urbanization). Thus, scour of sediment around the bridges is not expected to occur. The indirect impacts described above would not be adverse, and thus impacts would be less than significant.

It is expected that temporary impacts to sensitive riparian communities would be mitigated through the restoration of these on-site habitats where impacts occur. Once the location and extent of construction activities are determined with finality, and prior to initiation of construction activities, a restoration plan for the project would be developed and implemented. The development of a conceptual mitigation and landscape plan is a requirement of federal and/or state permit issuance to perform activities that may impact these communities, as well as the open water habitat present at river crossings. The conceptual mitigation plan will detail the amount, methods, and type of restoration activities proposed. If on-site mitigation for all impacts related to this project is not attainable, then additional and appropriate (i.e., accepted by the resource agencies) off-site mitigation will likely be needed. The conceptual mitigation plan and landscape plan will include methods to restore sensitive riparian communities to preexisting conditions, planting specifications, and maintenance and monitoring procedures. The plan will also outline yearly success criteria and remedial measures should the mitigation effort fall short of the success criteria. All impacts to sensitive riparian communities, and associated jurisdictional waters and wetlands, will be mitigated to a level below significance upon compliance with the measurements and requirements of federal and state permits issued for the project.

4.3.9 Critical Habitat

As there is no Critical Habitat designated for this area, there would be no project impacts on Critical Habitat.

4.3.10 Wildlife Movement Corridors

The proposed project crosses a regionally important north-south wildlife movement corridor. The main movement corridor is under the SR-91 Freeway, at Coal Canyon underpass, to the small Chino Hills State Park parcel within the project area. From there the corridor would be expected to span across the Santa Ana River, and extend north into the expansive Chino Hills State Park. Additional wildlife movement would be expected east and west along the Santa Ana River, being especially valuable to species associated with freshwater and riparian habitats. Other wildlife movement is expected at the Gypsum Canyon Road underpass of the SR-91 Freeway, allowing wildlife to access the Santa Ana River from the Santa Ana Mountains to the south of the freeway.

Bridge 1, and the adjacent trail system, would be along, and above, wildlife movement following the Santa Ana River towards the Brush Canyon. Bridge 2 and the adjacent trail system would be located along, and above, wildlife movement located at the western extent of the Green River Golf Club, which is just east of the primary wildlife movement corridor that follows Coal Canyon Road under the SR-91 Freeway. Bridge 3 and the adjacent trail system would be located along and above wildlife movement that is expected to move north through the Gypsum Canyon underpass of the SR-91 Freeway.

The noise and activity associated with construction of the proposed project is anticipated to temporarily displace wildlife from the immediate construction areas. The construction

activities are not expected to directly harm most of the displaced individuals, although this could lead to temporary abandonment of localized food and water resources, nesting and sheltering areas, etc. However, due to the proximity to the railroad, city streets, freeway and urban uses in or near the project site, many species that already use this area are likely adapted to human-related disturbances. Although the project's construction-related noise has the potential to cause temporary disturbance to wildlife, only wildlife within the immediate construction areas would be impacted. Most wildlife would be able to relocate to unaffected areas. Additionally, impacts within a given area would cease as soon as construction was completed and had moved onto another location. Mitigation measures are expected to reduce impacts on wildlife movement corridors in the vicinity of the project to less than significant. Therefore, following compliance with recommended mitigation measures, project implementation is not expected to interfere substantially with wildlife movement.

4.3.11 Habitat Conservation Plans

The proposed project is not located within the regional habitat plans discussed in Section 2.13. Therefore, the implementation of this project would not conflict with the provisions of an adopted HCP, NCCP, or other approved local, regional, or state habitat conservation plan. Therefore, no impacts would be expected from the project on any NCCP/HCPs in particular.

The SARCHMP is the only regional conservation plan that is applicable to the proposed project, which is designed to be in compliance with the SARCHMP, and any impacts on sensitive vegetation communities and species will be mitigated in order to ensure the continued conservation of riparian habitat. In addition, before project construction, the County will be required to comply with Section 7 of the ESA (through a consultation between the USACE and USFWS) and applicable regulatory permits. Although direct impacts to riparian habitat may be considered significant, the SARCHMP dictates appropriate mitigation to impement in such cases. Thus, the project would have a less than significant impact on regional plans such as the SARCHMP.

4.3.12 Potential Jurisdictional Waters, Wetlands, and Riparian Areas

Potentially jurisdictional features are present within the study area, and are shown in Appendix C, Tables 1 and 2, as well as Figures 1 – 7. Potential temporary and permanent impacts to jurisdictional resources are summarized in Appendix C, Tables 3 and 4, respectively. In addition, Figures 8 and 9 provide an overview of impacts with jurisdictional features. The impacts to jurisdictional waters, wetlands and riparian areas would be potentially significant.

5.0 AVOIDANCE, MINIMIZATION, AND MITIGATION MEASURES

Mitigation measures are recommended as precautionary measures relevant to the protection of biological resources, and are required to offset potentially significant adverse project impacts. A reporting mechanism will be associated with the measures, in order to document mitigation completion and performance. Potential impacts to special-status natural communities/habitats, special-status plant and wildlife species, nesting birds and wildlife movement corridors will be avoided, minimized, and/or mitigated by incorporation of project-specific mitigation measures.

5.1 Mitigation Measures Related to Special-Status Species and Sensitive Natural Communities and Riparian Habitat

The following mitigation measures would reduce potentially significant impacts during construction to Santa Ana River woolly star, California gnatcatcher, Santa Ana sucker, least Bell's vireo, and nesting birds.

BR-1 Prior to the issuance of a grading permit, the Applicant shall conduct biological field surveys of the project area for the following special status plant and wildlife species:

- Santa Ana River Woolly Star (*Eriastrum densifolium sanctorum*);
- Coastal California Gnatcatcher (*Polioptila californica californica*);
- Santa Ana Sucker (*Catostomus santaanae*), and
- Least Bell's vireo (*Vireo bellii pusillus*).

Surveys shall be conducted in accordance with current California Department of Fish and Wildlife (CDFW) or United States Fish and Wildlife Services (USFWS) survey protocols for the identified species by a qualified biologist/botanist to confirm their presence or absence in the project site.

BR-2 During construction, all equipment maintenance, lighting, and staging shall be located in designated areas, and to the extent possible directed away from ecologically sensitive areas and wildlife corridors.

BR-3 Speed limits of 10 miles per hour (mph) or less shall be required at all times to avoid potential injury to wildlife in the area, and minimize fugitive dust.

BR-4 A litter control program shall be implemented during construction to eliminate the accumulation of trash. Trash will be removed to trash receptacles following the close of each workday, and disposed of in a sanitary landfill at the end of each work week.

BR-5 A qualified biologist will monitor construction during clearing, grubbing, and excavation activities, as needed. At a minimum, construction monitoring should be implemented at bridge construction locations, wherever riparian vegetation provides potentially suitable habitat for any of the special-status wildlife species (e.g., least Bell's vireos) that have potential to occur in the project area. The monitor will ensure that construction workers stay within the designated footprints of the project to avoid trespass on foot or in vehicles into sensitive

habitats, and ensure compliance with the conditions of project permits and agreements.

BR-6 During the least Bell's vireo nesting season (March 15 to August 31), wherever breeding territories of vireos may be present in areas adjacent to project construction sites, a qualified vireo biologist will monitor territories to ensure that active vireo nests are not being adversely impacted by construction noise and activities. Nest protection buffer areas for listed birds would typically be at least 300-feet from areas of construction, although the specifics of appropriate buffer distances can be determined during consultation with the resource agencies.

BR-7 The project applicant shall comply with the following measures, in order to mitigate any effects of clearing or construction activities on biological resources and to protect special status resources, including impacts to birds subject to the Migratory Bird Treaty Act (MBTA):

- To the extent feasible, all vegetation removal activities shall be scheduled outside the nesting season (typically February 15 to August 15) to avoid potential impacts to nesting birds.
- If initial vegetation removal occurs during the nesting season, all suitable habitat shall be thoroughly surveyed for the presence of nesting birds by a qualified biologist no more than five-days prior to commencement of clearing. All nests found will be recorded.
- If any active nests are detected, a nest protection buffer of at least 100 feet (300 feet for raptors) shall be delineated, flagged, and avoided until the nesting cycle is complete as determined by the biological monitor to minimize impacts.
- If the recommended nest protection zone is not feasible, the qualified biologist will determine whether an exception is possible and obtain concurrence from the appropriate resource agency before construction work can resume within the avoidance buffer zone. All work will cease within the avoidance buffer zone until agency concurrence is obtained or the biologist determines that the adults and young no longer rely on the nest site.
- After vegetation removal for the project has been completed, wherever construction activities are taking place during the breeding season, in areas adjacent to potential nesting habitat outside the work limits, surveys will continue on a once-a-week basis for nesting birds.

The following mitigation measures are provided to further reduce impacts to sensitive natural communities:

BR-8 Wherever possible, construction personnel shall utilize existing access roads or previously disturbed areas to reach the project area or stage their vehicles and equipment.

BR-9 Prior to removal of vegetation within the bed of the Santa Ana River, the routes in and out of the project area shall be flagged to minimize impacts of crushing or removing native vegetation within the area. The perimeter of the work site shall be adequately flagged and/or fenced to prevent damage to adjacent habitat. All this work shall be supervised by an on-site, qualified biologist. Temporary

fencing (with silt barriers) will be installed at the limits of project impacts (including construction staging areas and access routes) to prevent habitat impacts and prevent the spread of silt from the construction zone into adjacent habitats. The fencing will be installed in a manner that does not impact adjacent habitats to be avoided.

BR-10 The contractor will be informed regarding the biological constraints of this project. The project limits will be clearly marked on project maps provided to the contractor and areas outside of the project limits will be designated as "no construction" zones. A construction manager will be present during all construction activities to ensure that work is within designated project limits.

5.2 Mitigation Measures Related to Federally Protected Wetlands

BR-11 Prior to approval of the project plans and specifications, the County shall confirm that the plans and specifications stipulate that, prior to commencement of construction activities, the County shall coordinate with the U.S. Army Corps of Engineers to obtain authorization pursuant to Section 404 of the Federal Clean Water Act and the Regional Water Quality Control Board to obtain a Water Quality Certification pursuant to Section 401 of the Federal Clean Water Act. Additionally, the County shall obtain a Streambed Alteration Agreement from the California Department of Fish and Game pursuant to Section 1602 of California Fish and Game Code. The County shall implement a project-specific Habitat Mitigation and Monitoring Plan (HMMP) as required by the permit authorizations.

BR-12 The County shall successfully restore riparian vegetation that is temporarily disturbed during construction-related activities and shall keep all temporarily disturbed areas free of exotic plants until riparian vegetation is re-established. Restoration will be completed with at least a 1:1 ratio. If the site has not begun to recover within five (5) years, then the site shall be reseeded or replanted with container plants and/or cuttings from native riparian species. Permanent impacts will be compensated through appropriate on-site or off-site mitigation as dictated by the permit authorizations. Exact compensation/restoration requirements would be negotiated with the regulatory agencies during the project permitting process.

BR-13 Prior to commencement of riding and hiking trail operations, an ongoing Operation and Maintenance (O & M) Program shall be prepared and approved by the County, in order to mitigate potential long-term impacts to biological resources and water quality from horse manure. The O & M Program may be part of an already-established program operated by OC Parks. The O & M Program shall identify items to be maintained and specify maintenance levels, funding resources, and work responsibility. The O & M Program shall also manage maintenance frequency for specific trail segments or the trail in its entirety, based on the maintenance plan or unique conditions. The County shall be responsible for overseeing or maintaining the trail facilities and establishing a consistent level of maintenance.

5.3 Minimization Measures Related to Wildlife Movement

Although no significant impacts to wildlife movement would occur, the following mitigation measures are included to further reduce impacts to wildlife movement during construction:

BR-14 Construction shall occur only during daylight hours, if possible, to minimize disturbances to wildlife species that move primarily at night. In particular, whenever possible, above-ground operations (including use of access pits, equipment and vehicles) in the vicinity of the Coal Canyon underpass (wildlife corridor) shall not begin until 0700 hours and shall be completed before dusk of each day. The only exception shall be for an activity that must continue non-stop until it is completed for physical or engineering reasons.

BR-15 Excavation and trenching activities in areas of known wildlife movement shall include measures to prevent entrapment and injury to wildlife. For instance, steep-sided trenches may either be backfilled at the end of each work day, fenced, or include “escape ramps” for wildlife.

5.4 Mitigation Measures Related to Conflicts with Regional Conservation Plans

No mitigation measures required.

5.5 Level of Significance after Mitigation

Implementation of Mitigation Measures BR-1 through BR-13 would reduce potentially significant impacts related to biological resources to below a level of significance. Minimization Measures BR-14 through BR-15 would further reduce impacts through avoidance and minimization of impacts.

6.0 REFERENCES

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APPENDIX A

A-1. Project Description

(*See Appendix C, Figures 1 – 3,*

***for Project Description Figures*)**

A-2. BTR Figures 1 - 3

APPENDIX A.

PROJECT DESCRIPTION

The Santa Ana River Riding and Hiking Trail and Santa Ana River Class I (off-road, paved) Bikeway (SAR Parkway) is a landscaped corridor with recreational facilities that is intended to provide a recreational and commuter link from the Pacific Ocean to the San Bernardino Mountains for walkers, joggers, runners, hikers, bicyclists, and equestrians. Since 1955, when the idea of the SAR Parkway was formalized, a total of 43 miles of the 110-mile trail have been completed[1]. It is estimated that over one million trail users visit the Orange County portion of the SAR Parkway each year.

The Santa Ana River Parkway Extension Project (proposed project) is located within a 2-mile stretch of the SAR Parkway. The proposed project is located on the north and south sides of the Santa Ana River (river). Specifically, the project area is located between Gypsum Canyon Road on the west and the Orange/Riverside/San Bernardino County boundaries on the east, and between the Burlington Northern Santa Fe (BNSF) railroad and La Palma Avenue on the north and State Route (SR) 91 freeway on the south; refer to Figure 1-1, Regional Map, and Figure 1-2, Vicinity Map. The majority of the project area is located within the City of Yorba Linda. The easternmost portion of the project area is located within unincorporated Orange County.

ENVIRONMENTAL SETTING AND EXISTING CONDITIONS

The river flows westerly through the center of the project area. The project area includes levees or elevated earthen benches, a portion of a regional railroad corridor, Canyon RV Park (with Featherly Regional Park), Chino Hills State Park, and the Green River Golf Club (GRGC). Canyon RV Park is a private leasehold with RV hookups and cabins on a portion of Orange County Parks' (OC Parks) land just north of SR-91 and adjacent to Gypsum Canyon Road. The GRGC is owned and operated by the Orange County Flood Control District (OCFCD).

The Orange County portion of the SAR Parkway includes an existing Class I (off-road, paved) Bikeway (bikeway). The bikeway begins at the Pacific Ocean and extends inland 28 miles along the river, to the Orange County boundary. The bikeway arrives at the project area from the west on the river's north bank at Gypsum Canyon Road. The bikeway then crosses south over the river on the Gypsum Canyon Road Bridge. From the south side of the river the bikeway extends east through the project area terminating at the Orange County boundary and Green River Road. This existing portion of the bikeway primarily utilizes the 12-foot paved river levee service road that follows the south bank of the river. The levee service road is adjacent to the SR-91. Access points are located along this portion of the bikeway, including connections to other existing regional riding and hiking trails located outside of the project area (i.e., Gypsum Canyon Riding and Hiking Trail and Coal Canyon Riding and Hiking Trail). Several wildlife corridors (e.g., Coal Canyon, Brush Canyon, Gypsum Canyon, etc.) are also located within and/or adjacent to the project area.

The Orange County portion of the SAR Parkway also includes an existing Riding and Hiking (unpaved) Trail, which currently extends inland 26 miles from the Pacific Ocean, and arrives at the project area from the west along the north bank of the river, and terminates at the Gypsum Canyon Road Bridge. A 2-mile gap in the Riding and Hiking Trail exists within the project area.

[1] Santa Ana River Trail & Parkway, http://www.santaanarivertrail.org/about-us/history.html, accessed on September 23, 2013.

Figure 1-1
Regional Map

(*See Appendix C – Jurisdictional Delineation Figures*)

Figure 1-2
Vicinity Map

(*See Appendix C – Jurisdictional Delineation Figures*)

The following land uses surround the project area:

- North. Residential uses (including the Villa del Rio neighborhood and Riverbend Apartments), open space, and a portion of the Chino Hills State Park are located north of La Palma Avenue and the BNSF Railroad.
- East. Portions of the GRGC are located to the east of the project area, near the Orange County boundary.
- South. The SR-91 freeway is located directly south of the project area. South of the SR-91 freeway are Orange County parkland, Chino Hills State Park, and undeveloped land within the City of Anaheim.
- West. Gypsum Canyon Road is located to the west of the project area. A portion of Canyon RV Park is located west of Gypsum Canyon Road.

PROJECT PURPOSE AND NEED

On October 17, 2006, the Counties of Orange, Riverside, and San Bernardino; the Santa Ana Watershed Project Authority (SAWPA); and the Wildlands Conservancy entered into a Memorandum of Understanding (MOU) to coordinate planning along the river and assist in completing the SAR Parkway. When finished, this regional recreational resource would include a Class I Bikeway and a Riding and Hiking Trail. The Class I Bikeway is planned from the Pacific Ocean to the foothills of the San Bernardino Mountains. The Riding and Hiking Trail is planned from the Pacific Ocean to Big Bear Lake, high in the San Bernardino Mountains.

As described previously, the existing Orange County portion of the bikeway extends 28 miles from the Pacific Ocean to the Orange County boundary. However, the bikeway within the project area currently connects only to Green River Road on the south side of the river at the Orange/Riverside County boundary. Additionally, the existing Orange County portion of the 26-mile Riding and Hiking Trail also begins near the Pacific Ocean but ends approximately 2 miles west of the Orange County boundary at Gypsum Canyon Road in the City of Yorba Linda. The proposed project would complete the 2-mile gap of the Orange County portion of the Riding and Hiking Trail and provide a new Class I Bikeway on the north side of the river, both of which would extend to the Orange/San Bernardino County boundary just south of the BNSF railroad.

PROJECT OBJECTIVES

Project objectives include the following:

- Close a critical two-mile gap between Gypsum Canyon Road and the Orange County border in the SAR Riding and Hiking Trail for the purpose of extending and completing the Orange County portion of the SAR Parkway system and facilitating connection with planned improvements in Riverside and San Bernardino Counties;
- Provide staging, trailheads, crossroads/intersections, and other amenities that enhance the Orange County SAR Parkway and facilitate connection to adjacent existing and future recreational trails;
- Provide an enjoyable bikeway, riding and hiking experience;
- Enhance the SAR Parkway as a passive recreational destination;
- Minimize Green River Golf Course intrusion.
- Minimize Featherly Regional Park/Canyon RV Park intrusion.
- Minimize intrusion and conform to the Chino Hills State Park (CHSP) General Plan.
- Establish a maintainable bikeway and trail system.
- Maximize bikeway and trail user safety.

DESCRIPTION OF THE PROJECT

The proposed project includes the construction of a new Class I Bikeway, Riding and Hiking Trail, and associated amenities on the north and south banks of the river between Gypsum Canyon Road and the Orange County boundary (refer to Figure 1-3, Proposed Project.) The proposed project's main elements are described below followed by additional detailed descriptions of some of the design features. A typical cross section for the Class I Bikeway and Riding and Hiking Trail is 30 feet wide and includes a minimum 2-foot shoulder width and minimum 3-foot buffer area between the two paths (refer to Figure 1-4, Typical Cross Section).

