

**State Route 91/State Route 71 Interchange
Improvement Project Field Investigation
Riverside County, California**

**Draft
Environmental Assessment
Finding of No Significant Impact**

prepared for
**United States Army Corps of Engineers
Los Angeles District
and
Riverside County Transportation Commission**

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Abbreviations and Acronyms

ADA	Americans with Disabilities Act
APE	area of potential affect
APN	Assessor's Parcel Number
ASR	Archaeological Survey Report
CAAA	Clean Air Act Amendments
Caltrans	California Department of Transportation
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CHSP	Chino Hills State Park
CNDDB	California Natural Diversity Database
CO	carbon monoxide
CPT	cone penetration test
CWA	Clean Water Act
DBESP	Determination of Biological Equivalent or Superior Preservation
EA	Environmental Assessment
EB	eastbound
EIS	Environmental Impact Statement
EMI	Earth Mechanics, Inc.
EO	Executive Order
ESA	Endangered Species Act
FEMA	Federal Emergency Management Agency
FONSI	finding of no significant impact
FR	Federal Register
HAP	hazardous air pollutant
HOT	high-occupancy toll
HOV	high-occupancy vehicle
HPSR	Historic Property Survey Report
HSA	hollow-stem auger
HWCL	Hazardous Waste Control Law
LEDPA	least environmentally damaging practicable alternative
MBTA	Migratory Bird Treaty Act
MCD	modified California drive
MSHCP	Multiple Species Habitat Conservation Plan
NAAQS	National Ambient Air Quality Standards
NB	northbound
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFIP	National Flood Insurance Program
NO _x	nitrogen oxides
PCL	proposed constrained linkage
PM	post mile
PM ₁₀	particulate matter with a diameter of less than 10 microns
PM _{2.5}	particulate matter with a diameter of less than 2.5 microns
RCRA	Resource Conservation and Recovery Act
RCTC	Riverside County Transportation Commission

ROG	reactive organic gas
ROW	right-of-way
SCAB	South Coast Air Basin
SCAQMD	Southern California Air Quality Management District
SHPO	State Historic Preservation Officer
SIP	state implementation plan
SPT	standard penetration test
SR	State Route
SWPPP	Storm Water Pollution Prevention Plan
U.S.C.	United States Code
UA	universal access
UFC	Uniform Fire Code
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound

1.0 INTRODUCTION

1.1 Project Authority

The United States Army Corps of Engineers (USACE), pursuant to 10 United States Code (U.S.C.) 2667, is authorized to permit nonfederal entities the right to use federal lands if the proposed use is determined to be compatible with the federal project, laws, and regulations, and serves the interests of the public and/or the federal government.

The United States Army Corps of Engineers (USACE or Corps) controls Federal lands downstream of the Prado Basin, Riverside County, California (project), on behalf of the United States for the primary purpose of flood risk management. To the extent that requests are submitted to enter onto lands controlled by USACE, the Corps, in its discretion, may issue revocable licenses pursuant to the Secretary of the Army's general administrative authorities and also pursuant to 10 United States Code 2667. License requests are subject to a determination of whether a request is compatible with the Federal project and applicable laws, regulations, and/or policies.

1.2 Background

The Riverside County Transportation Commission (RCTC) and the California Department of Transportation (Caltrans) (hereinafter “the Proponents”) are submitting a request to USACE to access Federal land Assessor's Parcel Number [APN] 101-140-006 and 101-040-064), an authorized Federal project located in Riverside County, California. The Proponents propose to improve the SR-91/SR-71 interchange (Interchange Project) by constructing a new direct flyover connector from eastbound SR-91 to northbound SR-71. The project includes the following project components: flyover connector ramp, bridge widening, restriping of SR-91 eastbound lanes, modification or construction of new drainage facilities, retaining walls, and relocation of access roads. The project would improve the current and future operational efficiency and enhance the capacity of the eastbound SR-91 to northbound SR-71 connector. The general location of the project and the required field investigations and surveys are provided in Appendix A.

On June 30, 2011, Caltrans with RCTC completed the environmental documentation requirements of California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA), as delegated by the Federal Highway Administration (FHWA), for the Project. Caltrans is the lead agency for CEQA/NEPA and RCTC is a responsible agency under CEQA. A CEQA draft Initial Study was completed and circulated for public review, culminating in the approval of the Mitigated Negative Declaration. Subsequent to that action, Caltrans as delegated by FHWA, prepared a Categorical Exclusion for the proposed interchange project. However, the Army Corps will prepare a separate NEPA document for the portion of the project that will be constructed on Army Corps-controlled property.

Throughout the CEQA/NEPA process, Caltrans and RCTC held several coordination meetings on the Project with USACE regarding the Section 408, Outgrant, and Section 404 permitting. However, USACE did not comment on the CEQA Initial Study during the public review.

Currently, the project is in the design phase, which requires surveys, subsurface utility pothole, geotechnical field investigations, and biological surveys to finalize the design plans and obtain permits for the project.

The present document references survey needs and a right of entry request for the Corps to allow the surveys to provide technical information needed for the proposed future interchange project. Following

this design phase, a NEPA document will be prepared to satisfy Corps NEPA requirements for proposed work on Corps-managed land.

1.3 Purpose and Need

USACE's purpose for the proposed action is to provide RCTC and their consultants with legal access on lands owned by the USACE. The need for this action is for USACE to respond to a right of entry license for temporary access to USACE owned property to complete survey, geotechnical, utility, and biological surveys. The information from the surveys would be used to for the planning, design, and permitting of the Project. The USACE would decide whether or not to grant the right of entry license, and if so, would provide the terms and conditions that the surveys can be conducted under.

RCTC's purpose for the proposed action is to obtain land survey, geotechnical, and utility information to identify current elevations and landmarks, soil types, and the locations of utilities. RCTC's need for the proposed action is to obtain the best available information for the future proposed interchange project. Using recent and field collected data will limit the value of other alternatives and focus on the feasible alternatives for the proposed interchange project. Project engineers have requested these specific proposed survey actions in their locations in order to develop data with respect to known project constraints. This information would be used for the Project in preparing accurate final design plans, cost estimates, and construction specifications. In addition, the field information that is collected will be used to facilitate the Section 408/Outgrant process. The purpose of biological surveys during this phase of the project would be to obtain recent data of wildlife species, endangered species, and jurisdictional waters for use in developing wildlife corridors and obtaining resource agency permits for the Project.

The need for land survey, geotechnical, and utility information are based on Caltrans requirements to prepare updated topographic mapping, a structures foundation report, and utility relocation plan for the Interchange Project. The need for biological surveys is to confirm the current biological resources in the Interchange Project area, for use in refining the design to avoid sensitive resources and for application of the USACE, Regional Water Quality Control Board, and California Department of Fish and Game permits.

The proposed action is independent from any USACE application for the construction of the Project, which would be the subject of a different environmental analysis

1.4 Scope of Analysis

This Environmental Assessment (EA) analyzes the likely effects of the Proposed Action by comparing a No Action Alternative with the Proposed Action, which would allow access on USACE-owned properties to collect data for predesign, design, and environmental permitting. This analysis is offered to the interested public to solicit input on the project and will be made available for review and public input for 15 days.

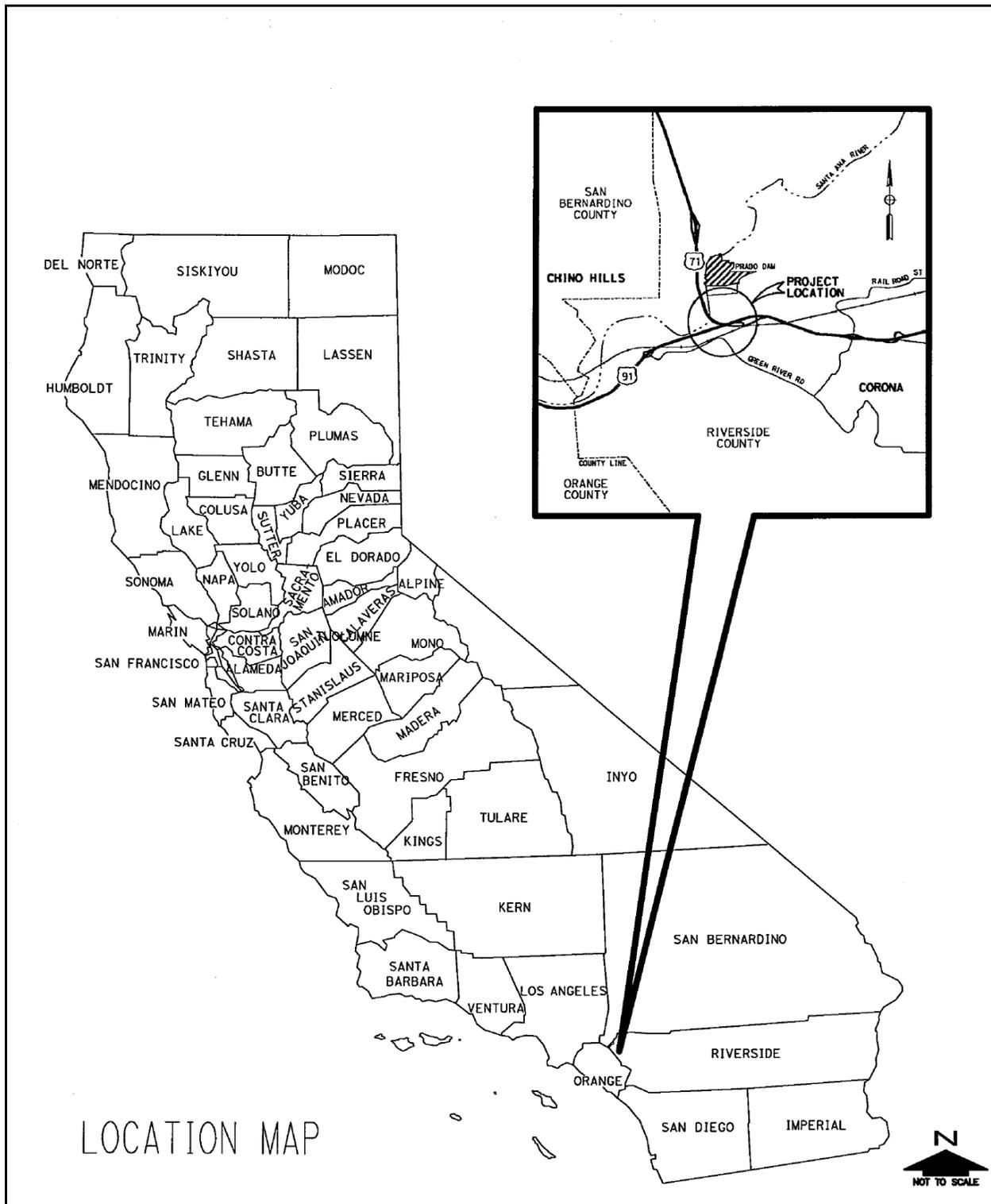
Comments regarding this proposal should be addressed to USACE at the address provided on the accompanying public notice. Following the 15-day review period, the USACE Asset Management Division will determine if an Environmental Impact Statement (EIS) will be required or if a Finding of No Significant Impact (FONSI) can be issued.

1.5 Location

The study area is generally located in the inland region of southern California, north of the Cleveland National Forest, south of SR-60, northeast of SR-241, and west of Interstate 15, in unincorporated Riverside County, California. More specifically, the study area is located at the north of the SR-91 within the general area of the existing SR-91 and SR-71 interchange. A project location map is provided in

Figure 1. The study area is within the Prado Dam, California United States Geological Survey (USGS) 7.5-minute topographic quadrangle, in unsectioned Township 3 South, Range 7 West.

Figure 1: Project Location Map



2.0 ALTERNATIVES

2.1 No Action Alternative

Under the No Action Alternative, representatives of the Proponents, including Parsons, Kana Pipeline, Earth Mechanics, Inc. (EMI), and Ecorp, would not have access to USACE-owned property. Parsons, Kana Pipeline, and EMI would not be able to conduct utility and geotechnical field investigations. Parsons and Ecorp would not be able to conduct biological surveys associated with the final design of the SR-91/SR-71 Interchange Improvement Project.

2.2 On-Site Alternatives

The proposed on-site alternative is presented below as the Proposed Action. The alternative focuses on USACE areas within the Prado Dam facilities and property adjacent to SR-71 and SR-91. The onsite alternative grants Parsons, Kana Pipeline, and EMI permission to conduct utility and geotechnical field investigations, and it also allows Parsons and Ecorp to conduct pedestrian surveys of animal and plant species. A summary of the proposed field investigations are provided in Appendix C. The following subsections provide a detailed narrative of the proposed survey work.

2.2.1 Land Survey

The Land Survey will utilize conventional survey equipment consisting of a Total Station and Data Collector for determining current pavement elevations. A total station is an electronic/optical instrument that is set up on a tripod above a known elevation and measures distances, slopes, and angles to other points for which their elevation can be calculated. A data collector is a handheld device that can remotely control the total station that surveying can be accomplished with one person instead of two. Land Survey activities do not require any soil disturbance. The field shots will be obtained using a terrain line interpolation method by obtaining shots along individual feature lines approximately at 50-foot intervals at the following locations within USACE-managed property:

- Ground survey at proposed column locations
- Survey of hard features (concrete, asphalt, utilities) near proposed column locations
- Top and bottom of levee
- Tree survey along the proposed alignment of the EB SR 91 to NB SR 71 Connector Bridge
- Survey of potholed utilities to obtain depths
- Driveway survey for Riverside County Cell tower access road
- Survey gas facilities crossing SR 71
- Existing SR-71 roadway north of Santa Ana River Bridge

Land Survey investigations are anticipated to occur between October 15, 2012, and December 31, 2012. The field investigation work would be performed Monday through Friday between 7:00 a.m. and 5:00 p.m. Parsons will coordinate with USACE prior to beginning field investigation work outside of normal business hours. The locations of the geotechnical field investigation sites are provided in Appendix A.

2.2.2 Subsurface Utility Pothole Field Investigation

The subsurface utility pothole field investigation would consist of exposing existing underground facilities via vacuum excavation using a GMC Topkick 6.0 tow vehicle and a combination air/hydro

vacuum excavation trailer. A representative photograph of the tow vehicle and vacuum excavation trailer is illustrated in Figure __ and Figure __, respectively. The pothole investigation process involves using high-pressure air or water to break up and extract soil to expose and measure the depth of existing subsurface utilities. The typical vacuum pothole has a surface opening of 1 foot by 1 foot and extends to the depth of the existing utility. Utility depths are determined by exposing the utility and measuring from ground surface to top of utility. All utilities proposed to be potholed are expected to be at a depth less than 15' below ground surface. Approximately 5 potholes are proposed on USACE property. The holes would be backfilled using either native material or fill sand (SE30+) and would be pneumatically compacted, in lifts, to ensure proper compaction.



Figure 2-__ Photograph of GMC Topkick 6.0 Tow Vehicle.



Figure 2-__ Vacuum Excavation Trailer

Subsurface utility pothole field investigations are anticipated to occur between October 15, 2012 and December 31, 2012. The field investigation work would be performed Monday through Friday between 7

a.m. and 5 p.m. Parsons would coordinate with USACE prior to beginning field investigation work outside of normal business hours. The locations of the utility field investigation sites are provided in Appendix A.

2.2.3 Geotechnical Field Investigations

For the geotechnical field investigation, exploratory boreholes and cone penetration test (CPT) soundings, would be performed and excavated at various locations within the USACE property adjacent to the SR-91 and SR-71 mainlines. The geotechnical field investigation would include excavating 45 exploratory boreholes to investigate subsurface conditions and collect samples of in situ soils at the bridge locations and along new and existing roadway alignments. Boreholes would be excavated to depths ranging from 10 to 180 feet below existing grades, or until refusal is encountered. Boreholes would be excavated using a truck-mounted drill rig equipped with 8-inch-diameter hollow-stem augers (HSAs), a mud-rotary drill rig equipped with a 5-inch drill stem, or a track-mounted limited-access drill rig equipped with 8-inch-diameter HSAs. Photographs of the heavy machinery to be utilized for the geotechnical field investigation is illustrated in Figures 2-__ to 2-__. Spoils generated from the boring excavations would either be used to backfill the boreholes or would be spread over the top of existing unpaved ground. If spoils are used to backfill boreholes, the spoils would be mixed with cement and water. Spoils from the borehole excavations would not be placed in drums, tested for contaminants, or removed from the project site.



Figure 2-__ Truck Mounted Drill-Rig with Hollow Stem Auger



Figure 2-_ Mud Rotary Drill-Rig

The geotechnical investigation would also include several CPT soundings to obtain continuous subsurface data and assess the shear wave velocity of the subsurface materials at the proposed bridge locations. The CPT soundings will be performed by EMI using an electronic cone penetrometer in general accordance with current ASTM Standards (ASTM D5778 and ASTM D3441). The CPT equipment consists of a cone penetrometer assembly mounted at the end of a series of hollow sounding rods. The cone penetrometer assembly consists of a conical tip with a 60° apex angle and a projected cross-sectional area of 1.55 in² (10 cm²) and a cylindrical friction sleeve with a surface area of 23.25 in² (150 cm²). The interior of the cone penetrometer is instrumented with strain gauges that allow simultaneous measurements of cone tip and friction sleeve resistance during penetration. The cone penetrometer assembly is continuously pushed into the soil by a set of hydraulic rams at a standard rate of 0.79 inch per second (20 mm per second) while the cone tip resistance and sleeve friction resistance are recorded every 1.967 inches (50 mm). A specially designed all-wheel drive 25-ton truck provides the required reaction weight for pushing the cone assembly and is also used to transport and house the testing equipment. CPT soundings will be advanced to a maximum depth of 100 feet or until refusal is encountered. A photograph of the CPT sounding equipment is illustrated in Figure___.



Figure 2-__Cone Penetrating Test Truck

Asphalt concrete cold-patch or quick-set Portland cement concrete would be used to replace paving that might be removed to conduct the borehole drilling and CPT soundings.

Soil samples would be collected for laboratory testing, including bulk samples of near-surface soils and small disturbed and relatively undisturbed ring samples of deeper soils. The small disturbed and relatively undisturbed soil samples would be collected using split-spoon samplers at a vertical interval of 5 feet, alternating between the standard penetration test (SPT) sampler and the modified California drive (MCD) sampler.

