Interstate 10 (I-10)/Cherry Valley Boulevard Interchange Project

CITY OF CALIMESA, RIVERSIDE COUNTY, CALIFORNIA
DISTRICT 8 – RIV – 10 (PM R2.1/R3.8)
08-0G170/0800000190

**Initial Study
with Mitigated Negative Declaration/
Environmental Assessment
with Finding of No Significant Impact**

Prepared by the
State of California, Department of Transportation
County of Riverside, and the City of Calimesa

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated May 27, 2022, and executed by the FHWA and Caltrans.

Caltrans

November 2023

General Information About This Document

What's in this document:
The California Department of Transportation (Caltrans), as assigned by the Federal Highway Administration (FHWA), has prepared this Initial Study/Environmental Assessment (IS/EA), which examines the potential environmental impacts of the alternatives being considered for the proposed project located in the City of Calimesa, Riverside County, California. Caltrans is the lead agency under the Natural Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The document tells you why the project is being proposed, what alternatives have been considered for the project, how the existing environment could be affected by the project, the potential impacts of each of the alternatives, and the proposed avoidance, minimization, and/or mitigation measures.

The Initial Study/Draft Environmental Assessment circulated to the public for 32 days between December 23, 2021 and January 24, 2022. The public review end date was extended to February 14, 2022 to provide additional time for public and agency review and comment. Comments received during this period are included in Chapter 4.

Elsewhere throughout this document, the phrase "The following text has been amended since the Draft Environmental Document:" indicates a change made since the draft document circulation. Minor editorial changes and clarifications have not been so indicated. Additional copies of this document and the related technical studies are available for review at the City of Calimesa, City Hall, 908 Park Avenue, Calimesa, California 92320; and the Calimesa Library, 974 Calimesa Boulevard, Calimesa, California 92320. This document may be downloaded at the following websites: https://rcprojects.org/ and https://www.cityofcalimesa.net.

For individuals with sensory disabilities, this document can be made available in Braille, in large print, on audiocassette, or on computer disk. To obtain a copy in one of these alternate formats, please write to or call Department of Transportation, Attn: Shawn Oriaz, Senior Environmental Planner, 464 W. 4th Street, 6th floor, San Bernardino, CA 92401-1400; (909) 501-5743; or use the California Relay Service 1-800-735-2929 (TTY to Voice), 1-800-735-2922 (Voice to TTY), 1-800-855-3000 (Spanish TTY to Voice and Voice to TTY), 1-800-854-7784 (Spanish and English Speech-to-Speech), or 711.

SCH #2021120553
08-RIV-10-PM R2.1/R3.8
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PN 0800000190

Construction of interchange improvements at Interstate 10 (I-10) and Cherry Valley Boulevard, located at Post Mile (PM) Revised (R) 3.5 between PM R2.1 and PM R3.8 on I-10 in the City of Calimesa, County of Riverside, California.

INITIAL STUDY
with Mitigated Negative Declaration/
ENVIRONMENTAL ASSESSMENT
with Finding of No Significant Impact

Submitted Pursuant to: (State) Division 13, California Public Resources Code
(Federal) 42 USC 4332(2)(C)

THE STATE OF CALIFORNIA
Department of Transportation
and
Responsible Agencies: Riverside County Transportation Department and City of Calimesa

11/2/2023
Date of Approval

Kurt Heidelberg
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CALIFORNIA DEPARTMENT OF TRANSPORTATION FINDING OF NO SIGNIFICANT IMPACT (FONSI)

FOR

(Interstate 10/Cherry Valley Boulevard Interchange Project)

The California Department of Transportation (Caltrans), County of Riverside Transportation Department and City of Calimesa have determined that Alternative 3 (Diverging Diamond Interchange), the Preferred Alternative, will have no significant impact on the human environment. This FONSI is based on the attached Environmental Assessment (EA), which has been independently evaluated by Caltrans and determined to adequately and accurately discuss the need, environmental issues, and impacts of the proposed project and appropriate mitigation measures. It provides sufficient evidence and analysis for determining that an Environmental Impact Statement (EIS) is not required. Caltrans takes full responsibility for the accuracy, scope, and content of the attached EA (and other documents as appropriate).

The environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 USC 327 and the Memorandum of Understanding dated May 27, 2022, and executed by FHWA and Caltrans.

11/1/2023	Kurt Heidelberg
Date	Kurt Heidelberg Deputy District Director District 8 Division of Environmental Planning California Department of Transportation CEQA/NEPA Lead Agency

Mitigated Negative Declaration

Pursuant to: Division 13, Public Resources Code

Project Description

The City of Calimesa (City), in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside Transportation Department (County), is proposing to upgrade and reconfigure the existing I-10/Cherry Valley Boulevard Interchange (project) from Post Mile (PM) R2.1 to R3.8, located in north-western Riverside County. The project would upgrade and reconfigure Cherry Valley Boulevard at Interstate 10 (I-10) and realign Calimesa Boulevard to improve traffic flow within the project area. Cherry Valley Boulevard would be widened to two lanes in each direction within the project limits. Sidewalks and bicycle facilities would be provided along Cherry Valley Boulevard to allow pedestrian access along the corridor. Right-turn pockets would be provided approaching the westbound on-ramp and eastbound on-ramp. Channelized turning would also be added on Cherry Valley Boulevard to connect to Calimesa Boulevard, which would have a signalized stop control at Calimesa Boulevard turning onto Cherry Valley Boulevard. On- and off-ramps at the interchange would be realigned and reconstructed to multilane ramps. The entry ramps in both directions will accommodate California Highway Patrol (CHP) enforcement areas and ramp metering that reduce to a single lane entering the freeway. A 1,300-foot-long auxiliary lane would be added to the eastbound off-ramp and a 3,400 foot long westbound on-ramp to provide additional storage.

Determination

Caltrans has prepared an Initial Study (IS) for this project, and following public review, has determined from this IS that the project would not have a significant effect on the environment for the reasons discussed below.

The I-10/Cherry Valley Boulevard Interchange Project would have no effect on the following resources: Mineral Resources, Land Use and Planning, and Recreation.

In addition, the I-10/Cherry Valley Boulevard Interchange Project would have less than significant effects to: Aesthetics, Agriculture and Forest Resources, Air Quality, Cultural Resources, Energy, Hazards and Hazardous Materials, Hydrology and Water Quality, Noise, Population and Housing, Public Services, Transportation, Tribal Cultural Resources, Utilities and Service Systems, and Wildfire.

With mitigation measures incorporated, the project would have less than significant effects to Biological Resources, Geology and Soils (paleontological resources), and Greenhouse Gas Emissions:

WET-1 The following text has been amended since the Draft Environmental Document: The following regulatory approvals shall be obtained prior to commencement of any construction activities within the identified jurisdictional areas: 1) A determination from USACE via an Approved Jurisdictional Determination (AJD) or a Preliminary Jurisdictional Determination (PJD); 2) RWQCB CWA Section 401 Water Quality Certification (WQC) or a Waste Discharge Requirements (WDR); 3) CDFW Section 1602 Streambed Alteration Agreement (SAA); and 4) a determination from CDFW/USFWS via a Determination of Biologically Equivalent or Superior Preservation (DBESP). As part of the regulatory approval process, the project shall purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts shall be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, shall be developed in conjunction with the wildlife agencies.

PAL-2 Prior to the commencement of ground-disturbing activities, a Principal Paleontologist who meets the Caltrans qualification standards shall be retained to prepare and implement a Paleontological Mitigation Plan (PMP) for the project. The project's PMP shall develop mitigation measures based on the assigned sensitivity rankings as well as the proposed depths of ground disturbance throughout the project area, as surface and near-surface geologic units are well documented while geologic units at greater depths remain undocumented. Depending on the proposed project's excavation depths, the type of monitoring shall be one of the following:

- For areas categorized as High Potential: Full-time monitoring shall be required for disturbance at all depths in selected areas with intact sediments. In subareas of High Potential, monitoring efforts shall be reduced or eliminated at the discretion of the Principal Paleontologist if no fossil resources are encountered after 50 percent of the excavations are completed.
- For areas categorized as Low Potential: Spot-check monitoring is recommended for disturbance in particular areas at four feet or greater below ground surface (bgs) in intact sediments. If High Potential geologic units are encountered at depth in those particular locations during spot-check monitoring, those subareas shall be elevated to High Potential and monitoring shall be upgraded to full-time.

Monitoring shall not be required for excavations less than four feet bgs in subareas with Low Potential or within any subareas with artificial fill. Although monitoring is not typically required in subareas of Low Potential, spot-check monitoring shall be implemented at the discretion of the Principal Paleontologist to confirm the presence of subsurface

High Potential geologic units. In particular, deeper excavations of approximately 12 to 25 feet bgs for items such as bridge abutments, bent footings, and overhead sign foundations shall be spot-checked, as these construction activities may impact High Potential geologic units at depth.

All monitoring shall include the visual inspection of excavated or graded areas, trench sidewalls, spoils, and any other disturbed sediment. In the event that a paleontological resource is discovered, either the Principal Paleontologist or approved on-site paleontological monitor shall have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and collected. Additionally, test samples of sediments from geologic units with High Potential shall be collected and screened on site to determine the presence of fossils in the small grain-size fractions. If significant small-fraction fossils are discovered during the test sampling, larger bulk samples of sediments may be collected for further processing in the laboratory. The recommended sampling shall follow best practice procedures in mitigation paleontology.

CC-1 The project will incorporate facilities to promote mobility for pedestrians and bicyclists, including sidewalks, crosswalks, and bicycle buffers.

CC-2 A Transportation Management Plan (TMP) will be prepared during the final design phase to minimize traffic delays and idling during construction.

CC-3 The project will incorporate the use of energy-efficient lighting, such as LED traffic signals, to help reduce the project's CO_2 emissions.

CC-4 The project will incorporate complete streets components, specifically pedestrian sidewalks and turn-lane bicycle buffers along Cherry Valley Boulevard.

CC-5 The project will implement landscaping as determined during final design in coordination with the City of Calimesa and the Caltrans District Landscape Architect. This landscaping will include energy- and water-efficient irrigation systems and native plants as appropriate, to conserve energy and help offset any potential CO_2 emissions increase.

CC-6 The project will recycle construction debris as practicable.

CC-7 The following text has been amended since the Draft Environmental Document: Tree removals required for project implementation will be subject to tree removal permit(s) associated requirements for replacement consistent with the City of Calimesa Zoning Code, Chapters 18.70 and 18.80 and Caltrans Project Development Procedures Manual (PDPM).

CC-8 Idling is limited to five minutes for delivery and dump trucks and other diesel-powered equipment (with some exceptions).

GHG-1 According to the Caltrans' Standard Specifications, the contractor must comply with all local Air Pollution Control District's (APCD) rules, ordinances, and regulations for air quality restrictions. This includes CARB's anti-idling rule (Section 2489 of the California Code of Regulations) and South Coast Air Quality Management District's (SCAQMD) Rule 2449 (In-Use Mobile Source Emission Reduction Programs).

GHG-2 According to the Caltrans Standard Specifications, idling time for lane closure during construction will be limited to 10 minutes in each direction. In addition, the contractor will comply with all SCAQMD rules, ordinances, and regulations regarding air quality restrictions.

GHG-3 The project will maintain equipment in proper tune and working condition. Construction equipment fleets will be in compliance with Best Available Control Technology requirements.

GHG-4 Bids will be solicited that include use of energy and fuel-efficient fleets in accordance with current practices.

GHG-5 The project will use cement blended with the maximum feasible amount of fly ash or other materials that reduce GHG emissions from cement production.

GHG-6 The project will incorporate design measures to reduce GHG emissions from solid waste management through solid waste reduction, recycling, and reuse.

GHG-7 The project will utilize energy- and fuel-efficient vehicles and equipment that meet and exceed U.S. EPA/NHTSA/CARB standards relating to fuel efficiency and emission reduction.

GHG-8 The project will use the minimum feasible amount of GHG-emitting construction materials.

Kurt Heidelberg

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Deputy District Director
District 8 Division of Environmental Planning
California Department of Transportation

11/1/2023
Date of Approval

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Chapter 1 Proposed Project

National Environmental Policy Act Assignment

The following text has been amended since the Draft Environmental Document: California participated in the “Surface Transportation Project Delivery Pilot Program” (Pilot Program) pursuant to 23 United States Code (USC) 327, for more than five years, beginning July 1, 2007, and ending September 30, 2012. MAP-21 (P.L. 112-141), signed by President Obama on July 6, 2012, amended 23 USC 327 to establish a permanent Surface Transportation Project Delivery Program. As a result, the California Department of Transportation (Caltrans) entered into a Memorandum of Understanding pursuant to 23 USC 327 (National Environmental Policy Act [NEPA] Assignment Memorandum of Understanding [MOU]) with the Federal Highway Administration (FHWA). The NEPA Assignment MOU became effective October 1, 2012 and was renewed on May 27, 2022 for a term of ten years. In summary, Caltrans continues to assume FHWA responsibilities under NEPA and other federal environmental laws in the same manner as was assigned under the Pilot Program, with minor changes. With NEPA Assignment, FHWA assigned, and Caltrans assumed all of the United States Department of Transportation (USDOT) Secretary’s responsibilities under NEPA. This assignment includes projects on the State Highway System and Local Assistance Projects off of the State Highway System within the State of California, except for certain categorical exclusions that FHWA assigned to Caltrans under the 23 USC 326 CE Assignment MOU, projects excluded by definition, and specific project exclusions.

1.1 Introduction

Caltrans, as assigned by the FHWA, is the lead agency under the NEPA. Caltrans is also the lead agency under the California Environmental Quality Act (CEQA). The following text has been amended since the Draft Environmental Document: The City of Calimesa (City), in cooperation with Caltrans and the County of Riverside Transportation Department (County), proposes to upgrade and reconfigure Cherry Valley Boulevard at Interstate 10 (I-10) to improve traffic flow within the project area. The proposed Cherry Valley Boulevard interchange would be located on I-10 at Post Mile (PM) R3.5, between PM R2.1 and PM R3.8, in the City of Calimesa, within Riverside County. The existing I-10/Cherry Valley Boulevard interchange is located on I-10 between Singleton Road and Oak Valley Parkway; refer to Figure 1-1, Regional Vicinity, and Figure 1-2, Site Vicinity.

The I-10/Cherry Valley Boulevard interchange is a major access point for existing and proposed residential and commercial development. The existing configuration is a diamond interchange, with all-way stop control at the ramp termini. The on- and off-ramps at the interchange consist of one lane.

Figure 1-1: Regional Vicinity

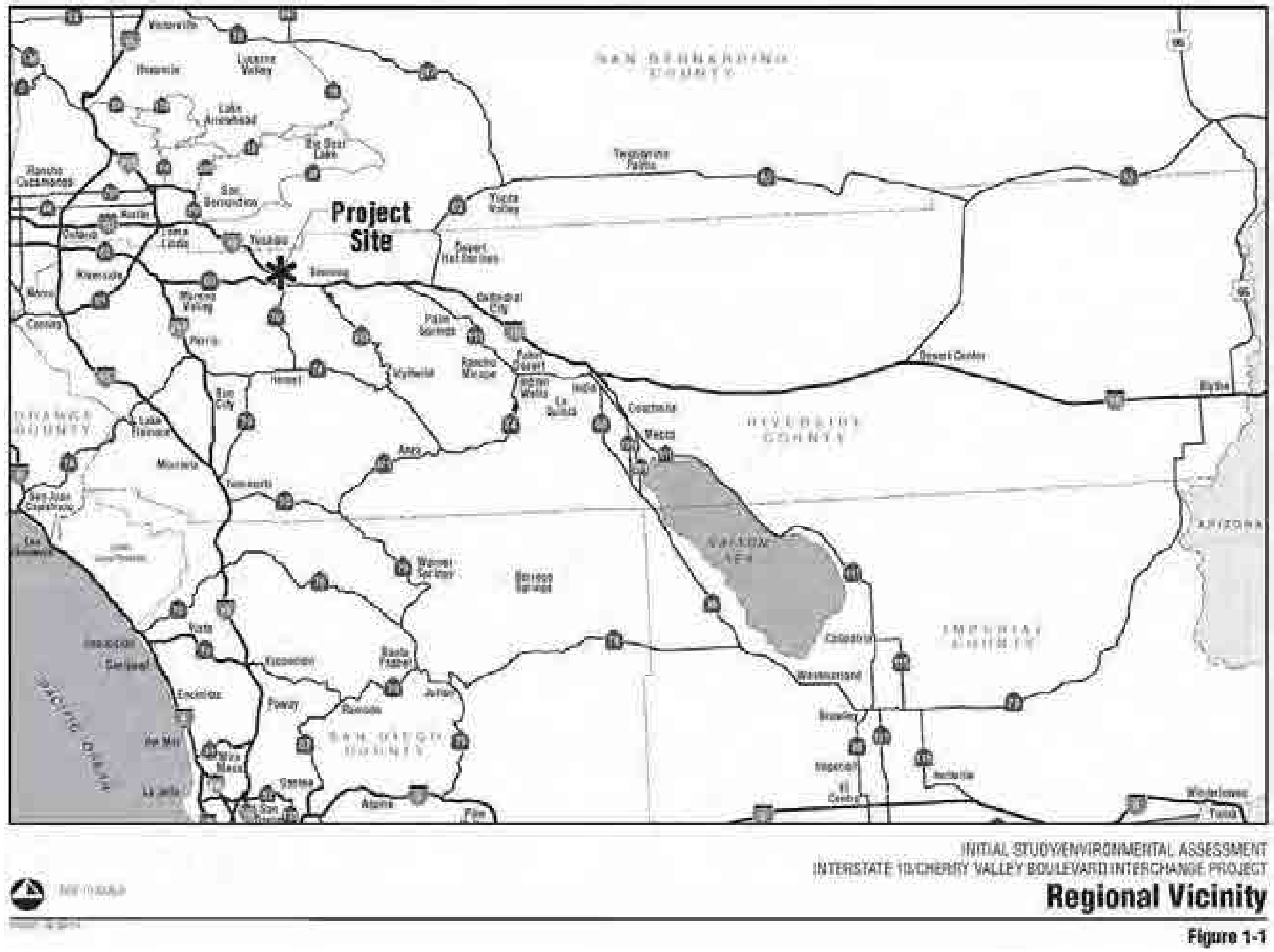
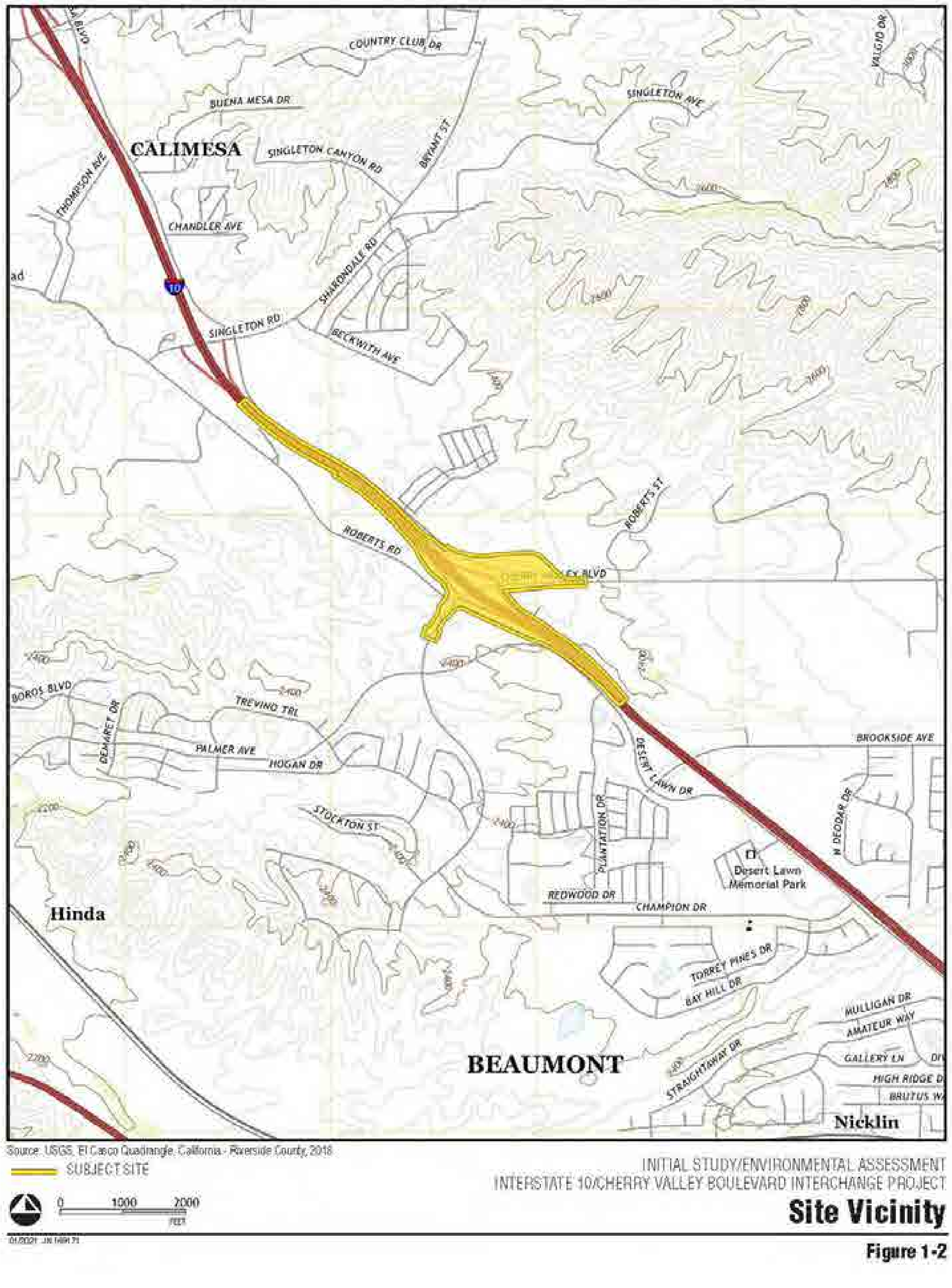


Figure 1-2: Site Vicinity



1.1.1 Existing Facilities

Interstate 10

Within the project area, I-10 is a six-lane divided freeway with three 12-foot-wide, mixed flow lanes in each direction, and 16-foot-wide inside and 12-foot-wide outside shoulders. A concrete barrier separates the eastbound and westbound lanes of traffic. The existing right-of-way (ROW) width is 200 to 300 feet with access control on either side, where applicable.

The following text has been amended since the Draft Environmental Document: I-10 is included in the National Highway System (NHS), the Rural and Single Interstate Routing System (RSIRS), and the Strategic Highway Corridor Network (STRAHNET). It is also a Surface Transportation Assistance Act (STAA) Route for use by oversized trucks. As part of an overall goods movement corridor and network, the interchange facilitates a mixture of public and private freight. The segment within the project limits is functionally classified as an Urbanized Freeway.

I-10 is a major transportation route that connects the City of Calimesa to Los Angeles and San Bernardino counties to the west, and the State of Arizona to the east. It is functionally classified as an Interstate and is included in the State Freeway and Expressway System. Based on historic aerials of the project site, the portion of I-10 within the project limits was constructed prior to 1954.

The 2017 I-10 Transportation Concept Report (TCR) shows that six lanes (which includes both directions) are required on I-10 through the project limits to attain a Level of Service (LOS) “E” rating. The project is consistent with the identified goals of the TCR and is recognized as one of the strategies to achieve the corridor concept.

Cherry Valley Boulevard

Cherry Valley Boulevard begins at the Noble Street intersection, approximately four miles east of I-10, which then travels westerly through the City of Calimesa, and travels southwest, west of I-10, and ends at the Fairways residential community. Within the project area, Cherry Valley Boulevard is a two-lane roadway, one lane in each direction, with a posted speed limit of 35 miles per hour west of the interchange and a posted speed limit of 55 miles per hour east of the interchange. Per the City of Calimesa’s General Plan, dated August 4, 2014, Cherry Valley Boulevard is classified as a Major Arterial. The Cherry Valley Boulevard Overcrossing (OC) (PM R3.05, Bridge Number 56-0481) is a four-span, concrete-girder bridge constructed in 1965 and is approximately 273 feet long, 47 feet wide, and crosses six lanes of traffic over I-10.

1.1.2 Project Programming

The following text has been amended since the Draft Environmental Document: The project will be locally funded with Transportation Uniform Mitigation Funds (TUMF) administered by the Western Riverside Council of

Governments. Federal funding is being considered for this project via Congestion Mitigation and Air Quality Improvement (CMAQ) funds. At this time, no State funding has been identified for this project. The estimated project cost for Build Alternative 3 is $59,644,000 and for Build Alternative 4 is $62,511,000. The project is included in the Southern California Association of Governments (SCAG)'s 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) [Project ID RIV060116], as well as the 2023 Federal Transportation Improvement Program (FTIP) [Project ID RIV060116]. The project entry in the 2023 FTIP identifies the following scope of work: "I-10/Cherry Valley Blvd. ("Boulevard") IC ("Interchange"): Replacement of existing curved overcrossing extending 1800 linear feet from Roberts Road (south) to approximately 500 ft ("feet") E/O ("east of") Calimesa Blvd. Associated project improvements include realignment of Calimesa Blvd. and ramp realignment for all four ramps with minor ramp widening. Add WB ("westbound") AUX ("Auxiliary") lane (Cherry Valley IC to Singleton IC-Approx. 3200') (CMAQ PM 2.5 Benefits Project)."

1.2 Purpose and Need

1.2.1 Purpose

The following text has been amended since the Draft Environmental Document.

The purpose of the project is to:

- Improve traffic operations at the Interstate 10 (I-10)/Cherry Valley Boulevard interchange;
- Address increased travel associated with existing and planned development anticipated in the City of Calimesa and surrounding areas; and
- Improve existing interchange geometry and close gaps in pedestrian and bicycle facilities.

1.2.2 Need

The following text has been amended since the Draft Environmental Document: Due to expected continuing increases in traffic volumes associated with planned development in the project area, the interchange is not expected to satisfy applicable operational performance standards by the design horizon year of 2045. Additionally, the existing gaps in pedestrian and bicycle infrastructure across the interchange break the multi-modal connection between communities and businesses on either side of I-10. Lastly, the existing ramp alignments, ramp intersections, and Cherry Valley Boulevard contain nonstandard geometric features. Without the project, the operation of the interchange is expected to deteriorate, resulting in increased congestion, delays, energy consumption, and air pollution.

Transportation Demand and Safety

Project alternatives were analyzed within the Traffic Operations Analysis Report (dated November 2020) prepared for the project under the existing year (2019), opening year (2025), and design year (2045) conditions. The study scenarios for traffic operations analysis include the following:

- Existing (2019) Conditions
- Opening Year (2025) No-Build Alternative
- Opening Year (2025) Build Alternative 3 - Diverging Diamond
- Opening Year (2025) Build Alternative 4 - Partial Cloverleaf
- Design Year (2045) No-Build Alternative
- Design Year (2045) Build Alternative 3 - Diverging Diamond
- Design Year (2045) Build Alternative 4 - Partial Cloverleaf

A full description of the No-Build Alternative, Build Alternative 3, and Build Alternative 4 is included in Section 1.4, Alternatives.

Capacity and Level of Service

This section describes the existing and forecast traffic data for intersection, roadway segment, and expressway traffic operational conditions, and accident review. Traffic forecasts were developed for study facilities as part of the Interstate 10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA 0G170) Traffic Operations Analysis Report (see Appendix C of the Traffic Operations Analysis Report [Traffic Report] for the project, dated December 2020). The study area consists of study intersections along Cherry Valley Boulevard (between Palmer Avenue to the south and Calimesa Boulevard to the north), the I-10 mainline eastbound and westbound segments between Singleton Road and Oak Valley Parkway, and I-10 ramp intersections at Singleton Road, Cherry Valley Boulevard, and Oak Valley Parkway; refer to Figure 2.1.9-1, Traffic Study Area. The study facilities are identified below and were evaluated during the weekday AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak hours at study intersections and mainline/ramp locations and on a weekday basis for study arterial roadway segments.

Study Intersections

The following intersections were studied:

- I-10 Eastbound On-Ramp / Singleton Road
- I-10 Westbound Off-Ramp / Singleton Road
- Cherry Valley Boulevard / Palmer Avenue / Desert Lawn Drive
- Cherry Valley Boulevard / Roberts Road
- I-10 Eastbound Off/On-Ramps / Cherry Valley Boulevard
- I-10 Westbound Off/On-Ramps / Cherry Valley Boulevard

- Cherry Valley Boulevard / Calimesa Boulevard
- I-10 Eastbound Off/On-Ramps / Oak Valley Parkway
- I-10 Westbound Off/On-Ramps / Oak Valley Parkway

I-10 Mainline Segments

The following I-10 eastbound mainline segments were studied:

- I-10 Merge from Singleton Road
- I-10 Mainline between Singleton Road and Cherry Valley Boulevard
- I-10 Diverge to Cherry Valley Boulevard
- I-10 Mainline between Cherry Valley Boulevard and Oak Valley Parkway
- I-10 Diverge to Oak Valley Parkway

The following I-10 westbound mainline segments were studied:

- I-10 Merge from Oak Valley Parkway
- I-10 Mainline between Oak Valley Parkway and Cherry Valley Boulevard
- I-10 Diverge to Cherry Valley Boulevard
- I-10 Merge from Cherry Valley Boulevard
- I-10 Mainline between Cherry Valley Boulevard and Singleton Road

Intersection Operations

Analysis Methodology

The Highway Capacity Manual (HCM) Sixth Edition methodology for signalized intersections estimates the average control delay for vehicles at the intersection while the methodology for unsignalized intersections estimates the worst-case movement control delay for two-way stop-controlled intersections and the average control delay for all-way stop controlled intersections. After the quantitative delay estimates are complete, the methodology assigns a qualitative letter grade that represents the operations of the intersection. These grades range from LOS A (minimal delay) to LOS F (congested conditions). LOS E represents at-capacity operations. Descriptions of the LOS letter grades for both signalized and unsignalized intersections are provided in Table 1-1, Intersection LOS.

Table 1-1: Intersection LOS

LOS	Description	Signalized Intersections (Average Stopped Delay per Vehicle [seconds per vehicle])	Unsignalized Intersections (Average Control Delay [seconds per vehicle])
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	<10.0	<10.0
B	Operations with low delay occurring with good progression and/or short cycle length.	>10.0 to 20.0	>10.0 to 15.0

LOS	Description	Signalized Intersections (Average Stopped Delay per Vehicle [seconds per vehicle])	Unsignalized Intersections (Average Control Delay [seconds per vehicle])
C	Operations with average delays resulting from fair progression and or/longer cycle lengths. Individual cycle failures begin to appear.	>20.0 to 35.0	>15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	>35.0 to 55.0	>25.0 to 35.0
E	Operations with high delay values indicating poor progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	>55.0 to 80.0	>35.0 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	>80.0	>50.0

Notes: 1. Volume over capacity greater than or equal to one (V/C > 1) is considered LOS F.
Source: Transportation Research Board 2016.

Future Traffic Demand Forecast

According to SCAG's 2020-2045 RTP/SCS, the SCAG region's population which encompasses Riverside, Imperial, San Bernardino, Orange, Los Angeles, and Ventura Counties is projected to grow to 22,504,000 by 2045, an increase of 2,986,000 from 2020. According to SCAG's 2020-2045 RTP/SCS, population in the SCAG region increased by 2,944,000 people between 2000 and 2020; this represents an increase of approximately 17.7 percent. Riverside County grew by 60.11 percent during the same period (SCAG 2020). The SCAG region is expected to have a 0.6 percent annual growth rate between 2020 and 2045, which corresponds to about 114,000 new residents annually, or nearly three million new residents between 2020 and 2045 (SCAG 2020).

According to the 2020-2045 RTP/SCS, the population of Riverside County more than doubled from 663,166 in 1980 to 1,545,387 in 2000, and more than tripled to 2,493,000 in 2020 (SCAG 2020). Furthermore, and according to the U.S. Census, American Community Survey, the population of Riverside County as of 2018 was 2,450,758, which is a 11.9 percent increase from 2010.

SCAG's 2020-2045 RTP/SCS indicates that there will be a deconcentration trend toward more growth of population and employment in Riverside and San Bernardino Counties. The share of both Riverside and San Bernardino Counties' population in the SCAG region is projected to increase 27.9 percent from 2020 to 2040, while the share of both Riverside and San Bernardino Counties' employment in the SCAG region is projected to increase 30.7 percent from 2020 to 2040. As indicated in the 2020-2045 RTP/SCS, the recent growth trend experienced in Riverside County's expansion is due to new communities that began to emerge during the housing boom. Four additional cities have incorporated since 2006 (Wildomar, Menifee, Eastvale, and Jurupa Valley), increasing the total number of local jurisdictions in the SCAG region to 197. Many areas in Riverside and San Bernardino Counties were appealing for development due to the availability of lower-priced land, which attracted new residents looking for lower-priced housing. However, jobs and employment did not follow in proportion to housing unit growth in these communities and residents had to travel longer distances on average than other Southern California county residents to reach their workplace.

Based on the 2020-2045 RTP/SCS, recently the annual population growth in the SCAG region has slowed, from about 0.85 percent in 2020 and projected to be about 0.45 percent by 2045, a trend similar to that of the State as a whole. These changes are driven by declines in fertility, high housing costs and lack of affordability, and an aging population. If the region continues to experience faster employment growth in Riverside and San Bernardino Counties, where an abundant labor force is available, the region's transportation and air quality problems may be reduced due to more balanced county distribution of population and employment.

According to SCAG's 2020-2045 RTP/SCS, population, households, and employment growth in the City of Calimesa will dramatically increase in the next 25 years. More specifically, the City's population is projected to increase from 8,500 people in 2016, to 20,600 in 2045. Households will increase from 3,400 in 2016 to 10,400 in 2045, and employment will increase from 1,600 in 2016 to 4,100 in 2045. Overall, the County's population is expected to increase from 2,493,000 people in 2020 to approximately 3,252,000 in 2045, an increase of approximately 30 percent.

Intersection Analysis

Tables 1-2a through 1-2g, summarize the LOS for study area intersections without the project and with the project (Build Alternatives 3 and 4) for Existing (2019), Opening Year (2025), and Design Year (2045) scenarios.

As shown in Table 1-2a, the I-10 westbound off-ramp/Singleton Road side-street stop controlled intersection, Old Roberts Road/Cherry Valley Boulevard all-way stop controlled intersection, and I-10 westbound off- and on-ramps/Cherry Valley Boulevard all-way stop controlled intersection currently operates at an LOS E condition under the AM peak hour. The I-10 westbound and eastbound off and on-ramps/Oak Valley Parkway all-way stop controlled intersections currently operate at a worst-case movement/approach LOS F condition under the AM peak hour. All other intersections currently operate at acceptable LOS C or better conditions.

As shown in Table 1-2b, under the Opening Year (2025) No-Build scenario, five study intersections are projected to operate at deficient LOS E or F during the AM peak hour: Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive, Cherry Valley Boulevard/Roberts Road, I-10 eastbound off/on-ramps/Cherry Valley Boulevard, I-10 westbound off/on-ramps/Cherry Valley Boulevard, and Calimesa Boulevard/Cherry Valley Boulevard. Three intersections are projected to operate at deficient LOS F during the PM peak hour: Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive, Cherry Valley Boulevard/Roberts Road, and I-10 eastbound off/on-ramps/Cherry Valley Boulevard. All other intersections are projected operate at acceptable LOS C or better conditions.

Build Alternative 3 (Diverging Diamond) and Build Alternative 4 (Partial Cloverleaf) are projected to perform similarly under the Opening Year (2025). As shown in Tables 1-2c and 1-2d, all intersections are projected to operate acceptably based on LOS and the delay at all the study intersections. The deficient intersections associated with the existing conditions (Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive, Cherry Valley Boulevard/Roberts Road, I-10 eastbound off/on-ramps/Cherry Valley Boulevard, I-10 westbound off/on-ramps/Cherry Valley Boulevard, and Calimesa Boulevard/Cherry Valley Boulevard) are projected to improve to LOS C or better during the AM and PM peak hours under both build alternatives and all other intersections are projected to continue to operate at acceptable LOS C or better conditions.

As shown in Table 1-2e, under the Design Year (2045) No-Build scenario, six study intersections are projected to operate at deficient LOS E or F under the during the AM peak hour: I-10 westbound off/on-ramps/Singleton Road, Cherry Valley Boulevard/ Palmer Avenue/Desert Lawn Drive, Cherry Valley Boulevard/Roberts Road, I-10 eastbound off/on-ramps/Cherry Valley Boulevard, I-10 westbound off/on-ramps/Cherry Valley Boulevard, and I-10 westbound off/on-ramps/Oak Valley Parkway. Six intersections are projected to operate at deficient LOS E or F during the PM peak hour: I-10 eastbound off/on-ramps/Singleton Road, I-10 westbound off/on-ramps/Singleton Road, Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive, Cherry Valley Boulevard/Roberts Road, I-10 eastbound off/on-ramps/Cherry Valley Boulevard, and I-10 westbound off/on-ramps/Cherry Valley Boulevard. All other intersections are projected operate at acceptable LOS C or better conditions.

Build Alternative 3 (Diverging Diamond) and Build Alternative 4 (Partial Cloverleaf) are projected to perform similarly under the Opening Year (2025). As shown in Tables 1-2f and 1-2g, all intersections are projected to operate acceptably (LOS C or better), with the exception of the following intersections: I-10 eastbound off/on-ramps/Singleton Road (PM peak hour for both Build Alternatives 3 and 4), I-10 westbound off/on-ramps/Singleton Road (AM peak hour for both Build Alternatives 3 and 4 and PM peak hour for Build Alternative 4 only), and Cherry Valley Boulevard/Roberts Road (PM peak hour for both Build Alternatives 3 and 4). The remaining deficient intersections associated with the existing conditions (Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive, I-10 eastbound off/on-ramps/Cherry Valley Boulevard, I-10 westbound off/on-ramps/Cherry Valley Boulevard, and I-10 westbound off/on-ramps/Oak Valley Parkway) are projected to improve to LOS C or better during the AM and PM peak hours under both build alternatives and all other intersections are projected to continue to operate at acceptable LOS C or better conditions.

Table 1-2a: Intersection Operations - Existing (2019) Conditions

No.	Study Intersection	Control Type	AM Peak Hour Delay (sec/veh)	AM Peak Hour LOS	PM Peak Hour Delay (sec/veh)	PM Peak Hour LOS
1	I-10 EB On-Ramp/Singleton Road	Uncontrolled	0.7 (WBL)	A	0.6 (WBL)	A
2	I-10 WB Off-Ramp/Singleton Road	Side-street Stop	**36.8 (NBL)**	**E**	7.6 (NBR)	A
3	Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	34.9	C	8.3	A
4a	Cherry Valley Boulevard/Roberts Road	Signal	13 (NBT)	B	7.6 (NBL)	A
4b	Old Roberts Road/Cherry Valley Boulevard	All-way Stop	**36.4**	**E**	2.5	A
5	I-10 EB Off/On-Ramps/Cherry Valley Boulevard	All-way Stop	8.8	A	22.6	C
6	I-10 WB Off/On-Ramps/Cherry Valley Boulevard	All-way Stop	**39.3**	**E**	5	A
7	Calimesa Boulevard/Cherry Valley Boulevard	Side-street Stop	18.5 (SBL)	C	11.1	B
8	I-10 EB Off/On-Ramps/Oak Valley Parkway	All-way Stop	**99.5**	**F**	22.9	C
9	I-10 WB Off/On-Ramps/Oak Valley Parkway	All-way Stop	**88.3**	**F**	20.3	C

Notes: 1. Sec/Veh = Seconds per Vehicle, LOS = Level of Service, EB = Eastbound, WB = Westbound, WBL = Westbound Left, NBL = Northbound Left, NBR = Northbound Right, NBT = Northbound Through, SBL = Southbound Left.
2. For signal and all-way stop control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
3. For side street control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
4. Bold font indicates LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-2b: Intersection Operations - Opening Year (2025) No-Build Conditions

No.	Study Intersection	Control Type	AM Peak Hour Delay (sec/veh)	AM Peak Hour LOS	PM Peak Hour Delay (sec/veh)	PM Peak Hour LOS
1	I-10 EB Off/On-Ramps/Singleton Road	Uncontrolled	9.9 (SBR)	A	12.6 (SBL)	B
2	I-10 WB Off/On-Ramps/Singleton Road	Side-street Stop	8.0 (NBL)	A	11.1 (NBR)	B
3	Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	**499.7**	**F**	**378.1**	**F**
4a	Cherry Valley Boulevard/Roberts Road	Signal	**166.5**	**F**	**318.6**	**F**
4b	Old Roberts Road/Cherry Valley Boulevard	--	--	--	--	--
5	I-10 EB Off/On-Ramps/Cherry Valley Boulevard	Signal	**70.4**	**E**	**125.8**	**F**
6	I-10 WB Off/On-Ramps/Cherry Valley Boulevard	Signal	**57.4**	**E**	27.1	C
7	Calimesa Boulevard/Cherry Valley Boulevard	Side-street Stop/ Signal	**146.4 (WBT)**	**F**	14.2 (SBL)	C
8	I-10 EB Off/On-Ramps/Oak Valley Parkway	Signal	11.1	B	17.1	B
9	I-10 WB Off/On-Ramps/Oak Valley Parkway	Signal	8.4	A	11.0	B

Notes: 1. Sec/Veh = Seconds per Vehicle, LOS = Level of Service, EB = Eastbound, WB = Westbound, SBR = Southbound Right, SBL = Southbound Left, NBL = Northbound Left, NBR = Northbound Right, WBT = Westbound Through
2. For signal and all-way stop, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
3. For side street stop control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
4. Bold font indicates LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
5. Intersection 4B is closed under Opening Year (2025) Conditions.
6. Intersections 5 and 6 are signalized under No-Build, Diverging Diamond, and Partial Cloverleaf scenarios.
7. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under the Partial Cloverleaf Alternative.
8. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-2c: Intersection Operations – Opening Year (2025) Build Alternative 3 (Diverging Diamond) Conditions

No.	Study Intersection	Control Type	AM Peak Hour Delay (sec/veh)	AM Peak Hour LOS	PM Peak Hour Delay (sec/veh)	PM Peak Hour LOS
1	I-10 EB Off/On-Ramps/Singleton Road	Uncontrolled	10.3 (SBL)	B	11.4 (SBL)	B
2	I-10 WB Off/On-Ramps/Singleton Road	Side-street Stop	9.0 (NBL)	A	14.4 (NBL)	B
3	Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	27.7	C	22.1	C
4a	Cherry Valley Boulevard/Roberts Road	Signal	13.5	B	19.0	B
4b	Old Roberts Road/Cherry Valley Boulevard	--	--	--	--	--
5	I-10 EB Off/On-Ramps/Cherry Valley Boulevard	Signal	22.0	C	14.7	B
6	I-10 WB Off/On-Ramps/Cherry Valley Boulevard	Signal	7.1	A	5.7	A
7	Calimesa Boulevard/Cherry Valley Boulevard	Side-street Stop/ Signal	22.0	C	9.5	A
8	I-10 EB Off/On-Ramps/Oak Valley Parkway	Signal	11.1	B	17.4	B
9	I-10 WB Off/On-Ramps/Oak Valley Parkway	Signal	8.6	A	10.9	B

Notes: 1. Sec/Veh = Seconds per Vehicle, LOS = Level of Service, EB = Eastbound, WB = Westbound, SBL = Southbound Left, NBL = Northbound Left
2. For signal and all-way stop, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
3. For side street stop control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
4. Bold font indicates LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
5. Intersection 4B is closed under Opening Year (2025) Conditions.
6. Intersections 5 and 6 are signalized under No-Build, Diverging Diamond, and Partial Cloverleaf scenarios.
7. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under the Partial Cloverleaf Alternative.
8. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-2d: Intersection Operations – Opening Year (2025) Build Alternative 4 (Partial Cloverleaf) Conditions

No.	Study Intersection	Control Type	AM Peak Hour Delay (sec/veh)	AM Peak Hour LOS	PM Peak Hour Delay (sec/veh)	PM Peak Hour LOS
1	I-10 EB Off/On-Ramps/Singleton Road	Uncontrolled	10.7 (SBL)	B	11.2 (SBL)	B
2	I-10 WB Off/On-Ramps/Singleton Road	Side-street Stop	10.2 (NBL)	B	11.3 (NBR)	B
3	Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	25.8	C	20.8	C
4a	Cherry Valley Boulevard/Roberts Road	Signal	12.3	B	19.0	B
4b	Old Roberts Road/Cherry Valley Boulevard	--	--	--	--	--
5	I-10 EB Off/On-Ramps/Cherry Valley Boulevard	Signal	11.4	B	13.4	B
6	I-10 WB Off/On-Ramps/Cherry Valley Boulevard	Signal	--	--	--	--
7	Calimesa Boulevard/Cherry Valley Boulevard	Side-street Stop/ Signal	20.6	C	15.2	B
8	I-10 EB Off/On-Ramps/Oak Valley Parkway	Signal	11.6	B	17.0	B
9	I-10 WB Off/On-Ramps/Oak Valley Parkway	Signal	8.9	A	11.1	B

Notes: 1. Sec/Veh = Seconds per Vehicle, LOS = Level of Service, EB = Eastbound, WB = Westbound, SBL = Southbound Left, NBL = Northbound Left, NBR = Northbound Right
2. For signal and all-way stop, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
3. For side street stop control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
4. Bold font indicates LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
5. Intersection 4B is closed under Opening Year (2025) Conditions.
6. Intersections 5 and 6 are signalized under No-Build, Diverging Diamond, and Partial Cloverleaf scenarios.
7. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under the Partial Cloverleaf Alternative.
8. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-2e: Intersection Operations –Design Year (2045) No-Build Conditions

No.	Study Intersection	Control Type	AM Peak Hour Delay (sec/veh)	AM Peak Hour LOS	PM Peak Hour Delay (sec/veh)	PM Peak Hour LOS
1	I-10 EB Off/On-Ramps/Singleton Road	Signal	29.3	C	**143.6**	**F**
2	I-10 WB Off/On-Ramps/Singleton Road	Signal	**60.8**	**E**	**150.5**	**F**
3	Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	**994.6**	**F**	**171.4**	**F**
4a	Cherry Valley Boulevard/Roberts Road	Signal	**264.8**	**F**	**174.7**	**F**
4b	Old Roberts Road/Cherry Valley Boulevard	--	--	--	--	--
5	I-10 EB Off/On-Ramps/Cherry Valley Boulevard	Signal	**108.9**	**F**	**103.8**	**F**
6	I-10 WB Off/On-Ramps/Cherry Valley Boulevard	Signal	**100.0**	**F**	**64.6**	**E**
7	Calimesa Boulevard/Cherry Valley Boulevard	Side-street Stop/ Signal	20.5 (SBL)	C	21.1 (SBL)	C
8	I-10 EB Off/On-Ramps/Oak Valley Parkway	Signal	15.4	B	18.4	B
9	I-10 WB Off/On-Ramps/Oak Valley Parkway	Signal	**56.0**	**E**	12.0	B

Notes: 1. Sec/Veh = Seconds per Vehicle, LOS = Level of Service, EB = Eastbound, WB = Westbound, SBL = Southbound Left
2. For signal and all-way stop, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
3. For side street stop control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
4. Bold font indicates LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
5. Intersection 4B is closed under Design Year (2045) Conditions.
6. Intersections 5 and 6 are signalized under No-Build, Diverging Diamond, and Partial Cloverleaf scenarios.
7. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under the Partial Cloverleaf Alternative.
8. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-2f: Intersection Operations –Design Year (2045) Build Alternative 3 (Diverging Diamond) Conditions

No.	Study Intersection	Control Type	AM Peak Hour Delay (sec/veh)	AM Peak Hour LOS	PM Peak Hour Delay (sec/veh)	PM Peak Hour LOS
1	I-10 EB Off/On-Ramps/Singleton Road	Signal	29.1	C	**57.2**	**E**
2	I-10 WB Off/On-Ramps/Singleton Road	Signal	**71.2**	**E**	53.8	D
3	Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	25.9	C	18.2	B
4a	Cherry Valley Boulevard/Roberts Road	Signal	26.1	C	**63.8**	**E**
4b	Old Roberts Road/Cherry Valley Boulevard	--	--	--	--	--
5	I-10 EB Off/On-Ramps/Cherry Valley Boulevard	Signal	24.3	C	16.9	B
6	I-10 WB Off/On-Ramps/Cherry Valley Boulevard	Signal	11.3	B	8.9	A
7	Calimesa Boulevard/Cherry Valley Boulevard	Side-street Stop/ Signal	22.1	C	9.3	A
8	I-10 EB Off/On-Ramps/Oak Valley Parkway	Signal	14.3	B	31.2	C
9	I-10 WB Off/On-Ramps/Oak Valley Parkway	Signal	10.8	B	12.7	B

Notes: 1. Sec/Veh = Seconds per Vehicle, LOS = Level of Service, EB = Eastbound, WB = Westbound
2. For signal and all-way stop, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
3. For side street stop control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
4. Bold font indicates LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
5. Intersection 4B is closed under Design Year (2045) Conditions.
6. Intersections 5 and 6 are signalized under No-Build, Diverging Diamond, and Partial Cloverleaf scenarios.
7. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under the Partial Cloverleaf Alternative.
8. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-2g: Intersection Operations –Design Year (2045) Build Alternative 4 (Partial Cloverleaf) Conditions

No.	Study Intersection	Control Type	AM Peak Hour Delay (sec/veh)	AM Peak Hour LOS	PM Peak Hour Delay (sec/veh)	PM Peak Hour LOS
1	I-10 EB Off/On-Ramps/Singleton Road	Signal	29.1	C	**56.1**	**E**
2	I-10 WB Off/On-Ramps/Singleton Road	Signal	**69.0**	**E**	**57.0**	**E**
3	Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	23.8	C	17.2	B
4a	Cherry Valley Boulevard/Roberts Road	Signal	23.4	C	**66.5**	**E**
4b	Old Roberts Road/Cherry Valley Boulevard	--	--	--	--	--
5	I-10 EB Off/On-Ramps/Cherry Valley Boulevard	Signal	10.4	B	19.7	B
6	I-10 WB Off/On-Ramps/Cherry Valley Boulevard	Signal	--	--	--	
7	Calimesa Boulevard/Cherry Valley Boulevard	Side-street Stop/ Signal	25.5	C	18.6	B
8	I-10 EB Off/On-Ramps/Oak Valley Parkway	Signal	14.5	B	32.4	C
9	I-10 WB Off/On-Ramps/Oak Valley Parkway	Signal	11.0	B	13.0	B

Notes: 1. Sec/Veh = Seconds per Vehicle, LOS = Level of Service, EB = Eastbound, WB = Westbound
2. For signal and all-way stop, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
3. For side street stop control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
4. Bold font indicates LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
5. Intersection 4B is closed under Design Year (2045) Conditions.
6. Intersections 5 and 6 are signalized under No-Build, Diverging Diamond, and Partial Cloverleaf scenarios.
7. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under the Partial Cloverleaf Alternative.
8. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Freeway Mainline Operations
Methodology

Freeway mainline and ramps were evaluated using a Highway Capacity Software (HCS) equivalent tool which applies methodologies contained in the Highway Capacity Manual, Sixth Edition (HCM) (Transportation Research Board, 2016). The LOS was calculated for each study facility based on density in number of vehicles per hour per lane. Table 1-3, Freeway Mainline and Ramp Junction/Weave Section LOS Threshold, describes the LOS thresholds for freeway sections identified in the HCM 2016.

Table 1-3: Freeway Mainline and Ramp Junction/Weave Section LOS Threshold

Level of Service	Description	Multilane (Basic) Density (vplpm)	Mainline (Weave) Density (vplpm)	Ramp/Merge/ Diverge Density (vplpm)
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	$\leq$11	$\leq$10	$\leq$10
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	>11 to 18	>10 to 20	>10 to 20
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	>18 to 26	>20 to 28	>20 to 28
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	>16 to 35	>28 to 35	>28 to 35
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	>35 to 45	>35 to 43	>35 to 45[2]
F	Represents a breakdown in flow.	Density >45 or volume over capacity greater than or equal to one (V/C≥1)	Density >43 or volume over capacity greater than or equal to one (V/C≥1)	Density >45 or volume over capacity greater than or equal to one (V/C≥1)

Notes: 1. Density is reported in vehicles per lane per mile (vplpm).
2. The maximum density for ramp junctions and merge/diverge sections under LOS E is not defined in the HCM. The maximum density for basic segments of 45 vplpm was assumed to apply to ramp junctions and weaving sections.
3. Volume over capacity greater than or equal to one (V/C $\geq$ 1) will be considered LOS F.
Source: Transportation Research Board, Highway Capacity Manual, 2016.

Freeway Mainline Analysis

Tables 1-4a through 1-4n show the density and LOS for the study freeway mainline segments and ramp junctions along I-10 for the eastbound and westbound direction without and with the project (Build Alternatives 3 and 4) for Existing (2019), Opening Year (2025), and Design Year (2045) scenarios.

As shown in Table 1-4a, all the study segments along eastbound I-10 currently operate at LOS C or better during both the AM and PM peak hours.

As shown in Tables 1-4b, all westbound segments south of Cherry Valley Boulevard currently operate at LOS C or better during both the AM and PM peak hours, and all westbound segments north of Cherry Valley Boulevard currently operate at a deficient LOS F during the AM peak hour, but operate at LOS C or better during the PM peak hour.

As shown in Table 1-4c, all I-10 eastbound mainline segments are projected to operate at LOS B or better for the Opening Year (2025) No-Build scenario, with the exception of the Singleton on-ramp segment (PM peak hour) and the Cherry Valley Boulevard off-ramp segment (PM peak hour).

Table 1-4a: Freeway Mainline Operations – Existing (2019) I-10 Eastbound Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
North of Singleton Road	Basic	12.9	B	18.2	C
Singleton On-Ramp	Merge	11.1	B	15.4	B
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	13.0	B	18.1	C
Cherry Valley Boulevard Off-Ramp	Diverge	13.8	B	20.2	C
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	13.3	B	13.5	B
Cherry Valley Boulevard On-Ramp	Merge	9.6	A	15.3	B
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	13.7	B	16.5	B
Oak Valley Parkway Off-Ramp	Diverge	13.6	B	16.7	B
South of Oak Valley Parkway	Basic	14.3	B	15.1	B

Notes: 1. Sec/Veh = Seconds per Vehicle, LOS = Level of Service
2. The LOS and density (in vehicles per lane per mile) are reported.
3. Bold font indicates LOS E or F conditions.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-4b: Freeway Mainline Operations – Existing (2019) I-10 Westbound Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
South of Oak Valley Parkway	Basic	17.6	B	18.2	C
Oak Valley Parkway Off-Ramp	Diverge	17.9	B	19.1	C
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	15.0	B	15.1	B
Oak Valley Parkway On-Ramp	Merge	15.7	B	13.6	B
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	18.8	C	17.2	B
Cherry Valley Boulevard Off-Ramp	Diverge	33.2	D	17.3	B
Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp	Basic	**86.9**	**F**	15.1	B
Cherry Valley Boulevard On-Ramp	Merge	**117.0**	**F**	15.2	B
Cherry Valley Boulevard On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**112.9**	**F**	18.5	C
Singleton Off-Ramp	Diverge	**116.8**	**F**	19.3	C
North of Singleton	Basic	**114.8**	**F**	17.3	B

Notes: 1. Sec/Veh = Seconds per Vehicle, LOS = Level of Service
2. The LOS and density (in vehicles per lane per mile) are reported.
3. Bold font indicates LOS E or F conditions.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-4c: Freeway Mainline Operations – Opening Year (2025) I-10 Eastbound No-Build Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
North of Singleton Road	Basic	10.1	B	14.2	B
Singleton On-Ramp	Merge	11.4	B	**33.9**	**D**
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	12.0	B	19.0	B
Cherry Valley Boulevard Off-Ramp	Diverge	13.8	B	**<u>43.2</u>**	**<u>F</u>**
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	11.4	B	13.5	B
Cherry Valley Boulevard On-Ramp	Merge	8.8	A	6.7	A
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	12.1	B	13.7	B
Oak Valley Parkway Off-Ramp	Diverge	11.4	B	13.2	B
Oak Valley Off-Ramp to On-Ramp	Basic	10.3	B	10.4	B
Oak Valley On-Ramp	Merge	10.4	B	10.5	B
South of Oak Valley Parkway	Basic	12.4	B	12.5	B

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Build Alternatives 3 and 4 are projected to perform similarly for Opening Year (2025) based on LOS and volume densities. As shown in Tables 1-4d and 1-4e, all I-10 eastbound mainline segments are projected to operate at LOS B or better for the Opening Year (2025) Build Alternatives 3 and 4 scenarios. The projected deficient eastbound mainline segments associated with the No-Build Alternative are projected to improve to acceptable conditions under both build alternatives.

Table 1-4d: Freeway Mainline Operations – Opening Year (2025) I-10 Eastbound Build Alternative 3 (Diverging Diamond) Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
North of Singleton Road	Basic	13.6	B	15.5	B
Singleton On-Ramp	Merge	10.7	B	17.0	B
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	12.6	B	17.3	B
Cherry Valley Boulevard Off-Ramp	Diverge	9.7	B	13.6	B
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	11.2	A	13.3	B
Cherry Valley Boulevard On-Ramp	Merge	10.2	B	11.7	B
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	12.2	B	14.6	B
Oak Valley Parkway Off-Ramp	Diverge	11.5	B	15.5	B
Oak Valley Off-Ramp to On-Ramp	Basic	10.4	B	11.1	B
Oak Valley On-Ramp	Merge	10.3	B	8.9	A
South of Oak Valley Parkway	Basic	12.4	B	12.1	B

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-4e: Freeway Mainline Operations – Opening Year (2025) I-10 Eastbound Build Alternative 4 (Partial Cloverleaf) Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
North of Singleton Road	Basic	10.7	B	15.0	B
Singleton On-Ramp	Merge	11.5	B	16.8	B
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	12.6	B	17.2	B
Cherry Valley Boulevard Off-Ramp	Diverge	9.7	A	14.3	B
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	11.2	B	13.0	B
Cherry Valley Boulevard On-Ramp	Merge	10.2	B	11.6	B
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	12.2	B	14.4	B
Oak Valley Parkway Off-Ramp	Diverge	11.8	B	15.0	B
Oak Valley Off-Ramp to On-Ramp	Basic	10.3	B	11.0	B
Oak Valley On-Ramp	Merge	10.4	B	9.0	A
South of Oak Valley Parkway	Basic	12.3	B	12.1	B

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

As shown in Table 1-4f, two mainline segments (Cherry Valley Boulevard on-ramp to the Singleton Road off-ramp and Singleton Road off-ramp) are projected to operate at an unacceptable LOS D for the Opening Year (2025) No-Build scenario along westbound I-10 during the AM peak hour. All other westbound segments are projected to operate at an acceptable LOS C or better during both the AM and PM peak hours.

As shown in Tables 1-4g and 1-4h, one segment (westbound I-10 North of Singleton Road Off-Ramp) associated with Build Alternatives 3 and 4 are projected to operate at LOS D during the AM peak hour. All other I-10 westbound mainline segments are projected to operate at LOS C or better for the Opening Year (2025) Build Alternatives 3 and 4 scenarios for both the AM and PM peak hours. The deficient eastbound mainline segments associated with the No-Build Alternative are projected to improve to acceptable conditions under both build alternatives.

Table 1-4f: Freeway Mainline Operations – Opening Year (2025) I-10 Westbound No-Build Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
South of Oak Valley Parkway	Basic	215	C	20.0	B
Oak Valley Parkway Off-Ramp	Diverge	20.1	C	19.2	B
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	18.1	B	16.2	B
Oak Valley Parkway On-Ramp	Merge	20.6	C	16.8	B
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	25.3	C	20.8	C
Cherry Valley Boulevard Off-Ramp	Diverge	25.0	C	19.0	B
Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp	Basic	22.8	C	18.8	B
Cherry Valley Boulevard On-Ramp	Merge	25.0	C	17.1	B
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	**28.7**	**D**	22.3	C
Singleton Road Off-Ramp	Diverge	**29.4**	**D**	21.5	C
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--	--	--
North of Singleton Road	Basic	27.7	C	20.8	C

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes - indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Build Alternative 4. This segment is from the Westbound I-10 Cherry Valley Boulevard Off-Ramp to Westbound I-10 Cherry Valley Boulevard Loop On-Ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-4g: Freeway Mainline Operations – Opening Year (2025) I-10 Westbound Build Alternative 3 (Diverging Diamond) Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
South of Oak Valley Parkway	Basic	21.3	C	20.0	C
Oak Valley Parkway Off-Ramp	Diverge	21.5	C	20.3	C
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	18.0	B	16.3	B
Oak Valley Parkway On-Ramp	Merge	20.9	C	17.5	B
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	27.9	C	22.4	C
Cherry Valley Boulevard Off-Ramp	Diverge	18.8	B	13.7	B
Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp	Basic	24.1	C	20.2	C
Cherry Valley Boulevard On-Ramp	Merge	--	--	--	--
Cherry Valley Boulevard On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	--	--	--	--
Singleton Road Off-Ramp	Diverge	--	--	--	--
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	22.8	C	17.7	C
North of Singleton Road	Basic	**29.9**	**D**	22.0	C

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes - indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Build Alternative 4. This segment is from the Westbound I-10 Cherry Valley Boulevard Off-Ramp to Westbound I-10 Cherry Valley Boulevard Loop On-Ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-4h: Freeway Mainline Operations – Opening Year (2025) I-10 Westbound Build Alternative 4 (Partial Cloverleaf) Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
South of Oak Valley Parkway	Basic	21.3	C	19.6	B
Oak Valley Parkway Off-Ramp	Diverge	21.3	C	20.0	C
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	18.0	B	16.0	B
Oak Valley Parkway On-Ramp	Merge	20.8	C	17.0	B
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	27.6	C	21.8	C
Cherry Valley Boulevard Off-Ramp	Diverge	17.8	B	13.3	B
Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp	Basic	21.9[5]	C	18.6[5]	B
Cherry Valley Boulevard On-Ramp	Merge	16.6	B	11.4	B
Cherry Valley Boulevard On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	26.0	C	18.7	B
Singleton Road Off-Ramp	Diverge	24.9	C	18.6	B
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--	--	--
North of Singleton Road	Basic	**33.4**	**D**	23.6	C

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes - indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Build Alternative 4. This segment is from the Westbound I-10 Cherry Valley Boulevard Off-Ramp to Westbound I-10 Cherry Valley Boulevard Loop On-Ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

As shown in Table 1-4i, under the Design Year (2045) No-Build scenario, one eastbound study mainline segment is projected to operate at deficient LOS D (I-10 eastbound, north of Singleton Road) and three segments are projected to operate at deficient F (Singleton on-ramp, Singleton Road on-ramp to Cherry Valley Boulevard off-ramp, and Cherry Valley Boulevard off-ramp) under the during the PM peak hour. All other mainline segments are projected operate at acceptable LOS C or better conditions during both the AM and PM peak hours.

Table 1-4i: Freeway Mainline Operations – Design Year (2045) I-10 Eastbound No-Build Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
North of Singleton Road	Basic	15.9	B	**35.0**	**D**
Singleton Road On-Ramp	Merge	17.1	B	**<u>105.8</u>**	**<u>F</u>**
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	17.5	B	**<u>48.0</u>**	**<u>F</u>**
Cherry Valley Boulevard Off-Ramp	Diverge	17.9	B	**<u>120.0</u>**	**<u>F</u>**
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	17.2	B	12.2	B
Cherry Valley Boulevard On-Ramp	Merge	11.8	B	7.9	A
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	17.9	B	13.4	B
Oak Valley Parkway Off-Ramp	Diverge	17.6	B	14.4	B
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	14.8	B	9.3	A
Oak Valley Parkway On-Ramp	Merge	14.0	B	7.0	A
South of Oak Valley Parkway	Basic	17.4	B	10.3	B

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-4j: Freeway Mainline Operations – Design Year (2045) I-10 Eastbound Build Alternative 3 (Diverging Diamond) Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
North of Singleton Road	Basic	16.3	B	**29.7**	**D**
Singleton Road On-Ramp	Merge	17.3	B	25.6	C
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	18.6	B	25.4	C
Cherry Valley Boulevard Off-Ramp	Diverge	14.3	B	19.6	B
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	16.9	B	18.4	B
Cherry Valley Boulevard On-Ramp	Merge	15.0	B	17.3	B
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	19.0	B	22.3	C
Oak Valley Parkway Off-Ramp	Diverge	17.7	B	**<u>44.0</u>**	**<u>E</u>**
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	15.4	B	15.8	B
Oak Valley Parkway On-Ramp	Merge	14.2	B	9.7	A
South of Oak Valley Parkway	Basic	18.0	B	15.8	B

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-4k: Freeway Mainline Operations – Design Year (2045) I-10 Eastbound Build Alternative 4 (Partial Cloverleaf) Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
North of Singleton Road	Basic	15.4	B	26.0	C
Singleton Road On-Ramp	Merge	17.3	B	25.9	C
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	18.6	B	25.1	C
Cherry Valley Boulevard Off-Ramp	Diverge	12.9	B	19.2	B
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	16.9	B	18.3	B
Cherry Valley Boulevard On-Ramp	Merge	14.9	B	17.2	B
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	18.9	B	22.0	C
Oak Valley Parkway Off-Ramp	Diverge	17.8	B	**<u>40.6</u>**	**<u>E</u>**
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	15.4	B	15.6	B
Oak Valley Parkway On-Ramp	Merge	14.4	B	9.9	A
South of Oak Valley Parkway	Basic	18.0	B	15.8	B

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Under the Design Year (2045) Build Alternatives 3 and 4 scenarios, the I-10 eastbound study segments would operate at an acceptable LOS C or better with the exception of the I-10 eastbound segments located north of Singleton Road, which would continue to operate at an LOS D during the PM peak hour for Build Alternative 3 only, and the diverge at Oak Valley Parkway off-ramp, which is projected to operate at LOS E during the PM peak hour under both build alternatives; refer to Tables 1-4j and 1-4k.

The build alternatives would improve the deficient eastbound mainline segments associated with No-Build Alternative (Singleton on-ramp, Singleton Road on-ramp to Cherry Valley Boulevard off-ramp, and Cherry Valley Boulevard off-ramp) from an unacceptable LOS F to an acceptable LOS C or better.

As shown in Table 1-4l, under the Design Year (2045) No-Build scenario, all westbound study mainline segments are projected to operate at an unacceptable LOS D or worse with the exception of following westbound I-10 segments: Oak Valley Parkway off-ramp (PM peak hour), Cherry Valley Boulevard off-ramp to Cherry Valley Boulevard on-ramp (AM peak hour), and I-10 north of Singleton (PM peak hour).

Table 1-4l: Freeway Mainline Operations – Design Year (2045) I-10 Westbound No-Build Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
South of Oak Valley Parkway	Basic	**105.5**	**F**	**49.9**	**F**
Oak Valley Parkway Off-Ramp	Diverge	**121.0**	**F**	25.4	C
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	**100.2**	**F**	**71.4**	**F**
Oak Valley Parkway On-Ramp	Merge	**108.5**	**F**	**87.8**	**F**
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**94.3**	**F**	**56.5**	**F**
Cherry Valley Boulevard Off-Ramp	Diverge	**98.5**	**F**	**96.0**	**F**
Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp	Basic	27.4	C	**29.7**	**D**
Cherry Valley Boulevard On-Ramp	Merge	**28.8**	**D**	**29.2**	**D**
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	**32.5**	**D**	**34.5**	**D**
Singleton Road Off-Ramp	Diverge	**33.8**	**D**	**34.6**	**D**
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--	--	--
North of Singleton Road	Basic	**28.5**	**D**	26.5	C

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes - indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Build Alternative 4. This segment is from the Westbound I-10 Cherry Valley Boulevard Off-Ramp to Westbound I-10 Cherry Valley Boulevard Loop On-Ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

As shown in Tables 1-4m and 1-4n, under both build conditions, four of the six failed I-10 westbound segments associated with the No-Build Alternative are projected to improve to LOS D or better (south of Oak Valley Parkway, Oak Valley Parkway off-ramp, Oak Valley Parkway off-ramp to Oak Valley Parkway on-ramp, and Oak Valley Parkway on-ramp). The I-10 westbound at Cherry Valley Boulevard off-ramp segment would improve during the PM peak hour for both build alternatives. The I-10 westbound at Cherry Valley Boulevard off-ramp to Cherry Valley Boulevard on-ramp, Cherry Valley Boulevard on-ramp, Cherry Valley Boulevard on-ramp to Cherry Valley Boulevard off-ramp, and Singleton off-ramp westbound segments would also improve during the PM peak hour for Build Alternative 4. The I-10 westbound segment at Oak Valley Parkway on-ramp to Cherry Valley Boulevard off-ramp would continue to operate at a deficient LOS E or worse.

Three I-10 westbound segments that operate acceptably under the No-Build conditions are projected to deteriorate to deficient LOS D or worse under both build alternatives (Cherry Valley Boulevard off-ramp to Cherry Valley Boulevard on-ramp during the AM peak hour, Cherry Valley Boulevard on-ramp to Singleton off-ramp during the AM peak hour, North of Singleton during both the PM peak hour). The I-10 westbound at Cherry Valley Boulevard on-ramp to Singleton off-ramp, Singleton off-ramp, and north of Singleton segments would continue to deteriorate during the AM peak hour with implementation of the build alternatives.

Table 1-4m: Freeway Mainline Operations – Design Year (2045) I-10 Westbound Build Alternative 3 (Diverging Diamond) Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
South of Oak Valley Parkway	Basic	**28.9**	**D**	27.5	C
Oak Valley Parkway Off-Ramp	Diverge	27.9	C	27.4	C
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	24.3	C	22.4	C
Oak Valley Parkway On-Ramp	Merge	21.7	C	27.5	C
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**<u>40.0</u>**	**<u>E</u>**	**<u>36.3</u>**	**<u>E</u>**
Cherry Valley Boulevard Off-Ramp	Diverge	**<u>48.8</u>**	**<u>F</u>**	25.1	C
Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp	Basic	**<u>36.1</u>**	**<u>E</u>**	**30.8**	**D**
Cherry Valley Boulevard On-Ramp	Merge	--	--	--	--
Cherry Valley Boulevard On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	--	--	--	--
Singleton Road Off-Ramp	Diverge	--	--	--	--
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	**<u>44.6</u>**	**<u>F</u>**	26.0	C
North of Singleton Road	Basic	**<u>72.9</u>**	**<u>F</u>**	**30.5**	**D**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes - indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Build Alternative 4. This segment is from the Westbound I-10 Cherry Valley Boulevard Off-Ramp to Westbound I-10 Cherry Valley Boulevard Loop On-Ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Table 1-4n: Freeway Mainline Operations – Design Year (2045) I-10 Westbound Build Alternative 4 (Partial Cloverleaf) Conditions

Facility Type (Mainline Segment)	Facility Type	AM Delay (sec/veh)	AM LOS	PM Delay (sec/veh)	PM LOS
South of Oak Valley Parkway	Basic	**29.1**	**D**	27.4	C
Oak Valley Parkway Off-Ramp	Diverge	27.8	C	27.4	C
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	24.0	C	22.3	C
Oak Valley Parkway On-Ramp	Merge	22.6	C	27.5	C
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**47.9**	**F**	**35.7**	**E**
Cherry Valley Boulevard Off-Ramp	Diverge	**32.3**	**D**	23.7	C
Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp	Basic	**34.4**[4]	**D**	24.1[4]	C
Cherry Valley Boulevard On-Ramp	Merge	**30.4**	**D**	19.6	B
Cherry Valley Boulevard On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**63.8**	**F**	29.2	C
Singleton Road Off-Ramp	Diverge	**66.0**	**F**	27.1	C
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--	--	--
North of Singleton Road	Basic	**81.8**	**F**	**32.0**	**D**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes ‐ indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Build Alternative 4. This segment is from the Westbound I-10 Cherry Valley Boulevard Off-Ramp to Westbound I-10 Cherry Valley Boulevard Loop On-Ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document (EA OG170) Traffic Operations Analysis Report, March 2020.

Freeway Mainline Collision Analysis

The following text has been amended since the Draft Environmental Document: Traffic Accident Surveillance and Analysis System – Transportation Systems Network (TASAS – TSN) data was provided by Caltrans for collisions reported on the mainline, on-ramps and off-ramps at the existing Cherry Valley Boulevard and I-10 interchange for the three-year period between October 1, 2018, and September 30, 2021. Tables 1-5a and 1-5b, below, summarizes the Fatal and Fatal plus Injury collision rates for the Actual Collision Rates and Statewide Average Collision Rates. Table 1-6 summarizes the collision types for the interchange.

Table 1-5a: Collision Summary – Actual Collision Rate

The following table has been amended since the Draft Environmental Document.

Location	Post Mile	Fatal[1]	Fatal + Injury[1]	Total[1]
I-10 Mainline from Singleton Road to Oak Valley Parkway	R2.1 to R3.8	**0.010**	0.26	0.83
I-10 Eastbound Off-Ramp to Cherry Valley Boulevard	R2.867	0.000	0.12	0.50
I-10 Eastbound On-Ramp from Cherry Valley Boulevard	R3.189	0.000	**0.66**	**1.33**
I-10 Westbound Off-Ramp to Cherry Valley Boulevard	R3.246	0.000	0.00	0.65
I-10 Westbound On-Ramp from Cherry Valley Boulevard	R2.896	0.000	**0.24**	**0.72**

Notes: Bold text indicates that actual collision rate is greater than statewide average collision rate.
1. Ramp collisions are per Million Vehicle (MV). Mainline collisions are per Million Vehicle Miles (MVM).

Table 1-5b: Collision Summary – Statewide Average Collision Rate

Location	Post Mile	Fatal[1]	Fatal + Injury[1]	Total[1]
I-10 Mainline from Singleton Road to Oak Valley Parkway	R2.1 to R3.8	0.004	0.28	0.87
I-10 Eastbound Off-Ramp to Cherry Valley Boulevard	R2.867	0.008	0.39	1.03
I-10 Eastbound On-Ramp from Cherry Valley Boulevard	R3.189	0.002	0.23	0.63
I-10 Westbound Off-Ramp to Cherry Valley Boulevard	R3.246	0.008	0.39	1.03
I-10 Westbound On-Ramp from Cherry Valley Boulevard	R2.896	0.002	0.23	0.63

Notes: Bold text indicates that actual collision rate is greater than statewide average collision rate.
1. Ramp collisions are per Million Vehicle (MV). Mainline collisions are per Million Vehicle Miles (MVM).

The following text has been amended since the Draft Environmental Document: As shown in Table 1-6, collision data shows that rear end (56.4 percent) and side swipe (19.2 percent) and hit object (18.0 percent) are the majority of collisions along I-10. Majority of the collisions along the eastbound off-ramp are side swipe (50.0 percent), rear end (25.0 percent) and hit object (25.0 percent), while the eastbound on-ramp are rear end (50.0 percent) and hit object (50.0 percent). Majority of the collisions along the westbound on-ramp are hit object (33.3 percent) and rear end (33.3 percent), while the westbound off-ramp was hit object (100.0 percent). No pedestrian collisions were reported under the current stop-controlled configuration according to

TASAS and TIMS (Transportation Injury Mapping System) data for the three year period, from October 1, 2018 to September 30, 2021.

Table 1-6: Ramp Collision Types

The following table has been amended since the Draft Environmental Document.

Location	Head-On	Side Swipe	Rear End	Broadside	Hit Object	Overturn	Auto-Pedestrian	Other
I-10 Mainline from Singleton Road to Oak Valley Parkway	1.2%	19.2%	56.4%	0.6%	18.0%	2.9%	0.0%	1.7%
I-10 Eastbound Off-Ramp to Cherry Valley Boulevard	0.0%	50.0%	25.0%	0.0%	25.0%	0.0%	0.0%	0.0%
I-10 Eastbound On-Ramp from Cherry Valley Boulevard	0.0%	0.0%	50.0%	0.0%	50.0%	0.0%	0.0%	0.0%
I-10 Westbound Off-Ramp to Cherry Valley Boulevard	0.0%	0.0%	0.0%	0.0%	100%	0.0%	0.0%	0.0%
I-10 Westbound On-Ramp from Cherry Valley Boulevard	0.0%	16.7%	33.3%	0.0%	33.3%	16.7%	0.0%	0.0%

The following text has been amended since the Draft Environmental Document: Table 1-7, below, summarizes the primary collision factors for the interchange. Collision data shows that majority of the collision factors along I-10 are speeding (54.1 percent) and other violations (16.9 percent). Majority of the collision factors along the eastbound off-ramp are improper turns (50.0 percent). Majority of the collisions along the westbound on-ramp and off-ramp are speeding (66.7 percent and 100 percent, respectively).

Table 1-7: Primary Collision Factors

The following table has been amended since the Draft Environmental Document.

Location	HBD	FTC	FTY	IT	ESS	OV	ID	OTD	UNK	FA	NS
I-10 Mainline from Singleton Road to Oak Valley Parkway	8.1%	1.2%	0.0%	14.0%	54.1%	16.9%	0.0%	5.2%	0.6%	0.0%	0.0%
I-10 Eastbound Off-Ramp to Cherry Valley Boulevard	25.0%	0.0%	0.0%	50.0%	0.0%	25.0%	0.0%	0.0%	0.0%	0.0%	0.0%
I-10 Eastbound On-Ramp from Cherry Valley Boulevard	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Location	HBD	FTC	FTY	IT	ESS	OV	ID	OTD	UNK	FA	NS
I-10 Westbound Off-Ramp to Cherry Valley Boulevard	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
I-10 Westbound On-Ramp from Cherry Valley Boulevard	0.0%	16.7%	0.0%	16.7%	66.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

The following text has been amended since the Draft Environmental Document: Notes: HBD = Influence of Alcohol; FTC = Following Too Closely; FTY = Failure to Yield; ID = Improper Driving; IT = Improper Turn; ESS = Speeding; OV = Other Violations; NS = Not Stated; OTD = Other Than Driver; UNK = Unknown; FA = Fell Asleep

Based on the available collision data and proposed project improvements, it is expected that the number and severity of collisions will decrease after the project is constructed. The proposed project would enhance safety on the mainline by adding dedicated acceleration and deceleration lanes at the Cherry Valley Boulevard westbound and eastbound on- and off-ramps and an auxiliary lane between the project limits. These lanes will provide a dedicated lane for exiting and merging vehicles, separate from the mainline through traffic. This is likely to enhance weaving maneuverability and reduce the collision frequency and severity of sideswipe and rear-end type collisions, which are primary collision types on I-10.

Collision data shows that a high percentage of ramp incidents were sideswipe, hit object, and overturn type collisions. The proposed project is expected to reduce the frequency and severity of these collision types on the interchange ramps by re-aligning the Cherry Valley Boulevard ramps, signalizing the ramp intersections, and providing proper sight distance. The project will implement the latest Caltrans signing and striping for improved visibility.

The proposed project is expected to reduce the frequency and severity of hit object type collisions, at the interchange, by moving roadside objects outside the clear recovery area, making the objects breakable, or shielding the objects with a standard barrier in accordance with the latest Caltrans design standards.

Bicycle and Pedestrian Facilities

Within the project vicinity, sidewalk is located at the I-10/Cherry Valley Boulevard overcrossing, eastbound Cherry Valley Boulevard, and along Roberts Road. There are currently no designated bicycle lanes or facilities on-site. Based on the Calimesa General Plan, bicycle lanes are planned along Cherry Valley Boulevard, south of Roberts Road, along Roberts Road, west of Cherry Valley Boulevard, and along Palmer Avenue/Desert Lawn Drive, east and west of the Cherry Valley Boulevard and Palmer Avenue/Desert Lawn Drive intersection within the project area. The Riverside County General Plan does not identify proposed bicycle or pedestrian facilities within the project area. Project implementation would improve pedestrian and bicycle movement within the area by replacing existing facilities and including additional pedestrian and bicycle facilities to promote connectivity. Additionally, there are no anticipated bicycle or pedestrian improvement/rehabilitation projects that would occur within the project site, and the project would not impact any future bicycle/pedestrian improvement projects planned by the City or County.

Transit
According to the Riverside County General Plan, the public transit system within the County includes fixed route public transit systems (Riverside Transit Agency, SunLine Transit Agency), bus carriers (Greyhound Bus Lines), AMTRAK, Metrolink, and other local agency transit and paratransit services (carpooling, van pooling, taxi service, and dial-a-ride programs). Based on the Calimesa General Plan, Yucaipa Dial-A-Ride provides on-call transit services in portions of the City. The service is provided on a space-available basis, with priority given to Americans with Disabilities Act (ADA)-certified individuals. There are no existing bus stops or turn outs within project boundaries, and none are proposed as part of the Build Alternatives.

Roadway Deficiencies
Improvements to I-10 in the study area are critical to the operations for all modes of travel not only for regional traffic, but also for local traffic. Key deficiencies that affect traffic in the study area include the following:

- Insufficient pedestrian sidewalk widths and multi-modal facilities (no bike lanes),
- Non-standard curb ramps,
- Existing bridge structure will be over 50 years old by the project's estimated opening year (2025),
- Existing bridge structure does not include protective screening over I-10,
- Existing ramps are single lane and exceed 1,000 feet without ramp metering,
- Intersection spacing is less than the preferred minimum 500 feet,
- Non-standard superelevations, and
- Non-standard Midwest Guardrail Systems.

Social Demands or Economic Development
Land use development in the City of Calimesa is creating a greater demand for travel on I-10. For this reason, local road connections and extensions are a high priority. The I-10 corridor is part of a transportation network that accommodates all aspects of travel in the region, including commuters, shoppers, public transit patrons, trucks, and emergency personnel. I-10 is also used as a major goods movement facility. West and east of the I-10 within the project vicinity, large residential and retail developments are currently under construction or planned within the near future. Future development of this portion of the City is expected to result in direct and indirect population increases in the City. As growth continues on a local,

Statewide, and regional basis, the need for more efficient transportation in the corridor will increase.

Modal Interrelationships and System Linkages

As discussed above, I-10 is included in the NHS, RSIRS, STRAHNET, and STAA. The segment within the project limits is functionally classified as an Urbanized Freeway. I-10 provides regional access in the project area, traversing the State of California in a west-east orientation. I-10 originates in Santa Monica, California, and extends eastward to its terminus in Jacksonville, Florida. As an interstate facility, I-10 serves as a major corridor for goods movement through the project area and areas west and east via the freeway.

As noted above, large residential and retail developments are currently under construction or planned within the project area. Future development of this portion of the City is expected to result in direct and indirect population increases. The project would provide enhanced mobility and connectivity to accommodate planned development within the region.

The following text has been amended since the Draft Environmental Document: The project would also include facilities intended to promote connectivity for system linkages related to pedestrian and bicycle movement. The project includes sidewalks and bicycle buffers along Cherry Valley Boulevard, where no such facilities currently exist. These facilities would promote connectivity for system linkages related to pedestrian and bicycle movement. Six-foot bicycle lanes would be included along Cherry Valley Boulevard, between Roberts Road and the Overcrossing as well as Calimesa Boulevard and the Overcrossing in accordance with the Caltrans Highway Design Manual.

Air Quality Improvements

The proposed project would provide sidewalks and turn lane bicycle buffers along Cherry Valley Boulevard, where none exist today. These facilities would promote alternative modes of transportation and help to reduce air quality impacts.

Independent Utility and Logical Termini

FHWA regulations (23 Code of Federal Regulations 771.111[f]) require that the action evaluated shall:

1. Connect logical termini and be of sufficient length to address environmental matters on a broad scope.
2. Have independent utility or independent significance (i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made).
3. Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

The proposed project's termini allow for an evaluation of potential environmental effects for a project large enough to address the defined operational enhancements specifically related to the interchange area as discussed above. No subsequent transportation improvements in the area would be needed to optimize the operation of the I-10/Cherry Valley Boulevard interchange, consistent with applicable Caltrans design standards. Accordingly, the project is considered to have independent utility.

Further, the proposed project would not restrict consideration of alternatives for other reasonably foreseeable local transportation improvements adjacent and/or in proximity to the I-10/Cherry Valley Boulevard interchange.

1.3 Project Description

The project proposes to upgrade and reconfigure the existing I-10/Cherry Valley Boulevard Interchange (project) from PM R2.1 to R3.8. The I-10/Cherry Valley Boulevard interchange is located on I-10 between Singleton Road and Oak Valley Parkway. The I-10/Cherry Valley Boulevard interchange is a major access point for existing and proposed residential and commercial development. The existing configuration is a diamond interchange, with stop control at the ramp termini. The on- and off-ramps at the interchange consist of one lane. Within the project area, Cherry Valley Boulevard is a two-lane roadway with a posted speed limit of 35 miles per hour west of the interchange and a posted speed limit of 55 miles per hour east of the interchange. Per the City of Calimesa's General Plan, Cherry Valley Boulevard is classified as a Major Arterial. The Cherry Valley Boulevard Overcrossing (OC) (PM R3.05, Bridge Number 56-0481) is a four-span, concrete-girder bridge constructed in 1965 and is approximately 273 feet long, 47 feet wide, and crosses six lanes of traffic over I-10.

1.4 Alternatives

1.4.1 Project Alternatives

This section describes the proposed action and the project alternatives that were developed to meet the identified purpose and need of the project. The criteria used for alternative evaluation included operational benefits, provisions for bicycle and pedestrian mobility, and environmental impacts. A No-Build Alternative and two Build Alternatives were studied for the I-10/Cherry Valley Boulevard Interchange Project.

- Alternative 1 (No-Build Alternative): Refer to Figure 1-3, Alternative 1 (No-Build);
- Build Alternative 3 (Diverging Diamond) (Preferred Alternative): Refer to Figure 1-4 (a key map), and Figures 1-4a through 1-4e, Build Alternative 3 (Diverging Diamond); and
- Build Alternative 4 (Partial Cloverleaf): Refer to Figure 1-5 (a key map), and Figures 1-5a through 1-5e, Build Alternative 4 (Partial Cloverleaf).