Figure 1-3
Project Description

(*See Appendix C – Jurisdictional Delineation Figures*)

SEGMENT 1

A new 10-foot-wide Riding and Hiking Trail would be located parallel to the existing bikeway that is located on the southern bank of the river adjacent to the SR-91. The new Riding and Hiking Trail would begin at Gypsum Canyon Road in the southwestern-most portion of the project area. Within Canyon RV Park, at Featherly Regional Park, the new Riding and Hiking Trail would span (via Proposed Bridge #3) the existing Gypsum Canyon Channel located immediately east of Gypsum Canyon Road. Bridge #3 has a proposed width and length of 15 feet and 100 feet, respectively. Eastward from Bridge #3, the proposed Riding and Hiking Trail would meander approximately 1.75 miles between the river and the existing bikeway to proposed Bridge #2, which would be located approximately 0.15 mile east from the Coal Canyon Exit. It should be noted that the existing bikeway would maintain its current extension eastward parallel to the SR-91 from the proposed Bridge #2 to the Orange/Riverside County boundary. Bridge #2, which would accommodate both the new Class I Bikeway and new Riding and Hiking Trail, would have a physical structure width of 25 feet and would consist of three spans, 120 feet each, for a total length of 360 feet. From Bridge #2, within the unincorporated Orange County portion of the project area, a new parallel 12-foot-wide Class I Bikeway and 10-foot-wide Riding and Hiking Trail would be constructed. The parallel Class I Bikeway and Riding and Hiking Trail would extend through a portion of the existing GRGC toward the BNSF Railroad. The new Class I Bikeway and Riding and Hiking Trail would then parallel the BNSF Railroad eastward to the Orange/San Bernardino County boundary. Approximately 3,000 linear feet of new paving would be required for the new Class I Bikeway to connect from Bridge #2 to the Orange/San Bernardino County boundary. Trailheads would be located at Featherly Regional Park and near the Coal Canyon Trail at Chino Hills State Park. Five turnouts would be provided along Segment #1 at various locations throughout the project area. In addition, one turnout would be provided along the existing bikeway on the south side of the SAR, between Chino Hills State Park and the Orange/Riverside County boundary. A vista point would be provided at the east end of the Chino Hills State Park at the river overlook.

SEGMENT 2

A new parallel 12-foot-wide Class I Bikeway and 10-foot-wide Riding and Hiking Trail would be located on the northern bank of the river, adjacent to La Palma Avenue. The new Class I Bikeway would utilize the existing, paved County service road on top of the existing levee. The new Riding and Hiking Trail would be located on the river side of the new Class I Bikeway. The new parallel Class I Bikeway and Riding and Hiking Trail would extend eastward from Gypsum Canyon Road approximately 0.75 mile to the end of the paved portion of the existing County service road. From this point, the new parallel Class I Bikeway and Riding and Hiking Trail would continue eastward and southward to proposed Bridge #1. Approximately 1,700 linear feet of new paving would be required for the new Class I Bikeway to connect the existing County service road to Bridge #1. Bridge #1 would cross the river and join Segment #1. Bridge #1, which would accommodate both the new Class I Bikeway and new Riding and Hiking Trail, would have a physical structure width of 25 feet and would consist of three spans, 115 feet each, for a total length of 345 feet. A turnout would be provided at the north end of Bridge #1 and a vista point would be provided at the midpoint of Bridge #1. A Staging Area is proposed adjacent to Segment #2, east of the La Palma Avenue and Gypsum Canyon Road intersection. It would be accessed by vehicles from La Palma Avenue. The Staging Area would be located at a lower elevation than La Palma Avenue.

DESIGN FEATURES

Trails and Bikeways

The proposed bikeway alignments follow existing paths wherever possible, provided the existing paths meet the current design speeds and stopping sight distances as defined for Class I Bikeways in Chapter 1000, "Bikeway Planning and Design," of the *California Department of Transportation Highway Design Manual*, September, 2006, and the current Orange County Highway Design Manual.

Bridges

All proposed bridges are narrow, non-vehicular bridges needed for Class I Bikeway and/or Riding and Hiking Trail crossings.

- Bridge #1. This bridge would connect Segments #1 and #2 of the proposed project. This bridge would be located near, but downstream of the confluence of Brush Canyon and the river. Bridge #1 would have a deck span of 345 feet with two piers (three spans of 115 feet each). The bridge would be designed for a 20-foot width and would have a total structure width of 25 feet.
- Bridge #2. Bridge #2 would connect the new Riding and Hiking Trail element of Segment #1 to the north and south sides of the river. Bridge #2 would also allow for connection of the existing bikeway on the south side of the river with the new Class I Bikeway on the north side. This bridge would be located just east of the Chino Hills State Park/Coal Canyon Trail and would span the river to reach the golf course. Bridge #2 would have a deck length of 360 feet with two piers (three spans of 120 feet each). The bridge would be designed for a 20-foot width and would have a total structure width of 25 feet.
- Bridge #3. This bridge would be located within the Canyon RV Park and would span the Gypsum Canyon Channel to provide better access along the new Riding and Hiking Trail as part of Segment #1. It is anticipated that Bridge #3 would be a pre-fabricated metal truss structure that would be 100 feet long with no piers. The bridge would have a total structure width of 15 feet.

Staging Area

The proposed Staging Area on the north bank of the river would be accessed from La Palma Avenue, east of Gypsum Canyon Road. The Staging Area would provide access to the Class I Bikeway and Riding and Hiking Trail from the north side of the river. The staging area may include the following amenities:

- Native drought tolerant plants and shade trees;
- Benches;
- Picnic tables;
- Bicycle racks – no long term storage;
- Fencing and hitching rails;
- Corral;
- Water for horses;

- Water for hikers, bikers, and riders;
- Entry road drive and monumentation;
- Interpretive and directional signage;
- Trash receptacles;
- Parking for 24 vehicles;
- Five pull-thru parking spaces for horse trailers;
- Shade structure;
- Restrooms;
- Minimal security lighting; and
- Paved parking lot and entry drive.

Trailheads

Trailheads are non-vehicular crossroads that serve as a rest area and orientation point where two or more trails and/or bikeways meet. They are typically smaller, accommodate fewer people, and have fewer facilities than a staging area. The proposed project proposes two trailheads, which are anticipated to be located at Gypsum Canyon Road/Featherly Regional Park and Coal Canyon/Chino Hills State Park.

- Trailhead for Gypsum Canyon Riding and Hiking Trail/Proposed Project. This trailhead may be located within Canyon RV Park (Featherly Regional Park) near the main entry gatehouse and adjacent to the entry drive. An optional drop off may be designed to allow hiker and bicycle unloading. No parking would be provided. The trailhead may be reached from the Gypsum Canyon Riding and Hiking Trail to the south, from Gypsum Canyon Road Bridge from the north, or from the existing bikeway and new Riding and Hiking Trail to the east.
- Trailhead for Coal Canyon Riding and Hiking Trail/Proposed Project. This trailhead would be located at Chino Hills State Park within the OCFCD right-of-way next to the Coal Canyon/SR-91 underpass. This trailhead would be located in the middle of the project area and may be reached from the existing bikeway and new Riding and Hiking Trail from either the east or west, or from the Coal Canyon Riding and Hiking Trail to the south.

The trailheads would provide users with the following limited features:

- Benches (two);
- Picnic tables (two);
- Trash receptacles;
- Bicycle racks (no long term storage);
- Hitching posts;
- Water for horses;
- Water for hikers, riders, and bicyclists;
- Shade trees;
- Interpretive and directional signs;
- Shade structure; and
- Drop–off (only at Featherly Regional Park).

Turnouts and Vista Points

Turnouts

A turnout is a widened section of trail to allow faster traffic to pass or a side path that allows users to pull over and rest away from the main trail. A total of five turnouts would be provided along Segment 1 and one turnout along Segment 2. In addition, one turnout along the existing bikeway between Chino Hills State Park and the Orange County boundary would also be provided.

Along Segment 1, four turnouts would be located between Canyon RV Park and Chino Hills State Park, including one at the south bank entry to Bridge 1. Two other turnouts would be located in the eastern part of the project area: one would be located midway along the big bend of the existing SAR Class I Bikeway between Chino Hills State Park and the Orange County boundary, and the other would be located at the bend of the new Class I Bikeway and Riding and Hiking Trail at the GRGC in the vicinity of the BNSF Railroad. On Segment 2, the turnout would be located at the north bank entry to Bridge 1.

The turnouts would include the following features:

- Widened pavement;
- Bench;
- Shade trees and native vegetation;
- Signage – direction or mileage;
- Trash receptacle; and
- Fencing, as needed.

Vista Points

A vista point is a type of turnout/rest area used for orientation that is specifically focused on scenic long-distance views and overlooks either upstream, downstream, or across the project area. One opportunity for a vista point would be east of Chino Hills State Park (on OCFCD land). The vista point would be located at the high point looking eastward over the GRGC and upstream along the river. A vista point may also be created on Bridge 1 above a mid-point pier on the west side of the bridge to look westward and downstream. A companion vista point could also be built on the other side of the bridge looking eastward and upstream.

A vista point on land would have similar features as the turnouts identified above. A vista point located on a bridge deck would be more limited with only a widened pullout and, if there is room, a bench and signage.

Fencing

Fencing for the proposed project would be one of the following:

- Chain link (12-feet high);
- Chain link (6-feet high);
- Wood rail – intermittent; and

- Landscape/sound wall buffer.

A portion of the 12-foot high chain link protective fencing would be located within the floodplain. In this area, the design includes a floating fence design that would allow debris to pass during higher storm events.

Trail Surface Materials

Trail surfacing would typically be locally-sourced, compacted decomposed granite (DG) for the soft surface Riding and Hiking Trail.

Bikeway Paving Treatments

The new Class I Bikeway surface would typically be asphaltic concrete (AC), similar to the existing bikeway paving. Because bicycles are easily deflected by surface irregularities, care would be taken to maintain a smooth surface to facilitate safe cycling. Anywhere the surface must be laid down in multiple operations, longitudinal gaps would be avoided. Striping or other surface markings would be non-skid paint or tape. A regular sweeping plan would be necessary where the bikeway passes under existing bridges and is low enough to accumulate debris from winter storm flows. These specific locations may be constructed with concrete for durability.

Plant Materials

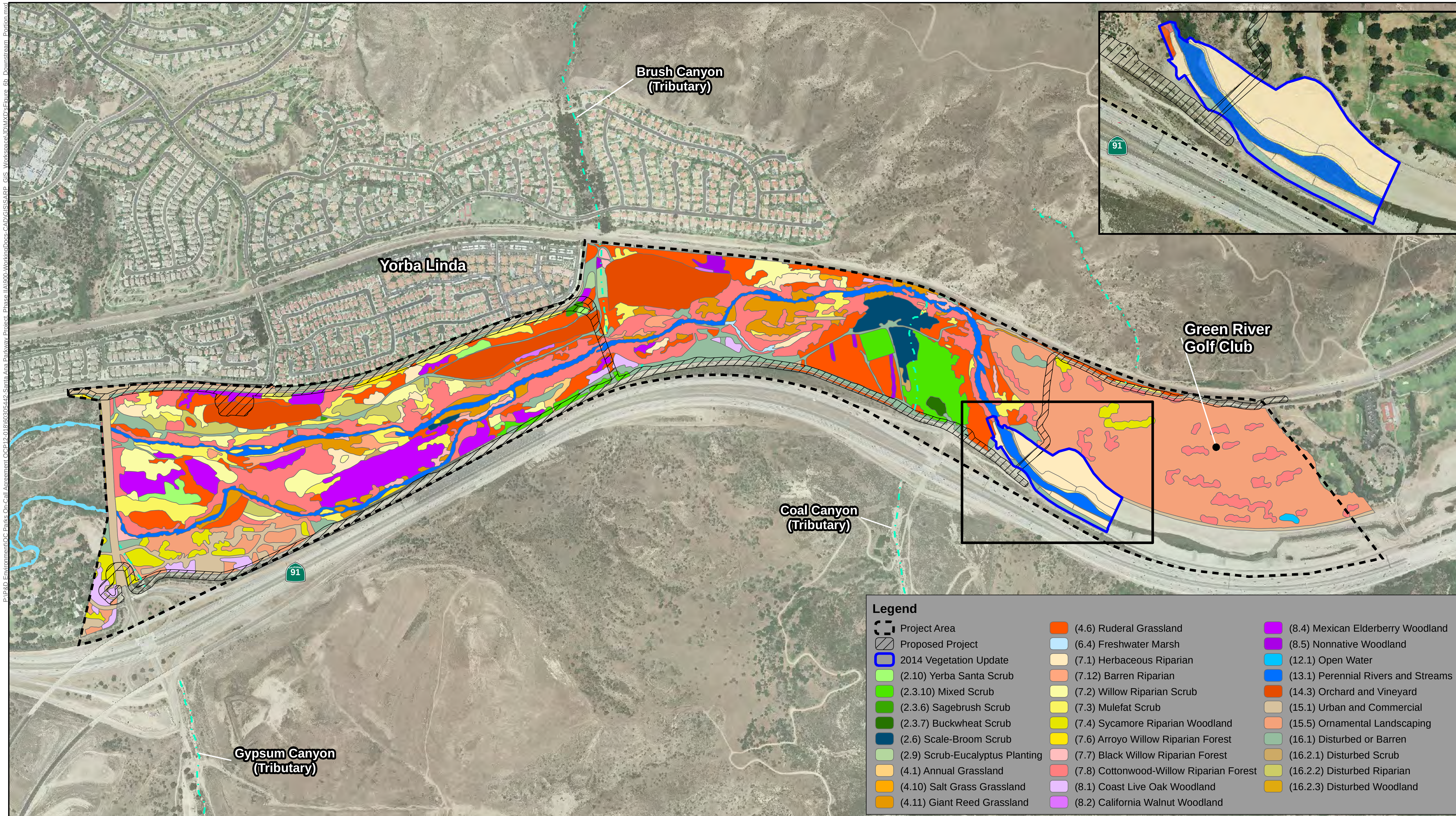
Plant material would be confined to developed trail features along the new Class I Bikeway and Riding and Hiking Trail, specifically at staging areas, trail heads, vista points, and turn outs. All planting would be regional native species. Trail features would occur at fairly regular intervals along the project area and native trees would be the primary shading method at these locations. Additional native shrub plantings would be incorporated into these locations to help integrate them with surrounding habitats and the overall riparian ecosystem.

Signage and Interpretive Boards

Project signage may be directional, distance (mileage), regulatory/advisory, or interpretive. Due to the limited number of access points within the project area, directional and other typical signage would occur primarily at staging areas, trailheads, and where users may intersect. Distance markers may occur on a regular interval of at least once per mile and, more likely, every half mile.

Interpretive signage would typically coincide with a point of public interest, but would likely be more concentrated at the staging areas, trailheads, and vista points where users are more likely to spend time off the trail surface resting or admiring the views.

For all but regulatory signs, proposed project signage would be comprehensively designed as a definitive signature element that ties the experience of this segment together with the rest of the Orange County trail system, as well as the rest of the SAR Parkway.

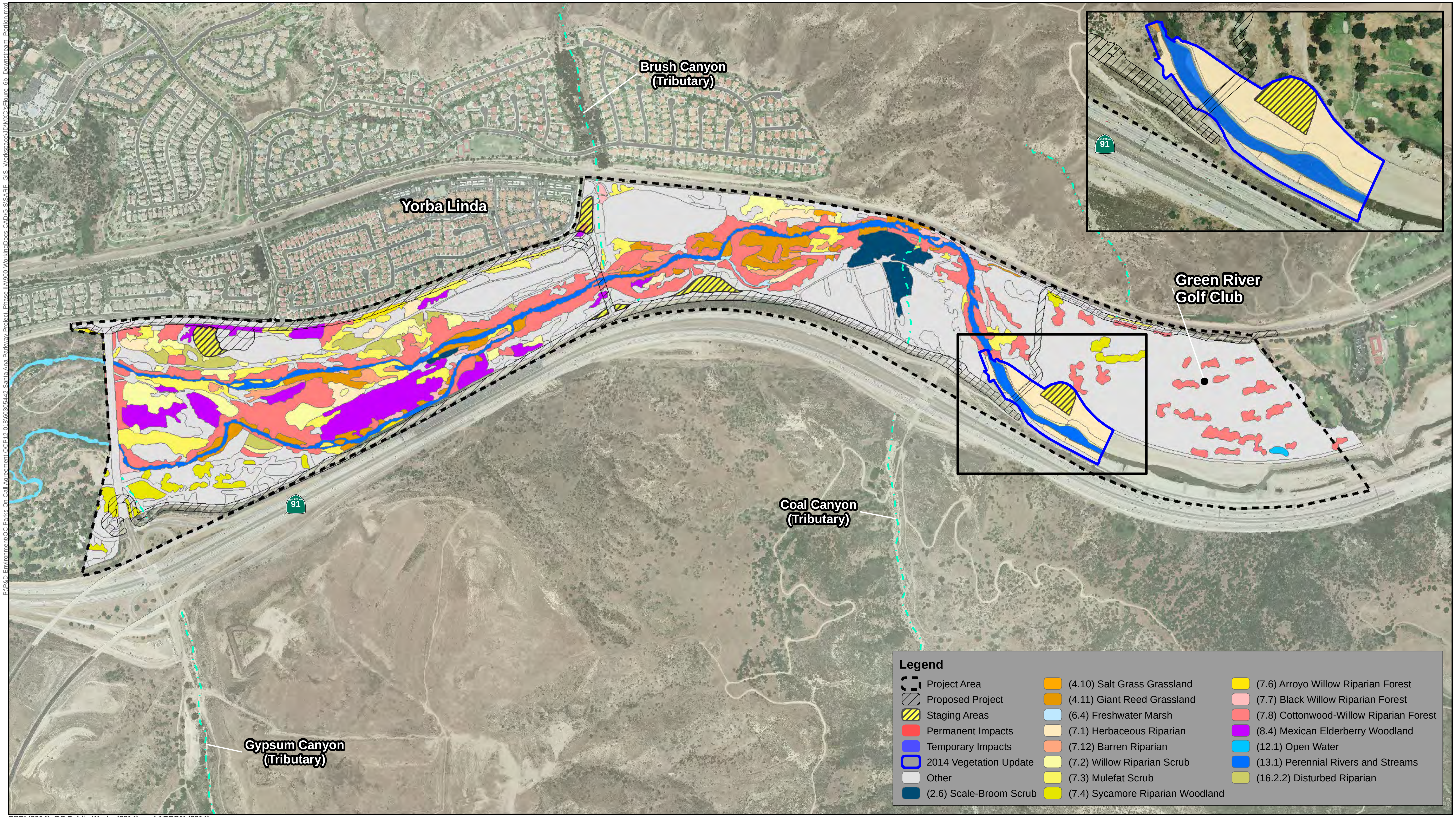

Brush Canyon (Tributary)
Yorba Linda
Green River Golf Club
Coal Canyon (Tributary)
Gypsum Canyon (Tributary)
91
Legend
Project Area
Proposed Project
2014 Vegetation Update
(2.10) Yerba Santa Scrub
(2.3.10) Mixed Scrub
(2.3.6) Sagebrush Scrub
(2.3.7) Buckwheat Scrub
(2.6) Scale-Broom Scrub
(2.9) Scrub-Eucalyptus Planting
(4.1) Annual Grassland
(4.10) Salt Grass Grassland
(4.11) Giant Reed Grassland
(4.6) Ruderal Grassland
(6.4) Freshwater Marsh
(7.1) Herbaceous Riparian
(7.12) Barren Riparian
(7.2) Willow Riparian Scrub
(7.3) Mulefat Scrub
(7.4) Sycamore Riparian Woodland
(7.6) Arroyo Willow Riparian Forest
(7.7) Black Willow Riparian Forest
(7.8) Cottonwood-Willow Riparian Forest
(8.1) Coast Live Oak Woodland
(8.2) California Walnut Woodland
(8.4) Mexican Elderberry Woodland
(8.5) Nonnative Woodland
(12.1) Open Water
(13.1) Perennial Rivers and Streams
(14.3) Orchard and Vineyard
(15.1) Urban and Commercial
(15.5) Ornamental Landscaping
(16.1) Disturbed or Barren
(16.2.1) Disturbed Scrub
(16.2.2) Disturbed Riparian
(16.2.3) Disturbed Woodland

ESRI (2014), OC Public Works (2014), LSA (2012), and AECOM (2014).