Geotechnical field investigations are anticipated to occur between October 15, 2012 and December 31, 2012. The field investigation work would be performed Monday through Friday between 7 a.m. and 5 p.m. Parsons will coordinate with USACE prior to beginning field investigation work outside of normal business hours. The locations of the geotechnical field investigation sites are provided in Appendix A and summarized below.

Field Investigation Activity	Number of Locations
Geotechnical borings	5
Utility Potholes	5
CPT Sounding	1

Field Investigation Workplan

The contractor completing the field investigation would oversee one or two crews (concurrently) during field investigation. Hollow-stem or mud-rotary drilling operations would consist of one drilling rig and two pick-up trucks. Drilling operations would require a three person crew at any given location: the driller, assistant, and a staff person to log and collect soil samples. The CPT operations would include the CPT truck and a pick-up truck with two persons.

Drilling rigs, the CPT truck, backhoes, and support trucks will not be stored on-site. At the end of every work day, excavation equipment and support trucks would leave the site and return the following work day.

Spill/Hazardous Waste Prevention

Spill and hazardous waste prevention during field investigation activities would utilize Caltrans Spill Prevention Best Management Practice (BMP) WM-4. Field investigation activities consist of utilizing water and biodegradable drilling mud on USACE property and would not utilize chemicals or other potentially hazardous materials. Potential spills during field investigation activities would most likely come from engines and biodegradable drilling mud. If motor oil or other motor fluid leaks are observed from the motors of the vehicles or excavation equipment on-site, plastic tarp will be placed beneath the leak so that fluids do not make contact with the exposed ground surface. Maintenance of vehicles and excavation equipment will not occur on-site. Information on spill prevention BMPs are provided in Appendix G.



Figure XX: Site Plan for Geotechnical Investigations

2.2.4 Biological Field Surveys

Biological field surveys would be conducted within the project area and USACE-managed lands to assess the presence of sensitive plant and animal species within the project area. The purpose of the surveys is to ensure that the SR-91/SR-71 Interchange Improvement Project does not adversely affect sensitive species during construction. Sensitive plant surveys include Brand's phacelia, San Diego ambrosia, and San Miguel savory. Animal surveys include determining the presence of burrowing owl, least Bell's vireo, and coastal California gnatcatcher. In addition, qualified biologists will walk the site to verify waters/wetlands of the United States within the project area. The biological surveys will be conducted by certified biologists from Parsons and Ecorp. Vehicular traffic will be confined to existing roads, and biological surveys will be conducted on foot and will be limited to a visual assessment. No resources or specimens will be collected. These surveys will be conducted between January and April 2013 for approximately 2 weeks between 7 a.m. and 5 p.m. The general location of the biological field surveys is provided in Appendix C.

The utility and geotechnical field investigations are necessary to determine the final design of the SR-91/SR-71 interchange structure and other facilities. The field investigations will be conducted by Parsons, Kana Pipeline, and EMI, and will be completed within a 6-month period. The biological surveys will be limited to pedestrian surveys and visual assessment for an approximate 2-week period. No resources would be adversely affected because vehicular traffic and other field investigation equipment would be confined to existing roads to the greatest extent feasible. All potholes, boreholes, trenches, excavations, and other disturbed areas will be restored to preproject conditions.

Appendix D provides a summary matrix of the field investigation activities necessary for the SR-91/SR-71 Interchange Improvement Project.

2.3 Alternatives Eliminated From Further Consideration

The follow alternatives were evaluated and eliminated from further consideration in this Environmental Assessment:

Alternative with less borings, trenches, and potholes.

- It is not possible to have less borings, trenches or potholes. Each proposed column, retaining wall, and cut/fill location requires a boring or trench to identify the types of soils/materials present below ground surface in that area and to determine the feasibility of building that feature. To decrease the number of borings or trenches would result in incomplete information and negatively affect the design of the interchange project. To positively identify a utility within the interchange project area, a minimum number of potholes need to be proposed. To decrease the number of potholes would dramatically increase the risk to utilities being affected by the interchange project.

Alternative using literature search or previously collected data.

- The RCTC has already obtained the as-builts of the existing Santa Ana River Mainstem project and utilities within the USACE owned land. It is not known at this time if the Army Corps has geotechnical data of the USACE owned lane since construction of the Mainstem project. However, Caltrans requirements for highway projects indicate that recent geotechnical and utility potholing data is necessary prior to completing final design. The reason for the current study requirement is that soil and utility conditions may change through the years based on settlement, seismic events, erosion, construction, and other activities.

As for the biological surveys, existing data is available for the presence of endangered species and drainages, however this information is required to be updated prior to applying for regulatory permits.

Alternative using less of the USACE site.

- With the current footprint of the proposed interchange project, it is not possible to conduct the surveys on a smaller area of the USACE owned site. To conduct the studies on a small portion of the USACE owned site would not allow RCTC to obtain the survey information necessary to complete final design and obtain the necessary permits for the interchange project.

3.0 PROPOSED ACTION

Through a land use application, RCTC has requested that USACE allow RCTC to conduct field investigations and biological surveys on USACE-managed lands with drilling, backhoe, and pothole vacuum equipment at APNs 101-140-006 and 101-040-064. USACE has reviewed RCTC's application and has noted that these activities may have an effect on the environment, which may require a NEPA Environmental Assessment (EA). After completion of the EA, USACE will make a decision to issue a right-of-way (ROW) license to RCTC to enter USACE property and conduct field investigations and biological surveys.

4.0 ENVIRONMENTAL IMPACTS AND ANALYSIS

4.1 Background

The proposed action consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands as described below:

Utility and Geotechnical Field Investigations

Utility and Geotechnical field investigations consist of entering USACE property at pre-determined, USACE-approved locations with the necessary equipment to conduct the field investigations. Heavy machinery and equipment would be mobilized from the designated staging areas to various field investigation sites. Within USACE property, a total of 5 geotechnical borings, 1 Cone Penetrating Test, and 5 utility potholes would be conducted, which include vegetation removal and soil excavation activities. Field investigation locations and access points are illustrated in Appendix A.

Biological Surveys

Biological surveys will be conducted by foot and can be accomplished from existing maintenance roads. All activities will be limited to a visual assessment only. Burrowing owl focused surveys, least Bell's vireo surveys and other biological surveys would be on selected locations of USACE lands associated with the Prado Dam Basin. Access points for the pedestrian surveys will utilize existing road locations.

4.2 Geology and Soil Quality, Stability, and Moisture

4.2.1 Description of Resource and Baseline Conditions

Baseline conditions and impact assessment to geological resources were derived from the reports listed below:

- California Department of Transportation. June 2011. *SR 91 and SR 71 Interchange Improvement Project Initial Study and Mitigated Negative Declaration*, City of Corona, Riverside County, California
- Converse Consultants. October 2008. *Preliminary Foundation Report State Route 91/71 Interchange Improvement Project*, City of Corona, Riverside County, California.

The abovementioned reports analyzed geological resources within the general location of the proposed field investigation sites. However, the reports prepared for the SR 91/SR 71 Interchange Improvement project does not specifically analyze the potential impacts related to the onsite alternatives. The analysis described in this section utilizes information from the SR 91/SR 71 Interchange Project (above referenced documents) and the following resources below to independently analyze and determine the impacts for the proposed on-site alternatives:

- County of Riverside Transportation Land Management Agency. 2008. *Riverside County Environmental Hazards Map*.

- Digital Geologic Map of the Santa Ana 30'X60' Quadrangle, Southern California, Version 1.0.
- California Geological Survey, January 1, 1980. *State of California Earthquake Fault Zones Map, Prado Dam Quadrangle, California.*
- California Department of Transportation. August 13, 1993. As-Built Plans, *West Prado Overhead (Widen), Bridge No. 56-634R/L, Bridge Department, Engineering Geology Section.*
- As-Built Plans, West Prado Overhead, Bridge No. 56-634R/L, Bridge Department, Engineering Geology Section, State of California, Department of Transportation, dated December 30, 1970.
- Seismic Hazard Zone Report 045 for the Prado Dam 7.5-Minute Quadrangle, Orange County, California, 2000.

Site Geology

The project site location is in the southern part of Chino Basin, which is a broad alluvial area that is drained by the Santa Ana River, approximately 25 miles southeast of the northern boundary of the Peninsular Ranges Geomorphic Province of southern California, which runs several hundred miles south into Baja California.

Basement rocks in the site region, which are mostly granitic and metamorphic rock, have a wide exposure in the highlands southwest of the site and are overlaid with sedimentary rocks in many areas. The project site area geology is characterized by reddish-brown alluvial fan deposits. No unusual geologic features are present within the area.

Geologic units within USACE property consist of Young axial-channel deposits (Holocene and late Pleistocene) – Slightly to moderately consolidated silt, sand, and gravel deposits. Units are distinctive based on soil profile development and degree of local dissection.

Faults

Like most areas of southern California, the project site is located in a seismically active region. Many nearby active faults that may potentially produce significant ground shaking during a major earthquake are in the project area. These faults are the Chino-Central Avenue fault to the northeast and the Elsinore-Whittier Fault Zone to the southwest. Active faults are defined as those that have had surface displacement within the last 11,000 years. The location of field investigation activities are not located in a currently designated State of California Fault Rupture Hazard Zone.

Seismicity

Damage may occur in USACE property, which is within a zone of major historic earthquakes and recent high levels of seismicity, corresponding to intensity levels of VIII or higher on the Modified Mercalli Intensity Scale. The Mercalli Scale ranges from an intensity rating of I (weakest) to a rating of XII (catastrophic). The intensity rating of VIII represents a range of damage from a large amount of damage for poorly built structures to only slight damage for specially designed structures. The Elsinore-Whittier Fault, which is identified as the controlling fault in the area, is capable of generating peak bedrock acceleration of 0.6g and an Mw (moment magnitude) of 7.5 at the project site.

Liquefaction

Liquefaction occurs during ground vibration, such as those from an earthquake, when the increased pore water pressure and reduced inter-particulate effective stress are reduced to zero. Soil will temporarily behave as a viscous fluid and lose its capacity to support structures founded upon it. The project has a low potential of liquefaction expected onsite due to dense to very dense underlying soils and the absence of groundwater.

Seiches, Tsunamis, and Mudflows

The project site is approximately 25 miles inland from the Pacific Ocean and is at or above 400 feet above mean sea level (AMSL). Accordingly, the potential for inundation due to tsunamis to affect the project site is considered negligible; therefore, impacts associated with the potential for tsunamis are considered negligible.

The potential for mudflows within drainages located adjacent to SR 91 or SR 71 does exist due to the steep topography and sandy and fine particle soils.

The Santa Ana River no longer poses a major flooding hazard to the City of Corona due to several upstream flood control projects, including the Seven Oaks Dam; therefore, the project area has a low potential for a seiche occurrence.

Slope Instability

Slope instability is defined by the potential adverse impacts from seismic shaking. Caltrans Guidelines for Structure Foundation Reports (March 2006) state a seismic coefficient $K_h = 1/3 \times$ Horizontal PGA and no more than 0.2g should be used in a pseudo-static slope stability analysis. A gradient of 2:1 (horizontal to vertical) or flatter is considered to be stable for embankment slope construction. Existing slopes within the project fit the criteria for a gradient of 2:1 or flatter or are reinforced with engineered walls.

4.2.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.2.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.2.4 Potential Geological Impacts

4.2.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

No known fragile, compactable, or unstable soils, or unusual geologic features are present within the field investigation locations, nor are special reclamation considerations required. Field investigation locations are not on or adjacent to a fault zone. No direct or indirect impacts are expected for geology and soil quality, including: faults, seismicity, liquefaction, seiches, tsunamis, mudflows, and slope stability because of the temporary nature of field investigation activities; the potholes, boreholes, and trenches are located in stable geologic areas that would be backfilled with native material or sand and disturbed areas would be restored to pre-project conditions. There would be no structures constructed as a result of the

on-site alternative. Excavated areas within USACE property are relatively minor, which consist of five 1 foot x 1 foot potholes, five 8-inch boreholes, and one CPT area at specific field investigation locations. These excavated areas are not anticipated to produce adverse effects to the following geological related conditions:

Faults

The on-site alternative would not construct any structures within USACE property. Because of the temporary nature of the field investigation activities and the location of the field investigation activities is not within a currently designated State of California Fault Rupture Hazard Zone, permanent or temporary effects are not anticipated.

Seismicity

The proposed field investigation activities are temporary in nature and does not include the construction of any structures within USACE property. Therefore, the proposed on-site alternative would not be subject to seismicity.

Liquefaction

Field investigation sites are located primarily in upland areas and has a low potential of liquefaction due to dense to very dense underlying soils and the absence of groundwater. In addition, the proposed on-site alternative consist of temporary activities and would not construct any structures within USACE property. Therefore, liquefaction would not effect the on-site alterantive.

Seiches, Tsunamis, and Mudflows

USACE property is located approximately 25 miles inland from the Pacific Ocean and located approximately 400 feet above sea level. Potential for inundation due to a tsunami event to affect the fiuelnd investigation site is negligible.

Due to the steep topography adjacent to USACE property and fine particle soils, the potential for mudflows exists due to these conditions. However, the on-site alternative is temporary in nature and would only be conducted during favorable weather conditions. Therefore, potential effects of the mudlows on the proposed activity is insignificant.

As noted previously, the Santa Ana River no longer poses a major flooding hazard to the City of Corona due to several upstream flood control projects, including the Seven Oaks Dam; therefore, the project site has a low potential for a seiche occurrence.

Slope Instability

Field investigation activities are temporary and would not include the construction of any structures. The area to be temporarily excavated consists of a small area not larger than 2 feet in diameter. In addition, excavated areas would be backfilled with native soil and compacted as necessary. Therefore, the on-site alternative would not produce signficant effects to slope instability.

Biological Surveys

Biological survey activities will be limited to a visual assessment only. A field biologist would enter USACE property on foot and would conduct a visual survey of sensitive plant and animal species throughout USACE property. Because the biological survey is a temporary activity and does not include excavation activities, direct or indirect impacts on geology and soil quality, including: faults, seismicity, liquefacation, seiches, tsunamis, mudflows, and slope stabilityare not anticipated.

4.2.5 No Action

The No Action alternative will have no impacts on geological resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not

be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.2.6 Avoidance/Minimization Measures

4.2.6.1 On Site Alternative

No minimization measures are required.

4.2.6.2 No Action

The No Action alternative will have no impacts on geological resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. Therefore, avoidance and minimization measures would not be required.

4.2.7 Significance of Impacts

4.2.7.1 On Site Alternative

Utility and Geotechnical Field Investigations

The field investigation activities are not anticipated to produce significant effects, permanent and temporary, to geology and soil quality, stability, or moisture within the project area.

Biological Surveys

The finding of no effect to geology and soil quality, stability, or moisture is anticipated with the proposed biological surveys.

4.2.7.2 No Action

The No Action alternative will have no impacts on geological resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.3 Water Resources

4.3.1 Description of Resource and Baseline Conditions

Baseline conditions and impact assessment to water resources were derived from the reports listed below:

- California Department of Transportation. June 2011. *SR 91 and SR 71 Interchange Improvement Project Initial Study and Mitigated Negative Declaration*, City of Corona, Riverside County, California
- California Department of Transportation. 2008. Flood Plain Hydraulic Study.
- California Department of Transportation. June 2010. *Jurisdictional Delineation of Waters and Wetlands, SR 91 and SR 71 Interchange Improvement Project*, Riverside County, California.
- California Department of Transportation. June 2010. Determination of Biological Equivalent or Superior Preservation (DBESP) Analysis, SR 91 and SR 71 Interchange Improvement Project, City of Corona, Riverside County, California.

The abovementioned reports analyzed water resources within the general location of the proposed field investigation sites. However, the reports prepared for the SR 91/SR 71 Interchange Improvement project does not specifically analyze the potential impacts related to the onsite alternatives. Information and data from these reports were utilized to independently analyze and determine the impacts for the proposed on-site alternatives.

Hydrology and Floodplain

Hydrology

The project area is located within the Santa Ana Watershed within the lower Santa Ana River Hydrological Area and within the Santa Ana Narrows hydrologic subarea (801.13). The Santa Ana River Basin is the largest watershed in southern California, with a drainage area of approximately 2,670 square miles with more than 50 contributing tributaries and an annual average rainfall ranging from 12 to 18 inches. The Santa Ana River extends about 96 miles from its headwaters to where it drains into the Pacific Ocean. The headwaters of the Santa Ana River and tributaries are located in the San Gabriel and San Bernardino Mountains to the north and the San Gorgonio and San Jacinto Mountains to the east. From the San Bernardino and San Gabriel Mountains, the Santa Ana River flows through the Santa Ana Valley, then through the Prado Basin and a narrow pass in the Santa Ana Mountains. The Santa Ana River Watershed is divided into an upper and lower watershed at Prado Dam. From the Santa Ana Mountains, the Santa Ana River flows in a southwesterly direction to the Pacific Ocean.

The Santa Ana River, Reach 2, from 17th Street in Santa Ana to Prado Dam, parallels SR 91 to the north. Drainages that enter the Santa Ana River north of the project area include Aliso and Brush Canyons from the Chino Hills to the north, Wardlow Wash from the east, and Fresno, Coal, and Gypsum Canyons, as well as Green River Creek from the south. These drainages contribute low amounts of flow to the Santa Ana River due to limited amounts of rainfall and soils with high infiltration rates.

Seven Oaks Dam (Prado Dam) is located approximately 0.18 miles to the northeast side of the project limits and regulates flow between the upper and lower watersheds, reducing the chance of floods by storing and releasing storm water over a longer period of time. The Prado Dam is operated under a complex set of procedures agreed to by many agencies tasked to minimize downstream flood damage while maximizing available surface water for groundwater recharge program efforts and to minimize adverse environmental effects to endangered species in wetland areas located above the dam. The Seven Oaks Dam was completed in November of 1999 along with Seven Oaks Reservoirs which has the capacity of holding 147,970 Ac-ft.

The main stem of the Santa Ana River is divided into six reaches. The proposed field investigation activities are located in Reach 2, and is responsible for carrying all the upstream flow from the Santa Ana Canyon to Orange County. Annual flows through Reach 2 vary greatly in any given year. There is a limited winter/spring season when flows are at their peak, and the flow control operations at both Prado and the new Seven Oaks Dam lower the flood peaks below the 100-year flood levels. These flows are then released over a period of several days after the flood runoff has subsided. A 10-year (1988-1998) average monthly base flow is estimated at 175 cubic feet per second (cfs) during the months of August to October. Maximum daily flow is estimated at 6,210 cfs during those months. The peak flow for the period of record (1941-2001), from the United States Geological Survey (USGS) gauge 11-0740.00 below Prado Dam was 7,440 cfs on February 21, 1980.