Figure 1-3: Alternative 1 (No-Build)

Figure 1-4: Build Alternative 3 (Diverging Diamond)

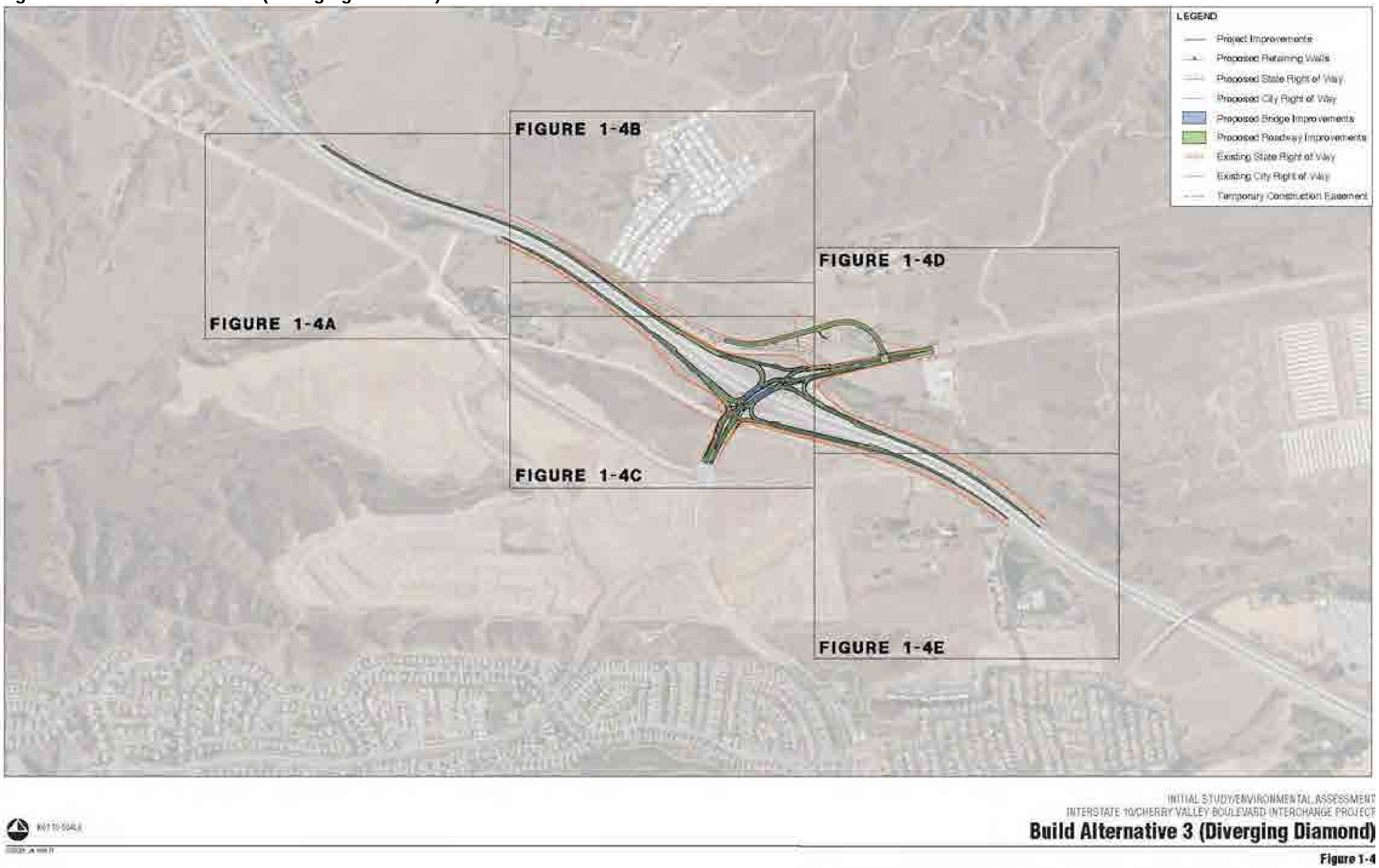


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Figure 1-4a: Build Alternative 3 (Diverging Diamond)

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Figure 1-4b: Build Alternative 3 (Diverging Diamond)

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Figure 1-4c: Build Alternative 3 (Diverging Diamond)

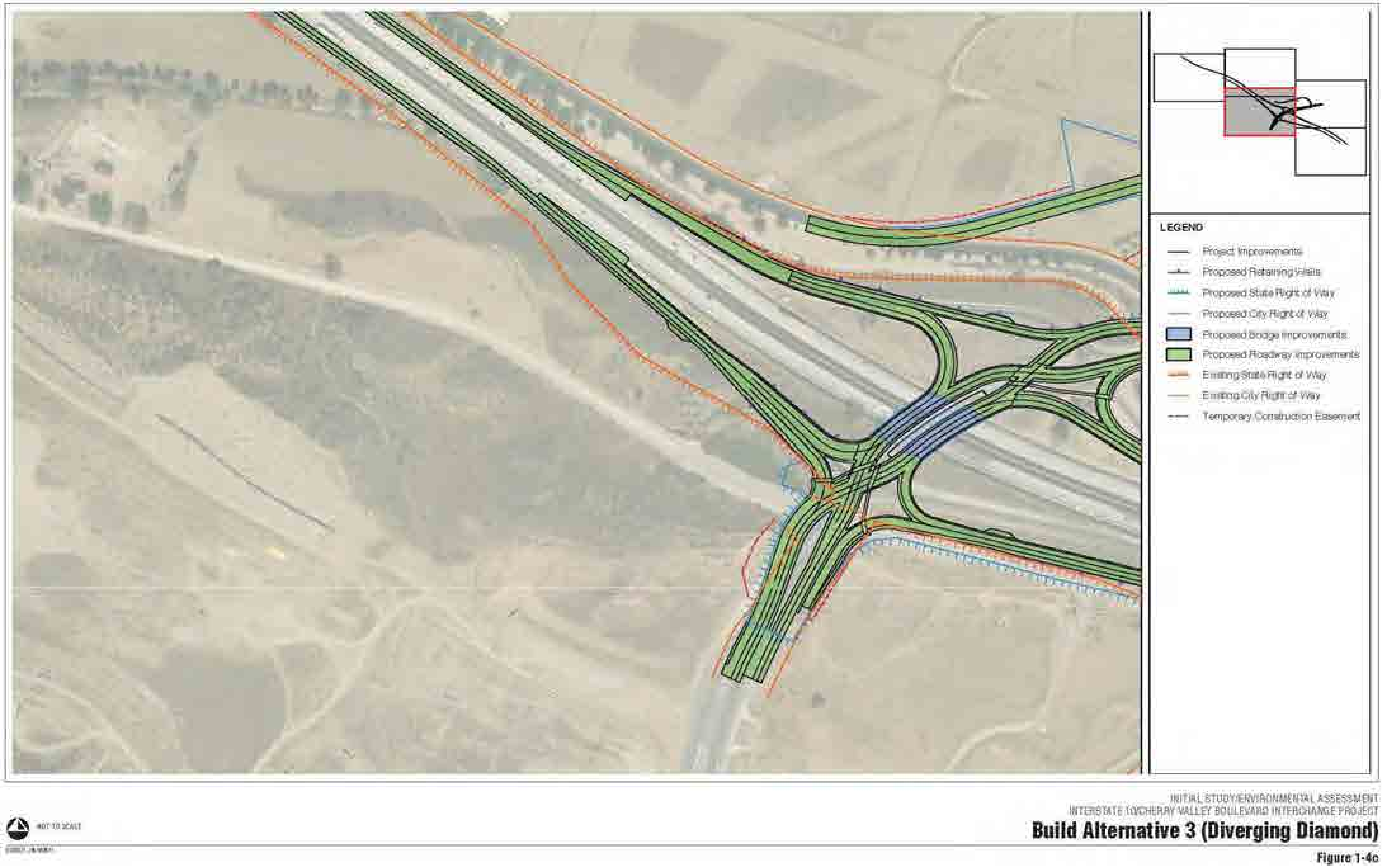

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Figure 1-4d: Build Alternative 3 (Diverging Diamond)

NOT TO SCALE

INITIAL STUDY/ENVIRONMENTAL ASSESSMENT
INTERSTATE 10/CHERRY VALLEY BOULEVARD INTERCHANGE PROJECT
Build Alternative 3 (Diverging Diamond)
Figure 1-4d

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Figure 1-4e: Build Alternative 3 (Diverging Diamond)

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Figure 1-5: Build Alternative 4 (Partial Cloverleaf)

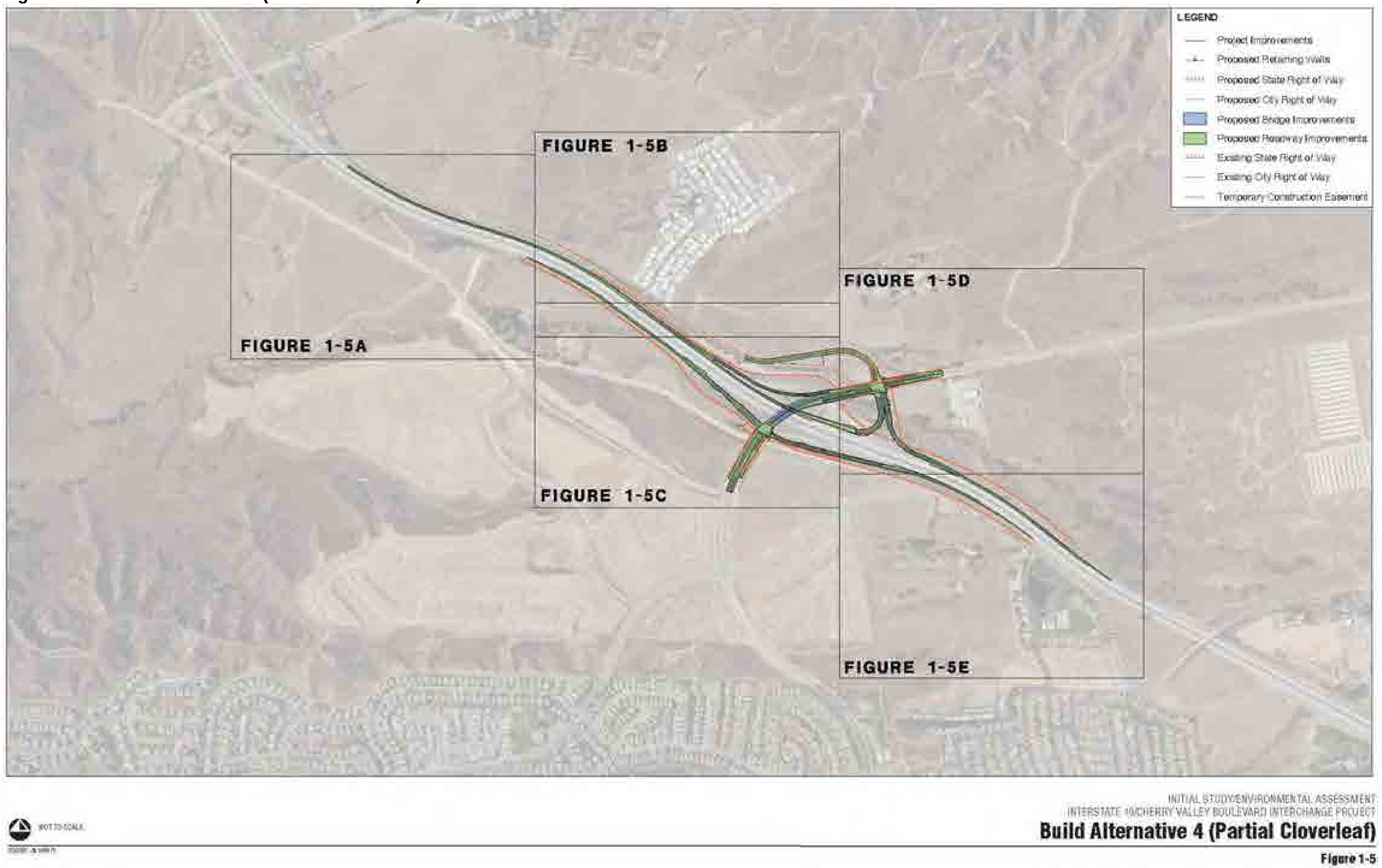

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Figure 1-5a: Build Alternative 4 (Partial Cloverleaf)

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Figure 1-5b: Build Alternative 4 (Partial Cloverleaf)

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Figure 1-5c: Build Alternative 4 (Partial Cloverleaf)

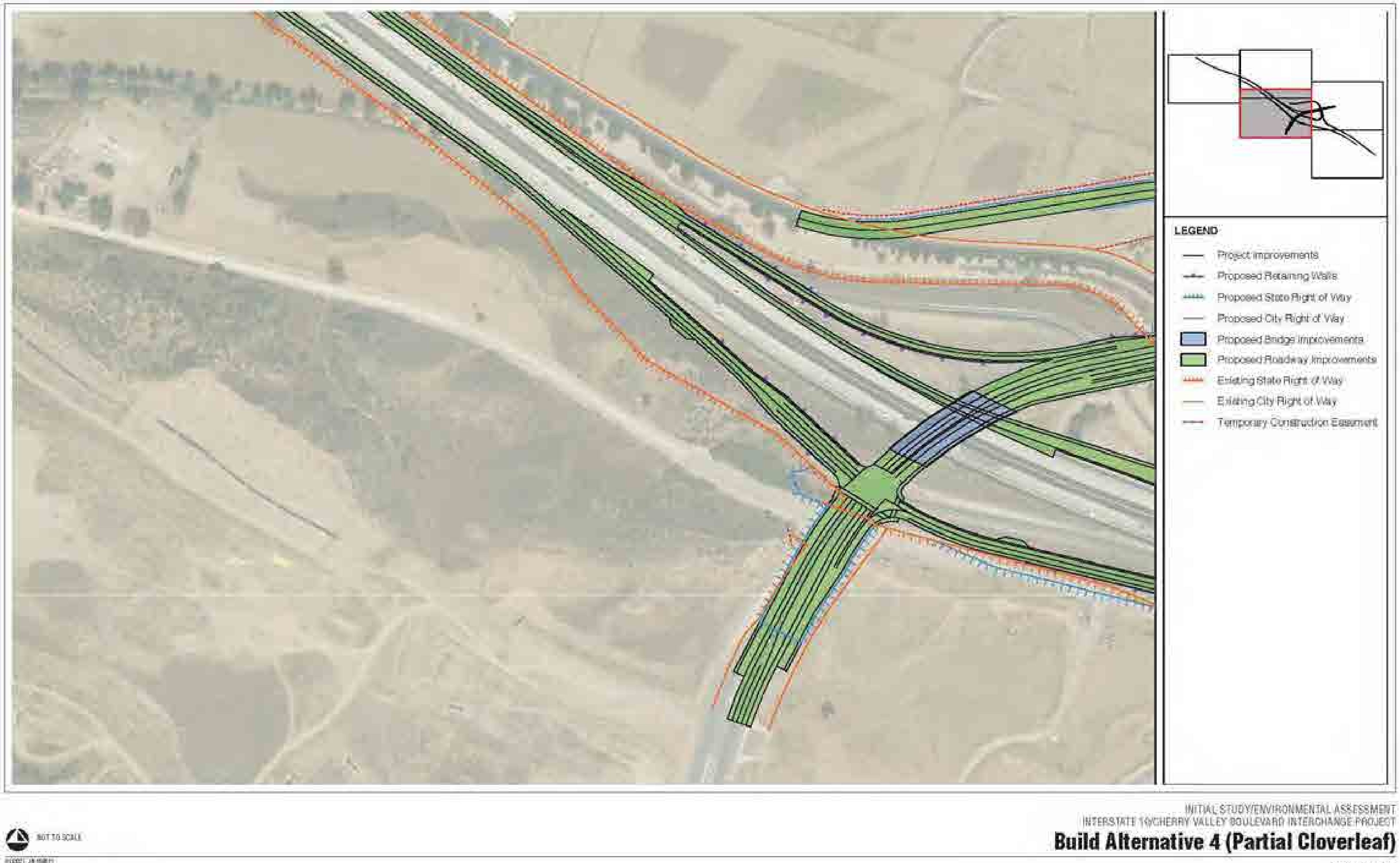

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Figure 1-5d: Build Alternative 4 (Partial Cloverleaf)

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Figure 1-5e: Build Alternative 4 (Partial Cloverleaf)

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1.4.2 Common Design Features of the Build Alternatives

Calimesa Boulevard

The Build Alternatives propose to realign Calimesa Boulevard located north of the I-10/Cherry Valley Boulevard interchange along Cherry Valley Boulevard.

Cherry Valley Boulevard

Under both Build Alternatives, Cherry Valley Boulevard would be widened to two lanes in each direction within the project limits.

Right-Turn Pockets

The Build Alternatives would include right-turn pockets along Cherry Valley Boulevard approaching the westbound I-10 on-ramp and eastbound I-10 on-ramp.

Channelized Turning

Channelized turning would be installed on Cherry Valley Boulevard to connect to Calimesa Boulevard under both Build Alternatives.

Traffic Features

For both Build Alternatives, proposed traffic features will include new signals, traffic controller cabinets, signs, and pavement markings. A signalized stop control is proposed at Calimesa Boulevard and Cherry Valley Boulevard. The I-10 eastbound and westbound off- and on-ramps at Cherry Valley Boulevard are proposed to be signalized.

Roadside Design Features

For both Build Alternatives, new or reconstructed roadside design features will include Maintenance Vehicle Pullouts (MVP), Midwest Guardrail Systems (MGS) and dike where applicable.

California Highway Patrol Enforcement Areas

The entry ramps in both directions will accommodate California Highway Patrol (CHP) enforcement areas under both Build Alternatives.

Ramp Termini

The exit ramps in both directions will require reconstruction of the ramp termini.

Ramp Metering

Under both Build Alternatives, ramp metering is proposed at the westbound and eastbound I-10 on-ramps.

I-10 Auxiliary Lane

Both Build Alternatives would include an auxiliary lane added to the eastbound off-ramp and westbound on-ramp to provide additional storage.

High Occupancy Vehicle Lanes

Both Build Alternatives propose High Occupancy Vehicle (HOV) preferential lanes on each of the Cherry Valley Boulevard entrance ramps.

Retaining Walls
Retaining walls would be constructed along each on- and off-ramp under both Build Alternatives.

ADA Facilities
For both Build Alternatives, Americans with Disabilities Act (ADA) compliant curb ramps and crosswalks would be provided at all proposed pedestrian crossings on Cherry Valley Boulevard, where access is provided. All pedestrian crossings would be designed to the Permanent Pedestrian Facilities ADA Compliance Handbook prepared by Caltrans (dated 2018).

Highway Planting
The following text has been amended since the Draft Environmental Document: Highway planting of disturbed areas is proposed with both Build Alternatives. Disturbed areas and slopes will be planted and irrigated for aesthetic, erosion control, and water quality purposes. Permanent Erosion Control, Irrigation, and Planting Plans consisting of California native plants appropriate to the project area will be prepared in accordance with the Corridor Master Plan, County of Riverside (CRCMP) and approved by the Caltrans District Landscape Architect and Maintenance representatives in coordination with project stakeholders during the final design phase of the project.

Drainage Features
Under both Build Alternatives, drainage features include new or reconstructed drainage inlets, pipes, culverts, and Best Management Practices (BMPs).

Utility Relocation
The utilities shown in Table 1-8 are anticipated to require relocation under Build Alternatives 3 and 4. Coordination with the identified utility companies will be carried out during the final design and construction phases of the project. The need for relocation of any lines will be confirmed during final design.

Table 1-8: Utility Relocation Summary

Utility Company/Owner	Utility Type	Relocation
Southern California Gas (SCG)	Gas – One six-inch medium pressure line along existing Calimesa Boulevard.	Utility will be realigned with the realignment of Calimesa Boulevard by approximately 1,500 linear feet relocation.
Yucaipa Valley Water District	Sewer – One six-inch line within State ROW outside of westbound I-10 shoulder.	Utility will be realigned within same vicinity of State ROW, approximately 3,000 linear feet to avoid bridge abutments and westbound I-10 ramp realignments.
Beaumont-Cherry Valley Water District (BCVWD)	Water – Three 24-inch lines (two potable and one non-potable) to be constructed with project.	Utility will be constructed with the project, along Cherry Valley Boulevard.

Utility Company/Owner	Utility Type	Relocation
Southern California Edison (SCE)	Electric – Three lines; two overhead (one line running across and along existing Calimesa Boulevard and a second line running across Cherry Valley Boulevard south of the eastbound I-10 ramp intersection) and one underground transmission line running across and along Cherry Valley Boulevard.	The overhead utility line that runs along and across Calimesa Boulevard will be realigned with the realignment of Calimesa Boulevard by approximately 1,500 linear feet relocation. The overhead utility line that runs across Cherry Valley Boulevard will be relocated across Cherry Valley Boulevard by approximately 400 linear feet relocation. The underground utility line that runs along and across Cherry Valley Boulevard will be realigned along Cherry Valley Boulevard by approximately 700 linear feet relocation.
Charter	Communication – Overhead cable line running along existing Calimesa Boulevard.	Utility will be realigned with the realignment of Calimesa Boulevard by approximately 1,500 linear feet relocation.
Frontier (Verizon)	Communication – Underground line running along existing Calimesa Boulevard.	Utility will be realigned with the realignment of Calimesa Boulevard by approximately 1,500 linear feet relocation.

Construction Phasing

Under both Build Alternatives, construction would occur in one phase and is anticipated to last approximately 24 months, or 315 working days.

Project Features

This project contains a number of standardized project measures applicable to the build alternatives, which are employed on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These measures are addressed in more detail in the Environmental Consequences sections found in Chapter 2.

Geotechnical Investigations

Geotechnical investigations would be required during final design of the I-10 overcrossing and interchange improvements. Additional investigations would include the preparation of a Foundation Report, Final Materials Report and Final Geotechnical Design Report. Infiltration basins are proposed in the undeveloped areas between the on- and off-ramps and I-10. Approximately 50 exploratory borings will be required during final design. It is anticipated that approximately 40 potholes would be required during the PS&E phase.

1.4.3 Unique Features of Build Alternatives

Build Alternative 3 (Diverging Diamond Interchange)

Interchange Configuration

Build Alternative 3 would reconstruct the current interchange into a diverging diamond interchange (DDI). This interchange configuration crosses each direction of traffic to the opposite side, optimizing left-turn movements and reducing conflict points.

Overcrossing Structure
This alternative would utilize two separate overcrossing structures for each direction of Cherry Valley Boulevard. Vehicles traveling northbound along the Cherry Valley Boulevard overcrossing would use the western overcrossing structure and vehicles traveling southbound would use the eastern overcrossing structure. Pedestrian facilities are discussed below.

On- and off-ramps
All on- and off-ramps at the interchange would be signalized, realigned, and reconstructed to multilane ramps. The westbound I-10 on-ramp would reduce from three lanes to one lane. The eastbound on-ramp would reduce from two lanes to one lane. Refer to Section 2.1.9 for further detail regarding queuing at the ramp locations.

The westbound off-ramp would include a right-turn pocket for vehicles turning northbound onto Cherry Valley Boulevard and two left lanes for vehicles turning southbound onto Cherry Valley Boulevard. The eastbound off-ramp would include two lanes of traffic turning northbound and two lanes of travel turning southbound onto Cherry Valley Boulevard.

Pedestrian Facilities
Build Alternative 3 provides a sidewalk on each side of Cherry Valley Boulevard, excluding the overcrossing structures where a ten-foot sidewalk would be provided on the eastbound structure to serve both directions of pedestrian travel. Crosswalks would be oriented to connect the eastbound structure’s sidewalk to the sidewalk on both sides of Cherry Valley Boulevard. Right turn pockets would include a four-foot bicycle buffer and bypass the Cherry Valley Boulevard crossovers.

Right-of-Way
The following text has been amended since the Draft Environmental Document: For Build Alternative 3, ROW required for acquisition includes approximately 2.80 acres of Temporary Construction Easement (TCE) and approximately 4.20 acres of permanent easements; refer to Tables 1-9 and 1-10, below. No residential or business relocations would occur as a result of Build Alternative 3.

The following text has been amended since the Draft Environmental Document: The ROW acquisitions have taken into account permanent and temporary needs related to design requirements, safety of the facility, and construction access.

Table 1-9: Potential Temporary Right-of-Way Acquisitions and Relocations – Build Alternative 3

The following table has been amended since the Draft Environmental Document.

APN	Address	Build Alternative 3 Impacts (Acres)	Relocation	Current Land Use
413-270-004	N/A	0.16	No	Commercial/Vacant Land
413-270-014	3607 Cherry Valley Boulevard	1.59	No	Commercial/Multiple SFR Structures
413-270-015	36240 Cherry Valley Boulevard	0.50	No	Residential/Residential
407-230-018	N/A	0.19	No	Commercial/Vacant Land
407-230-017	36015 Cherry Valley Boulevard	0.13	No	Commercial/Vacant Land
407-230-016	N/A	0.06	No	Commercial/Vacant Land
413-290-044	N/A	0.17	No	Commercial/Vacant Land

Source: Community Impact Assessment Technical Memorandum, January 2021.

Table 1-10: Potential Permanent Right-of-Way Acquisitions and Relocations – Build Alternative 3

The following table has been amended since the Draft Environmental Document.

APN	Address	Build Alternative 3 Impacts (Acres)	Relocation	Current Land Use
413-270-004	N/A	0.63	No	Commercial/Vacant Land
413-270-014	3607 Cherry Valley Boulevard	1.94	No	Commercial/Multiple SFR Structures
413-270-015	36240 Cherry Valley Boulevard	0.81	No	Residential/Residential
407-230-018	N/A	0.02	No	Commercial/Vacant Land
413-780-020	N/A	0.44	No	Commercial/Shopping Center
413-290-044	N/A	0.02	No	Commercial/Vacant Land
413-270-021	N/A	0.21	No	Commercial/Vacant Land
413-270-019	N/A	0.01	No	Commercial/Vacant Land
413-270-020	N/A	0.002	No	Residential/Vacant Land

Source: Community Impact Assessment Technical Memorandum, January 2021.

Cost

The following text has been amended since the Draft Environmental Document: The escalated cost estimate for the Build Alternative is summarized in Table 1-11. Capital outlay support costs are estimated at $9,743,000 and are not included in these costs.

Table 1-11: Build Alternative 3 Cost Estimates (Escalated)

The following table has been amended since the Draft Environmental Document.

Roadway	Structures	Right of Way	Total
$39,110,929	$10,678,374	$9,854,113	$59,644,000

Notes: Right of way costs includes utility costs per Right of Way Data Sheets.
The total estimated cost is rounded per preliminary cost estimating guidance.

Build Alternative 4 (Partial Cloverleaf Interchange)

Interchange Configuration
Build Alternative 4 would reconstruct the current interchange into a partial cloverleaf configuration.

Overcrossing Structure
The I-10/Cherry Valley Boulevard overcrossing would be reconstructed to accommodate two through lanes in each direction, channelized left-turn lanes, and sidewalks.

On- and off-ramps
The westbound loop on- and off-ramps would be realigned and reconstructed. The proposed westbound loop on-ramp would serve eastbound vehicles on Cherry Valley Boulevard. The proposed westbound direct on-ramp and eastbound on- and off-ramps would be signalized, realigned, and widened to two-lane ramps. The westbound direct on-ramp would provide a free-flow movement for westbound vehicles on Cherry Valley Boulevard. The eastbound ramps would maintain their current tight diamond configuration.

Pedestrian Facilities
Under Build Alternative 4, Cherry Valley Boulevard would be widened to include sidewalk in the eastbound direction. The I-10/Cherry Valley Boulevard overcrossing would be reconstructed to include an eight-foot sidewalk. A six-foot bicycle buffer would be provided on all proposed right turn pockets within the project limits.

Right-of-Way
For Build Alternative 4, ROW required for acquisition includes approximately 3.19 acres of TCE and approximately 6.56 acres of Permanent Easement; refer to Tables 1-12 and 1-13, below. Two residential relocations would occur on APN 413-270-014. No business relocations would occur as a result Build Alternative 4.

The following text has been amended since the Draft Environmental Document: The ROW acquisitions have taken into account permanent and temporary needs related to design requirements, safety of the facility and construction access.

Table 1-12: Potential Temporary Right-of-Way Acquisitions and Relocations – Build Alternative 4

The following table has been amended since the Draft Environmental Document.

APN	Address	Build Alternative 4 Impacts (Acres)	Relocation	Current Land Use
413-270-004	N/A	0.14	No	Commercial/Vacant Land
413-270-014	3607 Cherry Valley Boulevard	2.20	No	Commercial/Multiple SFR Structures
413-270-015	36240 Cherry Valley Boulevard	0.09	No	Residential/Residential
407-230-018	N/A	0.08	No	Commercial/Vacant Land
413-290-044	N/A	0.02	No	Commercial/Vacant Land

Source: Community Impact Assessment Technical Memorandum, January 2021.

Table 1-13: Potential Permanent Right-of-Way Acquisitions and Relocations – Build Alternative 4

The following table has been amended since the Draft Environmental Document.

APN	Address	Build Alternative 4 Impacts (Acres)	Relocation	Current Land Use
413-270-004	N/A	1.02	No	Commercial/Vacant Land
413-270-014	3607 Cherry Valley Boulevard	1.31	Yes	Commercial/Multiple SFR Structures
413-270-015	36240 Cherry Valley Boulevard	< 0.01	No	Residential/Residential
407-230-004	--	0.01	No	Commercial/Vacant Land
407-230-017	36015 Cherry Valley Boulevard	2.77	No	Commercial/Vacant Land
407-230-016	N/A	0.92	No	Commercial/Vacant Land
413-780-020	N/A	0.26	No	Commercial/Shopping Center
413-270-021	N/A	0.21	No	Commercial/Vacant Land
413-270-019	N/A	0.00	No	Commercial/Vacant Land
413-270-020	N/A	0.00	No	Residential/Vacant Land

Source: Community Impact Assessment Technical Memorandum, January 2021.

Nonstandard Features

Access Rights Opposite Ramp Terminals, HDM Index 504.8: Access rights shall be acquired on the opposite side of ramp terminals to preclude driveways or local roads within the ramp intersection. Build Alternative 4 proposes that the termini of the westbound off- and westbound loop on-ramps join at an intersection opposite Calimesa Boulevard. This configuration introduces nonstandard access control due to the presence of Calimesa Boulevard opposite the westbound ramps. Moving Calimesa Boulevard to provide standard access control opposite the westbound ramps would introduce additional design exceptions, ROW impacts, and construction costs.

Guidelines for the Location and Design of Curb Ramps, HDM Index 105.5: Dual curb ramps are required at each curb return with a (potential) pedestrian crossing. Single curb ramps are provided at both the eastbound and westbound ramps at various locations where additional pedestrian crossings could happen, but are not proposed. Installing dual curb ramps at these locations would encourage pedestrians to cross at unmarked crossings and, when used, would place pedestrians on the west side of the interchange where there are no sidewalks.

Cost

The following text has been amended since the Draft Environmental Document: The escalated cost estimate for the Build Alternative is summarized in Table 1-14. Capital outlay support costs are estimated at $9,565,000 and are not included in these costs.

Table 1-14: Build Alternative 4 Cost Estimates (Escalated)

The following table has been amended since the Draft Environmental Document.

Roadway	Structures	Right of Way	Total
$39,950,096	$8,424,706	$14,135,767	$62,511,000

Notes: Right of way costs includes utility costs per Right of Way Data Sheets.
The total estimated cost is rounded per preliminary cost estimating guidance.

1.4.4 Transportation Demand Management (TDM), Transportation System Management (TSM), and Mass Transit Alternatives

Transportation System Management (TSM) strategies increase the efficiency of existing facilities; they are actions that increase the number of vehicle trips a facility can carry without increasing the number of through lanes. Examples of TSM strategies include: ramp metering, auxiliary lanes, turning lanes, reversible lanes and traffic signal coordination. TSM also encourages automobile, public and private transit, ridesharing programs, and bicycle and pedestrian improvements as elements of a unified urban transportation system. Modal alternatives integrate multiple forms of transportation modes, such as pedestrian, bicycle, automobile, rail, and mass transit.

TDM focuses on regional means of reducing the number of vehicle trips and vehicle miles traveled as well as increasing vehicle occupancy. It facilitates higher vehicle occupancy or reduces traffic congestion by expanding the traveler’s transportation options in terms of travel method, travel time, travel route, travel costs, and the quality and convenience of the travel experience. A typical activity would be providing funds to regional agencies that are actively promoting ridesharing, maintaining rideshare databases, and providing limited rideshare services to employers and individuals.

Although TSM, TDM, and mass transit measures alone could not satisfy the purpose and need of the proposed project, the following measures have been incorporated into the build alternative for this project:

- The project would provide sidewalk along Cherry Valley Boulevard and a four-foot to six-foot bicycle buffer at turn pockets. These features would improve mobility through the interchange for bicyclists and pedestrians.
- The project would provide two-lane ramp metered entrances at all interchange entrance ramps. This feature would improve mobility along I-10 within the project boundaries.
- The project would provide an auxiliary lane along I-10 westbound between the Cherry Valley Boulevard and Singleton Road. This feature would improve mobility along I-10 within the project boundaries.

1.4.5 Alternative 1 (No-Build Alternative)

The No-Build Alternative refers to the scenario/condition where no improvements are constructed at/through the study intersection with the exception of routine roadway maintenance and currently approved improvements.

1.4.6 Comparison of Alternatives

Table 1-15: Alternatives Comparison – Project Features and Design Standards

The following table has been amended since the Draft Environmental Document.

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
Traffic Operations – Intersections	As shown in Table 1-2b, by the year 2025, the following intersections are projected to have a LOS D or worse: • Cherry Valley Boulevard/ Palmer Avenue/Desert Lawn Drive (AM and PM peak hour) • Cherry Valley Boulevard/ Roberts Road (AM and PM peak hour) • I-10 eastbound Off/On-	As shown in Table 1-2c, by the year 2025, all analyzed intersections are projected to perform at an acceptable LOS C or better. As shown in Table 1-2f, by the year 2045 the following intersections are projected to have a LOS D or worse: • I-10 eastbound Off/On-Ramps/ Singleton Road (PM peak hour) • I-10 westbound Off/On-Ramps/ Singleton Road (AM peak hour)	As shown in Table 1-2c, by the year 2025, all analyzed intersections are projected to perform at an acceptable LOS C or better. As shown in Table 1-2g, by the year 2045 the following intersections are projected to have a LOS D or worse: • I-10 eastbound Off/On-Ramps/ Singleton Road (PM peak hour) • I-10 westbound Off/On-Ramps/ Singleton Road

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
	Ramps/Cherry Valley Boulevard (AM and PM peak hour) • I-10 westbound Off/On-Ramps/ Cherry Valley Boulevard (AM peak hour) • Calimesa Boulevard/Cherry Valley Boulevard (westbound through) (AM peak hour) As shown in Table 1-2e, by the year 2045 the following intersections are projected to have a LOS D or worse: • I-10 eastbound Off/On-Ramps/Singleton Road (PM peak hour) • I-10 westbound Off/On-Ramps/Singleton Road (AM and PM peak hour) • Cherry Valley Boulevard/ Palmer Avenue/Desert Lawn Drive (AM and PM peak hour) • Cherry Valley Boulevard/Roberts Road (AM and PM peak hour) • I-10 eastbound Off/On-Ramps/Cherry Valley Boulevard (AM and PM peak hour) • I-10 westbound Off/On-Ramps/Cherry Valley Boulevard	• Cherry Valley Boulevard/Roberts Road (PM peak hour)	(AM and PM peak hour) • Cherry Valley Boulevard/Roberts Road (PM peak hour)

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
	(AM and PM peak hour) • I-10 westbound Off/On-Ramps/Oak Valley Parkway (AM peak hour)		
Traffic Operations – Mainline	As shown in Tables 1-4c and 1-4f, by the year 2025, the following mainline segments are projected to have a LOS D or worse: • Eastbound Singleton On-Ramp (PM peak hour) • Eastbound Cherry Valley Boulevard Off-Ramp (PM peak hour) • Westbound Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp (AM peak hour) • Westbound Singleton Road Off-Ramp (AM peak hour) As shown in Tables 1-4i and 1-4l, by the year 2045, the following mainline segments are projected to have a LOS D or worse: • Eastbound North of Singleton Road (PM peak hour) • Eastbound Singleton Road On-Ramp (PM peak hour) • Eastbound Singleton Road On-Ramp to Cherry Valley Boulevard Off-	As shown in Tables 1-4d and 1-4g, by the year 2025, the following locations are projected to have a LOS D or worse: • Westbound North of Singleton Road (AM peak hour) As shown in Tables 1-4j through 1-4m, by the year 2045, the following mainline segments are projected to have a LOS D or worse: • Eastbound North of Singleton Road (PM peak hour) • Eastbound Oak Valley Parkway Off-Ramp (PM peak hour) • Westbound South of Oak Valley Parkway (AM peak hour) • Westbound Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp (AM and PM peak hour) • Westbound Cherry Valley Boulevard Off-Ramp (AM peak hour) • Westbound Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp (AM and PM peak hour) • Westbound Cherry Valley Boulevard On-Ramp to Singleton	As shown in Table 1-4e and 1-4h, by the year 2045, the following locations are projected to have a LOS D or worse: • Westbound North of Singleton Road (AM peak hour) As shown in Tables 1-4k through 1-4n, by the year 2045, the following mainline segments are projected to have a LOS D or worse: • Eastbound Oak Valley Parkway Off-Ramp (PM peak hour) • Westbound South of Oak Valley Parkway (AM peak hour) • Westbound Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp (AM and PM peak hour) • Westbound Cherry Valley Boulevard Off-Ramp (AM peak hour) • Westbound Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp (AM peak hour) • Westbound Cherry Valley Boulevard On-Ramp (AM peak hour) • Westbound Cherry Valley Boulevard

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
	Ramp (PM peak hour) • Eastbound Cherry Valley Boulevard Off-Ramp (PM peak hour) • Westbound South of Oak Valley Parkway (AM and PM peak hour) • Westbound Oak Valley Parkway Off-Ramp (PM peak hour) • Westbound Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp (AM and PM peak hour) • Westbound Oak Valley Parkway On-Ramp (AM and PM peak hour) • Westbound Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp (AM and PM peak hour) • Westbound Cherry Valley Boulevard Off-Ramp (AM and PM peak hour) • Westbound Cherry Valley Boulevard Off-Ramp to Cherry Valley Boulevard On-Ramp (PM peak hour) • Westbound Cherry Valley Boulevard On-Ramp (AM and PM peak hour)	Road Off-Ramp (AM peak hour) • Westbound North of Singleton Road (AM and PM peak hour)	On-Ramp to Cherry Valley Boulevard Off-Ramp (AM peak hour) • Westbound Singleton Road Off-Ramp (AM peak hour) • Westbound North of Singleton Road (AM and PM peak hour)

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
	• Westbound Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp (AM and PM peak hour) • Westbound Singleton Road Off-Ramp (AM and PM peak hour) • Westbound North of Singleton Road (AM peak hour)		
Traffic Operations –System-wide Performance	N/A.	Compared to the No-Build Alternative by the year 2025, the following performance measures would occur: • 75.5 seconds decrease in average delay per vehicle (AM peak hour) • 124.9 seconds decrease in average delay per vehicle (PM peak hour) • 11.4 miles per hour (mph) increase in average speed (AM peak hour) • 15.2 miles per hour (mph) increase in average speed (PM peak hour) • 219.1 hours decrease in vehicle hours travelled (AM peak hour) • 393.6 hours decrease in vehicle hours travelled (PM peak hour) Compared to the No-Build Alternative by the year 2045, the following performance measures would occur: • 269.7 seconds decrease in average	Compared to the No-Build Alternative by the year 2025, the following performance measures would occur: • 78 seconds decrease in average delay per vehicle (AM peak hour) • 121.9 seconds decrease in average delay per vehicle (PM peak hour) • 11.3 miles per hour (mph) increase in average speed (AM peak hour) • 14.7 miles per hour (mph) increase in average speed (PM peak hour) • 203.2 hours decrease in vehicle hours travelled (AM peak hour) • 381.8 hours decrease in vehicle hours travelled (AM peak hour) Compared to the No-Build Alternative by the year 2045, the following performance measures would occur:

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
		delay per vehicle (AM peak hour) • 282.2 seconds decrease in average delay per vehicle (PM peak hour) • 21.0 miles per hour (mph) increase in average speed (AM peak hour) • 21.7 miles per hour (mph) increase in average speed (PM peak hour) • 1,090.7 hours decrease in vehicle hours travelled (AM peak hour) • 1,053.4 hours decrease in vehicle hours travelled (PM peak hour)	• 269.3 seconds decrease in average delay per vehicle (AM peak hour) • 282.8 seconds decrease in average delay per vehicle (PM peak hour) • 20.5 miles per hour (mph) increase in average speed (AM peak hour) • 21.6 miles per hour (mph) increase in average speed (PM peak hour) • 1,058.9 hours decrease in vehicle hours travelled (AM peak hour) • 1,046.6 hours decrease in vehicle hours travelled (PM peak hour)
Number of Signalized Intersections	7	7	7
Temporary Construction Easements	None	7 APNs for TCEs	5 APNs for TCEs
Permanent ROW Acquisition	None	8 APNs	22 APNs
Total Project Cost	None	$59,644,000	$62,511,000

Table 1-16, Environmental Impacts, provides a summary comparison of the environmental impacts between Build Alternatives 3 and 4 and the No-Build Alternative, which have been studied in conjunction with development of the proposed new interchange project. Impacts that are similar between Build Alternatives 3 and 4 are not discussed in Table 1-16. These impacts pertain to air quality, biological resources (natural communities, plant species, threatened and endangered species, and invasive species), community character, cultural resources, energy, environmental justice, hazardous waste/materials, hydrology and floodplain, land use, noise, visual/aesthetics, water quality and stormwater runoff, parks/recreation, paleontology, utilities, and Section 4(f) resources are not listed.

Table 1-16: Environmental Impacts

The following table has been amended since the Draft Environmental Document.

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
Farmlands	No impact.	Project implementation of Build Alternative 3 would impact two properties (APN 413-270-004 and 413-270-014) located northwest of the I-10/Cherry Valley Boulevard Interchange. Project implementation would result in the direct conversion of approximately 11.24 acres of Farmland of Local Importance to non-agricultural use. With the implementation of Measure ROW-1, ROW will be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and property owners shall receive just compensation and fair market value for their property.	Project implementation of Build Alternative 4 would impact two properties (APN 413-270-004 and 413-270-014) located northwest of the I-10/Cherry Valley Boulevard Interchange. Project implementation would result in the direct conversion of approximately 9.44 acres of Farmland of Local Importance to non-agricultural use. With the implementation of Measure ROW-1, ROW will be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and property owners shall receive just compensation and fair market value for their property.
Relocations and Real Property Acquisition	No impact.	Temporary ROW acquisition of 2.80 acres and permanent ROW acquisition of 4.08 acres. No residential or business relocations would occur.	Temporary ROW acquisition of 2.53 acres and permanent ROW acquisition of 6.50 acres. Partial permanent of APN 413-270-014 would occur, resulting in the removal of two residential structures. With implementation of Measure ROW-1, ROW will be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and property owners will receive just compensation and fair market value for their property.
Wetlands and Other Waters	No impact.	Permanent Impacts would occur on approximately 0.02 acre (63 linear feet) of Regional Board jurisdiction	Permanent Impacts would occur on approximately 0.06 acre (221 linear feet) of Regional Board jurisdiction

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
		(non-wetland waters of the State) and 0.03 acre (63 linear feet) of CDFW jurisdiction. Implementation of Measure WET-1 would require permits/approvals from the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service (USFWS). Implementation of Measure WET-2 would require limits of construction to be clearly defined before construction activities would begin.	(non-wetland waters of the State) and 0.16 acre (221 linear feet) of CDFW jurisdiction. Implementation of Measure WET-1 would require permits/approvals from the United States Army Corps of Engineers (USACE), Regional Water Quality Control Board (RWQCB), California Department of Fish and Wildlife (CDFW), and U.S. Fish and Wildlife Service (USFWS). Implementation of Measure WET-2 would require limits of construction to be clearly defined before construction activities would begin.
Animal Species	No Impact.	Indirect impacts that would occur toward bat species [Yuma myotis (*Myotis yumanensis*), Mexican free-tailed bat (*Tadarida brasiliensis*), and big brown bat (*Eptesicus fuscus*)] would include the removal of suitable habitat, such as ornamental palm trees, eucalyptus trees, the Cherry Valley Boulevard Overcrossing bridge. Implementation of measure AS-1 would require a bat survey is conducted prior to commencement of project activities. Permanent impacts would occur to approximately 0.06 acres of suitable scrub oak chaparral habitat for the San Diegan tiger whiptail. Implementation of Measure AS-2 would require a qualified biological monitor be retained on-site during ground and habitat disturbance activities associated with the project. Temporary and permanent impacts would occur to approximately 7.11 acres and 16.02 acres,	Indirect impacts that would occur toward bat species [Yuma myotis (*Myotis yumanensis*), Mexican free-tailed bat (*Tadarida brasiliensis*), and big brown bat (*Eptesicus fuscus*)] would include the removal of suitable habitat, such as ornamental palm trees, eucalyptus trees, the Cherry Valley Boulevard Overcrossing bridge. Implementation of measure AS-1 would require a bat survey is conducted prior to commencement of project activities. Permanent impacts would occur to approximately 0.36 acres of suitable scrub oak chaparral habitat for the San Diegan tiger whiptail. Implementation of Measure AS-2 would require a qualified biological monitor be retained on-site during ground and habitat disturbance activities associated with the project. Temporary and permanent impacts would occur to approximately 8.76 acres and 8.37 acres,

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
		respectively, of suitable habitat for the Cooper's Hawk. Implementation of Measure NC-1 would require the implementation of a Workers Environmental Awareness Program (WEAP) for all contractors, subcontractors, and workers prior to construction activities. Temporary impacts would occur to approximately 0.06 acres of suitable foraging and nesting habitat for southern California rufous-crowned sparrow. Measure NC-1 would be implemented, and Measure AS-3 would require a pre-construction clearance survey of migratory birds. Temporary and permanent impacts would occur to approximately 6.09 acres and 15.13 acres, respectively, of suitable foraging and nesting habitat for the Burrowing Owl. Measure NC-1 would be implemented, and Measure AS-4 would require implementation of a pre-construction clearance survey specifically for the Burrowing Owl. Temporary and permanent impacts would occur to approximately 6.09 acres and 15.13 acres, respectively of suitable foraging and nesting habitat for the California horned lark. Measures NC-1 and AS-3 would be implemented. Permanent impacts would occur towards 0.36 acres of suitable habitat for the northwestern San Diego pocket mouse and the San Diego black-tailed jackrabbit. Measure NC-1 would be implemented.	respectively, of suitable habitat for the Cooper's Hawk. Implementation of Measure NC-1 would require the implementation of a Workers Environmental Awareness Program (WEAP) for all contractors, subcontractors, and workers prior to construction activities. Temporary and permanent impacts would occur to approximately 0.20 acres and 0.36 acres, respectively, of suitable foraging and nesting habitat for southern California rufous-crowned sparrow. Measure NC-1 would be implemented, and Measure AS-3 would require a pre-construction clearance survey of migratory birds. Temporary and permanent impacts would occur to approximately 6.97 acres and 16.12 acres, respectively, of suitable foraging and nesting habitat for the Burrowing Owl. Measure NC-1 would be implemented, and Measure AS-4 would require a pre-construction clearance survey specifically for the Burrowing Owl. Temporary and permanent impacts would occur to approximately 6.97 acres and 16.12 acres, respectively of suitable foraging and nesting habitat for the California horned lark. Measures NC-1 and AS-3 would be implemented. Temporary and permanent impacts would occur towards 0.20 acres and 0.87 acres, respectively suitable habitat for the northwestern San Diego pocket mouse and the San Diego black-

Evaluation Criteria	No-Build Alternative	Build Alternative 3	Build Alternative 4
			tailed jackrabbit. Measure NC-1 would be implemented.

The following text in Section 1.4.7 has been amended since the Draft Environmental Document.

1.4.7 Identification of a Preferred Alternative

Although both Build Alternatives 3 and 4 would satisfy the project's purpose and need, Build Alternative 3 was identified as the preferred alternative and selected for the following reasons:

- The number of permanent ROW acquisitions required for Build Alternative 3 would be less than Build Alternative 4. Accordingly, Build Alternative 3 would have less potential for permanent adverse effects.
- The total cost to construct Build Alternative 3 would be less than Build Alternative 4.
- The project footprint would be smaller for Build Alternative 3 compared to Build Alternative 4, thus resulting in less disturbance and associated environmental effects.
- Build Alternative 3 would provide a greater degree of mobility for trucks, pedestrians and bicycles, and emergency access vehicles than Build Alternative 4.

Caltrans circulated the Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment (IS/EA) for public review and comment between December 23, 2021, and January 24, 2022. The public review end date was extended to February 14th, 2022, to provide additional time for public and agency review and comment. After reviewing all the comments received (provided in Chapter 4.0, Comments and Coordination), the Project Development Team (PDT) met and identified Alternative 3 as the Preferred Alternative on July 27, 2022. In conjunction with the PDT's identification of a Preferred Alternative, the extent of operational advantages achieved at the interchange location, consistency with design standards, ROW acquisitions and relocations, cost, and potential impacts to the environment were considered. An alternative comparison matrix was prepared to validate the project's purpose and need. Considerations were given to public review comments and the public hearing process; input from PDT members; project funding; as well as environmental, social, and economic impacts. The evaluation criteria established for identifying the Preferred Alternative are as follows:

- Traffic Operations and Performance
- Safety

- Right-of-Way
- Nonstandard Design Features
- Project Costs
- Construction Duration and Staging
- Environmental Impacts
- Mobility
- Community Expectations
- Public Input

As discussed throughout Chapter 2 of this IS/EA and as summarized above in Table 1-16, the impacts associated with Alternative 3 and Alternative 4 are very similar with respect to environmental resources. As described in Table 1-16, Alternative 3 would result in less permanent ROW acquisitions when compared to Alternative 4. With implementation of all the identified avoidance, minimization, and/or mitigation measures, as summarized in Appendix E (Environmental Commitments Record), the I-10/Cherry Valley Boulevard Interchange Project would not result in significant impacts.

As shown in Tables 1-11 and 1-14, the estimated design costs for Alternative 3 is $59,644,000 and for Alternative 4 is $62,511,000, which includes costs associated with project construction and support (these do not include the costs of implementation of the project's Avoidance, Minimization, and/or Mitigation Measures). Accordingly, the total cost to construct Build Alternative 3 would be less than Build Alternative 4.

The following text has been amended since the Draft Environmental Document:

1.4.8 Alternatives Considered but Eliminated from Further Discussion Prior to the "Draft" Initial Study/Environmental Assessment (IS/EA)

Reversible Lanes

Assembly Bill 2542 amended California Streets and Highways code to require, effective January 1, 2017, that the Department or a regional transportation planning agency demonstrate that reversible lanes were considered when submitting a capacity-increasing project or a major street or highway lane realignment project to the California Transportation Commission for approval (California Streets and Highways Code, Section 100.015). However, reversible lanes were not considered for the I-10/Cherry Valley Boulevard Interchange Improvement Project because it was programmed prior to January 1, 2017.

Alternative 2 (Roundabouts)

Build Alternative 2 (Roundabouts), from the approved Project Study Report-Project Development Support (PSR-PDS), would reconfigure the current diamond interchange and construct roundabouts at each of the existing ramp intersections. Each roundabout would include two lanes in each direction.

Cherry Valley Boulevard would be widened to two lanes in each direction with sidewalk in both directions. The I-10/Cherry Valley Boulevard overcrossing would be reconstructed to accommodate these additional lanes and sidewalk. Right turn pockets would be added on Cherry Valley Boulevard approaching each roundabout. A four-foot bicycle buffer would be provided for each of these right turn pockets. A left turn pocket would be added on Cherry Valley Boulevard to connect to Calimesa Boulevard, which would have a one-way stop control at Calimesa Boulevard turning onto Cherry Valley Boulevard. The eastbound on-ramp and off-ramp would be realigned and reconstructed to two and three lanes, respectively. The westbound on-ramp and off-ramp would be realigned and reconstructed to three and two lanes, respectively. An auxiliary lane would be added to the eastbound off-ramp to mitigate weaving along the mainline and ramp exit. All on-ramps would be improved to include HOV preferential lanes, ramp metering, and CHP enforcement areas. This alternative is not anticipated to require FHWA approval.

Alternative 2 (Roundabouts) was removed from further consideration during the March 11, 2020, Project Development Team (PDT) meeting due to its projected insufficient traffic operations. The results of the preliminary traffic analysis indicated that Alternative 2 fails operationally on the westbound I-10 side of the interchange due to heavy westbound on and off movements conflicting with westbound Cherry Valley Boulevard Interchange traffic. As a result, this alternative is not recommended and has been eliminated from further discussion.

1.5 Permits and Approvals Needed

The following permits, licenses, agreements, and certifications (PLACs) are required for project construction:

Table 1-17: Permits, Licenses, Agreements and Certifications

The following table has been amended since the Draft Environmental Document.

Agency	Permit/Approval	Status
California Department of Fish and Wildlife (CDFW)	Section 1602 Streambed Alteration Agreement	Application for permit will be submitted to CDFW after approval of the final environmental document. Agreement will be acquired prior to completion of final design.
CDFW/U.S. Fish and Wildlife Service (USFWS)	Determination of Biologically Equivalent or Superior Preservation (DBESP)	The DBESP for the project was submitted to the USFWS/CDFW on April 19, 2023. USFWS/CDFW concurred with the DBESP on July 6, 2023.

Agency	Permit/Approval	Status
U.S. Army Corps of Engineers (USACE)	Section 404 Nationwide Permit (NWP), No. 14: Linear Transportation Projects	Application for NWP No. 14: Linear Transportation Projects will be submitted to USACE after approval of the final environmental document. Permit will be acquired prior to completion of final design.
Santa Ana Regional Water Quality Control Board (SARWQCB) and State Water Resources Control Board (SWRCB)	401 Water Quality Certification	Application for certification will be submitted to SARWQCB after approval of the final environmental document. Certificate will be acquired prior to completion of final design.
Santa Ana Regional Water Quality Control Board (SARWQCB) and State Water Resources Control Board (SWRCB)	Section 402 NPDES (National Pollutant Discharge Elimination System) (Construction Activity)/Caltrans NPDES Permit CAS000003, Order Number 2022-0033-DWQ, and CAS000002, Order Number 2022-0057-DWQ (General Permit)	The current NPDES General Construction Permit would be applied for prior to project construction.
Beaumont Cherry Valley Water District (BCVWD)	Encroachment Permit	Will be required prior to completion of the final design specifications.
Federal Highway Administration (FHWA)	Air Quality Conformity Determination	The Air Quality Conformity Analysis (AQCA) was prepared for the project and FHWA provided concurrence on April 28, 2020.
Freeway Maintenance Agreement	County of Riverside and California Department of Transportation	Permit will be acquired prior to completion of final design.

Note: NPDES Permit Nos. CAS000003 & CAS000002 are issued and CAS000002 only requires a Notice of Intent (NOI) to be submitted during construction.

Chapter 2 Affected Environment, Environmental Consequences, and Avoidance, Minimization, and/or Mitigation Measures

Environmental Issues With No Impacts

As part of the scoping and environmental analysis carried out for the project, the following environmental issues were considered but no adverse impacts were identified. As a result, there is no further discussion about these issues in this document.

- Coastal Zone - California's Coastal Zone generally extends 1,000 yards inland from the mean high tide line. The project area is situated in Riverside County and is not located within the Coastal Zone. Therefore, the project is not subject to the federal Coastal Zone Management Act of 1972 (CZMA) or to the California Coastal Act of 1976.
- Wild and Scenic Rivers - The project is not near any National Wild and Scenic Rivers.
- National Marine Fisheries Service (NMFS) - This project is located outside of National Marine Fisheries Service (NMFS) jurisdiction; therefore, an NMFS species list is not required and no effects to NMFS species are anticipated.
- Timberlands - There are no timberlands or timber harvesting uses in the project area.

2.1 Human Environment

2.1.1 Land Use

The proposed project is located in the City of Calimesa and unincorporated areas of Riverside County. The land use analysis is based predominately on information provided in the Community Impact Assessment Memorandum (CIA Memorandum) (dated January 26, 2021) prepared for the project, the City of Calimesa General Plan (General Plan) adopted in August 2014 and the County of Riverside General Plan adopted in December 2015.

Affected Environment

Existing Land Use

The Cherry Valley Boulevard interchange is located on I-10 at Post Mile (PM) 3.5, between PM 2.1 and PM 3.8, in the City of Calimesa and in unincorporated areas of Riverside County. The existing configuration for the I-10/Cherry Valley Boulevard Interchange is a diamond interchange with stop control at the ramp termini. The Interchange is anticipated to be a major access point for existing residential development and planned residential and commercial uses under the Summerwind Specific Plan, within the City of Calimesa.

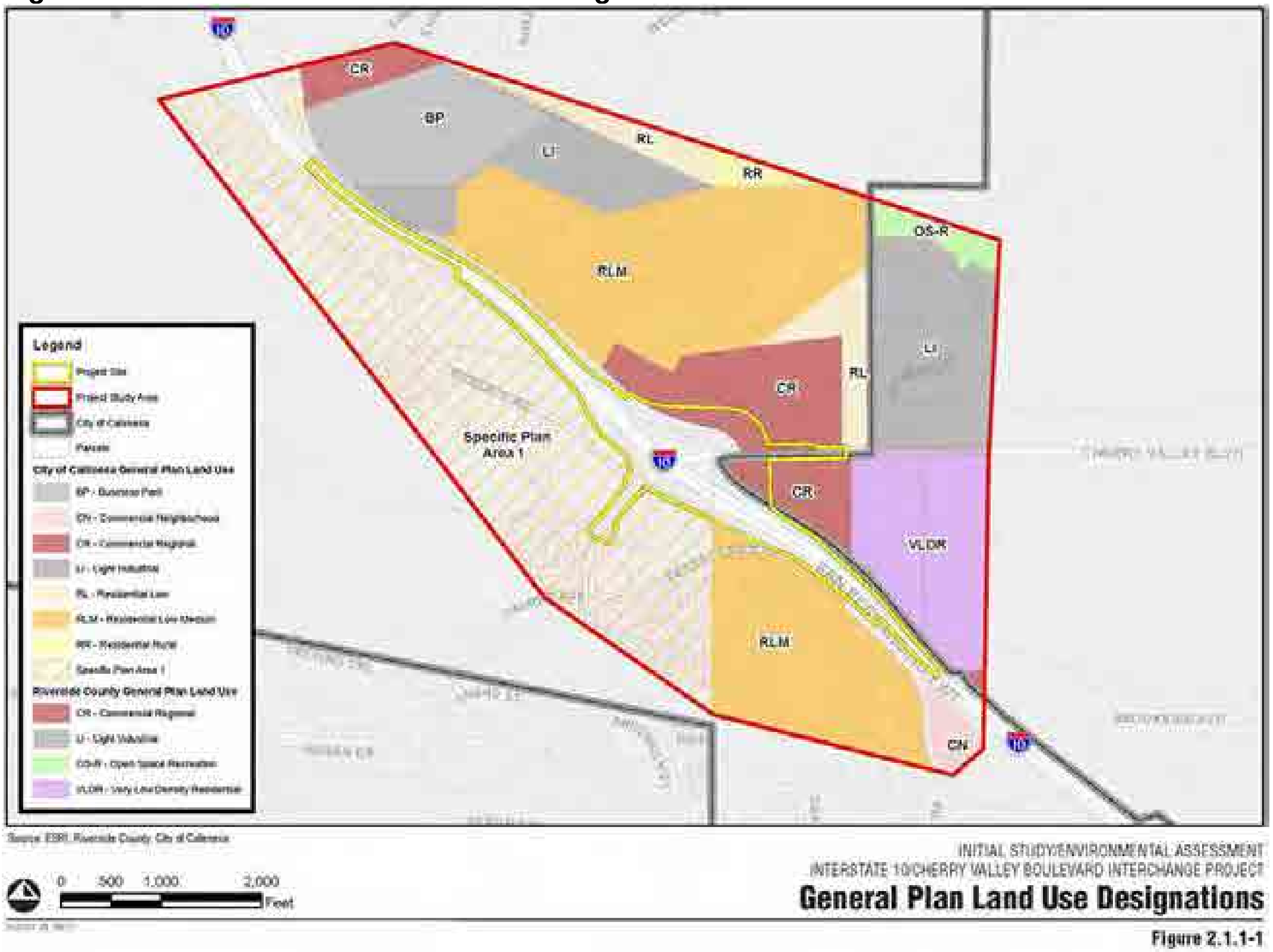
The following text has been amended since the Draft Environmental Document: Due to the rapid development of the surrounding uses, the characterization of the land uses will continue to evolve; however, based on the Calimesa 2014 General Plan, Figure LU-1, Land Use Map, existing land uses are predominately commercial ("Regional Commercial," "Community Commercial," and "Commercial Neighborhood") (the Riverside County Land Use Map adds "Commercial Retail") and residential ("Residential Low Medium" and "Open Space Residential") (the Riverside County Land Use Map adds "Very Low Density Residential"), and a small portion is designated "Business Park" and "Office-Professional," with existing residences being characterized by older structures in a rural environment. Uses within project site boundaries can be characterized as primarily transportation facilities (I-10, Cherry Valley Boulevard, Calimesa Boulevard), and vacant, commercial land. Two single-family residential structures exist within the northeasterly portion of the site, north of Cherry Valley Boulevard and east of Calimesa Boulevard. Areas surrounding the project site to the north generally include vacant, commercial land , the Rancho Calimesa Mobile Home Park (north of Calimesa Boulevard), and a single-family residential use (north of Cherry Valley Boulevard and west of Roberts Street); a truck repair facility and vacant land is located to the east; the Plantation on the Lake senior community, single-family residential, commercial/retail and residential uses associated with the Summerwind Specific Plan are located to the south; and vacant land and rural residential uses are located to the west.

There are currently no existing community facilities within the study area (services and institutions that the local population relies on for their health and welfare and as a means to interact with other members of the community, such as schools, religious institutions and/or places of worship, medical institutions, senior centers and community centers), nor are there any existing emergency service facilities (i.e., fire or police stations).

Future Land Use

Figure 2.1.1-1, General Plan Land Use Designations, depicts the land use designations within the study area, as defined in the Calimesa General Plan and the Riverside County General Plan. Under the Calimesa General Plan, Cherry Valley Boulevard is classified as a Major Arterial within City boundaries. The Riverside County General Plan classifies I-10 as a Major Highway and Cherry Valley Boulevard as a Collector Street within unincorporated Riverside County.

Figure 2.1.1-1: General Plan Land Use Designations



Multiple land use and zoning designations are included within the study area, as shown in Table 2.1.1-1, General Plan and Specific/Community Plans Land Use Designations, below.

Table 2.1.1-1: General Plan and Specific/Community Plans Land Use Designations

Interchange Quadrant	Jurisdiction	Land Use	Zoning
Northwest	City of Calimesa	Specific Plan Area 1 (Summerwind Ranch Specific Plan)	Specific Plan Area 1 (SPA1)
Northeast	City of Calimesa	Regional Commercial (CR), Residential Low (RL), Residential Low Medium (RLM), Residential Rural (RR), Business Park (BP), Light Industrial (LI)	Regional Commercial (C-R), Residential Low/ Medium (R-L-M)
Northeast	Riverside County	Open Space Recreation (OS-R), Light Industrial (LI)	Industrial Park (I-P) Controlled Development Area (W-2)
Southeast	Riverside County	Commercial Retail (CR), Very Low Density Residential (VLDR)	Scenic Highway Commercial (C-P-S) Residential Agricultural (R-A-1), Industrial Park (I-P)
Southwest	City of Calimesa	Specific Plan Area 1, Residential Low Medium (RLM) Commercial Neighborhood (CN)	Residential Low / Medium (R-L-M)

Source: City of Calimesa, City of Calimesa General Plan, August 2014.

Tables 2.1.1-2, Planned Projects in the City of Calimesa and 2.1.1-3, Planned Projects in the County of Riverside provides information regarding the planned development and transportation infrastructure projects within the vicinity of the project site based on information provided by the City of Calimesa and County of Riverside; these projects are also identified in Figure 2.1.1-2, Planned City and County Projects.

According to the CIA Memorandum, the City of Calimesa has remained largely undeveloped. Based on the Calimesa General Plan, the City's vision is to transition from a small rural City into a more populous community that welcomes new residents who will live in neighborhoods located within master-planned areas, while retaining the City's sense of community. Development trends in the City include industrial, residential, and commercial facilities that would be necessary to support the City's growing population.

Figure 2.1.1-2: Planned City and County Projects

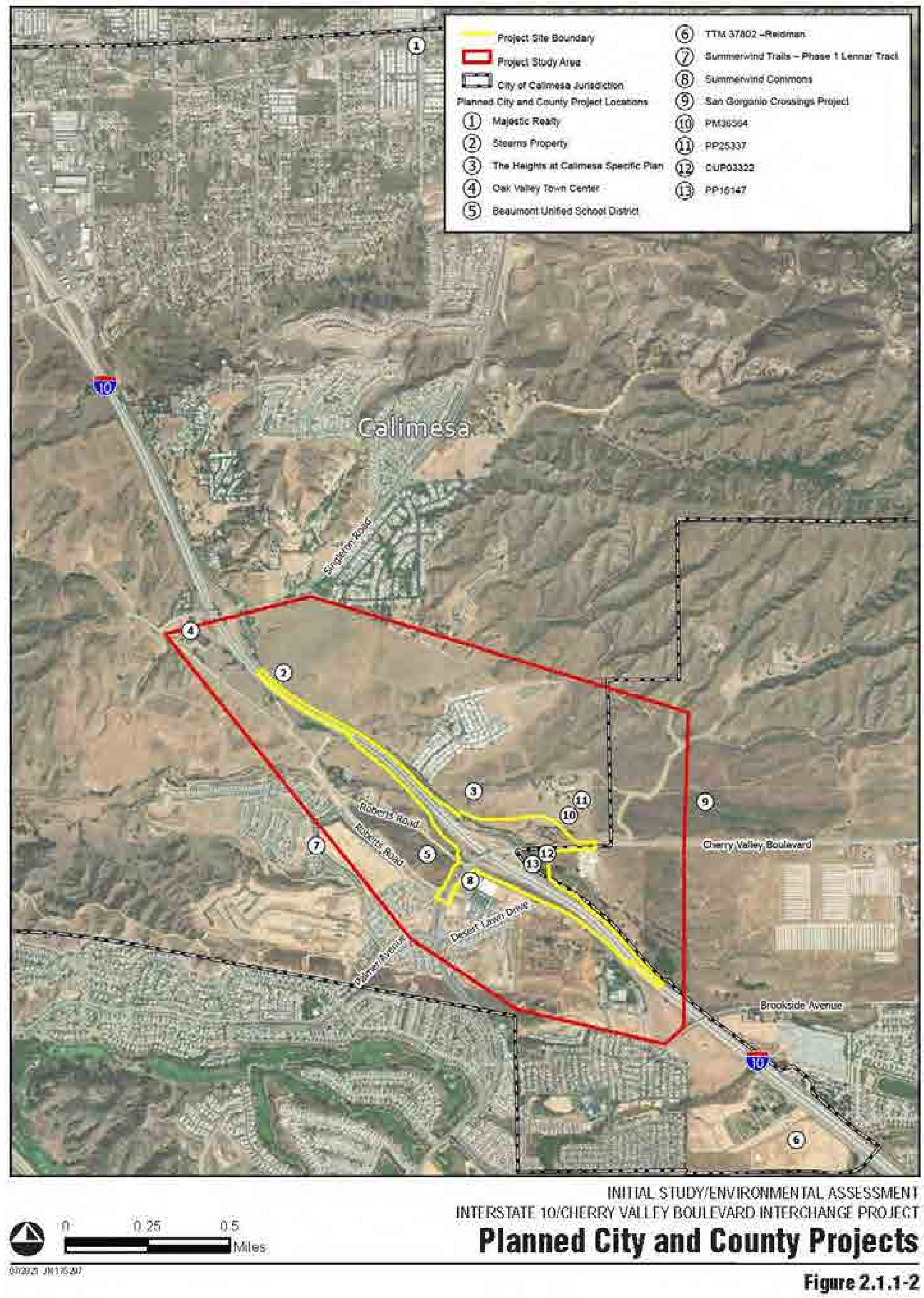


Table 2.1.1-2: Planned Projects in the City of Calimesa

Map ID	Project Name	Project Description	Location	Status
1	Majestic Realty	Two pad proposal for one gas station and one drive through restaurant	California Street and County Line Road	No approvals have been granted.
2	Stearns property	82-acre industrial development	9950 Calimesa Boulevard	No formal application has been submitted and no approvals have been granted.
3	The Heights at Calimesa Specific Plan	High density multi-family residential development	East of I-10, south of Rancho Calimesa Mobile Home Park	No formal application has been submitted and no approvals have been granted.
4	Oak Valley Town Center	Industrial/commercial development	West of I-10, south of Singleton Road	A formal application has been submitted but no approvals have been granted.
5	Beaumont Unified School District	K-8 school	Within the Summerwind Ranch Specific Plan area	An addendum to the Summerwind Ranch Specific Plan EIR was approved by school board. Currently under construction.
6	TTM 37802 – Reidman	179-lot single-family Residential subdivision	West of I-10 and Desert Lawn Drive	A formal application has been submitted but no approvals have been granted at this time.
7	Summerwind Trails – Phase 1 Lennar Tract	141-unit single-family Residential subdivision	Within the Summerwind Ranch Specific Plan area	Currently under construction.
8	Summerwind Commons	75,000 square feet commercial/retail development	Within the Summerwind Ranch Specific Plan area	No approvals have been granted.
9	San Gorgonio Crossings Project	229-acre high cube warehouse development	East of I-10, north of Cherry Valley Boulevard	EIR re-opened in July 2019 per court order and Board of Supervisors Action.

Source: Email communication with Kelly Lucia (City of Calimesa) on May 1, 2020.

Table 2.1.1-3: Planned Projects in the County of Riverside

Map ID	Project Name	Project Description	Location	Status
10	PM36564	228-acre subdivision	East of I-10, north of Cherry Valley Boulevard	Approval has been granted.
11	PP25337	230-acre industrial warehouse development	East of I-10, north of Cherry Valley Boulevard	Approval has been granted.
12	CUP03322	Truck and equipment garage and office	East of I-10, south of Cherry Valley Boulevard	Approval has been granted.
13	PP16147	Unmanned telecommunications building	East of I-10, south of Cherry Valley Boulevard	Approval has been granted.

Source: Email communication with Tesfu Tadesse (County of Riverside) on May 20, 2020.

Consistency with State, Regional, and Local Plans and Programs

Southern California Association of Governments (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS): A Plan for Mobility, Accessibility, Sustainability, and a High Quality of Life

The 2020-2045 RTP/SCS RTP/SCS provides a vision for transportation investments throughout the region. The RTP/SCS integrates transportation planning with economic development and sustainability planning and aims to comply with State greenhouse gas emissions reduction goals, such as SB 375. The SCS portion of the 2020-2045 RTP/SCS highlights strategies for the region to reach the regional target of reducing GHGs from autos and light-duty trucks by eight percent per capita by 2020, and 19 percent by 2035 (compared to 2005 levels). Specifically, these strategies are:

- Focus growth near destinations and mobility options;
- Promote diverse housing choices;
- Leverage technology innovations;
- Support implementation of sustainability policies; and
- Promote a green region.

The project would align with the 2020-2045 RTP/SCS strategies as the project would relieve congestion and improve traffic operations at the I-10/Cherry Valley Boulevard interchange and address increased travel associated with existing and planned development anticipated in the City of Calimesa and surrounding areas. The proposed project is included in the adopted and approved 2020-2045 RTP/SCS under the listing of State Highway Projects as RTP ID RIV060116.

Southern California Association of Governments (SCAG) 2023 Federal Transportation Improvement Program (FTIP)

The FTIP is a capital listing of all transportation projects proposed over a six-year period for the SCAG region. The projects include highway improvements, transit, rail and bus facilities, high occupancy vehicle lanes, signal synchronization, intersection improvements, freeway ramps, etc. The FTIP is prepared to implement projects and programs listed in the RTP and developed in compliance with State and federal requirements.

The following text has been amended since the Draft Environmental Document: The proposed project is listed in SCAG's 2023 FTIP. The project entry in the 2023 FTIP is listed as Project ID RIV060116, and is described as follows:

I-10/CHERRY VALLEY BLVD IC: REPLACEMENT OF EXISTING CURVED OVERCROSSING EXTENDING 500 LINEAR FEET FROM ROBERTS ROAD (SOUTH) TO APPROXIMATELY 1,000 FT E/O CALIMESA BLVD. ASSOCIATED PROJECT IMPROVEMENTS INCLUDE REALIGNMENT OF CALIMESA BLVD AND RAMP REALIGNMENT FOR ALL FOUR RAMPS

WITH MINOR RAMP WIDENING. ADD WB AUX LANE (CHERRY VALLEY IC TO SINGLETON IC-APPROX. 3200') (CMAQ PM 2.5 BENEFITS PROJECT).

Western Riverside County Multiple Species Habitat Conservation Plan
On June 17, 2003, the Riverside County Board of Supervisors adopted the Western Riverside Multiple Species Habitat Conservation Plan (WR-MSHCP). The overall goal of the WR-MSHCP is to enhance and maintain biological diversity and ecosystem processes while allowing future economic growth. The City of Calimesa is a participant in the WR-MSHCP, which means that the City has adopted a Development Mitigation Fee to assist in the funding and implementation of the WR-MSHCP. As a result, development in Calimesa follows the protocols for preservation and conservation of vegetation and wildlife identified in the WR-MSHCP. The proposed project is located within the Pass Area Plan of the WR-MSHCP. The proposed project is not specifically identified as a Covered Activity under Section 7.1 of the WR-MSHCP; however, public and private development that occurs outside of Criteria Areas and Public/Quasi-Public (P/QP) Lands is permitted under the WR-MSHCP.

Riverside County General Plan
The 2015 Riverside County General Plan elements are continuously updated. The following policies from the most recent update of the Circulation Element (July 2020) are applicable to the proposed project.

Circulation Element Policies

- Policy C 1.6: Cooperate with and where appropriate lead local, regional, state, and federal agencies to establish an efficient circulation system.
- Policy C 5.1: Encourage Caltrans to install and maintain landscaping and other mitigation elements along freeways and highways, especially when they are adjacent to existing residential or other noise sensitive uses.

City of Calimesa General Plan
The following text has been amended since the Draft Environmental Document: The Calimesa General Plan was adopted on August 4, 2014. It serves as an official policy framework guiding physical, social, and economic development in the City, as well as the City's own operations and decisions. As identified in Section 2.1.1 and in Figure 2.1.1-1, the surrounding land uses in the study area include predominately residential and commercial uses and vacant land. The following goals, policies and action items from the Calimesa General Plan Transportation and Mobility Element are applicable to the proposed project.

Transportation and Mobility Element Policies

1. Policy TM-1: Provide for roadways in accordance with the Circulation Plan.

2. Policy TM-3: Strive to construct streets in accordance with the City's standard street classifications.
    a. Action Item TM-3.3: Ensure that all streets, including private streets, are constructed to a standard acceptable to the City.
3. Policy TM-4: Maintain and rehabilitate roadways to preserve and improve the quality of City streets and thoroughfares that promote access and mobility between residential neighborhoods, employment centers, shopping, and health services.
    a. Action Item TM-4.1: Following the principles of “complete streets,” maximize visibility and access for pedestrians and encourage the removal of barriers (walls, easements, and fences) for safe and convenient movement of pedestrians. Ensure that the entire travel way is included in the design from building façade to building facade.
4. Policy TM-5: Design each roadway with sufficient width to accommodate projected traffic at acceptable service levels, based on the intensity or density of planned land uses.
5. Policy TM-10: Support the development of the Short- and Long-Range Transit Plans.
    a. Action Item TM-10.2: Implement freeway ramp/arterial roadway interchange improvements that promote the safe and efficient movement of vehicles, pedestrians, and cyclists.
    b. Action Item TM-10.3: Coordinate the planning for Calimesa’s transportation needs with adjacent jurisdictions, the County of Riverside, Caltrans, and public transit providers.

Environmental Consequences

No-Build Alternative

Under the No-Build Alternative, the I-10/Cherry Valley Boulevard interchange and nearby roadway facilities would remain in their existing condition. No impacts regarding existing and future land uses would occur with implementation of the No-Build Alternative since no land use changes would occur with this alternative. However, the No-Build Alternative would not be consistent with the Calimesa General Plan, nor would it be consistent with the applicable State, regional, and local plans and programs outlined above. Additionally, the No-Build Alternative would not accomplish the purpose and need of the project.

Build Alternatives 3 and 4

Under both Build Alternatives 3 and 4, the project would result in permanent land use impacts since the acquisition of portions of vacant parcels along Cherry Valley Boulevard would be required. This would include the acquisition and the conversion of existing land uses to transportation uses. The conversion of these vacant uses to a roadway use would not trigger a new land use requiring an amendment to the Calimesa General Plan Land Use Element.

Under Build Alternative 3, no residential or business relocations would occur, and under Build Alternative 4, two residential relocations would occur, and no business relocations would occur, as a result of the realignment of Calimesa Boulevard. Figure TM-1, Circulation Map, in the Transportation and Mobility Element of the Calimesa General Plan shows the City’s existing and intended future roadway network, which includes the Cherry Valley Boulevard interchange. A determination of the project’s consistency with goals and policies included in the applicable State, regional, and local plans and programs outlined above is provided in Table 2.1.1-4 below. As shown in Table 2.1.1-4, Build Alternatives 3 and 4 would be consistent with all applicable State, regional, and local plans and programs. As such, the project would be consistent with both the City and County General Plans and an adverse effect would not occur with implementation of the project.

The following table has been amended since the Draft Environmental Document:

Table 2.1.1-4: Consistency with State, Regional, and Local Plans and Programs

Policy	No-Build Alternative	Build Alternatives 3 and 4
Southern California Association of Governments (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS)	Not Consistent. The project is included in SCAG’s 2020-2045 RTP/SCS as RTP ID RIV060116. As such, implementation of the No-Build Alternative would not be consistent with the 2020-2045 RTP/SCS since the transportation improvements that would be provided by the project would not be constructed under the No-Build Alternative.	Consistent. The project is included in SCAG’s 2020-2045 RTP/SCS as Project ID RIV060116. As such, implementation of Build Alternatives 3 and 4 would be consistent with the 2020-2045 RTP/SCS since the Transportation improvements that would be provided by the project would be constructed under Build Alternatives 3 and 4.
Southern California Association of Governments (SCAG) 2023 Federal Transportation Improvement Program (FTIP)	Not Consistent. The project is included in SCAG’s 2023 FTIP as RTP ID RIV060116. As such, implementation of the No-Build Alternative would not be consistent with the 2023 FTIP since the transportation improvements that would be provided by the project	Consistent. The project is included in SCAG’s 2023 FTIP as Project ID RIV060116. As such, implementation of the Alternative 3 or Alternative 4 would be consistent with the 2023 FTIP since the transportation improvements that would be

Policy	No-Build Alternative	Build Alternatives 3 and 4
	would not be constructed under the No-Build Alternative.	provided by the project would be constructed under the project.
Western County Multiple Species Habitat Conservation Plan	Consistent. Since no development or construction activity would occur under the No-Build Alternative, no conflicts with the WR-MSHCP would occur.	Consistent. The proposed project is permitted under the WR-MSHCP and was found to be consistent with the policies of the WR-MSHCP as part of the biological resources studies conducted for the project.
Riverside County General Plan Circulation Element Policy C1.6: Cooperate with and where appropriate lead local, regional, state, and federal agencies to establish an efficient circulation system.	Consistent. Although the No-Build Alternative would not implement roadway facilities improving circulation efficiency at the project site, it would not preclude the City from cooperating with local, regional, state, and federal agencies on projects at other locations. Therefore, this alternative is consistent with Policy C1.6.	Consistent. Implementation of the Build Alternatives would involve coordination with Caltrans, the County of Riverside, the City of Calimesa, and the Riverside Transit Agency. The roadway improvements proposed by the Build Alternatives would promote the efficient movement of vehicles, pedestrians, and cyclists, thus contributing to an efficient circulation system in the project area. Therefore, the Build Alternatives are consistent with Policy C1.6.
Riverside County General Plan Circulation Element Policy C 5.1: Encourage Caltrans to install and maintain landscaping and other mitigation elements along freeways and highways, especially when they are adjacent to existing residential or other noise sensitive uses.	Consistent. Although no new roadway improvements would be implemented under the No-Build Alternative including landscaping and other mitigation elements, it would not preclude the City from coordinating with Caltrans on projects at other locations. Therefore, this alternative is consistent with Policy C 5.1.	Consistent. Coordination with Caltrans regarding the installation and maintenance of landscaping and other mitigation elements along I-10 in the project area would occur under the Build Alternatives. Therefore, the Build Alternatives are consistent with Policy C5.1.
Calimesa General Plan Transportation and Mobility Element Policy TM-1: Provide for roadways in accordance with the Circulation Plan.	Not Consistent. The No-Build Alternative would not be consistent with Policy TM-1. Within the study area, Cherry Valley Boulevard is identified as a Major Arterial (minimum two lanes in each direction) by the Calimesa Circulation Plan. It is currently a two lane roadway (one lane in each direction). Since the No-Build Alternative would not	Consistent. The I-10/Cherry Valley Interchange is included as a transportation facility on the City of Calimesa's 2014 General Plan Circulation Map. The Build Alternatives propose to improve Cherry Valley Boulevard consistent with the City's standard for a Major Arterial. As such, the

Policy	No-Build Alternative	Build Alternatives 3 and 4
	improve Cherry Valley Boulevard be consistent with the City's Circulation Plan, it would not be consistent with Policy TM-1.	Build Alternatives would be consistent with Policy TM-1.
Calimesa General Plan Transportation and Mobility Element Policy TM-3: Strive to construct streets in accordance with the City's standard street classifications. Action Item TM-3.3: Ensure that all streets, including private streets, are constructed to a standard acceptable to the City. Policy TM-3: Strive to construct streets in accordance with the City's standard street classifications.	Not Consistent. The No-Build Alternative would not be consistent with Policy TM-3. Within the study area, Cherry Valley Boulevard is identified as a Major Arterial (minimum two lanes in each direction) by the Calimesa Circulation Plan. It is currently a two-lane roadway (one lane in each direction). Since the No-Build Alternative would not improve Cherry Valley Boulevard be consistent with the City's Circulation Plan and standards, it would not be consistent with Policy TM-3.	Consistent. The project includes the realignment of Calimesa Boulevard within the project limits and the widening of Cherry Valley Boulevard within the project limits, which is identified as Major Arterial by the Calimesa Circulation Plan. The Build Alternatives would construct these improvements in accordance with design specifications for major arterial roadways as provided in Table TM-A of the Calimesa 2014 General Plan Transportation and Mobility Element. As such, these improvements would be consistent with Policy TM-3 and Action Item TM-3.3.
Calimesa General Plan Transportation and Mobility Element Policy TM-4: Maintain and rehabilitate roadways to preserve and improve the quality of city streets and thoroughfares that promote access and mobility between residential neighborhoods, employment centers, shopping, and health services. Action Item TM-4.1: Following the principles of "complete streets," maximize visibility and access for pedestrians and encourage the removal of barriers (walls, easements, and fences) for safe and convenient movement of pedestrians. Ensure that the entire travel way is included in the design from building façade to building façade.	Not Consistent. No new streetscape elements or visibility/access improvements would be implemented under the No-Build Alternative, and Calimesa Boulevard and Cherry Valley Boulevard would retain their existing character within the study area. This alternative would not relieve congestion or address anticipated traffic volumes due to development in the project area. Therefore, this alternative would not be consistent with Policy TM-4 or Action Item TM-4.1.	Consistent. The Build Alternatives would implement streetscape elements and visibility/access improvements in order to create a more uniform approach on roadways throughout the City, as envisioned by the Calimesa General Plan. Therefore, the Build Alternatives would be consistent with Policy TM-4 or Action Item TM-4.1.

Policy	No-Build Alternative	Build Alternatives 3 and 4
Calimesa General Plan Transportation and Mobility Element Policy TM-5: Design each roadway with sufficient width to accommodate projected traffic at acceptable service levels, based on the intensity or density of planned land uses.	Not Consistent. The No-Build Alternative would not implement roadway improvements such as the widening of Cherry Valley Boulevard, that would serve to accommodate project traffic at acceptable service levels, nor would this alternative relieve congestion or improve traffic operations. Future traffic conditions would worsen under this alternative; therefore, this alternative is not consistent with Policy TM-5.	Consistent. The purpose of the project is to address increased travel associated with newly constructed and planned development in the City of Calimesa and surrounding areas. As such, the improvements associated with the Build Alternatives would serve to accommodate projected traffic at acceptable service levels and would therefore be consistent with Policy TM-5.
Calimesa General Plan Transportation and Mobility Element Policy TM-10: Support the development of the Short- and Long-Range Transit Plans. Action Item TM-10.2: Implement freeway ramp/arterial roadway interchange improvements that promote the safe and efficient movement of vehicles, pedestrians, and cyclists. Action Item TM-10.3: Coordinate the planning for Calimesa's transportation needs with adjacent jurisdictions, the County of Riverside, Caltrans, and public transit providers.	Not Consistent. The No-Build Alternative would not implement roadway, ramp, arterial, or interchange improvements in the study area that promote the efficient movement of vehicles, pedestrians, and cyclists, as envisioned in the City of Calimesa General Plan Transportation and Mobility Element. Therefore, this alternative is inconsistent with Policy TM-10, Action Item TM-10.2 and Action Item TM-10.3.	Consistent. Implementation of the Build Alternatives would involve coordination with Caltrans, the County of Riverside, the City of Calimesa, and public transit providers. The roadway improvements proposed by the Build Alternatives would promote the efficient movement of vehicles, pedestrians, and cyclists through the implementation of ramp, arterial, and interchange improvements. Therefore, the Build Alternatives are consistent with Policy TM-10, Action Item TM-10.2 and Action Item TM-10.3.

Source: Michael Baker International, Community Impact Assessment Memorandum, January 2021).

Avoidance, Minimization, and/or Mitigation Measures

No measures are proposed.

2.1.2 Parks and Recreational Facilities

Regulatory Setting

The Park Preservation Act (California Public Resources Code [PRC] Sections 5400-5409) prohibits local and state agencies from acquiring any property which is in use as a public park at the time of acquisition unless the acquiring agency pays sufficient compensation or land, or both, to enable the operator of the park to replace the park land and any park facilities on that land.

Affected Environment

This section is based upon information provided in Appendix A of this IS/EA, Resources Evaluated Relative to the Requirements of Section 4(f): No-Use Determination.

There are a range of recreational facilities located within the Section 4(f) study area (i.e., within 0.5-mile of the project site), including parks, trails, bicycle routes, a golf course, and recreational facilities at the Plantation by the Lake mobile home community. However, a number of these facilities do not qualify as Section 4(f) resources and the provisions of Section 4(f) do not apply. These facilities include:

- Trails within the City of Calimesa:
  - Osborne Spine Trail;
  - Box Canyon Trail;
  - Posey's Road;
  - Beef Canyon;
  - Hobo's Loop;
  - Brown Ridge;
  - Roberts Street;
  - Existing trail within SCE easement;
- Planned Class II bicycle facilities along Roberts Road and Palmer Avenue;
- Recreational facilities at Plantation by the Lake; and
- Morongo Golf Club at Tukwet Canyon.

The eight trails within the City of Calimesa and the Morongo Golf Club at Tukwet Canyon are located on private property. The planned Class II bicycle facilities along Roberts Road and Palmer Avenue are on-street facilities that share the roadway with vehicles. They are considered transportation facilities and are not anticipated to have a primary function that supports recreation. As such, it has been determined that these facilities do not meet the definition of a Section 4(f) resource, and they are not discussed further within this section. See Appendix A for additional details related to these facilities.

The following parks and recreational facilities are located within 0.5-mile of the project site, and are considered Section 4(f) properties:

- Singleton/Bryant Connector Trail: Based on the City of Calimesa's CommunityView GIS website, the Singleton/Bryant Connector trail is located approximately 0.3-mile northeast of the project site. Within the project area, the trail is generally a dirt/gravel shoulder, with the exception of sidewalk provided along the northern side of the I-10/Singleton interchange. The trail begins approximately 355 feet west of the eastbound I-10 on-ramp along Singleton Road and continues east until turning southeast along Beckwith Avenue or continuing northeast along Singleton Road. The Singleton/Bryant Connector Trail is publicly-owned and open to the public.
- PASEO Trails: The PASEO trails are asphalt/concrete residential trail connectors. Based on the City of Calimesa's CommunityView GIS website, the PASEO trails are located within the western portion of the project site, approximately 0.15-mile west of the I-10 along Roberts Road, Cherry Valley Boulevard, and Palmer Avenue. The PASEO Trails are publicly-owned and open to the public.
- Trevino Park: Trevino Park and associated parking lot are located approximately 0.25-mile southwest of the project site at 11286 Tukwet Canyon Parkway, Beaumont. Based on the City of Beaumont website (http://beaumontca.gov/facilities/facility/details/Trevino-Park-18), Trevino Park amenities include a baseball diamond, playground equipment, two basketball courts, picnic benches, barbeques, and a grass field. Sidewalk occurs along the outer boundary and bisects the central portion of the park. The parking lot provides 38 parking spots and three Americans with Disabilities Act (ADA) parking spots. The facility is owned and operated by the City of Beaumont and is open to the public.

Environmental Consequences

No-Build Alternative

No temporary, permanent, and/or indirect impacts on the aforementioned parks/recreational facilities would occur with implementation of the No-Build Alternative, since no construction activity or land use changes would occur with this alternative.

Build Alternatives 3 and 4

The Build Alternatives would not acquire public parkland for non-parkland use; therefore, the California Public Park Preservation Act of 1971 would not apply.

As noted above, there were three parks/recreational facilities identified within 0.5-mile of the project site, that are considered Section 4(f) properties. Potential impacts to these facilities as a result of the Build Alternatives is provided below.

Singleton/Bryant Connector Trail

The Build Alternative's facilities and construction activities would not encroach onto the trail facility. Thus, there would be no permanent incorporation or temporary occupancy of the trail as a result of the Build Alternatives.

In addition, the Build Alternatives would have minimal adverse constructive use effects (i.e., "proximity" impacts), that would substantially impair the activities, features, and/or attributes that qualify this facility for protection under Section 4(f). This conclusion is based on the following:

- Access: The Singleton/Bryant Connector Trail can be accessed via multiple roadways surrounding the facility (Woodhouse Road/Roberts Road, Singleton Road, I-10, Calimesa Boulevard, etc.). The Build Alternatives would not include any temporary or permanent improvements or activities that would have the capacity to alter or impede access to the trail facility with implementation of a Transportation Management Plan (TMP). Access to this facility would be maintained throughout the duration of construction, and the TMP would be implemented during the Plans, Specifications, and Estimates (PS&E) phase. The Caltrans TMP Guidelines identify the processes, roles, and responsibilities for preparing and implementing TMPs, as well as useful strategies for reducing congestion and managing work zone circulation and access. One of the primary objectives of the TMP is to maintain safe movement and access for vehicles, pedestrians, and bicyclists through the construction zone.
- Visual/Aesthetics: The Build Alternatives would not include any features that would be tall enough to be visible from the trail, or that would substantively alter views from the trail given the existing rolling topography. Additionally, the houses and mature trees that surround portions of the trail do not allow views towards the I-10/Cherry Valley Boulevard interchange. Thus, the Build Alternatives would not result in adverse proximity effects to the Singleton/Bryant Connector Trail.
- Water Quality: The Build Alternatives would not have the potential to adversely affect water quality at the trail facility. No storm water drainage or runoff from the project site would encroach or enter onto the trail, and adverse proximity impacts would not occur under the Build Alternatives.
- Air Quality: As noted in Section 2.2.6, Air Quality, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational pollutant emissions, upon adherence to Caltrans' Standard Specifications intended to reduce equipment emissions and fugitive dust. Thus, the Build Alternatives would not have adverse proximity effects related to air quality on the Singleton/Bryant Connector trail.
- Noise: As described in Section 2.2.7, Noise, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses

related to short-term construction or long-term operational noise, upon adherence to Caltrans' Standard Specifications and abatement measures. Additionally, intervening structures, rolling terrain, and mature trees would serve as a buffer between trail users and the project site. Thus, the Build Alternatives would have minimal proximity effects related to noise on the Singleton/Bryant Connector Trail.

- Biological Environment: Within the project area, the Singleton/Bryant Connector Trail is primarily dirt/gravel with sidewalk along the I-10/Singleton interchange overcrossing. The trail appears to be maintained. Given the lack of natural habitat and level of human activity/disturbance on a daily basis, it is not anticipated that any sensitive natural communities or species exist. However, there would be no project construction within or immediately adjacent to the trail, and no disturbance of any vegetation associated with the trail would occur. In addition, as noted above, the Build Alternatives are not expected to result in adverse effects related to air quality or noise, that could otherwise result in proximity effects to biological resources at the facility.

The property is a Section 4(f) property, but no "use" will occur. Therefore, the provisions of Section 4(f) do not apply, and no adverse effects would occur in this regard.

PASEO Trails
The Build Alternative's facilities and construction activities would not encroach onto the PASEO Trail facilities. Thus, there would be no permanent incorporation or temporary occupancy of the trails as a result of the proposed Build Alternatives.

In addition, the Build Alternatives would have minimal adverse constructive use effects that would substantially impair the activities, features, and/or attributes that qualify these facilities for protection under Section 4(f). This conclusion is based on the following:

- Access: The PASEO Trails can be accessed via multiple roadways surrounding the facility (Cherry Valley Boulevard, Palmer Avenue, Desert Lawn Drive, Roberts Road, etc.). The Build Alternatives would not include any temporary or permanent improvements or activities that would have the capacity to alter or impede access to the trail facility with implementation of a TMP. A TMP would be implemented that would maintain safe movement and access for vehicles, pedestrians, and bicyclists through the construction zone.
- Visual/Aesthetics: The Build Alternatives would not include any features that would be tall enough to be visible from the trail, or that would substantively alter views from the trail given the existing rolling topography. Additionally, the residential uses currently under construction that surround portions of the trail facilities will further impede views towards the I-10/Cherry Valley Boulevard interchange.

Thus, the Build Alternatives would not result in adverse proximity effects to the PASEO Trails.

- Water Quality: The Build Alternatives would not have the potential to adversely affect water quality at the trail facilities. No storm water drainage or runoff from the project site would encroach or enter onto the PASEO Trails, and adverse proximity impacts would not occur under the Build Alternatives.
- Air Quality: As noted in Section 2.2.6, Air Quality, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational pollutant emissions, upon adherence to Caltrans' Standard Specifications intended to reduce equipment emissions and fugitive dust. Thus, the Build Alternatives would have minimal proximity effects related to air quality on the PASEO Trails.
- Noise: As described in Section 2.2.7, Noise, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational noise, upon adherence to Caltrans' Standard Specifications and abatement measures. Additionally, intervening structures would serve as a buffer between trail users and the project site. Thus, the Build Alternatives would have minimal proximity effects related to noise on the PASEO Trails.
- Biological Environment: The PASEO Trails are asphalt/concrete residential trail connectors. Given the lack of natural habitat and level of human activity/disturbance on a daily basis, it is not anticipated that any sensitive natural communities or species exist. No disturbance of any vegetation associated with the trail would occur. In addition, as noted above, the Build Alternatives are not expected to result in adverse effects related to air quality or noise, that could otherwise result in proximity effects to biological resources at the PASEO Trails.

The property is a Section 4(f) property, but no "use" will occur. Therefore, the provisions of Section 4(f) do not apply, and no adverse effects would occur in this regard.

Trevino Park

The Build Alternative's facilities and construction activities would not encroach into Trevino Park. Thus, there would be no permanent incorporation or temporary occupancy of the park as a result of the proposed Build Alternatives.