Scale 1 : 10,500

0 250 500 1,000 1,500 Feet

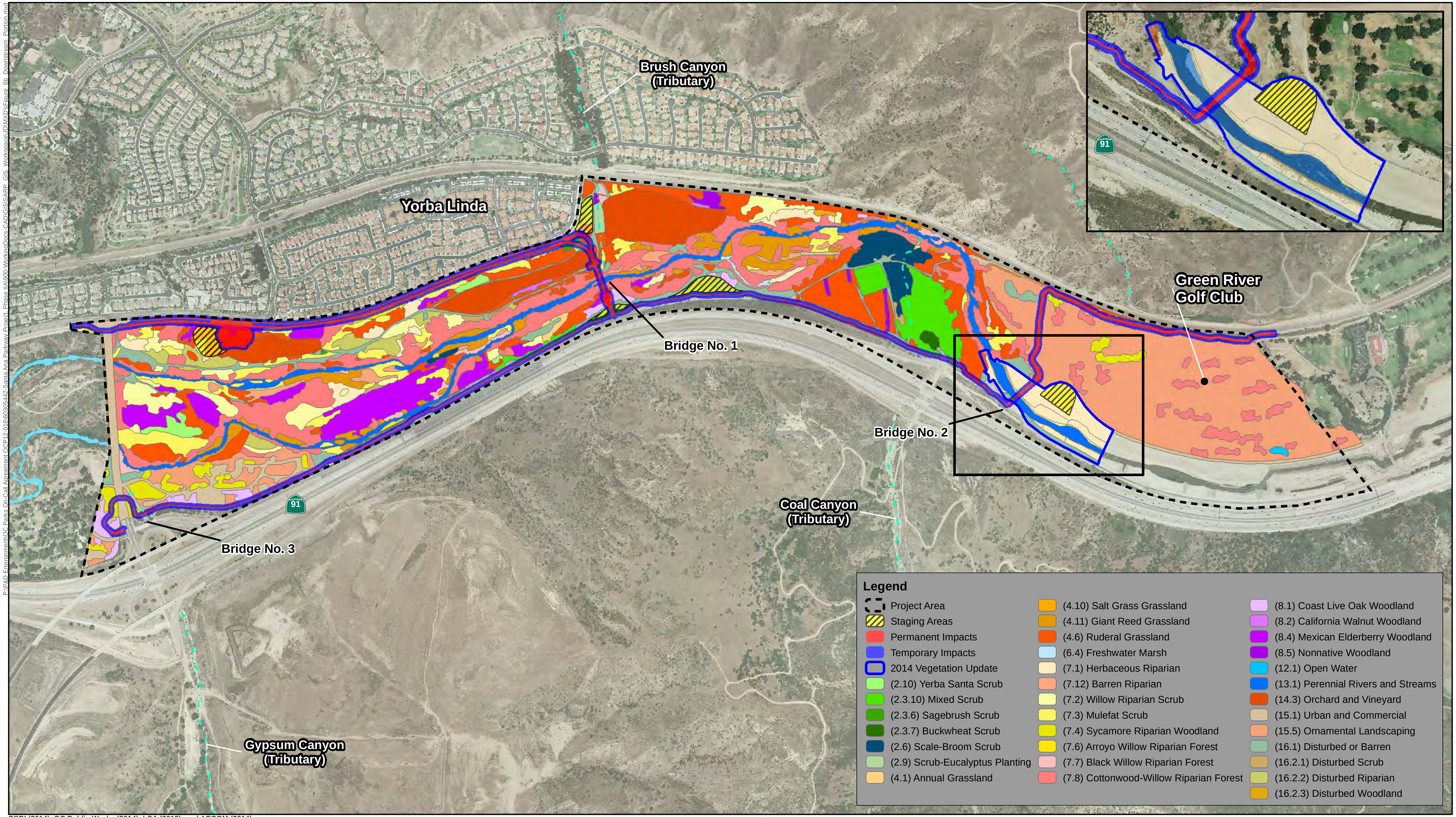
Figure 1
Vegetation Communities-Existing Conditions


Brush Canyon
(Tributary)
Yorba Linda
Green River
Golf Club
91
Coal Canyon
(Tributary)
Gypsum Canyon
(Tributary)
Legend
Project Area
Proposed Project
Staging Areas
Permanent Impacts
Temporary Impacts
2014 Vegetation Update
Other
(2.6) Scale-Broom Scrub
(4.10) Salt Grass Grassland
(4.11) Giant Reed Grassland
(6.4) Freshwater Marsh
(7.1) Herbaceous Riparian
(7.12) Barren Riparian
(7.2) Willow Riparian Scrub
(7.3) Mulefat Scrub
(7.4) Sycamore Riparian Woodland
(7.6) Arroyo Willow Riparian Forest
(7.7) Black Willow Riparian Forest
(7.8) Cottonwood-Willow Riparian Forest
(8.4) Mexican Elderberry Woodland
(12.1) Open Water
(13.1) Perennial Rivers and Streams
(16.2.2) Disturbed Riparian

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 10,500 — 0 250 500 1,000 1,500 Feet

Figure 2
Riparian Vegetation Communities-Existing Conditions



ESRI (2014), OC Public Works (2014), LSA (2012), and AECOM (2014).

Scale 1 : 10,500 — 0 250 500 1,000 1,500 Feet

Figure 3
Vegetation Communities-Impacts

Santa Ana River Parkway Extension Project

APPENDIX B

B-1. Regional Special-Status Plant Species

B-2. Regional Special-Status Wildlife Species

TABLE B-1
SPECIAL-STATUS PLANTS AND WILDLIFE WITH POTENTIAL TO OCCUR IN THE STUDY AREA

SPECIAL-STATUS PLANTS

Common/Scientific Name	Sensitivity Status	Preferred Habitat	Blooming Period	Potential for Occurrence
Abronia villosa var. *aurita* Chaparral Sand-Verbena	CNPS 1B.1	Annual herb. Chaparral, coastal scrub. Sandy areas. Elevation range 260-550 ft.	January to September	Low potential. Suitable habitat although only one old record for the area (upper Orange County reach of the Santa Ana River).
Astragalus brauntonii Braunton's Milk-Vetch	FE CNPS 1B.1	Perennial herb. Closed-cone coniferous forest, chaparral, coastal scrub, valley & foothill grassland. Recent burns or disturbed areas; in stiff gravelly clay soils overlying granite or limestone. Elevation range 53-2,099 ft.	January to August	Low potential. Atypical habitat, although recent records for the bottom of Coal Canyon.
Centromadia parry ssp. *australis* Southern Tarplant	CNPS 1B.1	Annual herb. Marshes & swamps (margins), valley & foothill grassland, vernal pools. Often in disturbed sites near the coast; also in alkaline soils sometimes with saltgrass; also vernal pools. Elevation range 3-1,395 ft.	May to November	Low potential. Marginal habitat and just one record (recent) for general area (Yorba Linda).
Calochortus weedii var. *intermedius* Intermediate Mariposa Lily	CNPS 1B.2	Bulbiferous herb. Coastal scrub, chaparral, valley & foothill grassland. Dry, rocky open slopes & rock outcrops. Elevation range 394-2,788 ft.	May to July	Low potential. Unsuitable habitat and just one record for general area (vicinity Horseshoe Bend).
Caulanthus simulans Payson's Jewel-Flower	CNPS 4.2	Annual herb. Chaparral, coastal scrub. Frequently in burned areas, or in disturbed sites such as streambeds; also on rocky, steep slopes. Elevation range 295-7,216 ft.	March to May	Low potential. Marginally suitable habitat, though no records for nearby areas.
Chorizanthe polygonoides var. *longispina* Long-spined Spineflower	CNPS 1B.2	Annual herb. Chaparral, coastal scrub, meadows, valley & foothill grassland. Gabbroic clay. Elevation range 98-4,756 ft.	April to July	Low potential. Unsuitable habitat, though a recent record for Mountain Park area of Gypsum Canyon
Eriastrum densifolium ssp. *sanctorum* Santa Ana River Woollystar	FE, SE CNPS 1B.1	Perennial herb. Coastal scrub, chaparral. In sandy soils on river floodplains or terraced fluvial deposits.	May to September	Low potential. Suitable habitat, but only one old

		Elevation range 492-2,001 ft.		record for vicinity (Santa Ana River near Weir Canyon Rd.). One recent record for the Norco area.
Lepidium virginicum var. *robinsonii* Robinson's Pepper-Grass	CNPS 4.3 (formerly 1B.2)	Annual herb. Primarily in chaparral, coastal scrub. Usually in dry soils, but occasionally has been found in more moist habitats. Elevation 0-4,400 ft.	January to July	Low potential. Generally occurs in more upland settings. Only one 1926 record for the Santa Ana Canyon vicinity area.
Nolina cismontana Chaparral Nolina (or Chaparral Beargrass)	CNPS 1B.2	Chaparral of coastal mountains; dry, rocky hillsides. On sandstone and gabbro substrates. Elevation 400 to 4,000 ft.	May to July	Low potential. Atypical habitat. Although records for the vicinity (Coal Canyon), there are none along the bottom of the Santa Ana Canyon.
Pseudognaphalium leucocephalum White Rabbit-Tobacco	CNPS 2.2	Perennial herb. Riparian woodland, cismontane woodland, coastal scrub, chaparral. Sandy, gravelly sites. Elevation range 0-6,888 ft.	August to November	Low potential. Suitable habitat, although no recent records for the general area.
Romneya coulteri var. *coulteri* Coulter's Matilija Poppy	CNPS 4.2	Occurs within chaparral and sage scrub habitats, often in dry washes. Frequently found within these plant communities after burns. Elevation range 60–3700 ft.	March to July	Observed in the study area.
Sidalcea neomexicana Salt Spring Checkerbloom	CNPS 2.2	Perennial herb. Alkali playas, brackish marshes, chaparral, coastal scrub, lower montane coniferous forest, mojavean desert scrub. Alkali springs & marshes. Elevation range 3-492 ft.	March to June	Low potential. Potentially suitable habitat, although no records for the general area.

LEGEND

California Department of Fish and Wildlife

SE State Endangered
ST State Threatened

U.S. Fish and Wildlife Service

FE Federally Endangered
FT Federally Threatened

CNPS Codes

1A Presumed extinct in California
1B Rare or Endangered in California and elsewhere
2. Rare or Endangered in California, more common elsewhere
3. Plants for which more information is needed-"Review List"
4. Plant of limited distribution-"Watch List"
.1 Seriously endangered in California
.2 Fairly endangered in California
.3 Not very endangered in California

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Imported file selection

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
Allen's pentachaeta *Pentachaeta aurea ssp. allenii*	PDAST6X021	None	None	G4T2	S2	1B.1
Braunton's milk-vetch *Astragalus brauntonii*	PDFAB0F1G0	Endangered	None	G2	S2	1B.1
California beardtongue *Penstemon californicus*	PDSCR1L110	None	None	G3?	S2	1B.2
chaparral nolina *Nolina cismontana*	PMAGA080E0	None	None	G2	S2	1B.2
chaparral sand-verbena *Abronia villosa var. aurita*	PDNYC010P1	None	None	G5T3T4	S2	1B.1
heart-leaved pitcher sage *Lepechinia cardiophylla*	PDLAM0V020	None	None	G2	S2.2	1B.2
intermediate mariposa-lily *Calochortus weedii var. intermedius*	PMLIL0D1J1	None	None	G3G4T2	S2	1B.2
intermediate monardella *Monardella hypoleuca ssp. intermedia*	PDLAM180A4	None	None	G4T2T3	S2S3	1B.3
Jokerst's monardella *Monardella australis ssp. jokerstii*	PDLAM18112	None	None	G4T1	S1	1B.1
long-spined spineflower *Chorizanthe polygonoides var. longispina*	PDPGN040K1	None	None	G5T3	S3	1B.2
many-stemmed dudleya *Dudleya multicaulis*	PDCRA040H0	None	None	G2	S2	1B.2
Plummer's mariposa-lily *Calochortus plummerae*	PMLIL0D150	None	None	G4	S4	4.2
Robinson's pepper-grass *Lepidium virginicum var. robinsonii*	PDBRA1M114	None	None	G5T3	S3	4.3
Santa Ana River woollystar *Eriastrum densifolium ssp. sanctorum*	PDPLM03035	Endangered	Endangered	G4T1	S1	1B.1
Santa Barbara morning-glory *Calystegia sepium ssp. binghamiae*	PDCON040E6	None	None	G5T1	S1	1B.1
Tecate cypress *Hesperocyparis forbesii*	PGCUP040C0	None	None	G2	S2	1B.1
white rabbit-tobacco *Pseudognaphalium leucocephalum*	PDAST440C0	None	None	G4	S2S3.2	2B.2

Record Count: 17

TABLE B-2
SPECIAL-STATUS PLANTS AND WILDLIFE WITH POTENTIAL TO OCCUR IN THE STUDY AREA

SPECIAL-STATUS WILDLIFE

SPECIES	SENSITIVITY STATUS	PREFERRED HABITAT, SEASONAL STATUS AND DISTRIBUTION, AND POTENTIAL TO OCCUR WITHIN STUDY AREA
FISHES		
Santa Ana Sucker *Catostomus santaanae*	FT SSC	Endemic to southern California, being known historically only from the San Gabriel, Los Angeles and Santa Ana River systems of Los Angeles, Orange, Riverside and San Bernardino counties. Prefers permanent streams and small to medium-sized rivers, with cool temperatures. Riparian habitat is typically present to provide cover and refuge from floods. Can inhabit reservoirs. Has been found in the Santa Ana River, in the vicinity of the project area (i.e., Featherly Regional Park), as recently as 1996; also found downstream approximately five miles (Imperial Hwy.), as recently as 2000. Although no established population may be present downstream of Prado Dam, there is still **low to moderate potential** for its occurrence in the study area, where suitable habitat exists along the Santa Ana River.
REPTILES/AMPHIBIANS		
Western Pond Turtle *Actinemys (=Emys) marmorata*	SSC	Occurs along the coastal slope of southern California, from the San Francisco Bay area south into Baja California, from sea level to over 5,900' elevation. Found in ponds, lakes, rivers, streams, creeks, marshes, and irrigation ditches, with abundant vegetation, and either rocky or muddy bottoms. Generally requires permanent (or nearly permanent) water. Can also be found in woodland and grassland. In streams, prefers pools to shallower areas. Logs, rocks, cattail mats, or exposed banks are required for basking. Although there are no CNDDB records for the Santa Ana River in the vicinity of the study area, it has occurred in nearby portions of Chino Hills State Park and their appears to be suitable habitat in the study area. Therefore, there is considered to be a **low to moderate potential** for this species to occur within the study area.
Arroyo Toad *Anaxyrus (=Bufo) californicus*	FT SSC	Uncommon and local in primarily cismontane southern California from Santa Barbara County south into Baja California. Inhabits washes, streams, arroyos and adjacent uplands, generally where riparian woodlands (willow, cottonwood, sycamore and/or coast live oak) are present. Typically requires shallow gravelly pools adjacent to sandy terraces, with little or no emergent vegetation. Although there may be suitable habitat for this species in the study area, there are no records for this area; therefore this species is **not expected to occur** in the study area.
Two-striped Garter Snake *Thamnophis hammondii*	SSC	In southern California, ranges along the coast and east through the Transverse Ranges into limited portions of the western desert; then south through the Peninsular Ranges into northern Baja California. Can be found at elevations from sea level to 6,988 ft. Found in or near permanent fresh water, often along streams with rocky beds and riparian growth. **Low potential** to occur within the

		study area, as though there may be suitable habitat present, there are no records shown within the study area or its vicinity.
BIRDS		
Cooper's Hawk *Accipiter cooperii* (nesting sites)	WL	An uncommon, though increasing, breeding resident species in cismontane southern California, with an influx of birds during the winter months. Forages over a broad variety of woodland and shrub communities, especially wherever concentrations of birds (their preferred prey) may be found. Nests within a variety of woodland habitats, such as riparian or oak woodlands, but in recent years has shown a tolerance for developed areas and has begun nesting in suburban and urban "woodlands." This species has been **recorded within the study area** on multiple occasions, and would be expected to occur as a winter visitor and potential breeder in the more wooded areas.
Bald Eagle *Haliaeetus leucocephalus* (nesting and wintering sites)	FD, SE	Occurs primarily as a fairly rare, localized winter visitor to southern California, preferring ocean shore, estuaries, lake margins and riverine habitats. Nesting has recently been documented in southern California mountain lakes (e.g., Lake Hemet, Silverwood Lake), and in recent years one pair has been known to nest in Orange County. Nests and roosts in large, old growth trees, as well as tall snags, especially where near open water or other open wetland habitats, and available sources of food. A few recent records of wintering birds **have occurred** along the Santa Ana River, approximately five to seven miles downstream of the study area. **It is not expected to breed** in the study area, however, based on this species' current breeding status locally, and preferred habitat.
Golden Eagle *Aquila chrysaetos* (nesting and wintering sites)	FP	A fairly rare resident, and breeder, in more remote regions of southern California, with generally some influx occurring into the region during winter. Forages over a variety of habitats and terrain, including grasslands, brushlands, and open woodland and savannah. This species is primarily restricted to rugged, mountainous terrain for nesting, and generally well away from human disturbance. Has been recorded close to the study area, in the Brush Canyon area of Chino Hills State Park, and has been seen flying over the Santa Ana Canyon on multiple occasions. There is **moderate potential for this species to occur as a visitor** to the study area, for foraging, but there is **no potential breeding habitat** present.
Long-eared Owl *Asio otus* (nesting sites)	SSC	A fairly rare resident, and very localized breeder, in cismontane southern California, although is somewhat more widespread and common as a winter visitor here. Prefers dense riparian communities (including coast live oak, willows, cottonwoods), or occasionally other types of cover (e.g., dense olive groves) for roosting and nesting. Generally, grasslands or other open habitats for foraging are adjacent to roosting/nesting sites. There is **low potential** for this species to occur as a breeder within the study area, as there are no records shown along the Santa Ana River in this area, and there is only marginal habitat for this species currently onsite. More likely to occur as a scarce winter visitor than as a breeder.
Northern Harrier *Circus cyaneus* (nesting sites)	SSC	A fairly uncommon winter visitor to southern California, in general, with a few non-breeders occasionally remaining through the summer. Now a rare and localized breeder in the region. Forages over a variety of open habitats (e.g., marshes, vegetated shorelines, grasslands, agricultural fields), and occasionally open coastal sage scrub and brushy fields. Nests on the ground in open areas, where patches of taller vegetation are protected from disturbance. This species has been observed on multiple occasions, foraging along much of this reach of the Santa Ana River. Therefore, there is a

		moderate to high potential for this species to occur as a winter visitor, but it is **not expected to breed** onsite due to a lack of suitable, open and undisturbed habitat.
Western Yellow-billed Cuckoo *Coccyzus americanus occidentalis* (nesting sites)	SE	An extremely rare and localized summer resident (May to Aug.) and breeder, with breeding now restricted, in southern California, to only a few sites. Requires relatively expansive tracts of mature floodplain riparian forest, generally consisting of dense cottonwoods and willows, with a well developed understory component. Records exist for this species at Prado Basin (as close as four miles to the east of the study area), although all occurred prior to 20 years ago. **Not expected** in the study area due to this species current status and the lack of suitable habitat.
Southwestern Willow Flycatcher *Empidonax traillii extimus* (nesting sites)	FE (Note: all Willow Flycatcher subspecies are listed as SE)	A very rare, localized and declining, summer resident/breeder in southern California. Present from early/mid May, to late Aug. Restricted as a breeder to moist riparian communities, with breeding documented from sea level to over 5,000'. In southern California, breeding habitat typically is dominated by willows, but may also be dominated by alders, and (very locally) salt cedar and coast live oak. Nesting habitat nearly always includes areas with surface water, or at least saturated soils, and therefore the understory generally supports a variety of hydrophytic vegetation. Has bred in Prado Basin, and a possible summer record exists (1999) in the study area. There is **low potential for this species to occur** in the study area, currently, due to extremely limited, and marginal, suitable habitat for this species.
Least Bell's Vireo *Vireo bellii pusillus* (nesting sites)	FE, SE	A fairly rare to locally uncommon summer resident (late March to early Sept.), and breeder, in southern California in relatively low elevation riparian floodplain habitat. Prefers willow riparian communities, which may be in the vicinity of water or along dry river bottoms. Nesting habitat generally includes a well-developed understory, which is necessary for nest concealment. Nests usually placed in *Baccharis* or young willows adjacent to, or in openings within, the riparian community. A regionally significant population has existed since the 1980s in Prado Basin, and a substantial population has now become established downstream along the Santa Ana River. In recent years, **multiple summer resident territories have been** known to be present throughout much of the study area.
Clarke's Marsh Wren *Cistothorus palustris clarkae* (nesting sites)	SSC	A localized, uncommon to fairly common resident breeder in coastal areas of southern California (Los Angeles, western Riverside, Orange and western San Diego counties). Often outnumbered in winter by more northerly-breeding, migrant subspecies of Marsh Wren. Restricted to freshwater and brackish marshes dominated by bulrushes or cattails. Has been recorded in a wetland restoration area on the northwest side of the Horseshoe Bend area (Hamilton and Willick 1996). Marsh Wrens were also recorded during a winter 2009-2010 survey for the County of Orange on the east side of Horseshoe Bend, which were potentially of this SSC taxon. However, as subspecies cannot be identified positively in the field, their current status in the study area is unknown. Their potential to occur, based on the presence of suitable (though quite limited) habitat in the study area (e.g., west of the Chino Hills State Park property), and the known range of this resident taxon, is considered **moderate**.
Coastal California Gnatcatcher *Polioptila californica californica*	FT	An uncommon resident species, and breeder, in cismontane southern California from southeastern Ventura County to western San Diego County. Restricted to Riversidean, Diegan and Venturan sage scrub communities, in arid washes and alluvial fans, and on mild to moderate slopes. Habitat often