Receiving water bodies near the project area are the Santa Ana River, Aliso Creek, Fresno Wash, Wardlow Wash and the Prado Basin. The Santa Ana River and adjacent areas are known to be part of the 100-year floodplain that is controlled by the Prado Dam. In December 2008, USACE completed a construction contract that raised the dam embankment 28 ft and constructed new outlet works, increasing the maximum controlled release to 30,000 cubic feet per second.

Floodplain

Within the project area, the Federal Emergency Management Agency (FEMA) has identified two flood zones on the Flood Insurance Rate Map (FIRM) for this area (Maps 06065C0669G and 06065C0668G).

The two flood zones within the area are defined as:

- **Zone A** – Areas with a 1% chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. Because detailed analyses are not performed for such areas; no depths or base flood elevations are shown within these zones.
- **Zone X-** Areas outside the 1% annual chance floodplain, areas of 1% annual chance sheet flow flooding where average depths are less than 1 foot, areas of 1% annual chance stream flooding where the contributing drainage area is less than 1 square mile, or areas protected from the 1% annual chance flood by levees. No Base Flood Elevations or depths are shown within this zone. Insurance purchase is not required in these zones.

Field investigation and biological survey areas are located within Wardlow/Fresno Canyon Wash area, which is identified as a Zone A floodplain according to FEMA FIRM Map no. 06065C0668G. This area will be within the floodplain during a 100-year flood event and known as a Special Flood Hazard Area subject to inundation by the 100-year flood; however, the entire project area is not within a regulatory floodway.

Wetlands and Other Waters

The Clean Water Act (CWA) (33 U.S.C. 1344) is the primary law regulating wetlands and waters. The CWA regulates the discharge of dredged or fill material into waters of the U.S., including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas, and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purpose of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (i.e., water-loving) vegetation, wetland hydrology, and hydric soils (i.e., soils subject to saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Within the general location of field investigation sites and biological survey area, approximately 4 features are potentially jurisdictional non-wetland and wetland waters. A total of 4.13 acres of non-wetland waters and 27.46 acres of wetland waters within USACE property have been identified as potentially jurisdictional. Non-wetland and wetland areas within USACE property at (APN 101-140-006 and 101-040-064) are illustrated in Figure 2. Table ___ summarizes the acreages of potential non-wetland and wetland Waters of the United States within USACE property.

Table ___ Waters of the United States within USACE Property (APN 101-140-006 and 101-040-064)

Jurisdictional Feature Identification	Non-Wetland Waters (Acres)	Wetland Waters (Acres)
J	0.02	0
K	0.10	0
L	0.05	0
M (Santa Ana River)	3.96	27.46

TOTAL	4.13	27.46
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Source: California Department of Transportation. June 2010. *Jurisdictional Delineation of Waters and Wetlands, SR 91 and SR 71 Interchange Improvement Project*, Riverside County, California

Water Quality and Stormwater Runoff

The Santa Ana RWQCB designates beneficial uses for waters in the Santa Ana River, Reach 2, which are identified in the Basin Plan (RWQCB Updated February 2008). Existing designated beneficial uses for the Santa Ana River, Reach 2, include municipal and domestic supply, agricultural supply, industrial supply, groundwater recharge, hydropower generation, water contact recreation, non-contact water recreation, warm freshwater habitat, limited warm freshwater habitat, wildlife habitat, protection of rare and endangered species, spawning, and cold freshwater habitat. Existing designated beneficial uses for Aliso Creek include municipal and domestic supply, groundwater recharge, water contact recreation, non-contact water recreation, warm freshwater habitat, wildlife habitat, and protection of rare and endangered species, spawning, and cold freshwater habitat. As identified in the Basin Plan, neither Santa Ana River-Reach 2 nor Aliso Creek are identified as areas of Specific Biological Significance.

Within the area of field investigation locations, there are no waterbodies designated as being impaired under Section 303(d) of the CWA by the SWRCB, nor are there any waterbodies with established TMDLs in effect at this time. However, stormwater running off of SR 91 discharges directly to the Santa Ana River within the proposed field investigation locations.

Surface and Groundwater Pollution Sources

Surface water quality in the Santa Ana River and drainages that are tributary exhibit degraded surface quality due to uncontrolled pollutants from non-point sources (NPS). NPS pollution is caused by rainfall or snowmelt moving over and through the ground. As the runoff moves, it picks up and carries away natural and human-made pollutants, finally depositing them into lakes, rivers, wetlands, coastal waters, and even underground sources of drinking water. These pollutants include:

- Excess fertilizers, herbicides, and insecticides from agricultural lands and residential areas.
- Oil, grease, and toxic chemicals from urban runoff and energy production.
- Sediment from improperly managed construction sites, crop and forest lands, and eroding stream-bank.
- Salt from irrigation practices and acid drainage from abandoned mines.
- Bacteria and nutrients from livestock, pet wastes, and faulty septic systems.

Atmospheric deposition and hydro-modification are also sources of NPS pollution. Surface waters on and in the immediate area of the project site experience similar NPS effects from urbanized and agricultural land uses located both upstream and onsite.

Point-Source Pollution (PSP)

The NPDES permit program controls water pollution by regulating point sources that discharge pollutants into waters of the U.S. Point sources are discrete conveyances such as pipes or man-made ditches. Individual residences that are connected to a municipal system, use a septic system, or do not have a surface discharge do not need an NPDES permit; however, industrial, municipal, and other facilities must

obtain permits if their discharges go directly to surface waters. In California, the NPDES permit program is administered by the local RWQCB.

Groundwater

Groundwater in the Santa Ana Watershed is highly controlled by the geology of the area, both by the configuration of bedrock and by the extensive faulting. Most groundwater basins in this area are unconfined; however, the variable depth to bedrock, and the presence of faults cause pressure zones where water flows towards (or to) the ground surface. In general, groundwater flows in the same direction as surface waters from the mountains in the east/north to the Pacific Ocean in the west.

The primary source of groundwater in the project vicinity is the Santa Ana River, which feeds the underground aquifers in the area. Secondary sources of groundwater include springs and runoff generated from the hills south of SR-91. The aquifer nearest to the project area is the Talbert Aquifer, which extends through Santa Ana Canyon, to a depth of approximately 100 feet below ground surface. This area is the primary groundwater recharge zone for the central area of the Santa Ana River Basin.

The groundwater quality is directly affected by surface water from Prado Basin. The water from Prado Basin is not used directly for drinking water, but it is recharged into the regional aquifer for groundwater withdrawal. Dissolved metal concentrations are generally low, with the exception of iron and manganese. Values for nitrogen are sometimes high as a consequence of fertilizer use and Wastewater Treatment Plant discharges.



Figure 2 Waters of the United States

4.3.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.3.3 No Action

The No Action alternative will have no impacts on water resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.3.4 Potential Water Resource Impacts

4.3.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

Hydrology and Floodplain

The proposed on-site alternative will require equipment access through the floodplain and conduct field investigation at 11-USACE approved locations throughout the area. Field investigation activities consist of minor soil excavation and borings within the USACE approved locations most of which are conducted in upland areas of USACE property. Some excavation activities would occur within 100 ft of the Santa River, which consist of 3 geotechnical borings, 4 utility potholes and 1 CPT sounding. These activities will not result in adverse effects to the floodplain because the activities will be short term and the area will be restored to its natural state after the project is constructed. To further reduce potential effects to hydrology and floodplain, the mobilization of equipment will follow a designated path. This minimization measure ensures that the on-site alternative minimizes disturbance to the floodplain.

Wetlands and Other Waters

Based on the proposed locations of the field investigations, jurisdictional resources are not anticipated to be permanently impacted. A designated path to the field investigation locations would be followed to minimize ground disturbance and avoid any potential impacts to jurisdictional resources. The location of the field investigation sites will avoid wetland resources within the area. As shown on Figure___, the location of the wetland areas would not be disturbed during mobilization and excavation. Because the field investigation activities avoid water resources and minimization measures would be implemented, permanent and temporary adverse effects are not anticipated to wetlands and other jurisdictional resources.

Water Quality and Stormwater Runoff

Excavation would expose disturbed and loosened soils to erosion by wind and runoff; therefore, construction activities could result in increased erosion and siltation, including potential additional nutrient loading and increased total suspended solids concentration. Erosion and siltation from construction could affect drainages downstream of the project area, which will pose a potentially, although likely minor, impact to water quality. The proposed potholes, boreholes and trenches within the project area consist of a total of 11 excavation sites and the size of each excavation site is relatively small; boreholes consist of an 8 inch excavated area (five boreholes area proposed within USACE property); potholes consist of an area excavated 1ft by 1 ft (five potholes are proposed within USACE property). Non-point source and point source of pollution is not anticipated by the field investigation activities because the activities does not involve large areas of soils to be excavated and the potential of spills consist of minor amounts engine fluids and biodegradable drilling mud. With the implementation of spill

prevention BMPs, potential effects to water quality could be averted. In addition, there will be no increase in impervious surface or the watering activities during excavation.

It is anticipated that potential impacts to water quality and stormwater runoff could be minimized by backfilling excavated areas and restoring disturbed areas to pre-project conditions. Potholes would be backfilled using either native material or fill sand and would be pneumatically compacted, in lifts, to ensure proper compaction. Spoils generated from the geotechnical boring excavations would either be used to backfill the boreholes or would be spread over the top of existing unpaved ground. Spoils would not be discharged into surface water. Given the relatively small area of the excavation sites and implementation of minimization measures, the proposed on site alternative is less than likely to result in adverse effects to water quality.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. Because the biological surveys would not utilize heavy machinery during the survey, there would be no discharge of pollutants that may affect water resources within USACE property. In addition, survey staff will avoid wetlands and other jurisdictional resources during the biological surveys. Based on these procedures, which are standard biological survey practice, no impacts to hydrology, wetlands, and water quality/ stormwater runoff are anticipated.

4.3.4.2 No Action

The No Action alternative will have no impacts on water resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.3.5 Avoidance/Minimization Measures

4.3.5.1 On Site Alternative

Minimization measures FP-1 to FP-2; WOW-1 to WOW to WOW-2; and WQ-1 to WQ-2 should be implemented to avoid or minimize effects to water resources as described in Appendix__.

Personnel conducting the biological surveys will be limited to visual assessment, and these surveys will be conducted on foot. Biological surveys will avoid any disturbance of surface waters or other water resources.

4.3.5.2 No Action

The No Action alternative will have no impacts on water resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. No avoidance or minimization measures are required.

4.3.6 Significance of Impacts

4.3.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

With the implementation of minimization measures, adverse effects on water resources within the project area are not anticipated with the proposed utility and geotechnical field investigations. There will be no significant adverse effects, permanent and temporary, to water resources because avoidance and minimization measures would be implemented as described in Appendix __.

Biological Surveys

The finding of no effect on water resources is anticipated with the proposed biological surveys.

4.3.6.2 No Action

The No Action alternative will have no impacts on water resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.4 Air Quality

4.4.1 Description of Resource and Baseline Conditions

Baseline conditions and impact assessment to air quality were derived from the reports listed below:

- California Department of Transportation. June 2011. *SR 91 and SR 71 Interchange Improvement Project Initial Study and Mitigated Negative Declaration*, City of Corona, Riverside County, California
- California Department of Transportation. August 2010. *SR 91 and SR 71 Interchange Improvement Project Air Quality Technical Study*.

The abovementioned reports analyzed water resources within the general location of the proposed field investigation sites. However, the reports prepared for the SR 91/SR 71 Interchange Improvement project does not specifically analyze the potential impacts related to the onsite alternatives. Information and data

from these reports were utilized to independently analyze and determine the impacts for the proposed on-site alternatives.

Climactic Conditions

The project site is located in the northwestern portion of Riverside County within the South Coast Air Basin (SCAB), which includes all of Orange County and the nondesert parts of Los Angeles, Riverside, and San Bernardino counties. Air quality regulation in the SCAB is administered by the South Coast Air Quality Management District (SCAQMD). The Basin climate is determined by its terrain and geographical location. The Basin is a coastal plain with connecting broad valleys and low hills.

The southern California region lies in a semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. Warm, dry summers, low precipitation, and mild winters characterize the overall climate in the SCAB. In the project area, the average daily winter temperature is 54 degrees Fahrenheit (°F), and the average daily summer temperature is 80°F. More than two-thirds of the annual rainfall occurs from December through March, with 90 percent occurring between November and April. The mean annual precipitation in the Riverside Fire Station 3 area over a 104-year period (1893-2007) was 10.3 inches. In nearly all months of the year, evaporation exceeds precipitation.

Topography is a major factor influencing wind direction over the project area. The predominant wind direction in the project area is determined by the land-sea breeze circulations. Regional wind patterns are dominated by daytime onshore sea breezes. At night, the wind generally slows and reverses direction, traveling toward the sea. Wind directions are also affected by local canyons, with wind tending to flow parallel to the canyons. Average wind speed in the project area ranges between 4 and 6 mph. There is little seasonal variability in the wind patterns. Occasionally, however, during autumn and winter, “Santa Ana” conditions develop from a high-pressure zone to the east to bring dry, high-velocity winds from the deserts over the Cajon Pass to the coastal region. These winds, gusting to more than 80 mph, can reduce relative humidity to below 10 percent.

Air Quality Standards

The Federal Clean Air Act (CAA) was passed in 1970 and last amended in 1990. It forms the basis for the national air pollution control effort. Basic elements of the act include national ambient air quality standards (NAAQS) for criteria air pollutants, hazardous air pollutants emissions standards, state attainment plans, motor vehicle emissions standards, stationary source emission standards and permits, acid rain control measures, stratospheric ozone protection and enforcement provisions.

The NAAQS have two tiers: primary standards to protect public health and secondary standards to prevent environmental degradation (e.g., damage to vegetation and property, visibility impairment). Air Quality Standards that are currently in effect for criteria pollutants are illustrated in Table 4-1. Table 4-2 summarizes potential health effects resulting from exposure to these pollutants.

Table 4-1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards ^{a,c}	Federal Standards ^{b,c}	
			Primary	Secondary
Ozone (O ₃)	1 Hour	0.09 ppm (180 µg/m ³)	—	—
	8 Hour	0.07 ppm (137 µg/m ³)	0.075 ppm (147 µg/m ³) ^d	—
Respirable Particulate Matter (PM ₁₀)	24 Hour	50 µg/m ³	150 µg/m ³	Same as Primary
	Annual (AAM)	20 µg/m ³	— ^e	
Fine Particulate Matter (PM _{2.5})	24 Hour	No Separate State Standard	35 µg/m ³ ^f	Same as Primary
	Annual (AAM)	12 µg/m ³	15 µg/m ³	
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m ³)	9 ppm (10 mg/m ³)	—
	1 Hour	20 ppm (23 mg/m ³)	35 ppm (40 mg/m ³)	
Nitrogen Dioxide (NO ₂)	Annual (AAM)	0.030 ppm (57 µg/m ³)	0.053 ppm (100 µg/m ³)	Same as Primary
	1 Hour	0.18 ppm (339 µg/m ³)	—	
Sulfur Dioxide (SO ₂)	Annual (AAM)	—	0.030 ppm (80 µg/m ³)	—
	24 Hour	0.04 ppm (105 µg/m ³)	0.14 ppm (365 µg/m ³)	—
	3 Hour	—	—	0.5 ppm (1,300 µg/m ³)
	1 Hour	0.25 ppm (655 µg/m ³)	—	—
Lead (Pb) ^g	30-Day Average	1.5 µg/m ³	—	—
	Calendar Quarter	—	1.5 µg/m ³	Same as Primary
	Rolling 3-Month ^h	—	0.15 µg/m ³	Same as Primary
Visibility-Reducing Particles	8 Hour	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer due to particles when the relative humidity is less than 70 %	No Federal Standards	
Sulfates	24 Hour	25 µg/m ³		
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m ³)		
Vinyl Chloride ^g	24 Hour	0.01 ppm (26 µg/m ³)		

^a California standards for O₃, CO (except Lake Tahoe), SO₂ (1 and 24 hour), NO₂, suspended particulate matter (PM₁₀, PM_{2.5}), and visibility-reducing particles are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.

^b National standards (other than O₃, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The O₃ standard is attained when the fourth highest 8-hour concentration in a year, averaged over 3 years, is equal to or less than the standard. For PM₁₀, the 24-hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 µg/m³ is equal to or less than one. For PM_{2.5}, the 24-hour standard is attained when 98 percent of the daily concentrations, averaged over 3 years, are equal to or less than the standard.

^c Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to these reference conditions; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.

^d The new standard of 0.075 ppm (previously 0.08 ppm) was adopted on March 12, 2008, and became effective in June 2008.

^e The annual standard of 50 µg/m³ was revoked by EPA in December 2006 due to lack of evidence linking health problems to long-term exposure to coarse particulate pollution.

^f Based on 2004-2006 monitored data, EPA tightened the 24-hour standard of PM_{2.5} from the previous level of 65 µg/m³. The updated area designation will become effective in early 2010.

^g The California Air Resources Board (CARB) has identified Pb and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for implementation of control measures at levels below the ambient concentrations specified for these pollutants.

^h Final rule for the new Federal standard was signed October 15, 2008.

AAM – annual arithmetic mean; mg/m³ – milligrams per cubic meter; µg/m³ – micrograms per cubic meter; ppm – parts per million

Source: CARB 2008.

Table 4-2 Health Effects Summary for Air Pollutants

Pollutant	Sources	Primary Effects
Ozone (O ₃)	Atmospheric reaction of organic gases with nitrogen oxides in the presence of sunlight.	Aggravation of respiratory diseases; irritation of eyes; impairment of pulmonary function; plant leaf injury.
Nitrogen Dioxide (NO ₂)	Motor vehicle exhaust; high temperature; stationary combustion; atmospheric reactions.	Aggravation of respiratory illness; reduced visibility; reduced plant growth; formation of acid rain.
Carbon Monoxide (CO)	Incomplete combustion of fuels and other carbon-containing substances, such as motor vehicle exhaust; and natural events, such as decomposition of organic matter.	Reduced tolerance for exercise; impairment of mental function; impairment of fetal development; impairment of learning ability; death at high levels of exposure; aggravation of some cardiovascular diseases (angina).
Particulate Matter (PM ₁₀ and PM _{2.5})	Fuel combustion in motor vehicles, equipment, and industrial sources; construction activities; industrial processes; residential and agricultural burning; atmospheric chemical reactions.	Reduced lung function; aggravation of the effects of gaseous pollutants; aggravation of respiratory and cardio-respiratory diseases; increased cough and chest discomfort; soiling; reduced visibility.
Sulfur Dioxide (SO ₂)	Combustion of sulfur-containing fossil fuels; smelting of sulfur-bearing metal ores; industrial processes.	Aggravation of respiratory and cardiovascular diseases; reduced lung function; carcinogenesis; irritation of eyes; reduced visibility; plant injury; deterioration of materials (e.g., textiles, leather, finishes, coating).
Lead (Pb)	Contaminated soil.	Impairment of blood function and nerve conduction; behavioral and hearing problems in children.