In addition, the Build Alternatives would have minimal adverse constructive use effects that would substantially impair the activities, features, and/or attributes that qualify this facility for protection under Section 4(f). This conclusion is based on the following:

- Access: Trevino Park and the associated parking lot can be accessed via multiple roadways surrounding the facility (Desert Lawn Drive, Palmer Avenue, and Champions Drive all connect to Cherry Valley Boulevard). The Build Alternatives would not include any temporary or permanent improvements or activities that would have the capacity to alter or impede access to the park or affect parking associated with the facility with implementation of a TMP. A TMP would be implemented that would maintain safe movement and access for vehicles, pedestrians, and bicyclists through the construction zone.
- Visual/Aesthetics: The Build Alternatives would not include any features that would be tall enough to be visible from the park, or that would substantively alter views from the park given the rolling topography and intervening structures. Between the park and the project site, residential properties are currently being developed. Additionally, the current topography of the land does not afford views of the I-10/Cherry Valley Boulevard interchange. Thus, the Build Alternatives would not result in adverse proximity effects to Trevino Park.
- Water Quality: The Build Alternatives would not have the potential to adversely affect water quality at the park. No storm water drainage or runoff from the project site would encroach or enter Trevino Park, and adverse proximity impacts would not occur under the Build Alternatives.
- Air Quality: As noted in Section 2.2.6, Air Quality, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational pollutant emissions, upon adherence to Caltrans' Standard Specifications intended to reduce equipment emissions and fugitive dust. Thus, the Build Alternatives would have minimal proximity effects related to air quality on Trevino Park.
- Noise: As described in Section 2.2.7, Noise, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational noise, upon adherence to Caltrans' Standard Specifications and abatement measures. Additionally, intervening structures and rolling topography would serve as a buffer between park users and the project site. Thus, the Build Alternatives would have minimal proximity effects related to noise on Trevino Park.
- Biological Environment: Trevino Park is routinely maintained, and on-site vegetation consists primarily of turf and ornamental landscaping. Given the lack of natural habitat and level of human activity/disturbance on a daily basis, it is not anticipated that any sensitive natural communities or species exist. However, there would be no project construction within or immediately adjacent to the park, and no disturbance of any vegetation associated with the park would occur. In addition, as noted above, the Build Alternatives are not expected to result in adverse effects related to

air quality or noise, that could otherwise result in proximity effects to biological resources at the facility.

The property is a Section 4(f) property, but no "use" will occur. Therefore, the provisions of Section 4(f) do not apply, and no adverse effects would occur in this regard.

Based on the analysis provided above, the Build Alternatives would not result in any temporary or permanent adverse effects on parks and recreational facilities.

Avoidance, Minimization, and/or Mitigation Measures

No measures are proposed.

2.1.3 Farmlands

Regulatory Setting

The National Environmental Policy Act (NEPA) and the Farmland Protection Policy Act (FPPA, 7 United States Code [USC] 4201-4209; and its regulations, 7 Code of Federal Regulations [CFR] Part 658) require federal agencies, such as the Federal Highway Administration (FHWA), to coordinate with the Natural Resources Conservation Service (NRCS) if their activities may irreversibly convert farmland (directly or indirectly) to nonagricultural use. For purposes of the FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

The California Environmental Quality Act (CEQA) requires the review of projects that would convert Williamson Act contract land to non-agricultural uses. The main purposes of the Williamson Act are to preserve agricultural land and to encourage open space preservation and efficient urban growth. The Williamson Act provides incentives to landowners through reduced property taxes to discourage the early conversion of agricultural and open space lands to other uses.

Affected Environment

This section is based on the Community Impact Assessment (CIA) (dated September 2020) that was prepared for the proposed project.

The California Department of Conservation, Office of Land Conservation maintains a statewide inventory of farmlands. These lands are mapped by the Division of Land Resource Protection (DLRP) as part of the Farmland Mapping and Monitoring Program (FMMP). For the purposes of this analysis, farmland includes lands identified by the State of California Department of Conservation as Prime Farmland, Unique Farmland, Farmland of Statewide Importance, and Farmland of Local Importance, as well as those properties encumbered by a Williamson Act preserve contract.

The following text has been amended since the Draft Environmental Document: The land that is adjacent to the project within the northwestern, northeastern, and southeastern quadrants of the project's interchange currently exists as either residential, commercial, or undeveloped/vacant land. The California Department of Conservation DLRP designates portions of the project site as "Farmland of Local Importance". Specifically, approximately 13.5 acres located on APNs 413-270-004 and 413-270-014 have been designated as "Farmland of Local Importance"; refer to Figure 2.1.3-1, Important Farmland Map. According to the CIA Memorandum, none of the designated farmlands are currently under cultivation and, based on historic aerial imagery, the project site has not been farmed within the last 10 years. The project site does not have any substantial on-farm investments including barns, drainage, and irrigation. The site lacks substantial investments such as field terraces or fruit trees/vines.

The California Department of Conservation has determined that there are no Williamson Act contracts within the project area and none of these farmlands are currently committed to future development.

Environmental Consequences

Temporary Impacts

No-Build Alternative

Since there would be no physical construction of the interchange occurring under this alternative, there would be no physical impacts to the environment. There would be no conversion of farmland, thus, no temporary impacts would occur under this alternative.

Build Alternatives 3 and 4

Potential impacts to farmland associated with construction of the project are considered permanent. Refer to Permanent Impacts, for discussion regarding farmlands.

Permanent Impacts

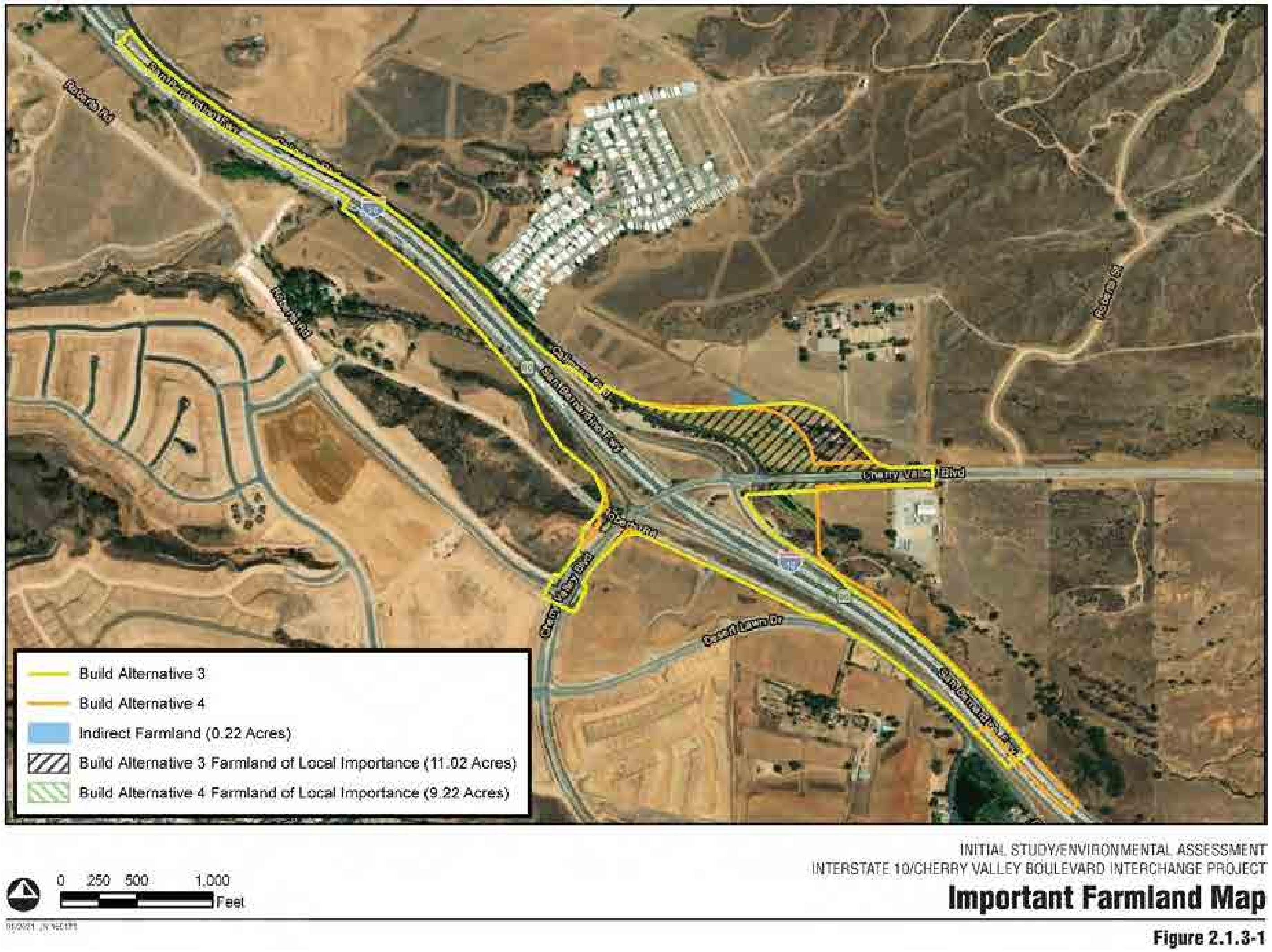
No-Build Alternative

There would be no permanent impacts under the No-Build Alternative since no farmland conversion would occur.

Build Alternatives 3 and 4

The project is subject to FPPA, 7 USC 4201-4209; and its regulations, 7 CFR Part 658). The FPPA requires Federal agencies to "…coordinate with the NRCS to examine the effects of farmland conversion…" before approving any activity that would convert farmland. In order to determine permanent farmland impacts in the study area, per the FPPA, a Farmland Conversion Impact Rating Form (Form AD-1006) was completed for the Build Alternatives and is provided in Appendix G of this IS/EA.

Figure 2.1.3-1: Important Farmland Map



As shown in Table 2.1.3-1, Farmland Conversion by Alternative, Build Alternative 3 would result in approximately 11.02 acres of direct farmland impacts and approximately 0.22 acres of indirect farmland impacts (due to the interference with land patterns). This would total to approximately 11.24 acres of farmland conversion to non-agricultural uses. Build Alternative 4 would result in approximately 9.22 acres of direct farmland impacts and approximately 0.22 acres of indirect farmland impacts (due to the interference with land patterns). This would total to approximately 9.44 acres of farmland conversion to non-agricultural uses. Both Build Alternatives 3 and 4 rated the same combined score of 134 and 135 points, respectively, on the land evaluation and site assessment section of the Form AD-1006. When the total points equal or exceed 160, it is expected that alternative actions be considered that could reduce adverse impacts. Because the farmland conversion impact rating for both Build Alternatives is well below the 160-point threshold, the Build Alternatives would not result in adverse effects to farmlands.

In addition, according to the CIA, Riverside County contains 419,835 acres of important farmland, meaning that the proposed project comprises a nominal total of 0.003 percent of important farmland in Riverside County. Accordingly, Measure ROW-1, which has been incorporated into the project and provides property owners with just compensation and fair market value for their property, is considered appropriate to address the project's acquisition of agricultural land for non-agricultural use.

Table 2.1.3-1: Farmland Conversion by Alternative

Alternatives	Total Farmland Affected (acres)	Prime and Unique Farmland (acres)	Farmland of Local Importance (acres)	Direct Impact (acres)	Indirect Impact (acres)	% of Farmland in County	Farmland Conversion Impact Rating
Build Alternative 3	11.24	8.0	1.2	11.02	0.22	0.003%	134
Build Alternative 4	9.44	8.4	0.6	9.22	0.22	0.003%	135

Source: Michael Baker International, Community Impact Assessment Memorandum, January 2021.

Avoidance, Minimization, and/or Mitigation Measures

Refer to Measure ROW-1 in Section 2.1.6, Relocations and Real Property Acquisition.

2.1.4 Growth

Regulatory Setting

The Council on Environmental Quality (CEQ) regulations, which established the steps necessary to comply with the National Environmental Policy Act (NEPA) of 1969, require evaluation of the potential environmental effects of all proposed federal activities and programs. This provision includes a requirement to examine indirect effects, which may occur in areas beyond the immediate influence of a proposed action and at some time in the future. The CEQ regulations (40 Code of Federal Regulations [CFR] 1508.8) refer to these consequences as indirect impacts. Indirect impacts may include changes in land use, economic vitality, and population density, which are all elements of growth.

The California Environmental Quality Act (CEQA) also requires the analysis of a project's potential to induce growth. The CEQA guidelines (Section 15126.2[d]) require that environmental documents "…discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment…"

Methodology

In order to determine the level of potential influence that a transportation project may have on an area's growth and development, Caltrans has developed a guidance document for this purpose: Guidance for Preparers of Growth-Related, Indirect Impact Analyses (2006). The guidance adopts a two-phase approach to the evaluation of growth-related impacts.

The first phase, called the "first-cut screening", is designed to assist in the assessment of whether there is potential for growth-related impacts, and whether further analysis is necessary by addressing the following:

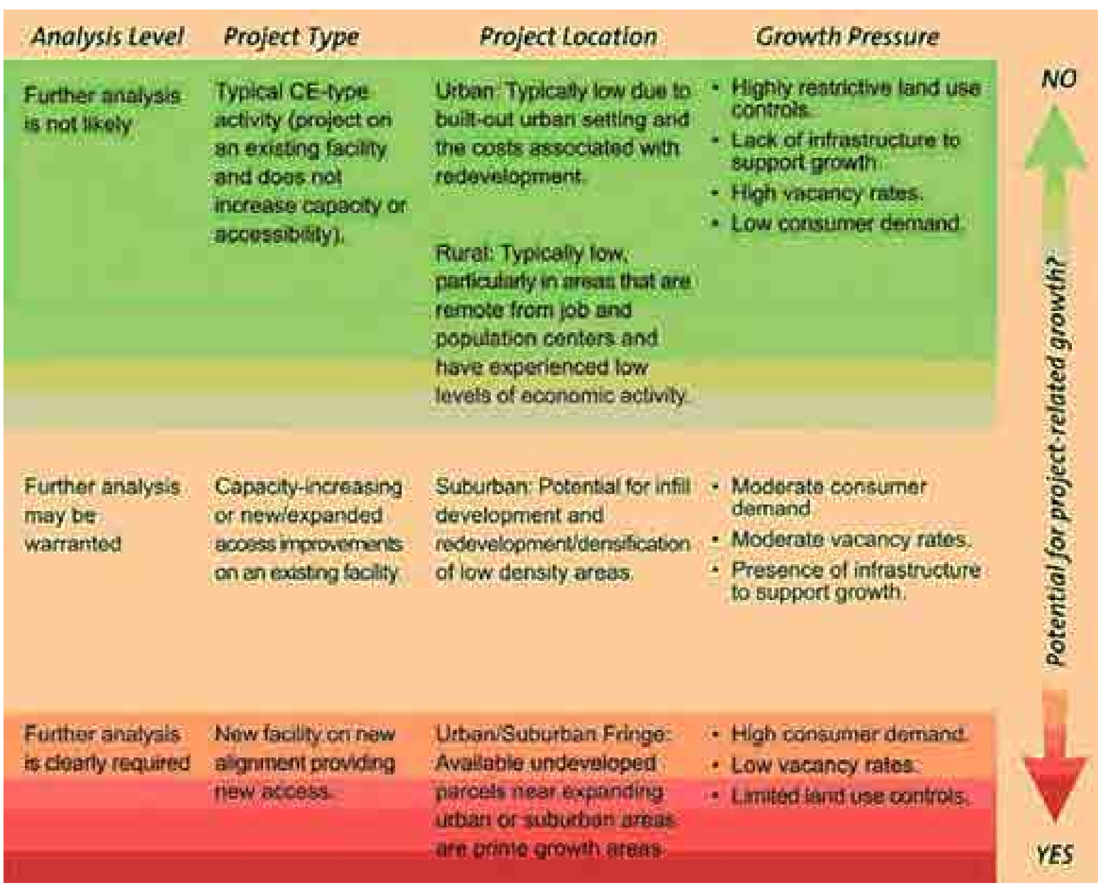
- How, if at all, does the project potentially change accessibility?
- How, if at all, do the project type, project location, and growth-pressure potentially influence growth? Some transportation projects may have very little influence on future growth, while others may have a great influence. Some geographic locations are more conducive to influencing growth, while others are highly constrained. These differences may result from physical constraints, planning and zoning factors, or local political considerations.
- Determine whether project-related growth is "reasonably foreseeable" as defined by NEPA. Under NEPA, indirect impacts need only be evaluated if they are reasonably foreseeable as opposed to remote and speculative.
- If there is project-related growth, how, if at all, will that affect resources of concern?

Figure 2.1.4-1, Analysis Considerations Related to Determining Potential for Project-Related Growth, helps illustrate the relationship between project type, location and growth pressure, and the potential for project-related growth. If the first-cut screening results in a determination that further analysis is required regarding growth, additional analysis steps must be followed, as described in Chapter 6 of the Guidance for Preparers of Growth-related, Indirect Impact Analyses (Guidance) (May 2006).

How, if at all, does the project potentially change accessibility?
The project includes construction of improvements at the existing I-10/Cherry Valley Boulevard interchange. Although the improvements would be implemented along existing roadway facilities, the improvements would increase local roadway capacity along Cherry Valley Boulevard and provide enhanced connections to I-10 and would subsequently also result in improved accessibility. However, no new roadways, and thus, no new access would result with project implementation. Construction of the project would not result in long-term changes to travel times, travel cost, or accessibility to employment and services in the project vicinity. In addition, no vacant lands that are currently inaccessible would become permanently accessible and therefore more likely to be developed following construction of the project.

Workforce requirements associated with the construction of the project are expected to result in an influx of workers to the local area. However, the workforce influx would be temporary in nature and would cease upon completion of project construction.

Figure 2.1.4-1: Analysis Considerations of Determining Potential for Project-Related Growth



Source: California Department of Transportation, Guidance for Preparers of Growth-related, Indirect Impact Analyses (May 2006), p. 5-8, Figure 5-2.

Although the project would improve traffic operations at the interchange area, the project would not create new opportunities for access to areas that are not already afforded access under the existing conditions at the interchange; therefore, while traffic operations at the interchange would be improved with implementation of the project, the project would not substantially change accessibility to adjacent and nearby properties.

How, if at all, does the project type, project location, and growth pressure potentially influence growth?

The project type is the upgrade of an existing interchange to improve operations and mobility. Since the project would construct improvements along existing facilities (e.g., I-10 and Cherry Valley Boulevard), subsequently enhancing access (but not resulting in new access), the project type is considered to be one that has a low potential to influence growth.

Growth pressure within the project area is considered high when accounting for existing and planned development. The Marketplace at Calimesa was recently constructed and became operational (south of I-10 and east of Cherry Valley Boulevard), and substantial additional residential, commercial/industrial, and institutional development is proposed within the Summerwind Specific Plan to the south of I-10, and west of Cherry Valley Boulevard.

While growth pressure is high, the project is on an existing interstate facility near existing roadways, providing access to existing and already planned development. The project has been designed to accommodate current and projected increases in traffic volumes expected as a result of previously implemented and planned development in the area; therefore, project-related growth is not anticipated as a result of the project.

Is project-related growth reasonably foreseeable as defined by the National Environmental Policy Act?

As discussed above, the project is not anticipated to result in substantial changes in accessibility or growth. The proposed project would not influence growth because the project would not directly result in substantial changes to land use or directly encourage changes in population density. Development within the project area is governed by the Calimesa General Plan and Riverside County General Plan. Although the project would provide operational improvements to local access, it is not expected that the project would affect growth at the local or regional level. Therefore, project-related growth is not reasonably foreseeable as defined by NEPA.

If there is project-related growth, how, if at all, will that affect resources of concern?

As discussed above, the proposed project would not accelerate or otherwise influence growth beyond what is already planned in the project area. No further analysis related to growth is required for the proposed project.

2.1.5 Community Character and Cohesion

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, established that the federal government use all practicable means to ensure for all Americans safe, healthful, productive, and aesthetically and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). The Federal Highway Administration (FHWA) in its implementation of NEPA (23 USC 109[h]) directs that final decisions on projects are to be made in the best overall public interest. This requires taking into account adverse environmental impacts, such as destruction or disruption of human-made resources, community cohesion, and the availability of public facilities and services.

Under the California Environmental Quality Act (CEQA), an economic or social change by itself is not to be considered a significant effect on the environment. However, if a social or economic change is related to a physical change, then social or economic change may be considered in determining whether the physical change is significant. Since this project would result in physical change to the environment, it is appropriate to consider changes to community character and cohesion in assessing the significance of the project's effects.

Affected Environment

This section is based primarily on the Community Impact Assessment (CIA) Memorandum prepared for the proposed project, dated January 26, 2021.

The following text has been amended since the Draft Environmental Document: Community character is generally reflected by multiple demographic factors such as age, ethnicity, race, income, employment, household size, and population growth trends that are found within the study area. The CIA Memorandum study area boundaries include a total of approximately 1.25 square miles surrounding the project alignment, and is generally bounded by Singleton Road and Beckwirth Avenue to the north; the vacant area beginning approximately 0.5-mile east of the I-10/Cherry Valley Boulevard Interchange running south along the eastern boundary of an existing mobile home park to the east; Brookside Avenue to the south; and the vacant area bordering planned residential and commercial development in the Summerwind Ranch Specific Plan area to the west, roughly adjacent to the future alignment of Roberts Road. I-10 bisects the study area in a northwest-southeast orientation.

The following presented data provides a snapshot of residents living in the community and helps in developing a community profile, ensuring that the affected environment can be correctly described as it relates to communities and neighborhoods. A community profile is provided in this subsection, including a description of the populations residing within the study area and the existing housing stock within the study area.

General Demographics

Information from the U.S. Census Bureau was used to identify the demographic characteristics of the populations within the study area. Two census tracts were selected to be analyzed because their boundaries most closely align with the CIA Memorandum study area boundaries. It should be noted that some of the area in these census tracts is located outside of the study area boundaries. The total population within both tracts is 5,150 residents; refer to Figure 2.1.5-1, Study Area Census Tract Boundaries. The census tracts and population of each tract include Census Tract 438.11 (population 4,242) and Census Tract 438.14 (population 908).

Generally, the portion of the study area north of I-10 (Census Tract 438.11) is located in a sparsely populated, rural area within the limits of the City of Calimesa, whereas the portion of the study area south of I-10 (Census Tract 438.14) is located within a more densely populated area that has cohesive existing and planned residential neighborhoods in newer housing developments (i.e., The Plantation on the Lake 55+ community as well as future planned residences associated with the Summerwind Specific Plan).

As shown in Exhibit 4, CIA Study Area, of the CIA, there are no existing community facilities within a one-mile radius of the project alignment (services and institutions that the local population relies on for their health and welfare and as a means to interact with other members of the community, such as schools, religious institutions and/or places of worship, medical institutions, parks, senior centers and community centers), nor are there any existing emergency service facilities (e.g., fire or police stations) within a one-mile radius of the project alignment.

Table 2.1.5-1, Regional, Local, and Study Area Demographics, provides the general demographic information for the existing population within the study area census tracts, the City of Calimesa, and County of Riverside. As shown in Table 2.1.5-1, there is some variance in the figures between the study area census tracts, the City of Calimesa, and the County of Riverside. The census tracts have a higher median age than both the City of Calimesa and County of Riverside, with the median age in Census Tract 438.14 (69.9 years) being nearly double that of the County of Riverside (35.3 years).

Figure 2.1.5-1: Study Area Census Tract Boundaries

Table 2.1.5-1: Regional, Local, and Study Area Demographics

Demographics	Census Tract 438.11	Census Tract 438.14	City of Calimesa	County of Riverside
Total Population (# of persons)	4,242	908	8,651	2,383,286
Average Household Size (# of persons)	2.96	1.94	2.59	3.27
Median Age (years)	52.8	69.9	47.6	35.3
Median Household Income (dollars)	$60,372	$46,615	$53,366	$63,948
Low Income (%)	7.3	6.6	5.9	11.3

Notes: The "Low Income" category identifies the percentage of families below poverty level. Source: Michael Baker International, Community Impact Assessment Memorandum, January 2021.

Project implementation would benefit these residents by reducing traffic congestion in the project area, providing alternative modes of transportation on-site with the addition of sidewalk and bike lanes, and reducing air quality impacts. The project also accommodates the future planned growth within the City of Calimesa.

Ethnic and Racial Composition

Table 2.1.5-2, Ethnic and Racial Composition identifies ethnic characteristics of the existing population within the study area census tracts, the City of Calimesa, and the County of Riverside. As shown in Table 2.1.5-2, the study area census tracts have a similar ethnic and racial distribution to the City of Calimesa. However, the study area census tracts represent a dissimilar ethnic and racial distribution when compared to the County of Riverside overall. In particular, the percentage of persons identifying as Hispanic or Latino in both census tracts, at 23.1 and 20.6 percent, respectively, is less than half that of the County of Riverside at 48.4 percent.

Table 2.1.5-2 identifies ethnic characteristics of the existing population within the study area block groups, the City, and the County. As shown in Table 2.1.5-2, the study area census tract has a similar ethnic and racial distribution to the regional City and County distribution for most categories. However, the percentage of persons identifying as Hispanic or Latino in Census Tract 102.01 represents a somewhat dissimilar distribution when compared to the City and County. Specifically, the Hispanic/Latino percentage in Census Tract 102.01 is 4 percent less than the City and approximately half that of the County.

Table 2.1.5-2: Ethnic and Racial Composition

Composition	Census Tract 438.11	Census Tract 438.14	City of Calimesa	County of Riverside
White Alone	81.7%	93.2%	84.0%	60.8%
Black or African American Alone	3.2%	2.1%	1.2%	6.4%
American Indian/Alaska Native Alone	0.6%	0.0%	0.7%	0.8%

Composition	Census Tract 438.11	Census Tract 438.14	City of Calimesa	County of Riverside
Asian Alone	3.8%	2.8%	2.1%	6.4%
Native Hawaiian/Other Pacific Islander Alone	0.0%	0.0%	0.0%	0.3%
Some Other Race Alone	7.9%	2.0%	6.4%	20.8%
Two or More Races	2.8%	0.0%	5.5%	4.5%
Hispanic or Latino (any race)	23.1%	20.6%	29.3%	48.4%

Source: Michael Baker International, Community Impact Assessment Memorandum, January 2021.

Housing

The Calimesa General Plan Housing Element, adopted in October 2013, addresses identified the needs and outlines strategies to improve the quality of living environments in Calimesa; the planning period for the Housing Element is October 15, 2013, to October 15, 2021. The Calimesa General Plan Housing Element Background Report, adopted August 4, 2014, contains a discussion of the City's housing stock characteristics, jobs-to-housing ratios, median housing unit values, and tenure and vacancy rates, discussed below.

Housing Stock

According to the Housing Element Background Report, as of 2012, the majority of housing units in Calimesa were single-family detached homes and mobile homes. Approximately 63 percent of the City's housing stock was single-family homes, 35 percent were mobile homes, and two percent were multi-family units. Most new units (approximately 86 percent) added between 2000 and 2012 were single-family detached. The remaining 14 percent of housing units added between 2000 and 2012 included attached single-family homes and an increase in the number of mobile homes. The City's stock of multi-family units declined in the same period, decreasing from 121 units in 2000 to 52 units in 2012. There are no public housing projects in the City.

Per Housing Element of the Riverside County General Plan, the majority of housing units (approximately 69 percent) in the County are single-family detached homes. Approximately 23 percent of the County's housing stock were mobile homes, and a total of 4 percent multifamily homes. The remaining 4 percent of housing units consists of attached single-family homes.

The City tracks the number and types of housing constructed each year to ensure the City achieves the goals stipulated in the Regional Housing Allocation Plan (RHNA). According to the Calimesa General Plan Annual Progress Report (January 2018-December 2018), a total of 86 single-family building permits were issued during the 2018 calendar year (the most recent year for which this data is available). The number of dwellings to be provided by the City of Calimesa for the years 2013 - 2021 is 2,341 dwellings, in the following categories:

- Very Low Income: 543
- Low Income: 383
- Moderate Income: 433
- Above Moderate: 982

Approximately 57 percent of the City's housing units were built before 1980. The housing structures in Calimesa are generally older than the housing stock in Riverside County overall, where only 35 percent of the housing stock was built prior to 1980. The majority of the City's housing (66 percent) was constructed in the 1960s, 1970s, and 1980s. The older units are primarily located near the City center and on scattered large lots. Newer units are generally located in the vicinity of the Calimesa Country Club and on estate lots in Oak Hills or elsewhere on the east side of the City.

Calimesa conducted a citywide survey of housing conditions in 2004. The survey consisted of an exterior visual examination and a rating of the condition of major building components for each housing unit. The survey found the majority of the City's housing stock to be in good condition. Of the 3,313 units surveyed, 2,937 (89 percent) were determined to be sound and 360 (11 percent) were determined to be in need of some form of rehabilitation. A total of 16 units were determined to be dilapidated, which indicates that the rehabilitation of these units is financially infeasible, and they are candidates for demolition. In response to the survey results and interest from the community, the City initiated a housing rehabilitation program in 2005 and has since rehabilitated a total of 44 housing units using funding from a combination of sources including Community Development Block Grants, HOME Investment Partnerships Program, and Redevelopment Agency Low/Moderate Income Housing (LMI) funds.

Jobs-to-Housing Ratio

In its 2021–2035 RTP/SCS Growth Forecast, SCAG estimated that there were approximately 1,900 jobs in Calimesa in 2008, projecting that number to increase by 46 percent to 2,800 jobs by 2020. By comparison, SCAG expects the City's housing stock to increase from approximately 3,300 units to 6,300 units, or almost double, over this same period. SCAG's projections indicate that Calimesa currently provides and would continue to provide housing somewhat in excess of local jobs. The ratio of jobs to housing would likely change as planned commercial development gradually occurs in Calimesa.

Median Housing Unit Values

The median housing unit value in the City of Calimesa, based on the U.S. Census Bureau's most recent American Community Survey (2018), is $203,800. According to the Calimesa General Plan Housing Element, home prices in Calimesa are among the most affordable in Riverside County. Additionally, the City of Calimesa has a large senior population. The median age is well above the State and regional median and a smaller average household size, and the special housing needs of this population would continue to be an important planning consideration. Comparatively, the median housing unit value in Riverside County, based on the U.S. Census Bureau's most recent American Community Survey (2018), is $475,900.

Tenure and Vacancy Rates

Housing in Calimesa is primarily owner-occupied. Based on the U.S. Census Bureau's most recent American Community Survey (2018), 83.2 percent of units were owner-occupied, up from 81.4 percent in 2010. The vacancy rate is an indicator of housing supply and demand. Low vacancy rates can result in increasing housing prices. A five to six percent vacancy rate is generally considered healthy. The vacancy rate in Calimesa was 10.7 percent as of 2018, up from 9.3 percent in 2010. The vacancy rate indicates a more than adequate supply of available housing in the City.

Similar to the City of Calimesa, housing in Riverside County is primarily owner-occupied. 92.1 percent of units in the County were owner-occupied, while 7.9 percent were vacant-housing units. The vacancy rate in Riverside County is 3.5 percent, indicating a comparatively low supply of available housing in the County as a whole.

Poverty/Low-Income Population Characteristics

For the purposes of this discussion, the poverty threshold according to the U.S. Census Bureau was used to determine the percentages of families living below the poverty line. According to the Census Bureau, the poverty threshold for a family of four (including two adults and two children) was $25,962 in 2019 (the most recent year for which this data is available) (U.S. Census Bureau website, accessed 9-17-19. https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html). Low income is defined based on the Department of Health and Human Services (DHHS) poverty guidelines. According to the DHHS 2019 Poverty Guidelines, the poverty threshold for a family of four in the State of California is $25,750 (U.S. Department of Health and Human Services (DHHS), website: https://aspe.hhs.gov/poverty-guidelines, accessed 9-17-19). There is a nominal difference of $176 between the Census Bureau and DHHS poverty thresholds.

Table 2.1.5-3, Regional, Local, and Study Area Income and Poverty Levels shows the percentage of families living below the poverty level (low income) within each census tract, as well as the City of Calimesa and Riverside County. As shown, the percentage of families below the poverty line within both census tracts and the City of Calimesa are consistent, ranging from 5.9 percent to 7.3 percent. The percentage of families below the poverty line within the County is 11.3 percent, which is nearly double that of the City of Calimesa. However, the variance of the number of families living below the poverty level within the study area is not considered to be substantial.

Table 2.1.5-3: Regional, Local, and Project Area Income and Poverty Levels

Low-Income Population	Census Tract 438.11	Census Tract 438.14	City of Calimesa	Riverside County
Total Population	4,242	908	8,651	2,383,286
Median Household Income	$60,372	$46,615	$53,366	$63,948
Families living below the poverty level	7.3%	6.6%	5.9%	11.3%

Notes: The Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty. If a family's total income is less than the family's threshold, then that family and every individual in it is considered in poverty. The official poverty thresholds do not vary geographically, but they are updated for inflation using the Consumer Price Index (CPI-U). The official poverty definition uses money income before taxes and does not include capital gains or noncash benefits (such as public housing, Medicaid, and food stamps).
Source: U.S. Census Bureau, 2018 American Community Survey 5-year estimates at https://data.census.gov/cedsci/ accessed 4-30-20.

Environmental Consequences

Temporary Impacts

No-Build Alternative

Since no construction or improvements would occur under the No-Build Alternative, there would be no temporary direct or indirect adverse effects related to community character or cohesion under this alternative.

Build Alternatives 3 and 4

As noted above, there are no existing community facilities within the study area (services and institutions that the local population relies on for their health and welfare and as a means to interact with other members of the community, such as schools, religious institutions and/or places of worship, medical institutions, parks, senior centers and community centers), nor are there any existing emergency service facilities (e.g., fire or police stations) within the study area. Thus, no temporary adverse effects related to community facilities would occur that could result in impacts to community character or cohesion.

Project construction activities under Build Alternatives 3 and 4 would result in temporary impacts to roadways within and surrounding the project site, that are typical of a roadway construction zone. Although these impacts would affect those traveling in the community on an intermittent basis during construction, access to the neighborhoods within the study area would be maintained throughout the duration of construction. Additionally, Measure TT-1 would require a Transportation Management Plan (TMP) to be prepared and implemented during the Plans, Specifications, and Estimates (PS&E) phase of the project. The Caltrans TMP Guidelines identify the processes, roles, and responsibilities for preparing and implementing TMPs, as well as useful strategies for reducing congestion and managing work zone traffic impacts. The primary objective of the TMP is to maintain safe movement for vehicles, pedestrians, and bicyclists through the construction zone, as well as minimize traffic delays during the construction period.

Public transit within the project area consists of two regional express service lines operated by the City of Beaumont that connect to the City of Calimesa: Commuter Link 120 and Commuter Link 125. Both service lines travel through the project site, along I-10. As noted above, although construction activities may result in temporary impacts to roadways within and surrounding the site, impacts to public transit facilities would be minimized through implementation of a TMP. Thus, temporary impacts in this regard would not be adverse.

Permanent Impacts

No-Build Alternative

There would be no permanent impacts related to community character and cohesion under the No-Build Alternative since no physical changes to the existing environment would occur.

Build Alternatives 3 and 4

As noted above, there are no existing community facilities within the study area. Thus, no permanent adverse effects related to community facilities would occur that could result in impacts to community character or cohesion.

As noted above, the City of Beaumont operates two regional express bus lines that connect to the City Calimesa. The Build Alternatives would improve traffic flow and relieve congestion within and surrounding the project site over the long-term. Thus, Build Alternatives 3 and 4 would provide an operational benefit with regard to public transit.

The Build Alternatives would not result in impacts with regard to community character or cohesion. Build Alternatives 3 and 4 would not involve the implementation of new housing on a direct or indirect basis that could cause an increase in population or change in community composition. The Build Alternatives would not directly or indirectly have an adverse impact on population characteristics, housing mixture, economic conditions, or supporting community services within the study area. Any potential changes to the communities that comprise the study area would result from planned County and City growth and would occur regardless of implementation of the Build Alternatives.

Adverse effects related to community cohesion would not occur since I-10, Cherry Valley Boulevard, and other affected local roadways are existing facilities; the Build Alternatives would not result in any new roadways or physical barriers that divide or impede cohesion. The improvements associated with the Build Alternatives would reduce existing and projected future traffic congestion associated with the I-10/Cherry Valley Boulevard interchange and improve mobility and connectivity within the project area. The Build Alternatives would not divide neighborhoods, directly encourage or discourage growth, create negative changes to existing quality of life, or increase urbanization or isolation. The Build Alternatives would not impede access to community facilities, since none exist within the study area. Therefore, no long-term direct or indirect adverse effects on community character or cohesion would occur with the implementation of the Build Alternatives.

Avoidance, Minimization, and/or Mitigation Measures
No measures are proposed.

2.1.6 Relocations and Real Property Acquisition

Regulatory Setting
The Department's Relocation Assistance Program (RAP) is based on the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act), and Title 49 Code of Federal Regulations (CFR) Part 24. The purpose of the RAP is to ensure that persons displaced as a result of a transportation project are treated fairly, consistently, and equitably so that such persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Please see Appendix C for a summary of the RAP.

All relocation services and benefits are administered without regard to race, color, national origin, persons with disabilities, religion, age, or sex. Please see Appendix B for a copy of the Department's Title VI Policy Statement.

Affected Environment
The following text has been amended since the Draft Environmental Document: This section is based on the Community Impact Assessment (CIA) Memorandum dated December 3, 2020 and the May 2023 Final Relocation Impact Memorandum (FRIM) that were prepared for the project.

The following text has been amended since the Draft Environmental Document: Uses within project site boundaries can be characterized as predominately transportation facilities (I-10, Cherry Valley Boulevard, Calimesa Boulevard), and undeveloped/vacant land. Two single-family residential structures exist within the northeasterly portion of the site, north of Cherry Valley Boulevard and east of Calimesa Boulevard. Areas surrounding the project site to the north generally include vacant land, the Rancho Calimesa Mobile Home Park (north of Calimesa Boulevard), and a single-family residential use (north of Cherry Valley Boulevard and west of Roberts Street); a truck repair facility and vacant land is located to the east; the Plantation on the Lake senior community, single-family residential, commercial/retail and residential uses associated with the Summerwind Specific Plan are located to the south; and vacant land and rural residential uses are located to the west.

Environmental Consequences

Temporary Impacts

No-Build Alternative

The No-Build Alternative would not result in any temporary adverse effects regarding relocations or real property acquisition since no construction would occur and no properties would be affected.

Build Alternatives 3 and 4

The following text has been amended since the Draft Environmental Document: Based on the CIA Memorandum prepared for the project, it is expected that Temporary Construction Easements (TCE) would be required for both Build Alternatives. According to the CIA, the construction phase for both Build Alternatives would occur in one phase and is expected to last approximately 24 months. Table 2.1.6-1, Potential Temporary ROW Acquisitions indicates the potential temporary ROW acquisitions that may occur under the Build Alternatives. A total of 2.80 acres for Build Alternative 3 and a total of 2.53 acres for Build Alternative 4 would be temporarily acquired during project construction. Refer to Figure 2.1.6-1, Build Alternative 3 Potential ROW Acquisition Map and Figure 2.1.6-2, Build Alternative 4 Potential ROW Acquisition Map, for a depiction of ROW acquisition associated with both Build Alternatives. Access to these properties would be maintained. Because these would be temporary and the portions of the parcels required during construction would be restored and returned to their owners following construction, adverse effects would not occur in this regard.

Permanent Impacts

No-Build Alternative

The No-Build Alternative would not result in any permanent adverse effects regarding relocations or real property acquisition since no improvements would occur.

Build Alternatives 3 and 4

Permanent acquisition would occur under both Build Alternatives. A total of 4.08 acres for Build Alternative 3 and a total of 6.50 acres for Build Alternative 4 would be permanently acquired during project construction. Table 2.1.6-2, Potential Permanent ROW Acquisitions and Relocations, below shows the potential permanent ROW acquisitions that may occur under the Build Alternatives.

Figure 2.1.6-1: Build Alternative 3 Potential ROW Acquisition Map

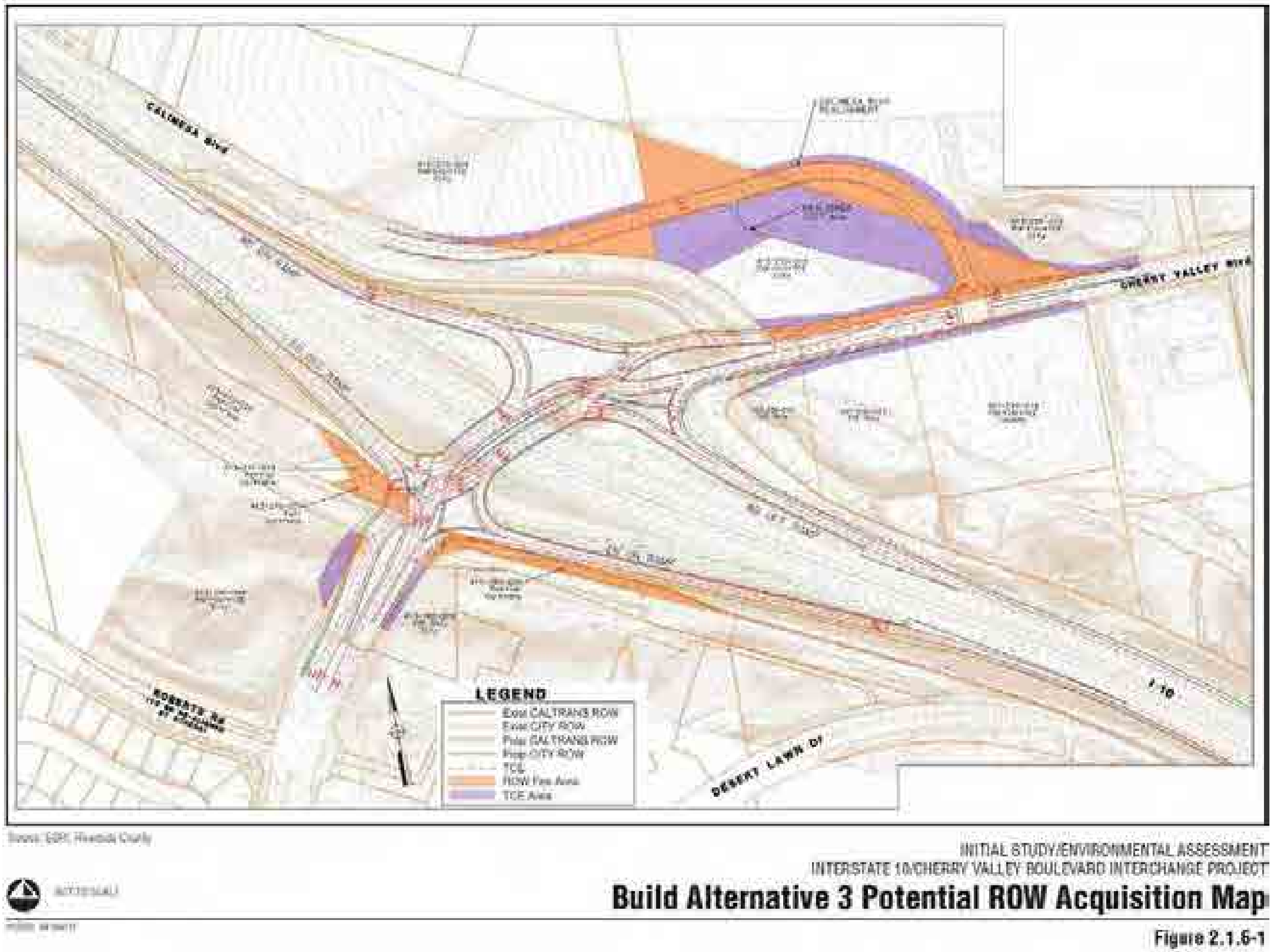


Figure 2.1.6-2: Build Alternative 4 Potential ROW Acquisition Map

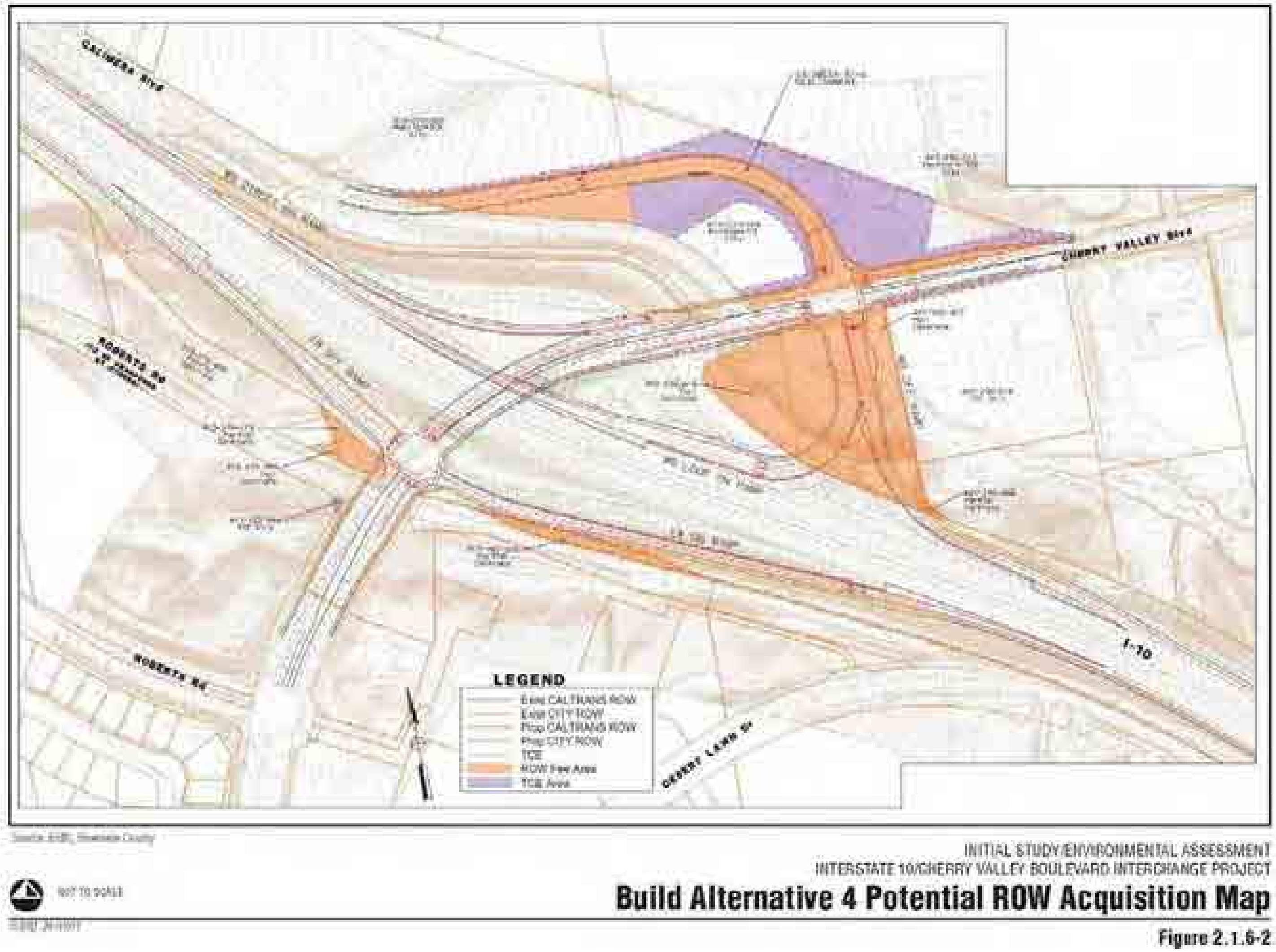


Table 2.1.6-1: Potential Partial Temporary (TCE) ROW Acquisitions

The following table has been amended since the Draft Environmental Document.

APN	Address	Alternative 3 Impacts (Acres)	Alternative 4 Impacts (Acres)	Property Type/Current Land Use	Relocation
413-270-004	--	0.16	0.14	Commercial/Vacant Land	No
413-270-014	3607 Cherry Valley Boulevard	1.59	2.20	Commercial/Multiple SFR Structures	No
413-270-015	36240 Cherry Valley Boulevard	0.50	0.09	Residential/Residential	No
407-230-018	--	0.19	0.08	Commercial/Vacant Land	No
407-230-004	--	--	--	Commercial/Vacant Land	No
407-230-017	36015 Cherry Valley Boulevard	0.13	--	Commercial/Vacant Land	No
407-230-016	--	0.06	--	Commercial/Vacant Land	No
413-780-020	--	--	--	Commercial/Shopping Center	No
413-290-044	--	0.17	0.02	Commercial/Vacant Land	No
413-270-021	--	--	--	Commercial/Vacant Land	No
413-270-019	--	--	--	Commercial/Vacant Land	No
413-270-020	--	--	--	Residential/Vacant Land	No
TOTAL	--	**2.80**	**2.53**	--	--

Source: Michael Baker International, Relocation Impact Memorandum, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, July 2020; Michael Baker International, Final Relocation Impact Memorandum, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, May 2023.

Table 2.1.6-2: Potential Permanent ROW Acquisitions and Relocations

The following table has been amended since the Draft Environmental Document.

APN	Address	Alternative 3 Impacts (Acres)	Alternative 4 Impacts (Acres)	Property Type/Current Land Use	Relocation
413-270-004	--	0.63	1.02	Commercial/Vacant Land	No
413-270-014	3607 Cherry Valley Boulevard	1.94	1.31	Commercial/Multiple SFR Structures	Yes (Under Alt. 4)
413-270-015	36240 Cherry Valley Boulevard	0.81	<0.01	Residential/Residential	No
407-230-018	--	0.02	--	Commercial/Vacant Land	No
407-230-004	--	--	0.01	Commercial/Vacant Land	No
407-230-017	36015 Cherry Valley Boulevard	--	2.77	Commercial/Vacant Land	No
407-230-016	--	--	0.92	Commercial/Vacant Land	No
413-780-020	--	0.44	0.26	Commercial/Shopping Center	No
413-780-018	--	--	--	Commercial/Shopping Center	No
413-290-044	--	0.02	--	Commercial/Vacant Land	No
413-270-019	--	0.01	--	Commercial/Vacant Land	No
413-270-020	--	0.002	--	Commercial/Vacant Land	No
413-270-021	--	0.21	0.21	Commercial/Vacant Land	No
TOTAL	--	**4.08**	**6.50**	--	--

Source: Michael Baker International, Relocation Impact Memorandum, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, July 2020; Michael Baker International, Final Relocation Impact Memorandum, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, May 2023.

The following text has been amended since the Draft Environmental Document: Based on the FRIM prepared for the project, there are multiple existing structures associated with two single-family residences located on APN 413-270-014, which is located on the north side of Cherry Valley Boulevard in the northeast quadrant of the I-10/Cherry Valley Boulevard interchange. Preliminary analysis of aerial imagery indicates the structures may include a primary living residence, an accessory guest residence, a garage, sheds, and farm buildings. However, the exact function of the structures, as well as the type and number of occupants residing in the residence, will be determined during the ROW acquisition phase of the project. The existing structures were constructed in 1965, however, because the property type is listed as "commercial," the number of bedrooms and total area (square footage) of the structures are not available.

The most recent assessed values cited by the Riverside County Assessor's Office include the land at $927,221 and the improvements at $89,039, for a total assessed value of $1,016,260. Information obtained from the project's right-of-way data sheets cite a residential relocation cost of approximately $252,000. However, real estate housing market trends indicate the approximate value of the residences to be relocated currently fall within a range of $550,000 to $650,000. As such, this range was used as the baseline for the real estate research conducted for the Relocation Impact Memorandum. Partial permanent ROW acquisition of APN 413-270-014 would occur under Build Alternative 4, which would require acquisition and removal of the two existing residential structures on the parcel.

Real estate research was conducted to determine the availability of single-family residential replacement properties located within the City of Calimesa, as well as the adjacent City of Yucaipa to the north and community of Cherry Valley to the east. As described above, the parameters of this analysis included a sale price range of $550,000 to $650,000, and a location focused primarily in the City of Yucaipa and the adjacent community of Cherry Valley; it should be noted that there are currently no comparable properties in acreage available in the City of Calimesa. As indicated by the analysis, there are currently ample single-family residential replacement properties on the market similar to the displacement property, and it was determined that adequate housing stock is available in proximity to the project area to meet the decent, safe, and sanitary standards to relocate the displaced residents from the impacted area. In addition, U.S. Census Bureau data indicates that there is currently a 10.7 percent vacancy rate for the community; therefore, it is anticipated that there will be sufficient single-family residences that are equal to or better than the displacement property available for rent or purchase. Implementation of Minimization Measure ROW-1, below, would reduce potential relocation impacts and impacts would not be substantial.

No business relocations would occur under Build Alternatives 3 or 4. Although partial permanent acquisition of vacant land associated with the Northlight

Trust 1/Marketplace Shopping Center (APN 413-780-020) would occur under the Build Alternative 4, these businesses would not be displaced as a result of project implementation. Access will be maintained during construction.

Avoidance, Minimization, and/or Mitigation Measures

ROW-1 Right-of-way shall be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and property owners shall receive just compensation and fair market value for their property.

2.1.7 Environmental Justice

Regulatory Setting

All projects involving a federal action (funding, permit, or land) must comply with Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, signed by President William J. Clinton on February 11, 1994. This EO directs federal agencies to take the appropriate and necessary steps to identify and address disproportionately high and adverse effects of federal projects on the health or environment of minority and low-income populations to the greatest extent practicable and permitted by law. Low income is defined based on the Department of Health and Human Services poverty guidelines. For 2021, this was $26,500 for a family of four.

All considerations under Title VI of the Civil Rights Act of 1964, and related statutes, have also been included in this project. The Department's commitment to upholding the mandates of Title VI is demonstrated by its Title VI Policy Statement, signed by the Director, which can be found in Appendix B of this document.

Affected Environment

This section is based on the Community Impact Assessment (CIA) Memorandum prepared for the proposed project, dated December 3, 2020.

Race and Ethnic Characteristics

As shown in Table 2.1.7-1, Ethnic and Racial Composition, the percentages of minority population for the City of Calimesa, the County of Riverside and the CIA study area census tracts are identified. Both census tracts and the City of Calimesa have similar percentages of White populations, at 81.7 percent, 93.2 percent, and 84.0 percent, respectively, whereas the County of Riverside has a lower White percentage of 60.8 percent. A similar trend occurs for the Black population in the census tracts and City of Calimesa, with Black populations of 3.2 percent, 2.1 percent, and 1.2 percent, respectively, whereas the County of Riverside shows a higher Black population of 6.4 percent.

Table 2.1.7-1: Ethnic and Racial Composition

Composition	Census Tract 438.11	Census Tract 438.14	City of Calimesa	County of Riverside
White Alone	81.7	93.2	84.0	60.8
Black or African American Alone	3.2	2.1	1.2	6.4
American Indian/Alaska Native Alone	0.6	0.0	0.7	0.8
Asian Alone	3.8	2.8	2.1	6.4
Native Hawaiian/Other Pacific Islander Alone	0.0	0.0	0.0	0.3
Some Other Race Alone	7.9	2.0	6.4	20.8
Two or More Races	2.8	0.0	5.5	4.5
Hispanic or Latino (any race)	23.1	20.6	29.3	48.4

Source: Michael Baker International, Community Impact Assessment Memorandum, January 2021.

Both census tracts included in the study area show a low percentage of Hispanic or Latino populations, at 23.1 percent and 20.6 percent. The City of Calimesa's Hispanic percentage is similar to the census tracts at 29.3 percent, whereas the County of Riverside's Hispanic population is higher than all other areas included in the study area at 48.4 percent. Both census tracts also showed either an absence, or very low occurrence, of any American Indian and Alaska Native, Asian, and Native Hawaiian/Other Pacific Islander populations, ranging from 0.0 percent to 3.8 percent. The City of Calimesa also shows a very low percentage of these populations, with a 0.7 percent American Indian and Alaska Native population, a 2.1 percent Asian population, and a 0.0 percent Native Hawaiian/Other Pacific Islander population. Both census tracts and the City of Calimesa have fairly low percentages of Some Other Race populations, ranging from 2.0 percent to 7.9 percent, whereas the County of Riverside's Some Other Race population percentage is higher than all the other areas in the study area at 20.8 percent.

Poverty/Low-Income Population Characteristics

For the purposes of this discussion, the poverty threshold according to the U.S. Census Bureau was used to determine the percentages of families living below the poverty line. According to the Census Bureau, the poverty threshold for a family of four (including two adults and two children) was $25,926 in 2019 (the most recent year for which this data is available). Low income is defined based on the Department of Health and Human Services (DHHS) poverty guidelines. According to the DHHS 2021 Poverty Guidelines, the poverty threshold for a family of four in the State of California is $26,500. There is a nominal difference of $574 between the Census Bureau and DHHS poverty thresholds.

Table 2.1.5-3, above, shows the median household incomes and the percentage of families living below the poverty level (low income) for the City of Calimesa, the County of Riverside, and the study area census tracts. As shown, the lowest median household income is in Census Tract 438.14 at

$46,615, and the highest median household income is in the County of Riverside at $63,948—a range of approximately $17,000. The low-income figures between the City of Calimesa and census tracts are consistent, ranging from a low of 5.9 percent in the City of Calimesa to a high of 7.3 percent in Census Tract 438.11. The County of Riverside's low-income population percentage is 11.3 percent, which is nearly double that of the City of Calimesa. However, the variance of the number of families living below the poverty level within the study area is not considered to be substantial.

Environmental Consequences

Temporary Impacts

No-Build Alternative

Temporary adverse effects to environmental justice populations would not occur with implementation of the No-Build Alternative, since no construction activity would occur.

Build Alternatives 3 and 4

Traffic and Transportation

Construction activities associated with the Build Alternatives would result in temporary traffic effects related to the circulation of vehicles, bicyclists, and pedestrians in the project area that could affect environmental justice populations. Construction under Build Alternatives 3 and 4 are anticipated to take approximately 24 months. Full freeway closures on I-10 would be required for placement of the new pre-cast Cherry Boulevard structure. Ramps would require closures at intersections with local roads, in which through access on Cherry Valley Boulevard would continue. Short-term or weekend closures are expected for certain phases; however, no long-term street closures are anticipated or would be allowed. Proposed ramp closures would be identified during the plans, specifications, and estimates (PS&E) phase. Traffic-handling plans and stage-construction plans will be developed to minimize queueing on the I-10 mainline. These efforts will include off-peak hour construction hours (primarily in the late night, early morning, and weekends) and clearly marked detours near the closures.

Implementation of the Build Alternatives would include preparation and implementation of a Transportation Management Plan (TMP) during the PS&E phase. The Caltrans Transportation Management Plan Guidelines (TMP Guidelines) identifies the processes, roles, and responsibilities for preparing and implementing TMPs, as well as useful strategies for reducing congestion and managing work zone traffic impacts. The primary objective of the TMP is to maintain safe movement for vehicles, pedestrians, and bicyclists through the construction zone, as well as minimize traffic delays during the construction period. The TMP prepared for the project will implement alternate route strategies to minimize adverse effects to roadways and reduce potential congestion.

The TMP will include, but not be limited to, the following six major elements:

- Public information/public awareness campaign
- Traveler information strategies
- Incident management
- Construction strategies
- Demand management
- Alternate route strategies

With implementation of the TMP for the Build Alternatives, adverse temporary effects related to traffic, pedestrian, and bicyclists would not occur. The community, in general, would be similarly affected, and effects of the Build Alternatives on environmental justice populations would not be more severe than the effects on nonenvironmental justice populations.

Air Quality
Temporary impacts, such as lane closures and nighttime constructions, are anticipated to occur after during construction. An increase in particulate emissions (fugitive dust) would temporarily occur through construction activities, such as clearing, cut-and-fill activities, grading, and paving. Construction activities and equipment would additionally increase certain emissions, including carbon monoxide (CO), nitrogen oxides (NO), sulfur dioxide (SO2) and reactive organic gases (ROGs). The increase of these emissions would be nominal and would affect the general population as a whole, and would not disproportionally affect the environmental population. As discussed in Section 2.2.6, Air Quality, temporary impacts related to air quality would not be adverse, and would be minimized with the implementation of state and regional standardized measures. These measures would help reduce emissions for all populations during the construction phase of the Build Alternatives. Therefore, the Build Alternatives would not result in any temporary adverse effects regarding air quality that are disproportionate to the low income or minority populations in the project area. The community, in general, would be similarly affected, and effects of the Build Alternatives on environmental justice populations would not be more severe than the effects on nonenvironmental justice populations.

Noise
Construction activities are anticipated to increase noise levels in the immediate area of the project site. Equipment involved in construction activities are expected to generate noise levels that exceed the existing noise environment. As discussed in Section 2.2.7, temporary impacts to noise levels would not result in adverse effects, and would be minimized with compliance to applicable Caltrans Standard Specifications regarding construction. Therefore, the Build Alternatives would not result in any temporary adverse effects that are disproportionate to the low income or

minority populations in the project area. The community, in general, would be similarly affected, and effects of the Build Alternatives on environmental justice populations would not be more severe than the effects on nonenvironmental justice populations.

Community Character and Cohesion

Community character and cohesion impacts generally are considered to be permanent because the project improvements would remain after construction is complete. Therefore, temporary impacts to community character and cohesion during construction are not anticipated.

Permanent Impacts

No-Build Alternative

Traffic and Transportation

Under the No-Build Alternative, the existing roadway and interchange configuration would remain the same, and there would be no reconstruction of the existing I-10/Cherry Valley Boulevard overcrossing. As discussed in Section 2.1.9 of this IS/EA, traffic operations within the project site would deteriorate in performance. By the Design Year (2045), eastbound segments such as the Singleton Road On-Ramp, Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp, and the Cherry Valley Boulevard Off-Ramp would deteriorate an unacceptable level of service (LOS) F during the AM peak hours. During the PM peak hours, all eastbound segments would operate at an unacceptable LOS, with the exception of the Oak Valley Parkway Off-Ramp and the North of Singleton Road segments. All westbound segments would operate at an unacceptable LOS during the AM peak hour, with the exception of the Cherry Valley Boulevard Off-Ramp to On-Ramp. This applies to all westbound segments during the PM peak hour, with the exception of Oak Valley Parkway Off-Ramp. Intersections, including the I-10 Eastbound Off/On-Ramps/Singleton Road, I-10 Westbound Off/On-Ramps/Singleton Road, Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive, Cherry Valley Boulevard/Roberts Road, I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard, I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard, I-10 Westbound and the Off/On-Ramps/Oak Valley Parkway intersections, would deteriorate an LOS D or worse during either the AM or PM peak hours. This deterioration in LOS on local roadways would adversely impact all segments of the population, including minority and low-income population groups. This deterioration in LOS on roadways, ramp facilities, and intersections would adversely affect all segments of the population, including the minority and low-income population groups.

Air Quality

Improvements to the existing I-10/Cherry Valley interchange would not occur under the No-Build Alternative. Accordingly, adverse effects related to air quality would not occur to the general population, including the minority and low-income population groups.

Noise

Under the No Build Alternative, the surrounding area of the project site would continue to experience development and an increase in traffic. As discussed in Section 2.1.7 of this IS/EA, mobile homes and single-family residential uses would experience increase in noise levels that would exceed the federal Noise Abatement Criteria of 67 dbA. This increase in noise levels would impact all single-family households surrounding the project site including the minority and low-income population groups.

Community Character and Cohesion

Improvements to the existing I-10/Cherry Valley interchange would not occur under the No-Build Alternative. Accordingly, adverse effects to the community character and cohesion would not occur, and there would be no disproportionate impact to minority and low-income population groups.

Build Alternatives 3 and 4

Traffic and Transportation

As discussed in Section 2.1.9 of this IS/EA, implementation of the Build Alternatives would result in improved traffic operations and would either maintain or improve multiple analyzed roadway/freeway segments and intersections within the project area. In addition to improved vehicular circulation, the Build Alternatives would include improved pedestrian and bicycle facilities where limited facilities currently exist.

The beneficial traffic conditions under the Build Alternatives would occur with respect to the general population as a whole. Therefore, the Build Alternatives would not result in disproportionate or adverse effects to environmental justice populations in the project area.

Air Quality

As discussed in Section 2.2.6 of this IS/EA, the Build Alternatives would not cause permanent significant air quality impacts during its operation in the project area. Therefore, there will be no disproportionate effects to minority and low-income population groups.

Noise

As discussed in Section 2.2.7 of this IS/EA, the Build Alternatives would result in increased noise levels that would exceed the NAC for sensitive receptors (i.e., residential land uses). Installation of feasible and reasonable soundwalls would be proposed under both Build Alternatives as a form of noise abatement. Installation of soundwalls would occur with respect to the general population as a whole. Therefore, the Build Alternatives would not result in disproportionate or adverse effects to environmental justice populations in the project area.

Community Character and Cohesion
As discussed above, there are no community facilities or facilities for emergency service in the study area. The percentage of minority populations in the study are low compared to Riverside County, and the number of families that are living below the poverty line in the study area are not considered to be substantial. As such, potentially adverse community character and cohesion impacts specific to the low-income or minority populations are not anticipated to occur under the Build Alternatives because the Build Alternatives will not physically divide, or create barriers within, any such communities in the area. The Build Alternatives would have a beneficial impact of improving access and circulation within the study area for the general public.

Avoidance, Minimization, and/or Mitigation Measures
Based on the above discussion and analysis, the Build Alternatives will not cause disproportionately high and adverse effects on any minority or low-income populations in accordance with the provisions of EO 12898. No further environmental justice analysis is required. No measures are proposed.

2.1.8 Utilities and Emergency Services

Affected Environment
Utilities
The following utilities exist within the project area and its vicinity:

Southern California Edison (SCE)
Southern California Edison (SCE) provides electrical power to the project area, the City of Calimesa, and Riverside County. The following SCE utilities are present within the project site:

- One overhead utility line that is part of a set of overhead transmission lines located along Calimesa Boulevard;
- One overhead utility line that runs across Cherry Valley Boulevard, south of the eastbound I-10 ramp intersection; and
- One underground utility line runs across and along Cherry Valley Boulevard.

Southern California Gas Company (SoCal Gas)
Medium and high-pressure pipelines from SoCal Gas are located on-site at the following locations:

- One six-inch medium pressure pipeline running along Cherry Valley Boulevard, west of I-10.
- One ten-inch high pressure underground pipeline beginning at Calimesa Boulevard that traverses I-10. The pipeline travels along Roberts Road and into Desert Lawn Drive.

- One four-inch high pressure pipeline that travels along Roberts Road.
- One six-inch medium pressure pipeline along Calimesa Boulevard.
- One six-inch medium pressure pipeline at the intersection of Calimesa Boulevard and Cherry Valley Boulevard.

Telecommunications

Charter Communications, Verizon Wireless, and AT&T provide cable, television, and phone services to the project site. Cable lines and utilities occur on-site at the following locations:

Charter Communications

- One overhead cable line running along Calimesa Boulevard.
- One underground cable line running along Calimesa Boulevard.
- One underground cable line running along Cherry Valley Boulevard.

Verizon

- One underground cable line, beginning at Calimesa Boulevard, that traverses I-10.

AT&T

- One overhead cable line along Roberts Road.

Sprint

- One Sprint Cell Tower west of I-10, within project boundaries.

Water

Water services to the project study area are provided by the Beaumont-Cherry Valley Water District. Underground water lines that are to be constructed with the project include the following:

- Three 24-inch water lines (two potable and one non-potable) along westbound Cherry Valley Boulevard.

Sewer

Sewage services to the project site are provided by the Yucaipa Valley Water District. Sewage lines occur on-site at the following locations:

- One six-inch existing sewer line located at/along westbound I-10.

Emergency Services

The following emergency service providers are located in the project area and its vicinity:

Police

Police protection services to the project site and surrounding areas are provided by the Riverside County Sheriff's Department (RCSD). The City of Calimesa contracts with RCSD for provision of police protection assistance. RCSD services for the project area are based out of its patrol station located at 50290 Main Street in Cabazon.

The California Highway Patrol (CHP) also provides police services in the region, such as traffic regulation enforcement and emergency accident management and service but is primarily limited to the existing state route and interstate highway systems that extend throughout the region.

Fire

Fire protection services within the City of Calimesa are provided by the Calimesa Fire Department. The Calimesa Fire Department has one fire station that is located at 906 Park Avenue in Calimesa. The Riverside County Fire Department provides fire protection services to unincorporated areas of the County, and also provides additional emergency fire protection and suppression services to the City of Calimesa and the project area under mutual and automatic aid agreements. These services include provide fire dispatch services and auto aid services for structure and vegetation fires. Riverside County Fire Department services for the project area are based out of its fire station located at 10055 Avenida Miravilla in the Cherry Valley community.

Hospitals

The nearest hospital to the project site is San Gorgonio Memorial Hospital at 600 North Highland Springs Ave in the City of Banning. The hospital is approximately 5.4 miles from the project site and provides emergency and intensive care services.

Environmental Consequences

Temporary Impacts

Utilities

No-Build Alternative

Under the No-Build Alternative, no construction would occur; therefore, adverse temporary effects related to utilities would not occur.

Build Alternatives 3 and 4

The project's final design process (the Plans, Specifications, and Estimates [PS&E] phase) would address all potential utility relocation that may be required during the construction phase of the project. An updated utility search would be conducted during final design to determine any utility conflicts requiring attention. Coordination with the identified utility companies would be carried out during the PS&E and construction phases. No service disruptions are anticipated to occur to any of the utilities during construction. Accordingly, adverse effects related to utilities during construction of the project are not anticipated.

Emergency Services

No-Build Alternative

Under the No-Build Alternative, no construction would occur; therefore, temporary construction adverse effects to emergency services would not occur.

<u>*Build Alternatives 3 and 4*</u>

Freeway, street, and lane closures are anticipated to occur intermittently during the construction phase of the project. Access to developed areas in proximity to the project may potentially be constrained intermittently during construction. As a method of minimizing potential delay in emergency response time, travel through the project area would be maintained for emergency service vehicles during project construction through implementation of a TMP. The Caltrans TMP Guidelines require consideration and notification of emergency service providers to provide for adequate emergency access during the temporary construction process. With preparation of the TMP during the PS&E phase, adverse effects would not occur in this regard.

Permanent Impacts

<u>*Utilities*</u>

<u>*No-Build Alternative*</u>

Under the No-Build Alternative, the I-10/Cherry Boulevard interchange and the surrounding transportation network would be maintained; therefore, no permanent changes or adverse effects to existing utilities in the project area would occur.

<u>*Build Alternatives 3 and 4*</u>

Permanent adverse effects to utilities under the Build Alternatives would include multiple relocations, as described in Table 2.1.8-1 below.

Table 2.1.8-1: Utility Relocations

Utility Company/Owner	Utility Type	Relocation Information
Southern California Gas (SCG)	Gas – One six-inch medium pressure line along existing Calimesa Boulevard.	Utility will be realigned with the realignment of Calimesa Boulevard by approximately 1,500 linear feet relocation.
Yucaipa Valley Water District	Sewer – One six-inch line within State ROW outside of westbound I-10 shoulder.	Utility will be realigned within same vicinity of State ROW, approximately 3,000 linear feet to avoid bridge abutments and westbound I-10 ramp realignments.
Beaumont-Cherry Valley Water District (BCVWD)	Water – Three 24-inch Lines (Two Potable and One Non-Potable) to be Constructed with Project.	Utility will be constructed with the project, along Cherry Valley Boulevard.
Southern California Edison (SCE)	Electric – Three lines; two overhead (one line running across and along existing Calimesa Boulevard and a second line running across Cherry Valley Boulevard south of the eastbound I-10 ramp intersection) and one underground transmission line running across and along Cherry Valley Boulevard.	The overhead utility line that runs along and across Calimesa Boulevard will be realigned with the realignment of Calimesa Boulevard by approximately 1,500 linear feet relocation. The overhead utility line that runs across Cherry Valley Boulevard will be relocated across Cherry Valley Boulevard by approximately 400 linear feet relocation. The underground utility line that runs along and across Cherry Valley Boulevard will be realigned

Utility Company/Owner	Utility Type	Relocation Information
		along Cherry Valley Boulevard by approximately 700 linear feet relocation.
Charter Communications	Communication – Overhead cable line running along existing Calimesa Boulevard.	Utility will be realigned with the realignment of Calimesa Boulevard by approximately 1,500 linear feet relocation.
Frontier (Verizon)	Communication – Underground line running along existing Calimesa Boulevard.	Utility will be realigned with the realignment of Calimesa Boulevard by approximately 1,500 linear feet relocation.

Prior to the completion of final design, coordination with any of the above affected utility providers in the vicinity of the I-10/Cherry Valley Boulevard interchange project would be completed, to verify that the project would not disrupt services. For any utilities affected, all required coordination would be completed to establish exact procedures and specifications for addressing facilities impacted by the project, and as necessary, additional analysis would be completed, and any measures identified in conjunction with the completion of additional analysis would be implemented. Any required relocations of utilities would be completed prior to any project-related construction. Accordingly, no permanent adverse effects to utilities are anticipated.

Emergency Services

No-Build Alternative

Under the No-Build Alternative, the I-10/Cherry Boulevard interchange and the surrounding transportation network would be maintained; therefore, no permanent changes or adverse effects to emergency services in the project area would occur.

Build Alternatives 3 and 4

Through the project's improvement of the I-10/Cherry Boulevard interchange, Build Alternatives 3 and 4 would improve mobility, circulation and traffic operations at the interchange and the surrounding roadways. In turn, emergency services would be able to travel through the interchange more efficiently, resulting in improved travel and response times in emergency situations. There would be no adverse effects related to emergency services under the Build Alternatives.

Avoidance, Minimization, and/or Mitigation Measures

No measures are proposed.

2.1.9 Traffic and Transportation/Pedestrian and Bicycle Facilities

Regulatory Setting

The Department, as assigned by the Federal Highway Administration (FHWA), directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of Federal-aid highway projects (see 23 Code of Federal Regulations [CFR] 652). It further directs that the special needs of the elderly and the disabled must be considered in all Federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, the U.S. Department of Transportation (USDOT) issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR 27) implementing Section 504 of the Rehabilitation Act (29 United States Code [USC] 794). The FHWA has enacted regulations for the implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

Affected Environment

This section is based on the I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document Traffic Operations Analysis Report (TOAR) (dated November 2020).

Roadway Facilities

The following text has been amended since the Draft Environmental Document: Key travel routes within the study area include I-10, Cherry Valley Boulevard, Calimesa Boulevard and Roberts Road. I-10 is an interstate highway that extends east-west along the City of Calimesa and Riverside County. Within the limits of the project site, it operates as an arterial divided by a Jersey concrete barrier, with three lanes in each direction. The posted speed limit on I-10 is 70 miles per hour throughout the length of the project site. Riverside County classifies I-10 as a major freeway. I-10 originates in Santa Monica, California, and extends eastward to its terminus in Jacksonville, Florida.

Cherry Valley Boulevard begins at the Noble Street intersection, and travels through the City of Calimesa and unincorporated areas of Riverside County in a westerly direction. Cherry Valley Boulevard currently terminates at its intersection with Beaumont Street within the Cherry Valley unincorporated community. The posted speed limit on Cherry Valley Boulevard is 35 miles per hour west of the interchange and the posted speed limit of 55 miles per hour east of the interchange.

Calimesa Boulevard is a two-lane (one lane in each direction) major arterial roadway that parallels I-10 and traverses unincorporated territory into the City of Calimesa, beginning at its intersection with Cherry Valley Boulevard within the project site, and ending at a “T” intersection with Live Oak Canyon Road/Oak Canyon Road in the City.

Old Roberts Road is a two-lane (one lane in each direction) arterial roadway that parallels I-10. Old Roberts Road begins at its intersection with Cherry Valley Boulevard within the project site, and transitions into Woodhouse Road west of Singleton Road. The posted speed limit on Robert Road is 35 miles per hour.

Desert Lawn Drive/ Palmer Avenue is a two lane (one lane in each direction) secondary arterial roadway. As Palmer Avenue, the roadway travels through planned development within Summerwind Ranch in a southwest direction. At its intersection with Cherry Valley Boulevard, the roadway bisects into Desert Lawn Drive and continues to travel in a southwest direction, where it parallels I-10. The posted speed limit on Palmer Avenue and Desert Lawn Drive is 35 miles per hour.

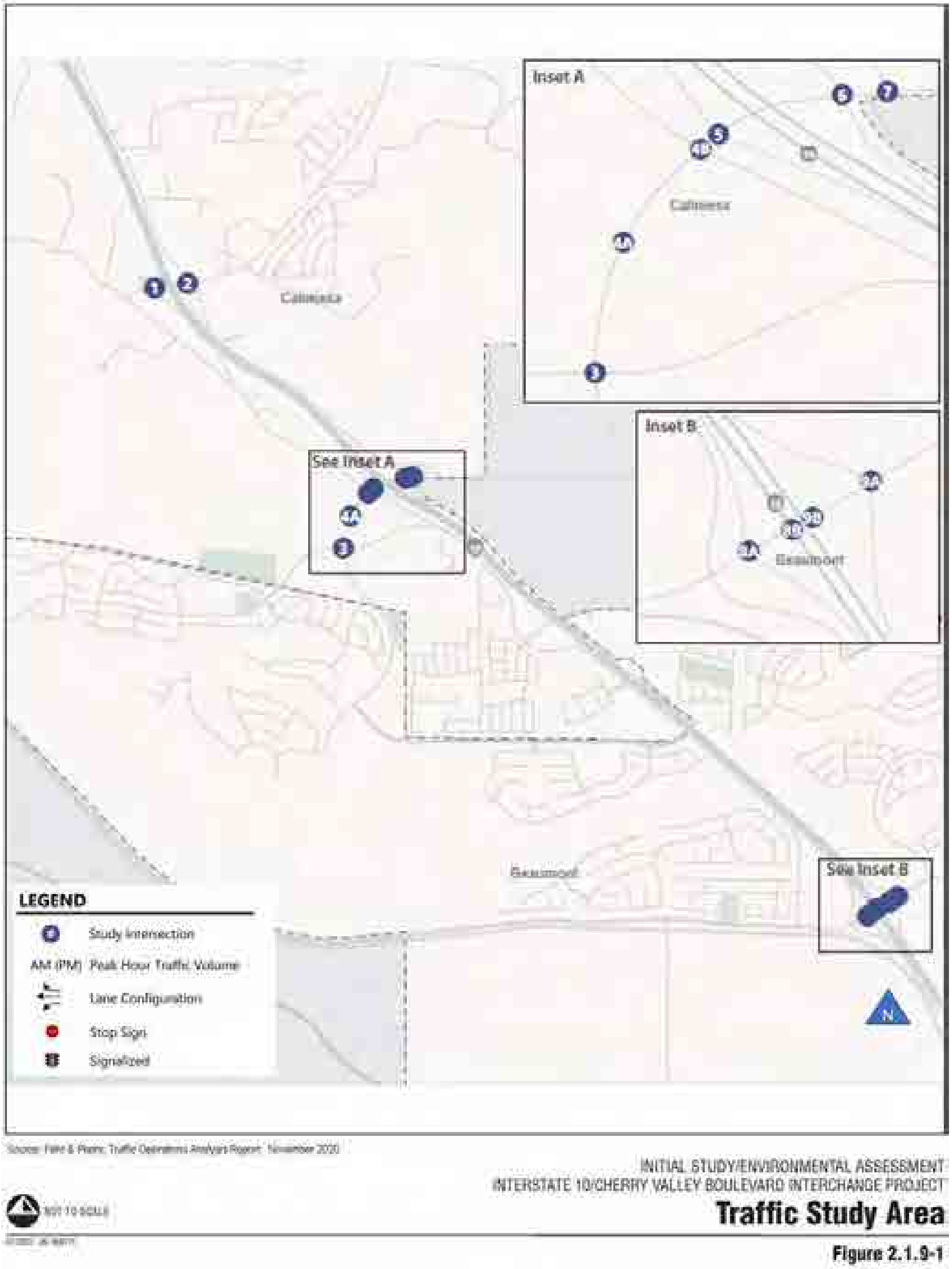
Pedestrian and Bicycle Facilities

Pedestrian facilities are sparse and in various locations of the project site. Sidewalks are located at the I-10/Cherry Boulevard overcrossing, and along Roberts Road. There are currently no designated bicycle lanes or facilities within the study area. Project implementation would improve pedestrian and bicycle movement within the area by replacing existing facilities and including additional pedestrian and bicycle facilities to promote connectivity. According to the Calimesa General Plan, bicycle lanes are planned along Cherry Valley Boulevard, south of Roberts Road, along Roberts Road, west of Cherry Valley Boulevard, and along Palmer Avenue/Desert Lawn Drive, east and west of the Cherry Valley Boulevard and Palmer Avenue/Desert Lawn Drive intersection within the project area. The Riverside County General Plan does not identify proposed bicycle or pedestrian facilities within the project area.

Study Area

The study area covers segments of the I-10 from south of the Singleton Road interchange to north of the Oak Valley Parkway interchange, and the area is bounded by Calimesa Boulevard to the north and Wildwood Creek and Palmer Avenue/Desert Lawn Drive to the south. The study locations consist of the I-10 mainline segments and ramp junctions in the study area, as well as the intersections of the I-10 ramps and arterials within the study area. Figure 2.1.9-1, Traffic Study Area, depicts the traffic study area associated with the project.

Figure 2.1.9-1: Traffic Study Area



The following freeway segments and roadway intersections were analyzed:

Study Intersections

- Singleton Road/I-10 Eastbound Ramps
- Singleton Road/I-10 Westbound Ramps
- Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive
- Cherry Valley Boulevard/Roberts Road
- Cherry Valley Boulevard/I-10 Eastbound Ramps
- Cherry Valley Boulevard/I-10 Westbound Ramps
- Cherry Valley Boulevard/Calimesa Boulevard
- Oak Valley Parkway/I-10 Eastbound Ramps
- Oak Valley Parkway/I-10 Westbound Ramps

Peak period turning movement counts by vehicle classification were collected for the AM (7:00 AM to 9:00 AM) and the PM (4:00 PM to 6:00 PM) for all study intersections noted above.

Study Freeway Segments

Eastbound Direction

- I-10 Merge from Singleton Road
- I-10 Mainline between Singleton Road and Cherry Valley Boulevard
- I-10 Diverge to Cherry Valley Boulevard
- I-10 Merge from Cherry Valley Boulevard
- I-10 Mainline between Cherry Valley Boulevard and Oak Valley Parkway
- I-10 Diverge to Oak Valley Parkway

Westbound Direction

- I-10 Merge from Oak Valley Parkway
- I-10 Mainline between Oak Valley Parkway and Cherry Valley Boulevard
- I-10 Diverge to Cherry Valley Boulevard
- I-10 Merge from Cherry Valley BoulevardI-10 Mainline between Cherry Valley Boulevard and Singleton Road

Study Scenarios

Project alternatives were analyzed under both Opening Year 2025 and Design Year 2045 conditions. The study scenarios for traffic operations analysis include the following:

- Existing (2019) Conditions
- Opening Year (2025) No-Build Alternative
- Opening Year (2025) Build Alternatives 3 and 4

- Design Year (2045) No-Build Alternative
- Design Year (2045) Build Alternatives 3 and 4

Traffic Analysis Methodology
Traffic Forecasting Methodology
Travel demand was primarily modeled using the Riverside County Traffic Analysis Model (RIVTAM). The original RIVTAM model land use information was based on the 2008 SCAG model, the Western Riverside Council of Governments (WRCOG) has updated the land use in the model, which includes the study area, and is consistent with the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). The land use updated for WRCOG is now considered the best available information for the area that is consistent with the SCAG model. As such, the land use information assumed in RIVTAM was replaced with the WRCOG land use information for modeling efforts for this project. The updated land use assumes a 2012 Base Year and a 2040 Future Year.

Furthermore, SCAG's 2016 financially constrained RTP adopted in April 2016, Amendment 1 adopted in April 2017 and Amendment 2 adopted in July 2017, were used to develop the roadway network for the project. The project completion year identified in the RTP/Amendment 1/Amendment 2 was used to determine if the project should be included as future roadway improvements when developing the Opening Year (2025) and Design Year (2045) traffic forecasts.

RTP projects that were included in the Future Year roadway networks are:

- RTP ID 3A04WT144: Widen Cherry Valley Boulevard from two to four lanes from Desert Lawn Drive to Noble Street. Noble Street is located approximately four miles east of the project footprint. The Cherry Valley Boulevard overcrossing bridge was assumed to remain as a two-lane cross section in the 2045 No Build Scenario.
- RTP ID RIV060117: Widen Singleton Road from two to four lanes from Woodhouse Road to Calimesa Boulevard. Widen eastbound I-10 on-ramp from one to two lanes. Widen westbound I-10 off-ramp from one to three lanes. Construct eastbound I-10 off-ramp with three lanes. Construct westbound on-ramp with two lanes.
- RTP ID RIV060115: Widen Oak Valley Parkway from two to six lanes from 500 feet west of Desert Lawn Drive to Golf Club Drive. Widen eastbound on-ramp from one to two lanes. Widen westbound on-ramp from one to three lanes. Widen westbound and eastbound off-ramps from one to four lanes. Construct I-10 eastbound and I-10 westbound loop on-ramps.
- RTP ID 3TK04MA12: I-10 add/construct new I-10 eastbound truck climbing lane from San Bernardino County Line to I-10/SR-60 Junction.

Traffic forecasts for study locations were developed using the difference method, which is consistent with methodologies delineated in the National Cooperative Highway Research Program Report (NCHRP) 765 published by the Transportation Research Board (TRB): Analytical Travel Forecasting Approaches for Project Level Planning and Design.

As the Base Year model reflects 2012, and the Future Year reflects projected uses in 2040, the model accounts for 28 years of growth. Existing volumes reflect 2019 conditions; therefore the 28 years of growth assumed in the model was applied to existing traffic volumes to develop the Design Year (2045) forecasts. In order to accurately account for all proposed improvements in the study area the following models were used to develop future forecasts:

- Base Year – Base Year (2012) network and assumes no roadway improvements.
- Opening Year No Project – Opening Year (2025) network with the addition of projects RIV060117, RIV060115, and 3TK04MA12 and interpolated land use between Base Year (2012) and Future Year (2040) to represent 2025 conditions.
- Opening Year Plus Project - Opening Year (2025) network with the addition of projects RIV060117, RIV060115, 3TK04MA12, and the proposed project, and interpolated land use between Base Year (2012) and Future Year (2040) to represent 2025 conditions.
- Future Year No Project - 2040 network with the addition of projects 3A04WT144, RIV060117, RIV060115, 3TK04MA12, and Future Year (2040) land use.
- Future Year Plus Project - 2040 network with the addition of projects 3A04WT144, RIV060117, RIV060115, 3TK04MA12, the proposed project, and Future Year (2040) land use.

Opening Year (2025) forecasts were developed using liner interpolation between Existing (2019) traffic volumes and the Design Year (2045) forecasts. Conservation of flow was applied to all forecasted volumes to ensure volumes are balanced along the study corridors. As the project improvements will be operational improvements and no major capacity enhancing improvements are assumed in the study area, only one set of traffic volumes was developed for future year scenarios.

Average daily traffic (ADT) on the freeway mainline were obtained using the most recent available PeMS data: a number of estimated volumes between 2012 and 2017. As the TOAR's assessment for the project is based on 2019 traffic data, the 2017 PeMS data was grown to represent 2019 traffic conditions under the PTVR. The appropriate growth rate was determined by projecting growth for the I-10 mainline from the travel demand model between the Base Year and Future Year was compared to measured growth from

2016 to 2017 based on PeMS data. The growth rate for the I-10 eastbound and westbound mainlines are two percent per year.

Traffic Operations Analysis Methodology

Freeway Analysis: For freeway mainline and ramp junctions, operation analyses were conducted using a VISSIM 10 microscopic multi-modal traffic flow simulation software package developed by PTV Group. All components of freeway operations (i.e., mainline, on-ramp merge, off-ramp diverge, and weaving sections) operate as a single integrated system with congestion and queues affecting both upstream and downstream traffic operations. VISSIM was used to capture the effects between all the freeway components and the system-wide measures of effectiveness (MOE). The freeway segments were analyzed using the Highway Capacity Manual, 6th Edition (HCM) and the methodologies contained in VISSIM are consistent with the procedures and methodologies of HCM. Finally, use of VISSIM ensures consistency with the analysis completed for the I-10 Eastbound Truck Climbing Lane project.

Separate VISSIM models were developed to represent the AM and PM peak periods under existing conditions. The key traffic data used for model development include geometric, traffic flow, origin-destination, and field observation data. The VISSIM models were calibrated and validated to existing conditions using the criteria suggested in Guidelines for Applying Traffic Microsimulation Modeling Software and additional criteria developed by Fehr & Peers. The calibrated and validated models were used to generate performance measures including freeway mainlines/ramps and intersections LOS consistent with HCM 6th Edition and other system-wide MOEs including travel times, average speeds, vehicles served, and vehicle-hours-delay.

On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law, which initiated a process to change transportation impact analyses completed in support of California Environmental Quality Act (CEQA) documentation. SB 743 eliminates level of service (LOS) as a basis for determining significant transportation impacts under the CEQA and provides a new performance metric, vehicle miles travelled (VMT). SB 743 went into effect on July 1, 2020.

Pursuant to SB 743, Caltrans has developed guidelines and significance thresholds for VMT assessment for transportation projects. However, Caltrans has determined that certain projects initiated prior to December 28, 2018 that have begun the environmental documentation milestone prior to September 15, 2020 can be screened from preparing a VMT assessment. The proposed project meets these requirements, and Caltrans has determined the project would not likely lead to a substantial increase in VMT. Thus, an analysis of VMT is not required, and the use of LOS is used as the metric for this project.

For the project, LOS was calculated for each study facility to evaluate traffic operations. LOS is a quantitative measure of traffic operating conditions whereby a letter grade, from A (the best) to F (the worst), is assigned. These grades represent the perspective of drivers and are an indication of the comfort and convenience associated with driving. The freeway LOS was calculated for each study facility based on density in number of vehicles per hour per lane. Table 2.1.9-1, Freeway Mainline and Ramp Junction/Weave Section LOS Threshold, describes the LOS thresholds for freeway sections identified in the HCM.

Table 2.1.9-1: Freeway Mainline and Ramp Junction/Weave Section LOS Threshold

LOS	Description	Density (vplpm)[1] Mainline (Basic)	Density (vplpm)[1] Mainline (Weave)	Density (vplpm)[1] Ramp/Merge/ Diverge
A	Free-flow speeds prevail. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream.	$\leq$ 11	$\leq$ 10	$\leq$ 10
B	Free-flow speeds are maintained. The ability to maneuver with the traffic stream is only slightly restricted.	> 11 to 18	> 10 to 20	> 10 to 20
C	Flow with speeds at or near free-flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted, and lane changes require more care and vigilance on the part of the driver.	> 18 to 26	>20 to 28	>20 to 28
D	Speeds decline slightly with increasing flows. Freedom to maneuver with the traffic stream is more noticeably limited, and the driver experiences reduced physical and psychological comfort.	>26 to 35	>28 to 35	>28 to 35
E	Operation at capacity. There are virtually no usable gaps within the traffic stream, leaving little room to maneuver. Any disruption can be expected to produce a breakdown with queuing.	> 35 to 45	>35 to 43	>35[2]
F	Represents a breakdown in flow.	Density >45 or volume over capacity greater than or equal to one (V/C≥1)	Density >43 or volume over capacity greater than or equal to one (V/C≥1)	Density >45 or volume over capacity greater than or equal to one (V/C≥1)

Notes: 1. Density is reported in vehicles per lane per mile (vplpm).
2. The maximum density for ramp junctions under LOS E is not defined in the HCM. The maximum density for basic segments of 45 vplpm was assumed to apply to ramp junctions.
Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

The peak-hour density calculations are consistent with the definitions from the HCM, which defines four freeway section types: merge, diverge, weave, and basic. Merge and diverge sections, which refer to the freeway ramp junctions, are defined as the section of the freeway 1,500 feet downstream of an on-ramp and upstream of an off-ramp, respectively. The density is measured over the two adjacent freeway through lanes plus any auxiliary lanes. A weaving section occurs between a successive on-ramp and off-ramp pair connected by an auxiliary lane, and the maximum weaving distance between the ramps is no longer a fixed distance but determined by the weaving/total volumes and number of weaving lanes in the HCM. Basic freeway sections include all other freeway sections that are not included in a merge, diverge, or weaving section. The densities at weaving and basic sections are measured across all mixed-flow freeway lanes (including both through lanes and auxiliary lanes).