		dominated or co-dominated by California sagebrush, California buckwheat, and bush sunflower. Most populations occur below 1,500' elevation. Breeding typically occurs between March and August. There is extremely limited suitable breeding habitat for this species in the study area. However, small numbers of gnatcatchers have been found during the last ten years in the general area (e.g., immediately north of the Santa Ana River, near La Palma and Yorba Linda Blvd., about 2.5 miles downstream of the project; about 1.5 miles downstream of the project, on the east side of Horseshoe Bend; and in lower Coal Canyon). Therefore, there is **low to moderate potential** for this species to occur in the study area, especially in the case of post-breeding **dispersal of young birds**. Currently, the area that appears to have the most potential as breeding habitat for CAGNs in the project's study area would be alluvial and sage scrub plantings [*see also LSA 2013*] on the south side of the active river channel (the Chino Hills State Park property).
Yellow Warbler *Dendroica petechia brewsteri* (nesting sites)	SSC	A common spring and fall transient throughout southern California, and an uncommon, though increasing summer visitor (Apr. to Aug.) and breeder, primarily along the coastal slope. For breeding, requires mature riparian woodland, primarily consisting of tall cottonwoods, willows or alders. Although no records were found of breeding birds in the immediate area, there is **moderate potential** for it to occur as a breeder due to the growing population trend in recent years and the presence of suitable habitat (though somewhat limited in extent) in the study area.
Yellow-breasted Chat *Icteria virens* (nesting sites)	SSC	A summer resident in southern California (April to August), inhabiting willow riparian thickets and other brushy tangles near water courses. Typically nests in riparian-associated understory vegetation, including young willows, mule fat, blackberry, wild grape, etc. Generally forages and nests within 10ft of the ground. Although no breeding records were found closer than Prado Basin, there is considered a **moderate potential for this species to occur** in the study area, due to areas of suitable breeding habitat (somewhat limited) that currently exists in the study area, and the fairly common breeding status of this species throughout the region.
Tricolored Blackbird *Agelaius tricolor* (nesting colonies)	SSC	A resident breeder in cismontane southern California. When present, can often occur in large numbers, as a highly colonial species. However, has significantly declined in the region and has become very rare and local (especially as a breeder) in Orange County. Often more common and widespread in winter. For breeding requires open water, protected nest sites (flooded or spiny/thorny vegetation), and suitable foraging sites within a mile or two of the nesting colony. Dense beds of freshwater emergent vegetation (cattails and/or bulrush) are often used by colonies for nest placement, with foraging occurring in nearby grasslands, agricultural fields, fallow fields, dairies and feedlots. Although this species has occurred as close as Prado Basin as a breeder, it is **not expected to occur** within the study area due to this species seriously depleted local population, currently, and the lack of suitable breeding habitat.

LEGEND

California Department of Fish and Wildlife

SE	State Endangered
ST	State Threatened
SSC	Species of Special Concern
WL	Watch List
FP	Fully Protected

U.S. Fish and Wildlife Service

FD	Federally delisted
FE	Federally Endangered
FT	Federally Threatened

REFERNCES CITED

Hamilton, R.A., and D.R. Willick. 1996. The Birds of Orange County, California: Status and Distribution. Sea & Sage Press, Sea & Sage Audubon Society, Irvine.

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Query Criteria: Imported file selection

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
burrowing owl *Athene cunicularia*	ABNSB10010	None	None	G4	S2	SSC
coast horned lizard *Phrynosoma blainvillii*	ARACF12100	None	None	G3G4	S3S4	SSC
coast patch-nosed snake *Salvadora hexalepis virgultea*	ARADB30033	None	None	G5T4	S2S3	SSC
Coast Range newt *Taricha torosa*	AAAAF02032	None	None	G4	S4	SSC
coastal cactus wren *Campylorhynchus brunneicapillus sandiegensis*	ABPBG02095	None	None	G5T3Q	S3	SSC
coastal California gnatcatcher *Polioptila californica californica*	ABPBJ08081	Threatened	None	G3T2	S2	SSC
coastal whiptail *Aspidoscelis tigris stejnegeri*	ARACJ02143	None	None	G5T3T4	S2S3	
Cooper's hawk *Accipiter cooperii*	ABNKC12040	None	None	G5	S3	WL
Delhi Sands flower-loving fly *Rhaphiomidas terminatus abdominalis*	IIDIP05021	Endangered	None	G1T1	S1	
golden eagle *Aquila chrysaetos*	ABNKC22010	None	None	G5	S3	FP
grasshopper sparrow *Ammodramus savannarum*	ABPBXA0020	None	None	G5	S2	SSC
least Bell's vireo *Vireo bellii pusillus*	ABPBW01114	Endangered	Endangered	G5T2	S2	
long-eared owl *Asio otus*	ABNSB13010	None	None	G5	S3	SSC
northern leopard frog *Lithobates pipiens*	AAABH01170	None	None	G5	S2	SSC
orangethroat whiptail *Aspidoscelis hyperythra*	ARACJ02060	None	None	G5	S2	SSC
pallid bat *Antrozous pallidus*	AMACC10010	None	None	G5	S3	SSC
red-diamond rattlesnake *Crotalus ruber*	ARADE02090	None	None	G4	S2?	SSC
San Diego fairy shrimp *Branchinecta sandiegonensis*	ICBRA03060	Endangered	None	G1	S1	
Santa Ana sucker *Catostomus santaanae*	AFCJC02190	Threatened	None	G1	S1	SSC
southern California rufous-crowned sparrow *Aimophila ruficeps canescens*	ABPBX91091	None	None	G5T3	S2S3	WL

Selected Elements by Common Name

California Department of Fish and Wildlife

California Natural Diversity Database

Species	Element Code	Federal Status	State Status	Global Rank	State Rank	Rare Plant Rank/CDFW SSC or FP
southwestern willow flycatcher *Empidonax traillii extimus*	ABPAE33043	Endangered	Endangered	G5T1T2	S1	
Swainson's hawk *Buteo swainsoni*	ABNKC19070	None	Threatened	G5	S2	
western mastiff bat *Eumops perotis californicus*	AMACD02011	None	None	G5T4	S3?	SSC
western pond turtle *Emys marmorata*	ARAAD02030	None	None	G3G4	S3	SSC
western spadefoot *Spea hammondii*	AAABF02020	None	None	G3	S3	SSC
western yellow-billed cuckoo *Coccyzus americanus occidentalis*	ABNRB02022	Proposed Threatened	Endangered	G5T3Q	S1	
white-tailed kite *Elanus leucurus*	ABNKC06010	None	None	G5	S3	FP
yellow-breasted chat *Icteria virens*	ABPBX24010	None	None	G5	S3	SSC
Yuma myotis *Myotis yumanensis*	AMACC01020	None	None	G5	S4?	

Record Count: 29

APPENDIX C

Jurisdictional Delineation - Data Tables 1 - 4

Jurisdictional Delineation - Figures 1 – 9

Jurisdictional Delineation – Supplemental Figure

APPENDIX C, TABLE 1. SUMMARY OF JURISDICTIONAL DELINEATION RESULTS.								
	NW-WoUS	NW-WoUS *	W-WoUS	TOTAL-WoUS	TOTAL-WoUS *	CDFW-Only	TOTAL CDFW	PIWA **
STUDY AREA - EXISTING CONDITIONS	0.97	0.97	0.70	1.67	1.67	0.65	2.32	2.30
PROPOSED PROJECT - TEMPORARY IMPACTS	0.34	0.34	0.16	0.91	0.50	0.47	1.32	0.55
PROPOSED PROJECT - PERMANENT IMPACTS *	0.23	0.16	0.31	0.54	0.47	0.14	0.82	0.39
TOTAL IMPACT AREA (PERMANENT + TEMPORARY)	0.56	0.50	0.47	1.45	0.97	0.62	2.14	0.93

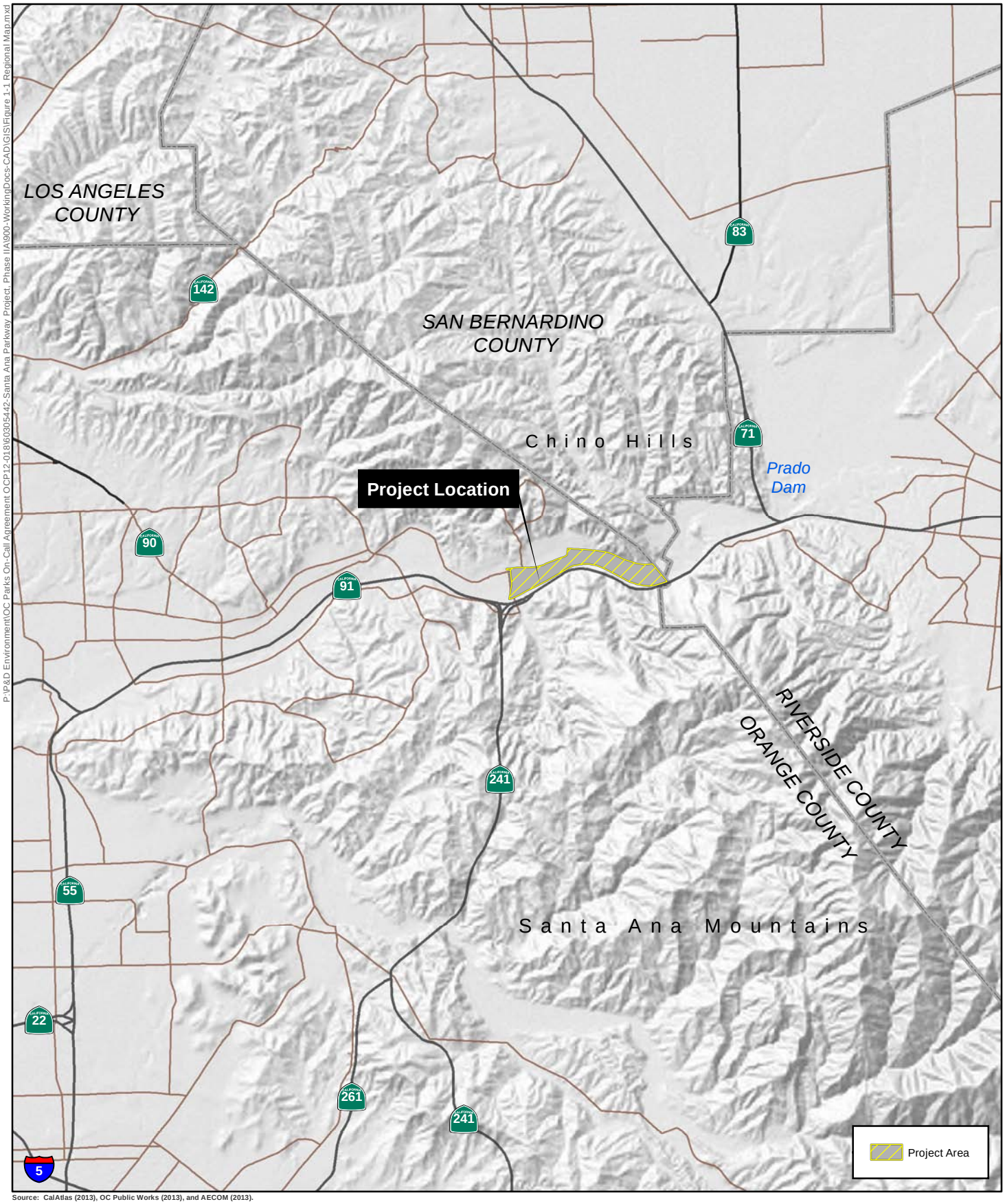
* Note: For Perennial Stream Types, Bridges 1 and 2 are expected to span the perennial stream; thus, impacts are not expected to be permanent in nature. Construction of the bridges, though, will result in temporary impacts to the perennial stream (the Santa Ana River). This column assumes that the Perennial Stream Type impacts are temporary. ** PIWA = Potential Irrigated Wetland Area.

APPENDIX C, TABLE 2. SUMMARY OF JURISDICTIONAL DELINEATION RESULTS - EXISTING CONDITIONS.					
STUDY AREA - EXISTING CONDITIONS					
FEATURE	NW-WoUS	W-WoUS	TOTAL-WoUS	CDFW-Only	TOTAL CDFW
SAR-Bridge 1	0.72	0.16	0.88	0.02	0.90
SAR-Bridge 2	0.14	0.01	0.15	0.35	0.50
SAR-Bridge 3	0.10	0.00	0.10	0.05	0.15
SAR-North Bank Depressional Wetlands	0	0.53	0.53	0	0.53
Site 8 Wetland at Culvert 74 (Downstream End)		*0.14*			
Site 7 Wetland at Culvert 75		*0.01*			
Site 3 Wetland at Culvert 76		*0.07*			
Site 2 Wetland at Culvert 77		*0.03*			
Site 1 Wetland at Culvert 78		*0.25*			
Site 6 Wetland at Culvert 79		*0.01*			
Site 4 Wetland at Culvert 80		*0.03*			
Site 5 Wetland at Culvert 81 (Upstream End)		*0.01*			
SAR-North Bank-Ephemeral Drainage (Tributary)	0.01	0	0.01	0	0.01
SAR-South Bank-CDFW Riparian	0	0	0	0.23	0.23
TOTAL	0.97	0.70	1.67	0.65	2.32

APPENDIX C, TABLE 3. SUMMARY OF JURISDICTIONAL DELINEATION RESULTS - TEMPORARY IMPACTS.					
PROPOSED PROJECT - TEMPORARY IMPACTS					
FEATURE	NW-WoUS	W-WoUS	TOTAL-WoUS	CDFW-Only	TOTAL CDFW
SAR-Bridge 1	0.14	0.04	0.18	0.02	0.19
SAR-Bridge 2	0.09	0.01	0.10	0.23	0.33
SAR-Bridge 3	0.10	0	0.10	0.03	0.07
SAR-North Bank Depressional Wetlands	0	0.12	0.12	0	0.53
Site 8 Wetland at Culvert 74 (Downstream End)		*0.02*			
Site 7 Wetland at Culvert 75		*0.01*			
Site 3 Wetland at Culvert 76		*0.02*			
Site 2 Wetland at Culvert 77		*0*			
Site 1 Wetland at Culvert 78		*0.06*			
Site 6 Wetland at Culvert 79		*0*			
Site 4 Wetland at Culvert 80		*0*			
Site 5 Wetland at Culvert 81 (Upstream End)		*0*			
SAR-North Bank-Ephemeral Drainage (Tributary)	0	0	0	0	0
SAR-South Bank-CDFW Riparian	0	0	0	0.20	0.20
TOTAL	0.33	0.16	0.50	0.47	1.32

APPENDIX C, TABLE 4. SUMMARY OF JURISDICTIONAL DELINEATION RESULTS - PERMANENT IMPACTS.							
PROPOSED PROJECT - PERMANENT IMPACTS							
FEATURE	NW-WoUS	NW-WoUS *	W-WoUS	TOTAL-WoUS	TOTAL-WoUS *	CDFW-Only	TOTAL CDFW
SAR-Bridge 1	0.08	0.05	0.01	0.09	0.06	0.02	0.10
SAR-Bridge 2	0.05	0.01	0	0.05	0.01	0.11	0.16
SAR-Bridge 3	0.10	0.10	0	0.10	0.10	0.01	0.02
SAR-North Bank Depressional Wetlands	0	0	0.29	0.29	0.29	0	0.53
Site 8 Wetland at Culvert 74 (Downstream End)			*0*				
Site 7 Wetland at Culvert 75			*0*				
Site 3 Wetland at Culvert 76			*0.05*				
Site 2 Wetland at Culvert 77			*0.03*				
Site 1 Wetland at Culvert 78			*0.19*				
Site 6 Wetland at Culvert 79			*0*				
Site 4 Wetland at Culvert 80			*0.02*				
Site 5 Wetland at Culvert 81 (Upstream End)			*0.01*				
SAR-North Bank-Ephemeral Drainage (Tributary)	0	0	0	0	0	0	0
SAR-South Bank-CDFW Riparian	0	0	0	0	0	0	0
TOTAL	0.22	0.16	0.30	0.53	0.47	0.14	0.82

* Note: For Perennial Stream Types, Bridges 1 and 2 are expected to span the perennial stream; thus, impacts are not expected to be permanent in nature. Construction of the bridges, though, will result in temporary impacts to the perennial stream (the Santa Ana River). This column assumes that Perennial Stream Types for Bridge 1 (0.03 acre) and Bridge 2 (0.04 acre) are assumed to be temporary and not permanent. The first "NW-WoUS" column assumes that the impacts to Perennial Stream Types from the bridge crossings are permanent (a more conservative approach regarding impacts).



P:\P&D Environment\OC Parks On-Call Agreement OCP12-01\60305442-Santa Ana Parkway Project, Phase II\A\00-WorkingDocs-CAD\GIS\Figure 1-1 Regional Map.mxd

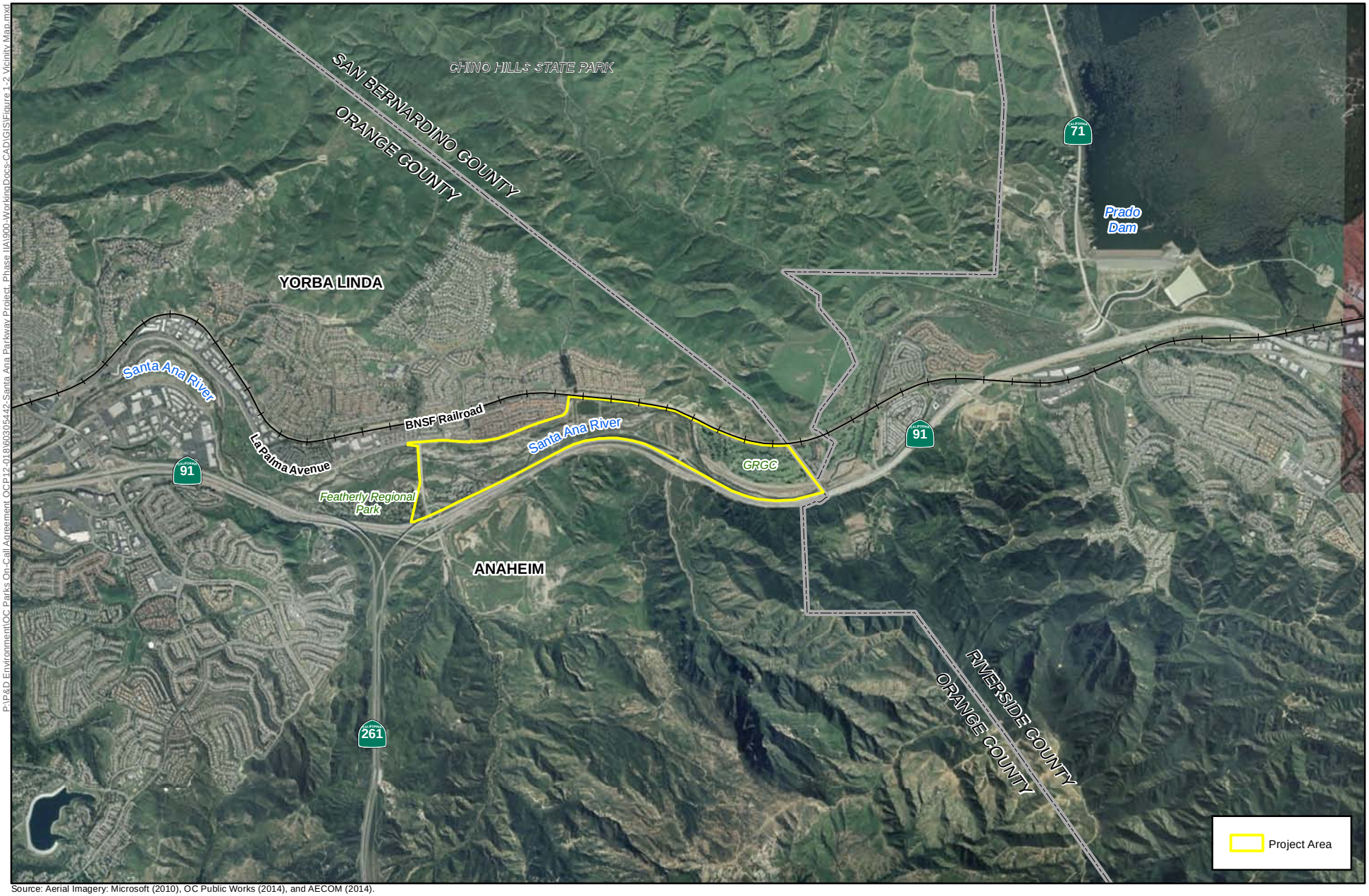
Source: CalAtlas (2013), OC Public Works (2013), and AECOM (2013).