Source: EPA 2006.

Standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM), lead (Pb), and sulfur dioxide (SO₂). The State of California also has its own ambient air quality standards, the California Ambient Air Quality Standards (CAAQS). The CAAQS standards are more stringent than the NAAQS for most criteria pollutants. In general the California state standards are more health protective than the corresponding NAAQS.

Monitored Air Quality

Based on the California Ambient Air Quality Standards (CAAQS), the SCAB complies with the State standards for sulfates, hydrogen sulfide, and vinyl chloride, but it is unclassified for the California standard for visibility-reducing particles. Table 4-3 shows the federal and state attainment status for the SCAB.

Table 4-3: South Coast Air Basin Attainment Status

Pollutant	Attainment Status Basis	
	National Standard	California Standard
Ozone (O ₃), 1-hour average	N/A ^a	Extreme
Ozone (O ₃), 8-hour average	Severe-17 ^b	Nonattainment
Carbon monoxide (CO)	Attainment/Maintenance ^c	Attainment ^e
Nitrogen dioxide (NO ₂)	Attainment/Maintenance	Nonattainment ^d
Sulfur dioxide (SO ₂)	Attainment	Attainment
PM ₁₀	Serious	Nonattainment
PM _{2.5}	Nonattainment	Nonattainment

Pollutant	Attainment Status Basis	
	National Standard	California Standard
Lead (Pb)	Attainment	Attainment
Sulfates (SO ₄ ²⁻)	N/A	Attainment

N/A = not applicable; PM₁₀ = particulate matter with a diameter of less than 10 microns; PM_{2.5} = particulate matter with a diameter of less than 2.5 microns.

^a The National 1-hour O₃ standard was revoked on June 15, 2005.

^b A request for reclassification status to "extreme" nonattainment was submitted to the Environmental Protection Agency (EPA) in September 2007.

^c The SCAB was redesignated by the EPA as attainment for CO, effective June 11, 2007.

^d The State NO₂ standard was amended in February 2007, to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. The Office of Administrative Law approved the proposed amendments and the new standards became effective on March 20, 2008.

Source: EPA 2007; CARB 2010; and SCAQMD 2007.

The field investigation site is located in SRA number 22, Riverside Valley. The nearest air monitoring station to the project site is the Norco monitoring station, which is located approximately 5 miles northeast of the project site. Only PM₁₀ is monitored at this station. The other representative monitoring stations for the project area are the Riverside-Magnolia Monitoring Station, which is located approximately 14 miles from the project site, and the Riverside-Rubidoux Station, which is located 15 miles northeast of the project site. The Magnolia station monitors CO and PM_{2.5}, while all criteria pollutants are monitored at the Rubidoux station.

Table 4-4 presents the local ambient air quality data recorded at these stations for the past 4 years. As Table 4-4 shows, exceedance of the California standards were recorded for O₃ (8-hour and 1-hour [California standard]), PM₁₀ (24-hour and annual), and PM_{2.5} (24-hour and annual) on one or more occasions from 2005 through 2008. No exceedance of either the State or national standards were recorded for SO₂, NO₂, or CO.

Table 4-4 Local Monitoring Stations Data Summary

Pollutant	Monitoring Station	Averaging Time	Standard	2005	2006	2007	2008
Ozone (O ₃)	Rubidoux	1-Hour	Maximum Concentration (ppm)	0.144	0.151	0.131	0.146
			Days > CAAQS (0.09 ppm)	46	45	31	52
		8-Hour	Maximum Concentration (ppm)	0.129	0.117	0.111	0.116
			Days > NAAQS (0.08 ppm)	56	57	46	57
			Days > CAAQS (0.07 ppm) ^a	83	75	69	86
Particulate Matter (PM ₁₀)	Norco	24-Hour	Maximum Concentration (µg/m ³)	79	74	93 ^c	76
			Days > NAAQS (150 µg/m ³)	0	0	6	0
			Days > CAAQS (50 µg/m ³)	5	10	10	1
		Annual	National (50 µg/m ³) ^a	32	36	44	32
			State (20 µg/m ³)	31	n/a	43	n/a
	Rubidoux	24-Hour	Maximum Concentration (µg/m ³)	123	109	118 ^b	100
			Days > NAAQS (150 µg/m ³)	0	0	3	0
			Days > CAAQS (50 µg/m ³)	67	69	65	7
		Annual	National (50 µg/m ³) ^a	52	56	59	45
			State (20 µg/m ³)	50	53	57	n/a
Particulate Matter (PM _{2.5})	Magnolia	24-Hour	Maximum Concentration (µg/m ³)	95	55	69	43
			Days > NAAQS (35 µg/m ³) ^c	27	31	30	12
			3-year Avg 98 th Percentile (µg/m ³) ^d	50	47	49	48
		Annual	Arithmetic Mean (15.0 µg/m ³)	17.9	16.9	18.3	13.2
	Rubidoux	24-Hour	Maximum Concentration (µg/m ³)	99	68	76	48
			Days > NAAQS (35 µg/m ³) ^c	2	1	30	15
			3-year Avg 98 th Percentile (µg/m ³) ^d	65	57	56	51
		Annual	Arithmetic Mean (15.0 µg/m ³)	20.9	19.0	18.9	16.3
		Carbon Monoxide (CO)	Rubidoux	1-Hour	Maximum Concentration (ppm)	3.4	2.7
Days > CAAQS (20 ppm)	0				0	0	0
8-Hour	Maximum Concentration (ppm)			2.5	2.3	2.9	1.9
	Days > NAAQS/CAAQS (9.0 ppm)			0	0	0	0
	Annual			Arithmetic Mean (0.053 ppm)	0.022	0.020	0.020
Nitrogen Dioxide (NO ₂)	Rubidoux	1-Hour	Maximum Concentration (ppm)	0.077	0.076	0.072	0.072
			Days > CAAQS (0.25 ppm) ^f	0	0	0	0
		Annual	Arithmetic Average (0.053 ppm)	0.022	0.020	0.020	0.018
Sulfur Dioxide (SO ₂)	Rubidoux	1-Hour	Maximum Concentration (ppm)	0.024	0.012	0.016	0.011
			Days > NAAQS (0.14 ppm)	0	0	0	0
			Days > CAAQS (0.04 ppm)	0	0	0	0
		Annual	Arithmetic Mean (0.030 ppm)	0.004	0.001	0.002	0.001

Exceedances shown in bold; ppm – parts per million; µg/m³ – micrograms per cubic meter

^a State statistics are based on California-approved samplers, whereas national statistics are based on samplers using Federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

^b The data reported for 2007 represents the second high value. The first high values measured at the station occurred on October 21, 2007 which coincides with three wildfires that occurred in Riverside County in October 2007.

^c Based on 2004-2006 monitored data, EPA tightened the 24-hour standard of PM_{2.5} from the previous level of 65 µg/m³. The updated area designation became effective in October 2009.

^d Attainment condition for PM_{2.5} is that the 3-year average of the 98th percentile of 24-hour concentrations at each monitor within an area must not exceed the standard (35 µg/m³).

^f NO₂ standard was amended in February 2007 to lower the 1-hour standard to 0.18 ppm and establish a new annual standard of 0.030 ppm. These changes become effective after regulatory changes are approved by the Office of Administrative Law

Source: CARB 2009 - <http://www.arb.ca.gov/adam/>; and EPA 2009 - <http://www.epa.gov/air/data/>.

Sensitive Receptors

Some population groups, such as children, the elderly, and acutely and chronically ill persons, especially those with cardio-respiratory problems, are considered more sensitive to air pollution than others. Sensitive receptor locations, as defined by the SCAQMD (2006), include schools, residential areas, day-care centers, convalescent homes, hospitals, and rehabilitation centers. Residential areas are considered to be sensitive to air pollution because residents, including children and the elderly, tend to be at home for extended periods of time, resulting in sustained exposure to pollutants. Nearest residential land uses adjacent to the field investigation site include the following:

- North of SR 91: East of the Green River Road ramps, there are residential uses, the closest of which to the field investigation site is located approximately 220 ft north of the SR 91 off-ramp to Green River Road. Farther east on the west of SR 71, the land is undeveloped, while east of SR 71, the land consists of the Prado Dam flood control area (USACE flood control land).
- South of SR 91: Along the top of the hills, the land use is primarily residential. The closest residences to the project site are located approximately 650 ft south of the EB SR 91 on-ramp from SR 71.

The closest school to the project site is Prado View Elementary School, which is located approximately 0.8-mile southeast of the USACE property. The nearest child-care facility is Children's Montessori Center, which is located approximately 0.87-mile southeast of the USACE property. The nearest hospital/medical clinic is Corona Regional Medical Center, which is located approximately 3.5 miles southeast of USACE property. The nearest park is Ridgeline Park, which is located approximately 0.7-mile south of USACE property.

4.4.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.4.3 No Action

The No Action alternative will have no impacts on air resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.4.4 Potential Air Quality Impacts

4.4.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

Air Quality Analysis

Vehicle emissions associated with the field investigation will be temporary and will last approximately 6 months. A qualitative air quality analysis is provided below to analyze potential temporary effects of the proposed on-site alternative. A project will have significant adverse effects on air quality if it will violate any ambient air quality standard, contribute substantially to an existing air quality violation, or expose sensitive receptors to substantial pollutant concentrations.

Utility and geotechnical investigations consist of excavation activities, which have the potential to create air quality impacts through the use of heavy-duty construction equipment within the site, and through vehicle trips by workers traveling to and from the project site. In addition, fugitive dust emissions will result from earthwork (e.g., excavation) and onsite activities. Off-road (onsite) mobile source emissions,

include CO, nitrogen oxides (NO_x), volatile organic compounds (VOCs), directly-emitted particulate matter (PM₁₀ and PM_{2.5}), and TACs such as diesel exhaust particulate matter. O₃ is a regional pollutant that is derived from NO_x and VOCs in the presence of sunlight and heat, and will result from the use of construction equipment.

Excavation activities associated with the on-site alternative would be temporary and would be completed within a timeframe of 6 months; however, operation of heavy machinery and other activities related to field investigations would not continually operate over this period. Compared to other construction projects requiring major earth moving activities, the field investigation activities consist of minimal soil disturbance and a short duration of excavation operations. The table below summarizes the area of soil disturbance associated for each excavation activity.

Table 4-5 Soil Disturbance Activities

Field Investigation Activity	Area of Soil Disturbance	Number of Locations within USACE Property	Duration of Activity at Each Location
Utility Pothole	1 foot by 1 foot	5	1 to 3 hours
Geotechnical Exploratory Boreholes	8-inch bore	5	1 to 8 hours
Geotechnical Trench	2 feet wide x 5 to 15 feet long	1	1 to 8 hours

Based on the area of soil disturbance (less than 1/10 of an acre), fugitive dust emissions from excavation activities is anticipated to be minimal and would not affect nearby sensitive receptors. In addition, number of locations and the short duration of each field investigation activity would not expose sensitive receptors to significant amounts of mobile source emissions such as CO, NO_x, VOCs, directly-emitted particulate matter and TACs. No soil stockpiles are expected from the field investigation activities.

Odors

During field investigation activities, objectionable odors will be mainly related to the operation of diesel-powered equipment and to off-gas emissions during excavation activities. While heavy equipment onsite will generate some objectionable odors primarily arising from diesel exhaust, these emissions will generally be limited to the project site and will be temporary in nature. Most of the potential sensitive receptors are located at a sufficient distance from the field investigation sites such that impacts will not be experienced. As such, odors will not affect a substantial number of people. A less than significant impact is expected.

Toxic Air Contaminants (TAC)

The potential for TAC emissions during the field investigations will be related to diesel particulate matter emissions associated with heavy equipment operations; however, the significance of health effects from carcinogenic air toxics is based on long-term (70-year lifetime) exposure. Given the field investigation schedule will be completed within 6 months, the field investigation would not result in a long-term (i.e., 70 years) substantial exposure to TAC emissions. Operation of machinery within USACE would not operate continuously during the 6-month period and the estimated duration of each field investigation activities per location would last only for a working day. As such, exposure to TAC during field investigation is incremental and potential impacts related to TAC emissions would be less than significant.

Mechanized equipment will be used to conduct the proposed field investigations; however, the operation of heavy machinery is not anticipated to significantly produce adverse affects to air quality or expose sensitive receptors to significant amounts of mobile source emissions. Because of the short duration of the field investigation activities an incremental increase in emissions is anticipated. This qualitative construction emissions analysis has concluded that project construction will not create adverse pollutant emissions. Minimal short-term impacts to air quality may occur during excavation activities; however, minimization measures would be implemented to ensure potential effects to air quality are not significant.

Climate Change/Greenhouse Gas

Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the earth's climate system. An ever-increasing body of scientific research attributes these climatological changes to greenhouse gas (GHG) emissions, particularly those generated from the production and use of fossil fuels. Climate change is a change in the average weather of the earth that may be measured by changes in wind patterns, storms, precipitation, and temperature. Gases that trap heat in the atmosphere are greenhouse gases (GHGs), analogous to the way a greenhouse retains heat. The presence of GHGs in the atmosphere affects the earth's temperature. Without the natural heat-trapping effect of GHG, the earth's surface would be about 34°C cooler. However, human activities have increased the amount of greenhouse gases in the atmosphere and adversely disrupts the natural climate change.

While climate change has been a concern for several decades, the establishment of the Intergovernmental Panel on Climate Change (IPCC) by the United Nations and World Meteorological Organization in 1988, has led to increased efforts devoted to GHG emissions reduction and climate change research and policy. These efforts are primarily concerned with the emissions of GHGs generated by human activity including carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF₆), HFC-23 (fluoroform), HFC-134a (s, s, s, 2-tetrafluoroethane), and HFC-152a (difluoroethane).

In the U.S., the main source of GHG emissions is electricity generation, followed by transportation. In California, however, transportation sources (including passenger cars, light duty trucks, other trucks, buses, and motorcycles make up the largest source (second to electricity generation) of GHG emitting sources. The dominant GHG emitted is CO₂, mostly from fossil fuel combustion.

Federal

Although climate change and GHG reduction is a concern at the federal level; currently there are no regulations or legislation that have been enacted specifically addressing GHG emissions reductions and climate change at the project level. The United States Environmental Protection Agency (U.S. EPA) has not promulgated explicit guidance or methodology to conduct project-level GHG analysis.

Climate change and its associated effects are also being addressed through various efforts at the federal level to improve fuel economy and energy efficiency, such as the "National Clean Car Program" and EO 13514 - Federal Leadership in Environmental, Energy and Economic Performance.

Executive Order 13514 is focused on reducing greenhouse gases internally in federal agency missions, programs and operations, but also direct federal agencies to participate in the Interagency Climate Change Adaptation Task Force, which is engaged in developing a national strategy for adaptation to climate change.

On April 2, 2007, in *Massachusetts v. EPA*, 549 U.S. 497 (2007), the Supreme Court found that greenhouse gases are air pollutants covered by the Clean Air Act and that the U.S. EPA has the authority to regulate GHG. The Court held that the U.S. EPA Administrator must determine whether or not emissions of greenhouse gases from new motor vehicles cause or contribute to air pollution which may

reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to make a reasoned decision.

State

With the passage of several pieces of legislation including State Senate and Assembly bills and Executive Orders, California launched an innovative and pro-active approach to dealing with GHG emissions and climate change.

Assembly Bill 1493 (AB 1493), Pavley. Vehicular Emissions: Greenhouse Gases, 2002: requires the California Air Resources Board (ARB) to develop and implement regulations to reduce automobile and light truck GHG emissions. These stricter emissions standards were designed to apply to automobiles and light trucks beginning with the 2009-model year. In June 2009, the U.S. Environmental Protection Agency (U.S. EPA) Administrator granted a Clean Air Act waiver of preemption to California. This waiver allowed California to implement its own GHG emission standards for motor vehicles beginning with model year 2009. California agencies will be working with federal agencies to conduct joint rulemaking to reduce GHG emissions for passenger cars model years 2017-2025.

Sources of GHG in California

The GHG emissions are mostly related to fossil fuel combustion for energy use. These are driven largely by economic growth and fuel used for power generation, transportation, heating, and cooling. According to the California Energy Commission (CEC, 2006), energy-related CO₂ emissions resulting from fossil fuel combustion represents approximately 81 percent of California's total GHG emissions. Although the emissions of other GHG gases, such as CH₄ (methane) and N₂O (nitrous oxide) are small, it should be noted that their global warming potential (GWP) is very high in relation to that of CO₂.

Project Analysis

According to *Recommendations by the Association of Environmental Professionals (AEP) on How to Analyze GHG Emissions and Global Climate Change in CEQA Documents* (March 5, 2007), an individual project does not generate enough GHG emissions to significantly influence global climate change. Rather, global climate change is a cumulative impact. This means that a project may contribute to a potential impact through its incremental change in emissions when combined with the contributions of all other sources of GHG. In assessing cumulative impacts, it must be determined if a project's incremental effect is "cumulatively considerable" (CEQA Guidelines sections 15064(h)(1) and 15130). To make this determination the incremental impacts of the project must be compared with the effects of past, current, and probable future projects. To gather sufficient information on a global scale of all past, current, and future projects in order to make this determination is a difficult, if not impossible, task.

Greenhouse gas emissions during the field investigation activities include emissions produced as a result of material processing and emissions produced by onsite heavy equipment. These emissions will be produced at different levels throughout the field investigations depending on the duration of the operation of the heavy equipment. Emissions of CO₂ are temporary in nature and will cease after 6 months. Considering the duration of each excavation activity (1 to 8 hours at each location) and its temporary nature, the project's emission contributions are incremental and were judged sufficiently small in their likely contribution to GHGs.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. Based on these procedures, which are standard biological survey practice, no impacts to air quality and greenhouse gases is anticipated.