Intersection Analysis: The HCM 6th Edition methodology for signalized intersections estimates the average control delay for vehicles at the intersection. For unsignalized intersections, the methodology estimates the worst-case movement control delay for two-way stop-controlled intersections and the average control delay for all way stop-controlled intersections. The LOS was calculated for each study facility based on average intersection delay to evaluate traffic operations. Descriptions of the LOS letter grades for both signalized and unsignalized intersections are provided in Table 2.1.9-2, Level of Service Definitions for Unsignalized Intersections and Table 2.1.9-3, Level of Service Definitions for Signalized Intersections.

Table 2.1.9-2: Level of Service Definitions for Unsignalized Intersections

Level of Service	Description	Average Control Delay (seconds/Vehicle)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	<10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	>10.0 to 15.0
C	Operations with average delays resulting from fair progression and or/longer cycle lengths. Individual cycle failures begin to appear.	>15.0 to 25.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	>25.0 to 35.0
E	Operations with high delay values indicating poor progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	>35.0 to 50.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	>50.0

Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-3: Level of Service Definitions for Signalized Intersections

Level of Service	Description	Average Stopped Delay per Vehicle (seconds)
A	Operations with very low delay occurring with favorable progression and/or short cycle length.	<10.0
B	Operations with low delay occurring with good progression and/or short cycle lengths.	>10.0 to 20.0
C	Operations with average delays resulting from fair progression and or/longer cycle lengths. Individual cycle failures begin to appear.	>20.0 to 35.0
D	Operations with longer delays due to a combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	>35.0 to 55.0
E	Operations with high delay values indicating poor progression, long cycle lengths, or high V/C ratios. Many vehicles stop and individual cycle failures are noticeable.	>55.0 to 80.0
F	Operation with delays unacceptable to most drivers occurring due to over saturation, poor progression, or very long cycle lengths.	>80.0

Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020) Analysis Evaluation Criteria.

The analysis evaluation criteria described below were used to determine acceptable traffic operating conditions and are based on the LOS policies identified by Caltrans and the City of Calimesa.

City of Calimesa

The City of Calimesa has adopted LOS "C" as the minimum standard of operation for the intersections and road segments per the Calimesa General Plan. A significant traffic impact occurs if the addition of project generated trips causes an intersection to change from an acceptable LOS C or better to a deficient LOS D, E or F; or if project traffic increases the delay at any intersection already operating at an deficient LOS D, E or F. All intersections and roadways that are forecast to operate with LOS D, E or F are expected to be mitigated to the appropriate minimum standard or to conditions consistent with the no project condition.

Caltrans

The Caltrans' Guide for the Preparation of Traffic Impact Studies states, "Caltrans endeavors to maintain a target LOS at the transition between LOS "C" and LOS "D" on State highway facilities; however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target LOS." The following significance criteria are utilized for this analysis for Caltrans facilities:

Freeways
Causes a freeway segment operating at an acceptable LOS D or better to degrade to LOS E or LOS F and causes one of the following conditions:

- Travel time on the freeway segment to increase in the study area
- Decreases the average travel speed along the corridor
- Decreases the volume of vehicles served along the corridor

Causes an increase in density on a freeway segment operating at an unacceptable LOS E or LOS F and causes one of the following conditions:

- Travel time on the freeway segment to increase in the study area
- A decrease in the average travel speed along the corridor
- A decrease in the volume of vehicles served along the corridor

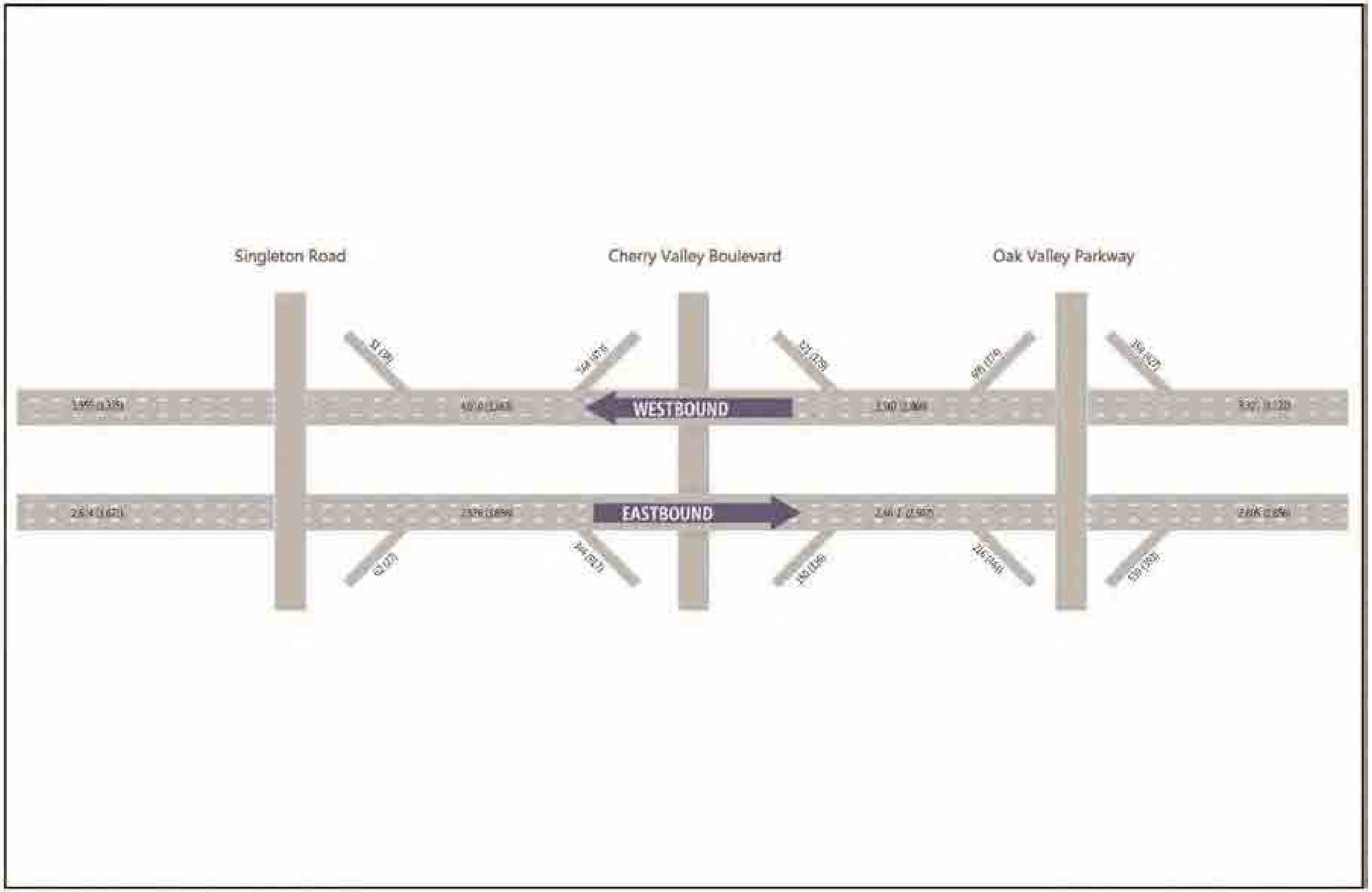
Intersections
Causes a signalized intersection operating at LOS D or better to degrade to LOS E or LOS F. For signalized intersections operating at LOS E or LOS F, the project increases delay at those locations.

Causes an unsignalized intersection operating at LOS D or better to degrade to LOS E or LOS F and satisfy the peak hour volume warrant for traffic signal installation. For unsignalized intersections operating at LOS E or LOS F, increases delay at those locations and causes the intersection to satisfy the peak hour volume warrant for traffic signal installation.

Existing Traffic Operations
Peak period AM (7-9 AM) and PM (4-6 PM) traffic volumes at study intersections were collected in February 2019. Twenty-four-hour tube counts with classification data were also collected on Cherry Valley Boulevard at three locations along the I-10 Cherry Valley overcrossing. Refer to Figure 2.1.9-2, Existing (2019) Peak Hour Freeway Volumes, for peak hour freeway volumes in the study area. Existing peak hour traffic volumes and lane configurations at study intersections are shown on Figure 2.1.9-3, Existing (2019) Peak Hour Intersection Volumes.

Freeway/Roadway Operations Analysis
Tables 2.1.9-4 through 2.1.9-7, show the AM and PM peak hour density and LOS for the study freeway mainline segments and ramp junctions on I-10 eastbound and westbound under the Existing 2019 traffic year conditions. During the AM peak hour, all the study segments on eastbound I-10 operated at LOS C or better. All westbound segments south of Cherry Valley Boulevard operate at LOS C or better, and all westbound segments north of Cherry Valley Boulevard operate at LOS F. During the PM peak hour, all study segments on eastbound and westbound I-10 operate at LOS C or better.

Figure 2.1.9-2: Existing (2019) Peak Hour Freeway Volumes



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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INITIAL STUDY/ENVIRONMENTAL ASSESSMENT
INTERSTATE 10/CHERRY VALLEY BOULEVARD INTERCHANGE PROJECT

Existing (2019) Peak Hour Freeway Volumes

Figure 2.1.9-2

Figure 2.1.9-3: Existing (2019) Peak Hour Freeway Volumes

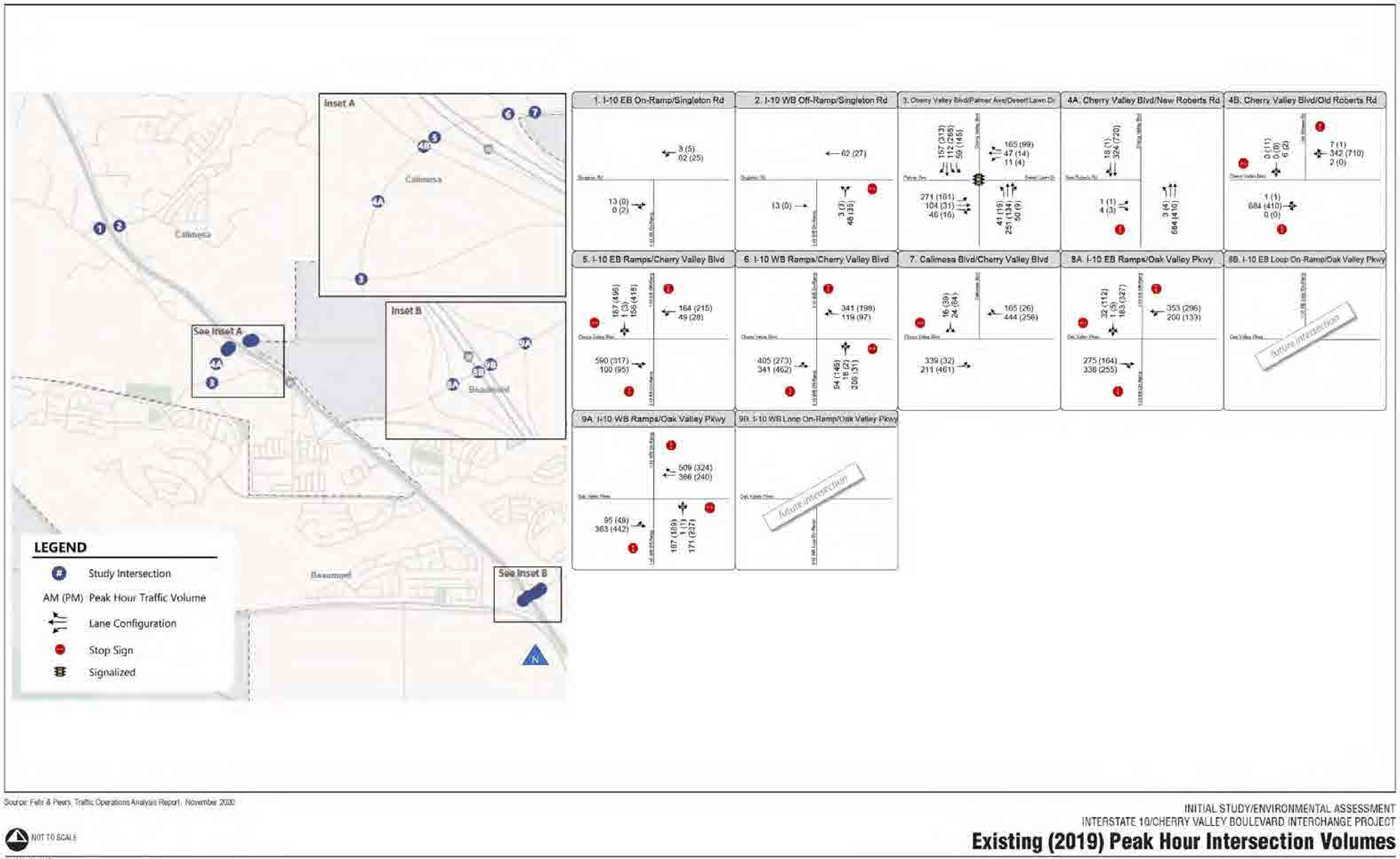

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Table 2.1.9-4: Existing Conditions (2019) Eastbound I-10 Operations (AM)

I-10 Eastbound Segment	Facility Type	LOS[1]	Density[1]
North of Singleton Road	Basic	B	12.9
Singleton Road On-Ramp	Merge	B	11.1
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	13.0
Cherry Valley Boulevard Off-Ramp	Diverge	B	13.8
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	13.3
Cherry Valley Boulevard On-Ramp	Merge	A	9.6
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	13.7
Oak Valley Parkway Off-Ramp	Diverge	B	13.6
South of Oak Valley Parkway	Basic	B	14.3

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported. Bold and underline font indicate LOS E or F conditions.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-5: Existing Conditions (2019) Eastbound I-10 Operations (PM)

I-10 Eastbound Segment	Facility Type	LOS[1]	Density[1]
North of Singleton Road	Basic	C	18.2
Singleton Road On-Ramp	Merge	B	15.4
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	18.1
Cherry Valley Boulevard Off-Ramp	Diverge	C	20.2
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	13.5
Cherry Valley Boulevard On-Ramp	Merge	B	15.3
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	16.5
Oak Valley Parkway Off-Ramp	Diverge	B	16.7
South of Oak Valley Parkway	Basic	B	15.1

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported. ***Bold*** *and* <u>*underline*</u> *font indicate LOS E or F conditions.*
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-6: Existing Conditions (2019) Westbound I-10 Operations (AM)

I-10 Westbound Segment	Facility Type	LOS[1]	Density[1]
South of Oak Valley Parkway	Basic	B	17.6
Oak Valley Parkway Off-Ramp	Diverge	B	17.9
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	B	15.0
Oak Valley Parkway On-Ramp	Merge	B	15.7
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	18.8
Cherry Valley Boulevard Off-Ramp	Diverge	D	33.2
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	**<u>F</u>**	**<u>86.9</u>**
Cherry Valley Boulevard On-Ramp	Merge	**<u>F</u>**	**<u>117.0</u>**
Cherry Valley Boulevard On-Ramp to Off-Ramp	Basic	**<u>F</u>**	**<u>112.9</u>**
Singleton Road Off-Ramp	Diverge	**<u>F</u>**	**<u>116.8</u>**
North of Singleton Road	Basic	**<u>F</u>**	**<u>114.8</u>**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported. ***Bold*** *and <u>underline</u> font indicate LOS E or F conditions.*
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-7: Existing Conditions (2019) I-10 Operations Westbound (PM)

I-10 Westbound Segment	Facility Type	LOS[1]	Density[1]
South of Oak Valley Parkway	Basic	C	18.2
Oak Valley Parkway Off-Ramp	Diverge	C	19.1
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	B	15.1
Oak Valley Parkway On-Ramp	Merge	B	13.6
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	17.2
Cherry Valley Boulevard Off-Ramp	Diverge	B	17.3
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	15.1
Cherry Valley Boulevard On-Ramp	Merge	B	15.2
Cherry Valley Boulevard On-Ramp to Off-Ramp	Basic	C	18.5
Singleton Road Off-Ramp	Diverge	C	19.3
North of Singleton Road	Basic	B	17.3

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported. ***Bold*** *and <u>underline</u> font indicate LOS E or F conditions.*
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Intersection Operations Analysis

Tables 2.1.9-8, Existing Conditions (2019) Intersection Operations (AM), and 2.1.9-9, Existing Conditions (2019) Intersection Operations (PM), shows the delay (in seconds per vehicle) and LOS for the study intersections during the AM and PM peak hours under Existing 2019 conditions. During the AM peak hour, all the study intersections operate at LOS C or better, except the intersections at I-10 westbound off/on-ramps/Singleton Road, Old Roberts Road/Cherry Valley Boulevard, I-10 westbound off/on-ramps/Cherry Valley

Boulevard, I-10 eastbound off/on-ramps/Oak Valley Parkway, I-10 westbound off/on-ramps/Oak Valley Parkway, which operate at LOS E or F. During the PM peak hour, all the study intersections operate at LOS C or better.

Table 2.1.9-8: Existing Conditions (2019) Intersection Operations (AM)

Intersection	Control	LOS	Delay
I-10 Eastbound On-Ramp/Singleton Road	Uncontrolled	A	0.7 (WBL)
I-10 Westbound Off-Ramp/Singleton Road	Side-street Stop	**E**	**36.8 (NBL)**
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive	Signal	C	34.9
Cherry Valley Boulevard/Roberts Road	Signal	B	13 (NBT)
Old Roberts Road/Cherry Valley Boulevard	All-way Stop	**E**	**36.4**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	All-way Stop	A	8.8
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	All-way Stop	**E**	**39.3**
Calimesa Boulevard/Cherry Valley Boulevard	Side-street Stop	C	18.5 (SBL)
I-10 Eastbound Off/On-Ramps/Oak Valley Parkway	All-way Stop	**F**	**99.5**
I-10 Westbound Off/On-Ramps/Oak Valley Parkway	All-way Stop	F	88.3

Notes: WBL=westbound left; NBL=northbound left; NBT=northbound through; SBL=southbound left
1. For signal and all way stop control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side street control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
*3. **Bold** and underline font indicate LOS E or F conditions.*
Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-9: Existing Conditions (2019) Intersection Operations (PM)

Intersection	Control	LOS	Delay
I-10 Eastbound On-Ramp/Singleton Road	Uncontrolled	A	0.6 (WBL)
I-10 Westbound Off-Ramp/Singleton Road	Side-street Stop	A	7.6 (NBR)
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive	Signal	A	8.3
Cherry Valley Boulevard/Roberts Road	Signal	A	7.6 (NBL)
Old Roberts Road/Cherry Valley Boulevard	All-way Stop	A	2.5
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	All-way Stop	C	22.6
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	All-way Stop	A	5
Calimesa Boulevard/Cherry Valley Boulevard	Side-street Stop	B	11.1 (SBL)
I-10 Eastbound Off/On-Ramps/Oak Valley Parkway	All-way Stop	C	22.9
I-10 Westbound Off/On-Ramps/Oak Valley Parkway	All-way Stop	C	20.3

Notes: WBL=westbound left; NBR= northbound right; NBL=northbound left; SBL=southbound left
1. For signal and all way stop control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side street control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
*3. **Bold** and underline font indicate LOS E or F conditions.*
Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Queueing Analysis

Table 2.1.9-10, Existing Conditions (2019) Intersection Queueing Summary, summarizes the average maximum queue results under Existing 2019 conditions at the ramp terminal and nearby intersections.

Table 2.1.9-10: Existing Conditions (2019) Intersection Queueing Summary

Intersection/Movements	Storage Length	Queue Length AM	Queue Length PM
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / EBL	125	**500**	120
Cherry Valley Boulevard/Roberts Road / NBT	550	**580**	550
Old Roberts Road/Cherry Valley Boulevard / WBL	50	**100**	**170**
Old Roberts Road/Cherry Valley Boulevard / WBT	50	**105**	**140**
Old Roberts Road/Cherry Valley Boulevard / WBR	50	**105**	**140**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / EBT	50	**150**	20
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / EBR	50	**150**	20
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard / EBL	550	**720**	300
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard / EBT	550	**670**	250
Calimesa Boulevard/Cherry Valley Boulevard / EBL	125	**275**	60
Calimesa Boulevard/Cherry Valley Boulevard / EBT	125	**230**	20
I-10 Eastbound Off/On-Ramps/Oak Valley Parkway / WBL	700	**760**	240
I-10 Eastbound Off/On-Ramps/Oak Valley Parkway / WBT	700	**740**	220
I-10 Westbound Off/On-Ramps/Oak Valley Parkway / EBL	700	**750**	470
I-10 Westbound Off/On-Ramps/Oak Valley Parkway / EBT	700	**770**	490

Notes: EB=eastbound; NB=northbound; WB=westbound
1. The storage and average maximum queue length (in feet) is reported for key movements.
*2. **Bold** and underline font indicate a queue that exceeds the storage.*
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Based on Table 2.1.9-10, the following turning movements currently exceed available storage capacity during AM and PM peak hours:

- Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive
  - Eastbound Left (AM Only)
- Cherry Valley Boulevard /Roberts Road
  - Northbound Through (AM Only)
- Old Roberts Road/Cherry Valley Boulevard
  - Westbound Left
  - Westbound Through
  - Westbound Right
- I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard
  - Eastbound Through (AM Only)

- Eastbound Right (AM Only)

- I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard
  - Eastbound Through (AM Only)
  - Eastbound Left (AM Only)
- Calimesa Boulevard/Cherry Valley Boulevard
  - Eastbound Through (AM Only)
  - Eastbound Left (AM Only)
- I-10 Eastbound Off/On-Ramps/Oak Valley Parkway
  - Westbound Through (AM Only)
  - Westbound Left (AM Only)
- I-10 Eastbound Off/On-Ramps/Oak Valley Parkway
  - Eastbound Through (AM Only)
  - Eastbound Left (AM Only)

Storage capacity on the off-ramps is adequate to serve AM and PM peak hour traffic under Existing 2019 conditions. There is a substantial queue along Cherry Valley Boulevard between Old Roberts Road and Calimesa Boulevard. This is primarily caused by the limited capacity due to the all-way stop control at these intersections.

System-wide Performance

While LOS is a typical indicator of transportation facility performance, the system-wide performance metrics have become effective measurements in evaluating transportation system. The system-wide performance measures used for this project include travel time, travel speeds, number of vehicles served by the study network, and vehicle-hours-delay. Table 2.1.9-11, Existing Conditions (2019) Performance Summary, summarizes the existing AM and PM peak hour system-wide performance measures along I-10. Tables 2.1.9-12 and 2.1.9-13 summarize the existing travel time on I-10, between the Singleton Road and Oak Valley Parkway overcrossings, for cars and trucks.

Table 2.1.9-11: Existing Conditions Performance Summary

Performance Measure	Metric	AM	PM
Average Speed	Miles per Hour (mph)	31.3	57.5
Volume Served	Vehicles per Hour (vph)	9,909	8,683
Total Distance Time	Vehicle Miles Travelled [VMT] (miles)	33,297	32,350
Total Travel Time	Vehicle Hours Travelled (hours)	1,065	562.5
Average Delay Per Vehicle	Seconds	176.6	15.2
Total Delay	Vehicle-Hours-Delay (hours)	515	39

Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-12: Travel Time – Eastbound I-10: Singleton Road to Oak Valley Parkway

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.1	4.1
Trucks	Minutes	4.4	4.1
All	Minutes	4.1	4.1

Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-13: Westbound I-10: Singleton Road to Oak Valley Parkway

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	9.5	4.1
Trucks	Minutes	10.5	4.1
All	Minutes	9.5	4.1

Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Travel time and average speed are similar in both directions during both peak hours with small variations due to directionality during commute periods. In addition, other system-wide traffic metrics (number of vehicles served by the network, vehicle-hours-delay, and average delay per vehicle) were reported for both the AM and PM peak hours. Consistent with observations in the field, higher levels of congestion occur during the AM peak hour. This is confirmed by the increase in average delay per vehicle, 176.6 seconds during the AM peak hour compared to 15.2 seconds during the PM peak hour. Total delay during the AM peak hour also indicates higher levels of congestion during the AM peak hour.

Traffic Safety Review

Traffic Accident Surveillance and Analysis System – Transportation Systems Network (TASAS – TSN) data was reviewed for collisions reported on the mainline, on-ramps and off-ramps at the existing Cherry Valley Boulevard and I-10 interchange for the three-year period between October 1, 2017 and September 30, 2020. Tables 2.1.9-14, Collision Summary – Actual Collision Rate, and 2.1.9-15, Collision Summary – Statewide Average Collision Rate, below, summarize the Fatal and Fatal plus Injury collision rates for the Actual Collision Rates and Statewide Average Collision Rates. Table 2.1.9-16, Primary Collision Factors, summarizes the collision types for the interchange.

Table 2.1.9-14: Collision Summary – Actual Collision Rate

Location	Post Mile	Fatal[1]	Fatal + Injury[1]	Total[1]
I-10 Mainline from Singleton Road to Oak Valley Parkway	R2.1 to R3.8	0.000	0.21	0.75
I-10 Eastbound Off-Ramp to Cherry Valley Boulevard	R2.867	0.000	0.13	0.38
I-10 Eastbound On-Ramp from Cherry Valley Boulevard	R3.189	0.000	0.00	**0.68**
I-10 Westbound Off-Ramp to Cherry Valley Boulevard	R3.246	0.000	0.00	0.00
I-10 Westbound On-Ramp from Cherry Valley Boulevard	R2.896	0.000	0.12	0.25

*Notes: **Bold** text indicates that actual collision rate is greater than statewide average collision rate.*
1. Ramp collisions are per Million Vehicle (MV). Mainline collisions are per Million Vehicle Miles (MVM).

Table 2.1.9-15: Collision Summary – Statewide Average Collision Rate

Location	Post Mile	Fatal[1]	Fatal + Injury[1]	Total[1]
I-10 Mainline from Singleton Road to Oak Valley Parkway	R2.1 to R3.8	0.004	0.28	0.87
I-10 Eastbound Off-Ramp to Cherry Valley Boulevard	R2.867	0.008	0.39	1.03
I-10 Eastbound On-Ramp from Cherry Valley Boulevard	R3.189	0.002	0.23	0.63
I-10 Westbound Off-Ramp to Cherry Valley Boulevard	R3.246	0.008	0.39	1.03
I-10 Westbound On-Ramp from Cherry Valley Boulevard	R2.896	0.002	0.23	0.63

*Notes: **Bold** text indicates that actual collision rate is greater than statewide average collision rate.*
1. Ramp collisions are per Million Vehicle (MV). Mainline collisions are per Million Vehicle Miles (MVM).

Table 2.1.9-16: Ramp Collision Types

Location	Head-On	Side Swipe	Rear End	Broadside	Hit Object	Overturn	Auto-Pedestrian	Other
I-10 Mainline from Singleton Road to Oak Valley Parkway	1.2%	22.2%	50.0%	1.2%	19.8%	3.1%	0.0%	2.5%
I-10 Eastbound Off-Ramp to Cherry Valley Boulevard	0.0%	66.7%	0.0%	0.0%	33.3%	0.0%	0.0%	0.0%
I-10 Eastbound On-Ramp from Cherry Valley Boulevard	0.0%	0.0%	0.0%	0.0%	100%	0.0%	0.0%	0.0%
I-10 Westbound Off-Ramp to Cherry Valley Boulevard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
I-10 Westbound On-Ramp from Cherry Valley Boulevard	0.0%	0.0%	0.0%	0.0%	50.0	50.0%	0.0%	0.0%

Notes: 1. Represents a total of 12 ramp collisions during this time period.

As shown in Table 2.1.9-16, collision data shows that rear end (50 percent) and side swipe (22.2 percent) are the majority of collisions along I-10. The majority of the collisions along the eastbound off-ramp are side swipe (66.7 percent), while the eastbound on-ramp are hit object (100 percent). Majority of the collisions along the westbound on-ramp are hit object (50 percent) and overturn (50 percent), while the westbound off-ramp had no collisions recorded. No pedestrian collisions were reported under the current stop-controlled configuration according to TASAS and TIMS (Transportation Injury Mapping System) data in the past three years, from October 1, 2017 to September 30, 2020.

Table 2.1.9-17, Primary Collision Factors, below, summarizes the primary collision factors for the interchange. Collision data shows that majority of the collision factors along I-10 are speeding (48.8 percent) and other violations (17.9 percent). Majority of the collision factors along the eastbound off-ramp (66.7 percent) and on-ramp (100 percent) are improper turns. Majority of the collisions along the westbound on-ramp are influence of alcohol (50 percent) and improper turns (50 percent), while the westbound off-ramp had no collision factors.

Table 2.1.9-17: Primary Collision Factors

Location	HBD	FTC	FTY	IT	ESS	OV	ID	OTD	UNK	FA	NS
I-10 Mainline from Singleton Road to Oak Valley Parkway	6.8%	1.2%	0.0%	18.5%	48.8%	17.9%	0.0%	4.9%	1.2%	0.0%	0.0%
I-10 Eastbound Off-Ramp to Cherry Valley Boulevard	0.0%	0.0%	0.0%	66.7%	0.0%	33.3%	0.0%	0.0%	0.0%	0.0%	0.0%
I-10 Eastbound On-Ramp from Cherry Valley Boulevard	0.0%	0.0%	0.0%	100%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
I-10 Westbound Off-Ramp to Cherry Valley Boulevard	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
I-10 Westbound On-Ramp from Cherry Valley Boulevard	50.0%	0.0%	0.0%	50.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Notes: HBD = Influence of Alcohol; FTC = Following Too Closely; FTY = Failure to Yield; ID = Improper Driving; IT = Improper Turn; ESS = Speeding; OV = Other Violations; NS = Not Stated; OTD = Other Than Driver; UNK = Unknown; FA = Fell Asleep

Environmental Consequences

Temporary Impacts

No-Build Alternative

Under the No-Build Alternative, no reconstruction or improvements would be made to the existing I-10/Cherry Valley Boulevard Interchange or the local roadway (Calimesa Boulevard). As a result, the No-Build Alternative would not result in temporary adverse effects related to traffic and circulation.

Build Alternatives 3 and 4

Construction activities associated with the Build Alternatives would result in temporary traffic effects related to the circulation of vehicles, bicyclists, and pedestrians in the project area. Construction under Build Alternatives 3 and 4 are anticipated to take approximately 24 months. Full freeway closures on I-10 would be required for placement of the new pre-cast Cherry Boulevard structure. Ramps would require closures at intersections with local roads. Short-term or weekend closures are expected for certain phases; however, no long-term street closures are anticipated or would be allowed. Proposed ramp closures would be identified during the plans, specifications, and estimates (PS&E) phase. Traffic-handling plans and stage-construction plans will be developed to minimize queueing on the I-10 mainline. These efforts will include off-peak hour construction hours (primarily in the late night, early morning, and weekends) and clearly marked detours near the closures.

Implementation of the Build Alternatives would include preparation and implementation of a Transportation Management Plan (TMP) during the PS&E phase. The Caltrans Transportation Management Plan Guidelines

(TMP Guidelines) identifies the processes, roles, and responsibilities for preparing and implementing TMPs, as well as useful strategies for reducing congestion and managing work zone traffic impacts. The primary objective of the TMP is to maintain safe movement for vehicles, pedestrians, and bicyclists through the construction zone, as well as minimize traffic delays during the construction period. The TMP prepared for the project will implement alternate route strategies to minimize adverse effects to roadways and reduce potential congestion.

The TMP will include, but not be limited to, the following six major elements:

- Public information/public awareness campaign
- Traveler information strategies
- Incident management
- Construction strategies
- Demand management
- Alternate route strategies

With implementation of the TMP for the Build Alternatives, adverse temporary effects related to traffic, pedestrian, and bicyclists would be minimized.

Permanent Impacts

As noted above, the following scenarios are considered in the traffic analysis:

- Opening Year (2025) No-Build Alternative
- Opening Year (2025) Build Alternatives 3 and 4
- Design Year (2045) No-Build Alternative
- Design Year (2045) Build Alternatives 3 and 4

Future traffic volumes and turning movements for all study scenarios for I-10 and Cherry Valley Boulevard are presented in this section of the IS/EA and/or in Figures 2.1.9-4 through 2.1.9-15.

No-Build Alternative

Under the No-Build Alternative, no improvements would be made to the existing I-10/Cherry Valley Boulevard interchange or the roadways associated with the project other than routine roadway maintenance. Both Opening Year 2025 and Design Year 2045 scenarios assume background improvements over existing conditions.

- Opening Year (2025): The ramp intersections are signalized as an interim improvement.
- Design Year (2045): Cherry Valley Boulevard is widened from two to four lanes between Desert Lawn Drive and Noble Street in 2035 (RTP ID

3A04WT144). Left-turn and right-turn pockets are not constructed, and the ramp intersections operate with permissive left-turn phasing.

Opening Year (2025): The No-Build Alternative during Opening Year 2025 conditions would assume no improvements to the existing I-10/Cherry Valley Boulevard interchange. Traffic operations for the No-Build Alternative were evaluated under the Opening Year 2025 conditions.

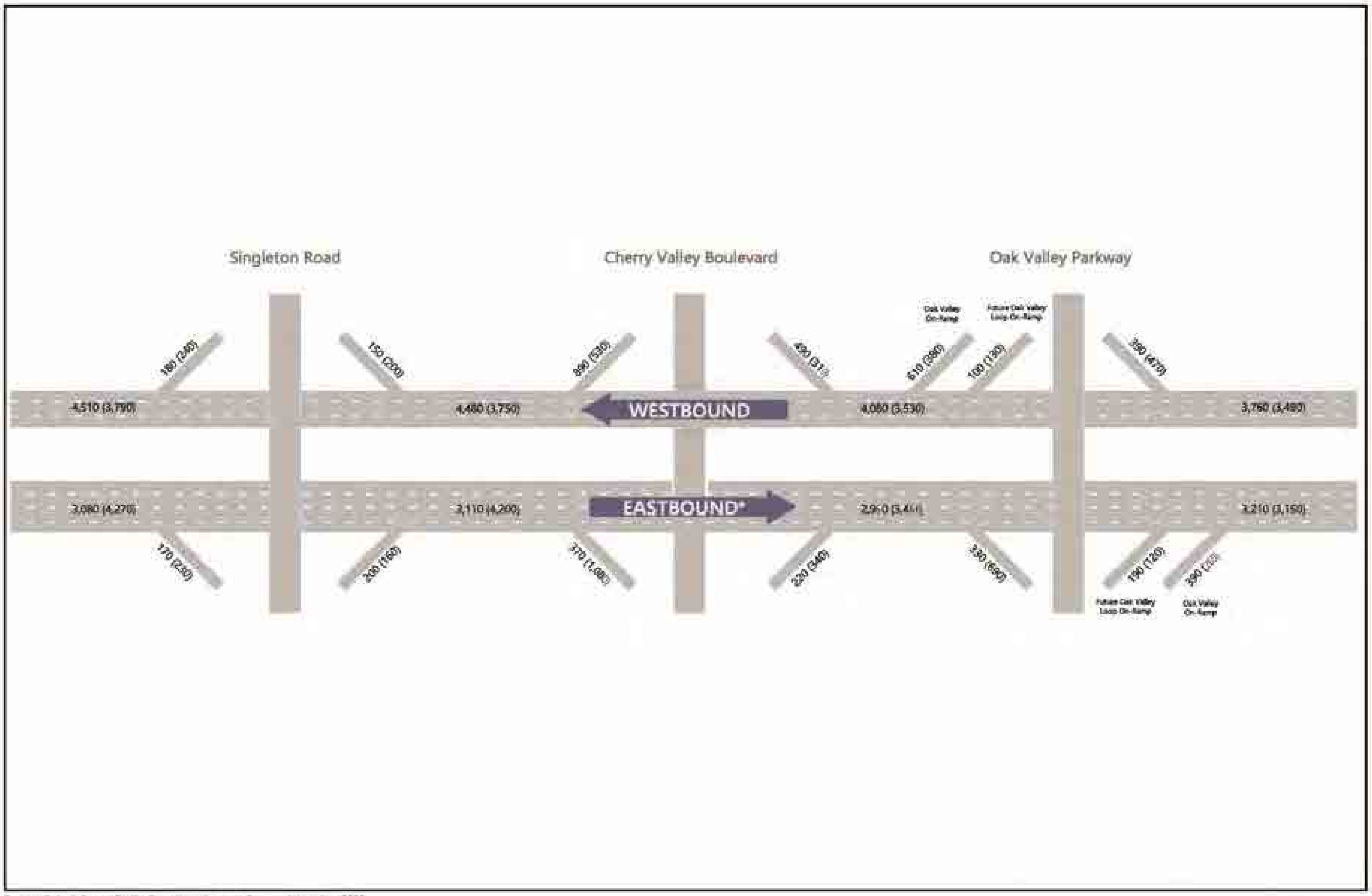
Freeway operations were analyzed under Opening Year 2025 conditions for the No-Build Alternative. Figure 2.1.9-4, Opening Year (No-Build) 2025 Peak Hour Freeway Volumes and Tables 2.1.9-18 through 2.1.9-21 show the AM and PM peak hour LOS and delay for the eastbound and westbound I-10 study segments. As shown in Tables 2.1.9-18 and 2.1.9-19, during the AM peak hour, westbound I-10 segments at the Cherry Valley on-ramp to Singleton off-ramp and Singleton off-ramp would operate at an unacceptable LOS D. As shown in Tables 2.1.9-20 and 2.1.9-21, during the PM peak hour, eastbound I-10 segments at the Singleton Road on-ramp and Cherry Valley Boulevard off-ramp would operate at an unacceptable LOS D or worse. All other eastbound and westbound I-10 segments would perform at an acceptable LOS C or better.

Table 2.1.9-18: Opening Year 2025 - Freeway Operations (No-Build Alternative) (AM Peak Hour)

Eastbound I-10 Segments	Facility Type	LOS	Density
North of Singleton Road	Basic	B	10.1
Singleton Road On-Ramp	Merge	B	11.4
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	12.0
Cherry Valley Boulevard Off-Ramp	Diverge	B	13.8
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	11.4
Cherry Valley Boulevard On-Ramp	Merge	A	8.8
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	12.1
Oak Valley Parkway Off-Ramp	Diverge	B	11.4
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	10.3
Oak Valley Parkway On-Ramp	Merge	B	10.4
South of Oak Valley Parkway	Basic	B	12.4

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and <u>underline</u> font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Figure 2.1.9-4: Opening Year (No-Build) 2025 Peak Hour Freeway Volumes



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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Opening Year (No-Build) 2025 Peak Hour Freeway Volumes

Figure 2.1.9-4

Table 2.1.9-19: Opening Year 2025 - Freeway Operations (No-Build Alternative) (AM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	C	21.5
Oak Valley Parkway Off-Ramp	Diverge	C	20.1
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	B	18.1
Oak Valley Parkway On-Ramp	Merge	C	20.6
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	25.3
Cherry Valley Boulevard Off-Ramp	Diverge	C	25.0
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	C	22.8
Cherry Valley Boulevard On-Ramp	Merge	C	25.0
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	**D**	**28.7**
Singleton Road Off-Ramp	Diverge	**D**	**29.4**
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--
North of Singleton Road	Basic	C	27.7

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. ***Bold*** *font indicates LOS D conditions,* ***bold*** *and* <u>underline</u> *font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-20: Opening Year 2025 - Freeway Operations (No-Build Alternative) (PM Peak Hour)

Eastbound I-10 Segments	Facility Type	LOS	Density
North of Singleton Road	Basic	B	14.2
Singleton Road On-Ramp	Merge	**D**	**33.9**
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	19.0
Cherry Valley Boulevard Off-Ramp	Diverge	**<u>F</u>**	**<u>43.2</u>**
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	13.5
Cherry Valley Boulevard On-Ramp	Merge	A	6.7
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	13.7
Oak Valley Parkway Off-Ramp	Diverge	B	13.2
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	10.4
Oak Valley Parkway On-Ramp	Merge	B	10.5
South of Oak Valley Parkway	Basic	B	12.5

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. **Bold** *font indicates LOS D conditions,* **bold** *and* <u>underline</u> *font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

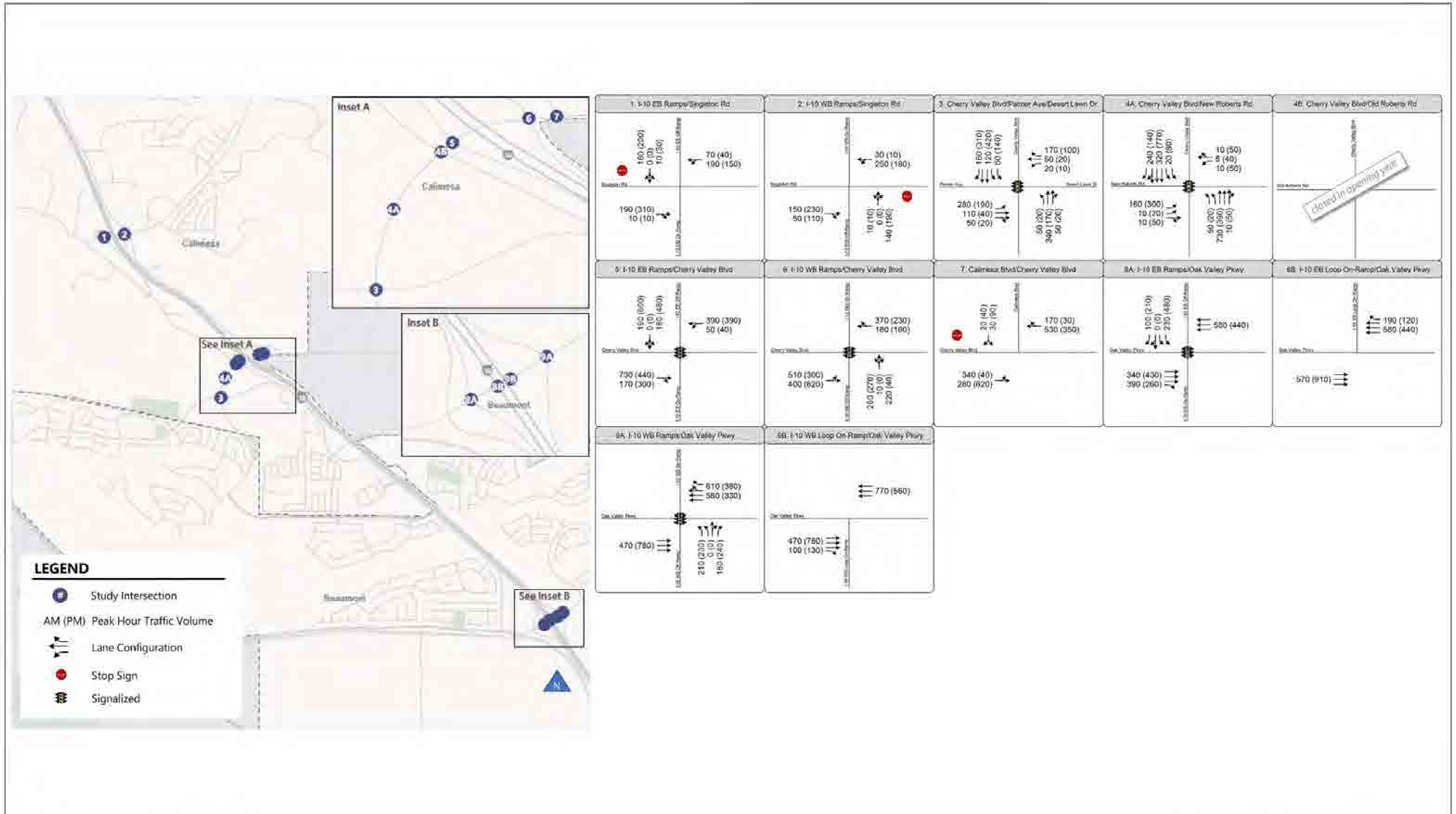
Table 2.1.9-21: Opening Year 2025 - Freeway Operations (No-Build Alternative) (PM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	B	20.0
Oak Valley Parkway Off-Ramp	Diverge	B	19.2
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	B	16.2
Oak Valley Parkway On-Ramp	Merge	B	16.8
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	20.8
Cherry Valley Boulevard Off-Ramp	Diverge	B	19.0
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	18.8
Cherry Valley Boulevard On-Ramp	Merge	B	17.1
Cherry Valley Boulevard On-Ramp to Singleton Off-Ramp	Basic	C	22.3
Singleton Road Off-Ramp	Diverge	C	21.5
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--
North of Singleton Road	Basic	C	20.8

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

The AM and PM peak hour LOS and delay for each intersection is summarized in Figure 2.1.9-5, Opening Year (No-Build) 2025 Peak Hour Intersection Volumes, and Tables 2.1.9-22, Opening Year 2025 Conditions - Intersection Operations (No-Build Alternative) (AM Peak Hour) and 2.1.9-23, Opening Year 2025 Conditions - Intersection Operations (No-Build Alternative) (PM Peak Hour). As shown in Table 2.1.9-22 and 2.1.9-23, during the AM peak hour, the Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive, Cherry Valley Boulevard/Roberts Road, I-10 eastbound off/on-ramps/Cherry Valley Boulevard, I-10 westbound off/on-ramps/Cherry Valley Boulevard, and Calimesa Boulevard/Cherry Valley Boulevard intersections would operate at an unacceptable LOS E or worse. As shown in Table 2.1.9-23, during the PM peak hour, the Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive, Cherry Valley Boulevard/Roberts Road, I-10 eastbound off/on-ramps/Cherry Valley Boulevard. All other intersections would operate at an acceptable LOS C or better under the Opening Year 2025 conditions. It is therefore anticipated that, as local development continues to occur and I-10 mainline traffic conditions worsen over time, these intersections would experience overcapacity by the year 2025.

Figure 2.1.9-5: Opening Year (No-Build) 2025 Peak Hour Intersection Volumes



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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Opening Year (No-Build) 2025 Peak Hour Intersection Volumes

Figure 2.1.9-5

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Table 2.1.9-22: Opening Year 2025 Conditions - Intersection Operations (No-Build Alternative) (AM Peak Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	A	9.9 (SBR)
2. I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	A	8.0 (NBR)
3. Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	**F**	**499.7**
4A. Cherry Valley Boulevard/Roberts Road	Signal	**F**	**166.5**
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	**E**	**70.4**
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	**E**	**57.4**
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/Signal	**F**	**146.4 (WBT)**
8. I-10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	B	11.1
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	A	8.4

Notes: SBR=southbound right; NBR= northbound right; WBT=westbound through
1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
*3. **Bold** and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).*
4. Intersection 4B is closed under Opening Year (2025) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-23: Opening Year 2025 Conditions - Intersection Operations (No-Build Alternative) (PM Peak Hour)

Intersection	Control	LOS	Delay
I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	B	12.6 (SBL)
I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	B	11.1 (NBR)
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	**F**	**378.1**
Cherry Valley Boulevard/Roberts Road	Signal	**F**	**318.6**
Old Roberts Road/Cherry Valley Boulevard	--	--	--
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	**F**	**125.8**
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	C	27.1
Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/Signal	C	14.2 (SBL)
I -10Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	B	17.1
I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	B	11.0

Notes: SBL=southbound left; NBR= northbound right
1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
*3. **Bold** and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans*

intersections).
4. Intersection 4B is closed under Opening Year (2025) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Turning movements and queuing for each intersection and ramp terminal were analyzed and reported under the Opening Year 2025 conditions. The following turning movements would exceed storage capacity under the No-Build Scenario during AM and PM peak hour:

- Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive
  - Northbound Left
  - Southbound Left (PM Only)
  - Eastbound Left
  - Westbound Left (AM Only)
- Cherry Valley Boulevard /Roberts Road
  - Northbound Through
  - Northbound Right
  - Southbound Through (PM Only)
  - Southbound Right
- I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard
  - Southbound Left (PM Only)
  - Southbound Through (PM Only)
  - Southbound Right (PM Only)
  - Eastbound Through
  - Eastbound Right
  - Westbound Left (PM Only)
  - Westbound Through (PM Only)
- I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard

- Eastbound Through (AM Only)
- Eastbound Left (AM Only)

• Calimesa Boulevard/Cherry Valley Boulevard

- Eastbound Left
- Eastbound Through (AM Only)
- Westbound Right (AM Only)

• I-10 Eastbound Off/On-Ramps/Oak Valley Parkway

- Southbound Left
- Eastbound Right

• I-10 Eastbound Off/On-Ramps/Oak Valley Parkway

- Northbound Left

Queuing: As summarized in Table 2.1.9-24, No-Build Alternative Intersection Queue Summary (Opening Year 2025), substantial queueing would occur on I-10 eastbound off/on-ramps/Cherry Valley Boulevard with spillback onto the freeway mainline during the PM peak hour. In addition, extended queues would occur on eastbound Palmer Avenue and westbound Calimesa Boulevard during the AM peak hour, and eastbound Palmer Avenue during the PM peak hour.

System-wide Performance: Under the No-Build Alternative, the travel time, average delay, and traffic volume of the I-10/Cherry Valley Boulevard overcrossing's existing transportation system were taken into account. Table 2.1.9-25, No-Build Alternative (Opening Year 2025) Performance Summary, shows that, higher levels of congestion occur during the PM peak hour in the study area, reflected by the increase in average delay per vehicle, 158.8 seconds during the PM peak hour compared to 117.5 seconds during the AM peak hour under the No-Build Alternative. Table 2.1.9-26, Travel Time – Eastbound I-10: Singleton Road to Oak Valley Parkway, shows that the travel time for both cars and trucks increase during the PM peak hour under the No Build Alternative. Table 2.1.9-27, Travel Time – Westbound I-10: Singleton Road to Oak Valley Parkway (Opening Year 2025), reflects an increase travel time for both cars and trucks in the AM and PM peak hours under the No Build Alternative.

Table 2.1.9-24: No-Build Alternative Intersection Queue Summary (Opening Year 2025)

Intersection/ Movement	Storage Length	AM Peak Hour	PM Peak Hour
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / NBL	125	**<u>1350</u>**	**<u>890</u>**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / SBL	175	150	**<u>630</u>**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / EBL	125	**<u>1900</u>**	**<u>1,910</u>**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / EBR	100	40	40
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / WBL	175	**<u>240</u>**	50
Cherry Valley Boulevard/Roberts Road / NBT	550	**<u>740</u>**	**<u>750</u>**
Cherry Valley Boulevard/Roberts Road / NBR	550	**<u>740</u>**	**<u>750</u>**
Cherry Valley Boulevard/Roberts Road / SBT	500	290	**<u>650</u>**
Cherry Valley Boulevard/Roberts Road / SBR	150	**<u>290</u>**	**<u>660</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / SBL	1150	490	**<u>3710</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / SBT	1150	490	**<u>3710</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / SBR	1150	460	**<u>3710</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / EBT	600	**<u>780</u>**	**<u>780</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / EBR	600	**<u>770</u>**	**<u>770</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / WBL	575	380	**<u>630</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / WBT	575	380	**<u>630</u>**
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard / EBL	575	**<u>670</u>**	530
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard / EBT	550	**<u>670</u>**	530
Calimesa Boulevard/Cherry Valley Boulevard / NBT	225	--	--
Calimesa Boulevard/Cherry Valley Boulevard / NBR	225	--	--
Calimesa Boulevard/Cherry Valley Boulevard / EBL	175	**<u>280</u>**	190
Calimesa Boulevard/Cherry Valley Boulevard / WBT	1000	**<u>1060</u>**	230
Calimesa Boulevard/Cherry Valley Boulevard / EBR	200	**<u>1060</u>**	230
I-10 Eastbound Off/On- Ramps/Oak Valley Parkway / SBL	175	180	**<u>480</u>**
I-10 Eastbound Off/On- Ramps/Oak Valley Parkway / EBR	100	**<u>210</u>**	**<u>150</u>**
I-10 Westbound Off/On-Ramps/Oak Valley Parkway / NBL	150	**<u>180</u>**	**<u>230</u>**

Notes: EB=eastbound; WB=westbound; NBR=northbound right; NBL=northbound left; NBT=northbound through; EBR=eastbound right; EBL=eastbound left; EBT=eastbound through; SBR=southbound right; SBL=southbound left; SBT=southbound through; WBR=westbound right; WBL=westbound left; WBT=westbound through

*1. The storage and average maximum queue length (in feet) is reported for key movements. **Bold** and <u>underline</u> font indicate a queue that exceeds the storage.*

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-25: No-Build Alternative (Opening Year 2025) Performance Summary

Performance Measure	Metric	AM	PM
Average Speed	Miles Per Hour (mph)	36.6	35.2
Volume Served (vph)	Vehicles per Hour (vph)	10,783	10,781
Total Distance Traveled	Vehicle Miles Travelled [VMT] (miles)	37,221	37,161
Total Travel Time [VHT] (hours)	Vehicle Hours Travelled (hours)	1,018.2	1,154.7
Average Delay Per Vehicle (seconds)	Seconds	117.5	158.8
Total Delay [VHD] (hours)	Vehicle Hours Delay (hours)	385	532

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-26: Travel Time – Eastbound I-10: Singleton Road to Oak Valley Parkway (Opening Year 2025)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.0	4.3
Trucks	Minutes	4.5	7.2
All	Minutes	4.1	4.5

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

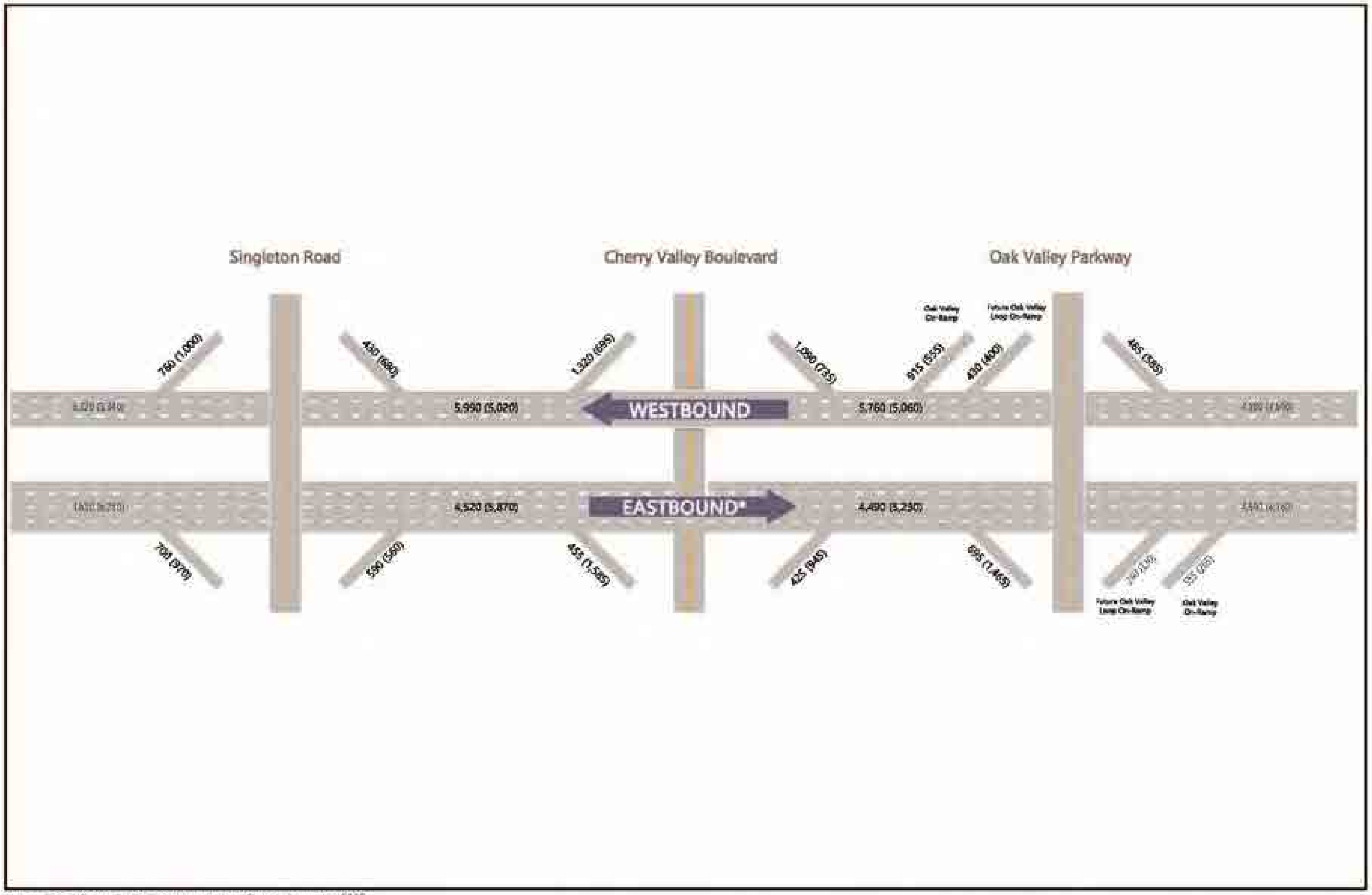
Table 2.1.9-27: Travel Time – Westbound I-10: Singleton Road to Oak Valley Parkway (Opening Year 2025)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.8	4.4
Trucks	Minutes	6.1	5.6
All	Minutes	4.9	4.5

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Design Year (2045): For the No-Build Alternative, the Design Year 2045 AM and PM peak hour traffic forecasts for the eastbound and westbound I-10 mainline segments/ramps are shown in Figure 2.1.9-6, Design Year (No-Build) 2045 Peak Hour Freeway Volumes and Figure 2.1.9-7, Design Year (No-Build) 2045 Peak Hour Intersection Volumes.

Figure 2.1.9-6: Design Year (No-Build) 2045 Peak Hour Freeway Volumes



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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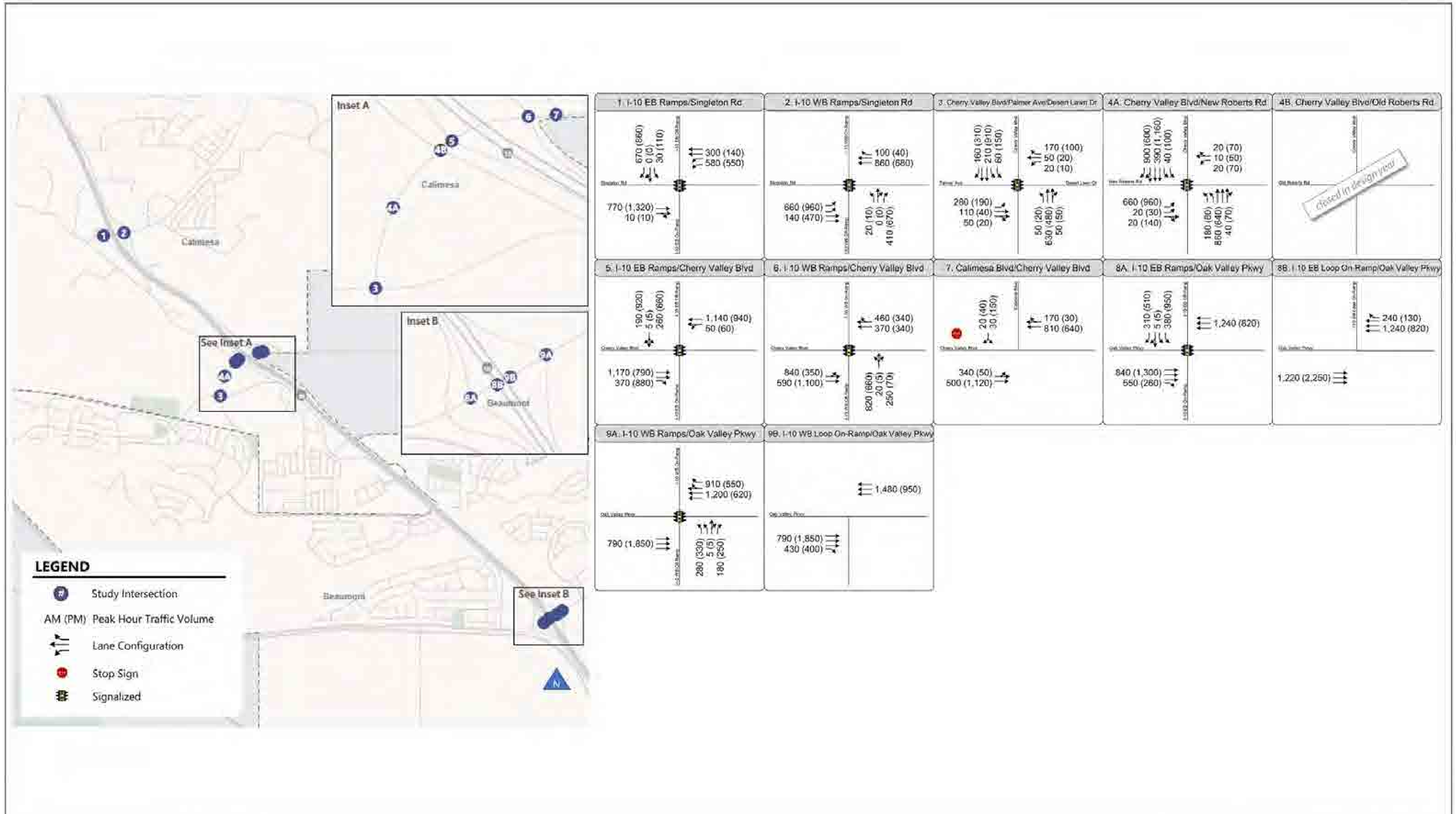
Design Year (No-Build) 2045 Peak Hour Freeway Volumes

Figure 2.1.9-6

Figure 2.1.9-7: Design Year (No-Build Alternative) 2045 Peak Hour Intersection Volumes



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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Design Year (No-Build) 2045 Peak Hour Intersection Volumes

Figure 2.1.9-7

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As shown in Table 2.1.9-28, Design Year 2045 - Freeway Operations (No-Build Alternative) (AM Peak Hour), eastbound I-10 study segments would operate at an acceptable LOS B. As shown in Table 2.1.9-29, Design Year 2045 - Freeway Operations (No-Build Alternative) (PM Peak Hour), the eastbound I-10 study segments north of Singleton Road, Singleton Road on-ramp, Singleton Road on-ramp to Cherry Valley Boulevard off-ramp, and Cherry Valley Boulevard off-ramp operate at an unacceptable LOS D or F during the PM peak hour under Design Year 2045 conditions. As shown in Tables 2.1.9-30 and 2.1.9-31, the westbound I-10 study segments south of Oak Valley Parkway, Oak Valley Parkway off-ramp (AM peak hour), Oak Valley Parkway off-ramp to Oak Valley Parkway on-ramp, Oak Valley Parkway on-ramp, Oak Valley Parkway on-ramp to Cherry Valley Boulevard off-ramp, Cherry Valley Boulevard off-ramp, Cherry Valley Boulevard off-ramp to on-ramp (PM peak hour), Cherry Valley Boulevard on-ramp, Cherry Valley Boulevard on-ramp to Singleton Road off-ramp, Singleton Road off-ramp, north of Singleton Road (AM peak hour) would operate at an unacceptable LOS F during the AM and PM peak hour under Design Year 2045 conditions. All other eastbound and westbound I-10 segments would operate at an acceptable LOS C or better under Design Year 2045 conditions.

As shown in Tables 2.1.9-32, Intersection Operations – Design Year 2045 Conditions (No-Build Alternative) (AM Peak Hour) and 2.1.9-33, Intersection Operations – Design Year 2045 Conditions (No-Build Alternative) (PM Peak Hour), multiple study intersections would operate at an unacceptable LOS E or worse during the AM and PM peak hour under Design Year 2045 conditions: I-10 eastbound off/on-ramps/Singleton Road (PM peak hour), I-10 westbound off/on-ramps/Singleton Road, Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive, Cherry Valley Boulevard/Roberts Road, I-10 eastbound off/on-ramps/Cherry Valley Boulevard, I-10 westbound off/on-ramps/Cherry Valley Boulevard, and I-10 westbound off/on-ramps/Oak Valley Parkway (AM peak hour). All other study intersections would operate at acceptable LOS C conditions under the Design Year 2045 conditions for the No-Build Alternative.

Table 2.1.9-28: Design Year 2045 - Freeway Operations (No-Build Alternative) (AM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	B	15.9
Singleton Road On-Ramp	Merge	B	17.1
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	17.5
Cherry Valley Boulevard Off-Ramp	Diverge	B	17.9
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	17.2
Cherry Valley Boulevard On-Ramp	Merge	B	11.8
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	17.9
Oak Valley Parkway Off-Ramp	Diverge	B	17.6
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	14.8
Oak Valley Parkway On-Ramp	Merge	B	14.0
South of Oak Valley Parkway	Basic	B	17.4

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and <u>underline</u> font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-29: Design Year 2045 - Freeway Operations (No-Build Alternative) (PM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	**D**	**35.0**
Singleton Road On-Ramp	Merge	**<u>F</u>**	**<u>105.8</u>**
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**<u>F</u>**	**<u>48.0</u>**
Cherry Valley Boulevard Off-Ramp	Diverge	**<u>F</u>**	**<u>120.0</u>**
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	12.2
Cherry Valley Boulevard On-Ramp	Merge	A	7.9
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	13.4
Oak Valley Parkway Off-Ramp	Diverge	B	14.4
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	A	9.3
Oak Valley Parkway On-Ramp	Merge	A	7.0
South of Oak Valley Parkway	Basic	B	10.3

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and <u>underline</u> font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-30: Design Year 2045 - Freeway Operations (No-Build Alternative) (AM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	**F**	**105.5**
Oak Valley Parkway Off-Ramp	Diverge	**F**	**121.0**
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	**F**	**100.2**
Oak Valley Parkway On-Ramp	Merge	**F**	**108.5**
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**F**	**94.3**
Cherry Valley Boulevard Off-Ramp	Diverge	**F**	**98.5**
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	C	27.4
Cherry Valley Boulevard On-Ramp	Merge	**D**	**28.8**
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	**D**	**32.5**
Singleton Road Off-Ramp	Diverge	**D**	**33.8**
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--
North of Singleton Road	Basic	**D**	**28.5**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-31: Design Year 2045 - Freeway Operations (No-Build Alternative) (PM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	**F**	**49.9**
Oak Valley Parkway Off-Ramp	Diverge	C	25.4
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	**F**	**71.4**
Oak Valley Parkway On-Ramp	Merge	**F**	**87.8**
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**F**	**56.5**
Cherry Valley Boulevard Off-Ramp	Diverge	**F**	**96.0**
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	**D**	**29.7**
Cherry Valley Boulevard On-Ramp	Merge	**D**	**29.2**
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	**D**	**34.5**
Singleton Road Off-Ramp	Diverge	**D**	**34.6**
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--
North of Singleton Road	Basic	C	26.5

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-32: Intersection Operations – Design Year 2045 Conditions (No-Build Alternative) (AM Peak Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Signal	C	29.3
2. I-10 Westbound Off/On-Ramps/Singleton Road	Signal	**E**	**60.8**
3. Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive	Signal	**F**	**994.6**
4A. Cherry Valley Boulevard/Roberts Road	Signal	**F**	**264.8**
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	**F**	**108.9**
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	**F**	**100**
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/Signal	C	20.5 (SBL)
8. I -10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	B	15.4
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	**E**	**56**

Notes: 1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
*3. **Bold** and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).*
4. Intersection 4B is closed under Design Year (2045) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-33: Intersection Operations – Design Year 2045 Conditions (No-Build Alternative) (PM Peak Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Signal	**F**	**143.6**
2. I-10 Westbound Off/On-Ramps/Singleton Road	Signal	**F**	**150.5**
3. Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive	Signal	**F**	**171.4**
4A. Cherry Valley Boulevard/Roberts Road	Signal	**F**	**174.7**
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	**F**	**103.8**
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	**E**	**64.6**
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/Signal	C	21.1 (SBL)
8. I -10 Eastbound Off/On-Ramps/Oak Valley Pkwy	Signal	B	18.4
9. I-10 Westbound Off/On-Ramps/Oak Valley Pkwy	Signal	B	12

Notes: 1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
*3. **Bold** and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).*
4. Intersection 4B is closed under Design Year (2045) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with

Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Queuing: Table 2.1.9-34, No-Build Alternatives Intersection Queue Summary (Design Year 2045), summarizes the average queue results under Design Year of 2045 conditions for the No-Build Alternative. The following turning movements would exceed storage capacity under the No-Build Scenario during AM and PM peak hour:

- I-10 Eastbound Off/On-Ramps/Singleton Road
  - Eastbound Through (PM Only)
  - Eastbound Right (PM Only)
  - Westbound Left
- I-10 Westbound Off/On-Ramps/Singleton Road
  - Eastbound Left
- Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive
  - Northbound Left
  - Southbound Left
  - Eastbound Left
  - Eastbound Right
  - Westbound Left (AM Only)
  - Westbound Through (AM Only)
  - Westbound Right (AM Only)
- Cherry Valley Boulevard /Roberts Road
  - Northbound Left
  - Northbound Through
  - Northbound Right
  - Southbound Right
- I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard

  - Southbound Left (PM Only)
  - Southbound Through (PM Only)
  - Southbound Right (PM Only)
  - Eastbound Through
  - Eastbound Right
- I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard
  - Northbound Left
  - Northbound Through
  - Northbound Right
  - Eastbound Through
  - Eastbound Left
- Calimesa Boulevard/Cherry Valley Boulevard
  - Eastbound Left (AM Only)
- I-10 Eastbound Off/On-Ramps/Oak Valley Parkway
  - Southbound Left
  - Eastbound Right
- I-10 Eastbound Off/On-Ramps/Oak Valley Parkway
  - Northbound Left

As summarized in Table 2.1.9-34, under the Design Year of 2045 conditions, substantial queueing would occur on I-10 eastbound off/on-ramps/Cherry Valley Boulevard with spillback onto the freeway mainline during the PM peak hour, and would occur on I-10 westbound off/on-ramps/Cherry Valley Boulevard with spillback onto the freeway mainline during both AM and PM peak hours. In addition, extended queues would occur on eastbound Palmer Avenue, westbound Desert Lawn Drive, and westbound Calimesa Boulevard during the AM peak hour, and eastbound Palmer Avenue during the PM peak hour.

Table 2.1.9-34: No-Build Alternatives Intersection Queue Summary (Design Year 2045)

Intersection	Storage Length	AM Peak Hour	PM Peak Hour
I-10 EB Off/On-Ramps/Singleton Road / EBT	525	450	**590**
I-10 EB Off/On-Ramps/Singleton Road / EBR	525	450	**590**
I-10 EB Off/On-Ramps/Singleton Road / WBL	525	**610**	**670**
I-10 WB Off/On-Ramps/Singleton Road / EBL	600	**640**	**660**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / NBL	125	**980**	**830**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / SBL	175	**480**	**400**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / EBL	125	**1,920**	**1,850**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / EBR	100	**240**	**470**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / WBL	175	**270**	50
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / WBT	1,980	**1,970**	130
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / WBR	1,970	**1,970**	200
Cherry Valley Boulevard/Roberts Road / NBL	175	**540**	**340**
Cherry Valley Boulevard/Roberts Road / NBT	550	**730**	**740**
Cherry Valley Boulevard/Roberts Road / NBR	550	**730**	**740**
Cherry Valley Boulevard/Roberts Road / SBT	500	410	260
Cherry Valley Boulevard/Roberts Road / SBR	150	**440**	**290**
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / SBL	1,150	720	**5,070**
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / SBT	1,150	720	**5,070**
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / SBR	1,150	710	**5,070**
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / EBT	600	**790**	**790**
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / EBR	600	**780**	**780**
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / WBL	375/575[4]	380	**560**
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / WBT	375/575[4]	380	**560**
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / NBL	1,050	**5,080**	**5,070**
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / NBT	1,050	**5,080**	**5,070**
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / NBR	1,050	**5,080**	**5,070**
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / EBL	550	**690**	**560**
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / EBT	550	**690**	**560**
Calimesa Boulevard/Cherry Valley Boulevard[3] / NBT	225	--	--
Calimesa Boulevard/Cherry Valley Boulevard[3] / NBL	225	--	--
Calimesa Boulevard/Cherry Valley Boulevard[3] / SBL	225	100	230
Calimesa Boulevard/Cherry Valley Boulevard[3] / EBL	175	**260**	70
I-10 EB Off/On-Ramps/Oak Valley Parkway / SBL	175	**260**	**770**
I-10 EB Off/On-Ramps/Oak Valley Parkway / SBT	1,175	140	270
I-10 EB Off/On-Ramps/Oak Valley Parkway /SBR	1,175	140	270
I-10 EB Off/On-Ramps/Oak Valley Parkway / EBR	100	**370**	**260**
I-10 WB Off/On-Ramps/Oak Valley Parkway/ NBL	150	**240**	**400**

Notes: EB=eastbound; WB=westbound; NBR=northbound right; NBL=northbound left; NBT=northbound through; EBR=eastbound right; EBL=eastbound left; EBT=eastbound through; SBR=southbound right; SBL=southbound left; SBT=southbound through; WBR=westbound right; WBL=westbound left; WBT=westbound through

1. The storage and average maximum queue length (in feet) is reported for key movements.

*2. **Bold** and underline font indicate a queue that exceeds the storage.*

3. In Alternative 4, Partial Cloverleaf Interchange the intersection of Calimesa Boulevard is realigned with the I-10 westbound off-ramp to Cherry Valley Boulevard.

4. The storage length is listed in the following order: Diverging Diamond Storage/Partial Cloverleaf Storage (XXX'/XXX').

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

System-wide Performance: Under the No-Build Alternative, the travel time, average delay, and traffic volume of the I-10/Cherry Valley Boulevard overcrossing's existing transportation system were taken into account for Design Year 2045 conditions. Table 2.1.9-35, No-Build Alternative (Design Year 2045) Performance Summary, shows slightly higher levels of congestion occur during the PM peak hour in the study area, reflected by the increase in average delay per vehicle, 366.4 seconds during the PM peak hour compared to 352.9 seconds during the AM peak hour under the No-Build Alternative. Table 2.1.9-36, Travel Time Eastbound I-10: Singleton Road to Oak Valley Parkway (No Build Alternative), shows increases in travel times in travel times during the AM peak hours compared to the 2025 Opening Year, with 4.1 minutes for cars and 4.8 minutes for trucks. Table 2.1.9-37, Travel Time Westbound I-10: Singleton Road to Oak Valley Parkway (No Build Alternative) (Design Year 2045), shows an increase in travel times that ranges from 8.7 to 19.2 minutes in travel time for AM and PM peak hours, when compared to the 2025 Opening Year.

Table 2.1.9-35: No-Build Alternative (Design Year 2045) Performance Summary

Performance Measure	Metric	AM	PM
Average Speed	Miles per Hour (mph)	18.4	17.4
Volume Served	Vehicles per Hour (vph)	14,962	14,435
Total Distance Traveled	Miles	46,219	43,200
Total Travel Time	Vehicle Hours Travelled (hours)	2,507.0	2,496.0
Average Delay Per Vehicle	Seconds	352.9	366.4
Total Delay	Vehicle Hours Delay (hours)	1,714	1,750

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-36: Travel Time Eastbound I-10: Singleton Road to Oak Valley Parkway (No Build Alternative) (Design Year 2045)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.1	4.1
Trucks	Minutes	4.8	4.7
All	Minutes	4.2	4.2

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-37: Travel Time Westbound I-10: Singleton Road to Oak Valley Parkway (No Build Alternative) (Design Year 2045)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	12.6	10.5
Trucks	Minutes	19.2	8.7
All	Minutes	13.2	10.5

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Build Alternatives 3 and 4

Opening Year (2025): Figures 2.1.9-8 through 2.1.9-11 and Tables 2.1.9-38 through 2.1.9-45 show Opening Year 2025 LOS and density under Build Alternatives 3 and 4 for study area roadway and freeway segments and intersections.

As shown in Tables 2.1.9-38 through 2.1.9-45, Build Alternatives 3 and 4 perform similarly based on LOS and volume densities on freeways and would improve freeway operations within the project area during opening Year 2025 conditions with the exception of the westbound I-10 segment north of Singleton, which would operate at an unacceptable LOS D in the AM peak hour under Build Alternatives 3 and 4. During the PM peak hour, Build Alternatives 3 and 4 would improve the eastbound I-10 segment at Cherry Valley off-ramp from an unacceptable LOS F in the No-Build condition to an acceptable LOS B. During the AM peak hour, Build Alternatives 3 and 4 would improve westbound I-10 segments at Cherry Valley on-ramp to Singleton off-ramp and the Singleton off-ramp from an unacceptable LOS D in the No-Build condition to an acceptable LOS C or better.

Table 2.1.9-38: Opening Year 2025 Eastbound Segment Build Alternative 3 (AM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	B	13.6
Singleton Road On-Ramp	Merge	B	10.7
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	12.6
Cherry Valley Boulevard Off-Ramp	Diverge	B	9.7
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	A	11.2
Cherry Valley Boulevard On-Ramp	Merge	B	10.2
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	12.2
Oak Valley Parkway Off-Ramp	Diverge	B	11.5
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	10.4
Oak Valley Parkway On-Ramp	Merge	B	10.3
South of Oak Valley Parkway	Basic	B	12.4

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and <u>underline</u> font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Figure 2.1.9-8: Opening Year (2025) Peak Hour Freeway Volumes Build Alternative 3

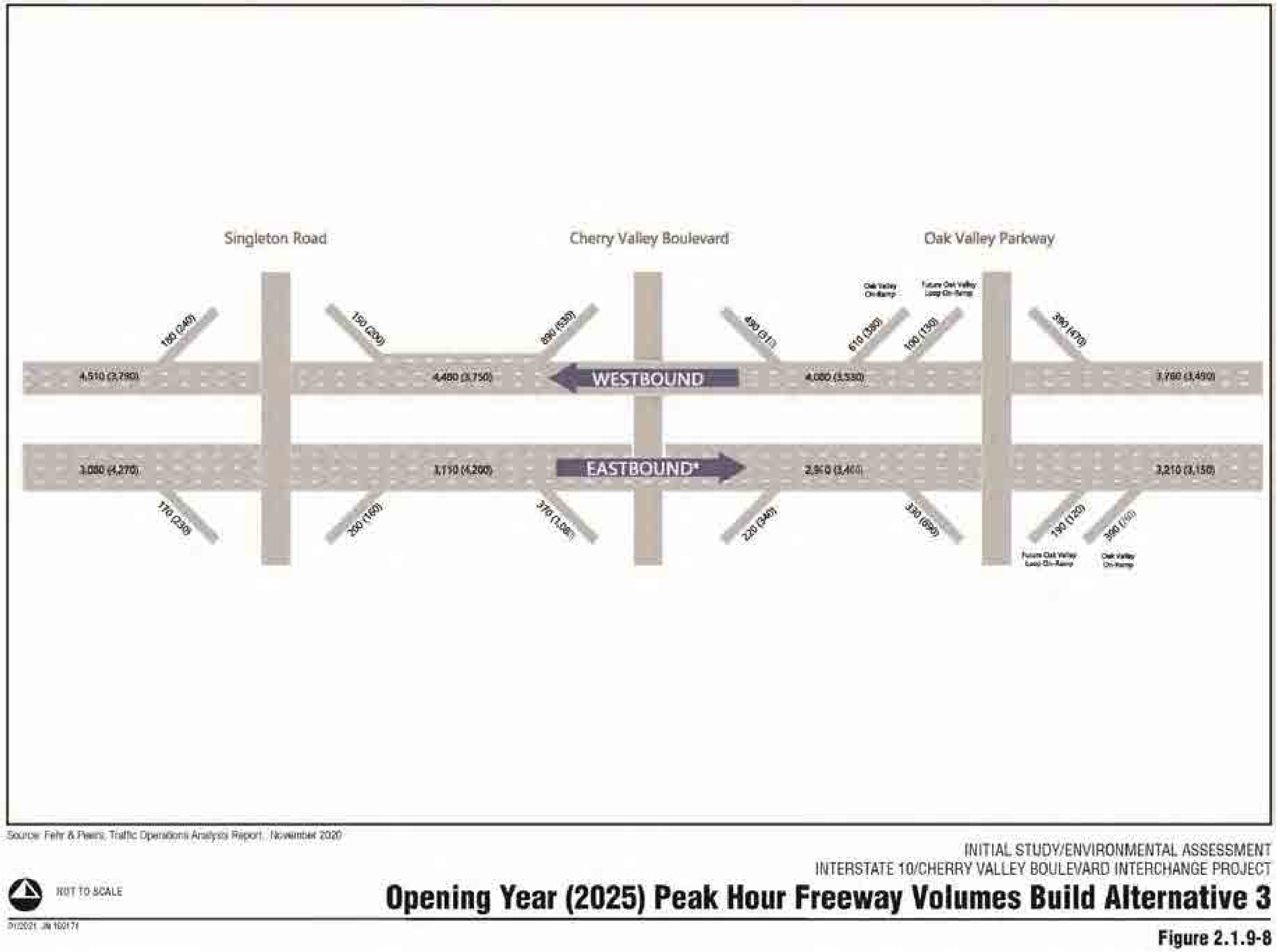
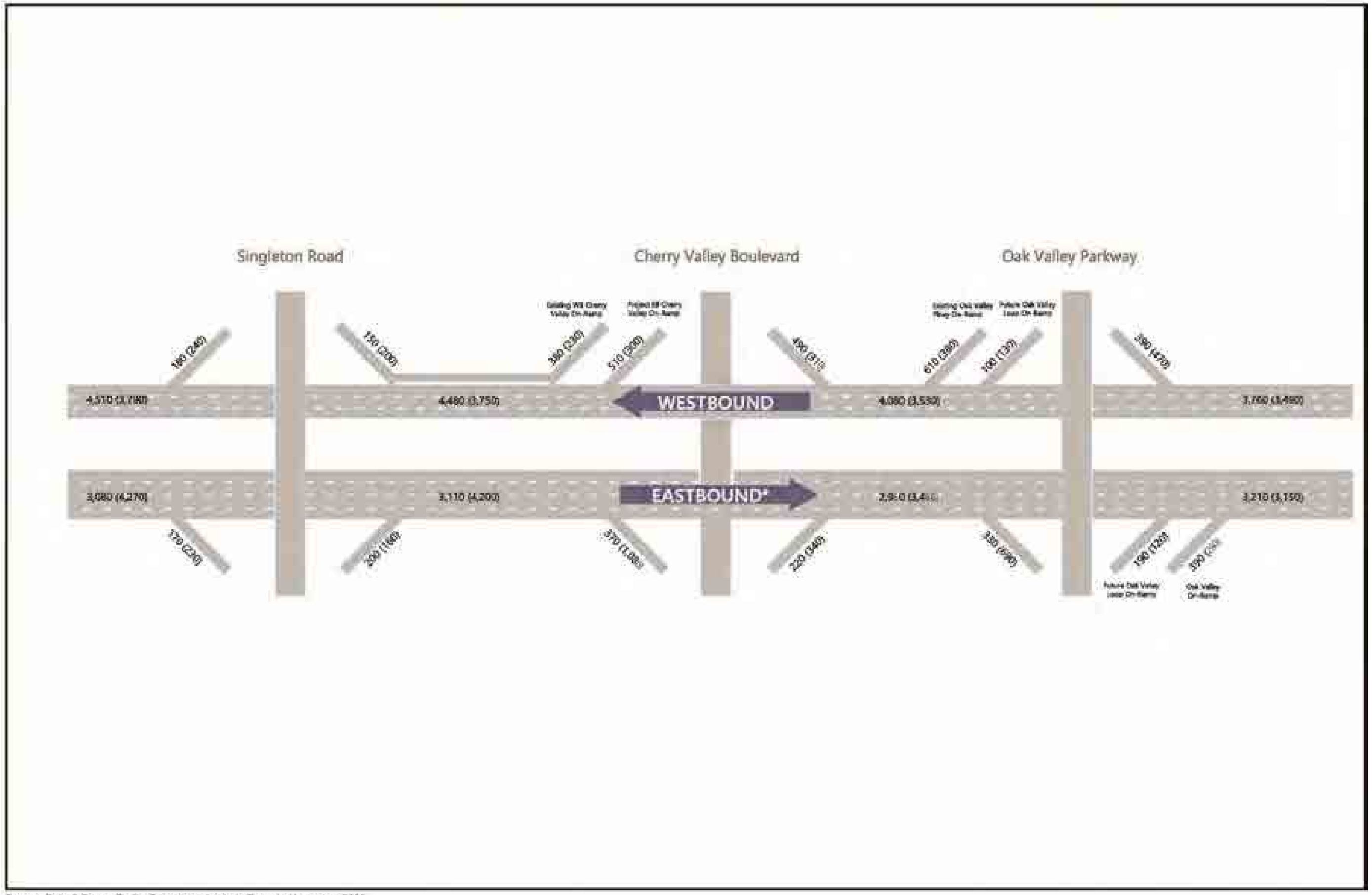


Figure 2.1.9-9: Opening Year (2025) Peak Hour Freeway Volumes Build Alternative 4



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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Opening Year (2025) Peak Hour Freeway Volumes Build Alternative 4

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Figure 2.1.9-9

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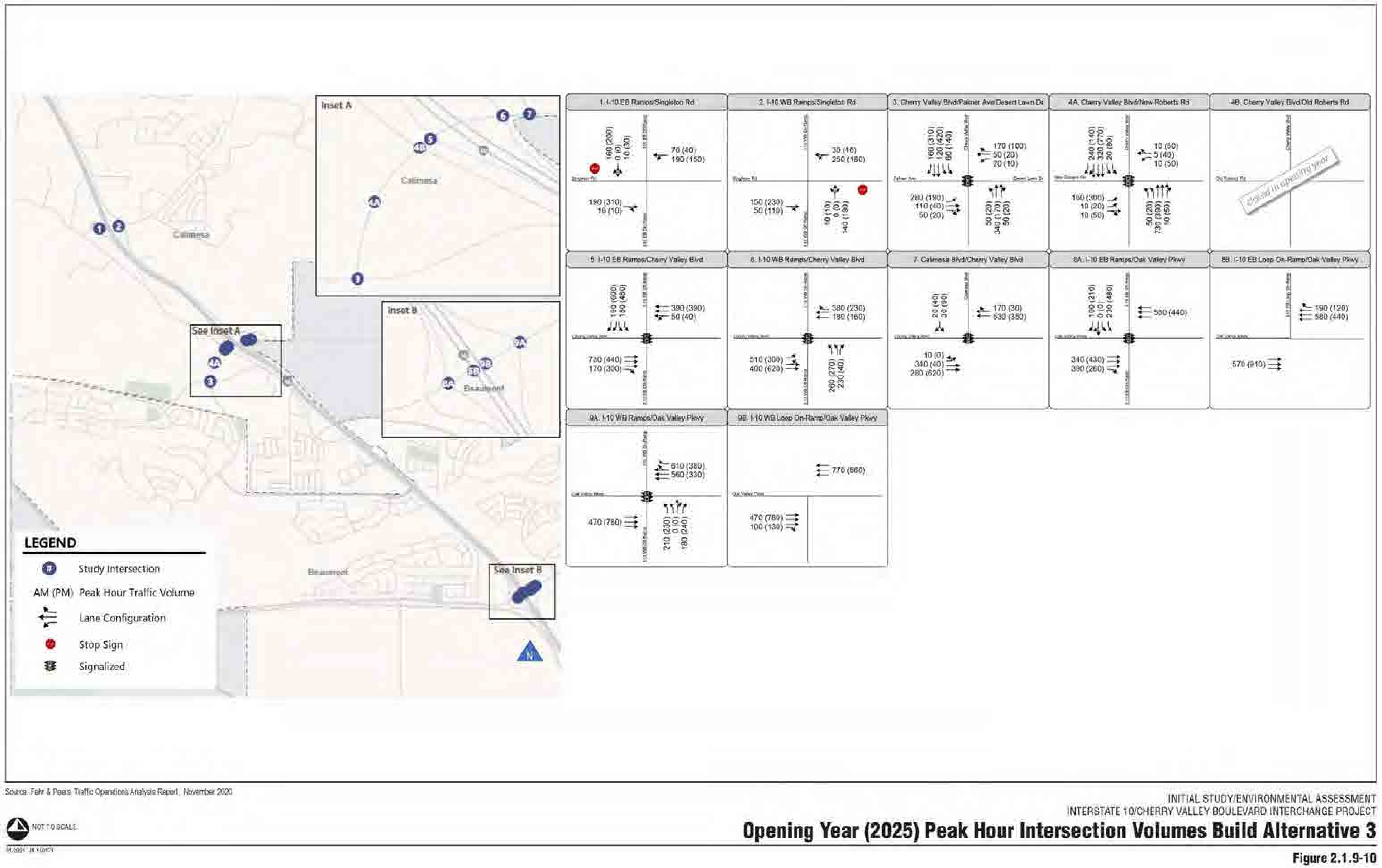
Figure 2.1.9-10: Opening Year (2025) Peak Hour Intersection Volumes Build Alternative 3



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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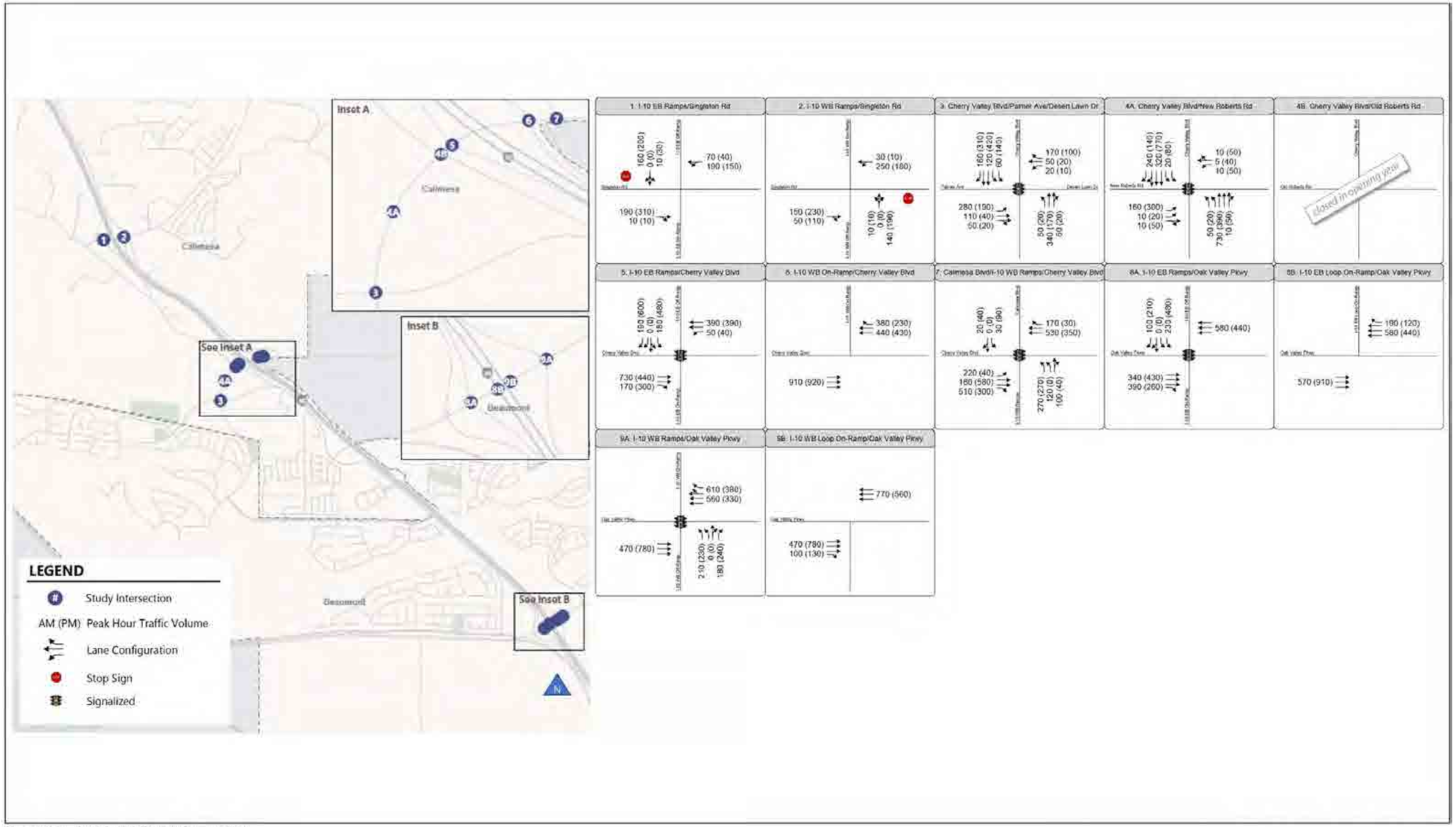
Figure 2.1.9-11: Opening Year (2025) Peak Hour Intersection Volumes Build Alternative 4



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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Opening Year (2025) Peak Hour Intersection Volumes Build Alternative 4

Figure 2.1.9-11

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Table 2.1.9-39: Opening Year 2025 Eastbound Segment Build Alternative 3 (PM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	B	15.5
Singleton Road On-Ramp	Merge	B	17.0
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	17.3
Cherry Valley Boulevard Off-Ramp	Diverge	B	13.6
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	13.3
Cherry Valley Boulevard On-Ramp	Merge	B	11.7
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	14.6
Oak Valley Parkway Off-Ramp	Diverge	B	15.5
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	11.1
Oak Valley Parkway On-Ramp	Merge	A	8.9
South of Oak Valley Parkway	Basic	B	12.1

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-40: Opening Year 2025 Westbound Segment Build Alternative 3 (AM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	C	21.3
Oak Valley Parkway Off-Ramp	Diverge	C	21.5
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	B	18.0
Oak Valley Parkway On-Ramp	Merge	C	20.9
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	27.9
Cherry Valley Boulevard Off-Ramp	Diverge	B	18.8
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	C	24.1
Cherry Valley Boulevard On-Ramp	Merge	--	
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	--	
Singleton Road Off-Ramp	Diverge	--	
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	C	22.8
North of Singleton Road	Basic	**D**	**29.9**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-41: Opening Year 2025 Westbound Segment Build Alternative 3 (PM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	C	20.0
Oak Valley Parkway Off-Ramp	Diverge	C	20.3
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	B	16.3
Oak Valley Parkway On-Ramp	Merge	B	17.5
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	22.4
Cherry Valley Boulevard Off-Ramp	Diverge	B	13.7
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	C	20.2
Cherry Valley Boulevard On-Ramp	Merge	--	--
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	--	--
Singleton Road Off-Ramp	Diverge	--	--
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--
North of Singleton Road	Basic	C	22.0

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-42: Opening Year 2025 Eastbound Segment Build Alternatives 4 (AM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	B	10.7
Singleton Road On-Ramp	Merge	B	11.5
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	12.6
Cherry Valley Boulevard Off-Ramp	Diverge	A	9.7
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	11.2
Cherry Valley Boulevard On-Ramp	Merge	B	10.2
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	12.2
Oak Valley Parkway Off-Ramp	Diverge	B	11.8
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	10.3
Oak Valley Parkway On-Ramp	Merge	B	10.4
South of Oak Valley Parkway	Basic	B	12.3

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-43: Opening Year 2025 Eastbound Segment Build Alternative 4 (PM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	B	15.0
Singleton Road On-Ramp	Merge	B	16.8
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	17.2
Cherry Valley Boulevard Off-Ramp	Diverge	B	14.3
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	13.0
Cherry Valley Boulevard On-Ramp	Merge	B	11.6
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	14.4
Oak Valley Parkway Off-Ramp	Diverge	B	15.0
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	11.0
Oak Valley Parkway On-Ramp	Merge	A	9.0
South of Oak Valley Parkway	Basic	B	12.1

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and **underline** font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-44: Opening Year 2025 Westbound Segment Build Alternatives 4 (AM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	C	21.3
Oak Valley Parkway Off-Ramp	Diverge	C	21.6
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	B	18.0
Oak Valley Parkway On-Ramp	Merge	C	20.8
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	27.6
Cherry Valley Boulevard Off-Ramp	Diverge	B	17.8
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	C	21.95
Cherry Valley Boulevard On-Ramp	Merge	B	16.6
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	C	26.0
Singleton Road Off-Ramp	Diverge	C	24.9
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	
North of Singleton Road	Basic	**D**	**33.4**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the

*westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report
(November 2020).*

Table 2.1.9-45: Opening Year 2025 Westbound Segment Build Alternatives 4 (PM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	B	19.6
Oak Valley Parkway Off-Ramp	Diverge	C	20.0
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	B	16.0
Oak Valley Parkway On-Ramp	Merge	B	17.0
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	21.8
Cherry Valley Boulevard Off-Ramp	Diverge	B	13.3
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	18.6
Cherry Valley Boulevard On-Ramp	Merge	B	11.4
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	B	18.7
Singleton Road Off-Ramp	Diverge	B	18.6
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	--
North of Singleton Road	Basic	C	23.6

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and <u>underline</u> font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Build Alternatives 3 and 4 perform similarly, with all intersections operating acceptably, based on LOS and the delay at all the study intersections. As shown in Tables 2.1.9-46 through 2.1.9-50, and Figures 2.1.9-10 and 2.1.9-11, all study intersections that operated at an unacceptable LOS D or worse during the AM and PM peak hours under the No-Build Alternative scenario would improve to operate at LOS C or better under Build Alternatives 3 and 4.