Scale 1 : 126720
1" = 2 miles

0 1 2 4 Miles

Figure 1
Regional Map

Santa Ana River Parkway Extension Project



Source: Aerial Imagery: Microsoft (2010), OC Public Works (2014), and AECOM (2014).

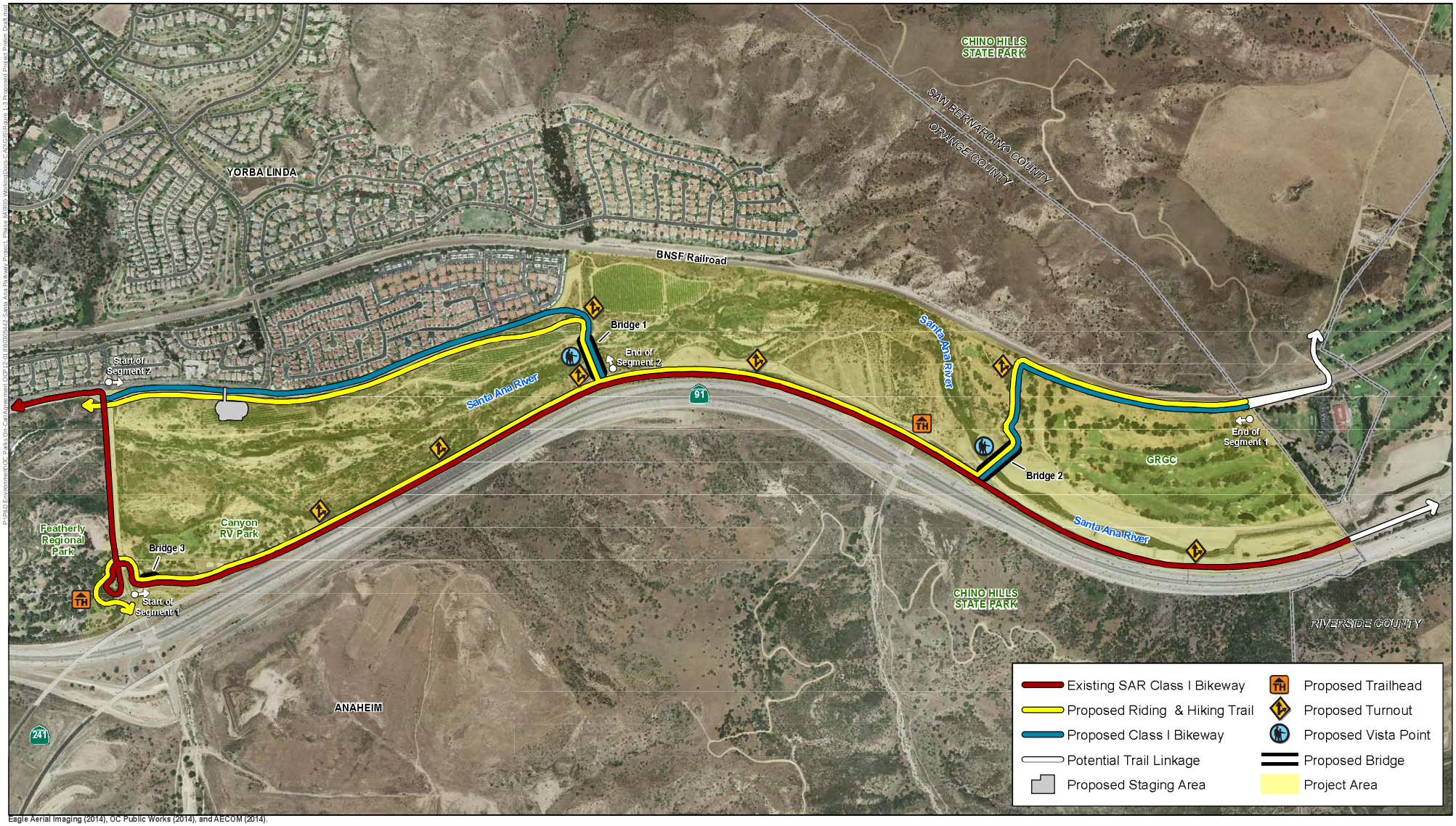
P:\P&D Environment\OC Parks On-Call Agreement OCP12-01\60305442-Santa Ana Parkway Project, Phase II\A900-WorkingDocs-CAD\GIS\Figure 1-2 Vicinity Map.mxd

Scale 1 : 47,520
1" = 0.75 mile

0 0.375 0.75 1.5 2.25
Miles

Figure 2
Vicinity Map

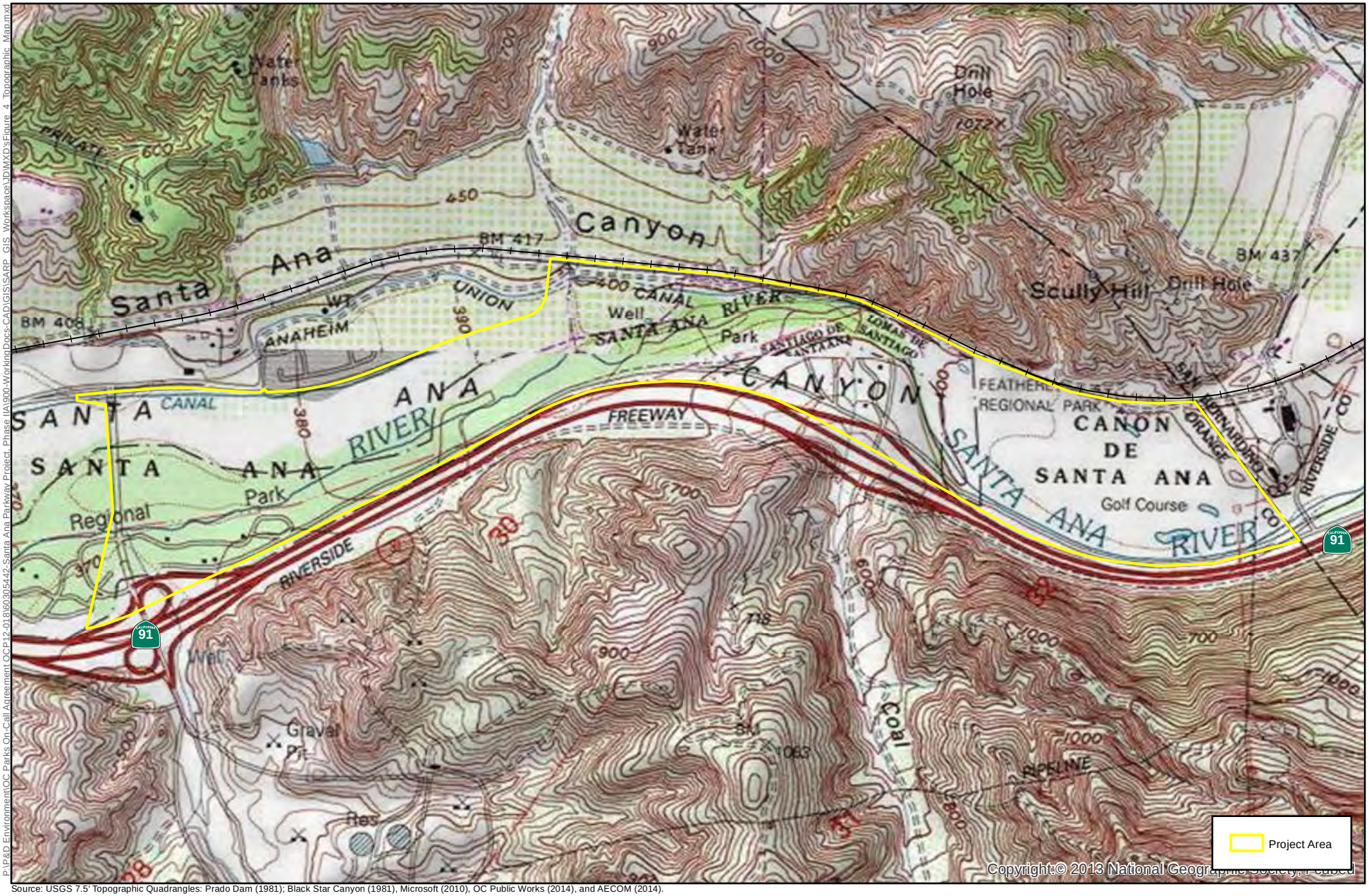
Santa Ana River Parkway Extension Project



Eagle Aerial Imaging (2014), OC Public Works (2014), and AECOM (2014).

Note: Project Elements Not Drawn to Scale

Figure 3
Proposed Project



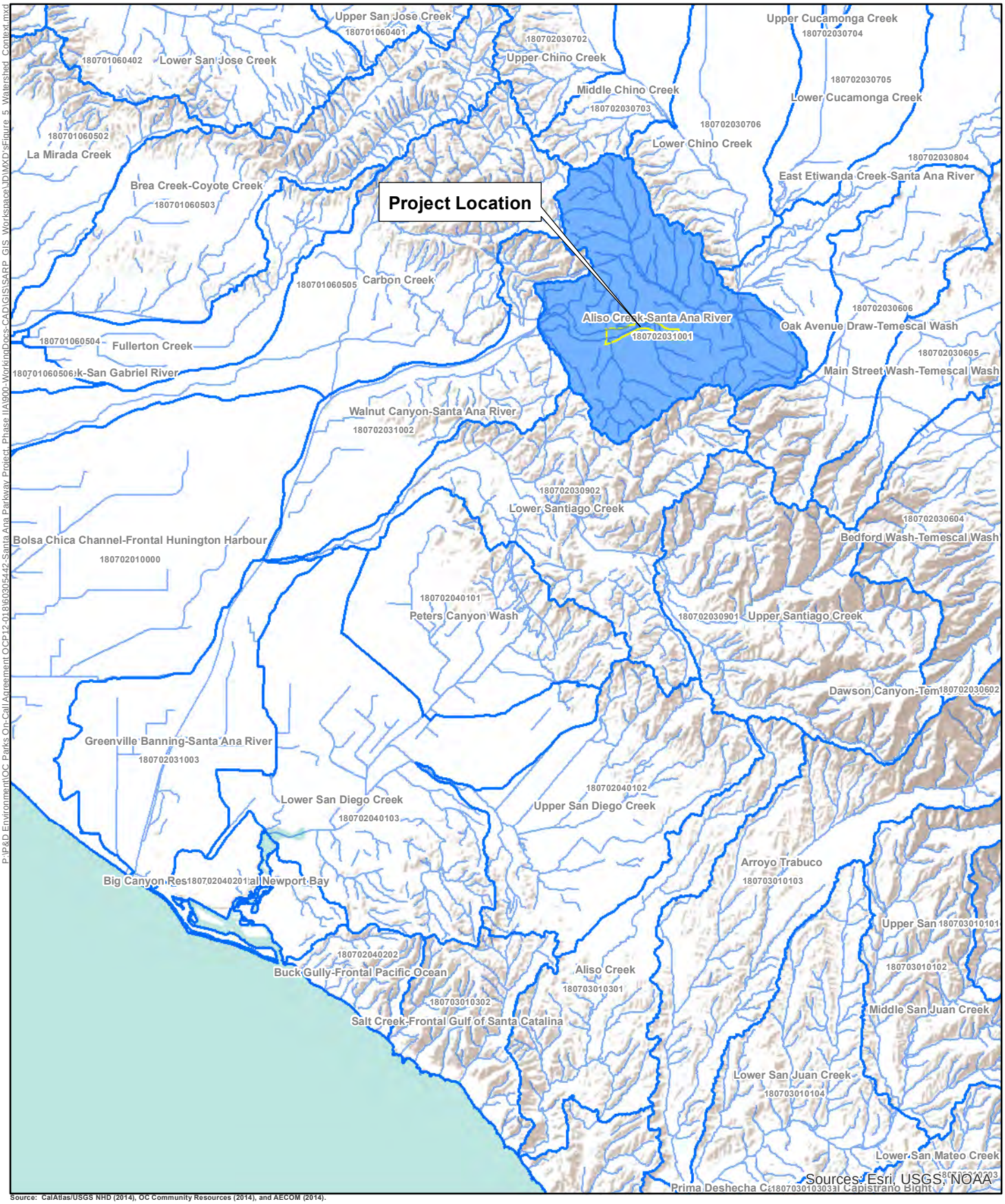
Source: USGS 7.5' Topographic Quadrangles: Prado Dam (1981); Black Star Canyon (1981), Microsoft (2010), OC Public Works (2014), and AECOM (2014).

P:\P&D Environment\OC Parks On-Call Agreement\OCP12-0186\60305442-Santa Ana Parkway Project, Phase II\A\900-WorkingDocs-CAD\GIS\SARP_GIS_Workspace\DMXD's\Figure_4_Topographic_Map.mxd

Scale 1 : 17,000
1" = 0.25 mile

0 0.125 0.25 0.5 0.75 Miles

Figure 4
Topographic Map of Study Area



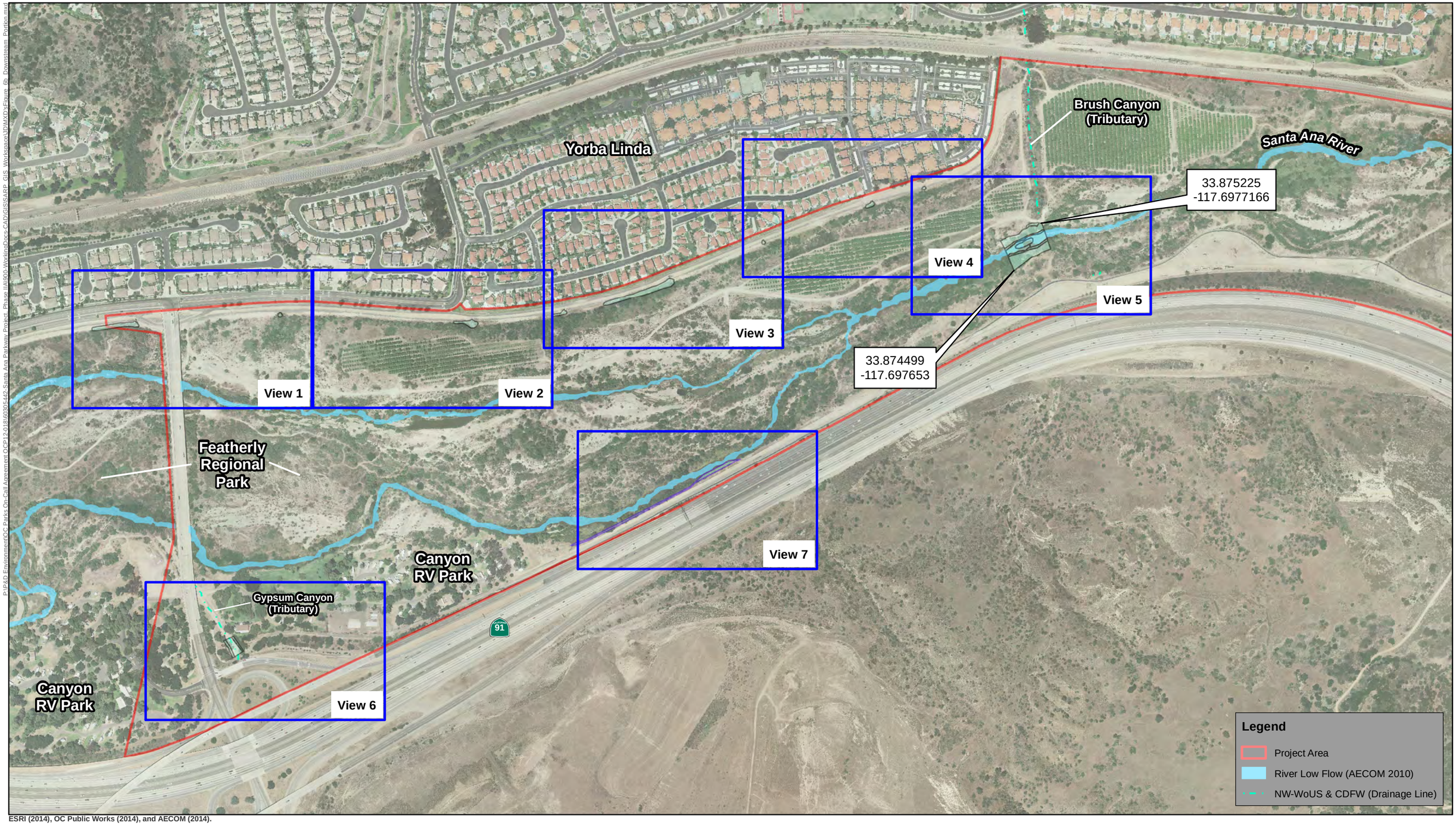
P:\P&D Environment\OC Parks On-Call Agreement OCP12-018\60305442-Santa Ana Parkway Project_Phase II\A900-WorkingDocs-CAD\GIS\SARP_GIS_Workspace.JDW\MXD\Figure_5_Watershed_Context.mxd

Source: CalAtlas/USGS NHD (2014), OC Community Resources (2014), and AECOM (2014).

Scale 1 : 253,440
1" = 4 miles

0 1.75 3.5 7 Miles

Figure 5
Watershed Context Map



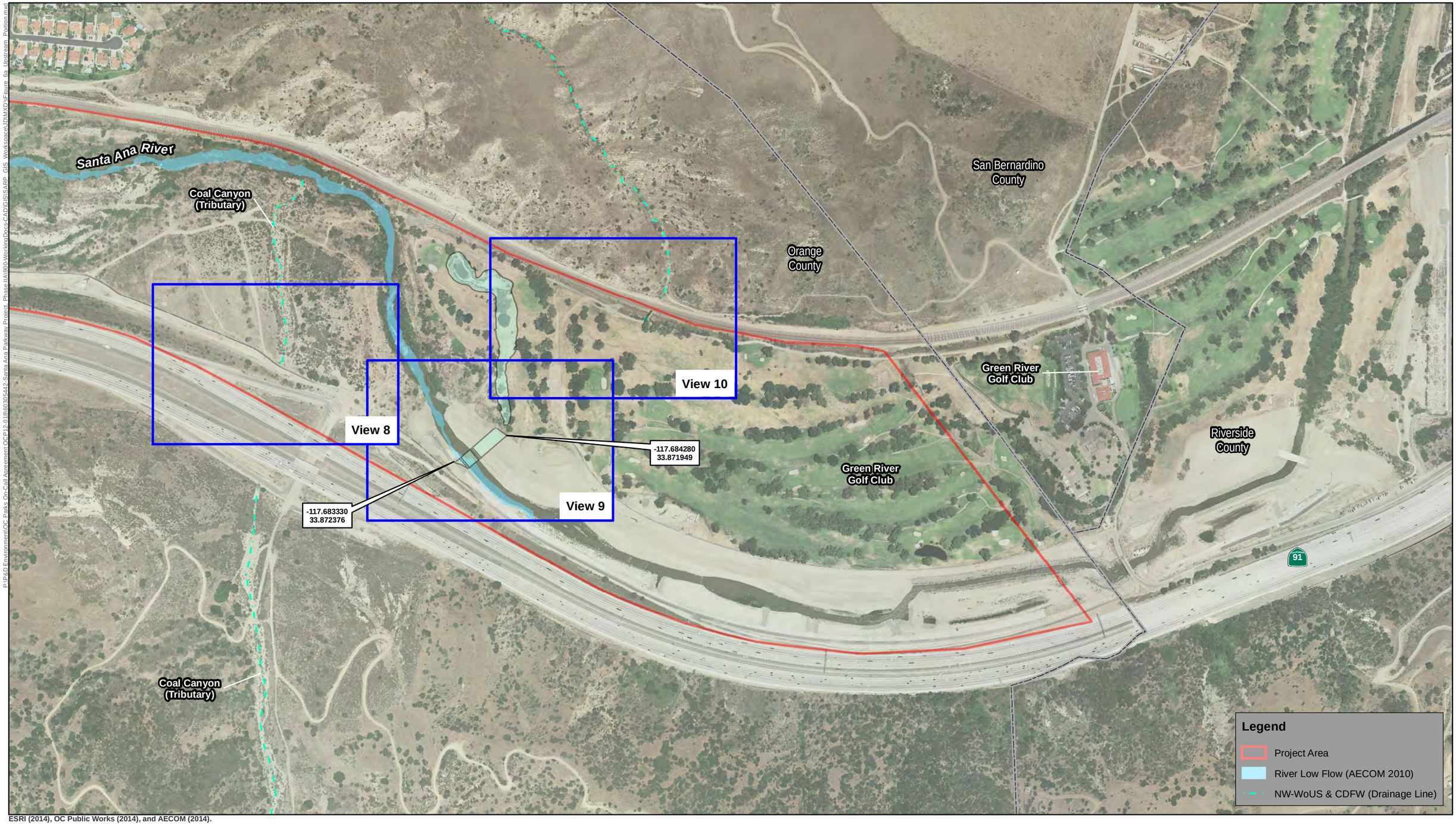
P:\P&D Environment\OC Parks On-Call Agreement OCP12-2018\60305442-Santa Ana Parkway Project, Phase II\MXD\WorkingDocs-CAD\GIS\SARP_GIS_Workspaces\DMXD\Figure_6b_Downstream_Portion.mxd

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 6,000
1" = 500 feet

0 250 500 1,000 1,500 Feet

Figure 6a
Jurisdictional Delineation-Existing Conditions (Downstream Portion)



ESRI (2014), OC Public Works (2014), and AECOM (2014).