4.4.4.2 No Action

The No Action alternative will have no impacts on air quality. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed on-site alternative.

4.4.5 Avoidance/Minimization Measures

4.4.5.1 On Site Alternative

Implementation of appropriate measures (SCAQMD Rule 403) will reduce any potential air quality impacts resulting from the field investigation activities. Minimization measures AQ-1 should be implemented to avoid adverse effects to air quality, as described in Appendix D.

4.4.5.2 No Action

The No Action alternative will have no impacts on air quality. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands.

4.4.6 Significance of Impacts

4.4.6.1 On Site Alternative

Utility and Geotechnical Field Investigation

With the implementation of minimization measures, the proposed field investigation activities is not anticipated to adversely affect air quality and greenhouse gases.

Biological Surveys

The finding of no effect on air quality and greenhouse gases is anticipated with the proposed biological surveys.

4.4.6.2 No Action

The No Action alternative will have no impacts on air quality. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.5 Biological Resources

4.5.1 Description of Resource and Baseline Conditions

Baseline conditions and impact assessment to wildlife species were derived from the biological reports listed below:

- California Department of Transportation. June 2010. Habitat Assessment and MSHCP Consistency Analysis for the SR 91 and SR 71 Interchange Improvement Project, City of Corona, Riverside County, California
- California Department of Transportation. June 2010. Determination of Biological Equivalent or Superior Preservation (DBESP) Analysis, SR 91 and SR 71 Interchange Improvement Project, City of Corona, Riverside County, California.

- California Department of Transportation. May 2010. SR 91 Corridor Improvement Project Comprehensive Wildlife Corridor Analysis.
- California Department of Transportation. June 2010. SR-91/ SR-71 Interchange Improvement Project Natural Environmental Study.
- California Department of Transportation. March 2011. SR 91 and SR 71 Interchange Improvement Project Habitat Assessment.
- United States Fish and Wildlife Service. June 22, 2011. Biological Opinion for the SR 91 and SR 71 Interchange Improvement Project (See Appendix).

The abovementioned biological reports analyzed biological resources within the general location of the proposed field investigation sites. However, the reports prepared for the SR 91/SR 71 Interchange Improvement project does not analyze the potential impacts related to the onsite alternatives. The analysis described in this section utilizes biological data from the SR 91/SR 71 Interchange Improvement project to determine the potential impacts of the alternatives to biological resources. Additional updated biological information and data would be required to facilitate required permits and meet the design requirements to environmentally sensitive areas.

Vegetation

Vegetation communities found on USACE lands at APN 101-140-006 and 101-040-064 consist of riparian riverine, coastal sage scrub, coastal sage chaparral scrub, non-native grassland and disturbed habitat. Vegetation on APN 101-140-006 consists of coastal sage scrub, riparian riverine, non-native grassland and disturbed habitat. At APN 101-140-006 existing vegetation consists primarily of coastal sage scrub and non-native grassland with pockets of coastal sage chaparral scrub and riparian riverine. Vegetation communities within the proposed field investigation sites and biological survey area (vegetation mapping conducted in 2008) are illustrated in Figure 3.

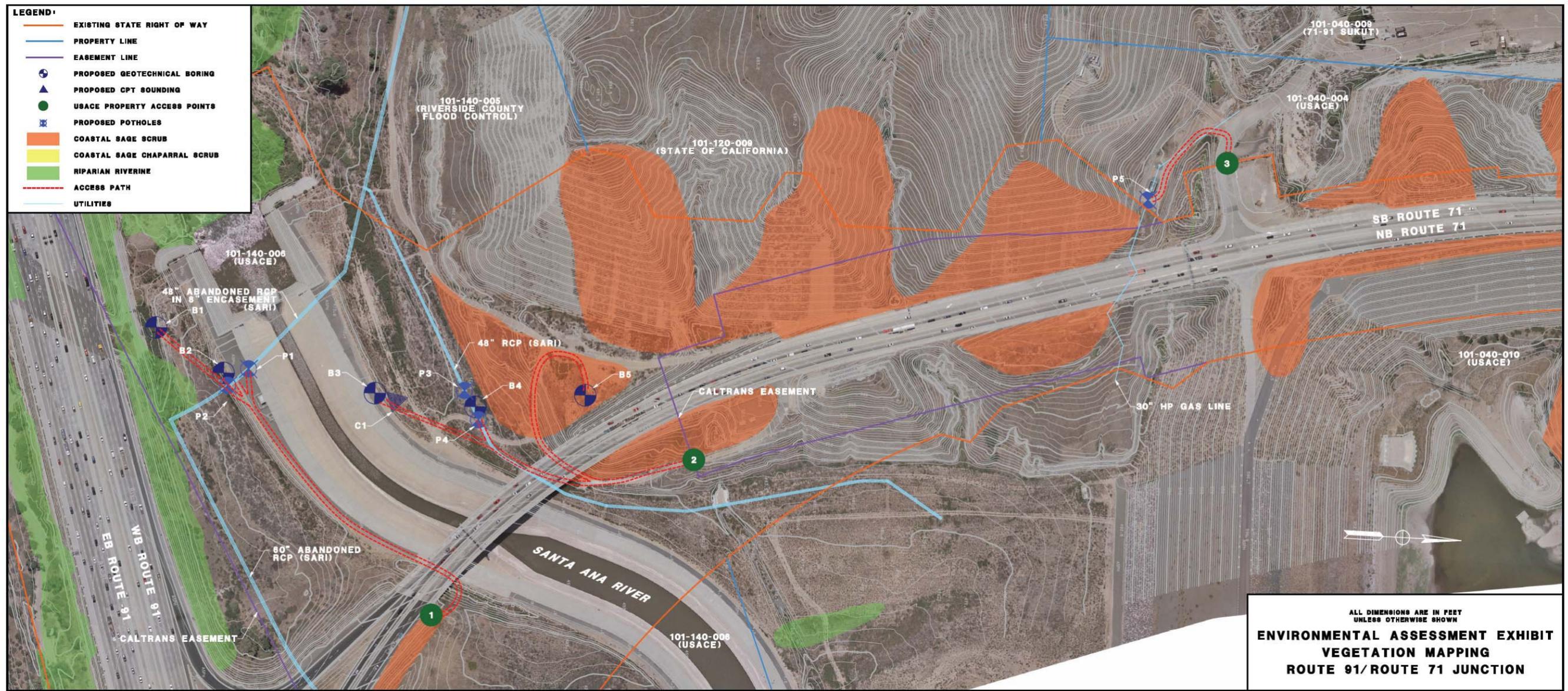


Figure 3 Vegetation Communities

USACE currently completed habitat restoration activities within the general area of the Santa Ana River, as indicated in Figure 4. The restoration activities were required as a result of vegetation impacts associated with the Santa Ana River Mainstem/Prado Dam Project. The following table provides a summary of the plant species within the area:

TABLE __: WILDLIFE CORRIDOR UPLAND SEED MIX SPECIES

Common Name	Botanical Name	lbs./per acre	Plant Type
California sagebrush	<i>Artemisia californicus</i>	2	Perennial
Black sage	<i>Salvia mellifera</i>	3	Perennial
White sage	<i>Salvia apiana</i>	2	Perennial
Coyote brush	<i>Baccharis pilularis</i>	2	Perennial
California bush sunflower	<i>Encelia californica</i>	4	Perennial
California buckwheat	<i>Eriogonum fasciculatum</i>	8	Perennial
Coast goldenbush	<i>Isocoma menziesii</i>	3	Perennial
Deerweed	<i>Lotus scoparius</i>	5	Bi-annual
Arroyo lupine	<i>Lupinus succulentus</i>	1	Annual
California poppy	<i>Eschscholtzia californica</i>	1	Perennial herb/Annual
Plantain	<i>Plantago ovata</i>	5	Annual
Purple needle grass	<i>Nassella pulchra</i>	1.5	Perennial grass
Foothill needle grass	<i>Nassella lepida</i>	1.5	Perennial grass
Nodding needle grass	<i>Nassella cernua</i>	1.5	Perennial grass
Foxtail fescue	<i>Vulpia (Festuca)megalura</i>	1	Annual
Total Pounds per Acre		41.5 lbs/Acre	



Figure 4: USACE Restoration Activities

Wildlife Species

The Santa Ana River Canyon and the surrounding area provide suitable habitat for several migratory and nonmigratory wildlife species known to occur in the region, and identified in the wildlife corridor study (LSA, 2010). Based on the habitat assessment and jurisdictional delineation studies conducted for the SR-91/SR71 Interchange Improvement Project, the Corps-managed area supports a resident population of small to large mammal species, including coyote and mountain lion. According to the SR-91/ SR-71 Interchange Improvement Project *Natural Environmental Study* (2010), the project study area provides habitat for wildlife species that commonly occur in disturbed and developed communities, as well as riparian and scrub habitats. No amphibian or reptilian species were observed onsite during the habitat assessment survey. Commonly found avian and mammalian species observed within the project study area include, but are not limited to:

- California towhee (*Pipilo crissalis*)
- Nuttall's woodpecker (*Picoides nuttallii*)
- House finch (*Carpodacus mexicanus*)
- Mourning dove (*Zenaida macroura*)
- Bewick's wren (*Thryomanes bewickii*)
- White-throated swift (*Aeronautes saxatalis*)
- Black phoebe (*Sayornis nigricans*)
- California ground squirrel (*Spermophilus beecheyi*)
- Desert cottontail (*Sylvilagus audubonii*)
- Bobcat (*Felis rufus*)

A complete list of wildlife species observed during the habitat assessment survey is included in Appendix F.

A major wildlife crossing is located directly adjacent to USACE lands (at APN 101-140-006). This wildlife crossing is identified as Proposed Constrained Linkage 2 (PCL 2) by the Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP). PCL 2 crosses SR-91 through a large box culvert and large undercrossing, and it provides a riparian connection from the Prado Basin and Santa Ana River to the Cleveland National Forest, thus allowing movement of species. This linkage is likely to be important for mountain lion and coyote movement from the Santa Ana Mountains to Chino Hills. Because of the proximity of the wildlife crossing to USACE property, it is likely that wildlife crosses USACE property.

Threatened and Endangered Species

According to the biological studies prepared for the project, the project area has a moderate or high potential to contain habitat to support 22 sensitive wildlife species:

Arroyo chub	Santa Ana sucker
Arroyo toad	Southern California rufous-crown sparrow
Burrowing owl	Southwestern willow flycatcher
Coastal western whiptail	Tricolored blackbird
Coast horned lizard	Two-striped garter snake
Coast range newt	Western mastiff bat

Coastal California gnatcatcher	Western yellow-billed cuckoo
Cooper's hawk	Yellow warbler
Golden eagle	Yellow-breasted chat
Least Bell's vireo	Orange-throated whiptail
Long-eared owl	
Pallid bat	

Of the 22 sensitive wildlife species identified above, 3 of these, the Santa Ana sucker, least Bell's vireo, and coastal California gnatcatcher are federally listed as threatened/endangered species and are present within the area.

Santa Ana Sucker: The Santa Ana sucker is federally listed as threatened and a California Department of Fish and Game (CDFG) Species of Special Concern. It is endemic to the south coastal stream of the Los Angeles basin, including the Santa Ana River. The area for the proposed field investigations provides suitable habitat for the Santa Ana sucker within the portions of the Santa Ana River. The area does not contain any critical habitat for the Santa Ana sucker, as designated by USFWS. Based on the CNDDDB, there is a recorded occurrence of this species within the general area of the Santa Ana River. Therefore, the Santa Ana Sucker has a potential to occur within the project area.

Least Bell's Vireo: The least Bell's vireo is both federally and state listed as an endangered species. Suitable habitat for this species occurs within the riparian woodlands of the field investigation area. Least Bell's vireo was previously recorded as occurring within the area as a result of focused surveys conducted by the Santa Ana Watershed Association (SAWA) and the California Department of Transportation in 2005. Because suitable habitat remains undisturbed within the area, the species is assumed to be present.

Coastal California Gnatcatcher: The coastal California gnatcatcher is federally listed as threatened and a CDFG Species of Special Concern. The gnatcatcher is a species with restricted habitat requirements, being an obligate resident of coastal sage scrub habitats that are dominated by coastal sagebrush. Coastal sage scrub communities dominated by California sagebrush, California buckwheat, white sage and black sage are preferred by the species. Coastal California gnat catcher was previously recorded as occurring with the area of the field investigations. Because suitable habitat remains undisturbed, the species is assumed to be present within the area.

Vegetation communities found on USACE lands at APN 101-140-006 and 101-040-064 consist of riparian riverine, coastal sage scrub, coastal sage chaparral scrub, non-native grassland and disturbed habitat. The vegetation within these parcels is potentially suitable habitat for Santa Ana sucker (riparian), least Bell's vireo (riparian), and coastal California gnatcatcher (coastal sage scrub) as illustrated in Figure 3.

The USFWS issued a Biological Opinion (BO) for the SR 91/ SR 71 Interchange Improvement Project on June 2011. USFWS does "not anticipate any adverse effects to vireo or gnatcatcher" with the implementation of avoidance and minimization measures. However, a separate impact finding to threatened and endangered species is required for the proposed on site alternative.

USACE would provide a separate statement regarding the potential effects to threatened and endangered species for the proposed field investigations and biological survey.

4.5.2 On Site Alternative

The proposed action consists of conducting utility field investigations, geotechnical field investigations, and biological surveys on USACE-managed lands as described in the following subsections.

4.5.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.5.4 Potential Environmental Impacts

4.5.4.1 On Site Alternative

Utility and Geotechnical Field Investigation

Vegetation

Field investigation activities may produce temporary impacts to vegetation communities on USACE managed lands due to the mobilization of heavy machinery to conduct borings at USACE approved field investigation sites. Existing vegetation may be up-rooted and crushed during the mobilization of heavy machinery; however, vegetation disturbance would be minimized if the mobilization of equipment follows a designated access route to and from the field investigation sites, which would avoid and/or minimize impacts to vegetation communities. The proposed route to the field investigation sites are illustrated in Figure 3. The designated route has been determined by utilizing previously disturbed areas, existing paths and/or areas over-run by non-native plants. All disturbed vegetation due to the mobilization of equipment will be restored to pre-project conditions, which may include replanting or hydroseeding disturbed areas with native plant species.

Field investigation activities would include the removal of existing vegetation and soil excavation to conduct potholing, and geotechnical borings and trenches. Excavated areas would be backfilled using either native material or fill sand and would be pneumatically compacted, in lifts, to ensure proper compaction.

Due to the mobilization of heavy equipment and excavations, it is also anticipated that the USACE Restoration Project may be temporarily affected due to vegetation disturbance. Newly planted vegetation and hydro-seeded areas within the restoration area could be potentially uprooted and crushed due to mobilization and excavation activities; however, these activities are short-term and implementing minimization measures will ensure the effects of the field investigation on the USACE Restoration Project will not be adverse. These measures include: determine an access route to and from the restoration site with the least impacts on the restoration area, hydroseed disturbed areas with USACE approved seed-mix and restore area to pre-project conditions after field investigation activities have been completed.

Wildlife Species

Mobilization of heavy machinery to conduct borings at USACE approved field investigation sites may temporarily impact wildlife species and their habitat. It is also anticipated that noise associated with the operation of heavy machinery during field excavation activities may intermittently exceed the existing noise levels, which may temporarily affect wildlife species adjacent to the field investigation locations.

To avoid temporary effects, excavating activities would be conducted outside bird breeding season and noise control measures during the operation of heavy machinery or other noise-generating activities would be implemented. Noise control measures may include noise monitoring at excavation sites to ensure noise levels do not exceed ___decibels (dBA). Continuous operation of heavy machinery would not be allowed; heavy machinery operation would be set at pre-determined intervals to minimize potential noise impacts.

To ensure wildlife species are not impacted by excavation activities, a biological survey by a qualified biologist will be conducted two weeks prior to the field investigation activities to determine whether

wildlife species are present within the general area of the proposed potholes, bore holes and trenches. If wildlife is present within the general location of the excavation site, an alternate location would be proposed and USACE will be notified of the new location prior to re-commencing excavation activities.

Because the field investigation activities are temporary and minimization measures will be implemented, no direct or indirect effects are anticipated. Adverse effects on wildlife species are not anticipated with the implementation of minimization measures as identified in Appendix D.

Threatened and Endangered Species

Field investigation activities may produce temporary impacts to threatened and endangered species due to mobilization and excavation activities within USACE managed lands. Vegetation found on USACE lands at APN 101-140-006 and 101-040-064 consist of riparian and coastal sage scrub, which is potentially suitable habitat for Santa Ana sucker (riparian), least Bell's vireo (riparian), and coastal California gnatcatcher (coastal sage scrub). Mobilization of field investigation equipment could potentially result in temporary effects because heavy equipment may up-root and destroy potential habitat for these endangered species. It is also anticipated that noise associated with the operation of heavy machinery during field excavation activities may intermittently exceed the existing noise levels, which may temporarily affect sensitive wildlife species adjacent to the field investigation locations.

To avoid temporary effects, similar avoidance and minimization measures to wildlife species would be implemented, which include: determine an access route from the existing maintenance roads to the field investigation sites; use of already disturbed areas for staging; conduct biological surveys; avoiding riparian and coastal sage scrub habitat; restore disturbed areas to pre-project conditions and implement noise control measures. To further minimize impacts to avian species, the proponent will review the latest SAWA annual Least Bell's vireo data to ensure nesting birds are not present within the project area. Figure 5 illustrates the latest SAWA Least Bell's vireo location within USACE property.

A Biological Opinion was issued by the United States Fish and Wildlife Service (USFWS) for least Bell's vireo and coastal California gnatcatcher in June 2011 for the SR-91/SR-71 Interchange Improvement Project (Appendix E). The Biological Opinion issued by the USFWS includes the area within the proposed field investigation activities and biological surveys; however, the proposed on site alternative is not included in the USFWS's BO. USACE will consult with USFWS to discuss potential effects of the onsite alternative to threatened and endangered species. Based on the informal consultation with USFWS, USACE will provide a statement regarding the effects of the proposed effects on threatened and endangered species. The proponent will follow and implement minimization measures in the BO for SR 91/ SR Interchange Project as well as other additional measures from USACE for the onsite alternative.