Table 2.1.9-46: Intersection Operations – Opening Year 2025 Conditions Build Alternative 3 (AM Peak Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	B	10.3 (SBL)
2. I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	A	9.0 (NBL)
3. Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	C	27.7
4A. Cherry Valley Boulevard/Roberts Road	Signal	B	13.5
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	C	22.0
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	A	7.1
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/Signal	C	22.0
8. I -10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	B	11.1
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	A	8.6

Notes: SBL=southbound left; NBL=northbound left
1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
3. Bold and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
4. Intersection 4B is closed under Opening Year (2025) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-47: Intersection Operations – Opening Year 2025 Conditions Build Alternatives 3 (PM Peak Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	B	11.4 (SBL)
2. I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	B	14.4 (NBL)
3. Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	C	22.1
4A. Cherry Valley Boulevard/Roberts Road	Signal	B	13.5
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	B	14.7
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	A	5.7
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/Signal	A	9.5
8. I -10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	B	17.4
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	B	14.7

Notes: SBL=southbound left; NBL=northbound left
1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in

seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
3. ***Bold*** *and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).*
4. Intersection 4B is closed under Opening Year (2025) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-48: Intersection Operations – Opening Year 2025 Conditions Build Alternative 4 (AM Peak Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	B	10.7 (SBL)
2. I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	B	10.2 (NBL)
3. Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	C	25.8
4A. Cherry Valley Boulevard/Roberts Road	Signal	B	12.3
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	B	11.4
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	--	--
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/ Signal	C	20.6
8. I -10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	B	11.6
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	A	8.9

Notes: 1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
3. ***Bold*** *and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).*
4. Intersection 4B is closed under Opening Year (2025) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-49: Intersection Operations – Opening Year 2025 Conditions Build Alternatives 4 (PM Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	B	11.2 (SBL)
2. I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	B	11.3 (NBR)
3. Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	C	20.8
4A. Cherry Valley Boulevard/Roberts Road	Signal	B	19.0
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	B	15.2
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	--	--
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/ Signal	B	15.2
8. I -10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	B	17.0
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	B	11.1

Notes: 1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
*3. **Bold** and <u>underline</u> font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).*
4. Intersection 4B is closed under Opening Year (2025) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under the Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Queueing: As shown in Tables 2.1.9-50 and 2.1.9-51, Build Alternatives 3 and 4 would eliminate the queues at the I-10 eastbound off/on-ramps/Cherry Valley Boulevard intersection, and substantially reduce queueing at other ramp terminal and intersection locations as compared to the No-Build Alternative. In addition, the eastbound right turning movement at Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive under the Build Alternatives would have much longer queue lengths than the No-Build Alternative. The only movements where the queues would exceed the storage lengths under Build Alternatives 3 and 4 are listed below, with much shorter queues compared to the No-Build Alternative.

- Northbound left at Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive (AM Only)
- Southbound left at Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive (PM Only)
- Eastbound left at Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive
- Eastbound right at Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive

- Southbound right at Cherry Valley Boulevard/Roberts Road (PM Only)
- Northbound through at Calimesa Boulevard/Cherry Valley Boulevard (AM Only)
- Northbound right at Calimesa Boulevard/Cherry Valley Boulevard (AM Only)
- Eastbound left at Calimesa Boulevard/Cherry Valley Boulevard (AM Only)
- Southbound left at I-10 Eastbound Off/On-Ramps/Oak Valley Parkway
- Eastbound right at I-10 Eastbound Off/On-Ramps/Oak Valley Parkway
- Northbound left at I-10 Westbound Off/On-Ramps/Oak Valley Parkway

Table 2.1.9-50: Build Alternative 3 Intersection Queue Summary (Opening Year 2025)

Intersection/ Movement	Storage Length	AM Peak Hour	PM Peak Hour
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / NBL	125	**<u>160</u>**	90
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / SBL	175	110	160
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / EBL	125	**<u>600</u>**	**<u>420</u>**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / EBR	100	**<u>190</u>**	90
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / WBL	175	100	60
Cherry Valley Boulevard/Roberts Road / NBT	550	160	170
Cherry Valley Boulevard/Roberts Road / NBR	550	170	170
Cherry Valley Boulevard/Roberts Road / SBT	625	150	200
Cherry Valley Boulevard/Roberts Road / SBR	625	**<u>180</u>**	**<u>230</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard/ SBL	990	160	290
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / SBT	950	490	**<u>3,710</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / SBR	950	460	**<u>3,710</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / EBT	575	**<u>780</u>**	**<u>780</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / EBR	525	**<u>770</u>**	**<u>770</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / WBL	375	380	**<u>630</u>**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / WBT	375	380	**<u>630</u>**
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard / EBL	425	**<u>670</u>**	530
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard / EBT	425	**<u>670</u>**	530
Calimesa Boulevard/Cherry Valley Boulevard / NBT	1050	--	--
Calimesa Boulevard/Cherry Valley Boulevard / NBR	310	--	--
Calimesa Boulevard/Cherry Valley Boulevard / EBL	850	520	110
Calimesa Boulevard/Cherry Valley Boulevard/ WBT	1000	**<u>1060</u>**	230
Calimesa Boulevard/Cherry Valley Boulevard / EBR	1000	**<u>1060</u>**	230
I-10 Eastbound Off/On- Ramps/Oak Valley Parkway / SBL	175	**<u>180</u>**	**<u>480</u>**
I-10 Eastbound Off/On-Ramps/Oak Valley Parkway / EBL	100	**<u>210</u>**	**<u>150</u>**
I-10 Westbound Off/On-Ramps/Oak Valley Parkway / NBL	150	**<u>180</u>**	**<u>230</u>**

Notes: EB=eastbound; WB=westbound; NBR=northbound right; NBL=northbound left; NBT=northbound through; EBR=eastbound right; EBL=eastbound left; EBT=eastbound through; SBR=southbound right; SBL=southbound left; SBT=southbound through; WBR=westbound right; WBL=westbound left; WBT=westbound through

1. The storage and average maximum queue length (in feet) is reported for key movements. ***Bold*** *and <u>underline</u> font indicate a queue that exceeds the storage.*

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-51: Build Alternative 4 Intersection Queue Summary (Opening Year 2025)

Intersection/ Movement	Storage Length	AM Peak Hour	PM Peak Hour
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / NBL	125	**130**	90
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / SBL	175	100	30
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / EBL	125	**550**	100
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / EBR	100	**160**	**400**
Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive / WBL	175	80	60
Cherry Valley Boulevard/Roberts Road / NB Through	550	190	180
Cherry Valley Boulevard/Roberts Road / NBR	550	220	210
Cherry Valley Boulevard/Roberts Road / SBT	600	140	240
Cherry Valley Boulevard/Roberts Road / SBR	600	**190**	**290**
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / SBL	1150	140	250
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / SBT	1150	140	250
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / SBR	1150	100	160
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / EBT	600	380	250
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / EBR	600	30	80
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / WBL	575	140	120
I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard / WBT	575	110	100
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard / EBL	175	310	100
I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard / EB T	1000	120	240
Calimesa Boulevard/Cherry Valley Boulevard / NBT	1050	**310**	**200**
Calimesa Boulevard/Cherry Valley Boulevard / NBR	310	**310**	90
Calimesa Boulevard/Cherry Valley Boulevard / EBL	250	**280**	100
Calimesa Boulevard/Cherry Valley Boulevard / WBT	1000	320	190
Calimesa Boulevard/Cherry Valley Boulevard / EBR	200	120	50
I-10 Eastbound Off/On- Ramps/Oak Valley Parkway / SBL	175	170	**410**
I-10 Eastbound Off/On- Ramps/Oak Valley Parkway / EBR	100	**190**	**130**
I-10 Westbound Off/On-Ramps/Oak Valley Parkway / NBL	150	**180**	**250**

Notes: EB=eastbound; WB=westbound; NBR=northbound right; NBL=northbound left; NBT=northbound through; EBR=eastbound right; EBL=eastbound left; EBT=eastbound through; SBR=southbound right; SBL=southbound left; SBT=southbound through; WBR=westbound right; WBL=westbound left; WBT=westbound through

*1. The storage and average maximum queue length (in feet) is reported for key movements. **Bold** and underline font indicate a queue that exceeds the storage.*

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

System-wide Performance: Under Build Alternatives 3 and 4, the travel time, average delay, and the traffic volumes of the overcrossing's existing transportation system were taken into account for Opening Year 2025 conditions. Tables 2.1.9-52 and 2.1.9-55 show an overall reduced delay under Build Alternatives 3 and 4 compared to the No-Build Alternative under Opening Year 2025 conditions. Tables 2.1.9-53 and 2.1.9-54 shows the estimated time travel time on I-10, between the Singleton Road and Oak Valley Parkway overcrossings, for Build Alternative 3 during the 2025

Opening Year. Tables 2.1.9-56 and 2.1.9-57 shows the estimated time travel time on I-10, between the Singleton Road and Oak Valley Parkway overcrossings, for Build Alternative 4 during the 2025 Opening Year.

Table 2.1.9-52: Build Alternative 3 (Opening Year 2025)

Performance Measure	Metric	AM	PM
Average Speed	Miles per Hour (mph)	48.0	50.5
Volume Served (vph)	Vehicles per Hour (vph)	11,283	11,239
Total Distance Traveled	Miles	38,371	38,474
Total Travel Time [VHT] (hours)	Vehicle Hours Travelled (hours)	799.1	761.6
Average Delay Per Vehicle (seconds)	Seconds	42.0	33.9
Total Delay [VHD] (hours)	Vehicle Hours Delay (hours)	141	123

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-53: Travel Time Eastbound I-10: Singleton Road to Oak Valley Parkway (Build Alternative 3) (Opening Year 2025)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.0	4.1
Trucks	Minutes	4.5	4.6
All	Minutes	4.1	4.1

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-54: Travel Time Westbound I-10: Singleton Road to Oak Valley Parkway (Build Alternative 3) (Opening Year 2025)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.8	4.4
Trucks	Minutes	6.1	5.5
All	Minutes	4.9	4.5

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-55: Build Alternative 4 (Opening Year 2025)

Performance Measure	Metric	AM	PM
Average Speed	Miles per Hour	47.9	49.9
Volume Served (vph)	Vehicles per Hour (vph)	11,272	11,255
Total Distance Traveled	Miles	38,530	38,599
Total Travel Time [VHT] (hours)	Vehicle Hours Travelled (hours)	805.0	772.9
Average Delay Per Vehicle (seconds)	Seconds	39.5	36.1
Total Delay [VHD] (hours)	Vehicle Hours Delay (hours)	132	121

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-56: Travel Time Eastbound I-10: Singleton Road to Oak Valley Parkway (Build Alternative 4) (Opening Year 2025)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.0	4.1
Trucks	Minutes	4.5	4.6
All	Minutes	4.1	4.1

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

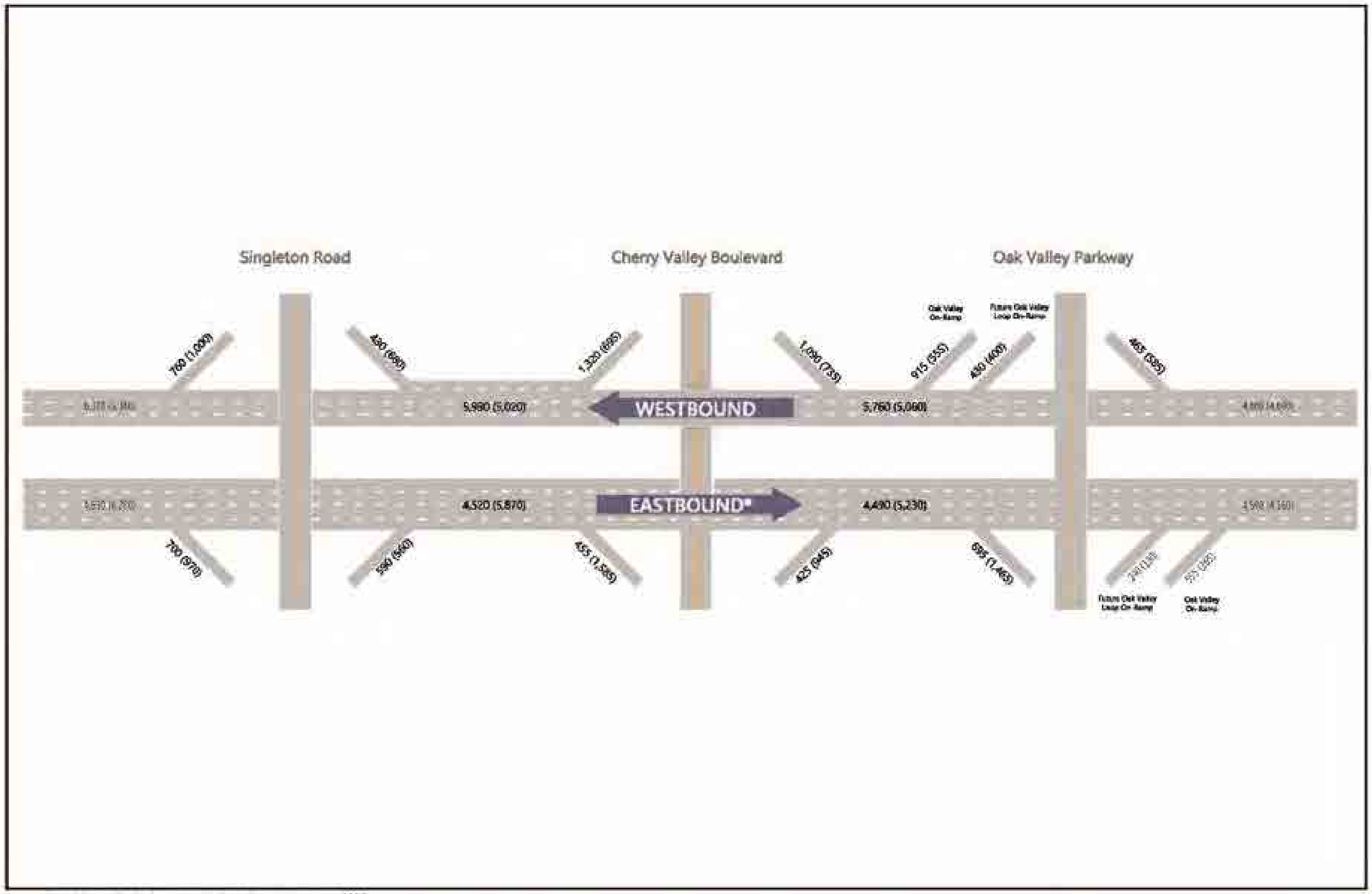
Table 2.1.9-57: Travel Time Westbound I-10: Singleton Road to Oak Valley Parkway (Build Alternative 4) (Opening Year 2025)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.8	4.4
Trucks	Minutes	6.2	5.6
All	Minutes	4.9	4.5

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Design Year (2045): Figures 2.1.9-12 and 2.1.9-13 and Tables 2.1.9-58 through 2.1.9-65 show the future Design Year 2045 LOS and density under Build Alternatives 3 and 4 for study freeway segments and intersections. As shown in Tables 2.1.9-58 through 2.1.9-59 and 2.1.9-63 through 2.1.9-64, Build Alternatives 3 and 4 would improve eastbound I-10 freeway operations to an acceptable LOS C or better at the study segments as compared to the No-Build Alternative, with the exception of eastbound I-10 segment north of Singleton, which would operate at an unacceptable LOS D in the PM peak hour for Build Alternative 3, similar to the No-Build Alternative; this I-10 segment would improve to an acceptable LOS C in the PM peak hour for Build Alternative 4. Additionally, the eastbound I-10 segment at Oak Valley Parkway off-ramp would worsen to an unacceptable LOS E in the PM peak hour for Build Alternatives 3 and 4, compared to the No-Build Alternative, which would operate at an acceptable LOS B in the PM peak hour.

Figure 2.1.9-12: Design Year (2045) Peak Hour Freeway Volumes Build Alternative 3



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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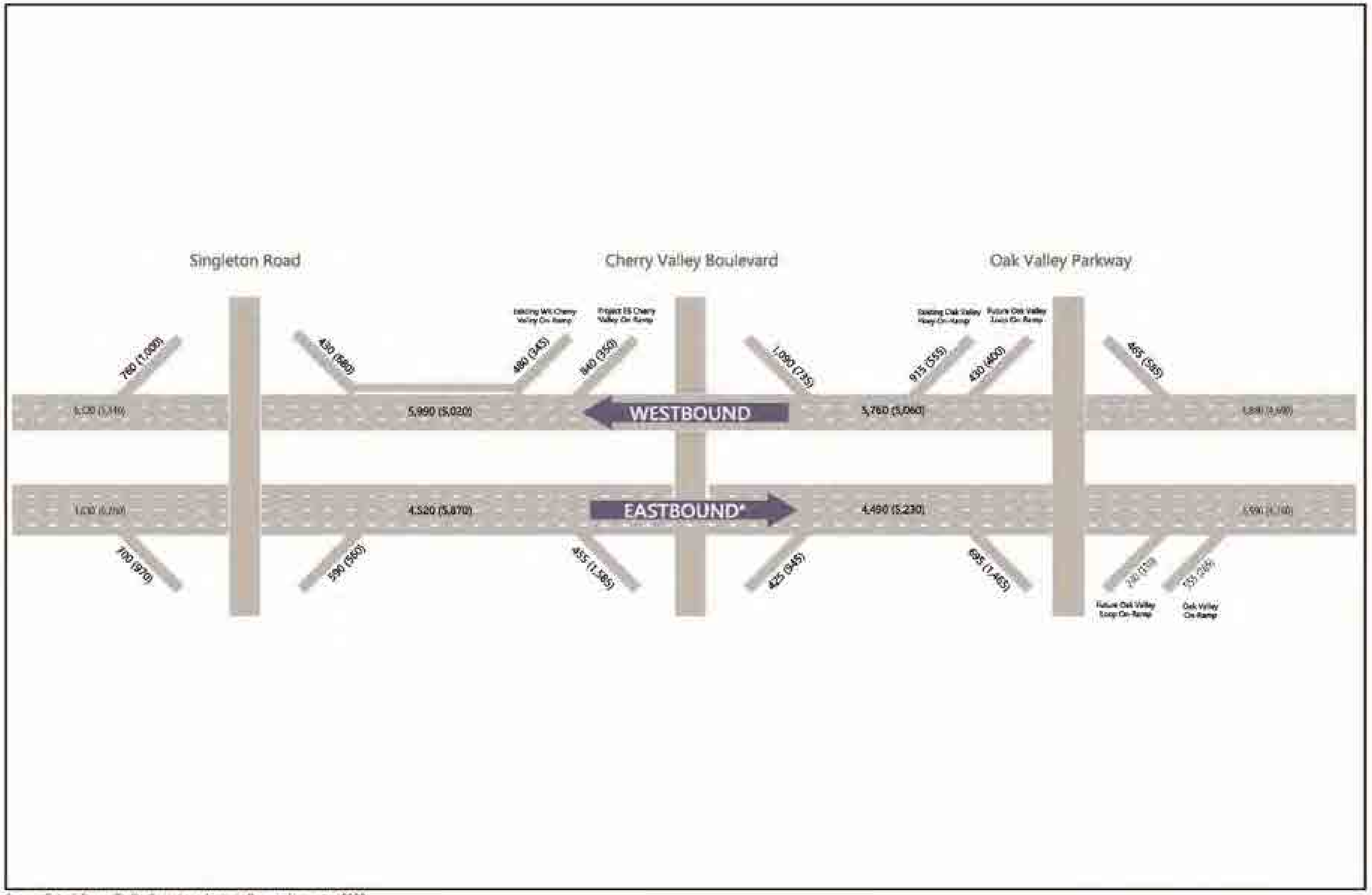
NOT TO SCALE

Design Year (2045) Peak Hour Freeway Volumes Build Alternative 3

Figure 2.1.9-12

Figure 2.1.9-13: Design Year (2045) Peak Hour Freeway Volumes Build Alternative 4



Source: Fehr & Peers; Traffic Operations Analysis Report. November 2020

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Design Year (2045) Peak Hour Freeway Volumes Build Alternative 4

Figure 2.1.9-13

As shown on Tables 2.1.9-60 through 2.1.9-61 and 2.1.9-64 through 2.1.9-65, the majority of the eastbound and westbound I-10 segments under Build Alternatives 3 and 4 improve operations to an acceptable LOS C or better. The westbound I-10 segments at Oak Valley Parkway on-ramp to Cherry Valley Boulevard off-ramp and Cherry Valley Boulevard off-ramp (AM peak hour for Build Alternative 3 only) would operate at an unacceptable LOS E or worse under Build Alternatives 3 and 4, similar to the No-Build Alternative. The westbound I-10 segment at Cherry Valley Boulevard off-ramp to on-ramp would deteriorate to an unacceptable LOS E in the AM peak hour for Build Alternative 3 only. The westbound I-10 segments at Cherry Valley Boulevard on-ramp to Singleton Road off-ramp (basic facility type) and Singleton Road off-ramp would deteriorate to an unacceptable LOS F in the AM peak hour for Build Alternative 4 only (these segments do not exist under Build Alternative 3). The westbound I-10 segment north of Singleton Road would deteriorate to an unacceptable LOS F in the AM peak hour for Build Alternatives 3 and 4. The westbound I-10 segment at Cherry Valley Boulevard on-ramp to Singleton Road off-ramp (weave facility type) would deteriorate to an unacceptable LOS F in the AM peak hour for Build Alternative 3 only (this segment does not exist under the No-Build and Build Alternative 3). This is due to an anticipated queue spillback from the Singleton Road Off-Ramp diverge segment that would occur outside of project impacts. Additionally, as discussed in the TOAR, planned development is expected to occur within the City and project area, that would result in additional background population growth.

This growth would cause excessive traffic and additional queuing within the project area, and result in eastbound and the westbound segments mentioned above to operate at a deficient LOS during the AM and/or PM peak hour.

Table 2.1.9-58: Design Year 2045 Eastbound Segment Build Alternative 3 (AM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	B	16.3
Singleton Road On-Ramp	Merge	B	17.3
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	18.6
Cherry Valley Boulevard Off-Ramp	Diverge	B	14.3
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	16.9
Cherry Valley Boulevard On-Ramp	Merge	B	15.0
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	19.0
Oak Valley Parkway Off-Ramp	Diverge	B	17.7
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	15.4
Oak Valley Parkway On-Ramp	Merge	B	14.2
South of Oak Valley Parkway	Basic	B	18.0

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-59: Design Year 2045 Eastbound Segment Build Alternative 3 (PM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	**D**	**29.7**
Singleton Road On-Ramp	Merge	C	25.6
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	25.4
Cherry Valley Boulevard Off-Ramp	Diverge	B	19.6
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	18.4
Cherry Valley Boulevard On-Ramp	Merge	B	17.3
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	C	22.3
Oak Valley Parkway Off-Ramp	Diverge	**<u>E</u>**	**<u>44.0</u>**
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	15.8
Oak Valley Parkway On-Ramp	Merge	A	9.7
South of Oak Valley Parkway	Basic	B	15.8

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard Off-Ramp to westbound I-10 Cherry Valley Boulevard Loop On-Ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-60: Design Year 2045 Westbound Segment Build Alternative 3 (AM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	**D**	**28.9**
Oak Valley Parkway Off-Ramp	Diverge	C	27.9
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	C	24.3
Oak Valley Parkway On-Ramp	Merge	C	21.7
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**<u>E</u>**	**<u>40.0</u>**
Cherry Valley Boulevard Off-Ramp	Diverge	**<u>F</u>**	**<u>48.8</u>**
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	**<u>E</u>**	**<u>36.1</u>**
Cherry Valley Boulevard On-Ramp	Merge	--	
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	--	
Singleton Road Off-Ramp	Diverge	--	
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	**<u>F</u>**	**<u>44.6</u>**
North of Singleton Road	Basic	**<u>F</u>**	**<u>72.9</u>**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and <u>underline</u> font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-61: Design Year 2045 Westbound Segment Build Alternative 3 (PM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	C	27.5
Oak Valley Parkway Off-Ramp	Diverge	C	27.4
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	C	22.4
Oak Valley Parkway On-Ramp	Merge	C	27.5
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**<u>E</u>**	**<u>36.3</u>**
Cherry Valley Boulevard Off-Ramp	Diverge	C	25.1
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	**D**	**30.8**
Cherry Valley Boulevard On-Ramp	Merge	--	
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	--	
Singleton Road Off-Ramp	Diverge	--	
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	C	26.0
North of Singleton Road	Basic	**D**	**30.5**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and <u>underline</u> font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-62: Design Year 2045 Eastbound Segment Build Alternative 4 (AM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	B	15.4
Singleton Road On-Ramp	Merge	B	17.3
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	B	18.6
Cherry Valley Boulevard Off-Ramp	Diverge	B	12.9
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	16.9
Cherry Valley Boulevard On-Ramp	Merge	B	14.9
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	B	18.9
Oak Valley Parkway Off-Ramp	Diverge	B	17.8
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	15.4
Oak Valley Parkway On-Ramp	Merge	B	14.4
South of Oak Valley Parkway	Basic	B	18.0

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and <u>underline</u> font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-63: Design Year 2045 Eastbound Segment Build Alternative 4 (PM Peak Hour)

Eastbound I-10 Segment	Facility Type	LOS	Density
North of Singleton Road	Basic	C	26.0
Singleton Road On-Ramp	Merge	C	25.9
Singleton Road On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	C	25.1
Cherry Valley Boulevard Off-Ramp	Diverge	B	19.2
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	B	18.3
Cherry Valley Boulevard On-Ramp	Merge	B	17.2
Cherry Valley Boulevard On-Ramp to Oak Valley Parkway Off-Ramp	Basic	C	22.0
Oak Valley Parkway Off-Ramp	Diverge	**E**	**40.6**
Oak Valley Parkway Off-Ramp to On-Ramp	Basic	B	15.6
Oak Valley Parkway On-Ramp	Merge	A	9.9
South of Oak Valley Parkway	Basic	B	15.8

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-64: Design Year 2045 Westbound Segment Build Alternative 4 (AM Peak Hour)

Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	**D**	**29.1**
Oak Valley Parkway Off-Ramp	Diverge	C	27.8
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	C	24.0
Oak Valley Parkway On-Ramp	Merge	C	22.6
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**F**	**47.9**
Cherry Valley Boulevard Off-Ramp	Diverge	D	32.3
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	D	34.4
Cherry Valley Boulevard On-Ramp	Merge		30.4
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	**F**	**63.8**
Singleton Road Off-Ramp	Diverge	**F**	**66.0**
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	
North of Singleton Road	Basic	**F**	**81.8**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
*2. **Bold** font indicates LOS D conditions, **bold** and underline font indicate LOS E or F conditions.*
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard off-ramp to westbound I-10 Cherry Valley Boulevard loop on-ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-65: Design Year 2045 Westbound Segment Build Alternative 4 (PM Peak Hour)

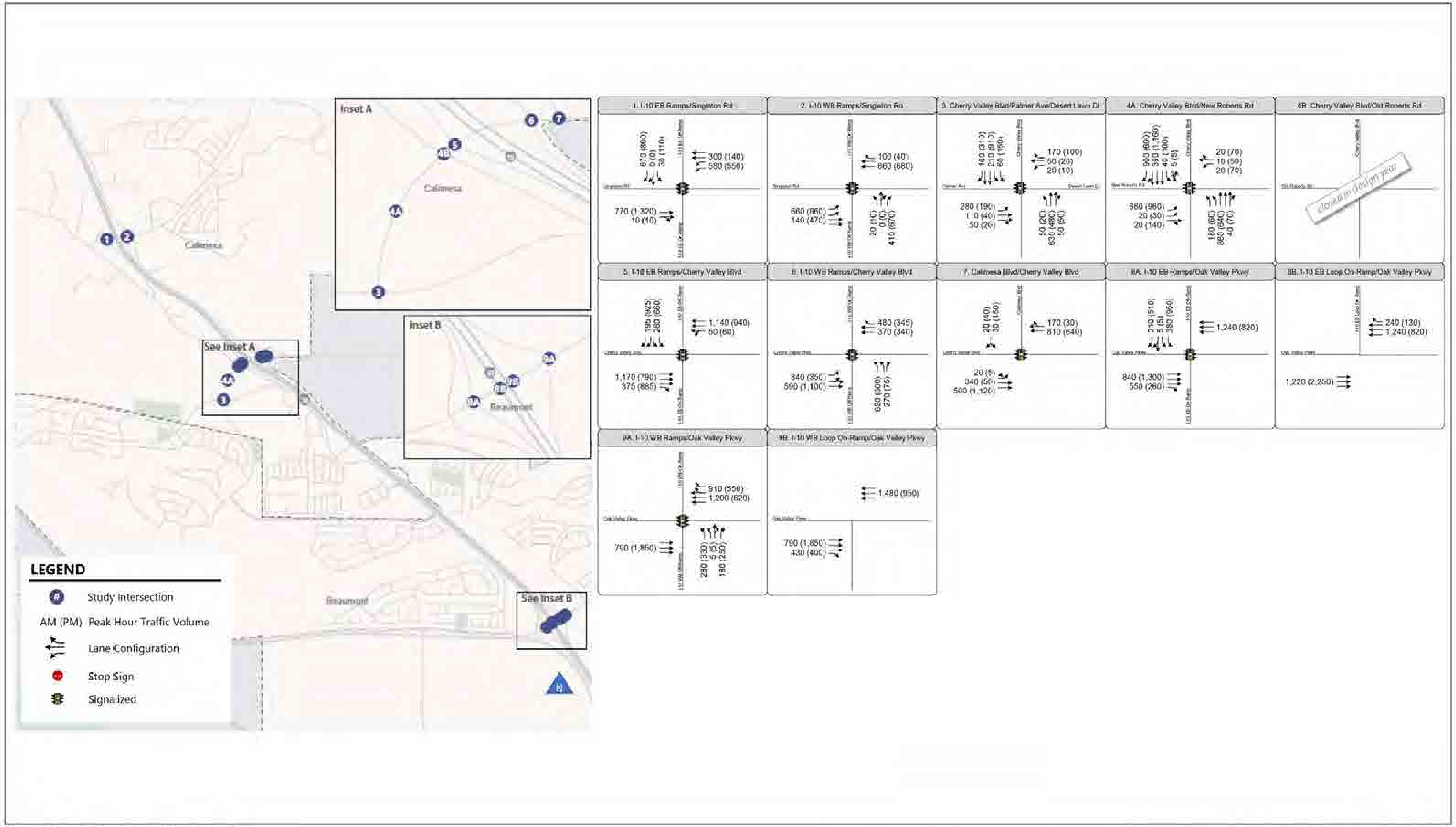
Westbound I-10 Segment	Facility Type	LOS	Density
South of Oak Valley Parkway	Basic	C	27.4
Oak Valley Parkway Off-Ramp	Diverge	C	27.4
Oak Valley Parkway Off-Ramp to Oak Valley Parkway On-Ramp	Basic	C	22.3
Oak Valley Parkway On-Ramp	Merge	C	27.5
Oak Valley Parkway On-Ramp to Cherry Valley Boulevard Off-Ramp	Basic	**E**	**35.7**
Cherry Valley Boulevard Off-Ramp	Diverge	C	23.7
Cherry Valley Boulevard Off-Ramp to On-Ramp	Basic	C	24.1
Cherry Valley Boulevard On-Ramp	Merge	B	19.6
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Basic	C	29.2
Singleton Road Off-Ramp	Diverge	C	27.1
Cherry Valley Boulevard On-Ramp to Singleton Road Off-Ramp	Weave	--	
North of Singleton Road	Basic	**D**	**32.0**

Notes: 1. The LOS and density (in vehicles per lane per mile) are reported.
2. Bold font indicates LOS D conditions, bold and underline font indicate LOS E or F conditions.
3. A lane add occurs at the on-ramp, so the segment is analyzed as a Basic segment.
4. Two dashes – indicate that the segment does not exist under that alternative.
5. A loop on-ramp from Cherry Valley Boulevard was added in Alternative 4. This segment is from the westbound I-10 Cherry Valley Boulevard Off-Ramp to westbound I-10 Cherry Valley Boulevard Loop On-Ramp.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Figures 2.1.9-14 and 2.1.9-15 and Tables 2.1.9-66 through 2.1.9-69 show the LOS and delay of the study intersections under the Build Alternatives 3 and 4 Design Year (2045) conditions.

Tables 2.1.9-66 through 2.1.9-69 show that, with the exception of the I-10 Westbound Off/On-Ramps/Singleton Road intersection, intersection operations would improve with implementation of Build Alternatives 3 and 4 compared to intersection conditions under the No-Build Alternative. I-10 eastbound off/on-ramps/Singleton Road (PM peak Hour), I-10 westbound off/on ramps/Singleton Road, and Cherry Valley Boulevard/Roberts Road (PM peak hour) would operate at an unacceptable LOS D or worse. According to the TOAR, the intersections that are operating at a deficient LOS under Build Alternative 3 are not a result of project implementation. All other intersections would operate at an acceptable LOS C or better.

Figure 2.1.9-14: Design Year (2045) Peak Hour Intersection Volumes Build Alternative 3



Source: Fehr & Peers, Traffic Operations Analysis Report, November 2020

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INTERSTATE 10/CHERRY VALLEY BOULEVARD INTERCHANGE PROJECT

Design Year (2045) Peak Hour Intersection Volumes Build Alternative 3

Figure 2.1.9-14

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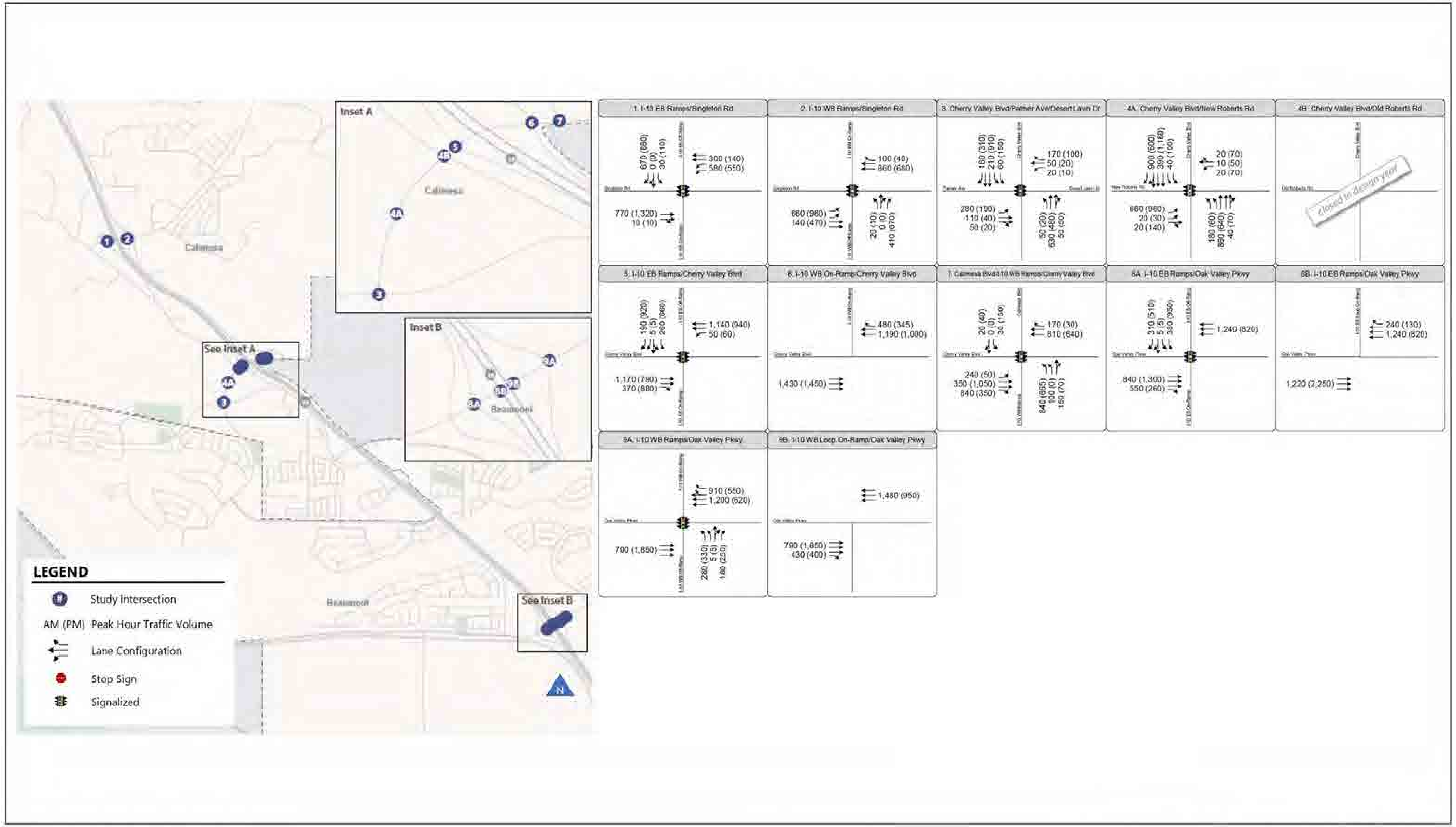
Figure 2.1.9-15: Design Year (2045) Peak Hour Intersection Volumes Build Alternative 4



Source: Fehr & Peers, Traffic Operations Analysis Report November 2020

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Design Year (2045) Peak Hour Intersection Volumes Build Alternative 4

Figure 2.1.9-15

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Table 2.1.9-66: Intersection Operations – Design Year 2045 Conditions Build Alternative 3 (AM Peak Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	C	29.1
2. I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	**<u>E</u>**	**<u>71.2</u>**
3. Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	C	25.9
4A. Cherry Valley Boulevard/Roberts Road	Signal	C	26.1
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	C	24.3
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	B	11.3
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/Signal	C	22.1
8. I -10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	B	14.3
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	B	10.8

Notes: 1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
3. Bold and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
4. Intersection 4B is closed under Design Year (2045) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-67: Intersection Operations – Design Year 2045 Conditions Build Alternative 3 (PM Peak Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	**<u>E</u>**	**<u>57.2</u>**
2. I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	**D**	**53.8**
3. Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	B	18.2
4A. Cherry Valley Boulevard/Roberts Road	Signal	**<u>E</u>**	**<u>63.8</u>**
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	B	16.9
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	A	8.9
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/Signal	A	9.3
8. I -10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	C	31.2
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	B	12.7

Notes: 1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
*3. **Bold** and <u>underline</u> font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).*

4. Intersection 4B is closed under Design Year (2045) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-68: Intersection Operations – Design Year 2045 Conditions Build Alternative 4 (AM Peak Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	C	29.1
2. I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	**E**	**69.0**
3. Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	C	23.8
4A. Cherry Valley Boulevard/Roberts Road	Signal	C	23.4
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	B	10.4
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	--	--
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/ Signal	C	25.5
8. I -10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	B	14.5
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	B	11

Notes: 1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
*3. **Bold** and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).*
4. Intersection 4B is closed under Design Year (2045) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-69: Intersection Operations – Design Year 2045 Conditions Build Alternative 4 (PM Hour)

Intersection	Control	LOS	Delay
1. I-10 Eastbound Off/On-Ramps/Singleton Road	Side Street Stop	**E**	**56.1**
2. I-10 Westbound Off/On-Ramps/Singleton Road	Side Street Stop	**E**	**57.0**
3. Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive	Signal	B	17.2
4A. Cherry Valley Boulevard/Roberts Road	Signal	**E**	**66.5**
4B. Old Roberts Road/Cherry Valley Boulevard	--	--	--
5. I-10 Eastbound Off/On-Ramps/Cherry Valley Boulevard	Signal	B	19.7
6. I-10 Westbound Off/On-Ramps/Cherry Valley Boulevard	Signal	--	--
7. Calimesa Boulevard/Cherry Valley Boulevard	Side Street Stop/Signal	C	25.5
8. I -10 Eastbound Off/On-Ramps/Oak Valley Parkway	Signal	C	32.4
9. I-10 Westbound Off/On-Ramps/Oak Valley Parkway	Signal	B	13.0

Notes: 1. For signal, all-way-stop, and roundabout control, the overall intersection LOS and average delay (in seconds per vehicle) are reported.
2. For side-street stop-control, the worst movement LOS and delay are reported with the worst movement listed in parentheses.
3. Bold and underline font indicate LOS D (for City of Calimesa intersections), E or F conditions (for Caltrans intersections).
4. Intersection 4B is closed under Design Year (2045) Conditions.
5. Intersections 5 and 6 are signalized under No-Build and Build Alternatives 3 and 4 scenarios.
6. Intersection 6 becomes an uncontrolled on-ramp, and the off-ramp and loop on-ramp are aligned with Intersection 7 under Build Alternative 4.
7. Intersection 7 is side-street stop-controlled under the No-Build scenario, and is signalized under all other scenarios.
Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Queuing: As shown in Tables 2.1.9-70 through 2.1.9-71, Build Alternatives 3 and 4 would eliminate queues at I-10 eastbound off/on-ramps/Cherry Valley Boulevard and the I-10 westbound off/on-ramps/Cherry Valley Boulevard intersections. In addition, the queues at the southbound approach at Cherry Valley Boulevard/Roberts Road and the southbound approach at I-10 eastbound off/on-ramps/Oak Valley Parkway under Build Alternatives 3 and 4 would have longer queue lengths than the No-Build Alternative. The only movements where the queues would exceed the storage lengths under Build Alternatives 3 and 4 are listed below, with much shorter queues compared to the No-Build Alternative.

- Eastbound through at I-10 Eastbound Off/On-Ramps/Singleton Road (PM Only)
- Eastbound right at I-10 Eastbound Off/On-Ramps/Singleton Road (PM Only)
- Westbound left at I-10 Eastbound Off/On-Ramps/Singleton Road
- Eastbound left at I-10 Westbound Off/On-Ramps/Singleton Road

- Northbound left at Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive (AM Only)
- Eastbound left at Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive
- Eastbound right at Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive (AM Only Diverging Diamond and Partial Cloverleaf)
- Northbound Left at Cherry Valley Boulevard/Roberts Road (AM Only, Partial Cloverleaf)
- Southbound through at Cherry Valley Boulevard/Roberts Road (PM Only, Diverging Diamond)
- Southbound right at Cherry Valley Boulevard/Roberts Road (PM Only, Diverging Diamond)
- Eastbound through at I-10 Eastbound Off/On-ramps/Cherry Valley Boulevard (Partial Cloverleaf)
- Westbound left at I-10 Eastbound Off/On-ramps/Cherry Valley Boulevard (AM Only, Diverging Diamond)
- Westbound through at I-10 Eastbound Off/On-ramps/Cherry Valley Boulevard (AM Only, Diverging Diamond)
- Southbound left at I-10 Westbound Off/On-Ramps/Calimesa Boulevard/Cherry Valley Boulevard (PM Only, Partial Cloverleaf)
- Eastbound left at I-10 Westbound Off/On-Ramps/Calimesa Boulevard/Cherry Valley Boulevard (AM Only, Partial Cloverleaf)
- Northbound through at Calimesa Boulevard/Cherry Valley Boulevard (AM Only)
- Northbound right at Calimesa Boulevard/Cherry Valley Boulevard (AM Only)
- Eastbound left at Calimesa Boulevard/Cherry Valley Boulevard (AM Only)
- Southbound left at I-10 Eastbound Off/On-Ramps/Oak Valley Parkway
- Southbound through at I-10 Eastbound Off/On-Ramps/Oak Valley Parkway (PM Only)
- Southbound right at I-10 Eastbound Off/On-Ramps/Oak Valley Parkway (PM Only)
- Eastbound right at I-10 Eastbound Off/On-Ramps/Oak Valley Parkway
- Northbound left at I-10 Westbound Off/On-Ramps/Oak Valley Parkway

Table 2.1.9-70: Design Year (2045) Intersection Queue Summary - Build Alternative 3

Intersection/ Movement	Storage Length	AM Peak Hour	PM Peak Hour
I-10 EB Off/On-Ramps/Singleton Road / EBL	525	420	580
I-10 EB Off/On-Ramps/Singleton Road / EBR	525	480	640
I-10 EB Off/On-Ramps/Singleton Road / WBL	525	**<u>670</u>**	**<u>670</u>**
I-10 WB Off/On- Ramps/Singleton Road / EBL	600	**<u>610</u>**	**<u>690</u>**
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / NBL	125	**<u>150</u>**	100
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / SBL	175	110	150
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / EBL	125	**<u>590</u>**	**<u>420</u>**
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / EBR	100	**<u>180</u>**	90
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / WBL	175	100	50
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / WBT	550	160	100
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / WBR	550	40	10
Cherry Valley Boulevard/Roberts Road / NBL	125	220	110
Cherry Valley Boulevard/Roberts Road / NBT	550	290	280
Cherry Valley Boulevard/Roberts Road / NBR	550	290	280
Cherry Valley Boulevard/Roberts Road / SBT	625	510	**<u>680</u>**
Cherry Valley Boulevard/Roberts Road / SBR	625	540	**<u>710</u>**
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / SBL	1,150	170	500
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / SBT	1,150	--	--
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / SBR	1,150	130	510
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / EBT	575	450	260
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / EBR	525	10	30
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / WBL	375	**<u>420</u>**	270
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / WBT	375	**<u>460</u>**	310
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / NBL	1,050	310	190
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / NBT	1,050	--	--
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / NBR	1,050	200	60
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / EBL	175	50	10
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / EBT	1000	220	390
Calimesa Boulevard/Cherry Valley Boulevard[3] / NBT	1,050	--	--
Calimesa Boulevard/Cherry Valley Boulevard[3] / NBL	310	--	--
Calimesa Boulevard/Cherry Valley Boulevard[3] / SBL	1000	-	-
Calimesa Boulevard/Cherry Valley Boulevard[3] / EBL	850	**<u>580</u>**	140
I-10 EB Off/On-Ramps/Oak Valley Parkway / SBL	175	**<u>290</u>**	**<u>3,570</u>**
I-10 EB Off/On-Ramps/Oak Valley Parkway / SBT	1,175	190	**<u>2,310</u>**
I-10 EB Off/On-Ramps/Oak Valley Parkway / SBR	1,175	190	**<u>2,340</u>**
I-10 EB Off/On-Ramps/Oak Valley Parkway / EBR	100	340	**<u>250</u>**
I-10 WB Off/On-Ramps/Oak Valley Parkway / NBL	150	**<u>250</u>**	**<u>390</u>**

Notes: EB=eastbound; WB=westbound; NBR=northbound right; NBL=northbound left; NBT=northbound through; EBR=eastbound right; EBL=eastbound left; EBT=eastbound through; SBR=southbound right; SBL=southbound left; SBT=southbound through; WBR=westbound right; WBL=westbound left; WBT=westbound through

1. The storage and average maximum queue length (in feet) is reported for key movements.

*2. **Bold** and <u>underline</u> font indicate a queue that exceeds the storage.*

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-71: Design Year (2045) Intersection Queue Summary - Build Alternative 4

Intersection / Movement	Storage Length	AM Peak Hour	PM Peak Hour
I-10 EB Off/On-Ramps/Singleton Road / EBL	525	450	**590**
I-10 EB Off/On-Ramps/Singleton Road / EBR	525	500	**640**
I-10 EB Off/On-Ramps/Singleton Road / WBL	525	**650**	**670**
I-10 WB Off/On-Ramps/Singleton Road / EBL	600	**630**	**700**
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / NBL	125	**130**	90
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / SBL	175	100	160
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / EBL	125	**530**	**410**
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / EBR	100	**160**	100
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / WBL	175	80	60
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / WBT	1,980	150	100
Cherry Valley Boulevard/Palmer Ave/Desert Lawn Drive / WBR	1,970	30	10
Cherry Valley Boulevard/Roberts Road / NBL	175	**250**	120
Cherry Valley Boulevard/Roberts Road / NBT	550	390	360
Cherry Valley Boulevard/Roberts Road / NBR	550	420	390
Cherry Valley Boulevard/Roberts Road / SBT	600	350	510
Cherry Valley Boulevard/Roberts Road / SBR	600	400	560
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / SBL	1,150	180	375
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / SBT	1,150	180	270
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / SBR	1,150	100	**730**
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / EBT	600	**610**	270
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / EBR	600	80	160
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / WBL	575	220	230
I-10 EB Off/On-Ramps/Cherry Valley Boulevard / WBT	575	--	--
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / NBL	1,050	--	--
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / NBT	1,050	--	--
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / NBR	1,050	--	--
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / EBL	175	--	--
I-10 WB Off/On-Ramps/Cherry Valley Boulevard / EBT	1000	--	--
Calimesa Boulevard/Cherry Valley Boulevard[3] / NBT	1050	**310**	100
Calimesa Boulevard/Cherry Valley Boulevard[3] / NBL	310	**310**	110
Calimesa Boulevard/Cherry Valley Boulevard[3] / SBL	1000	90	**250**
Calimesa Boulevard/Cherry Valley Boulevard[3] / EBL	250	**360**	130
I-10 EB Off/On-Ramps/Oak Valley Parkway / SBL	175	**290**	**3,300**
I-10 EB Off/On-Ramps/Oak Valley Parkway / SBT	1,175	170	**2,530**
I-10 EB Off/On-Ramps/Oak Valley Parkway / SBR	1,175	170	**2,530**
I-10 EB Off/On-Ramps/Oak Valley Parkway / EBR	100	**360**	**300**
I-10 WB Off/On-Ramps/Oak Valley Parkway / NBL	150	**270**	**380**

Notes: EB=eastbound; WB=westbound; NBR=northbound right; NBL=northbound left; NBT=northbound through; EBR=eastbound right; EBL=eastbound left; EBT=eastbound through; SBR=southbound right; SBL=southbound left; SBT=southbound through; WBR=westbound right; WBL=westbound left; WBT=westbound through

1. The storage and average maximum queue length (in feet) is reported for key movements.

*2. **Bold** and underline font indicate a queue that exceeds the storage.*

3. In Alternative 4, Partial Cloverleaf Interchange the intersection of Calimesa Boulevard is realigned with the I-10 westbound off-ramp to Cherry Valley Boulevard.

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

System-wide Performance: For Build Alternatives 3 and 4, the travel time, average delay, and the traffic volumes of the overcrossing's existing transportation system were taken into account for the Design Year 2045 conditions. Table 2.1.9-72 and 2.1.9-75 show reduced delay under Build Alternatives 3 and 4 compared the No-Build Alternative. Tables 2.1.9-73 and 2.1.9-74 show reduced travel time for cars and trucks under Build Alternative 3. Tables 2.1.9-76 and 2.1.9-77 show reduced travels time for cars and trucks under Build Alternative 4.

Table 2.1.9-72: Build Alternative 3 (Design Year 2045) Performance Summary

Performance Measure	Metric	AM	PM
Average Speed	Miles per Hour	39.4	39.1
Volume Served	Vehicles per Hour (vph)	17,811	18,680
Total Distance Traveled	Miles	55,789	56,409
Total Travel Time	Vehicle Hours Travelled (hours)	1,416.3	1,442.6
Average Delay Per Vehicle	Seconds	83.2	84.2
Total Delay	Vehicle Hours Delay (hours)	444	470

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-73: Travel Time Eastbound I-10: Singleton Road to Oak Valley Parkway (Build Alternative 3) (Design Year 2045)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.1	4.3
Trucks	Minutes	4.8	5.8
All	Minutes	4.2	5.1

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-74: Travel Time Westbound I-10: Singleton Road to Oak Valley Parkway Build Alternative 3) (Design Year 2045)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	8.7	6.6
Trucks	Minutes	10.5	7.7
All	Minutes	8.9	6.6

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-75: Build Alternative 4 (Design Year 2045) Performance Summary

Performance Measure	Metric	AM	PM
Average Speed	Miles per Hour	38.9	39.0
Volume Served	Vehicles per Hour (vph)	17,831	18,628
Total Distance Traveled	Miles	56,327	56,523
Total Travel Time	Vehicle Hours Travelled (hours)	1,448.1	1,449.4
Average Delay Per Vehicle	Seconds	83.6	84.0
Total Delay	Vehicle Hours Delay (hours)	448	468

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-76: Travel Time Eastbound I-10: Singleton Road to Oak Valley Parkway (Build Alternative 4) (Design Year 2045)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	4.1	4.2
Trucks	Minutes	4.7	5.5
All	Minutes	4.2	4.3

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Table 2.1.9-77 Travel Time – Westbound I-10: Singleton Road to Oak Valley Parkway Build Alternative 4) (Design Year 2045)

Performance Measure	Metric	AM Peak Hour	PM Peak Hour
Cars	Minutes	6.9	5.1
Trucks	Minutes	8.1	6.1
All	Minutes	7.0	5.2

Source: Fehr & Peers, I-10 Cherry Valley Boulevard Interchange Traffic Operations Analysis Report (November 2020).

Study Conclusions

Existing Conditions

Under Existing Conditions (2019), all freeway segments were found to operate acceptably at LOS D or better in the eastbound direction during the AM and PM peak hours, and in the westbound direction during the PM peak hour. Five segments were determined to operate unacceptably in the westbound direction during the AM peak hour.

All intersections were determined to operate acceptably during the PM peak hour. Five intersections were found to operate unacceptably during the AM peak hour.

All intersections were determined to exceed queuing lengths during the AM peak hour, while one intersection was determined to exceed queuing lengths during the PM peak hour.

In regards to system-wide performance, travel time and average speed are similar in both directions during both peak hours with small variations due to directionality during commute periods. In addition, other system-wide traffic metrics (number of vehicles served by the network, vehicle-hours-delay, and average delay per vehicle) were reported for both the AM and PM peak hours. Consistent with observations in the field, higher levels of congestion occur during the AM peak hour. This is confirmed by the increase in average delay per vehicle, 176.6 seconds during the AM peak hour compared to 15.2 seconds during the PM peak hour. Total delay during the AM peak hour also indicates higher levels of congestion during the AM peak hour.

Opening Year (2025)

Build Alternative 3

Under Opening Year (2025), for Build Alternative 3 all freeway segments were found to operate acceptably at LOS D or better in both eastbound and westbound directions during the AM and PM peak hours. In addition, all intersections were determined to operate acceptably during the AM and PM peak hours. Four intersections were determined exceed queuing storage capacity during the AM peak hour, with three intersections exceeding queuing storage capacity during the PM peak hour. In regards to system-wide performance, under Build Alternative 3, travel time, average delay, and the traffic volumes of the overcrossing's existing transportation system were taken into account for Opening Year 2025 conditions. Build Alternative 3 resulted in reduced delay compared to the No-Build Alternative under Opening Year 2025 conditions.

Build Alternative 4

Under Opening Year (2025), for Build Alternative 4 all freeway segments were found to operate acceptably at LOS D or better in both eastbound and westbound directions during the AM and PM peak hours. In addition, all intersections were determined to operate acceptably during the AM and PM peak hours. Four intersections were determined exceed queuing storage capacity during the AM peak hour, with three intersections exceeding queuing storage capacity during the PM peak hour. In regards to system-wide performance, under Build Alternative 4, travel time, average delay, and the traffic volumes of the overcrossing's existing transportation system were taken into account for Opening Year 2025 conditions. Build Alternative 3 resulted in reduced delay compared to the No-Build Alternative under Opening Year 2025 conditions.

Design Year (2045)

Build Alternative 3

Under Design Year (2045), for Build Alternative 3 a number of freeway segments were determined to be degraded from an acceptable LOS D or better to LOS E or F. This is caused by shifting bottleneck locations around in the corridor due to mainline capacity constraints on the freeway system. As such, it is important to review overall freeway operations to ensure that the density degradation is actually impacting the freeway mainline. Reviewing the system-wide information indicates the following:

- The project decreases travel time along the corridor as total travel time is decreased from approximately 2,500 vehicle hours of travel in the peak hours in the No-Build Alternative to approximately 1,400 to 2,200 (depending on the build alternative).
- The project increases average travel speeds from 17/18 miles per hour during peak periods in the No-Build Alternative to 22-49 miles per hour.
- The project increases the volume of vehicles served from 14,962 in the AM peak period to between 15,762 and 17,831 (depending on the build alternative). Similarly, the PM peak hour volume served increases from 14,435 to between 18,251 and 18,680. This represents approximately 5 percent to 19 percent more vehicles served in the AM peak period and approximately 26 percent more vehicles served in the PM peak period.

It was also determined that Build Alternative 3 would result in a degradation at the I-10 WB Off/On-Ramps/Singleton Road intersection during the AM peak hour where it would result in an increase in delay. This intersection operates at LOS E under the No-Build Alternative. It should be noted that the addition of west/north facing ramps at the I-10/Singleton Road interchange is a programed improvement in the SCAG RTP/SCS. Given that the project has not yet been defined through the Caltrans oversight process, an assumption was made related to intersection geometrics. As that project goes through the full Caltrans oversight process, it will be required to assess a 20-year design life and, accordingly, may include additional capacity that is not reflected in this traffic analysis. As such, when the oversight process commences for that effort, Caltrans will ensure that the intersection includes an additional eastbound left-turn lane or an alternative interchange configuration (e.g., a partial cloverleaf or diverging diamond interchange). With these improvements, the intersection would operate acceptably.

Four intersections were determined exceed queuing storage capacity during the AM peak hour, with four intersections exceeding queuing storage capacity during the PM peak hour.

Build Alternative 4

Under Design Year (2045), for Build Alternative 4 a number of freeway segments were determined to be degraded from an acceptable LOS D or better to LOS E or F. This is caused by shifting bottleneck locations around in the corridor due to mainline capacity constraints on the freeway system. As such, it is important to review overall freeway operations to ensure that the density degradation is actually impacting the freeway mainline. Reviewing the system-wide information indicates the following:

- The project decreases travel time along the corridor as total travel time is decreased from approximately 2,500 vehicle hours of travel in the peak hours in the No-Build Alternative to approximately 1,400 to 2,200 (depending on the build alternative).

- The project increases average travel speeds from 17/18 miles per hour during peak periods in the No-Build Alternative to 22-49 miles per hour.
- The project increases the volume of vehicles served from 14,962 in the AM peak period to between 15,762 and 17,831 (depending on the build alternative). Similarly, the PM peak hour volume served increases from 14,435 to between 18,251 and 18,680. This represents approximately 5 percent to 19 percent more vehicles served in the AM peak period and approximately 26 percent more vehicles served in the PM peak period.

It was also determined that Build Alternative 4 would result in a degradation at the I-10 WB Off/On-Ramps/Singleton Road intersection during the AM peak hour where it would result in an increase in delay. This intersection operates at LOS E under the No-Build Alternative. It should be noted that the addition of west/north facing ramps at the I-10/Singleton Road interchange is a programed improvement in the SCAG RTP/SCS. Given that the project has not yet been defined through the Caltrans oversight process, an assumption was made related to intersection geometrics. As that project goes through the full Caltrans oversight process, it will be required to assess a 20-year design life and, accordingly, may include additional capacity that is not reflected in this traffic analysis. As such, when the oversight process commences for that effort, Caltrans will ensure that the intersection includes an additional eastbound left-turn lane or an alternative interchange configuration (e.g., a partial cloverleaf or diverging diamond interchange). With these improvements, the intersection would operate acceptably.

Five intersections were determined exceed queuing storage capacity during the AM peak hour, with four intersections exceeding queuing storage capacity during the PM peak hour.

Pedestrian and Bicycle Facilities

Under Build Alternative 3, sidewalks would be provided on each side of Cherry Valley Boulevard, excluding the overcrossing structures. An eight-foot sidewalk would be provided on the eastbound structure to serve both directions of pedestrian travel. Crosswalks would be provided and would connect to the eastbound structure's sidewalk to the sidewalk on both sides of Cherry Valley Boulevard. Right turn pockets would be provided approaching the westbound on-ramp and eastbound on-ramp. These right turn pockets would include a four-foot bicycle buffer and bypass the Cherry Valley Boulevard crossovers.

Under Build Alternative 4, Cherry Valley Boulevard would be widened to two lanes in each direction with sidewalk in the eastbound direction. The I-10/Cherry Valley Boulevard overcrossing would be reconstructed to include an eight-foot sidewalk. A six-foot bicycle buffer would be provided on all proposed right turn pockets within the project limits.

The Build Alternatives would result in permanent beneficial impacts to bicycle and pedestrian movement within the study area, as it would provide non-motorized facilities in areas where limited facilities exist. As such, transportation connectivity would be enhanced as a result of these improvements, and adverse effects would not occur in this regard.

Avoidance, Minimization, and/or Mitigation Measures

TT-1 A Traffic Management Plan (TMP) shall be prepared during Plans, Specifications, and Estimates (PS&E) phase of the project.

The Caltrans Transportation Management Plan Guidelines (TMP Guidelines) identifies the processes, roles, and responsibilities for preparing and implementing TMPs, as well as useful strategies for reducing congestion and managing work zone traffic impacts. The primary objective of the TMP is to maintain safe movement for vehicles, pedestrians, and bicyclists through the construction zone, as well as minimize traffic delays during the construction period. The TMP prepared for the project shall implement alternate route strategies to minimize adverse effects to roadways and reduce potential congestion.

The TMP shall include, but not be limited to, the following six major elements:

- Public information/public awareness campaign
- Traveler information strategies
- Incident management
- Construction strategies
- Demand management
- Alternate route strategies

The TMP shall be submitted to Caltrans for review and approval.

2.1.10 Visual/Aesthetics

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and aesthetically (emphasis added) and culturally pleasing surroundings (42 United States Code [USC] 4331[b][2]). To further emphasize this point, the Federal Highway Administration (FHWA), in its implementation of NEPA (23 USC 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

The California Environmental Quality Act (CEQA) establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of aesthetic, natural, scenic and historic environmental qualities" (CA Public Resources Code [PRC] Section 21001[b]).

California Streets and Highways Code Section 92.3 directs Caltrans to use drought resistant landscaping and recycled water when feasible, and incorporate native wildflowers and native and climate-appropriate vegetation into the planting design when appropriate (Measure VIS-4).

Affected Environment

This section is based on the Visual Impact Assessment for the Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (July 2021).

Project Location and Setting

The project location and setting provide the context for determining the type of changes to the existing visual environment. The project is located between Singleton Road and Oak Valley Parkway in the City of Calimesa and, between the San Gorgonio Pass and Yucaipa Valley in western Riverside County. The landscape north of I-10 is characterized by a rural community with large-lot residential, agricultural and animal-keeping uses, with a commercial core along Beaumont Avenue, north of Cherry Valley Boulevard. Existing views in the project area, north of I-10 encompass vegetated hillsides, rural residential, single-family residential, and commercial development, I-10, and surrounding roadways (i.e., Cherry Valley Boulevard, Roberts Street, Calimesa Boulevard, and Coit Avenue).

The landscape south of I-10 is characterized by suburban residential and commercial development. Existing views in the project area, south of I-10 encompass single-family residential, commercial development with ornamental landscaping and pockets of vacant land, I-10, and surrounding roadways (i.e., Roberts Road, Desert Lawn Drive, Cooper Drive, Peachtree Lane, and Plantation Drive).

Cherry Valley Boulevard is classified as a major arterial by the City of Calimesa General Plan and connects the City to the west-northwest with the unincorporated community of Cherry Valley to the east. The project corridor is defined as the area of land that is visible from, adjacent to, and outside the highway right-of-way, and is determined by topography, vegetation, and viewing distance.

Generally, the project site affords uninterrupted views of the surrounding rolling terrain and valley floors, as well as of the prominent but more distant San Bernardino and San Jacinto mountains. According to the State Scenic

Highways Mapping System, there are no officially-designated State Scenic Highways within the project vicinity. The nearest designated State Scenic Highway is State Route 243 (SR-243), located more than eight miles southeast of the project site. Views of the project corridor from SR-243 are not readily afforded due to topographic conditions and intervening structures and vegetation.

Visual Resources
Within the project corridor, I-10 is predominately situated in relatively low-lying areas surrounded by rolling hills. Existing views encompass the existing interchange, as well as northern views toward vegetated hillsides and rural residential development and southern views toward built single-family residential and commercial development. The most prominent visual resources include areas of vegetated hillsides and mature trees. In addition, distant views to the San Bernardino and San Jacinto mountains are available to the northeast and southeast, respectively.

As stated above, the project site does not include any officially designated or eligible State scenic highways and does not afford views to or from local/county-designated scenic corridors, views, or vistas. However, the Calimesa General Plan considers small-town/natural character and hillsides as protected visual resources and includes provisions related to the preservation of these visual resources.

Public views of the project site include motorists utilizing I-10 and Cherry Valley Boulevard, residents of the surrounding Cherry Valley community (rural and single-family residents), commercial users, and recreational viewers utilizing local trails (including the Singleton/Bryant Connector trail and the PASEO trails).

Light and Glare
Existing lighting sources within the project area include street lighting and vehicle lighting along Cherry Valley Boulevard, as well as interior lighting and exterior security lighting associated with nearby residences and commercial uses.

Environmental Consequences
Temporary Impacts
No-Build Alternative
With implementation of the No Build Alternative, the I-10 Cherry Valley Boulevard interchange would not be reconstructed; therefore, neither temporary nor construction-related effects on the existing visual setting or aesthetic conditions within the vicinity would occur.

Build Alternatives 3 and 4
Build Alternatives 3 and 4 would result in temporary impacts from construction staging areas, equipment storage, and night-time construction activities that

would require lighting. Exposed surfaces, construction debris, equipment, truck traffic, and other common construction activities would be exposed to motorists, community residents, and recreational users. However, these visual impacts would be short-term and would cease upon project completion (construction is scheduled to be completed in approximately 24 months).

Both Build Alternatives could require nighttime construction activities which could potentially result in light impacts to nearby residents and motorists traveling on roadways through and adjacent to the project site. However, the project area contains existing sources of nighttime lighting (i.e., vehicle headlights, streetlights, residential lights, etc.) and therefore the new light source may not be perceived as obtrusive by viewers. Additionally, Measure VIS-1 is recommended to minimize temporary project-related light and glare effects by directing construction lighting away from off-site land uses, containing and directing lighting toward the specific area of construction. As such, Build Alternatives 3 and 4 would not result in substantial temporary adverse effects in this regard.

Permanent Impacts

No-Build Alternative

With implementation of the No Build Alternative, the I-10 Cherry Valley Boulevard interchange would not be reconstructed; however, maintenance of the facility would continue, and planned projects would be constructed in the project vicinity. With implementation of the No-Build Alternative, the overall visual setting or aesthetic condition of the project corridor would not be altered.

Build Alternatives 3 and 4

Build Alternatives 3 and 4 would involve the reconstruction of a new bridge overcrossing, reconstructing the eastbound and westbound on- and off-ramps, installing retaining walls, sound walls, and signalized intersections, constructing an auxiliary lane along I-10, and realigning Calimesa Boulevard. Both Build Alternatives 3 and 4 would include similar improvements to the I-10/Cherry Valley Boulevard interchange; however, Build Alternative 3 would result in a more developed appearance, given the diverging diamond interchange would be larger than the existing interchange. The proposed partial cloverleaf interchange under Build Alternative 4 would result in a new bridge structure that is generally similar in appearance to the existing bridge.

Both Build Alternatives 3 and 4 would be constructed in an existing setting that is already comprised of roadway infrastructure and suburban development similar in form, line, color, and texture to the existing transportation uses south of I-10. The proposed sound walls and retaining walls for both Build Alternatives would also be similar in character to the existing development south of I-10. Disturbed areas and slopes would be planted and irrigated for aesthetic, erosion control, and water quality purposes. Although both Build Alternatives would be visually similar to the existing developed condition of the site, implementation of Measures VIS-2 and VIS-3 would further maintain consistency with the existing infrastructure and the context of the project area (color, form, and texture) by implementing landscape and/or architectural treatments and by installing compatible landscaping along the freeway.

Under Build Alternatives 3 and 4, a new traffic signal would be installed at the intersection of Cherry Valley Boulevard and Calimesa Boulevard and at the I-10 eastbound and westbound off- and on-ramps at Cherry Valley Boulevard. However, the traffic signal would be similar in character to existing signals located to the south of I-10. As such, implementation of both Build Alternatives would not result in substantial permanent adverse effects.

The proposed project would be designed in conformance with the objectives and policies identified in the Calimesa and Riverside County General Plans, as well as the County of Riverside I-10 Corridor Master Plan (CRCMP), to maintain visual character/quality. Additionally, implementation of Measures VIS-2 through VIS-4 would reduce potential long-term visual effects on the existing visual setting or aesthetic condition. For this reason, existing views in the project corridor will not be substantially altered and project features will appear compatible with the visual character experienced of the project corridor. The visual quality experienced within the project corridor will not be substantially reduced as a result of the Build Alternatives, as seen from motorists, surrounding residents in the community, and recreational users.

Avoidance, Minimization, and/or Mitigation Measures

VIS-1 During nighttime construction activities, the construction contractor shall minimize project-related light and glare to the maximum extent feasible by directing construction lighting away from land uses located off-site and shall contain and direct construction lighting toward the specific area of construction.

VIS-2 To maintain consistency with the existing infrastructure (i.e., bridges, walls, etc.) in the project area, landscape and/or architectural treatments (i.e., color, texture, etc.) for the structure elements of the proposed project shall be determined in consultation with the District Landscape Architect during the Final Design process. Elements discussed corridor-wide, as well as those identified for Area A, of the I-10 Corridor Master Plan (I-10 Corridor Master Plan) shall be incorporated as applicable pertaining to structures, slope paving, landscape design, signage, and lighting.

VIS-3 To maintain the context of the project area (color, form, and texture) the proposed project shall install landscaping that is compatible with the existing landscape along the freeway. The landscape concept and plant palette shall be determined in consultation with the District Landscape Architect during the Final Design process. Erosion control plant species utilized shall be determined by the District Landscape Architect to ensure that the mix and application strategy is appropriate for the specific soil composition of the area. In addition, all proposed landscaping species shall be well suited for the local climate, humidity, soil types, and local wind.

VIS-4 Based on California Streets and Highways Code Section 92.3, Caltrans shall use drought resistant landscaping and recycled water when feasible, and incorporate native wildflowers and native and climate-appropriate vegetation into the planting design when appropriate.

2.1.11 Cultural Resources

Regulatory Setting

The term "cultural resources," as used in this document, refers to the "built environment" (e.g., structures, bridges, railroads, water conveyance systems, etc.), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including "historic properties," "historic sites," "historical resources," and "tribal cultural resources." Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 Code of Federal Regulations [CFR] 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among the Federal Highway Administration (FHWA), the ACHP, the California State Historic Preservation Officer (SHPO), and the Department went into effect for Department projects, both state and local, with FHWA involvement. The PA implements the ACHP's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to the Department. The FHWA's responsibilities under the PA have been assigned to the Department as part of the Surface Transportation Project Delivery Program (23 United States Code [USC] 327).

The California Environmental Quality Act (CEQA) requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as "unique" archaeological resources. California Public Resources Code (PRC) Section 5024.1 established the California Register of Historical Resources (CRHR) and outlined the necessary criteria for a cultural resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j). In 2014, Assembly Bill 52 (AB 52) added the term “tribal cultural resources” to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in PRC Section 21074(a), a tribal cultural resource is a CRHR or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in PRC Section 21083.2.

PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires the Department to inventory state-owned structures in its rights-of-way. Include the following sentence as applicable. Sections 5024(f) and 5024.5 require state agencies to provide notice to and consult with the State Historic Preservation Officer (SHPO) before altering, transferring, relocating, or demolishing state-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with PRC Section 5024 are outlined in a Memorandum of Understanding (MOU) (The MOU is located on the SER at https://dot.ca.gov/-/media/dot-media/programs/environmental-analysis/documents/5024mou-15-a11y.pdf) between the Department and SHPO, effective January 1, 2015. For most Federal-aid projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

Affected Environment

This section is based primarily on the Historic Property Survey Report (HPSR) for the Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (dated March 2021).

Area of Potential Effects (APE)

The Area of Potential Effects (APE) for the project was established in consultation with the California Department of Transportation (Caltrans) in accordance with Section 106 PA Stipulation VIII.A. The APE was established from the project footprint and includes all construction areas, temporary construction easements (TCEs), construction signage, and staging areas (i.e., the direct APE), plus a 100-foot buffer to include potential indirect effects that may develop as a result of this undertaking. The overall APE encompasses 128.54 acres, with the direct APE, or project footprint, covering an area of 24.76 acres for Alternative 3 and an area of 27.53 acres for Alternative 4.

The vertical limits of the APE were approximately 12 feet below ground surface (bgs) for the excavation of abutment and bent footings, 25 feet bgs for foundations of overhead signs proposed along I-10, and 50 feet bgs for the geotechnical auger borings.

Based on the records search and literature review conducted as part of the HPSR, a total of 18 cultural resource studies have been conducted previously within the project study area since 1978. Two of the studies involve portions of the direct APE and two historic resources were identified: 1) a historic-period refuse scatter (CA-RIV-7924H/(33-014869), and 2) a historic-period structural remnants site (CA-RIV-7925H/33-014870). The historic resources were previously documented, evaluated, and determined ineligible for inclusion in the NRHP/CRHR.

The following text has been amended since the Draft Environmental Document: Pedestrian and reconnaissance-level historical architectural and archaeological field surveys were conducted to inventory the built environment, ground condition, and identify archaeological materials and features, if present. As a result of the survey conducted for the HPSR, two newly identified cultural resources were documented within the APE: 1) an historic-period structural remnants site (Æ-3997-01H); and 2) an historic-period built-environment farm complex site (APN 413-270-014). These resources were documented and evaluated according to NRHP and CRHR criteria.

- Historic-Period Concrete Foundation (Æ-3997-01H): The site consists of two historic-period structure foundations. The first feature on-site is a structure that consists of a cinderblock, concrete, and rebar, collapsed structure foundation with remnants of a red tile interior floor. The second feature on-site consists of three foundation walls. Additionally, the HPSR identifies this site as a historic resource. However, during the archaeological survey, the site was found to contain no artifacts. Therefore, the site is determined to be ineligible for inclusion in the NRHP or CRHR.
- Historic-Period Built-Environment Farm Complex (APN 413-270-014): The property is a 5.84-acre, multi-feature agricultural, American Vernacular farm complex. Field surveying indicates that there are currently six extant structures are located on the parcel: two residential structures, a detached garage, barn, workshop, and chicken coup. Five of the structures constructed between approximately 1953–1967 are more than 50 years of age. The site would not qualify as a significant resource under any of the four NRHP or CRHR criterions. Therefore, the site is determined to be ineligible for inclusion in the NRHP or CRHR.

Based on the HPSR, there are no historic properties located within the project APE that are currently listed on the NRHP or CRHR, and there are no properties previously determined eligible for the NRHP or CRHR within the APE. Because there are no historic resources or archaeological resources that are on or eligible for the NRHP, there are no such resources within the APE that are subject to the provisions of Section 4(f) of the Department of Transportation Act of 1966.

APE One-mile Buffer Zone

According to the HPSR, previous cultural resource studies identified and documented approximately 15 cultural resources within a one-mile buffer of the direct APE. These resources include three prehistoric archaeological sites, three historical archaeological sites, one historical object, one California Historical Landmark (CHL No. 749), and seven built-environment resources. The prehistoric archaeological sites are lithic scatters. The historical sites include a refuse scatter and various structural remnants. The object consists of a piece of historical farm equipment. All the prehistoric archaeological sites were recorded on the ground surface, not in subsurface contexts. The built-environment resources include the James Singleton Ranch complex and associated buildings, the Chino-Hayfield, and the Devers Vista transmission lines. Based on the results of the records search and literature review, there were no previously identified archaeological resources found within the project's APE.

Native American Consultation

An initial request to the Native American Heritage Commission (NAHC) was made on March 6, 2019, to elicit pertinent cultural resource information available in the Sacred Lands File. In a reply dated March 13, 2019, the NAHC stated the Sacred Land File search for the Project was completed with negative results, but that the area is considered sensitive for cultural resources. The NAHC provided a list of Native American contacts within the region. In accordance with Section 106 of the NHPA, and as required under CEQA, specifically Public Resources Code 21080.3.1 and Chapter 532 Statutes of 2014 (i.e., AB 52), Caltrans consulted with pertinent Native American contacts to identify potential resources within the APE. These contacts include representatives of the San Manuel Band of Mission Indians, the Morongo Band of Mission Indians, Soboba Band of Luiseno Indians.

Chapter 4.0, Comments and Coordination, provides additional detail regarding consultation efforts.

Local Historical Society Historic Preservation Groups

The San Gorgonio Pass Historical Society (SGPHS), the Calimesa Historical Society, and the Yucaipa Valley Historical Society were contacted on June 11, 2020, and July 1, 2020, regarding the proposed project and potential historical resources near the project APE. No response was received from any of the three institutions.

Environmental Consequences

No-Build Alternative

The No-Build Alternative would not result in any construction or ground disturbance; therefore, impacts to cultural resources would not occur.

Build Alternatives 3 and 4

Based on the HPSR findings and SHPO concurrence provided on June 16, 2021, no historic properties occur within the APE and the Build Alternative would have no effects to historic properties.

The following text has been amended since the Draft Environmental Document: If cultural materials are discovered during construction, all earth-moving activity within 60 feet of the discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

The following text has been amended since the Draft Environmental Document: If human remains are discovered, California Health and Safety Code (H&SC) Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner shall be contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the NAHC, who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Andrew Walters, the District Environmental Branch Chief ([909] 383-2647) or Gary Jones, District Native American Coordinator ([909] 383-7505), so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

The Build Alternatives would not affect any cultural resources that are recognized by Caltrans as historic properties. As such, adverse impacts to cultural resources would not occur.

Avoidance, Minimization, and/or Mitigation Measures

No measures are proposed.

2.2 Physical Environment

2.2.1 Hydrology and Floodplain

Regulatory Setting

Executive Order (EO) 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. The Federal Highway Administration (FHWA) requirements for compliance are outlined in 23 Code of Federal Regulations (CFR) 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.

- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as "the area subject to flooding by the flood or tide having a one percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

Affected Environment

This section is based on the Location Hydraulic Study (LHS) and Summary Floodplain Encroachment Report (SFER) dated October 2019 prepared for the project.

The project site is located within unincorporated areas of Riverside County and the City of Calimesa. According to the LHS, the project site is within the boundaries of Federal Emergency Management Agency (FEMA) panel #06065C0785G (effective date August 28, 2008). As illustrated on Figure 2.2.1-1, Flood Zones, the project site is located in a Zone X designated area. Zone X areas are determined to be outside the 0.2 percent annual chance floodplain.

El Casco Creek is the primary drainage feature within the project area, consisting of an existing unlined natural waterway upstream of Cherry Valley Boulevard. It traverses Cherry Valley Blvd east of the I-10/Cherry Valley Blvd overcrossing via an existing 10-foot by 9-foot reinforced concrete box (RCB). This RCB then outlets to an existing concrete lined trapezoidal channel, where El Casco Creek continues to flow northwesterly in between the I-10 westbound on-ramp and Calimesa Boulevard. This concrete trapezoidal channel has a bottom width of 10 feet, depth of 4 feet, and side slopes of 1.5:1 (horizontal to vertical) at the upstream end just north of Cherry Valley Boulevard. Downstream from the confluence with the existing double 8-foot by 5-foot RCB crossing Calimesa Road, and before El Casco Creek traverses under I-10 via a double 10-foot by 7-foot RCB, the channel dimensions are 21 feet bottom width, 4 feet depth, and side slopes of 1.5:1. At the outlet of the double 10-foot by 7-foot RCB culvert crossing at I-10, El Casco Creek returns to an unlined natural waterway where it continues to flow westerly until it confluences with the San Timoteo Creek Reach 3 (Yucaipa Creek to Headwaters) approximately three miles west of the project site. El Casco Creek within the project study limits currently does not provide natural or and beneficial floodplain values.

Environmental Consequences

No-Build Alternative

Under the No-Build Alternative, none of the project improvements would be implemented; therefore, there would be no impacts related to hydrology or floodplains.

Figure 2.2.1-1: Flood Zones

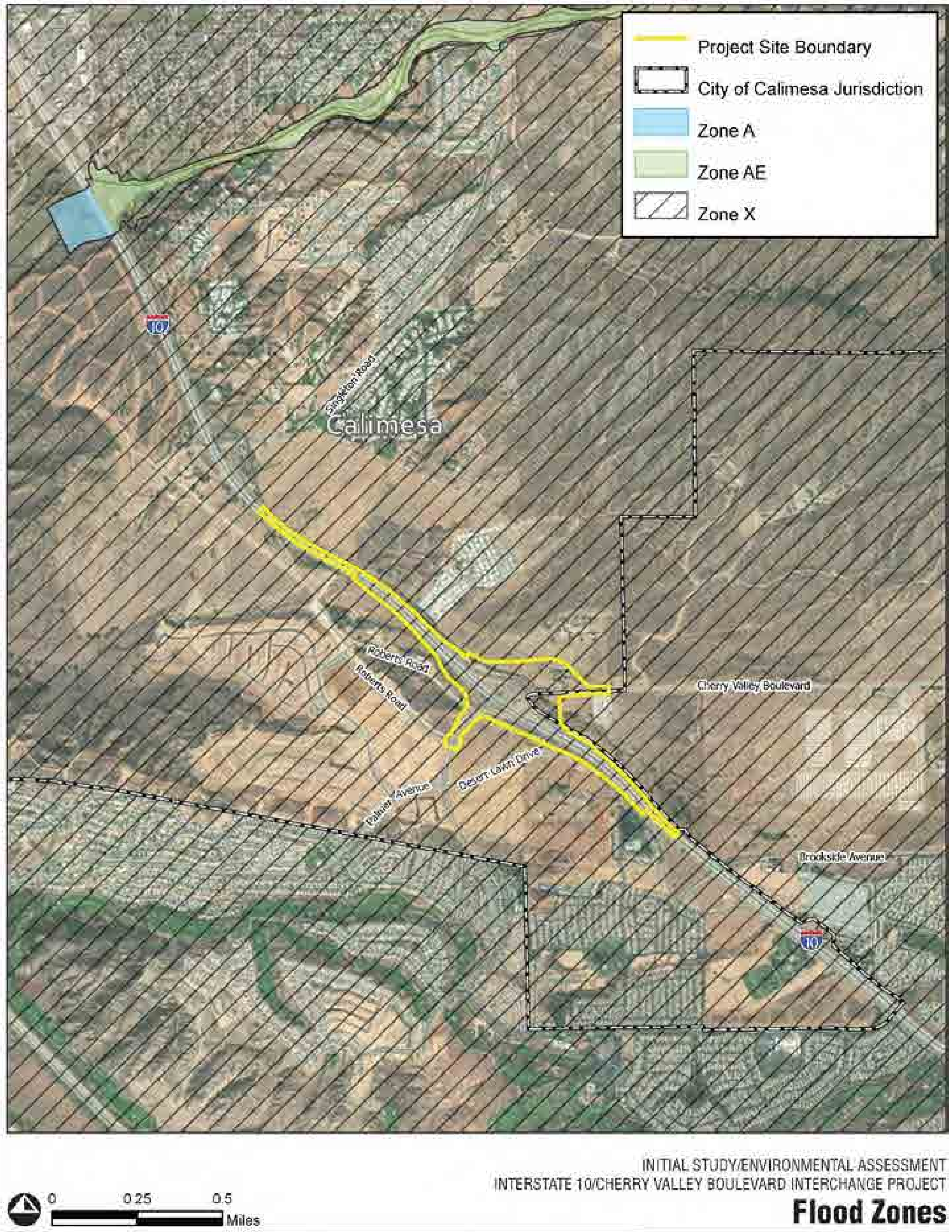


Figure 2.2.1-1

Build Alternatives 3 and 4

As previously discussed, the project area is located in Zone X, a zone designated as outside the 0.2 percent annual chance of flood, and is located outside the of 100-year floodplain. Thus, no adverse effects related to floodplains would occur.

The LHS determined that the implementation of Build Alternatives 3 and 4 would not introduce significant risk, nor would it result in a localized rise in the water surface elevation at El Casco Creek. There are no floodplains and no surrounding inundation areas within the project limits. Additionally, El Casco Creek currently does not provide the following natural and beneficial floodplain values that are listed in the Caltrans Highway Design Manual: fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, forestry, natural moderation of floods, water quality maintenance, and groundwater recharge. The proposed improvements would not result in an increase in water surface elevations, and the 100-year storm event flow would be contained within the channel. The Summary Floodplain Encroachment Report (SFER) included in the LHS determined that the combined Assessed Risk Level for the project is “Low Risk”. Proposed improvements under the Build Alternatives include reconfiguring the I-10/Cherry Valley Boulevard interchange adjacent and over the El Casco Creek. The Build Alternatives would result in minor increases in off-site stormwater runoff tributary to El Casco Creek.