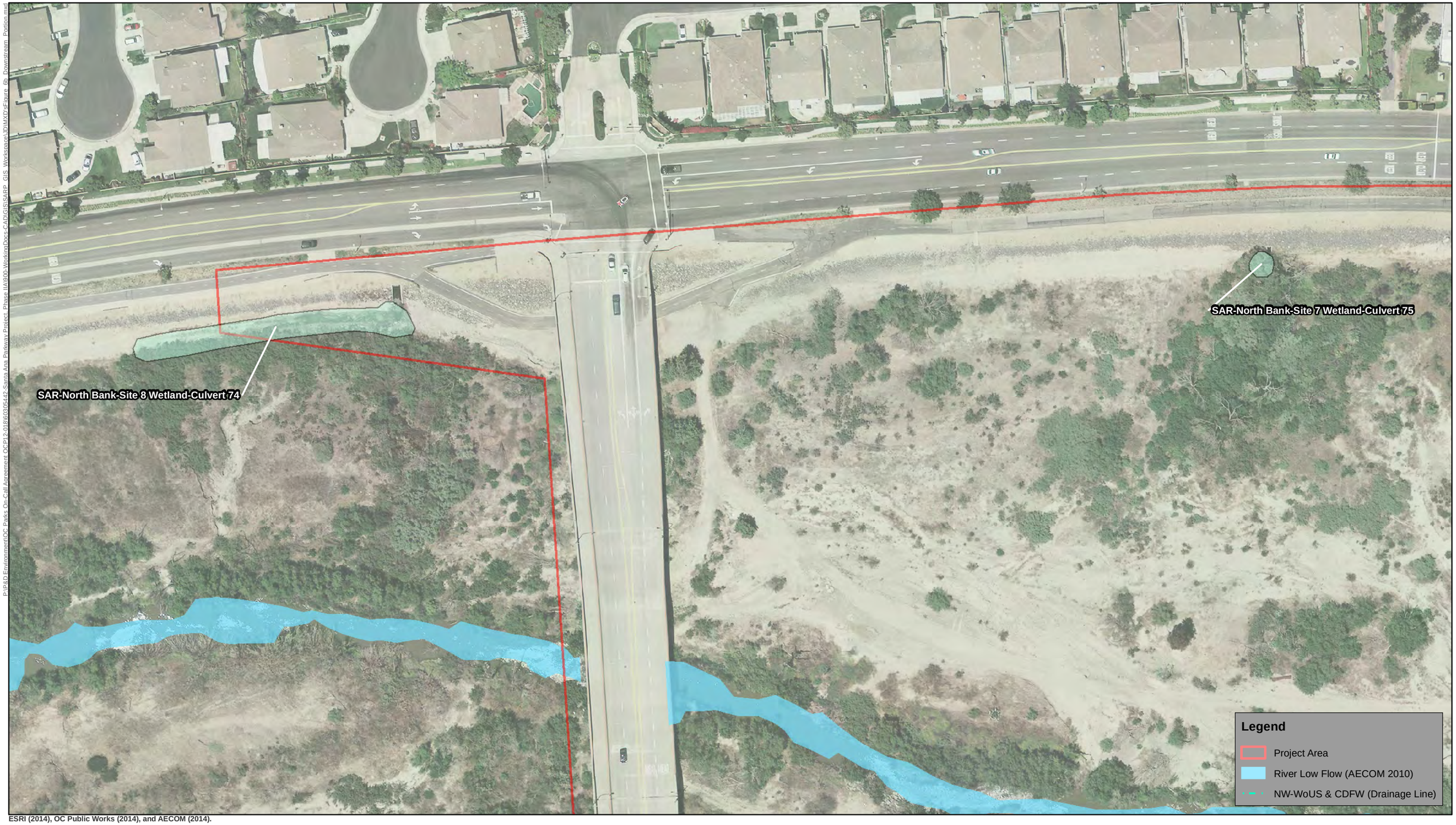
Scale 1 : 6,000
1" = 500 feet

0 250 500 1,000 1,500 Feet

Figure 6b
Jurisdictional Delineation-Existing Conditions (Upstream Portion)

Santa Ana River Parkway Extension Project

P:\P&D Environment\OC Parks On-Call Agreement\OCP12-01\860305442-Santa Ana Parkway Project, Phase II\A90\Working\Docs-CAD\GIS\SARP_GIS_Workspace\JDMXD\eFigure_6a_Upstream_Portion.mxd



P:\P&D Environment\OC Parks On-Call Agreement OCP12-01\960305442-Santa Ana Parkway Project, Phase II\A900-WorkingDocs-CAD\GIS\SARP_GIS_Workspace\DJMXD\Figure 6b Downstream_Portion.mxd

ESRI (2014), OC Public Works (2014), and AECOM (2014).

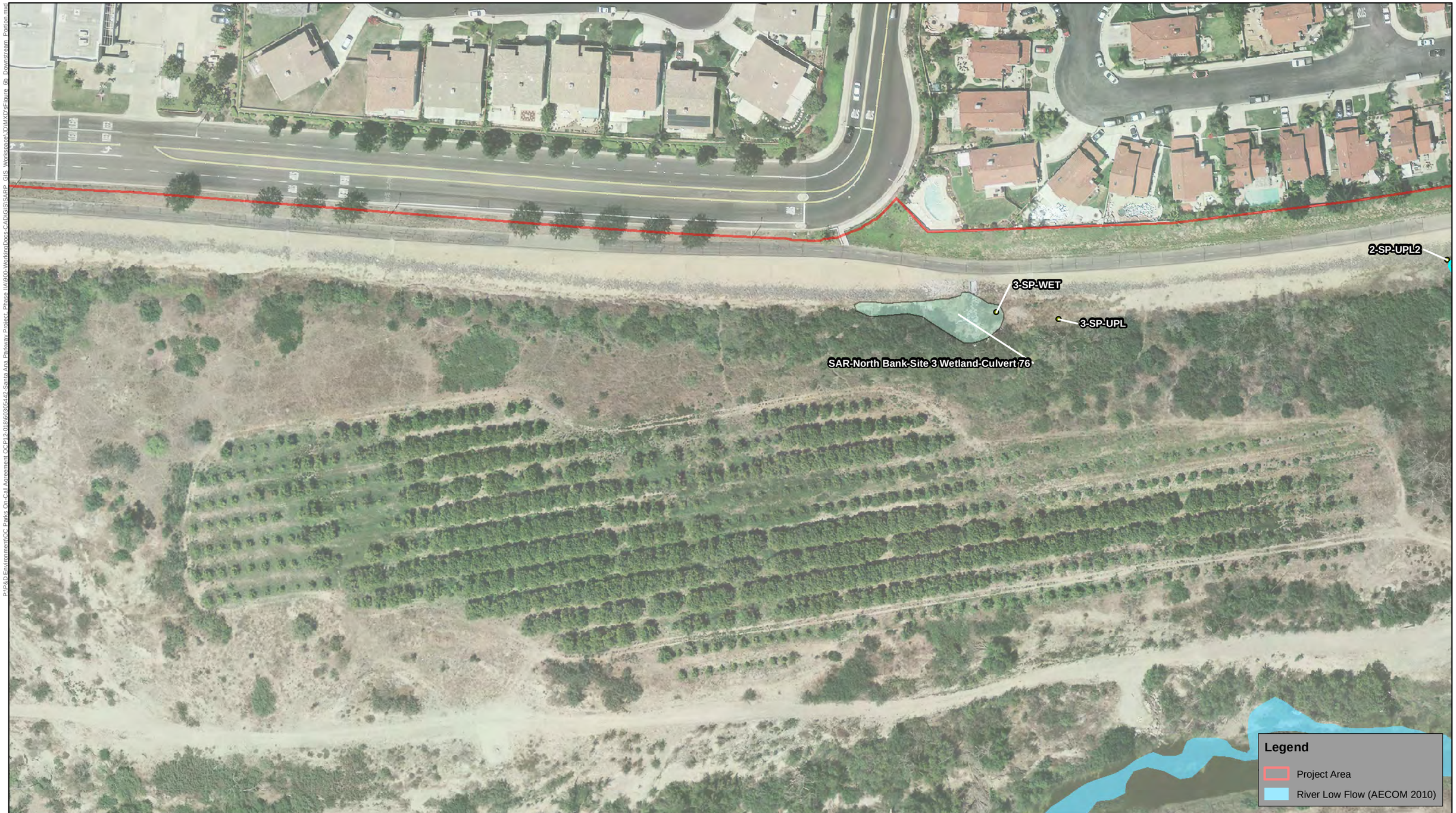
Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 7-1
Existing Conditions - View 1

Santa Ana River Parkway Extension Project

P:\P&D Environment\OC Parks On-Call Agreement\ OCP12-01\960305442-Santa Ana Parkway Project, Phase IIA\900-WorkingDocs-CAD\GIS\SAR_GIS_Workspace\MXD\Figure 6b_Downstream_Portion.mxd



ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 6,000

0 25 50 100 150 Feet

Figure 7-2
Existing Conditions - View 2

Santa Ana River Parkway Extension Project

P:\P&D Environment\OC Parks On-Call Agreement\OCP12-0196\03\05442-Santa Ana Parkway Project, Phase II\A\00\WorkingDocs\CAD\GIS\SARP_GIS_Workspace\RIVMXD\Figure_6b_Downstream_Portion.mxd

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 7-3
Existing Conditions - View 3

Santa Ana River Parkway Extension Project

P:\P&O Environment\OC Parks On-Call Agreement OCP12-0181603\0542-Santa Ana Parkway Project Phase II\A900-Working\Docs-CAD\GIS\SARP_GIS_Workspace\JPMXD\Figure 6b_Downstream_Portion.mxd

5-SP-UPL2
5-SP-WET
5-SP-UPL
SAR-North Bank-Site 5 Wetland-Culvert 81
4-SP-WET
4-SP-UPL
SAR-North Bank-Site 4 Wetland-Culvert 80
SAR-North Bank-Site 6 Wetland-Culvert 79

Legend
- Project Area
- NW-WoUS & CDFW (Drainage Line)

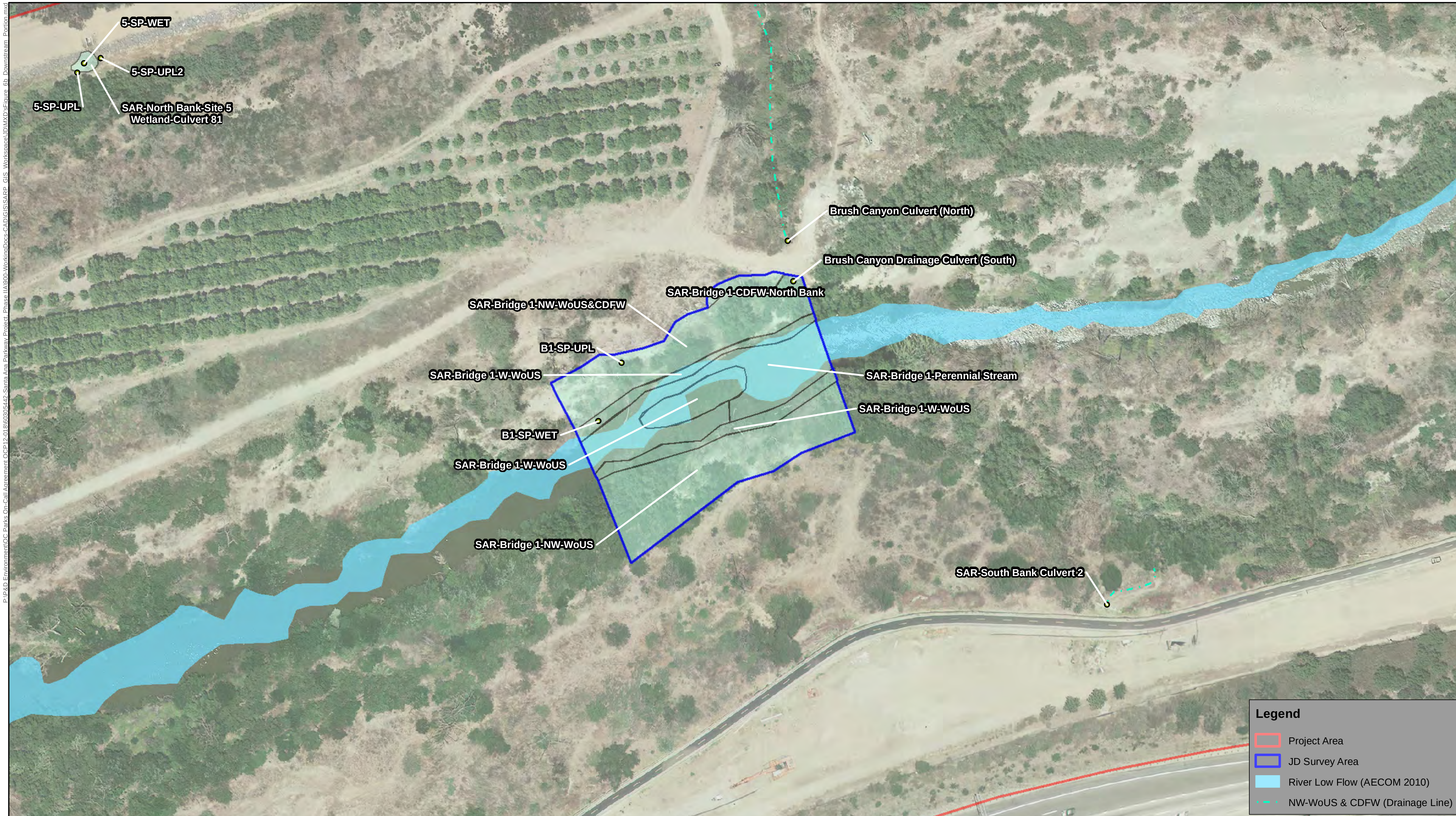
ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 7-4
Existing Conditions - View 4

Santa Ana River Parkway Extension Project


5-SP-WET
5-SP-UPL2
5-SP-UPL
SAR-North Bank-Site 5 Wetland-Culvert 81
Brush Canyon Culvert (North)
Brush Canyon Drainage Culvert (South)
SAR-Bridge 1-CDFW-North Bank
SAR-Bridge 1-NW-WoUS&CDFW
B1-SP-UPL
SAR-Bridge 1-W-WoUS
SAR-Bridge 1-Perennial Stream
SAR-Bridge 1-W-WoUS
B1-SP-WET
SAR-Bridge 1-W-WoUS
SAR-Bridge 1-NW-WoUS
SAR-South Bank Culvert 2
Legend
Project Area
JD Survey Area
River Low Flow (AECOM 2010)
NW-WoUS & CDFW (Drainage Line)

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 7-5
Existing Conditions - View 5

Santa Ana River Parkway Extension Project

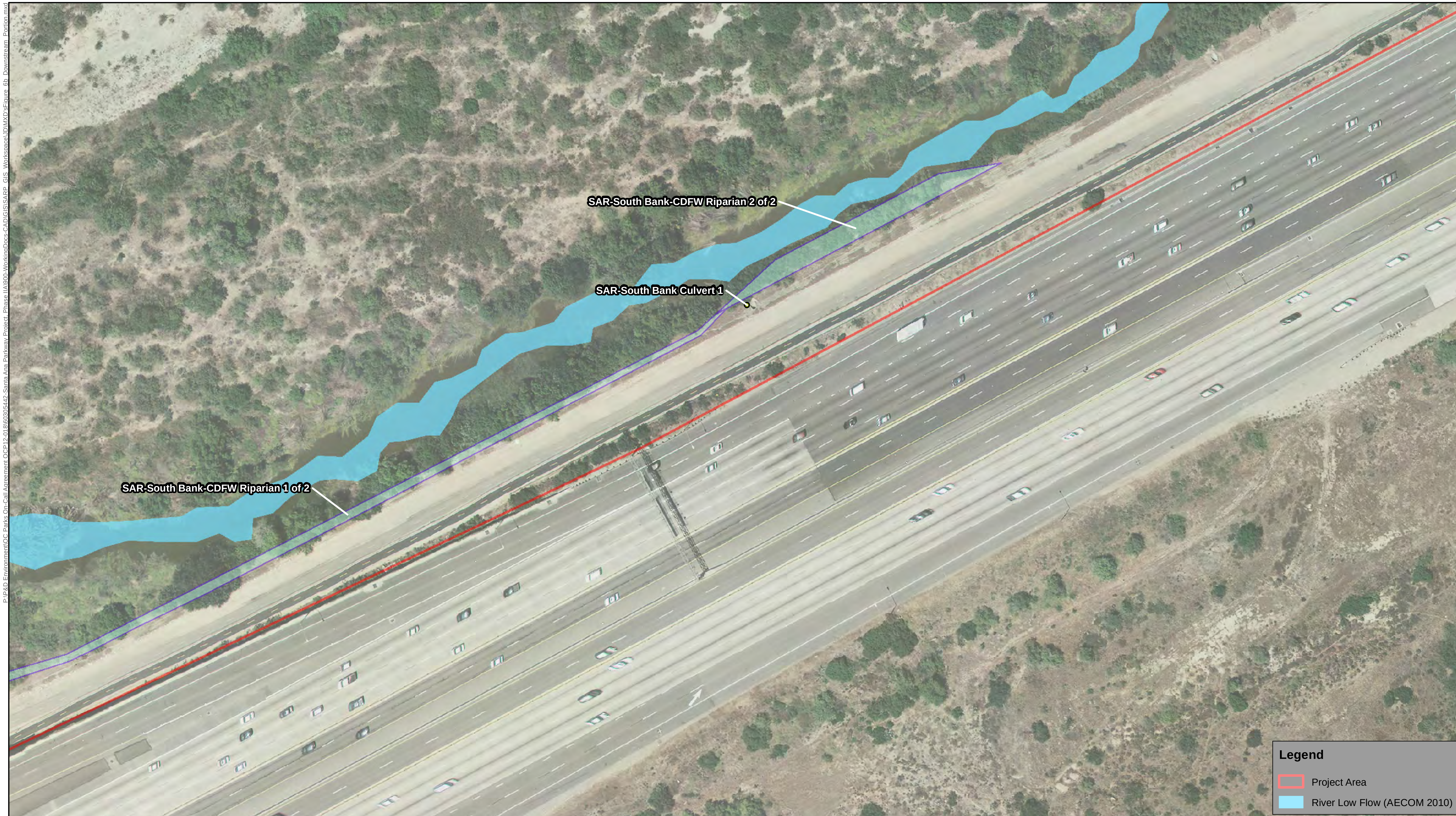
P:\P&P Environment\OC Parks On-Call Agreement OCP12-01\960305442-Santa Ana Parkway Project, Phase IIA\900-WorkingDocs-CAD\GIS\SARP_GIS_Workspace\JDMXD\Figure_6b_Downstream_Portion.mxd