Because the field investigation activities are temporary and minimization measures will be implemented, no adverse direct or indirect effects to threatened and endangered species (*Santa Ana Sucker, Least Bell's Vireo and Coastal California Gnatcatcher*) are anticipated because field investigation activities are short-term and would occur outside bird breeding season. Potential adverse effects on threatened and endangered species are anticipated to be minimized with the implementation of minimization measures as identified in Appendix D.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. Based on these procedures, which are standard biological survey practice, no impacts to any biological resources are anticipated.



Figure 5: Least Bell's Vireo Locations

4.5.4.2 No Action

The No Action alternative will have no impacts on biological resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted. Associated potential impacts of these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.5.5 Avoidance/Minimization Measures

4.5.5.1 On Site Alternative

Minimization measures BIO-1 to BIO-8 should be implemented to avoid adverse effects to biological resources as described in Appendix D.

4.5.5.2 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. No minimization measures would be required.

4.5.6 Significance of Impacts

4.5.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

With the implementation of minimization measures, temporary effects on biological resources within the project area are not anticipated with the proposed utility and geotechnical field investigations. There will be no significant adverse effects, permanent and temporary, to biological resources because avoidance and minimization measures would be implemented as described in Appendix D.

Biological Surveys

The finding of no effect on biological resources is anticipated with the proposed biological surveys.

4.5.6.2 No Action

The No Action alternative will have no impacts on biological resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.6 Cultural Resources

4.6.1 Description of Resource and Baseline Conditions

Baseline conditions and impact assessment to cultural resources were derived from the reports listed below:

- California Department of Transportation. June 2011. *SR 91 and SR 71 Interchange Improvement Project Initial Study and Mitigated Negative Declaration*, City of Corona, Riverside County, California
- California Department of Transportation. October 2010. *SR 91 and SR 71 Interchange Improvement Project Archaeological Survey Report*.

- California Department of Transportation. October 2010. *SR 91 and SR 71 Interchange Improvement Project Historic Property Survey Report*.

A Historic Property Survey Report (HPSR) and an Archaeological Survey Report (ASR) were prepared to comply with Section 106 requirements for the SR-91/SR-71 Interchange Improvement Project environmental document. The area of potential affect (APE) includes areas of direct and indirect effects, covering all anticipated project-related activities, including the utility and geotechnical field investigations.

The abovementioned reports analyzed cultural resources within the general location of the proposed field investigation sites. However, the reports prepared for the SR 91/SR 71 Interchange Improvement project does not specifically analyze the potential impacts related to the onsite alternatives. Information and data from the aforementioned reports were utilized to independently analyze and determine the impacts for the proposed on-site alternatives.

Area of potential effect for the field investigation activities include USACE property at APN 101-140-006 and 101-040-064. These areas were included in the previously conducted cultural reports and pedestrian archaeological surveys on August 2008. Native American consultation was also conducted in support of the preparation of the *SR 91/SR 71 Interchange Improvement Project IS/MND*. The following individuals and Native American organizations were contacted :

- Cahuilla Band of Indians; Attn.: Anthony Madrigal, Jr., Chairperson
- Pechanga Band of Mission Indians; Attn.: Paul Macarro, Cultural Resource Center
- Ti'At Society; Attn: Cindi Alvitre
- Gabrielino/Tongva San Gabriel Band of Mission Indians; Attn.: Anthony Morales, Chairperson
- Gabrielino/Tongva Council/Gabrielino Tongva Nation; Attn.: Sam Dunlap, Tribal Secretary
- Pechanga Band of Mission Indians; Attn.: Mark Macarro, Chairperson
- Soboba Band of Luiseno Indians; Attn.: Erica Helms, Cultural Resource Manager
- Juaneno Band of Mission Indians; Attn.: Sonia Johnston, Tribal Vice Chairperson

The abovementioned tribes were invited to participate in the cultural resource survey on August 2008. It should be noted that the cultural resource survey conducted included USACE property (APNs 101-140-006 and 101-040-064) for the proposed field investigations.

4.6.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.6.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.6.4 Potential Cultural Resource Impacts

4.6.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

Based on the records search and field surveys conducted for the SR 91/SR 71 Interchange Improvement Project, no previously recorded National Register of Historic Places/California Register of Historical Resources eligible historic properties/historic resources are located within the APE. The Section 106 finding for the SR 91/SR 71 Interchange Improvement Project is *No Historic Properties Affected*. However, USACE will consult with the State Historic Preservation Officer (SHPO) to obtain a separate cultural resource finding for the proposed on-site alternative.

Because the record searches and field surveys indicated that there are no cultural resources within USACE property, no direct or indirect impacts on cultural resources are expected due to the proposed excavation activities. Therefore, the field investigation activities are not anticipated to produce adverse effects to cultural resources.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. Based on these procedures, which are standard biological survey practice, no impacts to any cultural resources are anticipated.

4.6.4.2 No Action

The No Action alternative will have no impacts on cultural resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.6.5 Avoidance/Minimization Measures

4.6.5.1 On Site Alternative

Although the record search and archaeological survey did not identify the presence of known archaeological cultural resources, if unanticipated cultural resources are encountered during ground-disturbing activities, all such activities within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

Minimization measures CR-1 to CR-2 should be implemented to avoid any potential effects to cultural resources as described in Appendix D.

4.6.5.2 No Action

The No Action alternative will have no impacts on cultural resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.6.6 Significance of Impacts

4.6.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

There would be no effects, permanent and temporary, to cultural resources because avoidance and minimization measures would be implemented as described in Appendix D.

Biological Surveys

The finding of no effect to cultural resources is anticipated with the proposed biological surveys.

4.6.6.2 No Action

The No Action alternative will have no impacts on cultural resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.7 Aesthetics

4.7.1 Description of Resource and Baseline Conditions

Baseline conditions and impact assessment to aesthetics were derived from the reports listed below:

- California Department of Transportation. June 2011. *SR 91 and SR 71 Interchange Improvement Project Initial Study and Mitigated Negative Declaration*, City of Corona, Riverside County, California
- California Department of Transportation. June 2011. *SR 91 and SR 71 Interchange Improvement Project Visual Impact Assessment*, City of Corona, Riverside County, California.

The abovementioned reports analyzed potential visual impacts within the general location of the proposed field investigation sites. However, the reports prepared for the SR 91/SR 71 Interchange Improvement project does not specifically analyze the potential visual impacts related to the onsite alternative. Information and data from the aforementioned reports were utilized to independently analyze and determine the impacts for the proposed on-site alternative.

The prominent topographic features within the project area are characterized by two defining landforms: the Chino Hills to the northwest of the project area and the Prado Basin along the Santa Ana River to the northeast. To the south are the foothills of the Santa Ana Mountains, although these are not as prominent as the Chino Hills are within the project area. In general, the project area sits within the basin formed by the Santa Ana River. Much of the surrounding landscape is higher than the field investigation/biological survey site. These sites are generally located along SR-91 and SR-71 and are not a prominent topographic feature within the Prado Basin and Chino Hills. The project site is visible from a residential population south of the SR 91, but it is not a designated scenic site. Existing views of the site consist primarily of low-laying vegetation and trees dispersed throughout USACE property. The project area currently does not receive any artificial light at night beyond that from the lighting on SR-91 and SR-71.

4.7.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.7.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.7.4 Potential Aesthetic Impacts

4.7.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

A majority of the field investigation will be conducted in disturbed or developed areas within the Prado Basin. Residents' views of the Prado Basin may be temporarily obstructed by the field investigations. Potential changes to the existing landscape include the presence of heavy machinery, equipment and vehicles at various locations within USACE property at APNs 101-140-006 and 101-040-064; however, this impact is temporary and will cease after the field investigation is complete, which would be completed within a timeframe of 6 months. Use of night-time lighting is not expected because activities will occur during daylight hours (7 a.m. to 5 p.m.). USACE will be notified if field investigation work will occur outside daylight hours.

As discussed previously, the visual characteristic of the site consist of primarily of a vegetated environment. Minor vegetation removal and disturbance may occur due to mobilization of equipment and machinery. No trees are expected to be removed. Disturbed and/or removed vegetation would be replanted or re-seeded once field investigation activities cease.

Based on this information, the field investigation activities will have no permanent or temporary direct or indirect impacts on aesthetics within the area of the proposed field investigation sites and biological survey area.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. Survey staff will avoid wetlands and other jurisdictional resources during the biological surveys. Based on these procedures, which are standard biological survey practice, no impacts to any water resources are anticipated.

4.7.4.2 No Action

The No Action alternative will have no impacts on aesthetics. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.7.5 Avoidance/Minimization Measures

4.7.5.1 On Site Alternative

Field investigation activities will be limited to the locations indicated in Appendices A. Minimization measure AES-1 should be implemented to avoid adverse effects to aesthetics as described in Appendix D.

4.7.5.2 No Action

The No Action alternative will have no impacts on aesthetics. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.7.6 Significance of Impacts

4.7.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

Field investigation activities and biological survey are not anticipated to adversely affect the aesthetics of the area. There will be no significant adverse effects, permanent and temporary, to aesthetics because avoidance and minimization measures would be implemented as described in Appendix D.

Biological Surveys

The finding of no effect on aesthetics is anticipated with the proposed biological surveys.

4.7.6.2 No Action

The No Action alternative will have no impacts on aesthetics. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.8 Noise

4.8.1 Description of Resource and Baseline Conditions

Baseline conditions and impact assessment to aesthetics were derived from the reports listed below:

- California Department of Transportation. June 2011. *SR 91 and SR 71 Interchange Improvement Project Initial Study and Mitigated Negative Declaration*, City of Corona, Riverside County, California
- California Department of Transportation. October 2010. *SR 91 and SR 71 Interchange Improvement Project Noise Study Report*, City of Corona, Riverside County, California.

The abovementioned reports analyzed potential noise impacts within the general location of the proposed field investigation sites. However, the reports prepared for the SR 91/SR 71 Interchange Improvement project does not specifically analyze the potential noise impacts related to the onsite alternative. Information and data from the aforementioned reports were utilized to independently analyze and determine the impacts for the proposed on-site alternative.

Existing noise levels within the vicinity of the field investigation sites consist primarily of traffic noise from the SR-91 and SR-71 roadways and from nearby train tracks, residential, recreational, commercial, retail, and industrial land uses. According to the Noise Study Report (Parsons, 2010) prepared in support of the environmental document for the SR-91/SR-71 Interchange Improvement Project, existing ambient noise levels during the peak hour range from 61 to 73 decibels (dBA).

4.8.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.8.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.8.4 Potential Noise Impacts

4.8.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

The Noise Study Report analyzed potential temporary noise impacts related to preconstruction and construction activities. Because the field investigation activities will use construction equipment commonly used on roadway construction projects, the field investigations are anticipated to generate noise levels ranging from 80 to 89 A-weighted decibels (dBA) at a distance of 50 feet. Noise produced by construction equipment will be reduced over distance at a rate of approximately 6 dB per doubling of distance. Noise levels at the field investigation sites will be intermittent with varying intensity; however, the nearest sensitive receptors are located approximately 0.5-mile to the west and south of USACE property. Because of the distance of the field investigation locations to sensitive receptors, noise generated by construction equipment will not significantly affect sensitive receptors within the area. In addition, existing ambient traffic noise from the SR 91 and SR 71 would drown out the noise from excavation activities. Based on the equipment to be used for the field investigations, the on-site alternative does not require the use of pile driving or other demolition related machinery, which are considered to be on the higher end of the noise-generating equipment.

Although field investigation activities on USACE property are anticipated to last approximately 6 months, the operation of heavy machinery is not anticipated to operate daily during this entire period. There are a total of 11 excavation sites related to field investigation and all of the equipment identified in Section 2 would not continuously operate 8 hours a day, 5 days a week at a single location.

During field investigation activities, vehicle and equipment-related noise may intermittently dominate the noise environment in the immediate area of each field investigation site; however, no adverse noise impacts from the activities are anticipated because construction related noise will be conducted in accordance with Caltrans' Standard Specifications and will be short term, intermittent, and dominated by local traffic noise. As opposed to general construction activities, the proposed on-site activities does not include greater noise generating activities such as pile driving and demolition. Temporary adverse effects related to construction noise are not anticipated with the implementation of minimization measures to address construction noise.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. Based on these procedures, which are standard biological survey practice, no noise impacts are anticipated.

4.8.4.2 No Action

The No Action alternative would not produce noise-related impacts. Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted. Associated potential impacts of these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.8.5 Avoidance/Minimization Measures

4.8.5.1 On Site Alternative

Construction will be conducted in accordance with Caltrans' Standard Specifications. Minimization measures N-1 to N-3 should be implemented to avoid adverse noise effects as described in Appendix D.

4.8.5.2 No Action

The No Action alternative will not produce noise related effects. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.8.6 Significance of Impacts

4.8.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

Field investigation activities would not produce significant adverse noise effects, permanent and temporary because avoidance and minimization measures would be implemented as described in Appendix D.

Biological Surveys

Noise related impact finding of no effect is anticipated with the proposed on-site biological surveys.

4.8.6.2 No Action

The No Action alternative will have would not produce noise-related impacts. Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.9 Recreation Resources

4.9.1 Description of Resource and Baseline Conditions

Baseline conditions and impact assessment to recreational resources were derived from the report listed below:

- California Department of Transportation. June 2011. *SR 91 and SR 71 Interchange Improvement Project Initial Study and Mitigated Negative Declaration*, City of Corona, Riverside County, California

The abovementioned report analyzed potential recreational impacts within the general location of the proposed field investigation sites. However, the report prepared for the SR 91/SR 71 Interchange Improvement project does not specifically analyze the on-site alternative's potential impacts on recreational resources. Information and data from the aforementioned report was utilized to independently analyze and determine the impacts for the proposed on-site alternative.

Research was conducted to determine whether publicly owned parks, recreation areas, wildlife or waterfowl refuge, or land from a historic sites were within 0.5-mile of the project alternatives. One publicly owned park (Chino Hills State Park [CHSP]) located adjacent to the proposed field

investigation and biological survey sites is identified as a Section 4(f) and 6(f) resource. CHSP is located west of USACE managed-lands and north of the SR-91.

CHSP is a natural open-space area in the hills of Santa Ana Canyon near Riverside, which serves as a critical link in the Puente-Chino Hills biological corridor. CHSP is vitally important as a refuge to many types of plants and as a link between natural areas essential to the survival of many animals. Its nearly 14,100 acres encompass stands of oaks, sycamores, and rolling, grassy hills that stretch nearly 31 miles from the Santa Ana Mountains to the Whittier Hills. The existing amenities at CHSP include onsite parking, picnic areas, an equestrian staging area, pipe corrals, a historic barn, water spigots, campsites, restrooms, and more than 60 miles of hiking, biking, and equestrian trails.

The Prado Dam is not considered a recreational facility; however, the Prado Basin Park located approximately 4 miles northeast of the project site on River Road in the eastern portion of the Prado Basin is considered as a recreational facility.

4.9.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.9.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.9.4 Potential Recreation Resource Impacts

4.9.4.1 On Site Alternative

Chino Hills State Park is generally located west of the survey area and will not be affected by the field surveys. Field investigation activities will avoid parks and recreational areas and would not affect access to and from CHSP. Potential impacts to recreational facilities are not expected.

4.9.4.2 No Action

The No Action alternative will have no impacts on recreation resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.9.5 Avoidance/Minimization Measures

4.9.5.1 On Site Alternative

Field investigations will avoid parks and recreational areas. No avoidance/minimization measures are required.

4.9.5.2 No Action

The No Action alternative will have no impacts on recreation resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands.

4.9.6 Significance of Impacts

4.9.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

Since recreational resources are outside of the onsite alternative area, the field investigation activities are not anticipated to affect recreational resources.

Biological Surveys

Since recreational resources are outside of the onsite alternative, area, impacts to recreational resources are not anticipated with the proposed biological surveys.

4.9.6.2 No Action

The No Action alternative will have no impacts on recreation resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.10 Health and Safety

4.10.1 Description of Resource and Baseline Conditions

Baseline conditions and impact assessment to health and safety were derived from the reports listed below:

- California Department of Transportation. June 2011. *SR 91 and SR 71 Interchange Improvement Project Initial Study and Mitigated Negative Declaration*, City of Corona, Riverside County, California.
- California Department of Transportation. August 2010. *SR 91 and SR 71 Interchange Improvement Project Initial Site Assessment Phase 1*, City of Corona, Riverside County, California

The abovementioned reports analyzed potential health and safety impacts within the general location of the proposed field investigation sites. However, the report prepared for the SR 91/SR 71 Interchange Improvement project does not specifically analyze the on-site alternative's potential impacts on health and safety. Information and data from the aforementioned report was utilized to independently analyze and determine the impacts for the proposed on-site alternative.

Within the general area of the field investigation sites, one known or suspected hazardous material contamination site has been identified from the Emergency Response Notification System database. In 1991, 130 gallons of an oxidizing acid was spilled along the roadside on SR-71 approximately 0.5-mile north of SR-91. Only the land adjacent to the SR-71 was affected and clean-up was supervised by Caltrans. The occurrence of this incident is not within USACE property.

4.10.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.10.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.10.4 Potential Health and Safety Impacts

4.10.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

There are no expected direct or indirect impacts on human health and safety because the field investigation activities will be limited to the locations indicated in Appendix A. According to the Initial Site Assessment prepared for the SR-91/71 Interchange Improvement Project, all of the recognized environmental conditions near the proposed field investigation sites have been remediated and have obtained regulatory certification; therefore, there are no hazardous waste/materials that will pose as a health and safety risk in the area where the field investigations will be conducted.

Field investigation activities consist of utilizing water and biodegradable drilling mud on USACE property and would not utilize chemicals or other potentially hazardous materials. Spill and hazardous waste prevention during field investigation activities would utilize Caltrans Spill Prevention Best Management Practice (BMP) WM-4. Potential spills during field investigation activities would most likely come from engines and biodegradable drilling mud. If motor oil or other motor fluid leaks are observed from the motors of the vehicles or excavation equipment on-site, plastic tarp will be placed beneath the leak. Maintenance of vehicles and excavation equipment will not occur on-site. Information on spill prevention BMPs are provided in Appendix G.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. The biological survey will follow health and safety procedures as it relates to field workers and other staff. Based on these procedures, which are standard biological survey practice, no impacts to health and safety are anticipated.

4.10.4.2 No Action

The No Action alternative will have no impacts on health and safety resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.10.5 Avoidance/Minimization Measures

4.10.5.1 On Site Alternative

No avoidance or minimization measures are required.