Based on the LHS, the existing concrete trapezoidal channel is insufficient in conveying the 100-year peak runoff upon implementation of Build Alternatives 3 and 4. The existing channel has a depth of 4 feet, while the calculated maximum flow depth is approximately 6 feet (particularly at the confluence with the double 8-foot by 5-foot RCB crossing Calimesa Boulevard). In order to provide additional capacity and freeboard, the Build Alternatives would increase the depth of the existing channel by extending the tops of the channel side slopes in kind while maintaining the invert of the channel. It is proposed to increase the depth by 3.5 feet from the inlet of the existing double 10-foot by 7-foot RCB culvert to the confluence with the existing double 8-foot by 5-foot RCB. Upstream of this confluence, it is proposed to increase the depth by one foot up to the outlet of the existing 10-foot by 9-foot RCB traversing Cherry Valley Boulevard. This would require minimal proposed grading as the existing and proposed elevations of Calimesa Boulevard and the I-10 westbound on-ramp are considerably higher than the concrete channel. As noted in the LHS, the proposed increase in channel depth would not result in an increase to the existing water surface elevations, as the increase in channel depth will maintain the existing channel invert and side slope dimensions, while extending the tops of the channel side slopes in kind. Proposed project improvements include reconfiguring the I-10/Cherry Valley Boulevard interchange adjacent and over the El Casco Creek.

The project would result in minor increases in off-site stormwater runoff tributary to El Casco Creek. Based on the LHS, the existing concrete trapezoidal channel is insufficient in conveying the 100-year peak runoff upon implementation of Build Alternatives 3 and 4. The existing channel has a depth of 4 feet, while the calculated maximum flow depth is approximately 6 feet (particularly at the confluence with the double 8-foot by 5-foot RCB crossing Calimesa Boulevard). In order to provide additional capacity and freeboard, the Build Alternatives would increase the depth of the existing channel by extending the tops of the channel side slopes in kind while maintaining the invert of the channel.

It is proposed to increase the depth by 3.5 feet from the inlet of the existing double 10-foot by 7-foot RCB culvert to the confluence with the existing double 8-foot by 5-foot RCB. Upstream of this confluence, it is proposed to increase the depth by one foot up to the outlet of the existing 10-foot by 9-foot RCB traversing Cherry Valley Boulevard. This would require minimal proposed grading as the existing and proposed elevations of Calimesa Boulevard and the I-10 westbound on-ramp are considerably higher than the concrete channel. As noted in the LHS, the proposed increase in channel depth would not result in an increase to the existing water surface elevations, as the increase in channel depth will maintain the existing channel invert and side slope dimensions, while extending the tops of the channel side slopes in kind.

El Casco Creek is contained within the channel for the proposed condition 100-year storm event, and therefore has no floodplain. El Casco Creek within the project study limits currently do not provide natural and beneficial floodplain values as listed in the Caltrans Highway Design Manual; therefore, the proposed Build Alternatives would not result in adverse impacts related to hydrology or floodplain values.

Avoidance, Minimization, and/or Mitigation Measures

No measures are proposed.

2.2.2 Water Quality and Stormwater Runoff

Regulatory Setting

Federal Requirements—Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source (A point source is any discrete conveyance such as a pipe or a man-made ditch) unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.

Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).

Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCBs) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and municipal separate storm sewer systems (MS4s).

Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of the USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency's (U.S. EPA) Section 404 (b)(1) Guidelines (40 Code of Federal Regulations [CFR] Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the

Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent (The U.S. EPA defines “effluent” as “wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall.”) standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from the USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4. A discussion of the LEDPA determination, if any, for the document is included in the Wetlands and Other Waters section.

State Requirements—Porter-Cologne Water Quality Control Act

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined, and this definition is broader than the CWA definition of “pollutant.” Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, RWQCBs designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect those uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollutant Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water discharges, including Municipal Separate Storm Sewer Systems (MS4s). An MS4 is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that is designed or used for collecting or conveying storm water." The SWRCB has identified the Department as an owner/operator of an MS4 under federal regulations. The Department's MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The following text has been amended since the Draft Environmental Document: The Department's MS4 Permit, Order No. 2022-0033-DWQ (adopted on June 22, 2022 and effective on January 1, 2023) has three basic requirements:

1. The Department must comply with the requirements of the Construction General Permit (see below);

2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and

3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address storm water runoff.

Construction General Permit

The following text has been amended since the Draft Environmental Document: Construction General Permit CAS000002, Order No. 2022-0057-DWQ (adopted on September 8, 2022, and effective on September 1, 2023). The permit regulates storm water discharges from construction sites that result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all storm water discharges associated with construction activity where clearing, grading, and excavation result in soil disturbance of at least one acre must comply with the provisions of the General Construction Permit. Construction activity that results in soil disturbances of less than one acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop Storm Water Pollution Prevention Plans (SWPPPs); to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with the Department's SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than one acre.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by the USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before the USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Affected Environment

This section is based upon the Scoping Questionnaire for Water Quality Issues (SQWQI) (dated August 2020), the Location Hydraulic Study (LHS) (dated October 2019), and the Preliminary Drainage Report (PDR) (dated August 2020) prepared for the project.

Receiving Surface Water Bodies

The project is located within the San Timoteo Wash watershed, which is part of the Santa Ana Region (SAR) Riverside County Watershed Action Plan (WAP) developed by the Riverside County Flood Control and Water Conservation District (RCFC&WCD) in 2017. The general drainage pattern within the project vicinity flows from southeast to northwest and drains towards El Casco Creek (an unlined natural waterway located south of Cherry Valley Boulevard). Storm water that falls within the project boundary drains directly to El Casco Creek, which then discharges to San Timoteo Creek Reach 3, a creek that is approximately two and a half miles downstream to the west of the project site. Discharge from San Timoteo Creek Reach 3 then flows in a southwest direction to reach the Santa Ana River, which in turn discharges into the Pacific Ocean. Figure 2.2.2-1, Receiving Waters, shows the location of the receiving water bodies in relation to the proposed project.

Groundwater Hydrology

The proposed project falls within the Upper Santa Ana River basin and the San Timoteo hydrologic sub-area groundwater basin. According to the SQWQI, the Upper Santa Ana River basin is ranked as very low on the basin prioritization list. According to the Calimesa General Plan, the area is served by groundwater from the San Timoteo Sub Basin of the Beaumont Groundwater Basin. The City of Calimesa is also located within the Beaumont Groundwater Management Zone.

The SQWQI notes that there are five wells within one mile of the existing Cherry Valley Boulevard overcrossing that provided groundwater measurements with groundwater depth between 92 feet and 264 feet below ground surface (bgs).

Figure 2.2.2-1: Receiving Waters

Municipal Supply
High-risk areas include highway locations where spills or other releases from Caltrans ROW, roadways, or facilities may discharge directly to municipal or domestic water supply reservoirs or ground water percolation facilities. The Caltrans 2018-2019 District 8 Work Plan indicates that no high-risk areas are located within the proposed project area.

Beneficial Uses
A beneficial use identifies the ways that water can be used for the benefit of people and/or wildlife. The beneficial uses for Beaumont Groundwater include Agricultural, Industrial Service Supply, and Industrial Process Supply. Due to its distance from the project location, beneficial uses for the Santa Ana River Basin were not listed within the SQWQI. The beneficial uses for San Timoteo Creek Reach 3 are identified and listed below:

- Groundwater Recharge (GWR)
- Water Contact Recreation (REC 1)
- Non-contact Water Recreation (REC 2)
- Warm Freshwater Habitat (WARM)

Wildlife Habitat (WILD)It should be noted that the beneficial use of Municipal and Domestic Supply (MUN) was excepted for this water body.

Beneficial uses for Beaumont Groundwater Management Zone are listed below:

- Municipal and Domestic Supply (MUN)
- Agricultural (AGR)
- Industrial Service Supply (IND)
- Industrial Process Supply (PROC)

Impairments
According to the SQWQI, San Timoteo Creek Reach 3 is listed as impaired for Indicator Bacteria, specifically E. coli. However, no TMDL has been established for San Timoteo Creek. Therefore, the watershed does not have any associated TMDLs developed.

Environmental Consequences
Temporary Impacts
No-Build Alternative
Under the No-Build Alternative, no project improvements would be implemented; thus, no temporary impacts related to water quality would occur.

Build Alternatives 3 and 4

Construction of either of the Build Alternatives could potentially result in water quality impacts associated with the contribution of pollutants to receiving water bodies during the temporary construction process. Pollutants during construction would include sediment, metals, trash, petroleum products, concrete waste (dry and wet), sanitary waste, and chemicals. Best Management Practices (BMPs), including construction site BMPs (e.g., storm drain inlet protection, temporary fiber rolls, gravel bed berms, etc.) and job management BMPs (i.e., wind erosion control, spill prevention and control, etc.) would minimize these potential individual or cumulative combined impacts on water quality, including downstream waterbodies. The selection of BMPs will be determined during final design.

The following text has been amended since the Draft Environmental Document: The Build Alternatives would be required to adhere to existing temporary construction related NPDES requirements, which would minimize impacts in this regard. Compliance with the Caltrans Construction General Permit (NPDES General Permit, Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activities (Order No. 2022-0057-DWQ – NPDES No. CAS000002) would be required since the site occurs within Caltrans right of way, and would require preparation and implementation of a SWPPP. The SWPPP would specify BMPs to be used during construction of the project to minimize or avoid water pollution, thereby reducing potential temporary impacts to water quality. The project is required to be notified to the State Water Quality Control Board via the Stormwater Multi-Application Tracking System (SMARTS). Project registration documents would be filed, and a Waste Discharge Identification (WDID) number would then be assigned. Upon completion of the project, a Notice of Termination would be submitted to the SWRCB to indicate that construction has been completed. Thus, adverse effects related to water quality would not occur.

Permanent Impacts

No-Build Alternative

Under the No-Build Alternative, none of the project improvements would be implemented; therefore, no increase in runoff flow velocities, volumes, or peak flow rates or adverse effects to water quality would occur.

Build Alternatives 3 and 4

The Build Alternatives have the potential to result in impacts to water as a result of long-term operations. Potential pollutant sources associated with operations may include, but are not limited to, motor vehicles, highway maintenance, illegal dumping, spills, and landscaping care. These sources typically result in the generation of sediment, organic compounds (i.e. petroleum hydrocarbons), trash, bacteria, oil and grease, and metals that affect water quality.

The proposed project is anticipated to add new impervious surface to the project site. Table 2.2.2-1, Impervious Surface Area for Build Alternatives shows that the total impervious area increases over existing conditions by approximately 9.48 acres under Build Alternative 3 and approximately 11.84 acres under Build Alternative 4. Therefore, the Build Alternatives would result in a permanent increase in impervious surfaces that would induce an increase in the volume of storm water runoff.

Table 2.2.2-1: Impervious Surface Area for Build Alternatives

Alternatives	**Current Impervious Surface** (acres)	**Ne**w Impervious Surface (acres)	**Total Impervious Surface** (acres)
3	1.35	9.48	**10.83**
4	1.01	11.84	**12.85**

Source: I-10 Cherry Valley Boulevard Interchange Project Scoping Questionnaire for Water Quality Issues (August 2020).

Pursuant to Caltrans NPDES permit requirements, the project would be required to implement a range of water quality pollution prevention BMPs include design, treatment, and maintenance BMPs. Design pollution prevention BMPs are measures required under the Caltrans MS4 Permit that focus on reducing or eliminating runoff and controlling sources of pollutants during operation of the project (e.g., slope/surface protection systems, concentrated flow conveyance systems, preservation of existing vegetation, etc.). These BMPs would meet the objective of maximizing vegetated surfaces, preventing downstream erosion, and stabilizing soil areas. The selection of BMPs will be determined during final design. Upon adherence to the Caltrans MS4 Permit, which would require implementation of various BMPs to minimize operational water quality impacts, effects on downstream receiving water bodies and aquatic life would not be adverse.

The Build Alternatives would also include Detention Pollution Prevention (DPP) strategies to minimize runoff, maximize infiltration and reduce erosion. DPP strategies include implementing slope/surface protection systems, implementing concentrated flow conveyance systems, and preserving existing vegetation. These strategies, in addition to the proposed treatment BMPs, would aim to treat at a minimum 100% of the Water Quality Flow (WQF) generated from the proposed increase in impervious surface. Since the proposed treatment BMPs and DPP strategies would provide treatment to over 100% of the overall WQF for both Build Alternatives, no adverse effects to the receiving water bodies (El Casco Creek and San Timoteo Creek Reach 3) are anticipated.

Avoidance, Minimization, and/or Mitigation Measures

No measures are proposed.

2.2.3 Geology, Soils, Seismicity, and Topography

Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under the California Environmental Quality Act (CEQA).

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Structures are designed using the Department's Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Department's Division of Engineering Services, Office of Earthquake Engineering, Seismic Design Criteria.

Affected Environment

This section is based on the findings of the Preliminary Geotechnical Design Report (PGDR) (June 2020) that was prepared for the proposed project.

Regional Geology

The project area is located in a narrow alluvial valley between the foothills of the San Gorgonio Mountains and San Jacinto Mountains near the northern end of the Peninsular Ranges Geomorphic Province of Southern California. The Peninsular Ranges Geomorphic Province consists of a series of northwest-trending mountain ranges and valleys bounded on the north by the San Bernardino and San Gabriel Mountains, on the west by the Los Angeles Basin, and on the south by the Pacific Ocean.

The province is a seismically active region characterized by a series of northwest trending strike-slip faults. The most prominent of the nearby fault zones include the San Andreas, San Jacinto, and the Elsinore fault zones, all of which have been known to be active during Quaternary time.

The topography within the province is generally characterized by broad alluvial valleys separated by linear mountain ranges. This northwest-trending linear fabric is created by the regional faulting within the granitic basement rock of the Southern California Batholith. Broad, linear, alluvial valleys have been formed by erosion of these principally granitic mountain ranges.

Local Geology

Based on the PGDR, review of available geologic mapping indicates that on-site soils consist of three alluvial units: young axial-valley deposits, old alluvial-fan deposits, and very old alluvial-fan deposits. Descriptions of each unit are provided below.

- Qya: Young axial-valley deposits (Holocene and uppermost Pleistocene)—Slightly to moderately consolidated sandy, muddy, and gravelly sediment deposited by through-going streams of axial valleys. This unit is primarily exposed on the northeast side of the project area and underlies the east end of the overcrossing, westbound on-ramp, the I-10 travel lanes northwest of the westbound on-ramp, and a portion of the travel lanes southeast of the overcrossing.
- Qof: Old alluvial-fan deposits (upper to middle Pleistocene)—Sandy, gravelly, and silty sediment deposited by streams that formed alluvial-fan landforms. This unit underlies the eastbound off-ramp and on-ramp, central and western portion of the overcrossing, a portion of the travel lines southeast of the eastbound off-ramp, and all the travel lanes southeast of the eastbound on-ramp.
- Qvof: Very old alluvial-fan deposits (middle to lower Pleistocene)—Sandy and gravelly deposits. This unit is exposed in the southwestern side of the project area. The older alluvium typically can be distinguished from the younger alluvium by level of induration. The older units are weakly indurated while the younger unit is not indurated.

The ground surface varies from approximately 2,364 feet above mean sea level (amsl) in the area of the Roberts Road southwest bridge abutment to approximately 2,350 feet at the project limits along Cherry Valley Boulevard to the east. The eastbound and westbound on-ramp/off-ramp intersections with Cherry Valley Boulevard are located at approximately 2,378 and 2,360 feet amsl, respectively.

Subsurface Soil Conditions

According to the PGDR, six cone penetrometer tests (CPT) and four borings were performed in February 1961 along and near Cherry Valley Boulevard and its overcrossing of I-10 during a field investigation by Caltrans. CPTs were advanced to depths of up to approximately 46.0 feet bgs. Borings were advanced to depths up to approximately 51.0 feet bgs. The results indicated slightly compact to compact light reddish tan to grayish brown loose to very dense silty fine to coarse sand with gravel, pebbles and cobbles, to the maximum explored depth of 51.0 feet bgs.

Groundwater Conditions

According to the PGDR, the CPTs and borings conducted in 1961 along and near the interchange did not encounter groundwater to the maximum explored depth of approximately 51 feet bgs. The PGDR indicates that there are five groundwater wells within a one-mile distance of the I-10/Cherry Boulevard overcrossing that provide groundwater measurements. Their depths range from 92 bgs to 264 bgs. Historically, the high groundwater at the project site is not known with certainty but it is anticipated to be deeper than 50 feet bgs.

Faulting and Seismicity

The project site is located in seismically active southern California and is subject to earthquake shaking. However, the project site is not located within a recognized State of California or Riverside County Earthquake Fault Zone. Figure 2.2.3-1, Regional Fault Map, shows the site location relative to regional faults.

The two nearest faults to the project site are the San Timoteo Fault and the Cherry Valley Thrust Fault. The San Timoteo Fault is a roughly northwest-southeast trending strike-slip fault mapped approximately 2,200 feet southwest of the center of the existing Cherry Valley Boulevard at its closest point. The Cherry Valley Thrust Fault is generally a northwest-southeast trending fault mapped approximately 3,400 feet northeast of the of the center of the overcrossing at its closest point. According to the PGDR, neither of these faults are considered to be active.

The San Gorgonio Pass Fault is a reverse fault located approximately 1.46 miles north of the project site at its closest point and trends roughly east-southeast. It has a Maximum Considered Earthquake (MCE) of 6.7 and is the controlling fault for the project site. This fault is also the closest active fault zone, as specified by the Alquist-Priolo Earthquake Fault Zoning Act. Since the project site is not located within the confines of this fault zone, the risk of surface rupture at the site is considered low.

Geologic Hazards

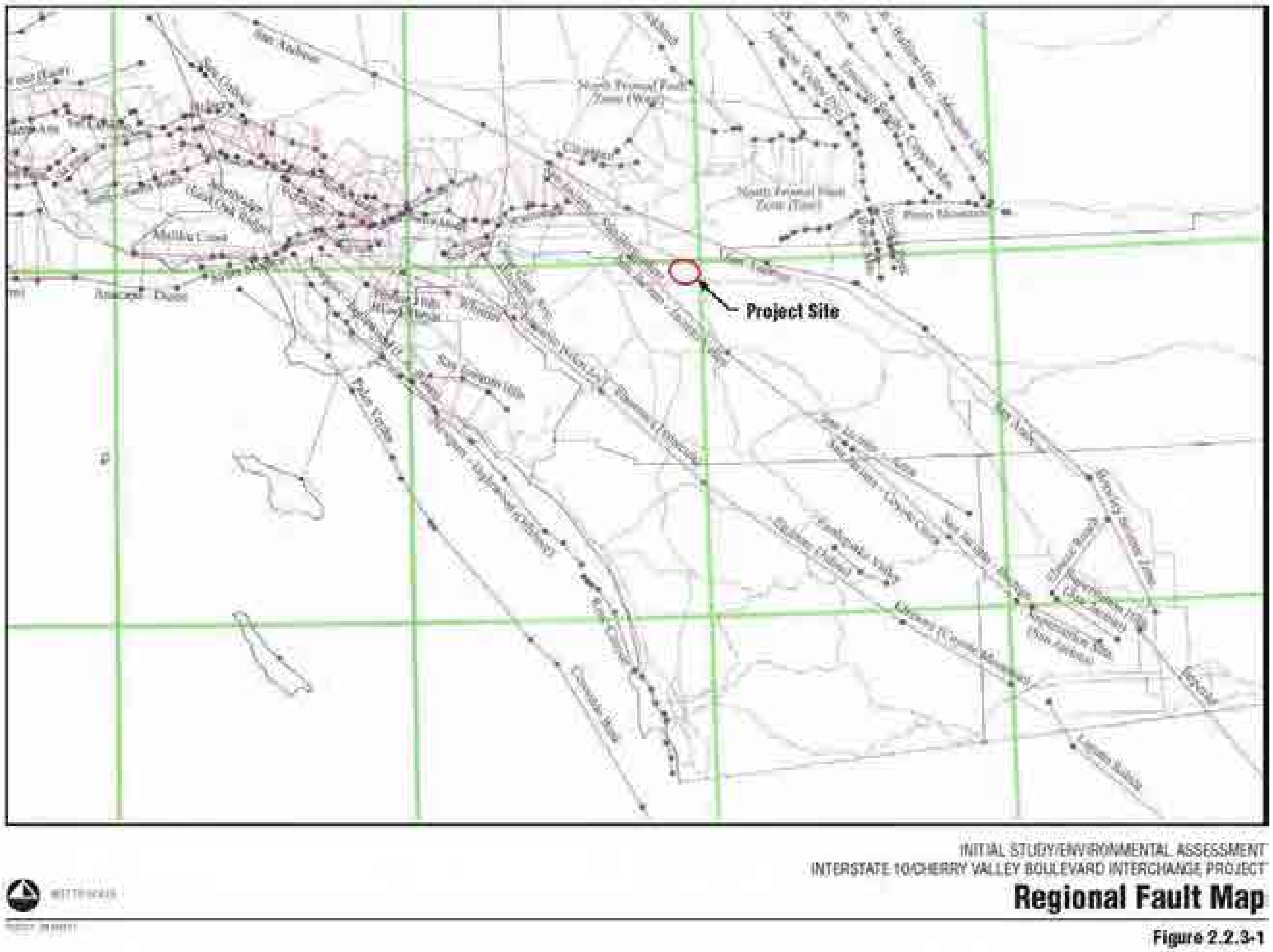
The PGDR does not indicate significant geologic hazards (such as land sliding, ground settlement, embankment failures, very soft soils, severe erosion, etc.) within the project area. Further investigation of these hazards would be conducted during the PS&E phase of the project.

Liquefaction Potential

Liquefaction is defined as the phenomenon in which a cohesionless soil mass within the upper 50 feet of the ground surface, suffers a substantial reduction in its shear strength, due the development of excess pore pressures. During earthquakes, excess pore pressures in saturated soil deposits may develop as a result of induced cyclic shear stresses, resulting in liquefaction. Soil liquefaction generally occurs in submerged granular soils and non-plastic silts during or after strong ground shaking.

Preliminary analysis within the PGDR determined that, due to the fact that current and historic static groundwater level is likely deeper than 50.0 feet bgs, the project site has low potential for liquefaction.

Figure 2.2.3-1: Regional Fault Map



Fault Rupture

As noted above, the San Gorgonio Pass Fault is located approximately 1.46 miles north of the project site and is the nearest active fault to the project site. This fault is also the closest active fault zone, as specified by the Alquist-Priolo Earthquake Fault Zoning Act. Since the project site is not located within the confines of this fault zone, the risk of surface rupture at the site is considered low.

Tsunami/Seiches

The project is located within the inland region of southern California; thus, tsunamis do not pose a hazard to this site since it is located approximately 50 miles from the Pacific Ocean. Seiching would be possible within the nearby drainage channel if a large earthquake coincides with a high-flow level event. However, due to the size and elevation of the channel, it is likely that any water from reaching the project area would be precluded.

Soil Erosion Potential

On-site soils are anticipated to be predominantly fine- to coarse-grained silty sands and are susceptible to erosion. Erosion control measures are discussed below.

Soil Expansion Potential

As described above, on-site soils are anticipated to range from predominantly fine- to coarse-grained silty sands. Coarse-grained soils are generally anticipated to be non-expansive or have a very low expansion potential. Fine-grained soils may be susceptible to low to high expansion potential. The PGDR recommends that soil expansion potential should be evaluated further during PS&E phase of the project.

Slope Stability

The slopes within the project limits have slope gradients of approximately 2H:1V or flatter and appear to be grossly stable under static conditions and are assumed to also be stable under seismic loading. For this reason, it is not anticipated that the Build Alternatives would have a substantial effect on slope stability on-site; however this will be confirmed during the PS&E phase.

Environmental Consequences

Temporary Impacts

No-Build Alternative

No improvements to the existing interchange would occur under the No-Build Alternative. Therefore, it would not result in temporary adverse effects related to geology, soils, seismicity, or topography.

Build Alternatives 3 and 4

Earthwork activities during project construction would result in adverse effects to the geological environment (i.e., soil erosion and siltation). Excavation and construction activities in these areas may result in minor changes to existing topography. The project would adhere to the earthwork recommendations provided in the PGDR prepared for the project, in addition to the requirements of the Caltrans Standard Specifications, Section 19, Earthwork. Soil compaction would be accomplished in accordance with Section 19-5, Compaction of the Standard Specifications. Fill placed during widening of the embankments would be benched into the existing slopes in accordance with Section 19-6, Embankment Construction of the Standard Specifications.

Construction of the project could expose construction workers and the traveling public to potential adverse effects associated with seismic ground shaking. The project would comply with current Caltrans' procedures and design criteria regarding seismic design to minimize any adverse effects related to seismic ground shaking. Earthwork would be performed in accordance with Caltrans Standard Specifications, Section 19, which require standardized measures related to compacted fill, over-excavation and recompacting, and retaining walls, among other requirements. Additionally, Caltrans Highway Design Manual (HDM) Topic 113, Geotechnical Design Report, would require that a site-specific, geotechnical field investigation is performed for the project during the PS&E phase. With the adherence to these Caltrans procedures, adverse effects would not occur in this regard.

Permanent Impacts

No-Build Alternative

No improvements to the I-10/Cherry Valley Boulevard would occur under the No-Build Alternative and, therefore, it would not result in permanent adverse effects related to geology, soils, seismicity, or topography.

Build Alternatives 3 and 4

Fault-Induced Ground Rupture

As discussed above, the project limits do not include active surface faults and the potential for fault-induced ground rupture is considered low. The site is not located within an Alquist-Priolo Fault Zone. The project would not result in adverse effects in this regard.

Liquefaction/Seismically-Induced Settlement

Preliminary liquefaction analysis within the PGDR determined that, due to the absence of shallow groundwater within the project site, the potential for adverse effects related to liquefaction would be low. However, the PGDR recommends that liquefaction potential is further examined during the PS&E phase of the project. If the potential for liquefaction is determined to be present during PS&E, potentially affected structures may include the lengthening of pile foundations, ground improvement, and/or designing foundations to withstand larger movements. Effects of the Build Alternatives related to liquefaction would not be adverse.

Soil Erosion Potential

The following text has been amended since the Draft Environmental Document: As discussed previously, native soils within the project limits are anticipated to bed fine- to coarse-grained silty sands, and therefore are subject to moderate to severe erosion. The majority of slopes proposed as part of the Build Alternatives would be sloped at 4H:1V or flatter; based on the PGDR, fill slopes of up to 2H:1V are feasible from a geotechnical standpoint. These areas would be maintained with erosion protection and drainage control in accordance with Section 21 of Caltrans Standard Specifications (2022). The project will adhere to the earthwork recommendations provided in the PGDR. Potential impacts regarding soil erosion would not be substantial.

Soil Expansion Potential

As described previously, fine-grained soils (silts and clays) within the project limits range from very minimal to high expansion potential. The Build Alternatives would adhere to the earthwork recommendations provided in the PGDR, and soil expansion would be further evaluated during the PS&E phase. Potential impacts regarding soil expansion would not be substantial.

Subsidence and Settlement

Subsidence occurs as a result of subsurface fluid extraction (e.g., groundwater, petroleum) or compression of soft, geologically young sediments. Determining whether or not subsidence would occur would depend on the construction equipment utilized for the project. As discussed previously, the project will adhere to the earthwork recommendations provided in the PGDR prepared for the project, and the potential subsidence or settlement would be further evaluated during the PS&E phase. Potential impacts related to subsidence/settlement would not be adverse.

Stability of Embankment and Fill Slopes

Under the Build Alternatives, approach embankments constructed of compacted fill soils would be required for the proposed bridge widening and new ramps. According to the latest edition of the Caltrans HDM, fill slopes should be 4H:1V or flatter. Embankment fill slopes steeper than 4H:1V must be approved by the District Landscape Architect. Based on the PGDR, fill slopes of up to 2H:1V are feasible from a geotechnical standpoint. Slope stability analysis will be performed during the PS&E phase. Upon adherence to recommendations provided in the PGDR, potential impacts related to slope stability would not be adverse.

Avoidance, Minimization, and/or Mitigation Measures

No measures are proposed.

2.2.4 Paleontology

Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils.

- 23 United States Code (USC) 1.9(a) requires that the use of Federal-aid funds must be in conformity with all federal and state laws.
- 23 United States Code (USC) 305 authorizes the appropriation and use of federal highway funds for paleontological salvage as necessary by the highway department of any state, in compliance with 16 USC 431-433 above and state law.

Under California law, paleontological resources are protected by the California Environmental Quality Act (CEQA).

Affected Environment

This section is based on the Combined Paleontological Identification Report and Paleontological Evaluation Report (PIR/PER) (dated December 2020) prepared for the project.

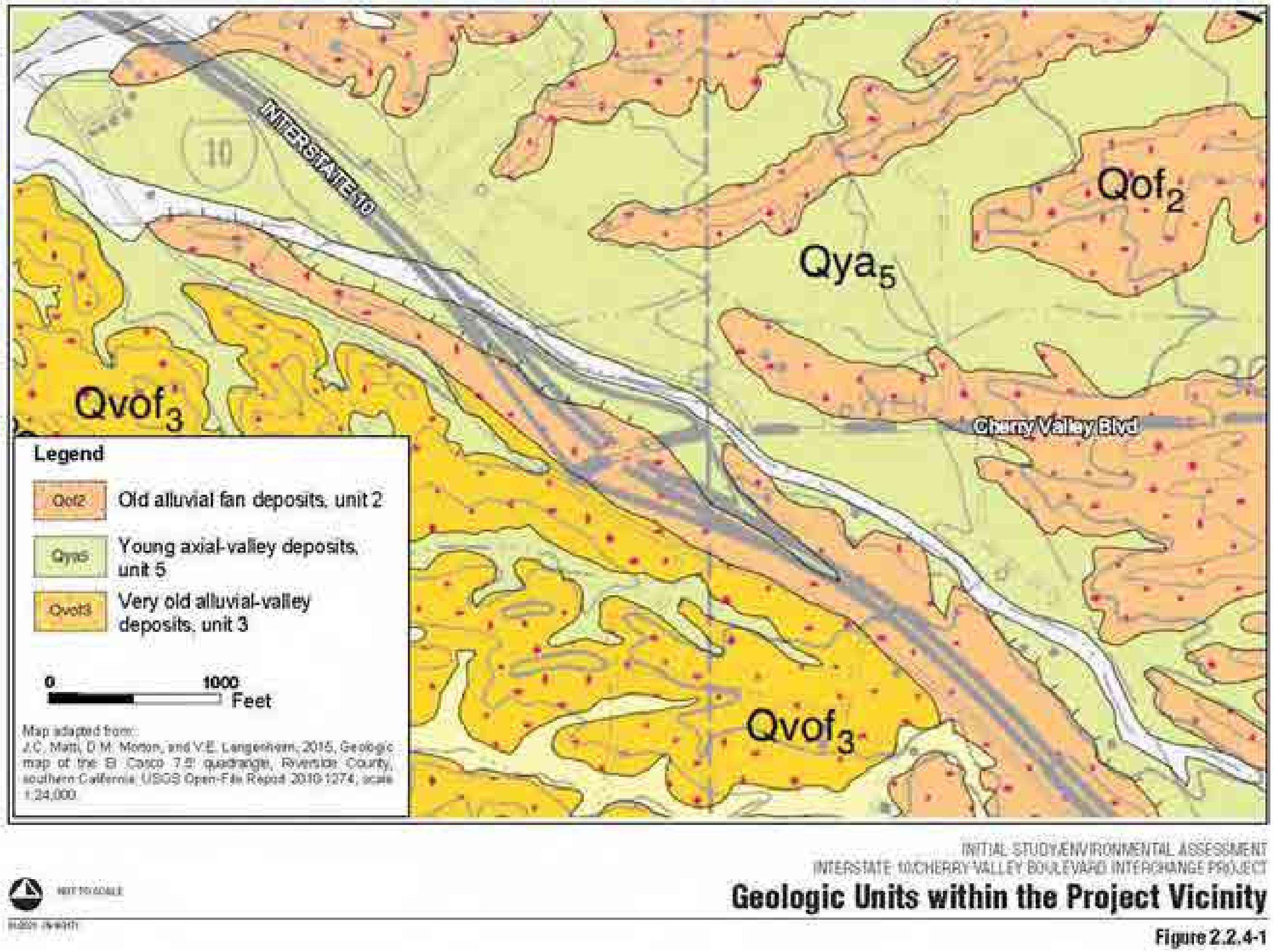
Stratigraphy

According to the PIR/PER, the surficial geology of the project study area consists of Pleistocene alluvial-fan deposits (Qvof3, Qof2), Holocene axial-valley deposits (Qya5), and Holocene deposits from recently active channels and active washes (Qvyw2, Qvywm). Notable units mapped near the project area include Pleistocene sedimentary deposits of Live Oak Canyon (Qlo), San Timoteo Formation (Tstm), and residuum and/or pedogenic-soil profile developed from those sediments (Qvors). Particularly, the San Timoteo Formation is known to be highly fossiliferous, with specimens of mastodon, horse, camel, antelope, dog, bear, rodent, and rabbit reported in the general vicinity of the project site. Figure 2.2.4-1, Geologic Units within the Project Vicinity, shows the stratigraphy and geological unit structure of the project vicinity and its surroundings.

Sedimentary Deposits of Live Oak Canyon and San Timoteo Formation

The unit Qlo consists of unconsolidated and consolidated nonmarine sedimentary material. The closest surface exposures of Qlo are approximately 0.4 miles northwest and southwest of the project site. The unit includes Pleistocene sedimentary deposits derived from streams that flowed from the ancestral Live Oak Canyon and Pleistocene beds referred to by the PIR/PER as the San Timoteo Formation.

Figure 2.2.4-1: Geologic Units within the Project Vicinity



The sedimentary deposits of Live Oak Canyon are mainly gravelly and conglomeratic material interbedded with sandy sediment and rocks, with some beds of muddy sediment and mudrock. While no surface exposures of unit Qlo are mapped in the project area, the nearby mapped outcrops are indications this unit may be present at unknown depths in the subsurface of the project area. There is no paleontological information available for the sedimentary deposits from Live Oak Canyon, although the finer-grained beds may be lithologically suitable for preserving fossils. The San Timoteo Formation—particularly the middle member—dominates the geology of the San Timoteo Badlands approximately 2 miles west-southwest of the project area as well as the more elevated terrain 0.8-mile northeast of the project area. This geologic formation consists of sandstones and conglomerates with clasts derived from crystalline rocks of the Transverse Ranges to the north. The upper member consists of distinctly yellowish-gray sandstones with very fine- to coarse-grained beds that alternate with light gray, pale yellow, and light yellowish-brown pebbly- to cobbly- gravel-rich beds.

The San Timoteo Formation is known to be highly fossiliferous, with specimens of mastodon, horse, camel, antelope, dog, bear, rodent, and rabbit reported in the general vicinity including the San Timoteo Badlands. According to the PIR/PER, late Pliocene to early Pleistocene fauna have been recovered by investigators from the upper member (Qstu) deposits and early Pleistocene fauna have been recorded in the quartzite-bearing conglomerate beds (Qstcq). According to the PIR/PER, the middle member of the San Timoteo Formation ranges in age from early Pliocene to early Pleistocene.

Very Old Residuum and/or Pedogenic Soil

Unit Qvors is mapped in close association with unit Qlo approximately 0.5 mile southwest of the project area. The unit is early to middle Pleistocene in age and consists of the reddish residuum and/or pedogenic-soil profile developed from weathering an old Quaternary landscape of the sedimentary deposits of Live Oak Canyon or the San Timoteo Formation.As with unit Qlo, this unit may be present at unknown depths in the subsurface of the project area. No paleontological information is available for this specific unit, although soil developed from fossiliferous beds of the San Timoteo Formation likely will still preserve fossils. Pleistocene and older paleosols such as these have yielded abundant significant vertebrate fossils elsewhere in Riverside County.

Alluvial-Fan Deposits

Two alluvial-fan units are mapped in the project area. Unit Qvofe is mapped in and around the northwest terminus of the project area and in the short segment of Tukwet Canyon Parkway that is perpendicular to the southwest side of I-10. These deposits consist of moderately consolidated, middle Pleistocene sands and gravels comprising the 3rd unit in the very old alluvial-fan series of the region (Qvof).

As mapped in Figure 2.2.4-1, unit Qof2 covers the majority of the project area. Unit Qof2 extends from the southeast terminus of the project area northward along both sides of I-10 to the north side of the Interchange, comprises the eastern terminus of the Cherry Valley Boulevard portion of the project area as well as the proposed on-ramps under Build Alternatives 3 and 4, and crosses a small portion of the I-10 corridor near the northwest terminus of the project area. This unit is the middle to late Pleistocene, 2nd unit of the old alluvial-fan series (Qof), consisting of moderately consolidated, brownish sandy, gravelly, and silty sediment deposited by streams that formed alluvial-fan landforms. According to the PIR/PER, Pleistocene-age alluvial deposits such as units Qvof3 and Qof2 have been demonstrated to be highly fossiliferous elsewhere in Riverside County. Significant fossils reported from such alluvial deposits include mammoths, mastodons, ground sloths, dire wolves, sabre-toothed cats, large and small horses, large and small camels, and bison, as well as plant macro- and microfossils.

Axial-Valley Deposits

Unit Qya5 covers most of the northeast side of the interchange and most of the I-10 corridor in the project area northwest of the interchange. These latest Holocene (recent) deposits comprise the 5th unit and youngest of the young axial-valley series (Qya) and consist of moderately consolidated sandy, muddy, and gravelly sediment deposited by through-going streams of axial valleys. The unit is mapped also as Qya5 in Figure 2.2.4-1. Holocene-age alluvial deposits less than 5,000 years old such as unit Qya5 generally are too young to preserve significant fossils, though they may shallowly overlie older deposits that preserve them.

Wash Deposits

Two wash deposit units are mapped in the project area. These latest Holocene units of the very young wash series (Qvyw) include very slightly to slightly consolidated sands and gravels that were recently transported and deposited in active channels and washes, on surfaces of alluvial fans and alluvial plains, in ephemeral lakes, and on hillslopes. Unit Qvyw2 occurs in local channels that cross beneath I-10 at the northwest terminus of the project area.

Unit Qvywm7 is the youngest Qvyw series and occurs just northwest of the interchange near Calimesa Boulevard as well as in active channels beneath I-10 near the northwest terminus of the project area. As with other Holocene deposits less than 5,000 years old, this unit is unlikely to preserve significant fossils, but may shallowly overlie older fossiliferous deposits.

Paleontological Records

The PIR/PER included searches of museum repositories for fossil localities within and near the project area. The analysis included a search of vertebrate paleontology records maintained by the Natural History Museum of Los Angeles County (NHMLAC). As the NHMLAC paleontology records are divided into vertebrate and invertebrate collections, only the vertebrate paleontology records were searched rather than both collections, because geologic units near the project area are more conducive to the preservation of vertebrate fossils than significant invertebrate fossils. The PIR/PER also utilized records search results conducted for other projects in the vicinity to supplement the records search conducted with NHMLAC. Lastly, the PIR/PER included searches of two online databases: the Paleobiology Database (PBDB) and the online database of the University of California Museum of Paleontology (UCMP), which list locality records from across California for all types of fossilized biota and traces.

The results of the records search for the project did not indicate any recorded fossil localities within the project area. However, the NHMLAC records search indicated two nearby localities from older Quaternary alluvial units similar to those in the project area. The closer locality is LACM 4540, south-southwest of the project area on the northeastern side of the San Jacinto Valley and just west of Jack Rabbit Trail. This locality yielded a specimen of fossil horse (Equus) from an undisclosed context (i.e., surface or subsurface). The other locality, LACM 7811, which is northwest of the project area—north of Norco and west of Mira Loma in the Jurupa Valley—yielded a specimen of coachwhip (Masticophis flagellum) from a depth of 9 to 11 feet bgs.

A review of records search results from other projects in the vicinity included additional resources, including several localities from the San Timoteo Formation of the San Timoteo Badlands north and south of State Route 60, at least 2 miles west-southwest of the project area (Equus and camel [Camelidae]) from unknown depths; one locality along Calimesa Boulevard approximately 4.5 miles south of the Yucaipa Freeway Corridor Specific Plan Project (Equus) from an unknown depth in Pleistocene-age deposits; one locality of Rancholabrean fauna from Pleistocene-age alluvial deposits in the City of Beaumont and several localities from the upper San Timoteo Formation of the San Timoteo Badlands (bison [Bison antiquus] and mammalian taxa).

Survey Results

In support of the PIR/PER, a site field survey of the project study area was completed on June 9, 2020. No paleontological resources were encountered on the ground surface of the project area during the site reconnaissance. As part of the field survey, there were observations of possible deposits of Live Oak Canyon and/or upper San Timoteo Formation (Qlo; Qstu), the very old alluvial-fan deposits (Qvof3), old alluvial-fan deposits (Qof2), and young axial-valley deposits (Qya5). Very old residuum and (or) pedogenic soils (Qvors) were not observed. Very young wash deposits (Qvyw2, Qvywm) are mapped in drainage channels that are currently concrete-lined, and, consequently, they also were not observed.

Paleontological Sensitivity

Paleontological resources are considered significant if they are identifiable vertebrate fossils, uncommon invertebrate, plant, and trace fossils that provide new data on classification, preservation, distribution, evolution, or other scientifically important information. Knowledge of the geological units gleaned from desktop records searches, published and unpublished literature and map reviews, and field surveys are the basis for determining the paleontological sensitivity of projects. Caltrans utilizes a tripartite scale to determine and characterize paleontological sensitivity. According to the Caltrans SER Environmental Handbook, Volume 1, Chapter 8, the scale utilizes baseline information gathered during the paleontological resource assessment to assign each geologic unit one of three categories: High Potential, Low Potential, and No Potential. According to the PIR/PER, the Riverside County General Plan also includes sensitivity criteria and guidelines for mitigation of paleontological resources. Their sensitivity categories include High A (Ha), High B (Hb), Low, and Undetermined Potential. The sensitivity category of the Riverside County General Plan can be comparable to the Caltrans set of paleontological sensitivity goals. Ha and Hb are reportedly roughly equivalent to High Potential for Caltrans, and the Low Potential is comparable to Low Potential and No Potential for Caltrans. Table 2.2.4-1, Paleontology Sensitivity Scale, provides a comparison of the Caltrans and County classification systems.

Table 2.2.4-1: Paleontology Sensitivity Scale (Caltrans)

Sensitivity/Potential	Criteria
High	Sedimentary rock units for which significant vertebrate, invertebrate, plant, or trace fossils have been recovered anywhere in their extent; or if the units are temporally or lithologically suitable for the preservation of significant fossils.
Low	Rock units for which previous field surveys and documentation demonstrate as having a low potential for containing significant fossils.
No Potential	Rock units of intrusive igneous origin, most extrusive igneous rocks, and moderately to highly metamorphosed rocks are classified as having no potential for containing significant paleontological resources. For projects encountering only these types of rock units, paleontological resources can generally be eliminated as a concern when the Preliminary Environmental Analysis Report (PEAR) is prepared and no further action taken.

Source: Applied EarthWorks Inc., Combined Paleontological Identification Report – Paleontological Evaluation Report (PIR-PER) for the Interstate 10/Cherry Valley Boulevard Interchange Project, City of Calimesa, Riverside County, California, August 2020.

Table 2.2.4-2: Paleontology Sensitivity Scale (Riverside County)

Sensitivity/Potential	Criteria
High A High B	Sedimentary rock units for which significant vertebrate, invertebrate, plant, or trace fossils have been recovered anywhere in their extent; or if the units are temporally or lithologically suitable for the preservation of significant fossils.
Undetermined	Sedimentary rocks for which literature or unpublished studies are not available. These rocks need to be inspected by a qualified vertebrate paleontologist before a specific determination of high potential or low potential can be assigned.
Low	Rock units for which previous field surveys and documentation demonstrate as having a low potential for containing significant fossils.

Source: Applied EarthWorks Inc., Combined Paleontological Identification Report – Paleontological Evaluation Report (PIR-PER) for the Interstate 10/Cherry Valley Boulevard Interchange Project, City of Calimesa, Riverside County, California, August 2020.

The PIR/PER assigned sensitivity rankings in accordance with Caltrans tripartite scale. The delineations are based on a combination of three factors: 1) resource potential of geologic units found at the ground surface; 2) resource potential of geologic units thought to be present at unknown depths; and 3) likelihood of encountering those subsurface geologic units.

The PIR/PER assigns a High Potential ranking to several portions of the project area where very old alluvial-fan deposits (Qvof3) and old alluvial-fan deposits (Qof2) are mapped at the ground surface as these units are potentially fossiliferous in the finer-grained beds. The PIR/PER also includes within the High Potential subareas portions of the project area near the interchange where the young axial-valley deposits (Qya5) are mapped, as observations from the survey indicate these deposits, at least in this subarea, may shallowly overlie the old alluvial-fan deposits (Qof2). In addition, data within the PIR/PER indicates the presence of deposits consistent with the Live Oak Canyon (Qlo) unit and/or upper San Timoteo Formation at a depth of 29 feet bgs near the center of the interchange.

Unit Qlo also may be present at shallower depths farther to the southwest of the site near Roberts Road. The PIR/PER notes an abundance of fossil localities within three miles of the project area, mostly from the San Timoteo Formation. This formation likely is also present at unknown depths in and around the interchange in the project area, and could be impacted by project-related ground-disturbing activities, which are anticipated to reach 12 to 25 feet bgs.

The PIR/PER assigns a Low Potential ranking to all other portions of the project area where unit Qya5 is mapped because of the comparatively young age. However, the stratigraphic relations with other units were not evident outside the subarea immediately surrounding the interchange.

Environmental Consequences

No-Build Alternative

Under the No-Build Alternative, no project construction would occur and, therefore, no impact on paleontological resources would occur.

Build Alternatives 3 and 4

The construction phase of the project will require temporary ground-disturbance of the project site. While there are no known, recorded paleontological resources within the project boundaries, the project area consists of surficial and subsurface geologic units ranked as low to high in potential for buried fossil. As a result, ground-disturbing activities associated with the construction of the Build Alternatives could result in the disturbance or loss of previously undiscovered paleontological resources.

Since this may occur, worker's environmental awareness training and on-site construction monitoring would be required, as described in Measures PAL-1 and PAL-2 below. Mitigation Measure PAL-2 would additionally require retainment of a qualified Principal Paleontologist, and the implementation of a Paleontological Mitigation Plan (PMP) for the project. If paleontological resources are discovered during ground-disturbing activities, fossil preparation, curation, and reporting would occur in accordance with Measure PAL-3. With the implementation of these Measures, the Build Alternatives would not result in any significantly adverse effects to significant paleontological resources.

Avoidance, Minimization, and/or Mitigation Measures

PAL-1 Prior to the start of construction, all field personnel shall be briefed during a Worker's Environmental Awareness Program (WEAP) regarding the types of fossils that could be found in the project area and the procedures to follow shall paleontological resources be encountered. This training shall be accomplished first at the preconstruction kick-off meeting by a Principal Paleontologist who meets the Caltrans qualifications standards or his/her qualified and supervised representative. The training shall be developed by the Principal Paleontologist and may be conducted concurrently with other environmental training (e.g., biological, cultural, and natural resources awareness training, safety training, etc.).

Specifically, the training will provide brochure handouts with descriptions of the fossil resources that may be encountered in the project area, outline steps to follow in the event that a fossil discovery is made, and provide contact information for the Principal Paleontologist and on-site paleontological monitor(s). A project-specific sign-in sheet will be utilized to illustrate that all construction personnel have completed the WEAP training prior to the start of construction for CEQA compliance. Extra sign-in sheets and brochures would be left with the construction contractor for distribution and WEAP training of future construction personnel as they are added to the project. If possible, the original WEAP training should be recorded on video for future use as additional construction personnel are added to the project.

PAL-2 Prior to the commencement of ground-disturbing activities, a Principal Paleontologist who meets the Caltrans qualification standards shall be retained to prepare and implement a Paleontological Mitigation Plan (PMP) for the project. The project's PMP shall develop mitigation measures based on the assigned sensitivity rankings as well as the proposed depths of ground disturbance throughout the project area, as surface and near-surface geologic units are well documented while geologic units at greater depths remain undocumented. Depending on the proposed project's excavation depths, the type of monitoring shall be one of the following:

- For areas categorized as High Potential: Full-time monitoring shall be required for disturbance at all depths in selected areas with intact sediments. In subareas of High Potential, monitoring efforts shall be reduced or eliminated at the discretion of the Principal Paleontologist if no fossil resources are encountered after 50 percent of the excavations are completed.
- For areas categorized as Low Potential: Spot-check monitoring is recommended for disturbance in particular areas at four feet or greater below group surface (bgs) in intact sediments. If High Potential geologic units are encountered at depth in those particular locations during spot-check monitoring, those subareas shall be elevated to High Potential and monitoring shall be upgraded to full-time.

Monitoring shall not be required for excavations less than four feet bgs in subareas with Low Potential or within any subareas with artificial fill. Although monitoring is not typically required in subareas of Low Potential, spot-check monitoring shall be implemented at the discretion of the Principal Paleontologist to confirm the presence of subsurface High Potential geologic units. In particular, deeper excavations of approximately 12 to 25 feet bgs for items such as bridge abutments, bent footings, and overhead sign foundations shall be spot-checked, as these construction activities may impact High Potential geologic units at depth.

All monitoring shall include the visual inspection of excavated or graded areas, trench sidewalls, spoils, and any other disturbed sediment. In the event that a paleontological resource is discovered, either the Principal Paleontologist or approved on-site paleontological monitor shall have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and collected. Additionally, test samples of sediments from geologic units with High Potential shall be collected and screened on site to determine the presence of fossils in the small grain-size fractions. If significant small-fraction fossils are discovered during the test sampling, larger bulk samples of sediments may be collected for further processing in the laboratory. The recommended sampling shall follow best practice procedures in mitigation paleontology.

PAL-3 If fossils are encountered during construction monitoring, significant fossils shall be collected and prepared in a properly equipped paleontology laboratory to a point ready for curation. Preparation shall include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossil specimens shall be identified to the lowest taxonomic level, cataloged, analyzed, and prepared for curation. Assuming landowners concur and will sign a Deed of Gift Form, fossil specimens shall be submitted for permanent curation in a museum repository approved by Caltrans. The cost of curation is assessed by the repository and is the responsibility of the landowners. At the conclusion of laboratory work and curation, the paleontological contractor shall prepare a final report to describe the results of the paleontological monitoring. The report shall include an overview of the project area geology and paleontology, a description of the field and laboratory methods, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If fossils will be donated for permanent curation, a copy of the report shall be submitted to the curation institution along with the fossil assemblage.

2.2.5 Hazardous Waste and Materials

Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) of 1980, and the Resource Conservation and Recovery Act (RCRA) of 1976. The purpose of CERCLA, often referred to as “Superfund,” is to identify and cleanup abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for “cradle to grave” regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- Clean Water Act
- Clean Air Act
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

In addition to the acts listed above, Executive Order (EO) 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the CA Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material is vital if it is found, disturbed, or generated during project construction.

Affected Environment

This section is based on the Phase I Initial Site Assessment for the I-10/Cherry Valley Boulevard Interchange Improvement Project (Phase I ISA) (dated December 2020).

Field Survey and Research Methodology

Records Review: An Environmental Data Resources, Inc. (EDR) records search of federal and state environmental databases, for sites within the project site and within an approximate one-mile radius of the project site boundaries, was received on February 26, 2019 and the results were incorporated into the Phase I ISA.

Historical Research: The standard sources identified by American Society for Testing and Materials (ASTM) E 1527-13 include aerial photographs, fire insurance maps, property tax files, recorded land title records (a chain-of-title), historical USGS topographic maps, local street directories, building department records, zoning/land use records, prior assessments, and other historical sources (i.e., any source or sources, other than those listed, that are credible to a reasonable person and that identify past uses of the property). The focus is on usage rather than ownership, which is why a chain-of-title is not sufficient by itself. As part of the Phase I ISA, historical topographic maps, historical aerial photographs, the City of Calimesa Zoning Map, and certified Sanborn maps were reviewed. Historical information for the project site was obtained back to 1901, at which time the project site consisted of vacant land and transportation uses.

The Phase I ISA acknowledged that specific property land use information of the project site within a five-year interval, from 1901 to 1938, was unobtainable. According to the Phase I Site Assessment, transportation uses (i.e., I-10, Roberts Road, and Cherry Valley Boulevard) and orchards appear on-site during this time. There were no other indicators of potential hazardous materials were noted in relation to these uses. No other substantial development or changes occurred at the project site. No evidence of other uses during this time were noted for the surrounding area. According to the Phase I ISA, the project site had consisted of vacant land transportation uses since prior to 1901. Agricultural uses and rural development in the general vicinity of the subject site began in the 1930s and 1940s, while residential development in the surrounding vicinity of the subject site appeared to have occurred from the 1960s to current day. No other conditions were encountered that limited the historical use review during the course of the Phase I ISA.

Site Reconnaissance: On June 9, 2020, an on-site visit was conducted and consisted of a visual observation of readily accessible areas of the subject site and immediately adjoining properties. The subject site was viewed from all publicly accessible thoroughfares. If roads or paths with no apparent outlet are observed on the subject site, the use of the road or path was identified to determine whether it was likely to have been used as an avenue for disposal of hazardous substances or petroleum products.

According to the Phase I ISA, limiting conditions related to site reconnaissance included that there were no clear views of the ground surface/bare soils nor the interior of on-site structures.

Interviews: The Phase I ISA identified the key site manager as the Project Engineer, who provided a range of information related to project design, utilities, and property ownership associated with the project. As part of the Phase I ISA, an Engineering Technician at the Yucaipa Valley Water District was contacted regarding sewer connections within the project site, and the County of Riverside Transportation and Land Management Agency was contacted to confirm the zoning and land use designations of the properties proposed for ROW acquisition. Due to the nature of the proposed project, no interviews were conducted with the occupants residing in the rural residential uses proposed for ROW acquisition. Based on the historical documentation reviewed, the Phase I ISA determined that these interviews would not increase the knowledge of the Environmental Professional such that the conclusions of this Phase I ISA would change. Thus, the Phase I ISA determined that this deviation is not a significant data gap in the analysis.

Results of the Phase I Initial Site Assessment

The records search conducted as part of the Phase I ISA reported one spill site within the boundaries of the subject site. This spill was reported in 1988, and the type of contaminant, amount, and containment status were not reported. This past spill is anticipated to be associated with a petroleum spill that may have occurred during an automobile accident. Thus, the incident is anticipated to have been minor in nature and occurred more than 25 years ago. Therefore, based on the Phase I ISA this spill is de minimis in nature and has not resulted in a recognized environmental condition (REC).

The lists identified eight off-site regulatory properties within a one-mile radius of the subject site. Five of the eight sites were reported adjoining the project site; refer to Table 2.2.5-1, Regulatory Properties of Concern.

Table 2.2.5-1: Regulatory Properties of Concern

Site Name/Address	Direction from Subject Site	EDR Site Status
Luther's Truck & Equipment, Inc. 36233 Cherry Valley Boulevard. Cherry Valley, CA 92223 (also identified as 36243 Cherry Valley Boulevard., Cherry Valley, CA 92223)	Adjoining subject site to south/east	Reported in AST and HAULERS database. HAZNET waste categories include other organic solids; unspecified oil-containing waste. Disposal methods include metals recovery including retoring, smelting, chemicals, etc.; storage, bulking, and/or transfer off site – no treatment recovery; and transfer station. Listed in FINDS database. *HAZNET waste categories include other organic solids; latex waste. Disposal methods include recycler; transfer station.
I-10 W/O Cherry Valley Boulevard. Calimesa, CA	Subject Site	Reported spill in 1988 listed in CHMIRS database.
Stokes Ranch 10410 Roberts Road Calimesa, CA 92320	Adjoining subject site to west	One diesel tank listed in HIST UST database
Suzy Lynn Ranch 10701 Desert Lawn Drive Calimesa, CA 92320	Adjoining subject site to south	One regular tank listed in HIST UST database
Plantation on the Lake 10961 Desert Lawn Drive Calimesa, CA 92320	Adjoining subject site to south	Reported spill in 2013 listed in CHMIRS database. Liquid mercury was spilled in a residential garage, contained by CALFire, and cleaned up by contractor. Listed in Cortese database. Listed in CIWQS in 1984, terminated in 2001.

Source: Michael Baker International, Phase I Initial Site Assessment I-10/Cherry Valley Boulevard Interchange Improvement Project, December 2020.

The remaining three of the eight sites were noted as off-site regulatory properties of concern within a one-mile radius of the subject site. The reported adjacent regulatory properties are considered to have a low potential of affecting the project site, due to the distance, anticipated groundwater flow direction, and/or the status of the identified sites.

Current On-Site Uses

Agricultural Uses

Based on the site visit on June 9, 2020 as part of the Phase I ISA, agricultural uses were noted on the eastern portion of the subject site. Current uses consist of fallow, irrigated land. No maintenance facilities or structures relating to current agricultural uses were observed within the subject site. No evidence of current pesticide storage was observed on-site. As the current agricultural uses consist of fallow land and no on-site storage practices were observed, the Phase I ISA indicated that current agricultural uses have not resulted in a REC.

Transportation Uses and Utilities

Traffic Striping Material

Lead based paints (LBPs) were commonly used in traffic striping materials before the discontinued use of lead chromate pigment in traffic striping/marking materials and hot-melt Thermoplastic stripe materials (discontinued in 1996 and 2004, respectively). Traffic striping was observed along I-10, Cherry Valley Boulevard, Tukwet Canyon Parkway, Calimesa Boulevard, and Roberts Road. All roadways within the boundaries of the subject site were constructed prior to 1967, with the exception of the Cherry Valley Boulevard extension constructed in 2006 (i.e. Tukwet Canyon Parkway). Although roadways have likely been restriped since 1967, LBPs may still be associated with most traffic striping materials on-site. Traffic striping materials appeared to be intact and did not appear to be released into the environment, including on-site bare soils. Thus, based on the Phase I ISA, no REC has resulted.

Asbestos-Containing Materials and Lead Based Paint

ACMs and LBPs are commonly known to be used in building materials for bridge structures. The project proposes modification to the existing Cherry Valley Boulevard Overcrossing (Bridge No. 56-0481), constructed by 1965. Based on site reconnaissance, the bridge structures appeared to be in fair condition and no evidence of ACMs and LBPs being released into the environment was noted. Notwithstanding, the project proposes modification of this bridge structure and could expose ACMs/LBPs during construction. Thus, the Phase I ISA indicates that ACMs and LBPs in the bridge structures have not resulted in a REC, but presents an environmental concern during construction. As such, ACMs and LBPs sampling was conducted for the bridge/overcrossing. Based on the Phase I ISA, ACMs (defined by the U.S. Environmental Protection Agency [EPA] as an ACM of 1.0 percent or higher) were detected in bolt mastic (7 percent chrysotile asbestos) and shim pads (55 to 60 percent chrysotile asbestos), both located on the metal guard rail support posts on the bridge (Number 56-0481).

A total of six bulk samples of paint were also collected from the roadway and bridge. Although LBPs were detected in samples taken, all samples were below the EPA’s threshold of 5,000 parts per million (ppm).

Treated Wood Waste

Treated wood waste comes from old wood that has been treated with chemical preservatives. These chemicals help protect the wood from insect attack and fungal decay during use. Fence posts, sill plates, landscape timbers, pilings, guardrails, and decking, to name a few, are all examples of chemically treated wood. Treated wood waste contains hazardous chemicals that pose a risk to human health and the environment. Arsenic, chromium, copper, creosote, and pentachlorophenol are among the chemicals used to preserve wood and are known to be toxic or carcinogenic. Harmful exposure to these chemicals may result from touching, inhaling or ingesting treated wood waste particulate (e.g., sawdust and smoke).

Treated wood may be present in association with power poles, sign posts, and guard rails particularly along on- and off-ramps, Cherry Valley Boulevard, Tukwet Canyon Parkway, Calimesa Boulevard, and Roberts Road. Based on the Phase I ISA, treated wood has not resulted in a REC.

Pad-Mounted Transformers

One pad-mounted transformer along Cherry Valley Boulevard was noted during the site reconnaissance for the Phase I Site Assessment. Transformers have the potential to contain polychlorinated biphenyls (PCBs). No evidence of dielectric fluid or staining was noted on-site. As such, the on-site transformer did not result in a REC in this regard.

Natural Gas Pipelines

The following text has been amended since the Draft Environmental Document: According to the Phase I ISA, a natural gas high pressure distribution pipeline is located along Calimesa Boulevard, Roberts Road, and transects I-10 within the boundaries of the subject site. The pipelines do not pose as REC.

Commercial Uses

Based on the June 9, 2020, site inspection conducted as part of the Phase I ISA, portions of a commercial use (The Marketplace at Calimesa; APN 413-780-018) is proposed for a temporary construction easement (TCE). However, the TCE area is comprised of ornamental landscaping and was constructed in 2020. During a preliminary observation of the TCE area from public thoroughfares, no visible or physical evidence was observed to suggest that a surface release of hazardous materials has recently occurred. Further, this current commercial use has not been under investigation for violation on any environmental laws, regulations, or standards, as identified in the databases reported by EDR. As such, no REC has resulted in this regard.

Residential Uses

Based on Phase I ISA, residential areas of the subject site associated with ROW acquisition have not been reported in any regulatory databases. No evidence of hazardous materials was observed during the June 9, 2020, site visit. As these properties have not reported a release of hazardous materials to the environment, the Phase I ISA indicates that they have not resulted in a REC.

The residences appear to have been constructed sometime prior to 1978 and may be associated with ACMs and LBPs (APN 413-270-014 and 407-230-017). The Phase I ISA indicates that observed evidence of flaking and peeling that would suggest a release of ACMs and LBPs to on-site soils has resulted. Further, debris piles that appear to be associated with rural residential building and foundation remnants were also noted (APN 407-230-017). Thus, the Phase I ISA indicates that potential ACMs and LBPs in building materials that have released to on-site soils presents a REC.

It is noted that excavation activities could disturb septic systems and leach fields located within the subject site. Based on interviews with the Yucaipa Valley Water District, the residential property located at 3607 Cherry Valley Boulevard (APN 413-270-014) is not connected to the local sewer system, and is likely using septic systems and leach fields for sewage disposal. It is possible that the septic tanks and leach fields are located within the boundaries of the subject site. As this existing residential use is not anticipated to handle/store hazardous materials/substances, the Phase I ISA concluded that the existing on-site septic systems have not resulted in a REC.

Aboveground Storage Tank

The following text has been amended since the Draft Environmental Document: A small diesel Aboveground Storage Tank (AST) was observed within the boundaries of APN 413-270-014 during the on-site visit. The Phase I ISA anticipates that this AST may have been used for a backup generator. There are no available reports of the handling/storage/transport of hazardous materials nor has this property reported any releases to the environment. When observed during the site reconnaissance, the AST appeared to be in poor condition. It was not possible to view areas of bare soils within in the vicinity of the AST due to the presence of high vegetation. As such, there is potential for diesel contamination to exist within areas of bare soils beneath the AST, and a REC has resulted in this regard.

Past On-Site Uses

Aerially Deposited Lead

Aerially Deposited Lead (ADL) refers to lead deposited on older roadway shoulders from past leaded fuel vehicle emissions. According to the Phase I ISA, lead was banned as a fuel additive in California beginning in 1992. Thus, ADL may be present in soils adjacent to highways/roadways in use prior to that time.

According to historical aerial photographs and topographic maps, the project site appears to have consisted of transportation, agricultural, rural residential, and vacant land uses since prior to 1992. I-10 was developed as a dual highway between 1943 and 1953. Cherry Valley Boulevard and Roberts Road were developed and improved as secondary highways prior to 1942. Calimesa Boulevard was improved prior to 1967, and Tukwet Canyon Parkway was developed after 1996. Although most of the on-site roads appeared to be rural in nature and were not heavily traveled, by 1953, the I-10 was constructed and then heavily used since. Therefore, the potential for lead contamination exists within soils along I-10 due to ADL. As such, ADL sampling was conducted for the proposed project on September 18, 2020. Based on the Phase I ISA, it was determined that soil sampling results were less than the Department of Toxic Substances Control (DTSC) health-risk based screening level for unrestricted land use of 80 mg/kg. However, three of the soil samples exceeded the Soluble Threshold Limit Concentration (STLC; CA-WET) lead threshold of 5 milligrams/liter (mg/L). As such, the Phase I ISA indicates that ADL has resulted in a REC.

Agricultural Uses

Based on the Phase I ISA, the western portion of the subject site appears to have historically consisted of agricultural uses (i.e. orchards). The agriculture use dates back to at least 1938. Therefore, a combination of several commonly used pesticides (i.e., dichlorodiphenyldichloroethane [DDD], dichlorodiphenyltrichloroethane [DDT], and dichlorodiphenyldichloroethylene [DDE]), which are now banned, may have been used throughout the subject site. The historical and current use of agricultural pesticides may have resulted in pesticide residues of certain persistence in soil concentrations that are considered to be hazardous based on established federal regulatory levels. The primary concern with historical pesticide residues is human health from inadvertent ingestion of contaminated soil, particularly by children. The presence of moderately elevated pesticide residuals in soil presents potential health and marketplace concerns.

Based on historical aerial photographs, the agricultural barn structure on APN 413-270-104 was developed by 1967. During the June 9, 2020, site visit, the agricultural barn structure was observed, as well as associated agriculture structures and equipment. Due to the depilated and collapsed condition of the barn structure, the interior of the barn structure was not inspected, nor were the interiors of the associated agricultural structures. Additionally, miscellaneous debris were observed throughout areas of the project site associated with agricultural uses.

It is typical for agriculture uses to include gasoline or diesel underground storage tanks (USTs) (from the 1940s through the 1980s). Until the mid-1980s most USTs were made of bare steel, which is likely to corrode over time and allow UST contents to seep into the soil and contaminate groundwater. With the exception of the historical agricultural use, no evidence documenting the presence/removal of any USTs was noted. However, since the project site consisted of agriculture uses prior to 1938 and the likelihood that a UST was used on-site, the Phase I ISA indicated that a UST may be present on the project site. Given the time the UST may have been installed (1930s – 1980s), it is likely that a UST(s), if present, is a single-walled steel tank. Thus, the Phase I ISA concluded that this potential undocumented UST represents a REC at this time.

As the project site was historically used for agriculture (particularly between the 1930’s and 1980’s), it is likely that pesticides/herbicides were historically used. Therefore, the Phase I ISA concluded that residual herbicide/pesticide contamination may be present in on-site surface soils and within the structures associated with past agricultural uses. As such, a REC has resulted in this regard.

Residential Uses

Based on the Phase I ISA, one small structure (that appeared to be associated with a rural residential use; APN 407-230-018) was present sometime prior to 1985, until sometime prior to 1989, when the structure was demolished. Since 1989, the APN 407-230-018 has consisted of vacant land. No indicators of potential hazardous materials were noted in relation to this use. Additionally, this use was not reported as a regulatory property. Therefore, the Phase I ISA concluded that this past residential use has not resulted in a REC.

Past On-Site Spills

As noted above, the records search conducted as part of the Phase I ISA reported one spill site within the boundaries of the subject site. This spill was reported in 1988, and the type of contaminant, amount, and containment status were not reported. This past spill is anticipated to be associated with a petroleum spill that may have occurred during an automobile accident. Thus, the incident is anticipated to have been minor in nature and occurred more than 25 years ago. Therefore, based on the Phase I ISA this spill is de minimis in nature and has not resulted in a REC.

Current Adjoining Uses

Plantation on the Lake

This property (adjoining the subject site to the south) is currently occupied by Plantation on the Lake mobile homes. Based on the Phase I ISA, a liquid mercury spill occurred in 2013 in a residential garage. The spill was contained by CALFire and cleaned up by a contractor. The property is listed in the Cortese database for Cease Desist Orders and Cleanup Abatement Orders related to municipal/domestic uses. Based on the information reviewed as part of this Phase I ISA, this off-site release (reported on concrete) has not resulted in a release on the project site. No REC has resulted from this current adjoining property.

Luther's Truck and Equipment, Inc.

This property (adjoining the subject site to the east, north of I-10) is occupied by Luther's Truck & Equipment, Inc., an automotive repair service facility. An AST with secondary containment was observed from the adjoining property to the east during the June 9, 2020, site visit. No staining or leaking was observed with respect to off-site AST during the site visit. Luther's Truck & Equipment, Inc. was listed in Phase I ISA for the handling/storage/transport of hazardous materials. However, no releases to soil, soil gas, or groundwater were reported. As this property is situated off-site and no releases have been reported, the Phase I ISA indicated that no REC has resulted from this current adjoining property.

Past Adjoining Uses

Residential Uses

Past adjoining residential uses were noted during the review of historical documentation. Residential uses are not typically associated with the handling/storage or transport of hazardous materials. Therefore, the Phase I ISA noted that the past adjoining residential uses have not resulted in a REC.

Agricultural/Ranching Uses

Based on the evaluation of the documented land use (as demonstrated in the resources reviewed as part of this Phase I ISA), adjoining uses to the east of the subject site appear to have been historically utilized for agricultural purposes in the 1950s and 1960s and adjoining uses to the south of the subject site appear to have been historically utilized for agricultural/ranching purposes in the 1970s. As adjoining uses were historically used for agriculture/ranching, it is likely that pesticides/herbicides were historically used. However, historical pesticides/herbicides as a result of these adjoining historical agricultural uses are located off-site and are not anticipated to have impacted on-site surface soils. Thus, the presence of residual herbicide/ pesticide contamination in on-site surface soils as a result of the past adjoining agricultural uses is unlikely and no REC has resulted in this regard.

Historical Off-Site USTs

The following uses have reported historical USTs and adjoined the subject site:

- 10410 Roberts Road (Stokes Ranch); and
- 10701 Desert Lawn Drive (Suzy Lynn Ranch).

These past adjoining uses have not reported the handling/storage/transport of hazardous materials nor has these properties reported any releases to the environment. During a preliminary observation of on-site properties from public thoroughfares, no visible or physical evidence was observed to suggest that a surface release of petroleum-based material has recently occurred. No unusual or suspicious materials handling or storage practices were observed with respect to on-site properties. These past uses have not been under investigation for violation on any environmental laws, regulations, or standards, as identified in the databases reported in the Phase I ISA.

These properties are located off-site and no releases have been reported. Thus, the Phase I ISA indicated that no REC has resulted.

Current and Past Adjacent Uses

Although the records search from the Phase I ISA identified three off-site regulatory properties within one mile radius of the subject site, these properties do not present a potential concern to groundwater underlying the subject site. The reported adjacent regulatory properties are considered to have a low potential of affecting the subject site, due to the distance, anticipated groundwater flow direction, and/or status of the identified sites. Thus, the Phase I ISA indicates that current and past adjacent properties have not resulted in a REC.

Environmental Consequences

Temporary Impacts

No-Build Alternative

No improvements to the I-10/Cherry Boulevard would occur under the No-Build Alternative and, therefore, it would not result in temporary adverse effects related to hazardous waste and materials.

Build Alternatives 3 and 4

Traffic Striping Material

The following text has been amended since the Draft Environmental Document: As noted above, traffic striping was observed along I-10, Cherry Valley Boulevard, Tukwet Canyon Parkway, Calimesa Boulevard, and Roberts Road. All roadways within the boundaries of the subject site were constructed prior to 1967, with the exception of the Cherry Valley Boulevard extension constructed in 2006 (i.e., Tukwet Canyon Parkway). Although roadways have likely been restriped since 1967, LBPs may still be associated with most traffic striping materials on-site. Traffic striping materials appeared to be intact and did not appear to be released into the environment, including on-site bare soils. However, as the project proposes disturbance of on-site traffic striping materials, demolition of these materials presents an environmental concern. The contractor would be required to determine the specific traffic striping/pavement marking material proposed for removal (whether it is yellow thermoplastic, yellow pavement markings, and/or non-yellow pavement markings) prior to disturbance. Disturbance and disposal of these materials would be required to follow Caltrans Standard Special Provisions (SSPs) 84-9.03B, 14-11.12, and 36-4. Upon adherence to these SSPs, adverse effects in this regard would not occur.

Asbestos-Containing Materials and Lead Based Paint

The following text has been amended since the Draft Environmental Document: As noted previously, the project proposes modification to the existing Cherry Valley Boulevard Overcrossing (Bridge No. 56-0481), constructed by 1965. Based on site reconnaissance, the bridge structures appeared to be in fair condition and no evidence of ACMs and LBPs being released into the environment was noted. Notwithstanding, the project proposes modification of this bridge structure and could expose ACMs/LBPs during construction. Thus, the Phase I ISA indicates that ACMs and LBPs in the bridge structures have not resulted in a REC, but presents an environmental concern during construction. As such, ACMs and LBPs sampling was conducted for the bridge/overcrossing. Based on the Phase I

ISA, ACMs (defined by the U.S. Environmental Protection Agency [EPA] as an ACM of 1.0 percent or higher) were detected in bolt mastic (7 percent chrysotile asbestos) and shim pads (55 to 60 percent chrysotile asbestos), both located on the metal guard rail support posts on the bridge (Number 56-0481). As such, Measure HAZ-1 has been incorporated to ensure that adverse effects related to ACMs do not occur.

A total of six bulk samples of paint were also collected from the roadway and bridge. Although LBPs were detected in samples taken, all samples were below the EPA's threshold of 5,000 parts per million (ppm). As some of the paint contains minimal amounts of lead, Title 8 CCR 1532.1 (Lead) may require workers that perform either manual demolition, manual scraping or sanding of painted surfaces to undergo an exposure assessment including air monitoring of the breathing zone. As such, Measure HAZ-2 has been included regarding handling of LBPs.

The following text has been amended since the Draft Environmental Document: In addition to ACMs and LBPs associated with the existing bridge structure, the Phase I ISA noted that several on-site residences appear to have been constructed sometime prior to 1978 and may be associated with ACMs and LBPs (APN 413-270-014 and 407-230-017). The Phase I ISA indicates that observed evidence of flaking and peeling that would suggest a release of ACMs and LBPs to on-site soils has resulted. Further, debris piles that appear to be associated with rural residential building and foundation remnants were also noted (APN 407-230-017). Thus, the Phase I ISA indicates that potential ACMs and LBPs in building materials that have released to on-site soils presents a REC. Handling and disposal of ACMs would occur in accordance with the Caltrans SSP 14-11.16. As for demolition of the existing structures is proposed, Measure HAZ-4 has been incorporated, which would require that a Phase II/Site Characterization Specialist prepare a Soil Management Plan (SMP), and Measure HAZ-5 would require sampling of existing building and underground pipeline materials for ACMs and LBPs, in addition to treated wood, prior to site clearing activities. With implementation of these measures, adverse effects would not occur in this regard.

The following text has been amended since the Draft Environmental Document: In addition to the bridge structure, the project would realign the six-inch medium pressure gas line along Calimesa Boulevard approximately 1,500 linear feet. Existing piping could be associated with ACMs. However, the project would be required to comply with all standards and procedures of the utility purveyor including those pertaining to the handling and disposal of hazardous materials/waste (such as ACMs) during construction. With implementation of the local utility purveyor's standard practices and procedures, adverse effects would not occur in this regard.

Treated Wood Waste

The following text has been amended since the Draft Environmental Document: Treated wood may be present in association with power poles, sign posts, and guard rails particularly along on- and off-ramps, Cherry Valley Boulevard, Tukwet Canyon Parkway, Calimesa Boulevard, and Roberts Road. Based on the Phase I ISA, treated wood has not resulted in a REC. However, disposal of this material during construction presents an environmental concern. Measure HAZ-5 would require the sampling of existing building materials for treated wood, in addition to ACMs and LBPs, prior to site clearing activities. If present, the disposal of treated wood waste would be required to be performed in accordance with Caltrans SSP 14-11.14. With implementation of this measure and adherence to this SSP, impacts related to treated wood waste would not be adverse.

Pad-Mounted Transformers

One pad-mounted transformer along Cherry Valley Boulevard was noted during the site reconnaissance for the Phase I Site Assessment. Transformers have the potential to contain PCBs. No evidence of dielectric fluid or staining was noted on-site. However, based on the Phase I ISA, Measure HAZ-3 has been incorporated. This measure would require that any transformer to be relocated/removed during site construction/demolition should be conducted under the purview of the local purveyor to identify proper handling procedures regarding PCBs. With implementation of this measure, adverse impacts would not occur in this regard.

Aboveground Storage Tanks

As noted above, a small diesel AST was observed within the boundaries of APN 413-270-014 during the on-site visit. The Phase I ISA anticipates that this AST may have been used for a backup generator. There are no available reports of the handling/storage/transport of hazardous materials nor has this property reported any releases to the environment. When observed during the site reconnaissance, the AST appeared to be in poor condition. It was not possible to view areas of bare soils within in the vicinity of the AST due to the presence of high vegetation. As such, there is potential for diesel contamination to exist within areas of bare soils beneath the AST, and a REC has resulted in this regard. To minimize impacts in this regard, the Build Alternatives will be required to implement Measure HAZ-4. As noted above, Measure HAZ-4 would require that a Phase II/Site Characterization Specialist prepare an SMP to investigate and remediate potential leaks related to the on-site AST, as necessary. Adverse effects in this regard would not occur.

Aerially Deposited Lead

The following text has been amended since the Draft Environmental Document: As discussed in the Phase I ISA, the potential for lead contamination exists within soils along I-10 due to ADL. As such, ADL sampling was conducted for the proposed project on September 18, 2020. Based on the Phase I ISA, it was determined that soil sampling results were less than the DTSC health-risk based screening level for unrestricted land use of 80 mg/kg. However, three of the soil samples from a total of 60 samples exceeded the STLC lead threshold of 5 mg/L. As such, the Phase I ISA indicates that ADL has resulted in a REC. As a result, the Build Alternatives would be required to implement Measure HAZ-6. Measure HAZ-6 includes provisions regarding off-site disposal of excavated soils in the vicinity of I-10, and safety measures for construction workers handling soil affected by ADL. With implementation of this measure, adverse effects would not occur.

Agricultural Uses

As noted above, it is typical for agriculture uses to include gasoline or diesel USTs (from the 1940s through the 1980s). Until the mid-1980s most USTs were made of bare steel, which is likely to corrode over time and allow UST contents to seep into the soil and contaminate groundwater. With the exception of the historical agricultural use, no evidence documenting the presence/removal of any USTs was noted. However, since the project site consisted of agriculture uses prior to 1938 and the likelihood that a UST was used on-site, the Phase I ISA indicated that a UST may be present on the project site. Given the time the UST may have been installed (1930s – 1980s), it is likely that a UST(s), if present, is a single-walled steel tank. Thus, the Phase I ISA concluded that this potential undocumented UST represents a REC at this time. In addition, as the project site was historically used for agriculture (particularly between the 1930's and 1980's), it is likely that pesticides/herbicides were historically used. Therefore, the Phase I ISA concluded that residual herbicide/pesticide contamination may be present in on-site surface soils and within the structures associated with past agricultural uses. As such, a REC has resulted in this regard.

Measure HAZ-4 would require that a Phase II/Site Characterization Specialist prepare an SMP to investigate and remediate potential leaks related to a potential UST and the potential for herbicides/pesticides affecting on-site soils. With implementation of this measure, adverse effects in this regard would not occur.

Based on the analysis provided above, adverse temporary effects related to hazardous materials would not occur. The potential impacts and RECs identified as part of the Phase I ISA were based upon available information as of the Project Approval/Environmental Document (PA/ED) phase; however, the Phase I ISA recommends that additional site investigation/sampling occur as part of a Phase II/Site Characterization during the Plans, Specifications, and Estimates (PS&E) phase to verify the presence or absence of identified RECs (Measure HAZ-7). Additionally, the Phase I ISA provides requirements in the event unknown wastes or suspect materials are discovered during construction (Measure HAZ-8). Thus, temporary effects in this regard would not be adverse.

Permanent Impacts

No-Build Alternative

The No-Build Alternative would not change the existing physical environment and, therefore, there would be no permanent adverse effects related to hazardous waste under this alternative. Routine maintenance activities would continue to occur under this alternative, including compliance with applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials.

Build Alternatives 3 and 4

Routine maintenance activities during operation of the Build Alternatives 3 and 4 would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials. Therefore, the operation of the Build Alternatives 3 and 4 would not result in adverse effects related to hazardous waste or materials.

Avoidance, Minimization, and/or Mitigation Measures

Measures HAZ-1 through HAZ-6 have been amended since the Draft Environmental Document.

HAZ-1 The following text has been amended since the Draft Environmental Document: If the ACM bolt mastic or shims associated with the Cherry Valley Boulevard Overcrossing (Bridge No. 56-0481) are impacted by construction activities, the ACMs shall be abated by a Cal/OSHA licensed asbestos abatement contractor using methods in accordance with Title 8 of California Code of Regulations (CCR) 1529 for a Class II material using wet methods and SCAQMD Rule 1403. In accordance with Caltrans Standard Special Provisions (SSPs) 14-9.02 (Air Pollution Control) and 14-11.16 (Asbestos-Containing Construction Materials in Bridges), notification to the U.S. EPA, California Air Resources Board (CARB), and/or SCAQMD regarding the demolition or rehabilitation of a bridge or building with ACMs shall occur as applicable. Additionally, if proposed utility relocation (underground pipelines) is determined to include ACMs, the project shall comply with all existing regulatory agency and utility purveyor standards and procedures including those pertaining to the handling and disposal of hazardous materials/waste (such as ACMs) during construction.

HAZ-2 The following text has been amended since the Draft Environmental Document: As some of the paint associated with the Cherry Valley Boulevard Overcrossing (Bridge No. 56-0481) contains minimal amounts of lead, workers that perform either manual demolition, manual scraping or sanding of painted surfaces shall undergo an exposure assessment including air monitoring of the breathing zone pursuant to Title 8 CCR 1532.1 (Lead) and follow Caltrans SSP 14-11.13 (Disturbance of existing Paint Systems on Bridges).

Given that observed traffic striping along I-10, Cherry Valley Boulevard, Tukwet Canyon Parkway, Calimesa Boulevard, and Roberts Road could date back to road construction in 1967, LBPs may be present on-site. Disturbance and disposal of these materials shall follow Caltrans SSPs 84-9.03B (Remove Traffic Stripes and Pavement Markings Containing Lead), 14-11.12 (Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue), and 36-4 (Residue Containing Lead from Paint and Thermoplastic).

HAZ-3 The following text has been amended since the Draft Environmental Document: Any transformer to be relocated/removed during site construction/ demolition should be conducted under the purview of the local purveyor to identify proper-handling and disposal procedures regarding PCBs in accordance with Caltrans SS 14-11.15 (Disposal of Electrical Equipment Requiring Special Handling).

HAZ-4 A Soil Management Plan (SMP) shall be prepared by a qualified environmental professional with Phase II/Site Characterization experience during the plan, specification and estimates (PS&E) phase of the project for Assessor’s Parcel Numbers 413-270-004, 413-270-014, 413-270-015, and 407-230-17. The SMP shall include guidelines for safety measures and soil management in the event that soils are to be disturbed, and for handling soil during any planned earthwork activities. The SMP shall also include a decision framework and specific risk management measures for managing soil, including any soil import/export activities, in a manner protective of human health and consistent with applicable regulatory requirements.

As part of this SMP, all excavation activities shall be documented daily using digital photography. In addition, the sides and the bottom of the excavation areas of concern should be appropriately logged on scaled paper. Observed materials, including an estimate of the quantity observed, and PID and dust monitor readings shall be recorded on the Daily Field Record and/or the Direct Reading Log. Well abandonment should be conducted in accordance with state and local laws and regulations.

The SMP shall include measures in the event that potential USTs are discovered during grading activities. The SMP should require

Caltrans to contact the appropriate regulatory agency (i.e., the County of Riverside Department of Environmental Health Hazardous Materials Management Branch) for further guidance and oversight, if deemed necessary by the regulatory agency.

If the results of the stockpile samples show no contamination, or detected concentrations of chemicals or ACMs or LBPs in soils, within acceptable regulatory limits, then the soil may be redistributed within the excavation in accordance with Caltrans SSP 7-1.02K(6)(j)(iii) (Unregulated Earth Material Containing Lead) for nonhazardous soil. If soil is deemed contaminated, then it should be disposed of off-site at an approved landfill facility. Caltrans SSP 14-11.08 (Regulated Material Containing Aerially Deposited Lead) shall be implemented if the project requires export of contaminated soil. Should any soils be imported or exported at an off-site location, a Phase II/Site Characterization Specialist should verify that all imported/exported soils are not contaminated with hazardous materials above regulatory thresholds. Caltrans SSP 6-1.03 (Local Materials) shall be implemented if the project requires imported soils. If import/export soils are determined to be contaminated above regulatory thresholds, the Phase II/Site Characterization Specialist would recommend proper handling, use, and/or disposal of these soils.

The Soil Management Plan shall also document that excavation activities could disturb septic systems and leach fields that may be present. It is the opinion of Michael Baker that the location of septic tanks and leach fields should be confirmed prior to site disturbance activities. Should septic systems be present on-site, the septic system shall be properly closed/abandoned and/or removed per City of Calimesa requirements.

HAZ-5 The following text has been amended since the Draft Environmental Document: A Phase II Site Investigation Specialist shall conduct ACMs and LBPs surveys, as well as treated wood surveys, prior to site clearing activities, for all on-site structures proposed for demolition or modification, and utility relocations, or any on-site debris piles suspect of containing demolition debris materials that could contain ACMs, LBPs, or treated wood. If present, the Specialist shall recommend appropriate remedial measures, such as the proper removal and disposal, of the ACMs/LBPs and/or treated wood as they are uncovered. Surveying, sampling and analysis, removal, and management of asbestos and/or treated wood must comply with all applicable federal, State, and local laws and regulation.

HAZ-6 The following text has been amended since the Draft Environmental Document: Based on the results of the ADL survey, the 95 percent UCL concentration of total (TTLC) lead (35.59 milligrams per kilogram [mg/kg]) for the entire data set is less than the DTSC health-risk based screening level for unrestricted land use of 80 mg/kg. Soluble lead concentrations (Soluble Threshold Limit Concentration [STLC]/CAWET), defined by U.S. EPA as lead concentrations greater than 5 milligrams/liter (mg/L), were detected in three samples from a total of 60 samples along I-10. However, extractable lead concentrations (Deionized Water Waste Extraction Test [DI-WET]) were detected below 1.5 mg/L. As a result, soils in the area of these samples may be reused on-site if buried under a pavement structure or under at least one foot of clean soil. If excavated and removed, ADL contaminated soil shall be hauled to a Class I landfill and categorized as hazardous waste (i.e., Type Z2). DTSC shall be notified of the STLC/CA-WET soluble lead concentration exceedances. As some of the soil contains minimal amounts of lead, workers that perform either manual excavation shall undergo an exposure assessment including air monitoring of the breathing zone pursuant to Title 8 CCR 1532.1 (Lead). Handling, removing, and disposing of earth material containing lead would be conducted in accordance with Caltrans SSPs 7-1.02k(6)(j)(iii) (Unregulated Earth Material Containing Lead), 14-11.08 (Regulated Material Containing Aerially Deposited Lead), and/or 14-11.09 (Minimal Disturbance of Regulated Material Containing Aerially Deposited Lead).

HAZ-7 Additional Site Investigation (SI)/sampling shall be conducted by a qualified environmental professional with Phase II/Site Characterization experience during the plan, specification and estimate (PS&E) phase of the project to verify the presence or absence of the identified RECs presented in the Phase I ISA prepared for the project.

HAZ-8 If unknown wastes or suspect materials are discovered during construction by the contractor that are believed to involve hazardous waste or materials, the contractor shall comply with the following:

Immediately cease work in the vicinity of the suspected contaminant, and remove workers and the public from the area;

- Notify the City Engineer of the City of Calimesa;
- Secure the area as directed by the City Engineer; and

- Notify the County of Riverside Department of Environmental Health (or other appropriate agency specified by the City Engineer). The Hazardous Waste/Materials coordinator shall advise the responsible part of further actions that shall be taken, if required.

2.2.6 Air Quality

Regulatory Setting

The Federal Clean Air Act (FCAA), as amended, is the primary federal law that governs air quality while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and state ambient air quality standards have been established for six criteria pollutants that have been linked to potential health concerns: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM) —which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$), Lead (Pb), and sulfur dioxide (SO_2). In addition, state standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and state standards are set at levels that protect public health with a margin of safety, and are subject to periodic review and revision. Both state and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under the National Environmental Policy Act (NEPA). In addition to this environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits the U.S. Department of Transportation (USDOT) and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 Code of Federal Regulations (CFR) 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for state standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM_{10} and $PM_{2.5}$), and in some areas (although not in California), sulfur dioxide (SO_2). California has nonattainment or maintenance areas for all of these transportation-related “criteria pollutants” except SO_2, and also has a nonattainment area for lead (Pb); however, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO), Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept and scope and the “open-to-traffic” schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and TIP; the project has a design concept and scope ("Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.) that has not changed significantly from those in the RTP and TIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

Affected Environment

This section is based on the findings of Air Quality Report (AQR) (dated December 2020) prepared for this project.

Environmental Setting

The project site is located in the City of Calimesa, in Riverside County, on I-10 between Singleton Road and Oak Valley Parkway. Riverside County is in the South Coast Air Basin (SCAB), which is under the jurisdiction of the South Coast Air Quality Management District (SCAQMD). The SCAB includes all of

Orange County and a portion of Los Angeles, San Bernardino, and Riverside Counties.

Climate, Meteorology, and Topography

Climate, meteorology and terrain can influence air quality. Certain weather parameters are highly correlated to air quality, including temperature, the amount of sunlight, and the type of winds at the surface and above the surface. Winds can transport O_3 and O_3 precursors from one region to another, contributing to air quality problems downwind of source regions. Furthermore, mountains can act as barriers that prevent O_3 from dispersing.

The SCAB is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of its perimeter. During the spring and early summer, pollution is typically blown out of the SCAB through mountain passes or lifted by warm, vertical currents adjacent to mountain slopes. The vertical dispersion of air pollutants in the SCAB is limited by temperature inversions in the atmosphere close to Earth's surface. On days with no inversion or high wind speeds, ambient air pollutant concentrations are lowest. During periods with low inversions and low wind speeds, air pollutants become more concentrated in urbanized areas with pollution sources of great magnitude.

SCAB experiences frequent temperature inversions. Atmospheric temperature typically decreases with height. However, under inversion conditions, temperature increases as altitude increases, thereby preventing air close to the ground from mixing with the air above it. As a result, air pollutants are trapped near the ground.

The Redlands climatological station, maintained by SCAQMD, is the closest station to the project area and representative of meteorological conditions near the project. The average high and low temperatures are 95 degrees Fahrenheit (July) and 39 degrees Fahrenheit (January). Average annual precipitation is 13.56 inches.

Criteria Pollutants and Attainment Status

Regional air quality is monitored by SCAQMD and ARB. These two agencies operate a network of air quality monitoring stations in the Air Basin. The U.S. EPA determines regional air quality status based on data collected from these permanent monitoring stations. Existing air quality conditions in the project area can be characterized in terms of the ambient air quality standards that the State of California and the federal government have established for several different pollutants. For some pollutants, separate standards have been set for different measurement periods. Most standards have been set to protect public health. For some pollutants, standards have been based on other values (such as protection of crops, protection of materials, or avoidance of nuisance conditions). Table 2.2.6-1 summarizes the attainment status designations for Riverside County for all regulated pollutants. It shows that Riverside County is classified as a nonattainment area for the State 1 hour and 8 hour O_3 standard, as well as State 24 hour and annual $PM_{2.5}$ standard. More notably, it shows that Riverside County is classified as an extreme nonattainment area for the federal 8-hour O_3 standard, a serious nonattainment area for the federal $PM_{2.5}$ standard, and a maintenance serious area for the federal CO standard.