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 7-6
Existing Conditions - View 6



ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 7-7
Existing Conditions - View 7

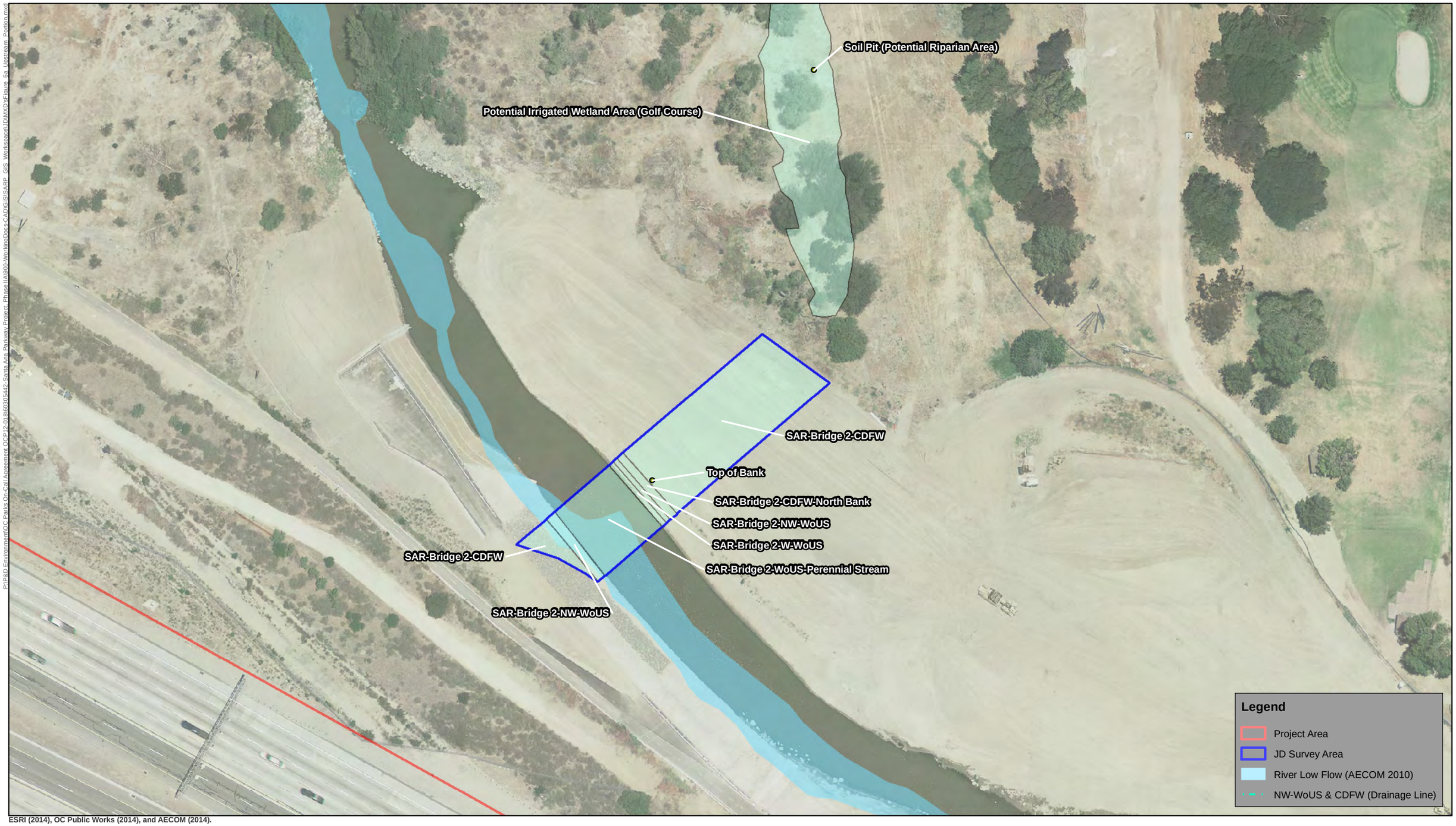
P:\P&D Environment\OC Parks On-Call Agreement OCP12.01\60305442 Santa Ana Parkway Project, Phase II\000 Working\Docs\GAD\GIS\SARP_GIS_Workspace\DMXD\Figure_6a_Upstream_Portion.mxd

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 7-8
Existing Conditions - View 8



P:\P&D Environment\OC Parks On-Call Agreement OCP12-01\60305442 Santa Ana Parkway Project, Phase II\A900-Working\Docs-CAD\GIS\SARP_GIS_Workspace\JDMXD\Figure_6a_Upstream_Portion.mxd

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 7-9
Existing Conditions - View 9

P:\P&D Environment\OC Parks On-Call Agreement OCP12-01\60305442 Santa Ana Parkway Project, Phase II\A000 Working\Doc-CAD\GIS\SARP_GIS_Workspace\MXD\Figure_6a_Upstream_Portion.mxd

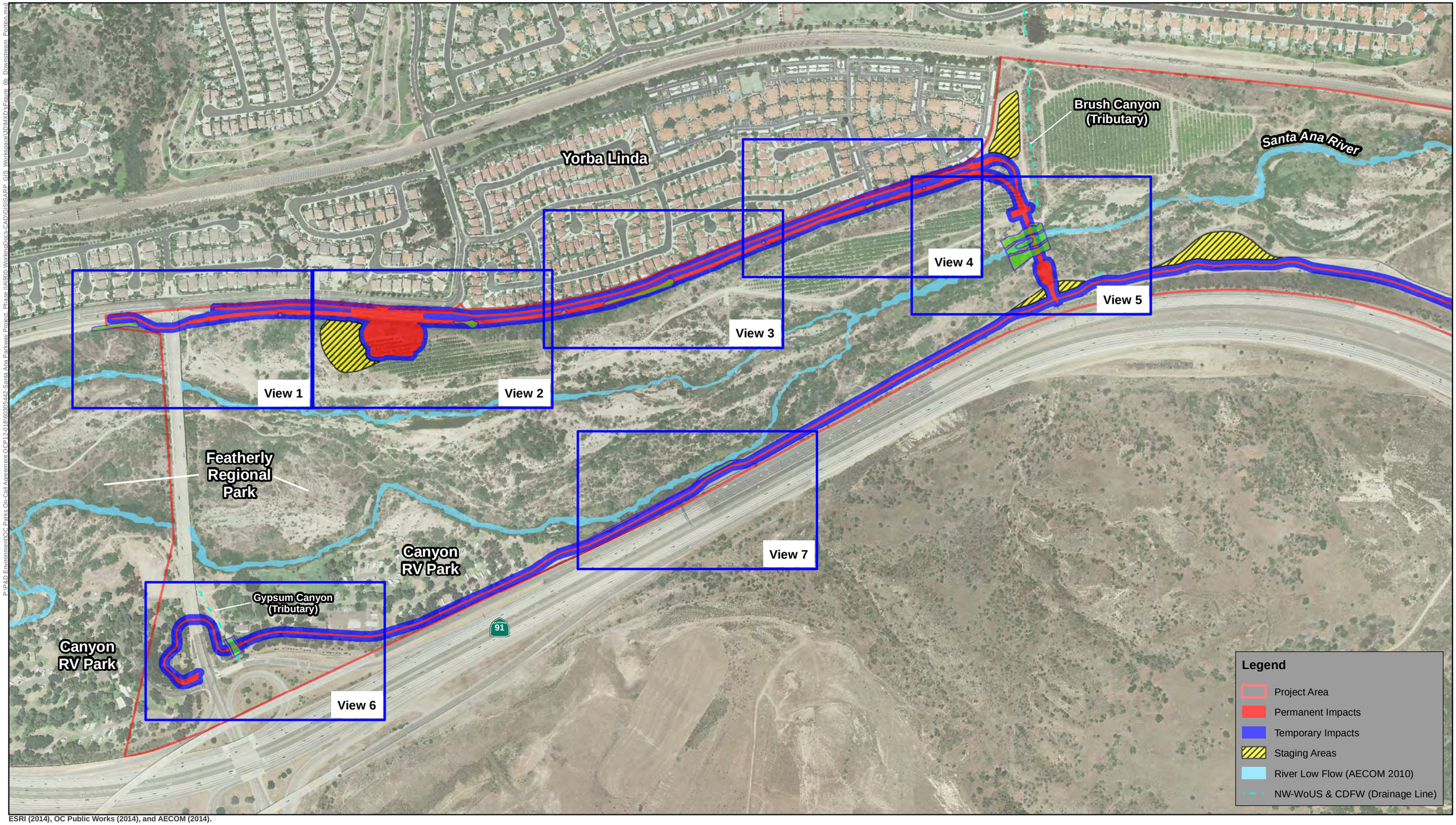
ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 7-10
Existing Conditions - View 10

P:\P&D Environment\OC Parks On-Call Agreement OCP12-2018\60305442 Santa Ana Parkway Project, Phase II\A900 Working\Docs\CAD\GIS\SARP_GIS_Workspaces\DMXD\Figure_6b_Downstream_Portion.mxd



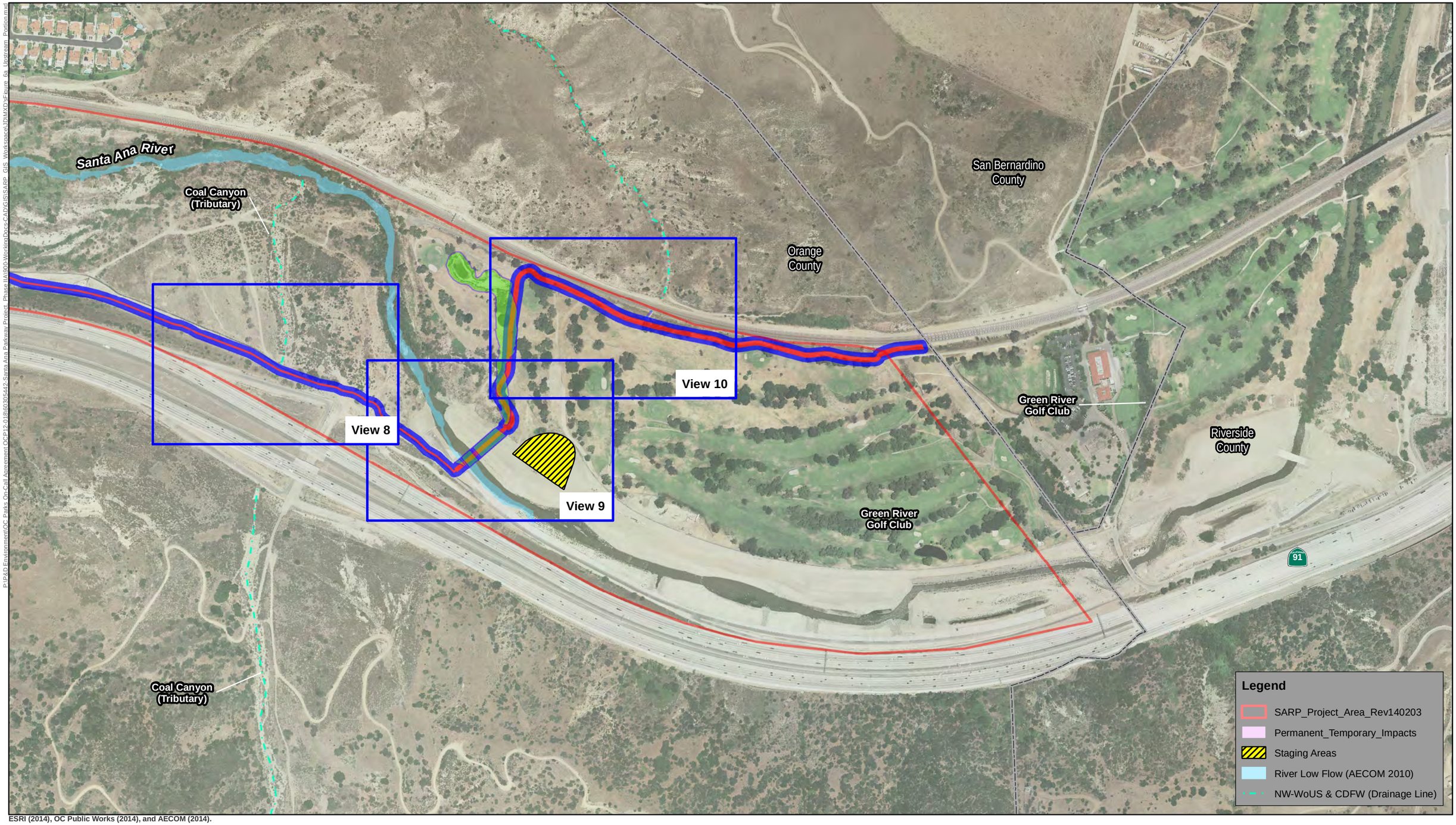
ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 6,000
1" = 500 feet

0 250 500 1,000 1,500 Feet

Figure 8a
Jurisdictional Delineation - Impacts (Downstream Portion)

Santa Ana River Parkway Extension Project



ESRI (2014), OC Public Works (2014), and AECOM (2014).

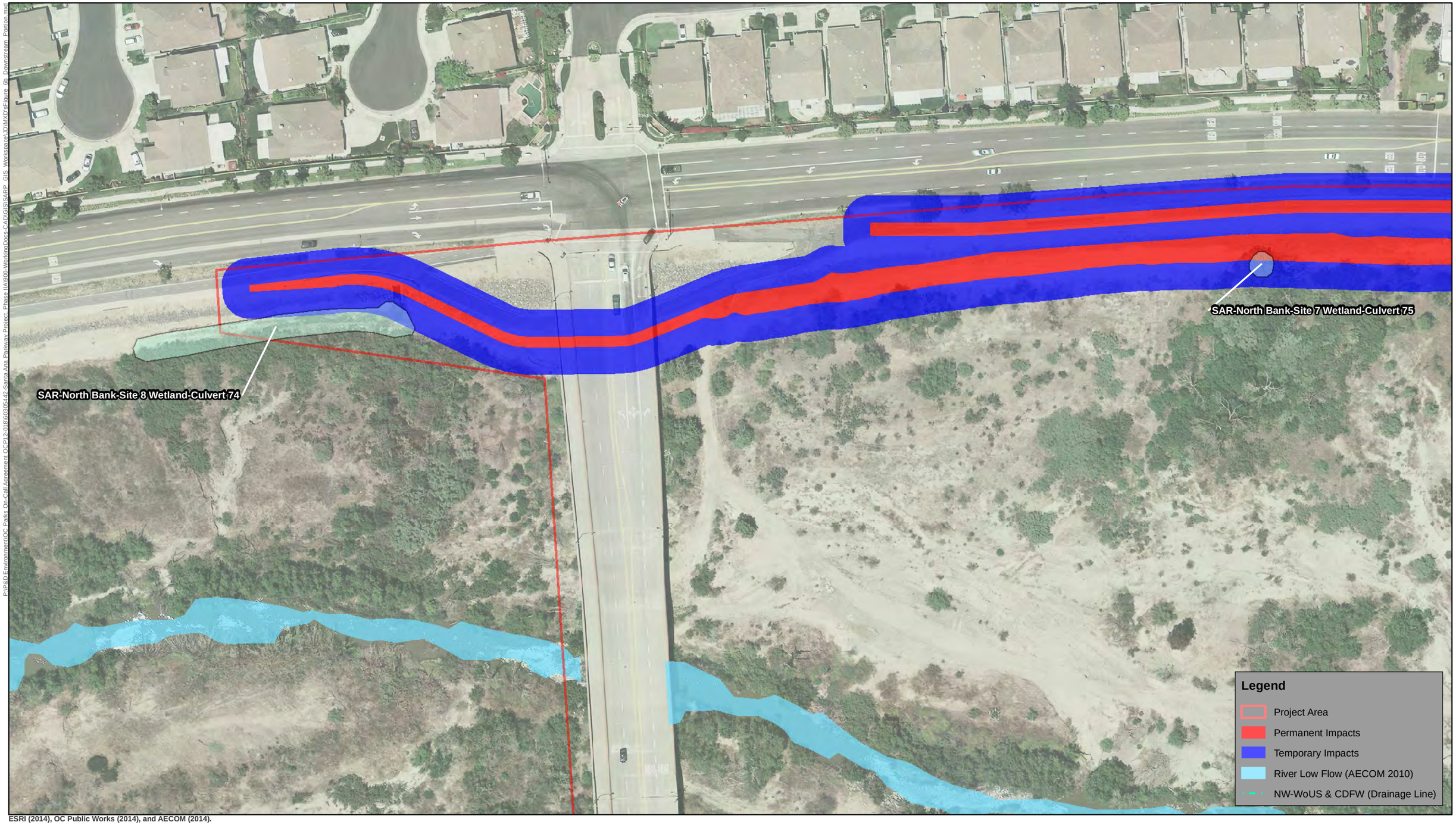
Scale 1 : 6,000
1" = 500 feet

0 250 500 1,000 1,500 Feet

Figure 8b
Jurisdictional Delineation - Impacts (Upstream Portion)

Santa Ana River Parkway Extension Project

P:\P&D Environmental\OC Parks On-Call Agreement\OCP12-01\860305442 Santa Ana Parkway Project, Phase II\A900\Working\Docs\CAD\GIS\SARP_GIS_Worksspace\JDMXD\eFigure_6a_Upstream_Portion.mxd



P:\P&D Environment\OC Parks On-Call Agreement OCP12-01\960305442-Santa Ana Parkway Project, Phase II\A900-WorkingDocs-CAD\GIS\SARP_GIS_Workspace\DJMXD\Figure_6b_Downstream_Portion.mxd

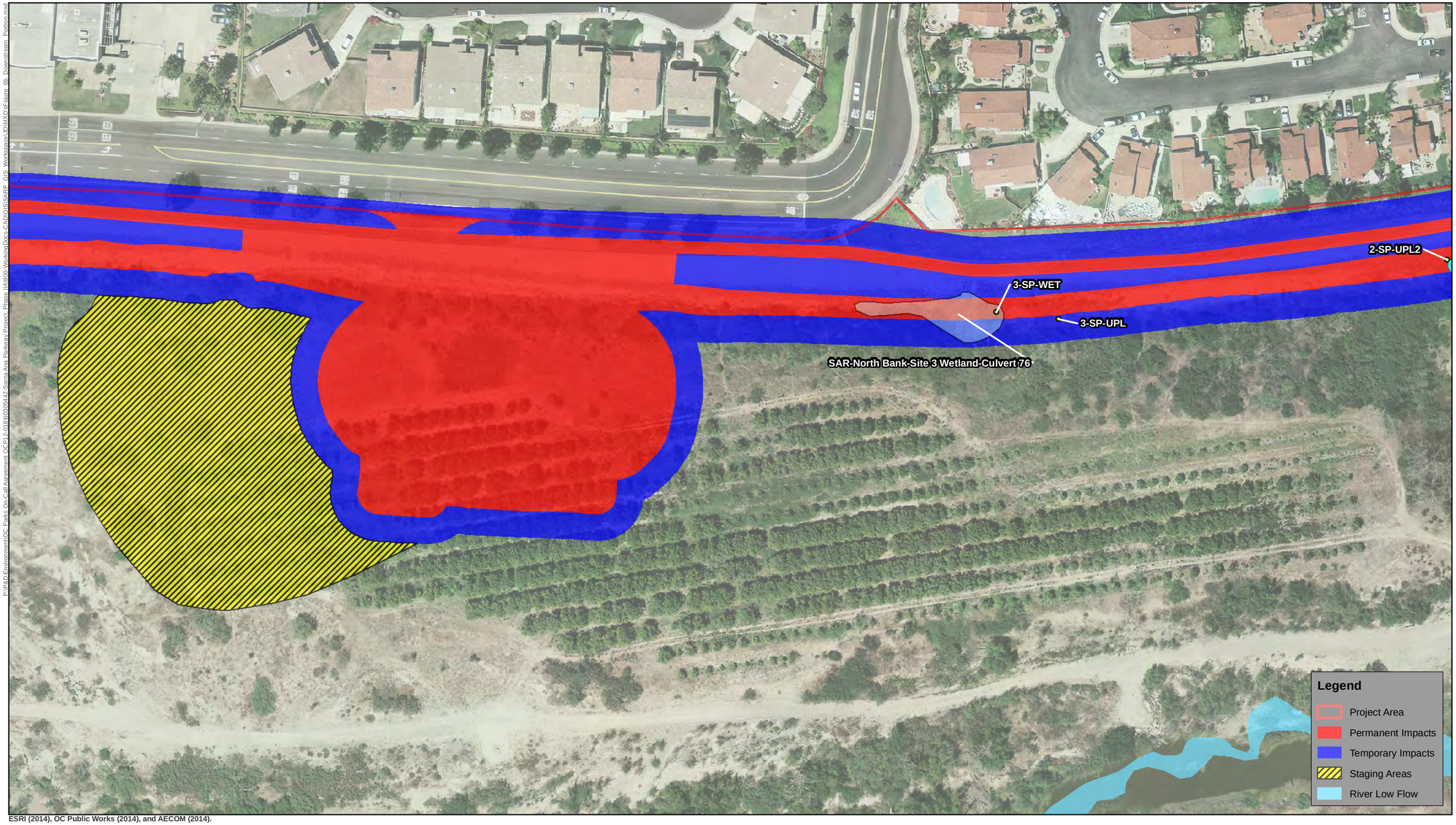
ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 9-1
SARP Jurisdictional Delineation Impacts - View 1