4.10.5.2 No Action

The No Action alternative will have no impacts on health and safety resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not

be conducted on USACE-managed lands. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.10.6 Significance of Impacts

4.10.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

There will be no significant effects to health and safety.

Biological Surveys

The finding of no effect on health and safety is anticipated with the proposed biological surveys.

4.10.6.2 No Action

The No Action alternative will have no impacts on health and safety. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.11 Flood Risk Management

4.11.1 Description of Resource and Baseline Conditions

The Santa Ana River Mainstem Project is located along a 75-mile reach of the Santa Ana River in Orange, Riverside and San Bernardino counties. The plan for flood control improvements includes three principal features:

- Lower river channel modification for flood control along the 30.5 miles of the Santa Ana River from Prado Dam to the Pacific Ocean.
- Construction of Seven Oaks Dam (about 38 miles upstream of the existing Prado Dam)
- Enlargement of Prado Dam to increase reservoir storage capacity from 217,000 acre-feet to 362,000 acre-feet.

Within the parameters of the field investigation activities and biological surveys, flood risk management facilities of the Santa Ana Main Stem Project within the Prado Basin includes Prado Dam, the Santa Ana River Outlet Channel, the spillway channel, the wastewater treatment dike, and the Temescal Creek dike.

4.11.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.11.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.11.4 Potential Flood Risk Management Impacts

4.11.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

Field investigation activities include excavation along the levee of the Santa Ana River, which include: 2 geotechnical borings (B2 and B3), 2 utility potholes (P1 and P3) and 1 CPT sounding (C1). Field investigations would not significantly affect any flood control efforts or facilities within or downstream of the project area. Excavation activities are temporary in a nature and consist of minor ground disturbance. Excavation activities at this location will not discharge spoils or pollutant into the Santa Ana River or to the flood control facility. No direct or indirect impacts on existing federal flood control projects are expected because field investigation activities will implement minimization measures during excavation activities within federal flood control facilities and restore disturbed areas to pre-project conditions. Proposed excavation locations and designated path to and from field investigation sites are provided in Appendix D.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. Surveys would not be conducted within flood control facilities. No impacts to any flood control management facilities are anticipated.

4.11.4.2 No Action

The No Action alternative will have no impacts on flood management resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.11.5 Avoidance/Minimization Measures

4.11.5.1 On Site Alternative

Minimization measure FRM-1 should be implemented to avoid adverse effects to flood control facilities as described in Appendix D.

4.11.5.2 No Action

The No Action alternative will have no impacts on flood management resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.11.6 Significance of Impacts

4.11.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

The proposed field investigation activities will have no effect on existing flood control facilities and/or projects.

Biological Surveys

The proposed biological surveys will have no effect on existing flood control facilities and/or projects.

4.11.6.2 No Action

The No Action alternative will have no impacts on flood management resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.12 Socioeconomics and Environmental Justice

4.12.1 Description of Resource and Baseline Conditions

The field investigation and biological survey area consist of open space, a federal flood control facility and government property. The project site does not: consist of a population, provide housing or provide a means to add to the population in the area, or consist of industrial or commercial land uses that are sources of employment. There are no known future plans within USACE property to develop to other land uses that could affect socioeconomics and environmental justice within the area.

4.12.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.12.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.12.4 Potential Socioeconomic Impacts

4.12.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

Field investigation locations is not within residential, industrial and/or commercial uses and does not support a population. Land uses within the project area consists of open space and flood control facility. Because of the absence of a population within USACE property, there would be no effects to socioeconomic and environmental justice populations.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. Surveys would be conducted in open space. No impacts to socioeconomics and environmental justice populations are anticipated.

4.12.4.2 No Action

The No Action alternative will have no impacts on socioeconomic or environmental justice resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.12.5 Avoidance/Minimization Measures

4.12.5.1 On Site Alternative

No avoidance or minimization measures are required.

4.12.5.2 No Action

The No Action alternative will have no impacts on socioeconomic or environmental justice resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.12.6 Significance of Impacts

4.12.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

The proposed field investigation activities will have no effect on socioeconomic or environmental justice resources.

Biological Surveys

The proposed biological surveys will have no effect on socioeconomic or environmental justice resources.

4.12.6.2 No Action

The No Action alternative will have no impacts on socioeconomic or environmental justice resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.13 Traffic and Transportation

4.13.1 Description of Resource and Baseline Conditions

The field investigation and biological survey sites consists of open space, a federal flood control facility and government property. The area within USACE property does not provide roadway facilities that are part of the local or regional traffic circulation network. However, the project site does have maintenance and emergency access to SR-71, located approximately 0.5 mile north of SR-91.

4.13.2 On Site Alternative

The proposed on site alternative consist of conducting utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands.

4.13.3 No Action

Under the No Action Alternative, utility field investigations, geotechnical field investigations and biological surveys on USACE-managed lands would not be conducted on USACE-managed lands.

4.13.4 Potential Traffic Impacts

4.13.4.1 On Site Alternative

Utility and Geotechnical Field Investigations

The area within USACE property does not provide roadway facilities that are part of the local or regional traffic circulation network. An access road to SR-71 is located approximately 0.5 miles north of the SR-91. Equipment staging areas are located outside the existing access roadway and transportation facilities. Because the proposed field investigation activities would be conducted outside existing roadways, the proposed On-Site alternative is not anticipated to alter existing traffic circulation or worsen traffic conditions. Mobilization of equipment will occur within USACE property, which does not contain any public roadways. The field investigations would not generate additional traffic to the existing circulation pattern, nor will they modify existing traffic because field investigation activities are temporary.

Biological Surveys

Biological surveys will be conducted on foot and activities will be limited to a visual assessment only. Surveys would be conducted in open space, away from local and regional roadways. No impacts to traffic and circulation are anticipated.

4.13.4.2 No Action

The No Action alternative will have no impacts on socioeconomic resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur. The No Action alternative would not meet the Purpose and Need of the proposed project.

4.13.5 Avoidance/Minimization Measures

No avoidance or minimization measures are required.

4.13.6 Significance of Impacts

4.13.6.1 On Site Alternative

Utility and Geotechnical Field Investigations

Field investigation activities will not affect traffic within or adjacent to the project site.

Biological Surveys

Biological surveys will not affect traffic within or adjacent to the project site.

4.13.6.2 No Action

The No Action alternative will have no impacts on socioeconomic resources. Under the No Action Alternative, utility field investigations, geotechnical field investigations, and biological surveys would not be conducted on USACE-managed lands. Potential impacts associated with these activities would not occur.

4.14 Cumulative Impacts

A cumulative impact is an “impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions” (40 CFR 1508.7). Cumulative impacts can result from individually minor, but collectively significant, actions taking place over time (40 CFR 1508.7). CEQA’s guidance for considering cumulative effects states that NEPA documents “should compare the cumulative effects of multiple actions with appropriate national, regional, state, or community goals to determine whether the total effect is significant” (CEQA 2012).

Table 4-2 summarizes the related past, present, and reasonably foreseeable projects that have or could impact the environmental resources within the project area.

4.14.1 Past

The project site is in an area that has experienced an increase in growth. The cities of Corona, Norco, Chino, and Chino Hills have increased in population, resulting in urbanization, increased traffic, and increased demands on water and land resources. As a result of the growth and to minimize the potential for downstream flooding, USACE has upgraded Prado Dam and the downstream flood control facilities. Construction of the flood control facilities, surrounding developments, and improved transportation facilities has contributed to the cumulative environmental impacts to the area. In addition, operation and maintenance activities of transportation and flood control facilities contribute to additional environmental impacts to resources; however, with the improved flood control facilities and access on the USACE property, the project site currently provides more functionality when compared to the conditions of the site prior to implementation of the USACE mainstem project.

Cumulative impacts from the related projects that have already been completed have affected water quality, water resources, air quality, noise, and the biological environment. Development within and around the project site has increased the introduction of invasive species, pollutants, and human disturbance within the natural areas of the project site.

4.14.2 Present

The existing USACE property and flood control facility will continue to be operational with implementation of the field investigation and ongoing projects. The proposed action may add to the cumulative effects from ongoing construction activities adjacent to the site, including the USACE Reach 9 Phase IIA bank protection project. Cumulatively, the biological and water resources within the project area may be most affected in the short term; however, effects from the field investigation would be negligible when compared to the large-scale projects occurring concurrently.

4.14.3 Future

The USACE property and flood control facility will continue to be operational in the future even with implementation of the field investigation and related projects. With implementation of all of the related projects, the biological environment and water resources will be affected; however, each project will include minimization and compensatory measures to maintain the integrity of the existing environment. Implementation of the proposed action will not have significant adverse effects, nor will it contribute heavily to the cumulative effects to resources within the project area.

Table 4-2: Related Projects

Name	Jurisdiction	Proposed Activity	Status
SR-91 Eastbound (EB) Lane Addition Project between SR-241 and SR-71	Caltrans	One additional EB general-purpose (GP) lane on SR-91 between SR-241 and SR-71.	Completed in 2011.
New Westbound (WB) and Eastbound Lane Additions SR-55 to SR-241	Caltrans	One additional general purpose lane in each direction on SR-91 between SR-55 and SR-241.	Anticipated to be completed by 2015.
SR-91 Corridor Improvement Project	Caltrans	Conversion of an existing high-occupancy vehicle (HOV) lane to a high-occupancy toll (HOT) lane; Conversion of an existing GP lane to an HOT lane; Addition of a GP lane between SR-241 and SR-71; Improvements to the SR-91 WB off-ramp to SR-71 northbound (NB); and Improvements to the SR-71 southbound (SB) ramp to SR-91 EB. Construct a second left-turn lane on the SR-91 WB exit ramp to Green River Road; Construct a third right-turn lane on the SR-91 EB exit ramp to Green River Road; and Construct a third SB through lane along Green River Road south of the SR-91 EB exit ramp.	Anticipated to be completed by 2015 or 2035.
SR-71 Widening and Corridor A	Caltrans	SR-71 Widening: Extension of the six-lane SR-71 freeway south for approximately 3 miles from its current terminus at the San Bernardino County line to SR-91. Corridor A: A proposed 4-lane toll facility parallel to SR-91 between SR-241 and I-15.	Construction is anticipated between 2015-2035.
USACE Santa Ana River Interceptor Line Realignment	USACE	Santa Ana River Interceptor Line repair and partial realignment of the pipeline.	In construction. Construction to be completed by July 2013.
USACE Santa Ana River Mainstem Project Reach 9 Phase IIA and IIB	USACE	Provide improvements to the USACE flood control system by realigning the Santa Ana River and constructing bank protection for adjacent developments.	Phase IIA: In construction Phase IIB: Construction anticipated to be completed by October 2012.
USACE Santa Ana River Flood Control Project Auxiliary Dike and Floodwall	USACE	Auxiliary dike and floodwall will provide additional flood protection for the Santa Ana River mainstem project and protect the SR-91 freeway corridor from flooding.	In construction. Construction anticipated to be completed by December 2012.
Commercial Development (APN 101140004)	Corona	Commercial Development (2.5 acres) adjacent to WB SR-91, located approximately 1,500 feet east of the Green River Road overcrossing.	Application submitted in 2004, but no activity or proposed completion date identified.
APN 101040004	County of Riverside	5 Oil Production Wells along SR-71.	Unknown.
APN 101040007	County of Riverside	Surface Mining along SR-71.	Unknown.

Name	Jurisdiction	Proposed Activity	Status
APN 101050004	County of Riverside	3 Oil Production Wells along SR-71.	Unknown.

5.0 APPLICABLE ENVIRONMENTAL LAWS AND REGULATIONS

The draft EA fulfills the requirements of NEPA and other pertinent laws and regulations discussed below.

5.1 National Environmental Policy Act Compliance

NEPA is the nation's primary charter for protection of the environment. It establishes the national environmental policy that provides a framework for federal agencies to minimize environmental damage and requires federal agencies to evaluate the potential environmental impacts of their proposed actions. Under NEPA, a federal agency must prepare an environmental assessment (EA) describing the environmental effects of any proposed action having a significant impact on the environment. The EA must identify measures necessary to avoid or minimize adverse impacts resulting from the proposed action or determine if further analysis is required and prepare an Environmental Impact Statement (EIS). This proposed action is in compliance with the Act.

5.2 U.S. Fish and Wildlife Coordination Act (16 U.S.C. 661)

This Act requires federal agencies to coordinate with the USFWS and with local and state agencies when any stream or body of water is proposed to be modified. The intent is to give fish and wildlife conservation equal consideration with other purposes of water resources development projects. The proposed action would not involve modification of a body of water; therefore, formal coordination and preparation of a Coordination Act Report is not required.

5.3 Endangered Species Act of 1973 (Public Law 93-205, as amended)

The Endangered Species Act (ESA) protects threatened and endangered species, as listed by the USFWS, from unauthorized take, and directs federal agencies to ensure that their actions do not jeopardize the continued existence of such species. ESA Section 7 defines federal agency responsibilities for consultation with the USFWS. The Act requires preparation of a biological assessment to address the effects on listed and proposed species of a project. Due to the disturbed, park-like landscape of the proposed location, no impacts to listed or proposed species are expected. This proposed action would be in compliance with the Act.

5.4 Migratory Bird Treaty Act

The Migratory Bird Treaty Act (MBTA) prohibits the taking or harming of any migratory bird, its eggs, nests, or young without an appropriate federal permit. Almost all native birds are covered by this Act, as well as any bird listed in wildlife treaties between the United States and several countries, including Great Britain, Mexican States, Japan, and countries once part of the former Soviet Socialist Republics. A "migratory bird" includes the living bird, any parts of the bird, its nests, or its eggs. The take of all migratory birds is governed by the MBTA's regulation of taking migratory birds for educational, scientific, and recreational purposes and requiring harvest to be limited to levels that prevent over-utilization. Section 704 of the MBTA states that the Secretary of the Interior is authorized and directed to determine if, and by what means, the take of migratory birds should be allowed and to adopt suitable regulations permitting and governing take. Disturbance of the nest of a migratory bird requires a permit issued by the USFWS pursuant to 50 CFR. This proposed action would be in compliance with the Act.

5.5 Clean Water Act

The Clean Water Act (CWA) Section 404 (b) prohibits the discharge of dredged or fill materials into the waters of the United States, including wetlands, except as permitted under separate regulations by the USACE and the U.S. Environmental Protection Agency (USEPA).

Under CWA Section 404, the USACE regulates discharges of dredged or fill material into “Waters of the United States,” including wetlands. “Waters of the United States” is defined in 33 CFR 328.3 as follows:

- All waters that are currently used, or were used in the past or may be susceptible to use in interstate or foreign commerce;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams, (including intermittent streams), the use, degradation or destruction of which could affect interstate or foreign commerce;
- All impoundment of waters otherwise defined as Waters of the United States under the definition; and
- Tributaries of waters, defined above.

The USACE does not require or issue itself permits, although nationwide permits may be applied to USACE projects and are thus considered when addressing compliance under Section 404 (b) (1). Pursuant to 40 CFR 230.10, for all Waters of the United States, only the least environmentally damaging practicable alternative (LEDPA) can be permitted. The proposed action does not involve discharge of dredged or fill material in waters of the United States; therefore, a 404 (b)(1) permit is not required.

For the same reason, the on-site alternative does not require State Water Quality Certification under CWA Section 401. The on-site alternative would not require a storm water pollution prevention plan (SWPPP) under the National Pollutant Discharge Elimination System under CWA Section 402. This proposed action is in compliance with the Act.

5.6 Clean Air Act of 1970 (42 U.S.C. 7401 et seq.)

1977 Amendments to the Clean Air Act enacted legislation to control seven toxic air pollutants. USEPA adopted National Emission Standards for Hazardous Air Pollutants (NESHAP), which has been designed to control hazardous air pollutant (HAP) emissions to prevent adverse health effects in humans.

1990 Amendments to the Clean Air Act determine the attainment and maintenance of National Ambient Air Quality Standards (NAAQS; Title I), motor vehicles and reformulation (Title II), hazardous air pollutant (Title III), acid deposition (Title IV), operating permits (Titles V), stratospheric ozone protection (Title VI), and enforcement (Title VII).

General Conformity. Under Section 176(c) of the Clean Air Act Amendments (CAAA) of 1990, the lead agency is required to make a determination of whether the proposed action “conforms” to the State Implementation Plan (SIP). Conformity is defined in CAAA Section 176(c) as compliance with the SIP’s purpose of eliminating or reducing the severity and number of violations of the NAAQS and achieving expeditious attainment of such standards. However, if the total direct and indirect emissions from the proposed action are below the General Conformity Rule *de minimis* emission thresholds, the proposed action would be exempt from performing a comprehensive air quality conformity analysis and would be considered to be in conformance with the SIP.

The proposed on-site alternative would not have a significant impact on air quality. The total emissions of each criteria pollutant either meets or is below *de minimis* levels as prescribed in 40 CFR 93.153(b). The action is not considered to be regionally significant. Although there would be an incremental increase in vehicle use, it would be temporary and emissions are expected to be minimal and below the *de minimis* thresholds and thus would not violate national or state standards. As a result, the proposed action would have no long-term impacts on local or regional air quality.

Therefore, this proposed on-site alternative conforms to the Federal Clean Air Act as amended 1990 and as required. This on-site alternative is in compliance with the Act.

5.7 Noise Control Act of 1972, as amended (42 U.S.C. 4901 et seq.)

Noise generated by any activity and that may affect human health or welfare on federal, state, county, local, or private lands, must comply with noise limits specified in the Noise Control Act. The proposed on-site alternative is temporary in nature and will comply with the Act.

5.8 National Historic Preservation Act (Public Law 89-665; 16 U.S.C. 470–470m, as amended, 16 U.S.C. 460b, 470l–470n)

The proposed on-site alternative is in compliance with Section 106 of this Act, as implemented by 36 CFR 800. The proposed on-site alternative would not impact cultural resources

5.9 Archaeological Resources Protection Act, as amended

The Act requires oversight when cultural resources may be impacted when working on federal lands or in case of other work-related federal connections. The Act allows for the preservation of historical and archeological data (including relics and specimens) that might otherwise be irreparably lost or destroyed. The proposed action is in compliance with the Act because it is not anticipated that buried or other cultural resources will be affected by the project.

5.10 Uniform Fire Code

The Uniform Fire Code (UFC) contains provisions regarding the storage and handling of hazardous materials. These provisions are contained in Articles 79 and 80, most recently revised in 1997 (UFC 1997). These articles contain minimum setback requirements for storage of materials. The on-site alternative would be in compliance with the UFC.