Transportation Conformity Rule

The U.S. EPA, in conjunction with the USDOT, established the Transportation Conformity Rule on November 30, 1993. The rule implements the FCAA conformity provision, which mandates that the federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to an approved FCAA implementation plan.

Table 2.2.6-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

The following table has been amended since the Draft Environmental Document.

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Ozone (O_3)[3]	1 hour	0.09 ppm[4]	---	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Nonattainment	---
Ozone (O_3)[3]	8 hours	0.070 ppm	0.070 ppm (4th highest in 3 years)	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Nonattainment	Extreme Nonattainment
Carbon Monoxide (CO)[5]	1 hour	20 ppm	35 ppm	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Attainment	Maintenance Serious

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Carbon Monoxide (CO)[5]	8 hours	9.0 ppm	9 ppm	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Attainment	Maintenance Serious
Carbon Monoxide (CO)[5]	8 hours (Lake Tahoe)	6 ppm	---	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	---	---
Respirable Particulate Matter (PM_{10})[6]	24 hours	50 $\mu g/m^3$ [7]	150 $\mu g/m^3$ (expected number of days above standard < or equal to 1)[Error! Bookmark not defined.]	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Nonattainment	Serious Maintenance
Respirable Particulate Matter (PM_{10})[6]	Annual	20 $\mu g/m^3$	---	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Nonattainment	---

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Fine Particulate Matter ($PM_{2.5}$)[8]	24 hours	---	35 μg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic & other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.	---	Serious Nonattainment
Fine Particulate Matter ($PM_{2.5}$)[8]	Annual	12 μg/m^3	12.0 μg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic & other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.	Nonattainment	Serious Nonattainment
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm[9]	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the “NOx” group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Attainment	Attainment
Nitrogen Dioxide (NO_2)	Annual	0.030 ppm	0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Attainment	Maintenance

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
				"NOx" group of ozone precursors.			
Sulfur Dioxide (SO_2)[10]	1 hour	0.25 ppm	0.075 ppm (99th percentile over 3 years)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Attainment	Attainment
Sulfur Dioxide (SO_2)[10]	3 hours	---	0.5 ppm[11]	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	--	Attainment
Sulfur Dioxide (SO_2)[10]	24 hours	0.04 ppm	0.14 ppm (for certain areas)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Attainment	Attainment
Sulfur Dioxide (SO_2)[10]	Annual	---	0.030 ppm (for certain areas)	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of ozone precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	--	Attainment

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Lead (Pb)[12,13]	Monthly	1.5 μg/m^3	---	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.	Attainment	---
Lead (Pb)[12,13]	Calendar Quarter	---	1.5 μg/m^3 (for certain areas)	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.	---	Attainment
Lead (Pb)[12,13]	Rolling 3-month average	---	0.15 μg/m^3	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.	---	Attainment
Sulfates	24 hours	25 μg/m^3	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Attainment	N/A
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	Attainment	N/A
Visibility Reducing	8 hours	Visibility of 10 miles or more	---	Reduces visibility. Produces haze.	See particulate matter above.	Attainment	N/A

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Particles (VRP)[14]		(Tahoe: 30 miles) at relative humidity less than 70%		NOTE: not directly related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	May be related more to aerosols than to solid particles.		
Vinyl Chloride[12]	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	Attainment	N/A

Notes: Adapted from the California ARB Air Quality Standards chart (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf).

Greenhouse Gases and Climate Change: Greenhouse gases do not have concentration standards for that purpose. Conformity requirements do not apply to greenhouse gases.

[1] California standards for ozone, carbon monoxide (except 8-hour Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, and particulate matter (PM10, PM2.5, 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.

[2] Federal standards (other than ozone, particulate matter, and those based on annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest 8-hour concentration measured at each site in a year, averaged over three 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/m[3] is equal to or less than one. For PM2.5, the 24-hour standard is attained when 98 % of the daily concentrations, averaged over three years, are equal to or less than the standard. Contact the U.S. EPA for further clarification and current national policies.

[3] On October 1, 2015, the national 8-hour ozone primary and secondary standards were lowered from 0.075 to 0.070 ppm. Transportation conformity applies in newly designated nonattainment areas for the 2015 national 8-hour ozone primary and secondary standards on and after August 4th, 2019 (see https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100UN3X.pdf).

[4] ppm = parts per million.

[5] Transportation conformity requirements for CO no longer apply after June 1, 2018 for the following California Carbon Monoxide Maintenance Areas (see U.S. EPA CO Maintenance Letter*).*

[6] On December 14, 2012, the national annual PM2.5 primary standard was lowered from 15 μg/m3 to 12 μg/m3. The existing national 24-hour PM2.5 standards (primary and secondary) were retained at 35 μg/m3, as was the annual secondary standard of 15 μg/m3. The existing 24-hour PM10 standards (primary and secondary) of 150 μg/m3 also were retained. The form of the annual primary and secondary standards is the annual mean, averaged over 3 years.

[7] μg/m^3 = micrograms per cubic meter.

[8] The 65 μg/m^3 $PM_{2.5}$ (24-hr) NAAQS was not revoked when the 35 μg/m^3 NAAQS was promulgated in 2006. The 15 μg/m^3 annual $PM_{2.5}$ standard was not revoked when the 12 μg/m^3 standard was promulgated in 2012. Therefore, for areas designated nonattainment or nonattainment/maintenance for the 1997 and or 2006 $PM_{2.5}$ NAAQS, conformity requirements still apply until the NAAQS are fully revoked.

[9] Final 1-hour NO_2 NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial area designation for California (2012) was attainment/unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause re-designation to nonattainment in some areas after 2016.

[10] On June 2, 2010, a new 1-hour SO_2 standard was established and the existing 24-hour and annual primary standards were revoked. To attain the 1-hour national standard, the 3-

year average of the annual 99th %ile of the 1-hour daily maximum concentrations at each site must not exceed 75ppb. The 1971 SO_2 national standards (24-hour and annual) remain in effect until one year after an area is designated for the 2010 standard, except that in areas designated nonattainment for the 1971 standards, the 1971 standards remain in effect until implementation plans to attain or maintain the 2010 standards are approved.

[11] *Secondary standard, the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.*

[12] *The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.*

[13] *Lead NAAQS are not considered in Transportation Conformity analysis.*

[14] *In 1989, the ARB converted both the general statewide 10-mile visibility standard and the Lake Tahoe 30-mile visibility standard to instrumental equivalents, which are "extinction of 0.23 per kilometer" and "extinction of 0.07 per kilometer" for the statewide and Lake Tahoe Air Basin standards, respectively.*

Transportation Conformity Rule distinguishes between metropolitan and rural areas since metropolitan areas have MPO's, which are specifically charged with determining conformity under the FCAA. The MPO is responsible for transportation planning, including the development of federally required metropolitan transportation plans and transportation improvement programs (TIPs) and determining conformity of such plans and TIPs. Transportation projects in rural areas are not included in MPO plans and TIPs. However, there are two types of rural areas for the purposes of the transportation conformity program, and the conformity requirements in these two types of rural areas are different. These two types of rural areas are defined as Isolated and Donut Areas (Refer to Section 93.101 of the Transportation Conformity Rule).

Local Ambient Air Quality

Potential air quality trends for the project study area were also monitored through the data collected at the Banning Airport and Riverside-Rubidoux monitoring stations. Tables 2.2.6-2 through 2.2.6-6 lists the air quality trends in data collected at both stations between 2016 and 2018. These stations are representative of the project area because their climate, topography, and urban setting are like those of the project area. During the 2016 to 2018 monitoring period, exceedances were recorded at the monitoring stations for the State 1-hour O_3 standard, State and federal 8-hour O_3 standards, and State PM_{10} and $PM_{2.5}$ standards. Figure 2.2.6-1, Air Quality Monitoring Stations Located Near the Project, shows the proximities between the Banning Airport and Riverside-Rubidoux Monitoring Stations and the project location, with the Banning Airport Monitoring Station being in a closer approximation to the project site than the Riverside-Rubidoux Monitoring Station.

Table 2.2.6-2: Ozone Pollutant Concentrations Measured

Pollutant	Standard	2016	2017	2018
Maximum 1-hour concentration	--	0.128	0.128	0.119
Number of days exceeded: State	0.09 ppm	26	50	33
Maximum 8-hour concentration	--	0.106	0.105	0.106
Number of days exceeded: State	0.070 ppm	52	82	69
Number of days exceeded: Federal	0.070 ppm	54	85	69

Notes: ppm = parts per million.
Sources: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Figure 2.2.6-1: Air Quality Monitoring Stations Located Near the Project

Table 2.2.6-3: Carbon Monoxide Pollutant Concentrations Measured

Pollutant	Standard	2016	2017	2018
Maximum 1-hour concentration		1.7	2.2	2.2
Number of days exceeded: State	20 ppm	0	0	0
Number of days exceeded: Federal	35 ppm	0	0	0
Maximum 8-hour concentration	--	1.3	2.0	2.0
Number of days exceeded: State	9.0 ppm	0	0	0
Number of days exceeded: Federal	9.0 ppm	0	0	0

Notes: ppm = parts per million.
Sources: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-4: Particulate Matter (PM_{10}) Pollutant Concentrations Measured

Pollutant	Standard	2016	2017	2018
Maximum 24-hour concentration	--	65.0	97.9	39.3
Number of days exceeded: State	50 μg/m^3	3	6	0
Number of days exceeded: Federal	150 μg/m^3	0	0	0
Maximum annual concentration	--	24.0	22.8	20.0
Exceeded: State	20 μg/m^3	Yes	Yes	Yes

Notes: μg/m3 = micrograms per cubic meter.
Sources: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-5: Particulate Matter ($PM_{2.5}$) Pollutant Concentrations Measured

Pollutant	Standard	2016	2017	2018
Maximum 24-hour concentration	--	60.8	50.3	68.3
Number of days exceeded: Federal	35 μg/m^3	5	7	3
Maximum annual concentration	--	12.6	14.5	12.6
Exceeded: State	12 μg/m^3	Yes	Yes	Yes
Exceeded: Federal	12.0 μg/m^3	--	Yes	Yes

Notes: μg/m3 = micrograms per cubic meter.
Sources: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-6: Nitrogen Dioxide Pollutant Concentrations Measured

Pollutant	Standard	2016	2017	2018
Maximum 1-hour concentration	--	46.9 ppb	56.3 ppb	50.6 ppb
Number of days exceeded: State	0.18 ppm	0	0	0
Number of days exceeded: Federal	100 ppb	0	0	0
Maximum annual concentration	--	8 ppb	8 ppb	8 ppb
Exceeded: State	0.030 ppm	No	No	No
Exceeded: Federal	53 ppb	No	No	No

Notes: ppb = parts per billion; ppm = parts per million.
Sources: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-7 describes the status of the U.S. EPA-approved SIPs for the SCAB relevant to the project.

Table 2.2.6-7: Status of SIPs Relevant to the Project Area

Name/Description	Status
2019 South Coast 8-Hour Ozone SIP Update	Approved, November 2019
2018 South Coast SIP Revisions and Updates	Approved, December 2018
2016 Ozone and $PM_{2.5}$ Plan for the SCAB and Coachella Valley	Approved, March 2017
2010 SCAB PM_{10} Re-designation Request, Maintenance Plan, and Conformity Budgets	Approved, February 2010
2005 South Coast Carbon Monoxide Plan	Approved, February 2006

Sources: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Sensitive Receptors

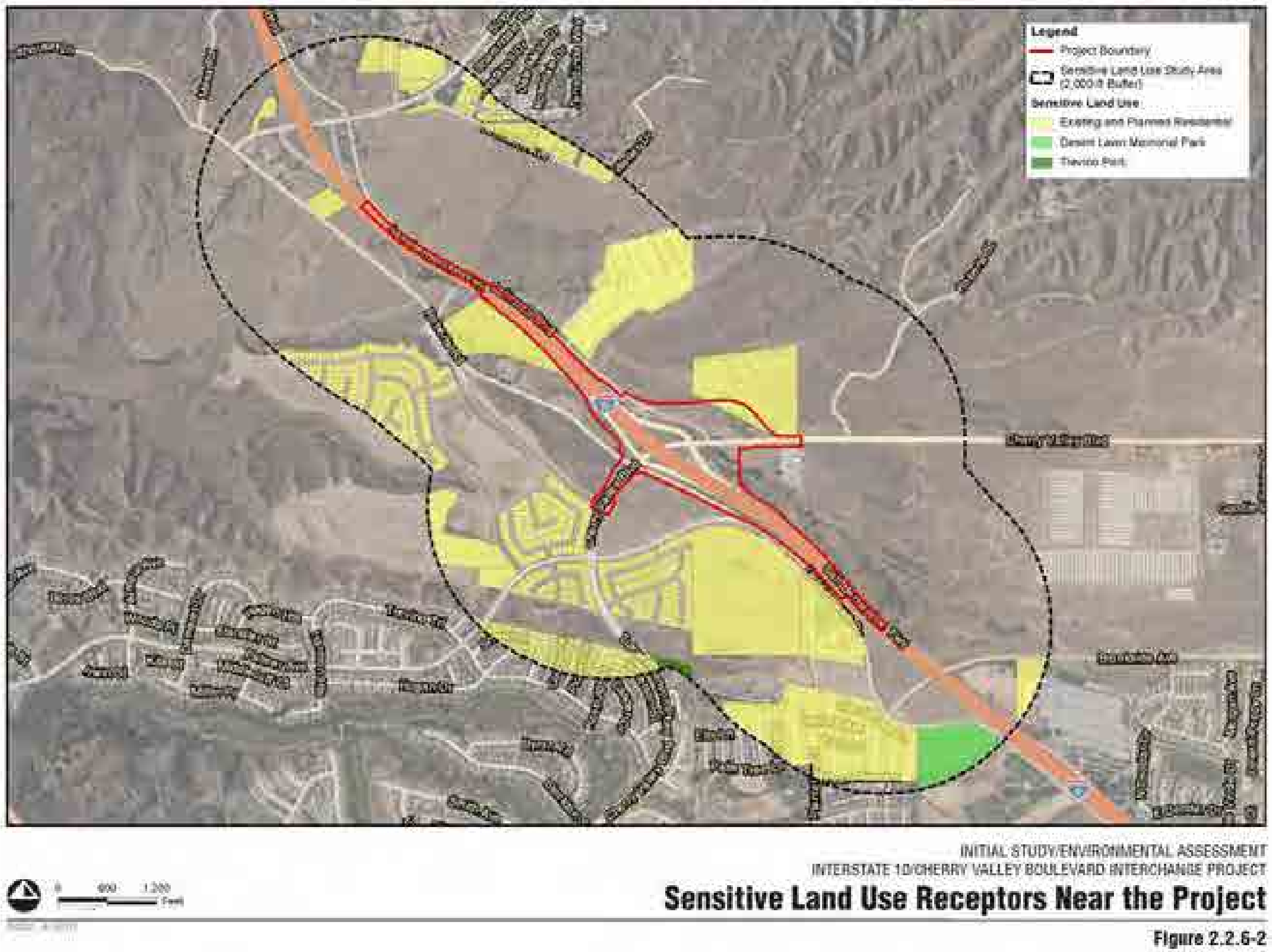
Sensitive populations (sensitive receptors) are more susceptible to the effects of air pollution than the general population. Sensitive receptors that are in proximity to localized sources of toxics and CO are of particular concern.

Due to the size of the project area and the project's potential to influence receptors at great distances from the project site, the sensitive receptors for the project were within 2,000 feet of the project site. Sensitive receptor locations include schools, athletic fields, playgrounds, childcare centers, convalescent centers, retirement homes, hospitals, and residences. As shown in Figure 2.2.6-2, Sensitive Land Use Receptors Near the Project, sensitive land uses were identified: two nearby parks (Trevino Park and Palmer Park), one existing residence, and a planned residency area under the Summerwind Specific Plan.

Mobile Source Air Toxics

Diesel-powered vehicles that use local and regional roadways in the area, including I-10, are determined to be the most prominent sources of mobile source air toxics (MSAT) in the project area. There are no major rail yards, transit terminals, large warehouses, or distribution centers located near the project site.

Figure 2.2.6-2: Sensitive Land Use Receptors Near the Project



Naturally Occurring Asbestos

Chrysotile and amphibole asbestos (such as tremolite) occur naturally in certain geologic settings in California, most commonly in association with ultramafic rocks and along associated faults. Asbestos is a known carcinogen and inhalation of asbestos may result in the development of lung cancer or mesothelioma. The asbestos contents of many manufactured products have been regulated in the United States for a number of years. For example, CARB has regulated the amount of asbestos in crushed serpentinite used in surfacing applications, such as for gravel on unpaved roads, since 1990. In 1998, new concerns were raised about possible health hazards from activities that disturb rocks and soil containing asbestos and may result in the generation of asbestos laden dust. These concerns recently lead CARB to revise their asbestos limit for crushed serpentinite and ultramafic rock in surfacing applications from five percent to less than 0.25 percent, and to adopt a new rule requiring best practices dust control measures for activities that disturb rock and soil containing naturally occurring asbestos (NOA).

NOA in bedrock is typically associated with serpentine and peridotite deposits. Note that during demolition activities, the likelihood of encountering structural asbestos is low due to the nature of the demolished materials. The material would consist primarily of concrete. Therefore, the potential for NOA to be present within the project limits is considered to be low. Furthermore, prior to the commencement of construction, qualified geologists would further examine the soils and makeup of the existing structure. Should the project geologist encounter asbestos during the analysis, proper steps shall be executed to handle the materials.

Environmental Consequences

Temporary Impacts

No-Build Alternative

No construction activities associated with the I-10/Cherry Valley Boulevard Interchange would occur under the No-Build Alternative. Therefore, temporary air quality effects would not occur.

Build Alternatives 3 and 4

The Build Alternatives would generally modify and reconfigure the I-10/Cherry Valley Interchange. Project construction would include clearing, cut-and-fill activities, grading, and paving. This would cause a release of particulate emissions and create a temporary degradation of air quality in the area. Tables 2.2.6-8, Construction Phase Emission Estimates - Build Alternative 3 and 2.2.6-9, Construction Phase Emission Estimates - Build Alternative 4 show the estimated peak daily construction emissions (in pounds per day) during the construction phase under each Build Alternative. Because project construction is expected to last less than five years, construction-related emissions were not considered in the conformity analysis.

Table 2.2.6-8: Construction Phase Emission Estimates - Build Alternative 3

	Reactive Organic Gases (ROG) (lb/day)	Nitrogen Oxides (NO_X) (lb/day)	Carbon Monoxide (CO) (lb/day)	Suspended Particulate Matter (PM_{10}) (lb/day)	Fine Particulate Matter ($PM_{2.5}$) (lb/day)	Sulfur Dioxide (SO_2) (lb/day)
Year 1 Maximum	8	82	66	13	5	<1
Grubbing/Land Clearing	1	10	10	10	2	<1
Grading/Excavation	8	82	66	13	5	<1
Year 2 Maximum	5	52	47	12	4	<1
Drainage/Utilities/Sub-Grade	5	52	47	12	4	<1
Paving	1	14	14	1	<1	<1

Note: Emissions estimated using the Road Construction Emission Model (version 9.0) from the Sacramento Metropolitan Air Quality Management District and project-specific data provided by the design staff.
Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-9: Construction Phase Emission Estimates - Build Alternative 4

	Reactive Organic Gases (ROG) (lb/day)	Nitrogen Oxides (NO_X) (lb/day)	Carbon Monoxide (CO) (lb/day)	Suspended Particulate Matter (PM_{10}) (lb/day)	Fine Particulate Matter ($PM_{2.5}$) (lb/day)	Sulfur Dioxide (SO_2) (lb/day)
Year 1 Maximum	8	80	66	13	5	<1
Grubbing/Land Clearing	1	10	10	10	2	<1
Grading/Excavation	8	80	66	13	5	<1
Year 2 Maximum	5	52	47	12	4	<1
Drainage/Utilities/ Sub-Grade	5	52	47	12	4	<1
Paving	1	15	14	1	<1	<1

Note: Emissions estimated using the Road Construction Emission Model (version 9.0) from the Sacramento Metropolitan Air Quality Management District and project-specific data provided by the design staff.
Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Construction emissions were estimated using the latest Road Construction Emission Model (RCEM) (version 9.0) from the Sacramento Metropolitan Air Quality Management District. RCEM is a data-entry spreadsheet that utilizes various sources to estimate construction emissions. RCEM is recommended by Caltrans and the SCAQMD as it is specifically developed to estimate emissions associated with transportation construction projects since the default equipment, activities, and typical phasing are different than those of land use development projects and building construction projects. The model is used for that purpose in this project.

In order to minimize construction-related emissions, all construction equipment would use low-sulfur fuel, as required by California Code of Regulations Title 17, Section 93114. Compliance with the South Coast Air Quality Management District's rules and regulations would occur. In order to further minimize construction-related emissions, all construction vehicles and construction equipment would be required to be equipped with state-mandated emission control devices pursuant to state emission regulations and standard construction practices. After construction of the proposed project is complete, all construction-related impacts would cease. Temporary construction particulate matter emissions would be further reduced through the implementation of dust suppression measures outlined within SCAQMD Rule 403. Caltrans Standard Specifications for Construction (Sections 14-11.04 [Dust Control]) and 14-9.02 [Air Pollution Control]) would also be adhered to for asphalt concrete emissions and all earthwork, clearing and grubbing, and roadbed activities involving heavy construction equipment. The contractor would comply with all air pollution control ordinances and statutes which apply to any work performed pursuant to the contract, including any air pollution control rules, regulations, ordinances and statutes, specified in Section 11017 of the Government Code. The Build Alternatives would comply with any State, federal, and/or local rules and regulations developed as a result of implementing control and mitigation measures proposed as part of their respective SIPs. Therefore, construction of the Build Alternatives is not anticipated to violate State or federal air quality standards or contribute to the existing air quality violations in the SCAB.

Naturally Occurring Asbestos

There are no geologic features that are normally associated with naturally occurring asbestos (serpentine rock or ultramafic rock near fault zones) present in or near the project area. Significantly adverse effects from naturally occurring asbestos during the project construction phase would be minimal to none.

Impacts related to structural asbestos and aerially deposited lead (ADL) is discussed in Section 2.2.5, Hazardous Waste/Materials, above.

Permanent Impacts

No-Build Alternative

Improvements to the existing I-10/Cherry Valley interchange would not occur under the No-Build Alternative. Accordingly, adverse effects related to air quality would not occur.

Build Alternatives 3 and 4

Emissions were evaluated through modeling using the Caltrans EMFAC (CT-EMFAC2017) model and available vehicle activity data corresponding with the Traffic Operations Analysis Report (TOAR) (November 2020).

Tables 2.2.6-10, Operational Criteria Pollutant Emissions, 2.2.6-11, Net Operational Criteria Pollutant Emissions Comparison to Existing Conditions, and 2.2.6-12, Net Operational Criteria Pollutant Emissions Comparison to No-Build Conditions, summarizes the modeled emissions by scenario and compares emissions under the build alternatives with emissions under the No-Build Alternative and existing conditions. The differences in emissions between with- and without-project conditions represent emissions generated directly from implementing the build alternatives. Vehicular emission rates are anticipated to lessen in future years because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

Table 2.2.6-10: Operational Criteria Pollutant Emissions

Scenario/Analysis Year	ROG (tons per year)	NOx (tons per year)	CO (tons per year)	PM_{10} (tons per year)	$PM_{2.5}$ (tons per year)	SO_2 (tons per year)
Existing year (2019)	58	297	735	186	41	<1
Opening-year (2025) No-Build Alternative	44	172	561	231	48	<1
Opening-year (2025) Alternative 3	44	172	561	231	48	<1
Opening-year (2025) Alternative 4	44	172	561	231	48	<1
Design-year (2045) No-Build Alternative	37	192	579	368	75	<1
Design-year (2045) Alternative 3	37	192	579	368	75	<1
Design-year (2045) Alternative 4	37	192	579	368	75	<1

Notes: Modeled using CT-EMFAC2017.
Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-11: Net Operational Criteria Pollutant Emissions Comparison to Existing Conditions

Scenario/Analysis Year	ROG (tons per year)	NOx (tons per year)	CO (tons per year)	PM_{10} (tons per year)	$PM_{2.5}$ (tons per year)	SO_2 (tons per year)
Opening-year (2025) Alternative 3	-14	-125	-174	45	7	0
Opening-year (2025) Alternative 4	-14	-125	-174	45	7	0
Design-year (2045) Alternative 3	-21	-105	-156	182	34	0
Design-year (2045) Alternative 4	-21	-105	-156	182	34	0

Notes: Modeled using CT-EMFAC2017.
Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-12: Net Operational Criteria Pollutant Emissions Comparison to No-Build Conditions

Scenario/Analysis Year	ROG (tons per year)	NO_x (tons per year)	CO (tons per year)	PM_{10} (tons per year)	$PM_{2.5}$ (tons per year)	SO_2 (tons per year)
Opening-year (2025) Alternative 3	0	0	0	0	0	0
Opening-year (2025) Alternative 4	0	0	0	0	0	0
Design-year (2045) Alternative 3	0	0	0	0	0	0
Design-year (2045) Alternative 4	0	0	0	0	0	0

Notes: Modeled using CT-EMFAC2017.
Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

The emissions analysis presented in Tables 2.2.6-10 and 2.2.6-11 shows that operation of the Build Alternatives under opening-year (2025) and design-year (2045) conditions would increase PM_{10}, and $PM_{2.5}$ emissions compared to existing conditions and decrease ROG, NO_X, and CO emissions. As shown in Tables 2.2.6-10 and 2.2.6-12, implementation of the Build Alternatives would result in increases in PM_{10} and $PM_{2.5}$ criteria pollutant emissions compared to no-build conditions. The increase in PM is partly due to background growth in vehicle miles traveled (VMT) from 2019 to 2045, because PM fugitive dust emissions are a function of VMT. In addition, although PM exhaust emission factors decrease over time, fugitive dust PM emission factors increase over time due to the increase in truck percentages as a fraction of overall VMT within the study area. Accordingly, the total PM emissions increase over time. The decreases in other pollutants are due to expected improvements in vehicle engine technology, fuel efficiency, and turnover in older, more heavily polluting vehicles, which reduces exhaust emissions.

Another reason the implementation of the Build Alternatives would result in an increase in PM_{10} and $PM_{2.5}$ criteria pollutant emissions compared to no-build conditions is because the project would increase regional capacity, although there would be no increase in trip generation. Although AM and PM peak vehicle hours of delay through the I-10/Cherry Valley Boulevard interchange would decrease as a result of the proposed project, PM_{10} and $PM_{2.5}$ criteria pollutant emissions would increase due to the increase in overall daily VMT in the transportation study area.

Regional Conformity

The following text has been amended since the Draft Environmental Document: The proposed project is listed in the SCAG 2020-2045 financially constrained Regional Transportation Plan / Sustainable Communities Strategy (RTP/SCS), which was found to conform by FHWA and FTA on June 5, 2020. The project is also included in SCAG's 2023 FTIP Technical Appendix Volume III of III Part A, on page 53 of 588 (RIV060116), adopted on October 6, 2022. The SCAG Regional Council 2020-2045 Regional Transportation Plan was approved by FHWA and FTA on April 1, 2020. The design concept and scope of the proposed project is consistent with the project description in the 2020–2045 RTP/SCS, 2023 FTIP Amendment 23-03, and the open-to-traffic assumptions of the most recent SCAG regional emissions analysis.

Project Level Conformity

Nonattainment/maintenance areas are subject to the Transportation Conformity Rule, which requires local transportation and air quality officials to coordinate planning to ensure that transportation projects such as road construction do not affect an area's ability to reach its clean air goals. The project is located in a federal nonattainment area for O_3 and $PM_{2.5}$ and an attainment/maintenance area for CO, PM_{10}, and NO_2. Additionally, the project is located in a nonattainment area for O_3, $PM_{2.5}$ and $PM_{10.}$ Therefore, a project-level hot-spot analysis is required under 40 CFR 93.109. The project complies with all $PM_{2.5}$ and PM_{10} measures in the SIP, and implements measures relied upon in the RTP/FTIP regional conformity analysis in a timely matter.

The following text has been amended since the Draft Environmental Document: An Air Quality Conformity Analysis (AQCA) was prepared for the project and FHWA provided concurrence on April 28, 2020. The Caltrans Transportation Air Quality Conformity Findings Checklist is provided in Chapter 4.0, Comments and Coordination.

Particulate Matter Hot-Spot Analysis

A hot-spot analysis is required in nonattainment and maintenance areas for CO, PM_{10}, and $PM_{2.5}$. The Transportation Conformity Guidance requires a hot-spot analysis to be completed for a project of air quality concern (POAQC). The Build Alternatives are within a nonattainment area for federal $PM_{2.5}$ standards and attainment/maintenance area for federal CO and PM_{10} standards. Therefore, per 40 CFR Part 93, analyses are required for conformity purposes. However, the EPA does not require hot-spot analyses (either qualitative or quantitative) for those that are not listed in Section 93.123(b)(1) as a POAQC. A hot-spot analysis is defined in 40 CFR 93.101 as an estimation of likely future localized pollutant concentrations resulting from a new transportation project and a comparison of those concentrations to the relevant air quality standard. A hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area, including, for example, congested roadway intersections and highways or transit terminals. Such an analysis is a means of demonstrating that a transportation project meets FCAA conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts.

The following criteria are directly associated with 40 CFR 93.123(b)(1). The associated discussions address why the proposed project does not qualify as a POAQC:

1. New or expanded highway projects that have a significant number of or increase in diesel vehicles.

   The existing traffic volumes along the roadway segments in the project study area are provided in Table 2.2.6-13, Existing/Baseline (2019) Traffic Volumes. As shown in Table 2.2.6-13, the annual average daily traffic (AADT) ranges in the project site from 10,200 to 106,900. Trucks make up between one to two percent of the AADT for each segment.

Table 2.2.6-13: Existing/Baseline (2019) Traffic Volumes

Segment	Total AADT	Number of Trucks	Percentage of Trucks
Eastbound I-10: Oak Valley Parkway to Singleton Road	74,900	1300	2%
Westbound I-10: Singleton Road to Oak Valley Parkway	106,900	1100	1%
Cherry Valley Boulevard: I-10 to Roberts Street	10,200	500	2%
Cherry Valley Boulevard: I-10 to Roberts Road	10,200	500	2%

Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Tables 2.2.6-14 through 2.2.6-19 depict the Opening Year (2025) and Design Year (2045) study segment traffic volumes for both the No-Build and Build Alternatives. As shown in each table, the opening year and design year AADT and truck volumes increase compared to the baseline year. However, the total AADT volumes and the percentage of diesel truck are expected to remain consistent between the No-Build and Build Alternatives. Accordingly, the project would not increase the truck traffic volumes and would not result in a higher proportion of trucks overall in the project area. Therefore, the project would not significantly increase the number of diesel vehicles.

Table 2.2.6-14: Opening Year (2025) Traffic Volumes - No-Build Alternative

Segment	Total AADT	Number of Trucks	Percentage of Trucks
Eastbound I-10: Oak Valley Parkway to Singleton Road	84,500	6,800	8.7%
Westbound I-10: Singleton Road to Oak Valley Parkway	122,900	9,900	8.7%
Cherry Valley Blvd: I-10 to Roberts Street	14,900	1,200	8.7%
Cherry Valley Blvd: I-10 to Roberts Road	14,900	1,200	8.7%

Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-15: Opening Year (2025) Traffic Volumes - Build Alternative 3

Segment	Total AADT	Number of Trucks	Percentage of Trucks
Eastbound I-10: Oak Valley Parkway to Singleton Road	84,500	6,800	8.7%
Westbound I-10: Singleton Road to Oak Valley Parkway	122,900	9,900	8.7%
Cherry Valley Boulevard: I-10 to Roberts Street	14,900	1,200	8.7%
Cherry Valley Boulevard: I-10 to Roberts Road	14,900	1,200	8.7%

Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-16: Opening Year (2025) Traffic Volumes - Build Alternative 4

Segment	Total AADT	Number of Trucks	Percentage of Trucks
Eastbound I-10: Oak Valley Parkway to Singleton Road	84,500	6,800	8.7%
Westbound I-10: Singleton Road to Oak Valley Parkway	122,900	9,900	8.7%
Cherry Valley Boulevard: I-10 to Roberts Street	14,900	1,200	8.7%
Cherry Valley Boulevard: I-10 to Roberts Road	14,900	1,200	8.7%

Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-17: Design Year (2045) Traffic Volumes - No-Build Alternative

Segment	Total AADT	Number of Trucks	Percentage of Trucks
Eastbound I-10: Oak Valley Parkway to Singleton Road	116,600	9,400	8.7%
Westbound I-10: Singleton Road to Oak Valley Parkway	176,400	14,200	8.7%
Cherry Valley Boulevard: I-10 to Roberts Street	30,700	2,500	8.7%
Cherry Valley Boulevard: I-10 to Roberts Road	30,700	2,500	8.7%

Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-18: Design Year (2045) Traffic Volumes - Build Alternative 3

Segment	Total AADT	Number of Trucks	Percentage of Trucks
Eastbound I-10: Oak Valley Parkway to Singleton Road	116,600	9,400	8.7%
Westbound I-10: Singleton Rd to Oak Valley Parkway	176,400	14,200	8.7%
Cherry Valley Boulevard: I-10 to Roberts Street	30,700	2,500	8.7%
Cherry Valley Boulevard: I-10 to Roberts Road	30,700	2,500	8.7%

Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

Table 2.2.6-19: Design Year (2045) Traffic Volumes Build Alternative 4

Segment	Total AADT	Number of Trucks	Percentage of Trucks
Eastbound I-10: Oak Valley Parkway to Singleton Road	116,600	9,400	8.7%
Westbound I-10: Singleton Rd to Oak Valley Parkway	176,400	14,200	8.7%
Cherry Valley Boulevard: I-10 to Roberts Street	30,700	2,500	8.7%
Cherry Valley Boulevard: I-10 to Roberts Road	30,700	2,500	8.7%

Source: ICF, Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, dated December 2020.

2. Projects affecting intersections that are at LOS D, E, or F with a significant number of diesel vehicles, or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project.

   The Build Alternatives would not affect intersections that are at LOS D, E, or F with a significant number of diesel vehicles. Implementation of the Build Alternatives would enhance traffic flow in the project area for both truck traffic and general traffic. Based on the traffic data in Tables 2.2.6-20 through 2.2.6-25 the proposed project would not result in significant changes in traffic volume, vehicle mix, or other factors that would cause an increase in emissions.

   Build Alternatives 3 and 4 would improve vehicle flow at the Cherry Valley Boulevard Overcrossing structure. Tables 2.2.6-20 and 2.2.6-25, below, summarize the peak-hour LOS and delay at 10 study area intersections under opening-year (2025) and design-year (2045) conditions. As shown in Table 2.2.6-20, Opening-Year (2025) Intersection Operations Analysis- No-Build Alternative, all vehicle lanes, with the exception of the Calimesa Boulevard/Cherry Valley Boulevard and the I-10 westbound off-ramp during the AM peak hour and the Cherry Valley Boulevard/I-10 westbound on-ramp during both the AM and PM peak hours, would be at an unacceptable LOS D or better under opening-year (2025) no-build conditions. Tables 2.2.6-21 and 2.2.6-22 show that the implementation of the Build Alternatives would enhance traffic operations and facilitate vehicle movement at the I-10 on- and off-ramps and along Cherry Valley Boulevard, improving the Calimesa Boulevard/Cherry Valley Boulevard and I-10 westbound off-ramp from an unacceptable LOS E to an LOS D during the AM peak hour and the Cherry Valley Boulevard/I-10 westbound on-ramp from an unacceptable LOS E to an acceptable LOS C during the AM and PM peak hours. As shown in Table 2.2.6-23 the majority of the intersections, including Cherry Valley Boulevard and Palmer Avenue/Desert Lawn, Cherry Valley Boulevard and Roberts Road, and I-10 eastbound ramps and Cherry Valley Boulevard would operate at an unacceptable LOS E or F during the design-year (2045) under the No-Build Alternative. Implementation of the Build Alternatives would improve traffic operations and facilitate vehicle movement at the aforementioned intersections and would improve LOS to C or better during AM and PM peak hours for all intersections.

Table 2.2.6-20: Opening-Year (2025) Intersection Operations Analysis - No-Build Alternative

Intersection	Delay (AM) sec/veh	Delay (PM) sec/veh	LOS (AM)	LOS (PM)
I-10 EB Ramps and Singleton Road	19.4	16.9	B	B
I-10 WB Ramps and Singleton Road	16.3	19.5	B	B
Cherry Valley Boulevard and Palmer Ave/Desert Lawn	439.5	290.3	**F**	**F**
Cherry Valley Boulevard and Roberts Road	166.5	281.2	**F**	**F**
Cherry Valley Boulevard and Old Roberts Road	-	-	-	-
I-10 EB Ramps and Cherry Valley Boulevard	68.2	114.7	**E**	**F**
I-10 WB Ramps and Cherry Valley Boulevard	59.3	24.9	**E**	C
Calimesa Blvd and Cherry Valley Boulevard	109	22.2	**F**	C
I-10 EB Ramps and Oak Valley Parkway	11.6	16.7	B	B
I-10 EB Loop On and Oak Valley Parkway	-	-	B	B
I-10 Loop On and Oak Valley Parkway	8.3	10.9	A	B
I-10 WB Ramps an Oak Valley Parkway	88.3	20.3	A	B

Notes: Bold text indicates unacceptable operations, should unacceptable operations exist.
EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; WB = westbound
Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document: Traffic Operations Analysis Report, November 2020.

Table 2.2.6-21: Opening-Year (2025) Intersection Operations Analysis - Build Alternative 3

Intersection	Delay (AM) sec/veh	Delay (PM) sec/veh	LOS (AM)	LOS (PM)
I-10 EB Ramps and Singleton Road	20.1	17.9	C	B
I-10 WB Ramps and Singleton Road	16.6	19.5	B	B
Cherry Valley Boulevard and Palmer Ave/Desert Lawn	27.7	8.2	C	C
Cherry Valley Boulevard and Roberts Road	13.5	19	B	B
Cherry Valley Boulevard and Old Roberts Road	--	--	--	--
I-10 EB Ramps and Cherry Valley Boulevard	22.1	14.7	C	B
I-10 WB Ramps and Cherry Valley Boulevard	6.8	5.6	A	A
Calimesa Blvd and Cherry Valley Boulevard	21.8	9.8	C	A
I-10 EB Ramps and Oak Valley Parkway	11.6	16.5	B	B
I-10 EB Loop On and Oak Valley Parkway	11.6	16.5	B	B
I-10 Loop On and Oak Valley Parkway	8.7	10.9	A	B
I-10 WB Ramps and Oak Valley Parkway	10.9	10.9	A	B

Notes: Bold text indicates unacceptable operations, should unacceptable operations exist, EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; WB = westbound
Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document: Traffic Operations Analysis Report, November 2020.

Table 2.2.6-22: Opening-Year (2025) Intersection Operations Analysis - Build Alternative 4

Intersection	Delay (AM) sec/veh	Delay (PM) sec/veh	LOS (AM)	LOS (PM)
I-10 EB Ramps and Singleton Road	19.4	17.8	B	B
I-10 WB Ramps and Singleton Road	19.2	20.1	B	C
Cherry Valley Boulevard and Palmer Avenue/ Desert Lawn Drive	26	20.6	C	C
Cherry Valley Boulevard and Roberts Road	12.2	18.8	B	B
Cherry Valley Boulevard and Old Roberts Road	--	--	--	--
I-10 EB Ramps and Cherry Valley Boulevard	11.4	13.7	B	B
I-10 WB Ramps and Cherry Valley Boulevard	Right-turn to WB on-ramp	Right-turn to WB on-ramp	Right-turn to WB on-ramp	Right-turn to WB on-ramp
Calimesa Blvd and Cherry Valley Boulevard	20.5	15	C	B
I-10 EB Ramps and Oak Valley Parkway	11.8	16.3	B	B
I-10 EB Loop On and Oak Valley Parkway	11.8	16.3	B	B
I-10 Loop On and Oak Valley Parkway	8.9	11.2	A	B
I-10 WB Ramps an Oak Valley Parkway	8.9	11.2	A	B

Notes: Bold text indicates unacceptable operations, should unacceptable operations exist.
EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; WB = westbound
Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document: Traffic Operations Analysis Report, November 2020.

Table 2.2.6-23: Design-Year (2045) Intersection Operations Analysis- No-Build Alternative

Intersection	Delay (AM) sec/veh	Delay (PM) sec/veh	LOS (AM)	LOS (PM)
I-10 EB Ramps and Singleton Road	29.3	143.6	C	F
I-10 WB Ramps and Singleton Road	60.8	150.5	E	F
Cherry Valley Boulevard and Palmer Ave/Desert Lawn	994.6	171.4	**F**	**F**
Cherry Valley Boulevard and Roberts Road	264.8	174.7	**F**	**F**
Cherry Valley Boulevard and Old Roberts Road	-	-	-	-
I-10 EB Ramps and Cherry Valley Boulevard	108.9	103.8	**F**	**F**
I-10 WB Ramps and Cherry Valley Boulevard	100	64.6	**F**	E
Calimesa Blvd and Cherry Valley Boulevard	20.5	21.1	**C**	C
I-10 EB Ramps and Oak Valley Parkway	15.4	18.4	B	B
I-10 EB Loop On and Oak Valley Parkway	15.4	18.4	B	B
I-10 Loop On and Oak Valley Parkway	56	12	E	B
I-10 WB Ramps an Oak Valley Parkway	56	12	E	B

Notes: Bold text indicates unacceptable operations, should unacceptable operations exist
EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; WB = westbound
Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document: Traffic Operations Analysis Report 2020.

Table 2.2.6-24: Design-Year (2045) Intersection Operations Analysis- Build Alternative 3

Intersection	Delay (AM) sec/veh	Delay (PM) sec/veh	LOS (AM)	LOS (PM)
I-10 EB Ramps and Singleton Road	29.1	57.2	C	E
I-10 WB Ramps and Singleton Road	27.2	53.8	C	D
Cherry Valley Boulevard and Palmer Ave/Desert Lawn	25.9	18.2	C	B
Cherry Valley Boulevard and Roberts Road	26.1	63.8	C	E
Cherry Valley Boulevard and Old Roberts Road	--	---	--	--
I-10 EB Ramps and Cherry Valley Boulevard	24.3	16.9	C	B
I-10 WB Ramps and Cherry Valley Boulevard	11.3	8.9	B	A
Calimesa Boulevard and Cherry Valley Boulevard	22.1	9.3	C	A
I-10 EB Ramps and Oak Valley Parkway	14.3	31.2	B	C
I-10 EB Loop On and Oak Valley Parkway	14.3	31.2	B	C
I-10 Loop On and Oak Valley Parkway	10.8	12.7	B	B
I-10 WB Ramps an Oak Valley Parkway	10.8	12.7		

Notes: Bold text indicates unacceptable operations, should unacceptable operations exist
EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; WB = westbound
Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document: Traffic Operations Analysis Report 2020.

Table 2.2.6-25: Design-Year (2045) Intersection Operations Analysis- Build Alternative 4

Intersection	Delay (AM) sec/veh	Delay (PM) sec/veh	LOS (AM)	LOS (PM)
I-10 EB Ramps and Singleton Road	29.1	56.1	C	E
I-10 WB Ramps and Singleton Road	69	57	E	E
Cherry Valley Blvd. and Palmer Ave/Desert Lawn	23.8	17.2	C	B
Cherry Valley Boulevard and Roberts Road	23.4	66.5	C	E
Cherry Valley Boulevard and Old Roberts Road	--	--	--	--
I-10 EB Ramps and Cherry Valley Boulevard	10.4	19.7	B	B
I-10 WB Ramps and Cherry Valley Boulevard	Right-turn to WB on-ramp	Right-turn to WB on-ramp	Right-turn to WB on-ramp	Right-turn to WB on-ramp
Calimesa Blvd and Cherry Valley Boulevard	25.5	18.6	C	B
I-10 EB Ramps and Oak Valley Parkway	14.5	32.4	B	C
I-10 EB Loop On-Ramp and Oak Valley Pkwy	14.5	32.4	B	C
I-10 Loop On-Ramp and Oak Valley Parkway	11	13	B	B
I-10 WB Ramps an Oak Valley Parkway	11	13	B	B

Notes: Bold text indicates unacceptable operations, should unacceptable operations exist; EB = eastbound; LOS = level of service; sec/veh = seconds per vehicle; WB = westbound
Source: Fehr and Peers, I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document: Traffic Operations Analysis Report 2020.

3. New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location.

   The Build Alternatives would not introduce bus facilities, rail terminals, or transfer points that would increase volumes of diesel vehicles in the project area.

4. Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location.

   The Build Alternatives would not expand bus facilities, rail terminals, or transfer points.

5. Projects in or affecting locations, areas, or categories of sites identified in the applicable PM2.5 and PM10 implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

   The Build Alternatives are not located in or affecting areas or category of sites identified in any applicable PM2.5 and PM10 implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation.

As demonstrated above, the Build Alternatives would not involve a significant amount of diesel truck traffic, as traffic volumes would be less than 125,000 ADT, and is in compliance with the RTP/FTIP. Therefore, the Build Alternatives meet the FCAA requirements and is not a project of air quality concern under 40 CFR 93.123(b)(1) and would not cause or contribute to a violation of NAAQS for PM2.5.

The SCAG's Transportation Conformity Working Group (TCWG) determined that the proposed project is not a POAQC; refer to Interagency Consultation subsection, below. Therefore, the proposed project would not be considered a POAQC under 40 CFR 93.123 (b)(1). The required Air Quality Conformity Analysis and associated determination letter from the Federal Highway Administration (FHWA) will be addressed following public circulation of the IS/EA.

Flowchart 1:

3.1.1: Is the project exempt from all emissions analyses?

3.1.1 Response: No. The project is not exempt because it does not fit any of the exemption categories identified in 40 CFR 93.126.

3.1.2: Is the project exempt from regional emissions analyses?

3.1.2 Response: No. The proposed project does not align with any of the project types exempted from regional emissions analyses under 40 CFR 93.127 (proceed to 3.1.3).

3.1.3: Is the project locally defined as regionally significant?

3.1.3 Response: Yes. The proposed project is considered a regionally significant transportation project, according to 40 CFR 93.101, because it is included in the modeling of the area's transportation network (proceed to 3.1.4).

3.1.4: Is the project in a federal attainment area?

3.1.4 Response: No. The proposed project is in the SCAB, which is a federal extreme nonattainment area for O_3, and a serious nonattainment area for $PM_{2.5}$ (see Table 2.2.6-1) (proceed to 3.1.5).

3.1.5: Is there a currently conforming RTP and TIP?

The following text has been amended since the Draft Environmental Document:

3.1.5 Response: Yes. The 2020–2045 RTP/SCS and 2023 FTIP are conforming programs (proceed to 3.1.6).

3.1.6: Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP?

The following text has been amended since the Draft Environmental Document:

3.1.6 Response: Yes. The project is identified in the 2020–2045 RTP/SCS under project number RIV060116 and the 2023 FTIP under project number RIV060116. Therefore, it has been included in the regional emissions analysis (proceed to 3.1.7).

3.1.7: Has the project design concept and/or scope changed significantly from that in the regional analysis?

3.1.7 Response: No. The project design concept has not changed significantly from that in the regional analysis (proceed to 3.1.9).

3.1.9: The conclusion from this series of questions and answers is that the project needs to be examined for its local air impacts.

Based on the answers to the first flowchart, a second flowchart, is required to determine the level of local CO effect analysis required for the project. The questions that are applicable to the project are in the second flowchart.

Flowchart 2:

Level 1: Is the project in a CO nonattainment area?

Response: No. The project and its respective air basin are in an attainment/maintenance area for the federal CO standards (Table 2.2.6-1).

Level 1: Was the area re-designated as an attainment area after the 1990 Clean Air Act?

Response: Yes. Riverside County was re-designated as an attainment area on June 11, 2007, and the associated maintenance plan will expire in 2027.

Level 1: Has "continued attainment" been verified with the local Air District, if appropriate?

Response: Yes. Based on ambient air monitoring data collected by SCAQMD, the SCAB has continually met the NAAQS for CO since 2002 (Proceed to Level 7).

Level 7: Does the project worsen air quality?

Response: No. According to Section 4.7.1 of the CO Protocol, the following criteria provide a basis for determining if a project has the potential to worsen localized air quality:

- The project significantly increases the percentage of vehicles operating in the cold-start mode. Increasing the number of vehicles in cold-start mode by as little as two percent should be considered potentially significant.

The Build Alternatives would not involve direct development of land or increase the percentage of vehicles operating in cold-start mode. The Build Alternatives would reconfigure the existing bridge at the existing location. The Build Alternatives would not result in changes to the percentage of vehicles operating in cold-start mode because no new parking or other trip-generating land uses would be associated with the Build Alternatives following construction.

- The project significantly increases traffic volumes. Increases in traffic volumes in excess of five percent should be considered potentially significant. Increasing the traffic volume by less than five percent may still be potentially significant if there is also a reduction in average speeds.

The Build Alternatives would not result in a material change in annual average daily traffic (AADT) on any road segment or at any intersection when compared to the No-Build condition.

- The project worsens traffic flow. For uninterrupted roadway segments, a reduction in average speeds (within a range of three to 50 miles per hour [mph]) should be regarded as worsening traffic flow. For intersection segments, a reduction in average speed or an increase in average delay should be considered a worsening of traffic flow.

The project improvements under the Build Alternatives would facilitate vehicle movement through the I-10 interchange and on Cherry Valley Boulevard, resulting in reductions in vehicle hours of delay and vehicle hours of travel relative to the No-Build Alternative.

Interagency Consultation

Although the Build Alternatives are located within a serious nonattainment area for PM2.5 and PM10, a detailed hot spot analyses for each pollutant was not required because federal CAA and 40 CFR 93.116 requirements are met without an explicit hot-spot analysis. Rather, a project-level PM hot-spot analysis was prepared and presented to SCAG's Transportation Conformity Working Group for discussion and review in April 2020. The form reflected the project description, limits, and traffic volumes and was listed under the current RTP/FTIP project identification numbers. As discussed above, it was determined that the Build Alternatives would not be considered a POAQC. Therefore, the Build Alternatives would not result in adverse effects to the regions current attainment status and PM.

Mobile Source Air Toxics

Build Alternatives 3 and 4 were compared to the No-Build Alternative regarding the Mobile Source Air Toxics (MSAT) emissions. As discussed in the Air Quality Report, although the Build Alternatives would not result in substantial changes in traffic volumes or the vehicle mix that would cause a meaningful increase in regional MSAT emissions compared with those of the No-Build Alternative, the localized level of MSAT emissions for the Build Alternatives could be higher relative to the No-Build Alternative at specific locations. However, the increase could be offset by increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). On a regional basis, U.S. EPA's vehicle and fuel regulations, coupled with fleet turnover, will, over time, cause substantial reductions that, in almost all cases, will cause region wide MSAT levels to be significantly lower than they are today. As such, Build Alternatives 3 and 4 would have no meaningful regional MSAT effect and low potential for local MSAT emissions. There would be no significantly adverse effects involving MSAT arising from the project.

Avoidance, Minimization, and/or Mitigation Measures

No measures are proposed.

Climate Change

Neither the United States Environmental Protection Agency (U.S. EPA) nor the Federal Highway Administration (FHWA) has issued explicit guidance or methods to conduct project-level greenhouse gas analysis. FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and executive orders on climate change, the issue is addressed in the California Environmental Quality Act (CEQA) chapter of this document. The CEQA analysis may be used to inform the National Environmental Policy Act (NEPA) determination for the project.

2.2.7 Noise and Vibration

Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless those measures are not feasible. The rest of this section will focus on the NEPA/Title 23 Part 772 of the Code of Federal Regulations (23 CFR 772) noise analysis; please see Chapter 3 of this document for further information on noise analysis under CEQA.

National Environmental Policy Act and 23 Code of Federal Regulations 772

For highway transportation projects with Federal Highway Administration (FHWA) involvement (and the Department, as assigned), the Federal-Aid Highway Act of 1970 and its implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations include noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 dBA) is lower than the NAC for commercial areas (72 dBA). The following table lists the noise abatement criteria for use in the NEPA/23 CFR 772 analysis.

Table 2.2.7-1: Noise Abatement Criteria

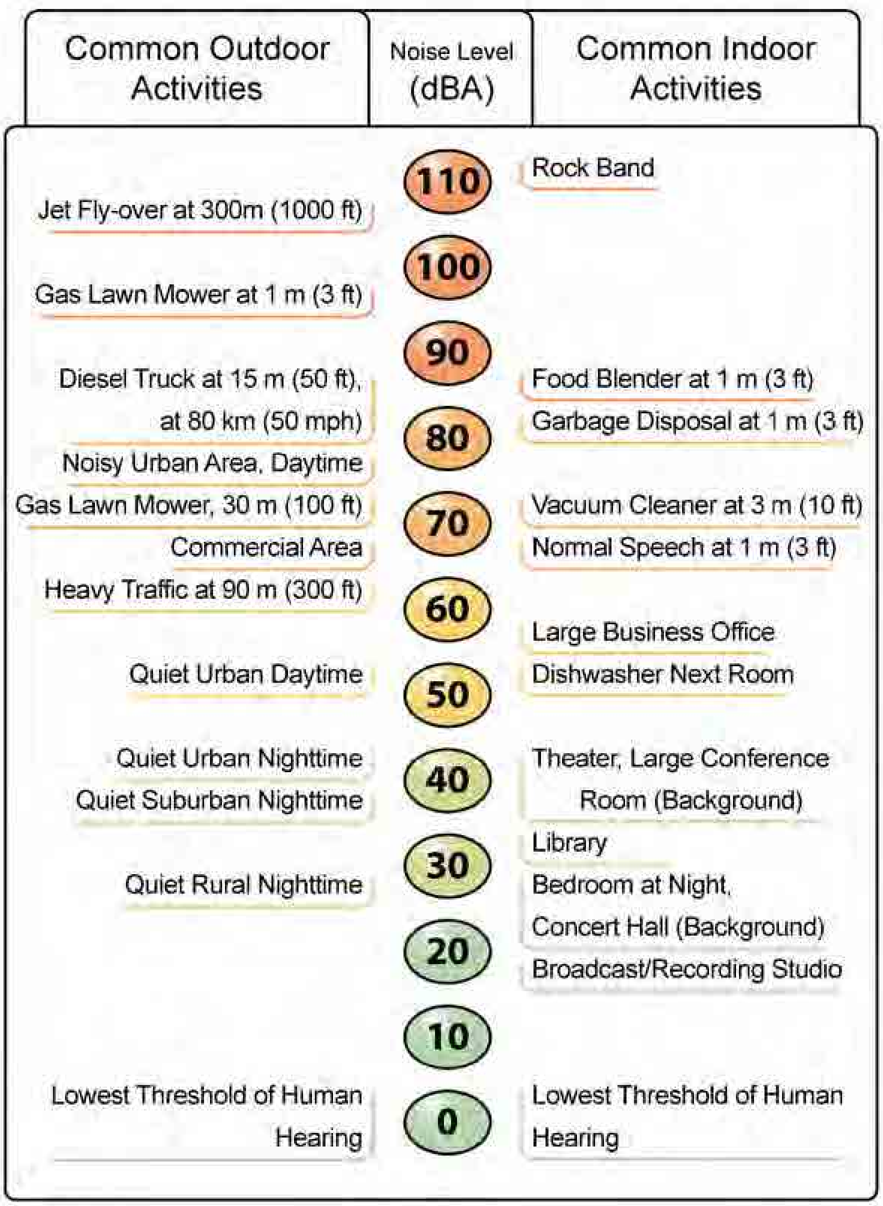
Activity Category	NAC, Hourly A-Weighted Noise Level, Leq(h)	Description of activity category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail

		facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

Notes: [1] Includes undeveloped lands permitted for this activity category.

Figure 2.2.7-1 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

Figure 2.2.7-1: Noise Levels for Common Activities



According to the Department's T*raffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects, May 2011*, a noise impact occurs when the predicted future noise level with the project substantially exceeds the existing noise level (defined as a 12 dBA or more) or when the future noise level with the project approaches or exceeds the NAC. A noise level is considered to approach the NAC if it is within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, then potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and specifications. This document discusses noise abatement measures that would likely be incorporated in the project.

The Department's *Traffic Noise Analysis Protocol* sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. Noise abatement must be predicted to reduce noise by at least 5 dB at an impacted receptor to be considered feasible from an acoustical perspective. It must also be possible to design and construct the noise abatement measure for it to be considered feasible. Factors that affect the design and constructability of noise abatement include, but are not limited to, safety, barrier height, topography, drainage, access requirements for driveways, presence of local cross streets, underground utilities, other noise sources in the area, and maintenance of the abatement measure. The overall reasonableness of noise abatement is determined by the following three factors: 1) the noise reduction design goal of 7 dB at one or more impacted receptors; 2) the cost of noise abatement; and 3) the viewpoints of benefited receptors (including property owners and residents of the benefited receptors).

Affected Environment

This section is based on the findings of the Noise Study Report (NSR) (dated April 2021) and the I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (NADR) (dated August 2021) prepared for this project.

Land Uses and Receptors

An inventory of developed and undeveloped land uses was identified during a field investigation for the project. Existing land uses in the area were categorized by land use type, NAC Activity Category (as defined in Table 2.2.7-1 above), and frequency of human use. The following land uses were identified in the project area:

- Single-family residences and mobile homes (Activity Category B);
- Commercial properties ([with and without outdoor use areas] [Activity Category E]); and
- Undeveloped, unpermitted lands (Activity Category G).

Noise abatement is only considered for areas of frequent human use that would benefit from a lowered noise level. Accordingly, this analysis focuses on locations with defined outdoor use areas, which include residential yards and outdoor use areas of commercial establishments. Generalized receivers (modeling locations that represent the public) were also included for unpermitted lands within the study area. Generalized receivers are positioned no closer than 100 feet from the edge of the outside traffic lane in the area that best represents the highest expected traffic noise level.

Land uses in the project area are grouped into a series of lettered analysis areas that are identified in Figures 2.2.7-2 to 2.2.7-11. Each of these analysis areas is considered to be acoustically equivalent. The lettered analysis areas are further described below:

- Area A: Area A is located north of I-10 and east of Singleton Road. This area contains one single-family residence (Activity Category B) and undeveloped, unpermitted land (Activity Category G). This area is relatively flat except for the single-family residence which is located on top of an approximate 20-foot-high hill as well as the eastern portion of this area which is also elevated. I-10 is at grade relative to this area. There are no noise barriers located between the roadway and these land uses.
- Area B: Area B is located north of I-10 between Singleton Road and Cherry Valley Boulevard. This area contains the Rancho Calimesa Mobile Home Park (Activity Category B). This area is generally flat where I-10 is at grade relative to this area. There are no noise barriers located or topographic shielding occurring between the roadway and the residential land use.
- Area C: Area C is located north of I-10 and west of Cherry Valley Boulevard. This area contains two single-family residences (Activity Category B) and undeveloped, unpermitted land (Activity Category G). This area is generally flat with one of the residences positioned on an approximate 15-foot-high hill. I-10 is approximately the same elevation relative to these land uses. There are no noise barriers located or topographic shielding occurring between the roadway and these land uses.
- Area D: Area D is located south of I-10 and east of Singleton Road. This area contains undeveloped, unpermitted land (Activity Category G). This area is generally flat where I-10 is slightly elevated relative to this area and there are no noise barriers located or topographic shielding occurring between the roadway and this land use.
- Area E: Area E is located south of I-10, west of Cherry Valley Boulevard, and north of Roberts Road. This area contains undeveloped, unpermitted land (Activity Category G). While there are future plans for a potential commercial and residential development, the plans have yet to be permitted. This area contains rolling hills that are elevated relative to I-10. There are no noise barriers located or topographic shielding occurring between the roadway and this land use.

Area F: Area F is located in the southwest corner of Cherry Valley Boulevard and Roberts Road. This area contains single-family residences (Activity Category B). This area is generally flat and at grade with local roadways in this area. No noise barriers are located, or topographic shielding occurs between the roadways and the land. There is however a development wall along the property lines adjacent to Cherry Valley Boulevard as well as Roberts Road.

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Figure 2.2.7-2: Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 1 of 10)

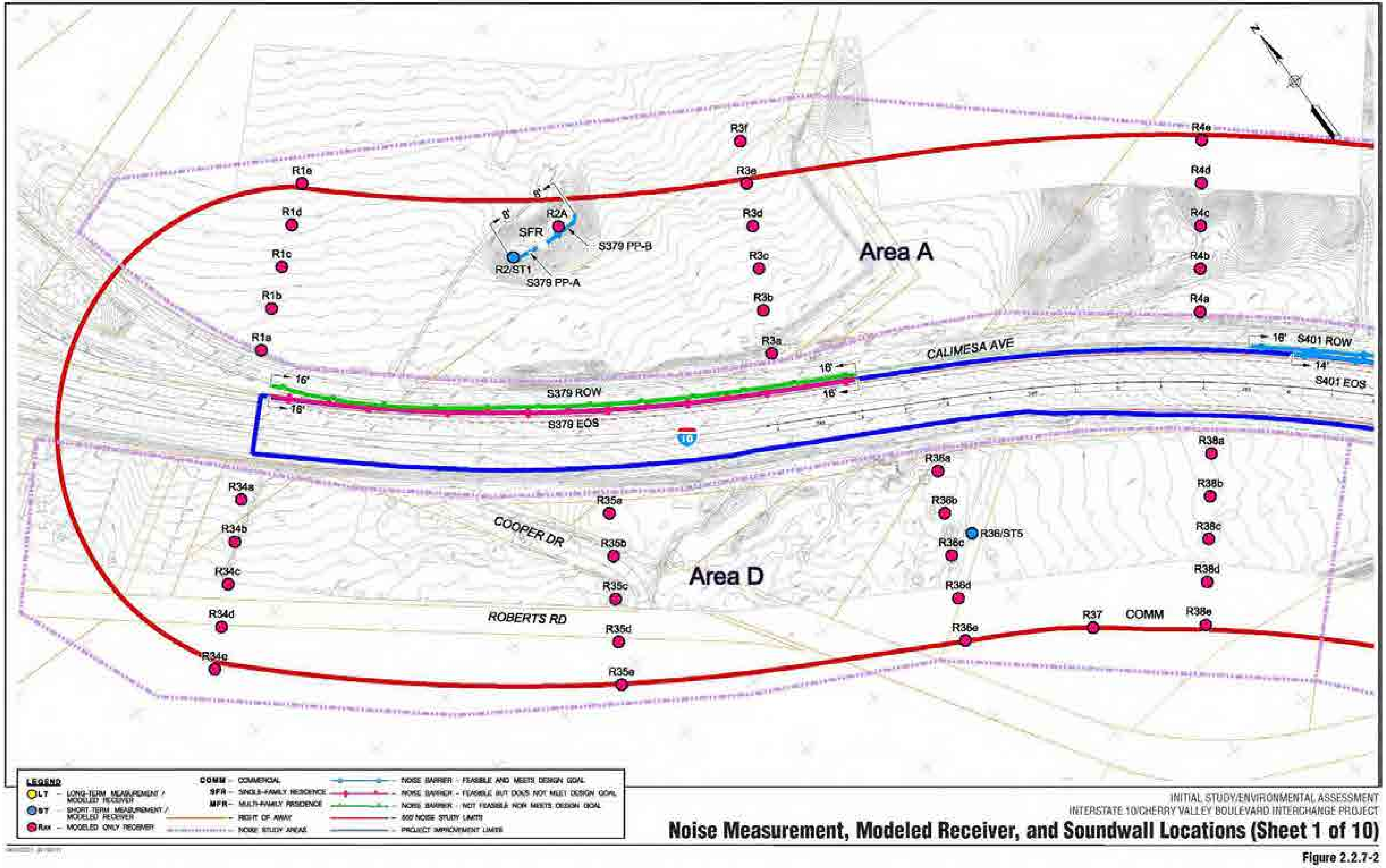

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Figure 2.2.7-3: Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 2 of 10)

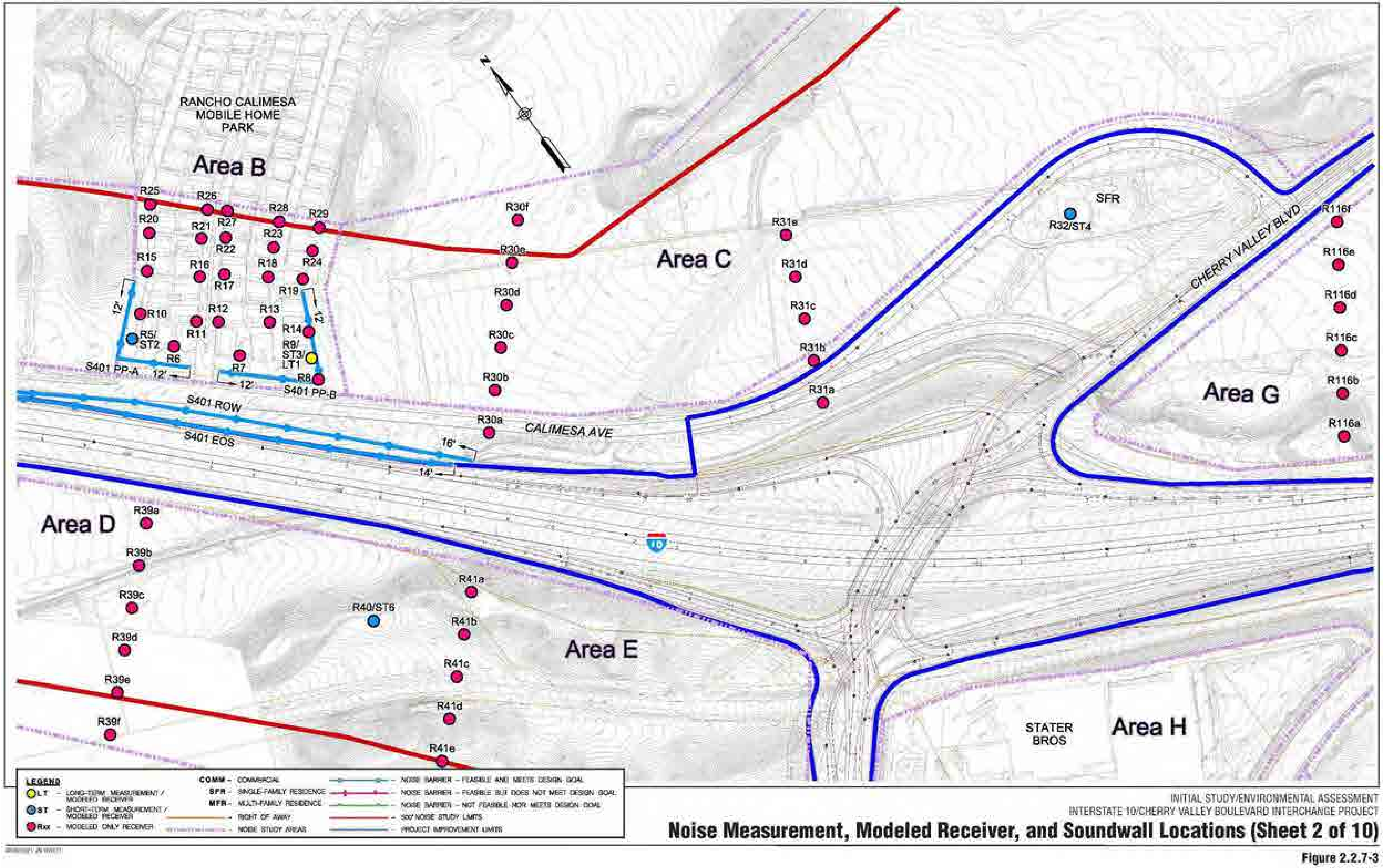

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Figure 2.2.7-4: Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 1 of 10)

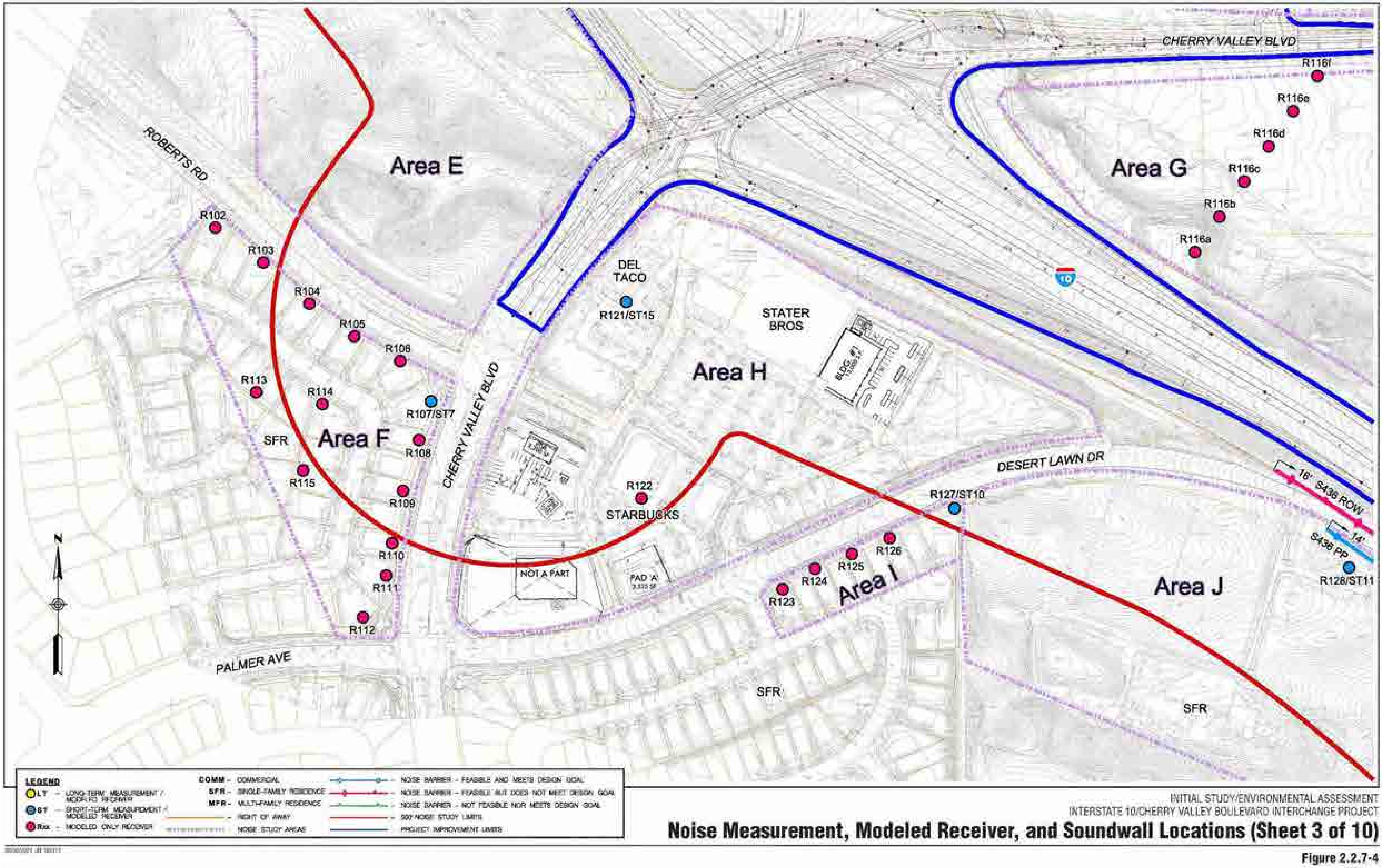

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Figure 2.2.7-5: Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 3 of 10)

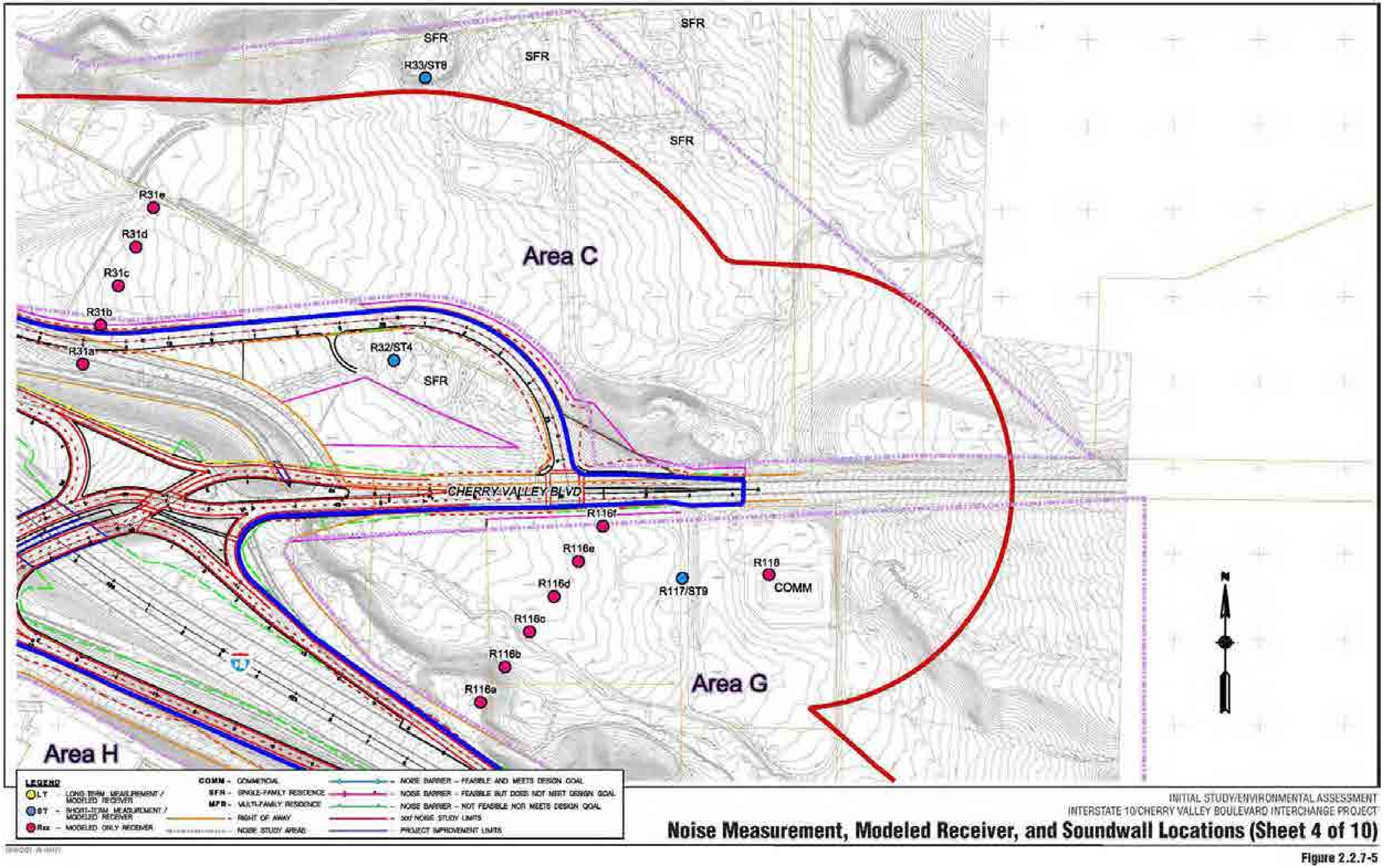

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Figure 2.2.7-6: Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 4 of 10)

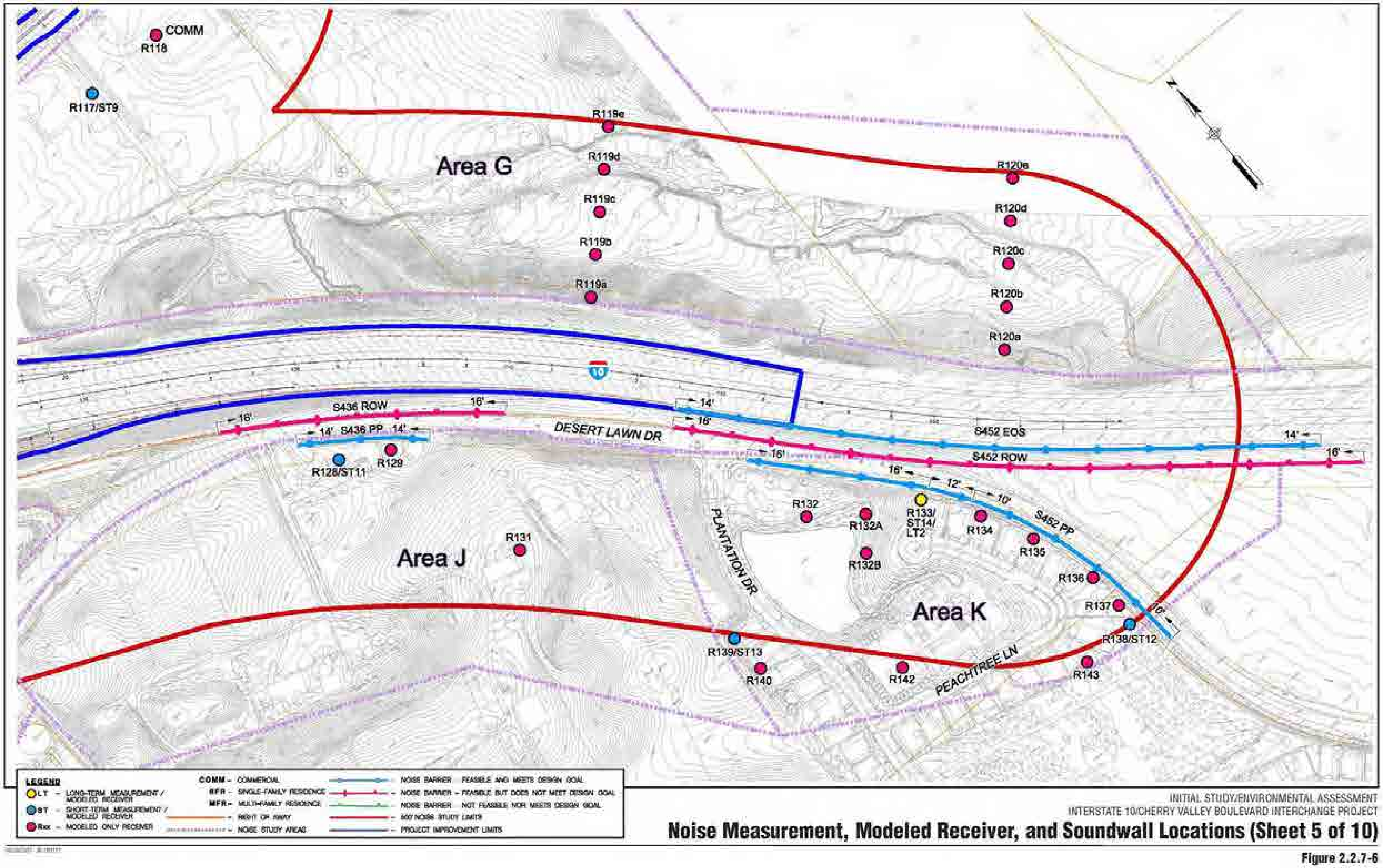

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Figure 2.2.7-7 Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 5 of 10)

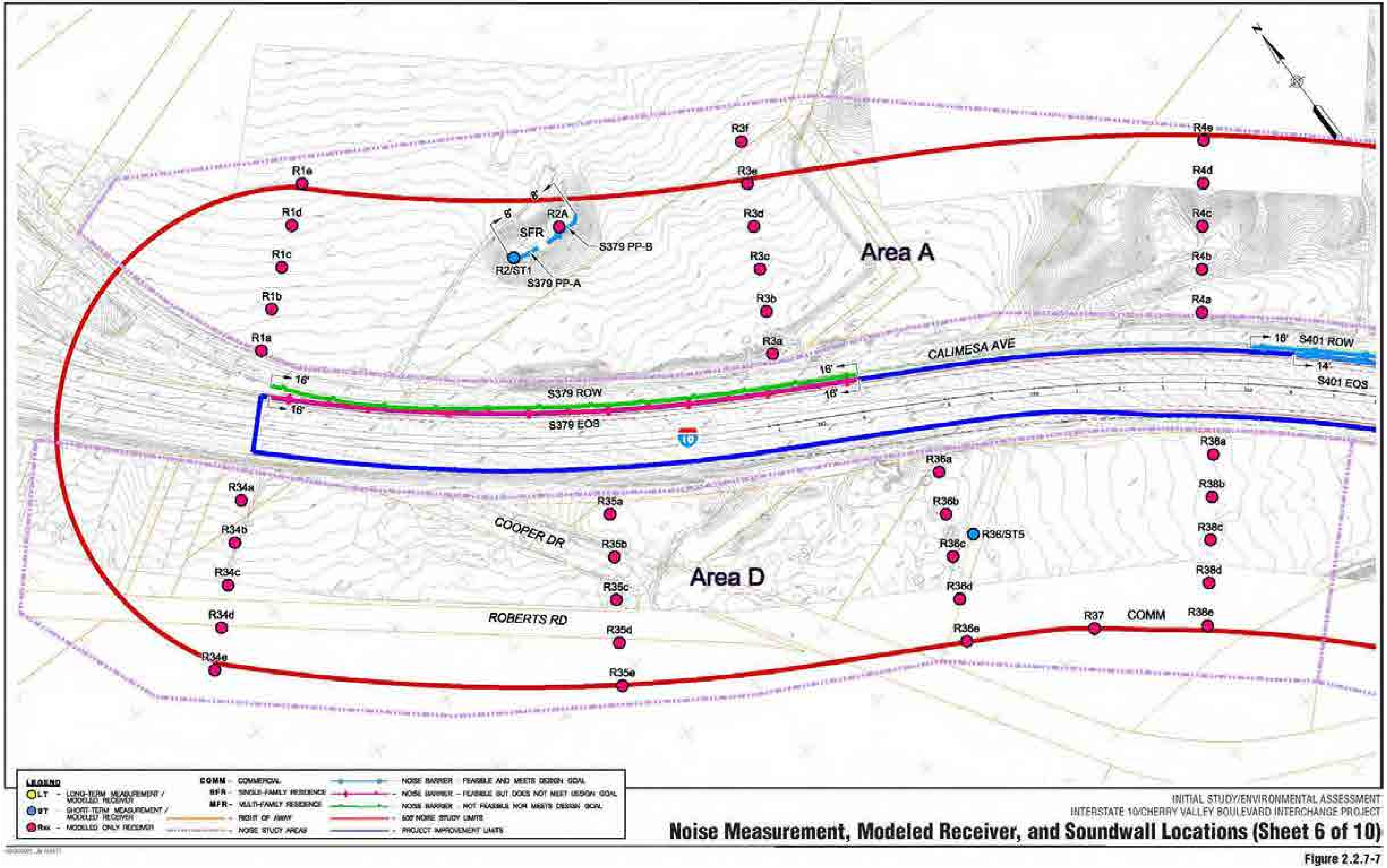

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Figure 2.2.7-8: Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 6 of 10)

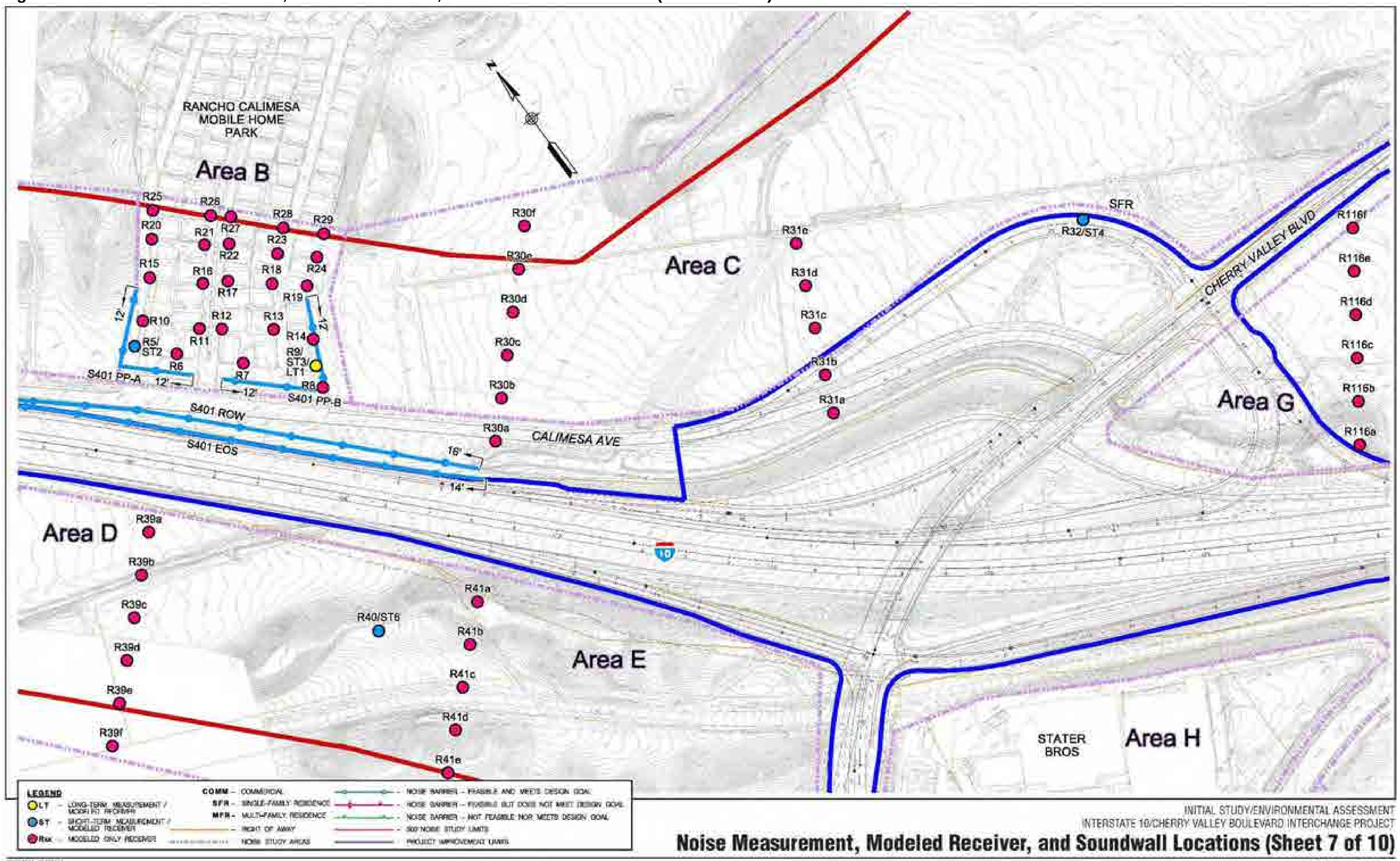

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Figure 2.2.7-9: Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 7 of 10)

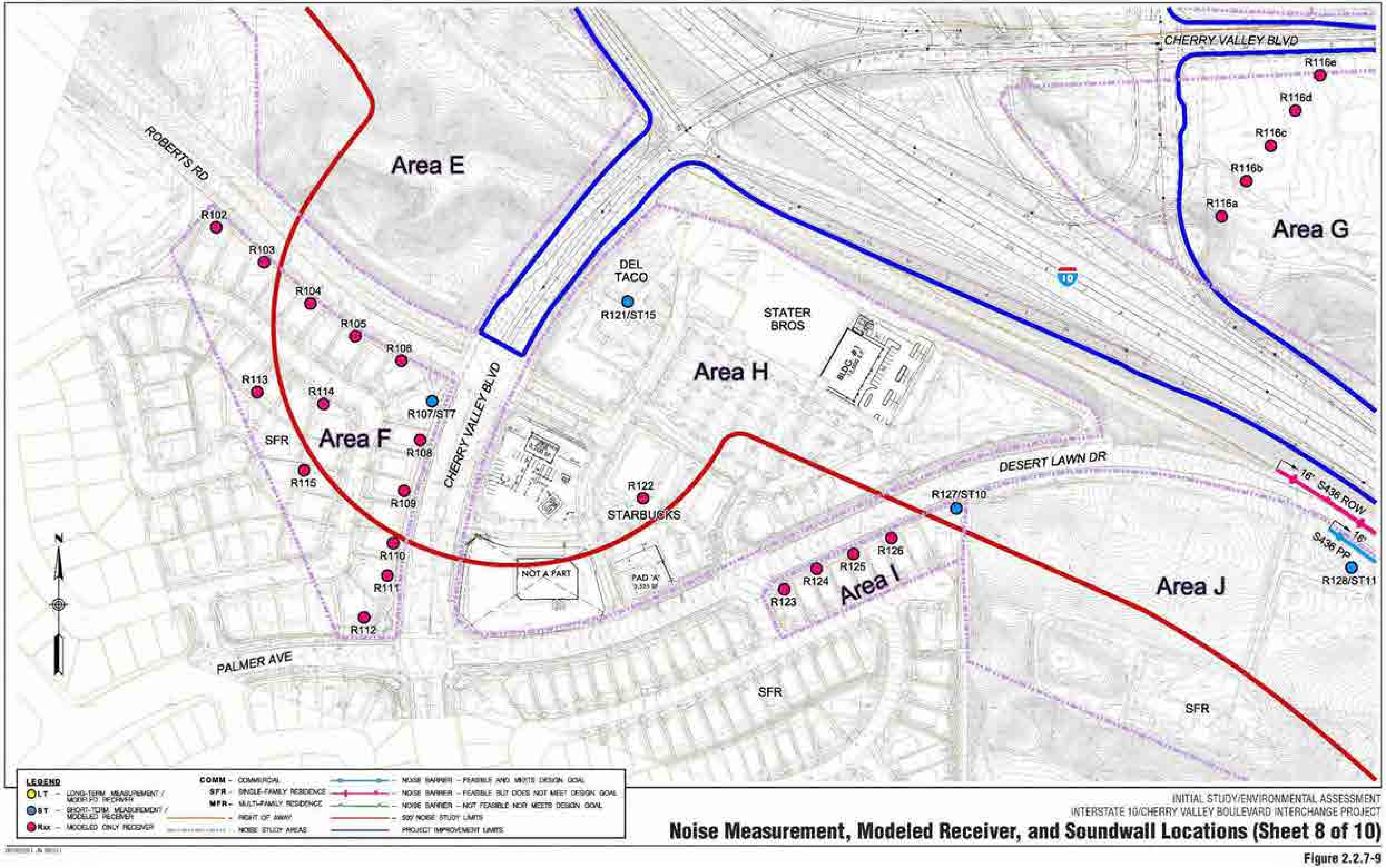

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Figure 2.2.7-10: Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 8 of 10)

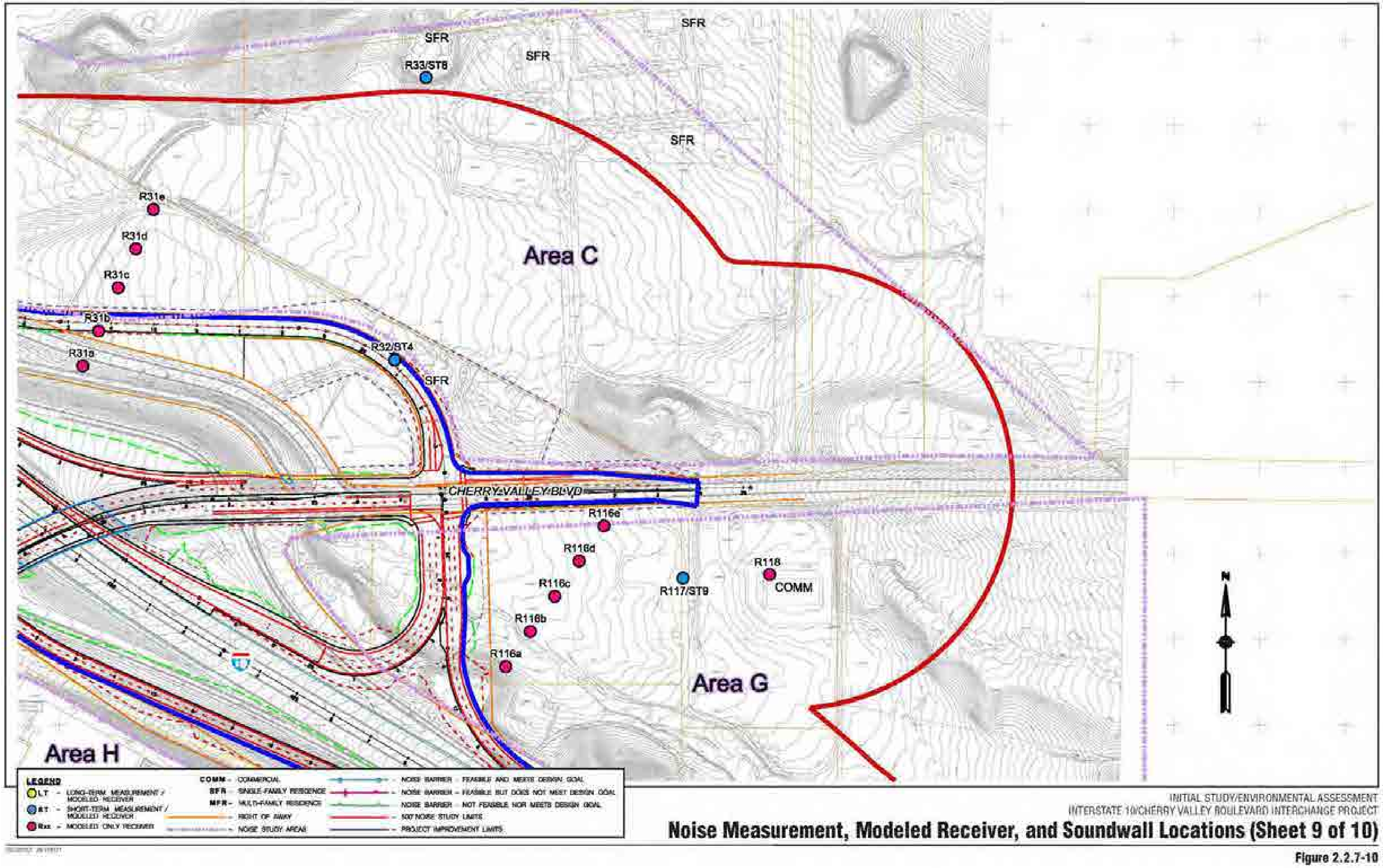

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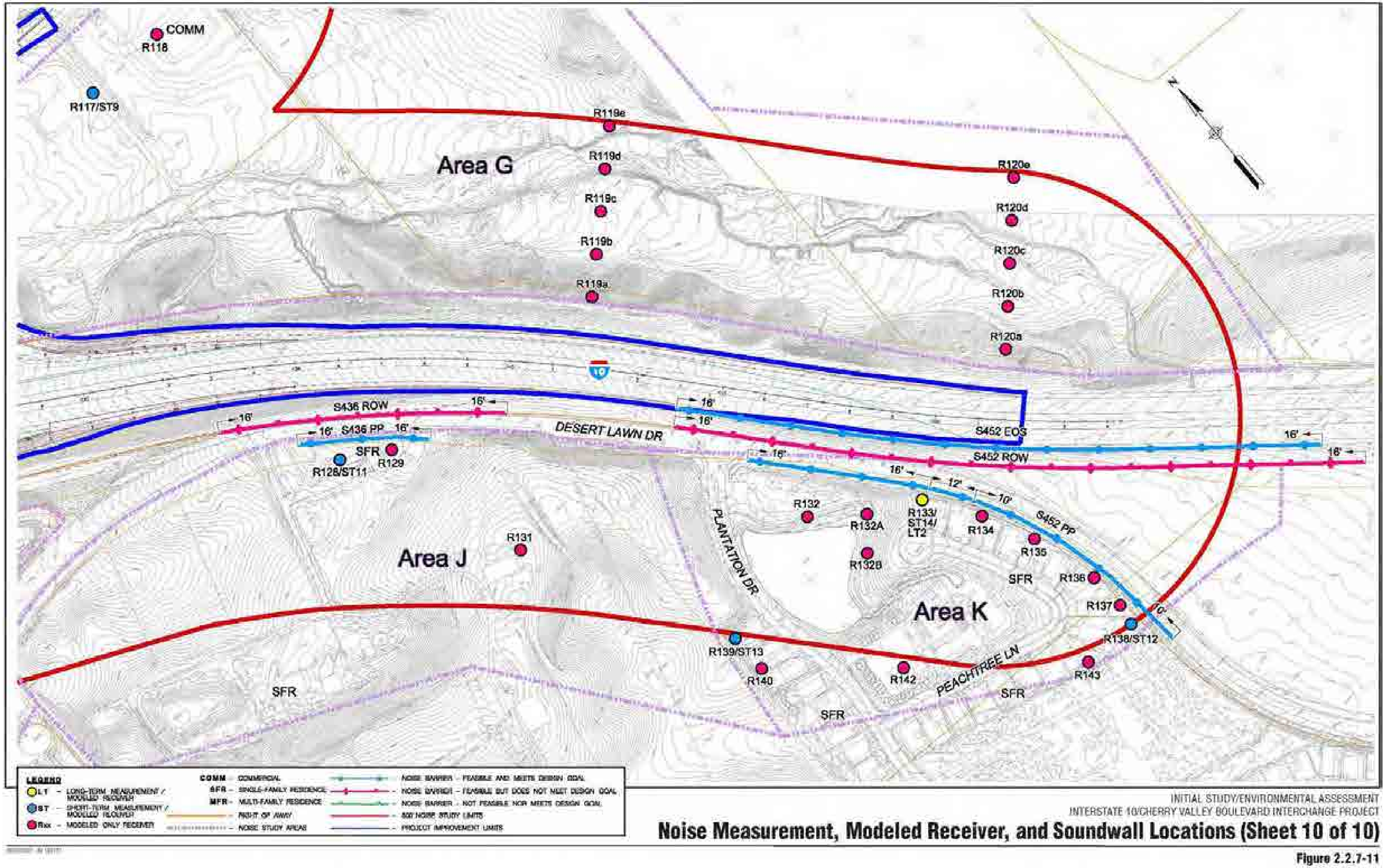
Figure 2.2.7-11 Noise Measurement, Modeled Receiver, and Soundwall Locations (Sheet 9 of 10)



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- Area G: Area G is located north of I-10 and east of Cherry Valley Boulevard. This area contains a commercial establishment with an outdoor seating area (Activity Category E) and undeveloped, unpermitted land (Activity Category G). This area is generally flat with rolling hills located adjacent to I-10 providing some shielding of the land further north. No noise barriers are located between the roadway and these land uses.
- Area H: Area H is located south of I-10 and east of Cherry Valley Boulevard. This area contains commercial establishments with and without outdoor use areas (Activity Category E) as well as retail facilities (Activity Category F). This area is generally flat where I-10 is slightly depressed compared to the land. No noise barrier is located, or topographic shielding occurs between the roadway and the commercial/retail land uses.
- Area I: Area I is located south of I-10, east of Cherry Valley Boulevard, and south of Desert Lawn Drive. This area contains single-family residences (Activity Category B). This area is generally flat and at grade with local roadways in this area. No noise barriers are located, or topographic shielding occurs between the roadways and the residential land use. There is however a development wall along the property lines adjacent to Desert Lawn Drive as well as the western property line.
- Area J: Area J is located south of I-10, east of Cherry Valley Boulevard, and south of Desert Lawn Drive. This area contains single-family residences (Activity Category B). This area is generally flat with the eastern end of area depressed in relation to Desert Lawn Drive. The land is elevated relative to I-10 in this area. There are no noise barriers located or topographic shielding occurring between the roadway and the residential land use.
- Area K: Area K is located south of I-10 and at the southeast corner of Desert Lawn Drive and Plantation Drive. This area contains single-family residences (Activity Category B). This area is generally flat where I-10 is at grade relative to this area. No noise barriers are located between the roadways and the residential land use. There is however an approximate four-foot-tall berm between the residences and Desert Lawn Drive.