P:\P&D Environment\OC Parks On-Call Agreement OCP12-0\960305442-Santa Ana Parkway Project Phase II\A900-WorkingDocs-CAD\GIS\SARP_GIS_Workspace\JDMXD\Figure 6b_Downstream_Portion.mxd

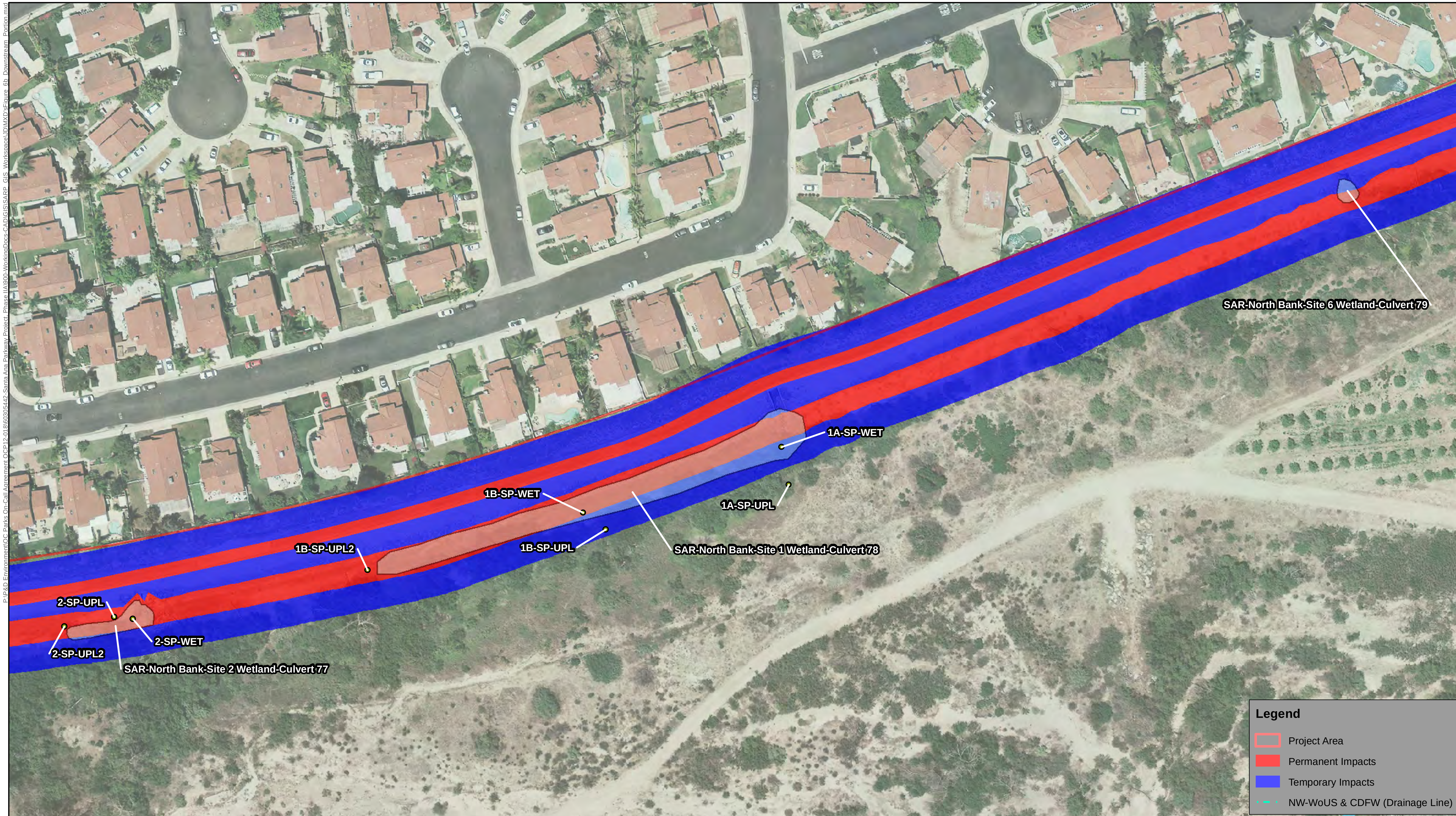


ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 9-2
SARP Jurisdictional Delineation Impacts - View 2



ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 6,000

0 25 50 100 150 Feet

Figure 9-3
SARP Jurisdictional Delineation Impacts - View 3

P:\P&D Environment\OC Parks On-Call Agreement OCP12-01\960309542-Santa Ana Parkway Project Phase II\A900-Working\Docs-CAD\GIS\SARP_GIS_Workspace\JPMXD\Figure 6b_Downstream_Portion.mxd

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 6,000

0 25 50 100 150 Feet

Figure 9-4
SARP Jurisdictional Delineation Impacts - View 4

P:\P&D Environment\OC Parks On-Call Agreement OCP12-018\03054\2-Santa Ana Parkway Project, Phase II\A900-Working\Docs-CAD\GIS\SARP_GIS_Workspace\JDMXD\Figure_6b_Downstream_Portion.mxd

5-SP-WET
5-SP-UPL2
5-SP-UPL
SAR-North Bank-Site 5 Wetland-Culvert 81
Brush Canyon Culvert (North)
Brush Canyon Drainage Culvert (South)
SAR-Bridge 1-CDFW-North Bank
SAR-Bridge 1-NW-WoUS&CDFW
B1-SP-UPL
SAR-Bridge 1-W-WoUS
SAR-Bridge 1-Perennial Stream
SAR-Bridge 1-W-WoUS
B1-SP-WET
SAR-Bridge 1-W-WoUS
SAR-Bridge 1-NW-WoUS
SAR-South Bank Culvert 2

Legend

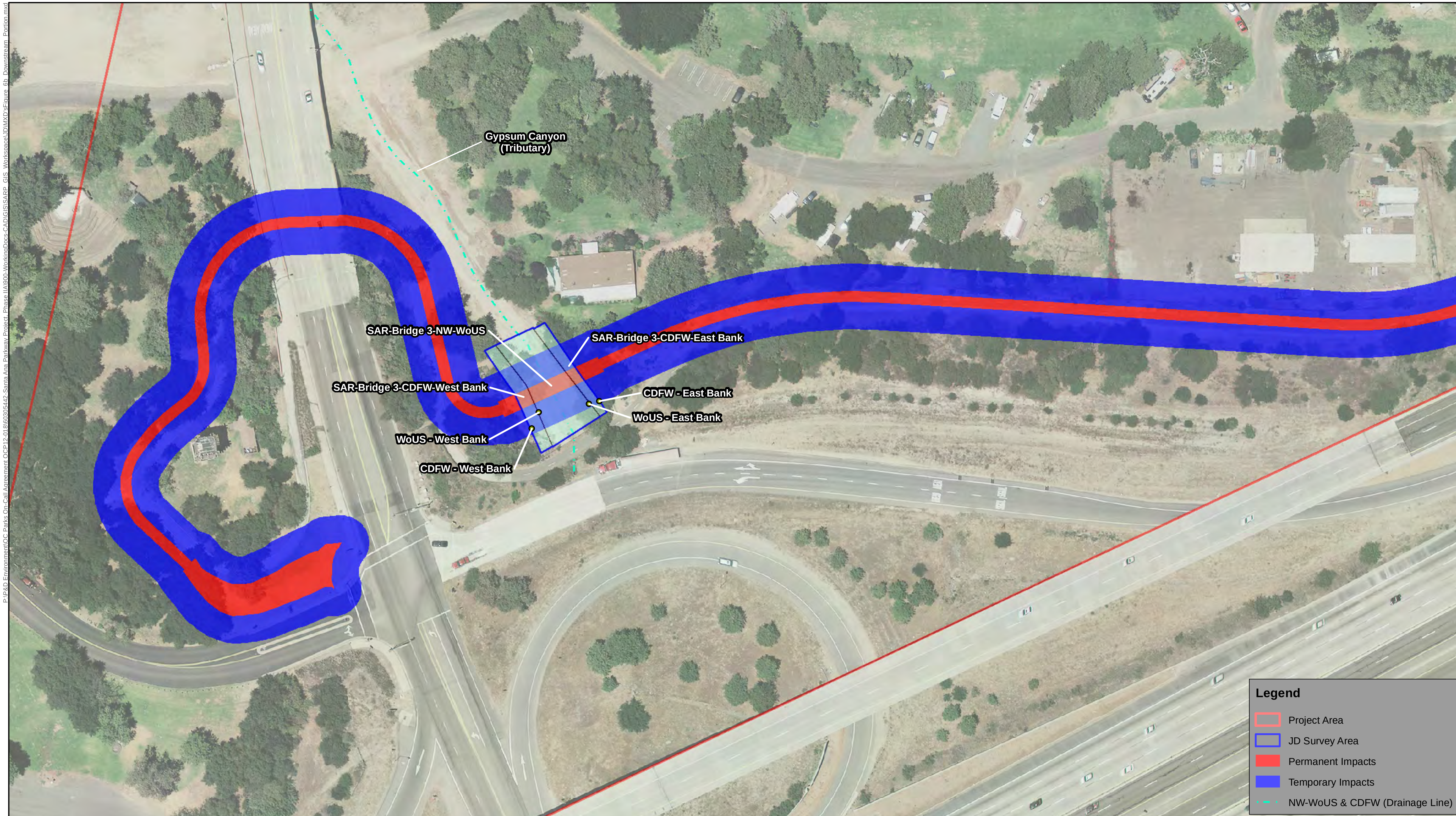
- Project Area
- JD Survey Area
- Permanent Impacts
- Temporary Impacts
- Staging Areas
- River Low Flow (AECOM 2010)
- NW-WoUS & CDFW (Drainage Line)

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 :1,000

0 25 50 100 150 Feet

Figure 9-5
SARP Jurisdictional Delineation Impacts - View 5

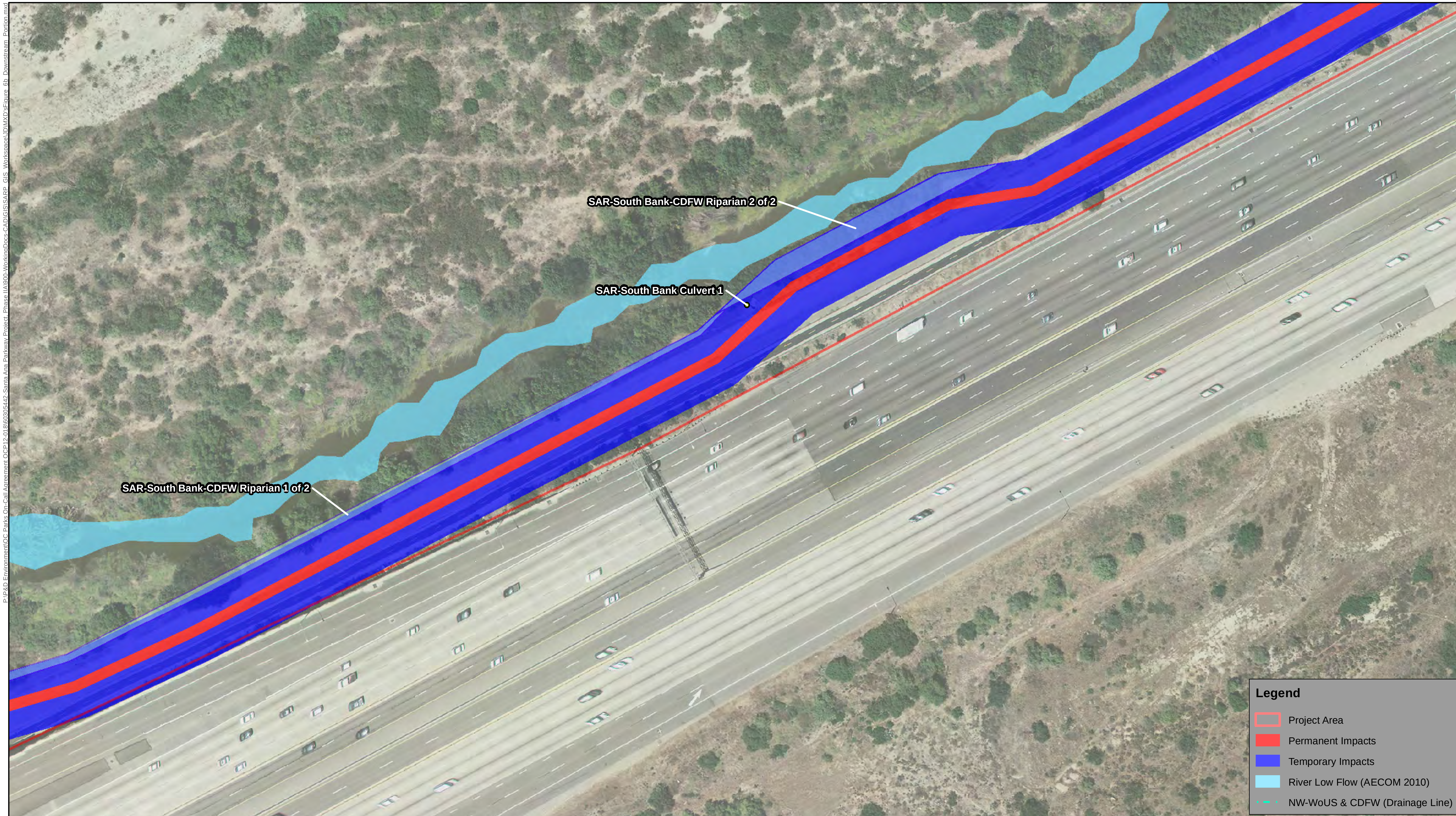


ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 9-6
SARP Jurisdictional Delineation Impacts - View 6



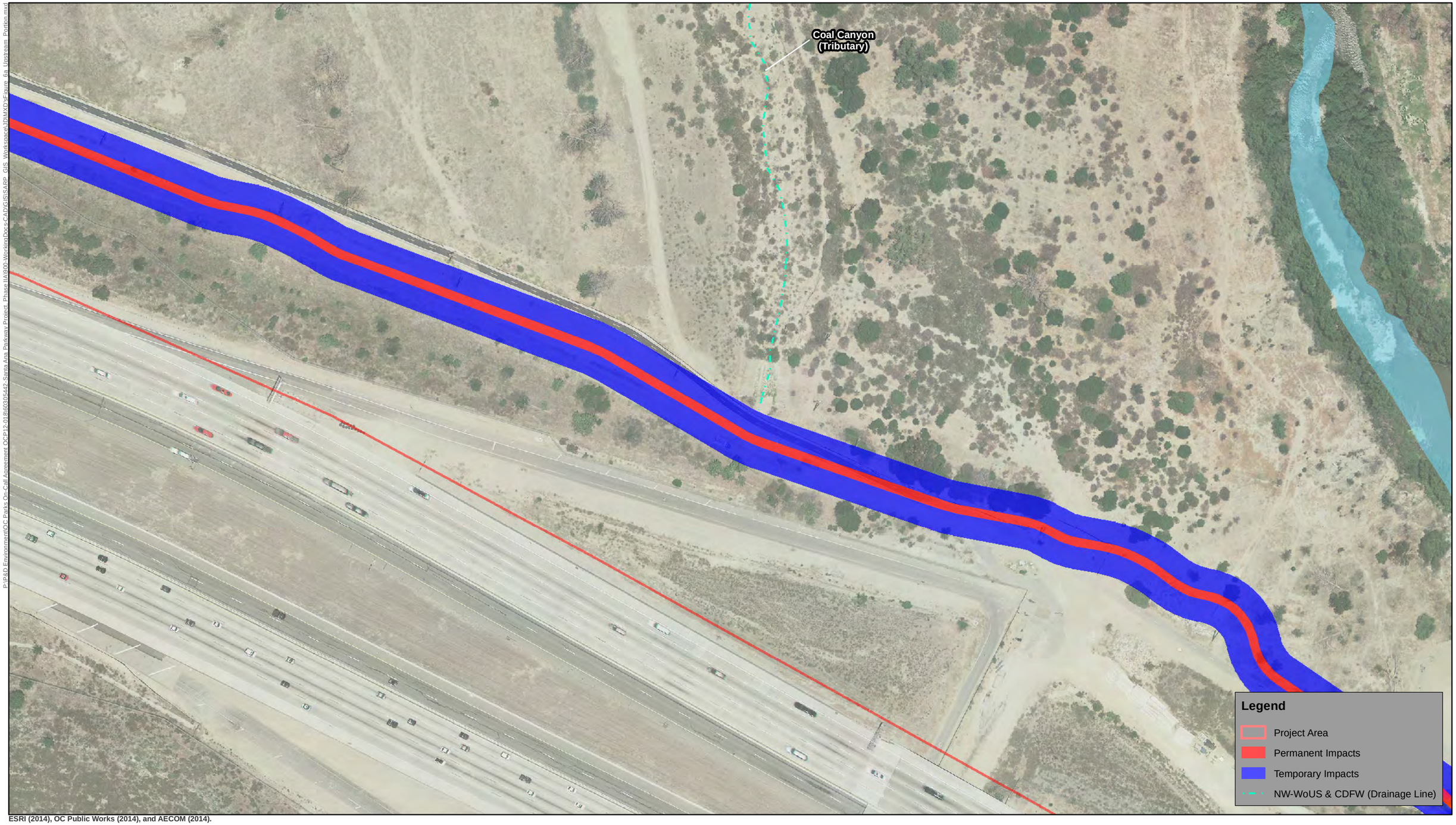
ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 9-7
SARP Jurisdictional Delineation Impacts - View 7

P:\P&D Environment\OC Parks On Call Agreement OCP12-018\60305442 Santa Ana Parkway Project, Phase II\A000-WorkingDocs-CAD\GIS\SARP_GIS_Worksheet\MXD\Figure 6a_Upstream_Portion.mxd



ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 1,000

0 25 50 100 150 Feet

Figure 9-8
SARP Jurisdictional Delineation Impacts - View 8

P:\P&D Environment\OC Parks On-Call Agreement OCP12-01\B60305442-Santa Ana Parkway Project, Phase II\A000-Working\Docs-CAD\GIS\SARP_GIS_Workspace\JDMXD\Figure_6a_Upstream_Portion.mxd

Soil Pit (Potential Riparian Area)

Potential Irrigated Wetland Area (Golf Course)

SAR-Bridge 2-CDFW

Top of Bank

SAR-Bridge 2-CDFW-North Bank

SAR-Bridge 2-NW-WoUS

SAR-Bridge 2-W-WoUS

SAR-Bridge 2-WoUS-Perennial Stream

SAR-Bridge 2-CDFW

SAR-Bridge 2-NW-WoUS

Legend

- Project Area
- JD Survey Area
- Permanent Impacts
- Temporary Impacts
- Staging Areas
- River Low Flow (AECOM 2010)

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 6,000

0 25 50 100 150 Feet

Figure 9-9
SARP Jurisdictional Delineation Impacts - View 9

P:\P&D Environment\OC Parks On-Call Agreement\OCP12-01\8609054\2 Santa Ana Parkway Project Phase II\A000-WorkingDocs-CADGIS\SARP_GIS_Workspace\JDMXD\Figure_6a_Upstream_Portion.mxd

Coal Canyon (Tributary)

SAR-North Bank-Ephemeral Drainage

Soil Pit (Potential Riparian Area)

Legend

- Project Area
- Permanent Impacts
- Temporary Impacts
- NW-WoUS & CDFW (Drainage Line)

ESRI (2014), OC Public Works (2014), and AECOM (2014).

Scale 1 : 6,000

0 25 50 100 150 Feet

Figure 9-10
SARP Jurisdictional Delineation Impacts - View 10