5.11 Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

The Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) provides the USEPA with the authority to identify and clean up contaminated hazardous waste sites. Individual states may implement hazardous waste programs under Resource Conservation and Recovery Act RCRA with USEPA approval. California has not yet received this USEPA approval; instead, the California Hazardous Waste Control Law (HWCL) is administered by the California Environmental Protection Agency (Cal-EPA) to regulate hazardous wastes. Although the HWCL is generally more stringent than RCRA, until the USEPA approves the California program, both the state and federal laws apply in California. CERCLA also contains enforcement provisions for the identification of liable parties. It details the legal claims that arise under the statute and provides guidance on settlements with the USEPA. Section 120 of this Act addresses hazardous waste cleanups at federal facilities and requires the creation of a Federal Agency Hazardous Waste Compliance Docket, which lists facilities that have the potential for hazardous waste problems. In addition, a Hazardous Substance Superfund was established to pay not only the USEPA cleanup and enforcement costs and certain natural resource damages, but also to pay for certain claims of private parties. Conformance with this law would only be engaged if unforeseen waste was found or was abandoned on site. The on-site alternative is in compliance with this Act because no such CERCLA substances are involved with, or are locally stored for, the on-site alternative activities.

5.12 National Flood Insurance Program

The National Flood Insurance Program (NFIP) is administered by the Federal Emergency Management Agency's (FEMA's) Flood Insurance Administration. The flood control capacity of the Basin would not be impacted by the proposed on-site alternative; therefore, NFIP users would not be affected.

5.13 Federal Water Project Recreation Act of 1965, as amended

This Act requires that any federal water project must give full consideration to opportunities afforded by the project for outdoor recreation and fish and wildlife enhancement. The proposed on-site alternative would be temporary in nature, and normal park use would resume within 48 hours, in accordance with USACE's Special Events Policy.

5.14 Federal Land Policy and Land Management Act of 1976

The Act regulates management of the public lands and their various resource values so that resources are used in a combination that will best meet the present and future needs of the American people. The proposed action would provide recreation and cultural opportunities to the public, thus meeting the intent of the Act.

5.15 Americans with Disabilities Act of 1990, as amended (42 USC 126, et seq.)

The Americans with Disabilities Act (ADA) prohibits public entities, defined as any state or local government, or division thereof, from excluding any individual with a disability from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any such entity. A “qualified individual with a disability” is an individual with a disability who, with or without reasonable modifications to rules, policies, or practices, the removal of architectural, communication, or transportation barriers, or the provision of auxiliary aids and services, meets the essential eligibility requirements for the receipt of services or the participation in programs or activities provided by a public entity. By providing the appropriate number of universal access (UA) parking spaces, by having the appropriate number of UA “porta-potties” available, and in other ways making the project accessible, the project would be in compliance with the Act.

5.16 Executive Order 11988: Floodplain Management

Executive Order (EO) 11988 was signed by President Jimmy Carter on May 24, 1977, and was published in 42 Federal Register (FR) 26351. Its purpose is to “...avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.”

Each agency will provide leadership, take action to reduce the risk of flood loss, and minimize the impact of floods on human safety, health, and welfare. Agencies will restore and preserve natural and beneficial values served by the floodplains. Each agency also has the responsibility to evaluate potential effects of federal action that may be taken within floodplains. Each agency will ensure planning and budget requests reflect consideration of flood hazards and floodplain management. This on-site alternative would not adversely impact floodplain management or add to excessive floodplain development because this on-site alternative is temporary in nature.

5.17 Executive Order 12088: Federal Compliance with Pollution Control Standards

The head of each executive agency is responsible for ensuring that all necessary actions are taken for the prevention, control, and abatement of environmental pollution with respect to federal facilities and activities under control of the agency. Enactment of environmental commitments to minimize pollution impacts during the on-site alternative would meet the standards of this EO.

5.18 Executive Order 12898: Environmental Justice Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

EO 12898 was signed on February 11, 1994. This order was intended to direct federal agencies “To make achieving environmental justice part of its mission by identifying and addressing... disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations in the [U.S.]...”

No minority or low-income communities would be disproportionately affected by implementation of the proposed on-site alternative. The proposed on-site alternative is in compliance with this EO.

6.0 PREPARERS

Consultant (Parsons Corporation)

Stephanie Blanco, AICP - Principal Environmental Planner

James Santos -Environmental Planner

7.0 SUMMARY OF MITIGATION MEASURES OF THE PROPOSED ACTION AND OF ALTERNATIVES

Applicable mitigation/minimization measures outlined in the SR-91/SR-71 Interchange Improvement Project environmental document will be applied to address potential impacts at the field investigation site locations and activities, and during biological surveys. Mitigation/minimization measures are provided in Appendix E.

8.0 AGENCY COORDINATION

USACE has coordinated with RCTC extensively regarding the scope and schedule of the field investigation. To ensure compliance with federal and state environmental regulations, RCTC along with Caltrans District 8, coordinated with USFWS, State Historic Preservation Officer (SHPO), USACE, and state regulatory agencies during the project approval phase of the SR-91/SR-71 Interchange Improvement Project. As a result of the coordination, minimization and compensatory measures have been incorporated into the project and can be applied to the field investigation activities. Additional coordination with the regulatory agencies may be necessary to verify effects during the field investigation.

9.0 RESPONSE TO COMMENTS

10.0 REFERENCES

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California Department of Transportation, 2011. SR 91 and SR 71 Interchange Improvement Project Habitat Assessment. March.

California Department of Transportation, 2010. Historic Property Survey Report (HPSR).

California Department of Transportation, 2010. Archaeological Survey Report (ASR).

11.0 RECOMMENDATION

The Asset Management Division recommends that no significant impacts have been identified with respect to the Proposed Action.

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APPENDIX A UTILITY AND GEOTECHNICAL FIELD INVESTIGATION SITE LOCATIONS

APPENDIX B BIOLOGICAL FIELD SURVEY MAP

APPENDIX C SUMMARY MATRIX OF PROPOSED FIELD INVESTIGATION ACTIVITIES

Table C-1: Field Investigation and Biological Survey Descriptions for Right-of-Way Permit

Survey Description		Surveyors	Location(s)	Duration	Activities
1.	Subsurface Utility Pothole Investigation	Kana Pipeline and Parsons	APN 101-140-006 (see Appendix C for specific locations).	Activities to occur between July 1, 2012, and December 31, 2012, from 7:00 a.m. to 5:00 p.m.	Expose existing underground utilities using vacuum excavation. Potholes are 1-foot by 1-foot and will be backfilled with native material and fill sand.
			APN 101-040-004 (see Appendix C for specific locations).		
2.	Geotechnical Field Investigation	Earth Mechanics and Parsons	APN 101-140-006 (see Appendix C for specific locations).	Activities to occur between July 1, 2012, and December 31, 2012, from 7:00 a.m. to 5:00 p.m.	Conduct exploratory boreholes, Cone Penetration Test and geological trenches at various locations. Approximately 45 boreholes would be excavated at depths between 10 and 150 feet below existing grades. Trenches ranging from 5 to 15 feet long would be excavated.
			APN 101-040-004 (see Appendix C for specific locations).		
3.	Biological Surveys	Ecorp and Parsons	APN 101-140-006.	Surveys will be conducted during early 2013 (spring) for approximately 2 weeks between 7:00 a.m. and 7:00 p.m.	Conduct pedestrian and visual surveys of sensitive plant and animal species.
			APN 101-040-004.		

APPENDIX D

MINIMIZATION AND MITIGATION MEASURES

No.	Description of Commitment	Responsible Party/ Monitor	Timing/Phase	Task Completed (Sign and Date)	Commitment Source	Comments
The minimization measures indicated in this table were derived from the SR-91/SR-71 Interchange Improvement Project Environmental Document. Other minimization measures have also been added beyond those identified the SR-91/SR-71 Interchange Improvement Project Environmental Document. Field investigation and biological survey activities will adhere and/or implement the measures outlined in this table to minimize potential effects to environmental resources.						
WATER RESOURCES						
<i>HYDROLOGY AND FLOODPLAIN</i>						
FP-1	To minimize impacts to the floodplain during field investigation, the project will implement temporary field investigation measures as indicated under Section Water Quality and Stormwater Runoff.	Contractor (during field investigation)	Implement during field investigation.		EA	
FP-2	If field investigation is occurring within the Zone A floodplain, then the contractor will ensure that the area will be returned to its original state after field investigation is completed to maintain the integrity of the floodplain.	Contractor (during field investigation)	Implement recommendation after field investigation.		EA	
<i>WETLANDS AND OTHER WATERS</i>						
WOW-1	To avoid impacts to potentially jurisdictional resources, a qualified biologist will clearly identify a route to the field investigation sites that avoids wetlands and other waters within the project area.	Contractor (prior to field investigation)	Implement prior to field investigation.		EA	
WOW-2	Construction fencing will be used to clearly demarcate nearby water resources to avoid potential impacts during the field investigation activities	Contractor (prior to and during field investigation)	Implement prior to and during field investigation.		EA	
<i>WATER QUALITY AND STORMWATER RUNOFF</i>						
WQ-1	Conform all work to the Field investigation Site Best Management Practice (BMP) (Category II) requirements specified in the latest edition of the Caltrans Storm Water Management Plan (SWMP) to control and minimize the impacts of field investigation and field investigation-related activities, materials, and pollutants on the watershed. These include, but are not limited to, temporary sediment control, temporary soil stabilization, scheduling, waste management, materials handling, and other non-stormwater BMPs.	Contractor (during field investigation)	BMPs should be implemented during field investigation.		EA; CWA 402	
WQ-2	Give special attention to stormwater pollution control during the rainy season, which is defined by the State Water Resources Control Board (SWRCB) as year round. Appropriate soil stabilization and sediment controls will be implemented when rain is predicted. Water Pollution Control BMPs will be used to minimize	Contractor (during field investigation)	Implement recommendations during field investigation.		EA	

No.	Description of Commitment	Responsible Party/ Monitor	Timing/Phase	Task Completed (Sign and Date)	Commitment Source	Comments
	impacts to receiving waters.					

No.	Description of Commitment	Responsible Party/ Monitor	Timing/Phase	Task Completed (Sign and Date)	Commitment Source	Comments
AIR QUALITY						
AQ-1	<p>In addition to the South Coast Air Quality Management District (SCAQMD) rules, the following mitigation measures set forth a program of air pollution control strategies that will ensure that field investigation emissions will not exceed any applicable standard. Measures 1 and 2 include fugitive dust reduction strategies, in addition to Rule 403 requirements. Measures 3 through 5 provide reduction for other contaminants, including nitrogen oxide (NO_x) emissions.</p> <ol style="list-style-type: none"> 1. In addition to SCAQMD Rule 403 requirements, apply water to all trenching areas as necessary to remain visibly moist during active operations. 2. Apply nontoxic soil stabilizers, as needed, to reduce offsite transport of fugitive dust from unpaved staging areas and unpaved road surfaces. 3. Properly tune and maintain field investigation equipment and vehicles in accordance with manufacturer's specifications. Low-sulfur fuel shall be used in field investigation equipment per California Code of Regulations (CCR) Title 17, Section 93114. 4. During field investigation, keep trucks and vehicles in loading/ unloading queues with their engines off when not in use to reduce vehicle emissions. Phase field investigation activities to avoid emissions peaks, where feasible, and discontinue during second-stage smog alerts. 5. To the extent feasible, use field investigation equipment that is either equipped with diesel oxidation catalyst or is powered by alternative fuel sources (e.g., methanol, natural gas). 6. Active field investigation areas shall be watered regularly to control dust and minimize impacts to adjacent vegetation. <p>All measures provided above and included in SCAQMD Rule 403 and 1403 that are applicable to the project field investigation activities shall be implemented to the extent feasible to avoid adverse short-term air quality impacts.</p>	Contractor (during field investigation)	Minimization measures will be conducted during field investigation.		EA; SCAQMD Rule 403	

No.	Description of Commitment	Responsible Party/ Monitor	Timing/Phase	Task Completed (Sign and Date)	Commitment Source	Comments
BIOLOGICAL RESOURCES						
BIO-1	The limits of grading required for all aspects of the interchange and field investigation staging areas will be clearly marked, and all field investigation areas, including staging of field investigation equipment, will be surveyed.	Contractor (during field investigation)	The limits of grading of the project and staging areas will be delineated prior to field investigation.		EA	
BIO-2	Equipment storage, fueling, and staging areas will be sited on non-sensitive upland habitat types with minimal risk of direct discharge into riparian areas or other sensitive habitat types.	Contractor (during field investigation)	Equipment storage, fueling, and staging areas will be sited on non-sensitive upland habitat during field investigation.		EA	
BIO-3	During field investigation, the placement of equipment within the stream or on adjacent banks or adjacent upland habitats occupied by Sensitive wildlife Species that are outside of the project footprint will be avoided.	Contractor (during field investigation)	Avoidance of placing equipment within the stream or adjacent banks will be followed during field investigation.		EA	
BIO-4	When work is conducted during the fire season, as identified by the Riverside County Fire Department, adjacent to coastal sage scrub or chaparral vegetation, appropriate fire-fighting equipment (e.g., extinguishers, shovels, and water tankers) shall be available on the site during all phases of project field investigation to help minimize the chance of human-caused wildfires. Shields, protective mats, and/or other fire preventative methods shall be used during grinding, welding, and other spark-inducing activities. Personnel trained in fire hazards, preventive actions, and responses to fires shall advise contractors regarding fire risk from all field investigation-related activities.	Contractor (during field investigation)	Fire-fighting equipment will be present during field investigation.		EA	
BIO-5	All equipment maintenance, staging, and dispensing of fuel, oil, coolant, or any other toxic substances shall occur only in designated areas within the grading limits of the project site. These designated areas shall be clearly marked and located in such a manner as to contain runoff.	Contractor (during field investigation)	All toxic substances shall occur only in designated areas during field investigation.		EA	

No.	Description of Commitment	Responsible Party/ Monitor	Timing/Phase	Task Completed (Sign and Date)	Commitment Source	Comments
BIO-6	Waste, dirt, rubble, or trash shall not be deposited on native habitat. No erodible materials will be deposited into water courses. Brush, loose soils, or other debris material will not be stockpiled within stream channels or on adjacent banks. Silt fencing or other sediment trapping materials will be installed at the downstream end of field investigation activities to minimize the transport of sediments offsite.	Contractor (during field investigation)	Implement during field investigation.		EA	
BIO-7	In accordance with the Migratory Bird Treaty Act, to avoid effects to nesting birds, any native or exotic vegetation removal or tree-trimming activities will occur outside of the nesting bird season (i.e., March 1 through June 30 within Riverside County). If vegetation clearing is necessary during the nesting season, a qualified biologist will conduct a pre-field investigation survey to identify the locations of nests. Should nesting birds be found, an exclusionary buffer will be established by the biologist. This buffer will be clearly marked in the field by field investigation personnel under guidance of a qualified biologist, and field investigation will not be conducted within this zone until the biologist determines that the young have fledged or the nest is no longer active.	Contractor	Implement measure during the field investigation.		EA	
BIO-7	In compliance with the Executive Order on Invasive Species, EO 13112, and subsequent guidance from Federal Highway Administration (FHWA), the landscaping and erosion control included in the project will not use species listed as noxious weeds. In areas of particular sensitivity, extra precautions will be taken if invasive species are found in or adjacent to the field investigation areas. These include the inspection and cleaning of field investigation equipment and eradication strategies to be implemented should an invasion occur.	Caltrans/ RCTC (prior to field investigation); Resident Engineer/ Contractor (during field investigation)	Landscaping and erosion control measures shall be decided prior to field investigation. Inspection and cleaning of equipment shall occur during field investigation.		EA	
CULTURAL RESOURCES						
CR-1	Though no archaeological resources are anticipated to be encountered during field investigation, if cultural materials are discovered during the field investigation, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.	Contractor (during field investigation)	Implement recommendation during field investigation		EA	

No.	Description of Commitment	Responsible Party/ Monitor	Timing/Phase	Task Completed (Sign and Date)	Commitment Source	Comments
CR-2	If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall cease in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the Native American Heritage Commission (NAHC), who will then notify the Most Likely Descendent (MLD).. Further provisions of PRC 5097.98 are to be followed as applicable.	Contractor (during field investigation)	Implement during field investigation		EA	
VISUAL/AESTHETICS						
AES-1	Save and protect as much existing vegetation as feasible, especially trees.	Contractor (during field investigation)	Saving and protecting existing vegetation shall be implemented during field investigation.		EA	
NOISE						
N-1	In case of field investigation noise complaints by the public, the field investigation manager will be notified and noise monitoring will be conducted if necessary.	Contractor (during field investigation)	Noise monitoring will be implemented during field investigation (if applicable).		EA	
N-2	All equipment will have sound-control devices no less effective than those provided on the original equipment. No equipment will have an unmuffled exhaust.	Contractor (during field investigation)	Sound control devices will be implemented during field investigation.		EA	
N-3	Truck loading, unloading, and hauling operations will be conducted so that associated noise impacts are kept to a minimum by carefully selecting routes to avoid going through residential neighborhoods to the greatest possible extent.	Contractor (during field investigation)	Truck activities will be monitored during field investigation.		EA	
UTILITIES/EMERGENCY SERVICES						
U/ES-1	To minimize the risk of wildfire during the field investigation, the contractor shall ensure that all vehicles are equipped with fire extinguishers and shovels, as well as provide other fire-fighting equipment at the field investigation site. Inspection of all equipment is required to ensure compliance with minimum safety standards. Access to all fire hydrants, if any, and fire department vehicle access along the project site and Santa Ana River watershed area will be provided.	Contractor	Implement during field investigation.		EA	

No.	Description of Commitment	Responsible Party/ Monitor	Timing/Phase	Task Completed (Sign and Date)	Commitment Source	Comments
FLOOD RISK MANAGEMENT						
FRM-1	Field investigation equipment from the staging area to the field investigation locations will be mobilized so that it avoids federal flood control projects. Excavation activities within flood plain facilities would be avoided	Contractor (during field investigation)	Implemented during field investigation.		EA	

**APPENDIX E USFWS-ISSUED BIOLOGICAL OPINION FOR
SR-71/SR-91 INTERCHANGE PROJECT**

APPENDIX F WILD LIFE SPECIES COMPENDIA

APPENDIX G CALTRANS SPILL PREVENTION BMP WM-04