Short-Term Monitoring

Short-term noise measurements were conducted at 15 locations between September 1st through 3rd and on September 15th, 2021. Specific measurement sites were chosen to be representative of acoustically distinct areas, based on their relationship to the I-10 and Cherry Valley Boulevard facilities and the varying topographic features between the areas and the roadways. Measurements occurred for in 10-minute intervals. These measurements were taken during daytime hours when traffic was free flowing. Locations of each Activity Category can be viewed in Figures 2.2.7-2 to 2.2.7-11.

Table 2.2.7-2, Short-Term Noise Measurement Results, summarizes the results of the short-term noise monitoring conducted in the project area. All 15 short-term measurements were conducted for the purpose of calibrating the TNM 2.5 computer noise model, which was then used to evaluate the existing noise environment.

Calibration sites were chosen for the major roadway segments affected by the proposed project that were representative of receiver locations. The traffic volumes were recorded with a video camera, and highway traffic speeds were recorded with a radar gun. Traffic counts were tabulated according to five vehicle types: automobiles, medium trucks (two-axle with six-tires), heavy trucks (three or more axle), buses, and motorcycles. As a general rule, the noise model is considered to be calibrated if the field measured noise levels versus the modeled noise levels (using field-collected traffic data) are less than 3 dB of each other. If differences are 3 dB or higher, refinement of the noise model is performed until there is agreement between the two values. If, after thorough reevaluation, calibration still cannot be achieved due to complex topography or other unusual circumstances, then a calibration constant is added such that the measured versus modeled values agree before any predictions can be made with the model. As shown in Table 2.2.7-4, Noise Model Calibration Results, short-term measurements did not result in noise level differences that were greater than 3 dB. As such, calibration adjustments were not required.

Table 2.2.7-2: Short-Term Noise Measurement Results

Site Number	Street Address, City	Area	Land Use	Activity Category/ (NAC)	Meter Location	Measurement Dates	Start Time	Measured L_{eq}(h), dBA[4]
ST1	9950 Calimesa Blvd., Calimesa	A	SFR	B (67)	Back Yard	9/03/2020	9:50	71
ST1	9950 Calimesa Blvd., Calimesa	A	SFR	B (67)	Back Yard	9/03/2020	10:00	72
ST2	10320 Calimesa Blvd., Unit 91, Calimesa	B	MH	B (67)	Side Yard	9/01/2020	11:10	69
ST2	10320 Calimesa Blvd., Unit 91, Calimesa	B	MH	B (67)	Side Yard	9/01/2020	11:20	69
ST3	10320 Calimesa Blvd., Unit 2, Calimesa	B	MH	B (67)	Back Yard	9/01/2020	11:10	63
ST3	10320 Calimesa Blvd., Unit 2, Calimesa	B	MH	B (67)	Back Yard	9/01/2020	11:20	63
ST4	10400 Calimesa Blvd., Calimesa	C	SFR	B (67)	Back Yard	9/01/2020	10:30	58
ST4	10400 Calimesa Blvd., Calimesa	C	SFR	B (67)	Back Yard	9/01/2020	10:40	58
ST5	10410 Roberts Rd., Calimesa	D	COM	E (72)	Empty Lot	9/15/2020	9:30	64
ST5	10410 Roberts Rd., Calimesa	D	COM	E (72)	Empty Lot	9/15/2020	9:40	64
ST6	Old Roberts Rd., Calimesa	E	UND	G (--)	Empty Lot	9/15/2020	9:30	74
ST6	Old Roberts Rd., Calimesa	E	UND	G (--)	Empty Lot	9/15/2020	9:40	73

Site Number	Street Address, City	Area	Land Use	Activity Category/ (NAC)	Meter Location	Measurement Dates	Start Time	Measured L_{eq}(h), dBA[4]
ST7	1076 Poinsettia Circle, Calimesa	F	SFR	B (67)	Back Yard	09/03/2020	10:00	56
ST7	1076 Poinsettia Circle, Calimesa	F	SFR	B (67)	Back Yard	09/03/2020	11:00	55
ST8	36240 Cherry Creek Rd., Calimesa	C	SFR	B (67)	Back Yard	9/03/2020	11:50	60
ST8	36240 Cherry Creek Rd., Calimesa	C	SFR	B (67)	Back Yard	9/03/2020	12:00	59
ST9	36233 Cherry Valley Blvd., Calimesa	G	UND	G (--)	Empty Lot	9/02/2020	13:20	63
ST9	36233 Cherry Valley Blvd., Calimesa	G	UND	G (--)	Empty Lot	9/02/2020	13:30	63
ST10	1180 Raven Ct., Calimesa	I	SFR	B (67)	Back Yard	9/02/2020	11:40	52
ST10	1180 Raven Ct., Calimesa	I	SFR	B (67)	Back Yard	9/02/2020	12:00	52
ST11	701 Desert Lawn Dr., Calimesa	J	SFR	B (67)	Back Yard	9/02/2020	11:40	60
ST11	701 Desert Lawn Dr., Calimesa	J	SFR	B (67)	Back Yard	9/02/2020	12:00	60
ST12	17 Peachtree Lane, Calimesa	K	SFR	B (67)	Back Yard	9/02/2020	10:20	53
ST12	17 Peachtree Lane, Calimesa	K	SFR	B (67)	Back Yard	9/02/2020	10:40	52
ST13	1 Plantation, Calimesa	K	SFR	B (67)	Back Yard	9/02/2020	10:20	56
ST13	1 Plantation, Calimesa	K	SFR	B (67)	Back Yard	9/02/2020	10:40	55
ST14	25 Peachtree Lane, Calimesa	K	SFR	B (67)	Back Yard	9/02/2020	10:20	68
ST14	25 Peachtree Lane, Calimesa	K	SFR	B (67)	Back Yard	9/02/2020	10:40	66
ST15	1012 Cherry Valley Blvd, Calimesa	H	COM	E (72)	Parking Lot	9/02/2020	14:00	56
ST15	1012 Cherry Valley Blvd, Calimesa	H	COM	E (72)	Parking Lot	9/02/2020	14:10	56

Notes: 1. ST – Short-Term Measurements.
2. Land Use: SFR – single-family residence; MH – mobile home, COM – commercial; UND – undeveloped land.
3. Measurement duration is 10 minutes.
4. dBA-A-weighted decibels.
Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021).

Long-Term Monitoring

Long-term noise measurements were conducted at two locations for over 24-hour durations between September 1st and 2nd, 2020 to observe hourly noise distribution. Locations of each measurement are shown in Figures 2.2.7-2 to 2.2.7-11. Table 2.2.7-3, Long-Term Noise Measurement Results, summarizes the long-term monitoring results and includes the addresses and land use types of each monitoring location.

Table 2.2.7-3: Long-Term Noise Measurement Results

Site Number[1]	Street Address, City	Area	Land Use[2]	Activity Category/ (NAC)	Meter Location	Measurement Dates	Start Time	Duration (Hours)	Measured Worst-Hour $L_{eq}(h)$, dBA[3]	Peak-Hour Time
LT1	10320 Calimesa Blvd, Unit 2, Calimesa	B	MH	B (67)	Back Yard	9/01/2020 – 9/02/2020	9:20	30	69	06:00
LT2	82378 Crest Ave, Indio	K	SFR	B (67)	Back Yard	9/01/2020 – 9/02/2020	8:51	31	70	06:00

Notes: 1. LT – Long-Term Measurements.
2. Land Use: SFR – single-family residence.
3. Measured Worst Hour– Measured Noise Levels (in dBA) during peak hour traffic.
Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021)

Table 2.2.7-4: Noise Model Calibration Results

Site Number	Noise Study Area[4]	Date	Start Time	Noise Levels, L_{eq} (h) dBA (Measured)	Noise Levels, L_{eq} (h) dBA (Modeled)	Measured Minus Modeled, dB	Applied Adjustment[2], dB
ST1	A	9/03/20	9:50	71	69	2	--
ST2	B	9/01/20	11:10	69	70	-1	--
ST3	B	9/01/20	11:10	63	65	-2	--
ST4	C	9/01/20	10:30	58	61	-3	--
ST5	D	9/15/20	9:40	64	67	-3	--
ST6	E	9/15/20	9:40	73	71	2	--
ST7	F	9/03/20	11:00	55	54	1	--
ST8	C	9/03/20	11:50	60	60	0	--
ST9	G	9/02/20	13:20	63	62	1	--
ST10	I	9/02/20	12:00	52	55	-3	--

Site Number	Noise Study Area[4]	Date	Start Time	Noise Levels, L_{eq} (h) dBA (Measured)	Noise Levels, L_{eq} (h) dBA (Modeled)	Measured Minus Modeled, dB	Applied Adjustment[2], dB
ST11	J	9/02/20	12:00	60	63	-3	--
ST12	K	9/02/20	10:20	53	56	-3	--
ST13	K	9/02/20	10:20	56	67	-1	--
ST14	K	9/02/20	10:20	68	68	0	--
ST15	H	9/02/20	14:10	56	55	1	--

Notes: 1. Measured noise levels were measured for a period of 10 minutes.
2. Adjustment factor (K-Factor) is applied to receptors represented by measurement site when deviation is greater than +/- 3 dB. No adjustments are required.
3. ST–Short Term Measurements.
4. Noise Study Areas can be viewed in Figures 2.2.7-2 through 2.2.7-11.
Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021).

Environmental Consequences

Temporary Impacts

No-Build Alternative

Project improvements and associated construction activities would not occur under the No-Build Alternative; therefore, the No-Build Alternative would not result in temporary noise impacts associated with the project.

Build Alternatives 3 and 4

Short-term noise would result from the construction activities that may intermittently dominate the noise environment in the immediate area of construction. Table 2.2.7-5 summarizes noise levels produced by construction equipment commonly used on roadway construction projects. As shown, equipment involved in construction is expected to generate noise levels ranging from 80 to 89 dBA at a distance of 50 feet. Noise produced by construction equipment would be reduced over distance at a rate of approximately 6 dB per doubling of distance.

Table 2.2.7-5: Construction Equipment Noise

Equipment	Maximum Noise Level (dBA)
Scrapers	89
Bulldozers	85
Heavy Trucks	88
Backhoe	80
Pneumatic Tools	85
Concrete Pump	82

Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021).

Construction activities associated with Build Alternatives 3 and 4 could expose residential, commercial, and undeveloped uses to temporary noise levels of up to approximately 89 dBA. However, construction-related noise associated with Build Alternatives 3 and 4 would be temporary and would cease upon project completion. Additionally, construction would comply with the Caltrans Standard Specification Section 14-8.02, which would require noise levels from construction activities to not exceed 86 dBA L_{max} at 50 feet from 9 PM to 6 AM. Under Caltrans Standard Specification Section 14-8.02, combustion engines would be equipped with appropriate mufflers to minimize noise generation. By adhering to Caltrans Standard Specifications, temporary noise impacts would not result in adverse effects in this regard.

Permanent Effects

The project is considered a Type I project under 23 CFR 772, as it entails a "proposed federal or federal aid highway project for the construction of a highway on a new location or the physical alteration of an existing highway, which changes either the horizontal or vertical alignment or increases the number of through-traffic lanes." Type I projects are required to consider noise abatement measures if forecasted traffic volumes would result in a substantial increase in noise levels for sensitive land uses. Level of service (LOS) C and design year 2045 forecasted traffic volumes were used to predict traffic noise levels and analyze noise impacts at receivers located within the project area.

To determine traffic-related noise associated with the project, traffic noise modeling analysis was conducted. Future noise levels were modeled and analyzed for both the existing and design-year with-project conditions under Build Alternatives 3 and 4. Noise levels were analyzed at the following Build Alternative locations along roadways in the study area: edge of shoulder (EOS) of the roadway, within right of way (ROW), and on private property under existing conditions (2019) and design year (2045) conditions. The project would result in a traffic noise impact if either the traffic noise level at a sensitive receiver location is predicted to "approach or exceed" the established NAC for the sensitive receiver's Activity Category, or if the predicted traffic noise level is 12 dBA or more than the NAC. Traffic noise modeling analysis was developed to determine the traffic-related noise attributed to the project for the No-Build and Build Alternatives using TNM 2.5 computer modeling. Location of the sensitive receivers are shown in Figures 2.2.7-1 to 2.2.7-10 above, and the results of this analysis are presented in Tables 2.2.7-6 to 2.2.7-11.

No-Build Alternative

Under the No-Build Alternative, the I-10/Cherry Valley Boulevard improvements would not occur; however, surrounding planned projects would continue to be developed. For each land use within the project area (single-family residential, mobile homes, commercial, and undeveloped uses), the predicted design-year traffic noise levels under the No-Build Alternative are compared to the predicted design-year (2045) conditions without the project using additional sensitive receivers to determine if a substantial noise increase would occur. The results of this analysis are presented in Tables 2.2.7-6 to 2.2.7-11. Single-family residential uses are considered to be Category B land uses, and are located in outdoor activity areas A, C, F, I, J, and K of the project area. The NAC for Category B land uses under these areas is 67 dBA Leq. Under the No Build Alternative, the predicted design year traffic noise levels with the project ranges from 45 to 71 dBA and would exceed the NAC of 67 dBA Leq. As such, there would be a substantial increase in noise for this land use under the No-Build Alternative.

- Mobile Homes are considered to be Category B land uses, and are located in outdoor activity Aarea B of the project area. Under the No Build Alternative, the predicted design year traffic noise levels with the project ranges from 61 to 72 dBA Leq and would exceed the NAC of 67 dBA Leq. As such, there would be a substantial increase in noise for this land use.
- Commercial uses are considered to be Category E land uses, and are located in outdoor activity areas D, G, and H of the project area. The NAC for Category E land uses under these areas is 72 dBA Leq. Under the No Build Alternative, the predicted design year traffic noise levels with the project ranges from 53 to 65 dBA Leq and would not approach or exceed the NAC of 67 dBA Leq or result in a substantial increase in noise.
- Undeveloped land is considered to be a Category G land use. Properties are located in outdoor activity areas D, E, and G of the project area. Under 23 CFR 772, there is no noise abatement criteria for this category. Under the No Build Alternative, the predicted design year traffic noise levels with the project ranges from 62 to 74 dBA. As such, consideration of noise abatement is not required for this land use.

Build Alternatives 3 and 4
Under Build Alternatives 3 and 4, the I-10/Cherry Valley Boulevard interchange would be reconfigured into either a diverging diamond interchange (Build Alternative 3) or a partial cloverleaf configuration (Build Alternative 4). Both Build Alternatives would additionally involve widening Cherry Valley Boulevard into a two-lane roadway. Similarly, to the No-Build Alternative, the predicted design-year traffic noise levels under both Build Alternatives 3 and 4 are compared to the predicted design-year (2045) conditions without the project using additional sensitive receivers to determine if a substantial noise increase would occur. Additionally, future design-year noise levels on adjacent properties at various distances from the edge of traveled way (ETW) where noise levels would “approach” (i.e., are within one dB of) or exceed the applicable NAC for properties adjacent to the project limits. Location of the sensitive receivers are shown in Figures 2.2.7-2 to 2.2.7-11 above, and the results of this analysis are presented in Tables 2.2.7-6 to 2.2.7-11.

Build Alternative 3
Area A: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate traffic noise levels at the single-family residence (Category B) are predicted to be in the range of 71 to 72 dBA L_{eq} in the design year under Build Alternative 3. For of Category B land uses in this area that are adjacent to the project limits, noise levels would approach the NAC within 200 to 600 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year would range from 2 to 3 dB. There is no noise abatement criterion for Category G land uses and the Build Alternative would not result in a substantial increase in noise. However, the predicted noise levels in the design year would exceed the required NAC of 67 dBA L_{eq} for Category B land uses and traffic noise impacts are expected to occur at the residence. As such, noise abatement is considered for this area.

Area B: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at the mobile homes (Category B) in Area B are predicted to be in the range of 60 to 74 dBA L_{eq} in the design year under Alternative 3. The results also indicate that the noise between existing conditions and the design year would increase by 1 to 3 dB. The Build Alternative would not result in a substantial increase in noise. However, the predicted noise levels in the design year would approach and exceed the NAC of 67 dBA L_{eq} for Category B land uses, traffic noise impacts are predicted in Area B. Therefore, noise abatement is considered for this area.

Area C: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at the single-family residences (Category B) in Area C would be in the range of 62 to 63 dBA L_{eq} at the residences the design year under Build Alternative 3. For Category B land uses in this area that are adjacent to the project limits, noise levels would approach the NAC at a range of 200 to 600 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year in undeveloped lands would be 2dB. There is no noise abatement criterion for Category G land uses and the Build Alternative would not result in a substantial increase in noise. Lastly, the predicted noise levels in the design year exceed the required NAC of 67 dBA L_{eq} for single family residences in the area. Therefore, no traffic noise impacts are predicted in Area C.

Area D: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at the commercial land uses (Category C) in Area D is predicted to be 65 dBA L_{eq} in the design year under Build Alternative 3. Noise levels would approach the NAC of Category C at a range of 200 to 500 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year in undeveloped lands would be 2 dB. There is no noise abatement criterion for Activity Category G and the Build Alternative would not result in a substantial increase in noise, nor would the predicted noise levels in the design year exceed the required NAC of 67 dBA L_{eq} for single family residences in the area. Therefore, no traffic noise impacts are predicted in Area D.

Area E: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at the undeveloped lands in Area E are predicted to be 74 dBA L_{eq} in the design year under Alternative 3. For Categories B and C land uses adjacent to the project limits, noise levels would approach the NAC at a range of 100 to 700 feet. For Category E land uses adjacent to the project limits, noise levels would approach the NAC at a range between 100 and 200 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year is predicted to be 2 dB. There is no noise abatement criterion for Category G land uses, and the Build Alternative would not result in a substantial increase in noise. Therefore, no traffic noise impacts are predicted in Area E.

Area F: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at the single-family residences in Area F range from 43 to 55 dBA L_{eq} in the design year under Alternative 3. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range between 1 and 9 dB. The large increase in noise in the design year would be due to the substantial increase in traffic volume on Roberts Road. However, the predicted noise levels in the design year would not approach or exceed the NAC of 67 dBA L_{eq} for Category B land uses and a substantial increase in noise would not occur. Therefore, no traffic noise impacts are predicted in Area F.

Area G: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at a commercial establishment in Area G are predicted to be 64 dBA L_{eq} in the design year under Alternative 3. For Category C land uses adjacent to the Build Alternative limits, noise levels would approach the NAC at a range of 100 to 500 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year is predicted to be 2 dB. However, the predicted noise level in the design year would not approach or exceed the NAC of 72 dBA L_{eq} at the commercial establishment, and there is no noise abatement criterion for Category G land uses. Therefore, no traffic noise impacts are predicted in Area G.

Area H: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at the commercial establishments in Area H predicted to be in the range of 54 to 60 dBA L_{eq} in the design year under Build Alternative 3. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range from 2 to 4 dB. The predicted noise levels in the design year would not approach or exceed the NAC of 72 dBA L_{eq} for Category E land uses and a substantial increase in noise would not occur. As such, no traffic noise impacts are predicted in Area H.

Area I: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at one single-family residence in Area I are predicted to be in the range of 54 to 56 dBA L_{eq} in the design year under Build Alternative 3. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range between 0 and 1 dB. The decrease in traffic noise levels between no-build conditions and build conditions is due to a decrease in traffic volumes on Desert Lawn Drive. The predicted noise levels in the design year would not approach or exceed the NAC of 67 dBA L_{eq} for Category B land uses and a substantial increase in noise would not occur. As such, no traffic noise impacts are predicted in Area I.

Area J: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at the single-family residences in Area J are predicted to be in the range of 60 to 71 dBA L_{eq} in the design year under Alternative 3. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range from 2 to 3 dB. The Build Alternative would not result in a substantial increase in noise; however, the predicted noise levels in the design year would approach and exceed the NAC of 67 dBA L_{eq} for Category B and Category C land uses, traffic noise impacts are predicted in Area K. Therefore, noise abatement is considered for this area.

Area K: The traffic noise modeling results in Tables 2.2.7-6 through 2.2.7-8 indicate that traffic noise levels at the single-family residences and the Planation by the Lake in Area

K are predicted to be in the range of 55 to 70 dBA L_{eq} in the design year under Build Alternative 3. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range from 1 to 4 dB. The Build Alternative would not result in a substantial increase in noise. However, the predicted noise levels in the design year would approach and exceed the NAC of 67 dBA L_{eq} for Category B and Category C land uses, traffic noise impacts are predicted in Area K. Therefore, noise abatement is considered for this area.

Build Alternative 4

Area A: The traffic noise modeling results in Tables 2.2.7-9 through 2.2.7-11 indicate that traffic noise levels at one single-family residence in Area A are predicted to be in the range of 71 to 72 dBA L_{eq} in the design year under Build Alternative 4. For Category B land uses adjacent to the Build Alternative limits, noise levels would approach the NAC at a range of 400 to 600 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range from 2 to 3 dB. While there is no noise abatement criterion for Category G land uses and while the Build Alternative would not result in a substantial increase in noise, the predicted noise levels in the design year would exceed the NAC of 67 dBA L_{eq} for Category B land uses and traffic noise impacts are predicted to occur at the residence. Therefore, noise abatement is considered for this area.

Area B: The traffic noise modeling results in Tables 2.2.7-9 and 2.2.7-11 indicate traffic noise levels at the mobile homes in Area B are predicted to be in the range of 60 to 74 dBA L_{eq} in the design year under Build Alternative 4. The results also indicate that the noise between existing conditions and the design year is predicted to increase by 1 to 3 dB. The Build Alternative would not result in a substantial increase in noise. However, the predicted noise levels in the design year are predicted to approach and exceed the NAC of 67 dBA L_{eq} for Category B land uses, traffic noise impacts are predicted in Area B. Therefore, noise abatement is considered for this area.

Area C: The traffic noise modeling results in Tables 2.2.7-9 and 2.2.7-11 indicate traffic noise levels at the single-family residence in Area C are predicted to be 62 dBA L_{eq} at the residence in the design year under Build Alternative 4. For Category B land uses adjacent to the Build Alternative limits, noise levels would approach the NAC at a range of 300 to 600 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year is predicted to be 2 dB. The predicted noise levels in the design year are not predicted to approach or exceed the NAC of 67 dBA L_{eq} for Category B land uses and there is no noise abatement criterion for Category G land uses Therefore, no traffic noise impacts are predicted in Area C.

Area D: The traffic noise modeling results in Tables 2.2.7-9 and 2.2.7-11 indicate traffic noise levels at the commercial establishment in Area D are predicted to be 65 dBA L_{eq} in the design year under Build Alternative 4. For Category C land uses adjacent to the Build Alternative limits, noise levels would approach the NAC at a range of 200 to 500 feet. For Category E land uses adjacent to the project site, noise levels would approach the NAC at a range between 100 and 300 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year is predicted to be 2 dB. The predicted noise levels in the design year would not approach or exceed the NAC of 67 dBA L_{eq} for Category E land uses and there is no noise abatement criterion for Category G land uses Therefore, no traffic noise impacts are predicted in Area C.

Area E: The traffic noise modeling results in Tables 2.2.7-9 and 2.2.7-11 indicate traffic noise levels at the noise measurement site located within undeveloped lands (Activity Category G) in Area E is predicted to be 74 dBA L_{eq} in the design year under Build Alternative 3. For Categories B and C land uses adjacent to the project limits, noise levels would approach the NAC at a range of 100 to 700 feet. For Category E land uses adjacent to the project limits, noise levels would approach the NAC at a range between 100 and 200 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year is would 2 dB. There is no noise abatement criterion for Activity Category G, and the Build Alternative would not result in a substantial increase in noise. Therefore, no traffic noise impacts are predicted to occur in Area E.

Area F: The traffic noise modeling results in Tables 2.2.7-9 and 2.2.7-11 indicate traffic noise levels at the single-family residences in Area F are predicted to be in the range of 45 to 59 dBA L_{eq} in the design year under Alternative 4. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range between 1 and 9 dB. The large increase in noise in the design year is due to the substantial increase in traffic volume on Roberts Road. The predicted noise levels in the design year are not predicted to approach or exceed the NAC of 67 dBA L_{eq} for Category B land uses and a substantial increase in noise would not occur. As such, no traffic noise impacts are predicted in Area F.

Area G: The traffic noise modeling results in Tables 2.2.7-9 and 2.2.7-11 indicate traffic noise levels a commercial establishment in Area D are predicted to be 64 dBA L_{eq} in the design year under Build Alternative 4. For Category C land uses adjacent to the project limits, noise levels would approach the NAC at a range of 100 to 500 feet from the ETW. The results also indicate that the increase in noise between existing conditions and the design year is predicted to be 2 dB. The predicted noise level in the design year is not predicted to approach or exceed the NAC of 72 dBA L_{eq} at the commercial establishment and there is no noise abatement criterion for Category G land uses. Therefore, no traffic noise impacts are predicted to occur in Area G.

Area H: The traffic noise modeling results in Tables 2.2.7-9 and 2.2.7-11 indicate traffic noise levels the commercial establishments in Area H are predicted to be in the range of 54 to 60 dBA. L_{eq} in the design year under Build Alternative 4. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range from 2 to 4 dB. The predicted noise levels in the design year are not predicted to approach or exceed the NAC of 72 dBA L_{eq} for Category E land uses and a substantial increase in noise would not occur. As such, no traffic noise impacts are predicted in Area H.

Area I: The traffic noise modeling results in Tables 2.2.7-9 and 2.2.7-11 indicate traffic noise levels at the single-family residences in Area I is predicted to be in the range of 54 to 56 dBA L_{eq} in the design year under Build Alternative 4. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range between 0 and 1 dB. The decrease in traffic noise levels between no-build conditions and build conditions is due to a decrease in traffic volumes on Desert Lawn Drive. The predicted noise levels in the design year are not predicted to approach or exceed the NAC of 67 dBA L_{eq} for Category B land uses, and a substantial increase in noise would not occur. As such, no traffic noise impacts are predicted in Area I.

Area J: The traffic noise modeling results in Tables 2.2.7-9 and 2.2.7-11 indicate traffic noise levels at the single-family residences in Area J are predicted to be in the range of 60 to 71 dBA L_{eq} in the design year under Build Alternative 4. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range from 2 to 3 dB. The Build Alternative would not result in a substantial increase in noise, the predicted noise levels in the design year are predicted to exceed the NAC of 67 dBA L_{eq} for Category B land uses and traffic noise impacts are predicted to occur at one of the residences. Therefore, noise abatement is considered for this area.

Area K: The traffic noise modeling results between Tables 2.2.7-9 through 2.2.7-11 indicate traffic noise levels at the single-family residences in Area K are predicted to be in the range of 55 to 70 dBA L_{eq} in the design year under Build Alternative 4. The results also indicate that the increase in noise between existing conditions and the design year is predicted to range from 1 to 3 dB. The Build Alternative would not result in a substantial increase in noise. However, the predicted noise levels in the design year are predicted to approach and exceed the NAC of 67 dBA L_{eq} for Category B and Category C land uses, traffic noise impacts are predicted in Area K. Therefore, noise abatement is considered for this area.

Table 2.2.7-6: Predicted Future Noise Levels and Barrier Analysis at Edge of Shoulder – Alternative 3

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq} (h) (dBA)[1]	Predicted No-Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
A	R2[5]	S379 EOS	SFR	--	70	71	72	1	1	B (67)	A/E
A	R2A	S379 EOS	SFR	1	68	70	71	2	1	B (67)	A/E
B	R5	S401 EOS	MH	1	71	72	73	1	1	B (67)	A/E
B	R6	S401 EOS	MH	1	72	73	74	1	1	B (67)	A/E
B	R7	S401 EOS	MH	2	72	73	74	1	1	B (67)	A/E
B	R8	S401 EOS	MH	1	73	74	74	1	0	B (67)	A/E
B	R9	S401 EOS	MH	1	66	67	67	1	0	B (67)	A/E
B	R10	S401 EOS	MH	1	68	69	69	1	0	B (67)	A/E
B	R11	S401 EOS	MH	1	66	67	69	1	2	B (67)	A/E
B	R12	S401 EOS	MH	1	66	67	69	1	2	B (67)	A/E
B	R13	S401 EOS	MH	1	65	66	67	1	1	B (67)	A/E
B	R14	S401 EOS	MH	1	65	67	67	2	0	B (67)	A/E
B	R15	S401 EOS	MH	2	64	66	66	2	0	B (67)	A/E
B	R16	S401 EOS	MH	2	62	64	65	2	1	B (67)	NONE
B	R17	S401 EOS	MH	2	60	62	62	2	0	B (67)	NONE
B	R18	S401 EOS	MH	2	62	64	64	2	0	B (67)	NONE
B	R19	S401 EOS	MH	2	63	64	64	2	-1	B (67)	NONE
B	R20	S401 EOS	MH	2	62	63	64	1	1	B (67)	NONE
B	R21	S401 EOS	MH	2	58	60	60	2	0	B (67)	NONE
B	R22	S401 EOS	MH	2	58	59	60	1	1	B (67)	NONE
B	R23	S401 EOS	MH	2	61	62	63	1	1	B (67)	NONE
B	R24	S401 EOS	MH	2	63	65	65	2	0	B (67)	NONE
B	R25	S401 EOS	MH	1	60	62	62	2	0	B (67)	NONE
B	R26	S401 EOS	MH	1	58	60	61	2	1	B (67)	NONE
B	R27	S401 EOS	MH	1	69	59	60	1	1	B (67)	NONE
B	R28	S401 EOS	MH	1	60	61	62	1	1	B (67)	NONE
B	R29	S401 EOS	MH	1	63	64	64	1	0	B (67)	NONE
C	R32	--	SFR	1	61	63	63	2	0	B (67)	NONE
C	R33	--	SFR	1	60	62	62	2	0	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq}(h) (dBA)[1]	Predicted No-Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
D	R36	--	UND	1	67	68	69	1	1	G (--)	NONE
D	R37	--	COM	1	63	64	65	1	1	E (72)	NONE
E	R40	--	UND	1	72	74	74	2	0	G (--)	NONE
F	R102	--	SFR	1	49	57	57	8	0	B (67)	NONE
F	R103	--	SFR	2	49	58	58	9	0	B (67)	NONE
F	R104	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R105	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R106	--	SFR	2	51	57	58	6	1	B (67)	NONE
F	R107	--	SFR	1	55	58	59	3	1	B (67)	NONE
F	R108	--	SFR	1	55	57	57	2	0	B (67)	NONE
F	R109	--	SFR	2	54	56	56	2	0	B (67)	NONE
F	R110	--	SFR	2	52	54	55	2	1	B (67)	NONE
F	R111	--	SFR	1	52	54	54	2	0	B (67)	NONE
F	R112	--	SFR	1	53	54	54	1	0	B (67)	NONE
F	R113	--	SFR	4	43	45	45	2	0	B (67)	NONE
F	R114	--	SFR	1	47	50	51	3	1	B (67)	NONE
F	R115	--	SFR	3	45	47	47	2	0	B (67)	NONE
G	R117	--	UND	1	62	63	65	1	2	G (--)	NONE
G	R118	--	COM	1	62	62	64	0	2	E (72)	NONE
H	R121[4]	--	COM	1	56	58	60	2	2	E (72)	NONE
H	R122[4]	--	COM	1	52	53	54	11	1	E (72)	NONE
I	R123	--	SFR	2	53	55	54	2	-1	B (67)	NONE
I	R124	--	SFR	2	54	55	55	1	0	B (67)	NONE
I	R125	--	SFR	2	54	56	55	2	-1	B (67)	NONE
I	R126	--	SFR	2	56	57	56	1	-1	B (67)	NONE
I	R127	--	SFR	1	55	57	56	2	-1	B (67)	NONE
J	R128[5]	EOS	SFR	--	63	65	66	2	1	B (67)	NONE
J	R129	EOS	SFR	1	69	70	71	1	1	B (67)	A/E
J	R131		SFR	1	58	60	60	2	0	B (67)	NONE
K	R132	S452	REC	1	65	67	67	2	0	B (67)	NONE
K	R132A	S452	REC	1	63	65	65	2	0	B (67)	A/E

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq} (h) (dBA)[1]	Predicted No-Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
K	R132B	S452	REC	1	63	66	66	3	0	B (67)	NONE
K	R133	S452	SFR	1	68	70	70	2	0	B (67)	A/E
K	R134	S452	SFR	2	68	70	70	2	0	B (67)	A/E
K	R135	S452	SFR	3	67	69	69	2	0	B (67)	A/E
K	R136	S452	SFR	1	65	66	66	1	0	B (67)	A/E
K	R137	S452	SFR	1	59	60	61	1	1	B (67)	NONE
K	R138	S452	SFR	1	57	59	59	2	0	B (67)	NONE
K	R139	S452	SFR	1	57	60	60	3	0	B (67)	NONE
K	R140	S452	SFR	2	57	59	59	2	0	B (67)	NONE
K	R142	S452	SFR	1	53	55	55	2	0	B (67)	NONE
K	R143	S452	SFR	1	56	58	60	2	2	B (67)	NONE

Notes: 1. Leq(h) are A-weighted, peak hour noise levels in decibels.
2 Land Use: SFR – single-family residence; MH – Mobile Home, REC - Recreational; COM – Commercial.
3. S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.
4. There are no outdoor use areas at this commercial land use.
5. This receiver was a monitoring site for noise model calibration purposes and was not located at the outdoor use area; however, this site is representative of adjacent outdoor use area.
6. This receiver was a monitoring site for noise model calibration purposes and would not represent a noise sensitive site under future conditions.
Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021).

Table 2.2.7-7: Predicted Future Noise Levels and Barrier Analysis at Right-of-Way – Alternative 3

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq}(h) (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
A	R2[5]	S379 EOS	SFR	--	70	71	72	1	1	B (67)	A/E
A	R2A	S379 ROW	SFR	1	68	70	71	2	1	B (67)	A/E
B	R5	S401 ROW	MH	1	71	72	73	1	1	B (67)	A/E
B	R6	S401 ROW	MH	1	72	73	74	1	1	B (67)	A/E
B	R7	S401 ROW	MH	2	72	73	74	1	1	B (67)	A/E
B	R8	S401 ROW	MH	1	73	774	74	1	0	B (67)	A/E
B	R9	S401 ROW	MH	1	66	67	67	1	0	B (67)	A/E
B	R10	S401 ROW	MH	1	68	69	69	1	0	B (67)	A/E
B	R11	S401 ROW	MH	1	66	67	69	1	2	B (67)	A/E
B	R12	S401 ROW	MH	1	66	67	69	1	2	B (67)	A/E
B	R13	S401 ROW	MH	1	65	66	67	1	1	B (67)	A/E
B	R14	S401 ROW	MH	1	65	67	67	2	0	B (67)	A/E
B	R15	S401 ROW	MH	2	64	66	66	2	0	B (67)	A/E
B	R16	S401 ROW	MH	2	62	64	65	2	1	B (67)	NONE
B	R17	S401 ROW	MH	2	60	62	62	2	0	B (67)	NONE
B	R18	S401 ROW	MH	2	62	64	64	2	0	B (67)	NONE
B	R19	S401 ROW	MH	2	63	65	64	2	-1	B (67)	NONE
B	R20	S401 ROW	MH	2	62	63	64	1	1	B (67)	NONE
B	R21	S401 ROW	MH	2	58	60	60	2	0	B (67)	NONE
B	R22	S401 ROW	MH	2	58	59	60	1	1	B (67)	NONE
B	R23	S401 ROW	MH	2	61	62	63	1	1	B (67)	NONE
B	R24	S401 ROW	MH	2	63	65	65	2	0	B (67)	NONE
B	R25	S401 ROW	MH	1	60	62	62	2	0	B (67)	NONE
B	R26	S401 ROW	MH	1	58	60	61	2	1	B (67)	NONE
B	R27	S401 ROW	MH	1	58	59	60	1	1	B (67)	NONE
B	R28	S401 ROW	MH	1	60	61	62	1	1	B (67)	NONE
B	R29	S401 ROW	MH	1	63	64	64	1	0	B (67)	NONE
C	R32	--	SFR	1	61	63	63	2	0	B (67)	NONE
C	R33	--	SFR	1	60	62	62	2	0	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq}(h) (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
D	R36	--	UND	1	67	68	69	1	1	G (--)	NONE
D	R37	--	COM	1	63	64	65	1	1	E (72)	NONE
E	R40	--	UND	1	72	74	74	2	0	G (--)	NONE
F	R102	--	SFR	1	49	57	57	8	0	B (67)	NONE
F	R103	--	SFR	2	49	58	58	9	0	B (67)	NONE
F	R104	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R105	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R106	--	SFR	2	51	57	58	6	1	B (67)	NONE
F	R107	--	SFR	1	55	58	59	3	1	B (67)	NONE
F	R108	--	SFR	1	55	57	57	2	0	B (67)	NONE
F	R109	--	SFR	2	54	56	56	2	0	B (67)	NONE
F	R110	--	SFR	2	52	54	55	2	1	B (67)	NONE
F	R111	--	SFR	1	52	54	64	2	0	B (67)	NONE
F	R112	--	SFR	1	53	54	64	1	0	B (67)	NONE
F	R113	--	SFR	4	43	45	45	2	0	B (67)	NONE
F	R114	--	SFR	1	47	50	51	3	1	B (67)	NONE
F	R115	--	SFR	3	45	47	47	2	0	B (67)	NONE
G	R117	--	UND	1	62	63	65	1	2	G (--)	NONE
G	R118	--	COM	1	62	62	64	0	2	E (72)	NONE
H	R121[4]	--	COM	1	56	58	60	2	2	E (72)	NONE
H	R122[4]	--	COM	1	52	53	54	1	1	E (72)	NONE
I	R123	--	SFR	2	53	55	54	2	-1	B (67)	NONE
I	R124	--	SFR	2	54	55	55	1	0	B (67)	NONE
I	R125	--	SFR	2	54	56	55	2	-1	B (67)	NONE
I	R126	--	SFR	2	56	57	56	1	-1	B (67)	NONE
I	R127	--	SFR	1	55	57	56	2	-1	B (67)	NONE
J	R128[5]	ROW	SFR	--	63	65	66	2	0	B (67)	A/E
J	R129	ROW	SFR	1	69	70	71	1	0	B (67)	A/E
J	R131		SFR	1	58	60	60	2	0	B (67)	NONE
K	R132	S452	REC	1	65	67	67	2	0	B (67)	A/E
K	R132A	S452	REC	1	63	65	65	2	0	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq}(h) (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
K	R132B	S452	REC	1	63	66	66	3	0	B (67)	A/E
K	R133	S452	SFR	1	68	70	70	2	0	B (67)	A/E
K	R134	S452	SFR	2	68	70	70	2	0	B (67)	A/E
K	R135	S452	SFR	3	67	69	69	2	0	B (67)	A/E
K	R136	S452	SFR	1	65	66	66	1	0	B (67)	A/E
K	R137	S452	SFR	1	59	60	61	1	1	B (67)	NONE
K	R138	S452	SFR	1	57	59	59	2	0	B (67)	NONE
K	R139	S452	SFR	1	57	60	60	3	0	B (67)	NONE
K	R140	S452	SFR	2	57	59	59	2	0	B (67)	NONE
K	R142	S452	SFR	1	53	55	55	2	0	B (67)	NONE
K	R143	S452	SFR	1	56	58	60	2	2	B (67)	NONE

Notes: 1. Leq(h) are A-weighted, peak hour noise levels in decibels.
2 Land Use: SFR – single-family residence; MH – Mobile Home, REC - Recreational; COM – Commercial.
3. S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.
4. There are no outdoor use areas at this commercial land use.
5. This receiver was a monitoring site for noise model calibration purposes and was not located at the outdoor use area; however, this site is representative of adjacent outdoor use area.
6. This receiver was a monitoring site for noise model calibration purposes and would not represent a noise sensitive site under future conditions.
Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021).

Table 2.2.7-8: Predicted Future Noise Levels and Barrier Analysis at Private Property – Alternative 3

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq}(h) (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
A	R2[5]	S379 PP	SFR	--	70	71	72	1	1	B (67)	A/E
A	R2A	S379 PP	SFR	1	68	70	71	2	1	B (67)	A/E
B	R5	S401 PP	MH	1	71	72	73	1	1	B (67)	A/E
B	R6	S401 PP	MH	1	72	73	74	1	1	B (67)	A/E
B	R7	S401 PP	MH	2	72	73	74	1	1	B (67)	A/E
B	R8	S401 PP	MH	1	73	74	74	1	0	B (67)	A/E
B	R9	S401 PP	MH	1	66	67	67	1	0	B (67)	A/E
B	R10	S401 PP	MH	1	68	69	69	1	0	B (67)	A/E
B	R11	S401 PP	MH	1	66	67	69	1	2	B (67)	A/E
B	R12	S401 PP	MH	1	66	67	69	1	2	B (67)	A/E
B	R13	S401 PP	MH	1	65	66	67	1	1	B (67)	A/E
B	R14	S401 PP	MH	1	65	67	67	2	0	B (67)	A/E
B	R15	S401 PP	MH	2	64	66	66	2	0	B (67)	A/E
B	R16	S401 PP	MH	2	62	64	65	2	1	B (67)	NONE
B	R17	S401 PP	MH	2	60	62	62	2	0	B (67)	NONE
B	R18	S401 PP	MH	2	62	64	64	2	0	B (67)	NONE
B	R19	S401 PP	MH	2	63	65	64	2	-1	B (67)	NONE
B	R20	S401 PP	MH	2	62	63	64	1	1	B (67)	NONE
B	R21	S401 PP	MH	2	58	60	60	2	0	B (67)	NONE
B	R22	S401 PP	MH	2	58	59	60	1	1	B (67)	NONE
B	R23	S401 PP	MH	2	61	62	63	1	1	B (67)	NONE
B	R24	S401 PP	MH	2	63	65	65	2	0	B (67)	NONE
B	R25	S401 PP	MH	1	60	62	62	2	0	B (67)	NONE
B	R26	S401 PP	MH	1	58	60	61	2	1	B (67)	NONE
B	R27	S401 PP	MH	1	58	59	60	1	1	B (67)	NONE
B	R28	S401 PP	MH	1	60	61	62	1	1	B (67)	NONE
B	R29	S401 PP	MH	1	63	64	64	1	0	B (67)	NONE
C	R32	--	SFR	1	61	63	63	2	0	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq}(h) (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
C	R33	--	SFR	1	60	62	62	2	0	B (67)	NONE
D	R36	--	UND	1	67	68	69	1	1	G (--)	NONE
D	R37	--	COM	1	63	64	65	1	1	E (72)	NONE
E	R40	--	UND	1	72	74	74	2	0	G (--)	NONE
F	R102	--	SFR	1	49	57	57	8	0	B (67)	NONE
F	R103	--	SFR	2	49	58	58	9	0	B (67)	NONE
F	R104	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R105	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R106	--	SFR	2	51	57	58	6	0	B (67)	NONE
F	R107	--	SFR	1	55	58	59	3	1	B (67)	NONE
F	R108	--	SFR	1	55	57	57	2	1	B (67)	NONE
F	R109	--	SFR	2	54	5	56	2	0	B (67)	NONE
F	R110	--	SFR	2	52	54	55	2	1	B (67)	NONE
F	R111	--	SFR	1	52	54	54	2	0	B (67)	NONE
F	R112	--	SFR	1	53	54	54	1	0	B (67)	NONE
F	R113	--	SFR	4	43	45	45	2	0	B (67)	NONE
F	R114	--	SFR	1	47	50	51	3	1	B (67)	NONE
F	R115	--	SFR	3	45	47	47	2	0	B (67)	NONE
G	R117	--	UND	1	62	63	65	1	2	G (--)	NONE
G	R118	--	COM	1	62	62	64	0	2	E (72)	NONE
H	R121[4]	--	COM	1	56	58	60	2	2	E (72)	NONE
H	R122[4]	--	COM	1	52	53	54	1	1	E (72)	NONE
I	R123	--	SFR	2	53	55	54	2	-1	B (67)	NONE
I	R124	--	SFR	2	54	55	55	1	0	B (67)	NONE
I	R125	--	SFR	2	54	56	55	2	-1	B (67)	NONE
I	R126	--	SFR	2	56	57	56	1	-1	B (67)	NONE
I	R127	--	SFR	1	55	57	56	2	-1	B (67)	NONE
J	R128[5]	S436 PP	SFR	--	63	65	66	2	-1	B (67)	A/E
J	R129	S436 PP	SFR	1	69	70	71	1	1	B (67)	A/E
J	R131	--	SFR	1	58	60	60	2	1	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level $L_{eq}(h)$ (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
K	R132	S452 PP	REC	1	65	67	67	2	0	B (67)	A/E
K	R132A	S401 PP	REC	1	63	65	65	2	0	B (67)	NONE
K	R132B	S401 PP	REC	1	63	66	66	3	0	B (67)	A/E
K	R133	S401 PP	SFR	1	68	70	70	2	0	B (67)	A/E
K	R134	S401 PP	SFR	2	68	70	70	2	0	B (67)	A/E
K	R135	S401 PP	SFR	3	67	69	69		0	B (67)	A/E
K	R136	S401 PP	SFR	1	65	66	66	2	0	B (67)	A/E
K	R137	S401 PP	SFR	1	59	60	61	1	1	B (67)	NONE
K	R138	S401 PP	SFR	1	57	59	59	1	0	B (67)	NONE
K	R139	S401 PP	SFR	1	57	60	60	2	0	B (67)	NONE
K	R140	S401 PP	SFR	2	57	59	59	3	0	B (67)	NONE
K	R142	S401 PP	SFR	1	53	55	55	2	0	B (67)	NONE
K	R143	S401 PP	SFR	1	56	58	60	2	2	B (67)	NONE

Notes: 1. Leq(h) are A-weighted, peak hour noise levels in decibels.
2 Land Use: SFR – single-family residence; MH – Mobile Home, REC - Recreational; COM – Commercial.
3. S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.
4. There are no outdoor use areas at this commercial land use.
5. This receiver was a monitoring site for noise model calibration purposes and was not located at the outdoor use area; however, this site is representative of adjacent outdoor use area.
6. This receiver was a monitoring site for noise model calibration purposes and would not represent a noise sensitive site under future conditions.
Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021).

Table 2.2.7-9: Predicted Future Noise Levels and Barrier Analysis at Edge of Shoulder - Alternative 4

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level $L_{eq}(h)$ (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
A	R2[5]	S379 EOS	SFR	--	70	71	72	1	1	B (67)	A/E
A	R2A	S379 EOS	SFR	1	6	70	71	2	1	B (67)	A/E
B	R5	S401 EOS	MH	1	71	72	72	1	0	B (67)	A/E
B	R6	S401 EOS	MH	1	72	73	73	1	0	B (67)	A/E
B	R7	S401 EOS	MH	2	72	73	74	1	1	B (67)	A/E
B	R8	S401 EOS	MH	1	73	74	74	1	0	B (67)	A/E
B	R9	S401 EOS	MH	1	66	67	67	1	0	B (67)	A/E
B	R10	S401 EOS	MH	1	68	69	69	1	0	B (67)	A/E
B	R11	S401 EOS	MH	1	66	67	68	1	1	B (67)	A/E
B	R12	S401 EOS	MH	1	66	67	68	1	1	B (67)	A/E
B	R13	S401 EOS	MH	1	65	66	67	1	1	B (67)	A/E
B	R14	S401 EOS	MH	1	65	67	67	2	0	B (67)	A/E
B	R15	S401 EOS	MH	2	64	66	66	2	0	B (67)	A/E
B	R16	S401 EOS	MH	2	62	64	65	2	1	B (67)	NONE
B	R17	S401 EOS	MH	2	60	62	62	2	0	B (67)	NONE
B	R18	S401 EOS	MH	2	62	64	64	2	0	B (67)	NONE
B	R19	S401 EOS	MH	2	63	65	65	2	0	B (67)	NONE
B	R20	--	MH	2	62	63	64	1	1	B (67)	NONE
B	R21	--	MH	2	58	60	60	2	0	B (67)	NONE
B	R22	--	MH	2	58	59	60	1	1	B (67)	NONE
B	R23	--	MH	2	61	62	63	1	1	B (67)	NONE
B	R24	--	MH	2	63	65	65	2	0	B (67)	NONE
B	R25	--	MH	1	60	62	62	2	0	B (67)	NONE
B	R26	--	MH	1	58	60	60	2	0	B (67)	NONE
B	R27	--	MH	1	58	59	60	1	1	B (67)	NONE
B	R28	--	MH	1	60	61	62	1	1	B (67)	NONE
B	R29	--	MH	1	58	64	64	1	0	B (67)	NONE
C	R32	--	SFR	1	58	63	--	2	--	B (67)	
C	R33	--	SFR	1	60	62	62	2	0	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq}(h) (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
D	R36	--	UND	1	67	68	69	1	1	G (--)	NONE
D	R37	--	COM	1	63	64	65	1	1	E (72)	NONE
E	R40	--	UND	1	72	74	74	2	0	G (--)	NONE
F	R102	--	SFR	1	79	57	57	8	0	B (67)	NONE
F	R103	--	SFR	2	49	58	58	9	0	B (67)	NONE
F	R104	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R105	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R106	--	SFR	2	51	57	58	6	1	B (67)	NONE
F	R107	--	SFR	1	55	58	59	3	1	B (67)	NONE
F	R108	--	SFR	1	55	57	58	2	1	B (67)	NONE
F	R109	--	SFR	2	54	56	56	2	0	B (67)	NONE
F	R110	--	SFR	2	52	54	55	2	1	B (67)	NONE
F	R111	--	SFR	1	52	54	54	2	0	B (67)	NONE
F	R112	--	SFR	1	53	54	54	1	0	B (67)	NONE
F	R113	--	SFR	4	43	45	45	2	0	B (67)	NONE
F	R114	--	SFR	1	47	50	50	3	0	B (67)	NONE
F	R115	--	SFR	3	45	47	47	2	0	B (67)	NONE
G	R117	--	UND	1	62	63	64	1	1	G (--)	NONE
G	R118	--	COM	1	62	62	64	0	2	E (72)	NONE
H	R121[4]	--	COM	1	56	58	60	2	1	E (72)	NONE
H	R122[4]	--	COM	1	52	53	54	1	-1	E (72)	NONE
I	R123	--	SFR	2	53	55	54	2	-1	B (67)	NONE
I	R124	--	SFR	2	54	55	54	1	-1	B (67)	NONE
I	R125	--	SFR	2	54	56	55	2	-1	B (67)	NONE
I	R126	--	SFR	2	56	57	56	1	-1	B (67)	NONE
I	R127	--	SFR	1	55	57	56	2	-1	B (67)	NONE
J	R128[5]	S452 EOS	SFR	--	63	65	66	2	1	B (67)	A/E
J	R129	S452 EOS	SFR	1	59	70	71	1	0	B (67)	A/E
J	R131		SFR	1	58	60	60	2	0	B (67)	NONE
K	R132	S452 EOS	REC	1	65	67	67	2	0	B (67)	A/E
K	R132A	S452 EOS	REC	1	63	65	65	2	0	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq}(h) (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
K	R132B	S452 EOS	REC	1	63	66	66	3	0	B (67)	A/E
K	R133	S452 EOS	SFR	1	68	70	70	2	0	B (67)	A/E
K	R134	S452 EOS	SFR	2	68	70	70	2	0	B (67)	A/E
K	R135	S452 EOS	SFR	3	67	69	69	2	0	B (67)	A/E
K	R136	S452 EOS	SFR	1	65	66	66	1	0	B (67)	A/E
K	R137	S452 EOS	SFR	1	59	61	61	1	1	B (67)	NONE
K	R138	S452 EOS	SFR	1	57	59	59	2	0	B (67)	NONE
K	R139	S452 EOS	SFR	1	57	60	60	3	0	B (67)	NONE
K	R140	S452 EOS	SFR	2	57	59	59	2	0	B (67)	NONE
K	R142	S452 EOS	SFR	1	53	55	55	2	0	B (67)	NONE
K	R143	S452 EOS	SFR	1	56	58	59	2	1	B (67)	NONE

Notes: 1. Leq(h) are A-weighted, peak hour noise levels in decibels.
2 Land Use: SFR – single-family residence; MH – Mobile Home, REC - Recreational; COM – Commercial.
3. S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.
4. There are no outdoor use areas at this commercial land use.
5. This receiver was a monitoring site for noise model calibration purposes and was not located at the outdoor use area; however, this site is representative of adjacent outdoor use area.
6. This receiver was a monitoring site for noise model calibration purposes and would not represent a noise sensitive site under future conditions.
Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021).

Table 2.2.7-10: Predicted Future Noise Levels and Barrier Analysis at Right-of-Way – Alternative 4

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level $L_{eq}(h)$ (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
A	R2[5]	S379 ROW	SFR	--	70	71	72	1	1	B (67)	A/E
A	R2A	S379 ROW	SFR	1	68	70	71	2	1	B (67)	A/E
B	R5	S401 ROW	MH	1	71	72	72	1	1	B (67)	A/E
B	R6	S401 ROW	MH	1	72	73	73	1	1	B (67)	A/E
B	R7	S401 ROW	MH	2	72	73	74	1	1	B (67)	A/E
B	R8	S401 ROW	MH	1	73	74	74	1	0	B (67)	A/E
B	R9	S401 ROW	MH	1	66	67	67	1	0	B (67)	A/E
B	R10	S401 ROW	MH	1	68	69	69	1	0	B (67)	A/E
B	R11	S401 ROW	MH	1	66	67	68	1	2	B (67)	A/E
B	R12	S401 ROW	MH	1	66	67	68	1	2	B (67)	A/E
B	R13	S401 ROW	MH	1	65	66	67	1	1	B (67)	A/E
B	R14	S401 ROW	MH	1	65	67	67	2	0	B (67)	A/E
B	R15	S401 ROW	MH	2	64	66	66	2	0	B (67)	A/E
B	R16	S401 ROW	MH	2	62	64	65	2	1	B (67)	NONE
B	R17	S401 ROW	MH	2	64	62	62	2	0	B (67)	NONE
B	R18	S401 ROW	MH	2	62	64	64	2	0	B (67)	NONE
B	R19	S401 ROW	MH	2	63	65	65	2	-1	B (67)	NONE
B	R20	S401 ROW	MH	2	62	63	64	1	1	B (67)	NONE
B	R21	S401 ROW	MH	2	58	60	60	2	0	B (67)	NONE
B	R22	S401 ROW	MH	2	58	59	60	1	1	B (67)	NONE
B	R23	S401 ROW	MH	2	61	62	63	1	1	B (67)	NONE
B	R24	S401 ROW	MH	2	63	65	65	2	0	B (67)	NONE
B	R25	S401 ROW	MH	1	60	62	62	2	0	B (67)	NONE
B	R26	S401 ROW	MH	1	58	60	61	2	1	B (67)	NONE
B	R27	S401 ROW	MH	1	58	59	60	1	1	B (67)	NONE
B	R28	S401 ROW	MH	1	60	61	62	1	1	B (67)	NONE
B	R29	S401 ROW	MH	1	63	64	64	1	0	B (67)	NONE
C	R32	--	SFR	1	61	63	63	2	0	B (67)	
C	R33	--	SFR	1	60	62	62	2	0	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level L_{eq}(h) (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
D	R36	--	UND	1	67	68	69	1	1	G (--)	NONE
D	R37	--	COM	1	73	64	65	1	1	E (72)	NONE
E	R40	--	UND	1	72	74	74	2	0	G (--)	NONE
F	R102	--	SFR	1	49	57	57	8	0	B (67)	NONE
F	R103	--	SFR	2	49	58	58	9	0	B (67)	NONE
F	R104	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R105	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R106	--	SFR	2	51	57	58	6	1	B (67)	NONE
F	R107	--	SFR	1	55	58	59	3	1	B (67)	NONE
F	R108	--	SFR	1	55	57	57	2	0	B (67)	NONE
F	R109	--	SFR	2	54	56	56	2	0	B (67)	NONE
F	R110	--	SFR	2	52	54	55	2	1	B (67)	NONE
F	R111	--	SFR	1	52	54	54	2	0	B (67)	NONE
F	R112	--	SFR	1	53	54	54	1	0	B (67)	NONE
F	R113	--	SFR	4	43	45	45	2	0	B (67)	NONE
F	R114	--	SFR	1	47	50	51	3	1	B (67)	NONE
F	R115	--	SFR	3	45	57	47	2	0	B (67)	NONE
G	R117	--	UND	1	62	63	65	1	2	G (--)	NONE
G	R118	--	COM	1	62	62	54	0	2	E (72)	NONE
H	R121[4]	--	COM	1	56	58	60	2	2	E (72)	NONE
H	R122[4]	--	COM	1	52	53	56	1	1	E (72)	NONE
I	R123	--	SFR	2	53	55	56	2	-1	B (67)	NONE
I	R124	--	SFR	2	54	55	55	1	0	B (67)	NONE
I	R125	--	SFR	2	54	56	55	2	-1	B (67)	NONE
I	R126	--	SFR	2	56	57	56	1	-1	B (67)	NONE
I	R127	--	SFR	1	55	57	56	2	-1	B (67)	NONE
J	R128[5]	--	SFR	--	63	65	66	2	1	B (67)	A/E
J	R129	--	SFR	1	69	70	71	1	1	B (67)	A/E
J	R131	--	SFR	1	58	60	60	2	0	B (67)	NONE
K	R132	--	REC	1	65	57	67	2	0	B (67)	A/E
K	R132A	--	REC	1	63	54	65	2	0	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level $L_{eq}(h)$ (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
K	R132B	--	REC	1	63	55	66	3	0	B (67)	A/E
K	R133	--	SFR	1	68	70	70	2	0	B (67)	A/E
K	R134	--	SFR	2	68	70	70	2	0	B (67)	A/E
K	R135	--	SFR	3	67	69	69	2	0	B (67)	A/E
K	R136	--	SFR	1	65	66	66	1	0	B (67)	A/E
K	R137	--	SFR	1	59	60	61	1	1	B (67)	NONE
K	R138		SFR	1	57	59	59	2	0	B (67)	NONE
K	R139		SFR	1	57	60	60	3	0	B (67)	NONE
K	R140		SFR	2	57	59	59	2	0	B (67)	NONE
K	R142		SFR	1	53	55	55	2	0	B (67)	NONE
K	R143		SFR	1	56	58	60	2	2	B (67)	NONE

Notes: 1. Leq(h) are A-weighted, peak hour noise levels in decibels.
2 Land Use: SFR – single-family residence; MH – Mobile Home, REC - Recreational; COM – Commercial.
3. S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.
4. There are no outdoor use areas at this commercial land use.
5. This receiver was a monitoring site for noise model calibration purposes and was not located at the outdoor use area; however, this site is representative of adjacent outdoor use area.
6. This receiver was a monitoring site for noise model calibration purposes and would not represent a noise sensitive site under future conditions.
Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021).

Table 2.2.7-11: Predicted Future Noise Levels and Barrier Analysis at Private Property - Alternative 4

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level $L_{eq}(h)$ (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
A	R2[5]	S379 PP	SFR	--	70	71	72	1	1	B (67)	A/E
A	R2A	S379 PP	SFR	1	68	70	71	2	1	B (67)	A/E
B	R5	S401 PP	MH	1	71	72	72	1	0	B (67)	A/E
B	R6	S401 PP	MH	1	72	73	73	1	0	B (67)	A/E
B	R7	S401 PP	MH	2	72	73	74	1	1	B (67)	A/E
B	R8	S401 PP	MH	1	73	74	74	1	0	B (67)	A/E
B	R9	S401 PP	MH	1	66	67	67	1	0	B (67)	A/E
B	R10	S401 PP	MH	1	68	69	69	1	0	B (67)	A/E
B	R11	S401 PP	MH	1	66	67	68	1	1	B (67)	A/E
B	R12	S401 PP	MH	1	66	67	68	1	1	B (67)	A/E
B	R13	S401 PP	MH	1	65	66	67	1	1	B (67)	A/E
B	R14	S401 PP	MH	1	65	67	67	2	0	B (67)	A/E
B	R15	S401 PP	MH	2	64	66	66	2	0	B (67)	A/E
B	R16	S401 PP	MH	2	62	64	65	2	1	B (67)	NONE
B	R17	S401 PP	MH	2	60	62	62	2	0	B (67)	NONE
B	R18	S401 PP	MH	2	62	64	64	2	0	B (67)	NONE
B	R19	S401 PP	MH	2	63	65	65	2	0	B (67)	NONE
B	R20	S401 PP	MH	2	62	63	64	1	1	B (67)	NONE
B	R21	S401 PP	MH	2	58	60	60	2	0	B (67)	NONE
B	R22	S401 PP	MH	2	58	59	60	1	1	B (67)	NONE
B	R23	S401 PP	MH	2	61	62	63	1	1	B (67)	NONE
B	R24	S401 PP	MH	2	63	65	65	2	0	B (67)	NONE
B	R25	S401 PP	MH	1	60	62	62	2	0	B (67)	NONE
B	R26	S401 PP	MH	1	58	60	60	2	0	B (67)	NONE
B	R27	S401 PP	MH	1	58	59	60	1	1	B (67)	NONE
B	R28	S401 PP	MH	1	60	61	62	1	1	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level $L_{eq}(h)$ (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
B	R29	S401 PP	MH	1	63	64	64	1	0	B (67)	NONE
C	R32	--	SFR	1	61	63	--	2	--	B (67)	
C	R33	--	SFR	1	60	62	62	2	0	B (67)	NONE
D	R36	--	UND	1	67	66	69	1	1	G (--)	NONE
D	R37	--	COM	1	63	64	65	1	1	E (72)	NONE
E	R40	--	UND	1	72	74	74	2	0	G (--)	NONE
F	R102	--	SFR	1	49	57	57	8	0	B (67)	NONE
F	R103	--	SFR	2	49	58	58	9	0	B (67)	NONE
F	R104	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R105	--	SFR	2	49	57	57	8	0	B (67)	NONE
F	R106	--	SFR	2	51	57	58	8	1	B (67)	NONE
F	R107	--	SFR	1	55	58	59	3	1	B (67)	NONE
F	R108	--	SFR	1	55	57	58	2	1	B (67)	NONE
F	R109	--	SFR	2	54	56	56	2	0	B (67)	NONE
F	R110	--	SFR	2	52	54	55	2	1	B (67)	NONE
F	R111	--	SFR	1	52	54	54	2	0	B (67)	NONE
F	R112	--	SFR	1	53	54	54	1	0	B (67)	NONE
F	R113	--	SFR	4	43	45	45	2	0	B (67)	NONE
F	R114	--	SFR	1	47	50	50	3	0	B (67)	NONE
F	R115	--	SFR	3	45	47	47	2	0	B (67)	NONE
G	R117	--	UND	1	62	63	64	1	0	G (--)	NONE
G	R118	--	COM	1	62	62	64	0	1	E (72)	NONE
H	R121[4]	--	COM	1	56	58	60	2	2	E (72)	NONE
H	R122[4]	--	COM	1	52	53	54	1	1	E (72)	NONE
I	R123	--	SFR	2	53	55	54	2	-1	B (67)	NONE
I	R124	--	SFR	2	54	55	54	1	-1	B (67)	NONE
I	R125	--	SFR	2	54	56	55	2	-1	B (67)	NONE

Study Area	Receiver I.D.	Barrier I.D.	Land Use[2]	Number of Dwelling Units	Existing Noise Level $L_{eq}(h)$ (dBA)[1]	Predicted No- Build Noise Level (dBA)[1]	Predicted No-Build Noise Level with Project (dBA)[1]	Design Year No-Build Noise Level Minus Existing Conditions, dB	Design Year Build Noise Level Minus No-Build Conditions, dB	Activity Category (NAC)	Impact Type[3]
I	R126	--	SFR	2	56	57	56	1	-1	B (67)	NONE
I	R127	--	SFR	1	55	57	56	2	-1	B (67)	NONE
J	R128[5]	S436PP	SFR	--	63	65	66	2	1	B (67)	A/E
J	R129	S436PP	SFR	1	69	70	71	1	1	B (67)	A/E
J	R131	--	SFR	1	58	60	60	2	0	B (67)	NONE
K	R132	S452 PP	REC	1	65	67	67	2	0	B (67)	A/E
K	R132A	S452 PP	REC	1	63	65	65	2	0	B (67)	NONE
K	R132B	S452 PP	REC	1	63	66	66	2	0	B (67)	A/E
K	R133	S452 PP	SFR	1	68	70	70	2	0	B (67)	A/E
K	R134	S452 PP	SFR	2	68	70	70	2	0	B (67)	A/E
K	R135	S452 PP	SFR	3	67	69	69	2	0	B (67)	A/E
K	R136	S452 PP	SFR	1	65	66	66	2	0	B (67)	A/E
K	R137	S452 PP	SFR	1	59	60	61	1	1	B (67)	NONE
K	R138	S452 PP	SFR	1	57	59	59	2	00	B (67)	NONE
K	R139	S452 PP	SFR	1	57	60	60	3	0	B (67)	NONE
K	R140	S452 PP	SFR	2	57	59	59	2	0	B (67)	NONE
K	R142	S452 PP	SFR	1	53	55	55	2	0	B (67)	NONE
K	R143	S452 PP	SFR	1	56	58	59	2	1	B (67)	NONE

Notes: 1. Leq(h) are A-weighted, peak hour noise levels in decibels.
2 Land Use: SFR – single-family residence; MH – Mobile Home, REC - Recreational; COM – Commercial.
3. S = Substantial Increase (12 dBA or more); A/E = Approach or exceed NAC.
4. There are no outdoor use areas at this commercial land use.
5. This receiver was a monitoring site for noise model calibration purposes and was not located at the outdoor use area; however, this site is representative of adjacent outdoor use area.
6. This receiver was a monitoring site for noise model calibration purposes and would not represent a noise sensitive site under future conditions.
Source: Parsons Corporation, Noise Study Report-Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021).

Avoidance, Minimization, and/or Mitigation Measures

Under 23 CFR 772, noise abatement is considered for Type I projects if the project is predicted to result in a traffic noise impact. According to the NSR, the predicted design-year traffic noise levels in multiple outdoor activity areas would approach or exceed the applicable NAC and result in substantial traffic noise impact under Build Alternatives 3 and 4. As a result, consideration of noise abatement is required.

Soundwall S379

Project implementation would result in the need for construction of a noise barrier (Soundwall S379) within Area A as noise abatement. According to the NSR, a detailed noise traffic modeling analysis was conducted for Soundwall 379 at EOS, one the ROW line, and at private property locations. The modeling analysis conducted as part of the NSR determined that constructing Soundwall S379 at the private property location (at heights of 6 feet, 8 feet, 10 feet, 12 feet, 14 feet, and 16 feet) would be the only Soundwall to achieve the 7 dB design goal required to be considered feasible. As shown on Figure 2.2.7-2, the Soundwall would begin and end at Stations 377+75 and 379+38 with a combined total length of 182 feet.

The NADR was prepared to determine if all feasible Soundwalls identified in the Preliminary Noise Abatement in the NSR would be cost reasonable and achieve the Caltrans design goal requirements of 7dB reduction. Results of the NADR are shown in Tables 2.2.7-12, Summary of Abatement Key Information –Alternative 3 – Soundwall S379 at Private Property, and 2.2.7-13, Summary of Abatement Key Information –Alternative 4 – Soundwall S379 at Private Property. Both tables show that all feasible noise barriers options identified under both Build Alternatives for Soundwall S379 would not be reasonable, as the estimated constructions costs for the Soundwall at each height would exceed the total reasonable allowance to construct the Soundwall. As such, Soundwall S379 would not be reasonable to implement as a form of noise abatement.

Table 2.2.7-12: Summary of Abatement Key Information –Alternative 3 – Soundwall S379 at Private Property

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
6	Yes	1	$107,000	$119,000	No	No
8	Yes	1	$107,000	$129,000	No	No
10	Yes	1	$107,000	$140,000	No	No
12	Yes	1	$107,000	$152,000	No	No
14	Yes	1	$107,000	$164,000	No	No
16	Yes	1	$107,000	$175,000	No	No

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Table 2.2.7-13: Summary of Abatement Key Information –Alternative 4 – Soundwall S379 at Private Property

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
6	Yes	1	$107,000	$119,000	No	No
8	Yes	1	$107,000	$129,000	No	No
10	Yes	1	$107,000	$140,000	No	No
12	Yes	1	$107,000	$152,000	No	No
14	Yes	1	$107,000	$164,000	No	No
16	Yes	1	$107,000	$175,000	No	No

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Soundwall S401

Project implementation would result in the construction of a noise barrier (Soundwall S401) within Area B as noise abatement. The modeling analysis conducted as part of the NSR determined that noise barriers located at EOS (at heights of 6 feet, 8 feet, 10 feet, 12 feet, 14 feet, and 16 feet), ROW (at heights of 10, 12, 14, and 16 feet) and private property (at heights of 6 feet, 8 feet, 10 feet, 12 feet, 14 feet, and 16 feet) would achieve the 7 dB design goal required to be considered feasible under Build Alternatives 3 and 4. As shown on Figures 2.2.7-2 and 2.2.7-3, Soundwall S401 at EOS would begin and end at Stations 396+00 and 408+58 with a length of 1,165 feet; Soundwall S401 at ROW would begin and end at Stations 395+00 and 408+00, respectively, with a length of 1,311 feet; Soundwall S401 at private property would begin and end at Stations 399+40 and 403+38 with a total combined length of 818 feet.

The NADR determined the cost reasonableness for each feasible version of Soundwall S401, as well as if the Soundwall achieved Caltrans design goal requirements. Tables 2.2.7-14 to 2.2.7-19 summarize the number of benefitted receptors and reasonable allowances for Soundwall S401 at each feasible height under both Build Alternatives 3 and 4. Due to the cost and/or number of benefited residencies, none of the feasible barriers located at ROW and private property would be beneficial or considered reasonable under both Build Alternatives. Additionally, the additional 4 feet in height for a 16-foot barrier at EOS would not justify the $56,000 and $61,000 increase in construction cost under Build Alternatives 3 and 4, respectively. Therefore, a 14-foot barrier at EOS would be the most reasonable Soundwall to implement under both Build Alternatives 3 and 4.

Table 2.2.7-14: Summary of Abatement Key Information –Alternative 3 – Soundwall S401 at EOS

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
6	Yes	5	$535,000	$263,000	Yes	No
8	Yes	7	$749,000	$318,000	Yes	No
10	Yes	8	$856,000	$374,000	Yes	No
12	Yes	16	$1,712,000	$431,000	Yes	No
14	Yes	19	$2,033,000	$488,000	Yes	Yes
16	Yes	23	$2,461,000	$544,000	Yes	Yes

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Table 2.2.7-15: Summary of Abatement Key Information –Alternative 3 – Soundwall S401 at ROW

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
10	Yes	4	$428,000	$441,000	No	No
12	Yes	7	$749,000	$505,000	Yes	No
14	Yes	7	$749,000	$568,000	Yes	No
16	Yes	11	$1,177,000	$631,000	Yes	Yes

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Table 2.2.7-16: Summary of Abatement Key Information –Alternative 3 – Soundwall S401 at Private Property

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
6	Yes	1	$107,000	$274,000	No	No
8	Yes	3	$321,000	$313,000	Yes	No
10	Yes	6	$642,000	$350,000	Yes	No
12	Yes	8	$856,000	$393,000	Yes	Yes
14	Yes	8	$856,000	$432,000	Yes	Yes
16	Yes	8	$856,000	$472,000	Yes	Yes

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Table 2.2.7-17: Summary of Abatement Key Information –Alternative 4 – Soundwall S401 at EOS

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
6	Yes	4	$428,000	$276,000	Yes	No
8	Yes	5	$535,000	$336,000	Yes	No
10	Yes	8	$856,000	$396,000	Yes	No
12	Yes	16	$1,712,000	$457,000	Yes	No
14	Yes	18	$1,926,000	$518,000	Yes	Yes
16	Yes	22	$2,354,000	$579,000	Yes	Yes

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Table 2.2.7-18: Summary of Abatement Key Information –Alternative 4 – Soundwall S401 at ROW

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
10	Yes	3	$321,000	$441,000	No	No
12	Yes	4	$428,000	$505,000	No	No
14	Yes	7	$749,000	$568,000	Yes	No
16	Yes	11	$1,177,000	$631,000	Yes	Yes

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Table 2.2.7-19: Summary of Abatement Key Information –Alternative 4 – Soundwall S401 at Private Property

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
6	Yes	1	$107,000	$274,000	No	No
8	Yes	4	$428,000	$313,000	Yes	No
10	Yes	7	$749,000	$350,000	Yes	No
12	Yes	8	$856,000	$393,000	Yes	Yes
14	Yes	10	$1,070,000	$432,000	Yes	Yes
16	Yes	10	$1,070,000	$472,000	Yes	Yes

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Soundwall S436

Project implementation would result in the construction of a noise barrier (Soundwall S436) within Area J as noise abatement. According to the NSR, analyzing Soundwall S436 at the EOS was not considered because the EOS is approximately 20 feet below the impacted receivers R128 and R129. The modeling analysis conducted as part of the NSR concluded that, under both Build Alternatives 3 and 4, constructing a Soundwall on the ROW line would prove to not be feasible at each height. However, under both Build Alternatives 3 and 4, constructing Soundwall S436 at the private property location (at heights of 8 feet, 10 feet, 12 feet, 14 feet, and 16 feet) would be the only Soundwall to achieve the seven dB design goal required to be considered feasible. As shown in Figure 2.2.7-6, Soundwall S436 at private property would begin and end at Stations 434+89 and 438+15 with a length of 310 feet.

The NADR determined the cost reasonableness for each feasible Soundwall, as well as if the Soundwall achieved Caltrans design goal requirements. Tables 2.2.7-20, Summary of Abatement Key Information Alternative 3 – Soundwall S436 at Private Property, and 2.2.7-21, Summary of Abatement Key Information Alternative 4 – Soundwall S436 at Private Property, summarize the number of benefitted receptors and reasonable allowances for each barrier height of each Soundwall location under both Build Alternatives 3 and 4. Under both Build Alternatives, the estimated construction cost of Soundwall S436 would outweigh the total reasonable allowance to construct the Soundwall. Therefore, Soundwall S346 would not be reasonable to implement as a form of noise abatement.

Table 2.2.7-20: Summary of Abatement Key Information Alternative 3 – Soundwall S436 at Private Property

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
8	Yes	1	$107,000	$163,000	No	No
10	Yes	1	$107,000	$178,000	No	No
12	Yes	1	$107,000	$194,000	No	No
14	Yes	1	$107,000	$209,000	No	No
16	Yes	1	$107,000	$224,000	No	No

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Table 2.2.7-21: Summary of Abatement Key Information Alternative 4 – Soundwall S436 at Private Property

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
8	Yes	1	$107,000	$163,000	No	No
10	Yes	1	$107,000	$178,000	No	No
12	Yes	1	$107,000	$194,000	No	No
14	Yes	1	$107,000	$209,000	No	No
16	Yes	1	$107,000	$224,000	No	No

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Soundwall S452

Project implementation would result in the construction of a noise barrier (Soundwall S436) within Area K as noise abatement. The noise modeling analysis conducted as part of the NSR found that Soundwall S452 at the EOS location would be able to achieve the seven dB design goal required to be considered feasible under Build Alternative 3 (at heights of 10 feet, 12 feet, 14 feet, and 16 feet) and under Build Alternative 4 (at a height 16 feet). The noise modeling analysis found that Soundwall S452 would additionally be a feasible private property location under Build Alternative 3 (at heights of 10 feet, 12 feet, 14 feet, and 16 feet) and Build Alternative 4 (at heights of 8 feet, 10 feet, 12 feet, 14 feet, and 16 feet). As shown in Figure 2.2.7-6, Soundwall S452 at EOS would begin and end at Stations 440+00 and 459+00 with a length of 1,511 feet. Soundwall S452 at the private property location would begin and end at Stations 445+80 and 455+42, respectively, with a length of 1,109 feet.

The NADR determined the cost reasonableness for each feasible Soundwall, as well as if the Soundwall achieved Caltrans design goal requirements. Tables 2.2.7-22 through 2.2.7-25 summarize the number of benefitted receptors and reasonable allowances for each barrier height of each Soundwall location under Both Build Alternatives. According to the NADR, if Soundwall S452 were to be located at private properties, the estimated construction cost and the impacts at each feasible height would not justify a recommendation to be incorporated as noise abatement. Under Build Alternative 3, Soundwall S452 located at EOS would cost less than the $1,070,000 total reasonable allowance and would be considered reasonable and feasible at heights of 14 and 16 feet. However, according to the NADR, increase in benefitted residences at a height of 16 feet does not justify the increase in cost. Therefore, under Build Alternatives 3, a Soundwall located at EOS with a height of 14 feet is recommended as noise abatement at this location. Under Build Alternatives 3 and 4, Soundwall S452 with a height of 16 feet located at EOS would be the only feasible option. As such, a Soundwall with a height of 16 feet is recommended as noise abatement at this location.

Tables 2.2.7-22: Summary of Abatement Key Information –Alternative 3 – Soundwall S452 at EOS

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
10	Yes	1	$107,000	$457,000	No	No
12	Yes	8	$856,000	$531,000	Yes	No
14	Yes	10	$1,070,000	$604,000	Yes	Yes
16	Yes	10	$1,070,000	$677,000	Yes	Yes

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Tables 2.2.7-23: Summary of Abatement Key Information –Alternative 3 – Soundwall S452 at Private Property

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
8	Yes	7	$749,000	$374,000	Yes	No
10	Yes	7	$749,000	$427,000	Yes	No
12	Yes	7	$749,000	$482,000	Yes	No
14	Yes	7	$749,000	$536,000	Yes	No
16	Yes	11	$1,177,000	$589,000	Yes	Yes

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Tables 2.2.7-24: Summary of Abatement Key Information –Alternative 4 – Soundwall S452 at EOS

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Construction Cost	Cost Less than Allowance?	Design Goal Achieved?
16	Yes	10	$1,070,000	$677,000	Yes	No

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

Tables 2.2.7-25: Summary of Abatement Key Information –Alternative 4 – Soundwall S452 at Private Property

Height (feet)	Acoustically Feasible?	Number of Benefited Residences	Total Reasonable Allowance	Estimated Constructio n Cost	Cost Less than Allowance?	Design Goal Achieved?
8	Yes	7	$749,000	$374,000	Yes	No
10	Yes	7	$749,000	$427,000	Yes	No
12	Yes	7	$749,000	$482,000	Yes	No
14	Yes	7	$749,000	$536,000	Yes	No
16	Yes	10	$1,070,000	$589,000	Yes	Yes

Source: Michael Baker International, I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (June 2021).

The following text has been amended since the Draft Environmental Document:

I-10/Cherry Valley Boulevard Interchange Noise Abatement Survey Summary
Noise barrier surveys were sent to the benefited receptors for the noise barriers that were determined to be feasible and reasonable (Soundwall S401 and Soundwall S452). The purpose of the survey letter was to request the opinions of property owners and non-owner occupants of whether or not they would be in favor of a noise barrier. Based on the Caltrans *Traffic Noise Analysis Protocol*, abatement would not be considered reasonable if more than 50 percent of the votes from responding benefited receptors oppose the abatement. For owner-occupied dwelling units, the property owner is allowed one vote. Votes from non-owner-occupied dwelling units make up 10 percent of one vote while the property owner makes up 90 percent of one vote.

On April 20, 2023, soundwall survey letters were distributed to the property owners and residents potentially benefitted by proposed Soundwall S401 and Soundwall S452. The surveys were also sent by e-mail to the property owners. This survey requested each owner’s and non-owner occupant’s opinion on whether or not they are in favor of a sound wall. A follow-up letter was distributed on May 15, 2023, to those parties who had not yet responded. Property owner(s) and non-owner occupants were asked to respond by May 22, 2023, and informed that surveys not received by the due date would be counted as a “no” vote. Following the May 22, 2023 due date from the follow up survey, the responses were tallied. The results indicated that 94 percent of residents/property owners were in favor of Soundwall S401, and 100 percent of residents/property owners were in favor of Soundwall S452.

Based on the studies completed to date and input from the public, Caltrans intends to incorporate noise abatement in the form of Soundwalls (noise barriers) S401 and S452, with the following respective lengths and average heights:

- S401: 1,165 feet long and 14 feet high (under both Build Alternatives); and
- S452: 1,511 feet long and 14 feet high (under Build Alternative 3) to 16 feet high (under Build Alternative 4)

Calculations based on preliminary design data show that the barrier(s) will reduce noise levels by 5 dB for mobile homes and single-family residences at the estimated cost of $488,000 to $589,000. These measures may change based on input received from the public. If conditions have substantially changed during final design, noise abatement may not be constructed. The final decision on noise abatement will be made upon completion of the project design.

2.2.8 Energy

Regulatory Setting

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires the identification of all potentially significant impacts to the environment, including energy impacts.

The California Environmental Quality Act (CEQA) Guidelines section 15126.2(b) and Appendix F, Energy Conservation, require an analysis of a project's energy use to determine if the project may result in significant environmental effects due to wasteful, inefficient, or unnecessary use of energy, or wasteful use of energy resources.

Affected Environment

This section is based primarily on the Energy Analysis Report (EAR) (dated January 2021) prepared for the project.

Existing Traffic Conditions

Daily Vehicle Miles Traveled (VMT) was calculated by multiplying the amount of daily traffic on a roadway segment by the length of the segment. Annual VMT was calculated by multiplying daily VMT from the travel demand model by the number of days per year, with a seasonal factor to account for variations in travel patterns throughout the year. Table 2.2.8-1 shows existing VMT on I-10 at daily and annual timescales. Table 2.2.8-2 shows the annual energy consumption of the project site under Existing 2019 conditions.

Table 2.2.8-1: Existing (2019) Operational Vehicle Miles Traveled

	Vehicle Miles Traveled
Daily	1,881,820
Annual	652,991,540

Source: ICF, Energy Analysis Report, January 2021.

Table 2.2.8-2: Annual Direct Energy Use (Mobile Sources) (Existing Year 2019)

Fuel Usage	No-Build Alternative	Build Alternative 3	Build Alternative 4
Gasoline	66,794	N/A	N/A
Diesel	16,835	N/A	N/A

Source: ICF, Energy Analysis Report, January 2021.

Existing and Projected Vehicle Mix

I-10, part of the California Freeway and Expressway System, has been recognized as an essential link in a multi-modal transportation network. The route is also part of the Federal Surface Transportation Assistance Act Route Network for oversized Trucks and the Subsystem of Highways for the Movement of Extralegal Permit Loads. Under existing (2019) conditions, truck traffic as a percentage of freeway ADT within the study area is approximately nine percent. In the Opening Year (2025), truck traffic would account for approximately nine percent of total daily volumes. During the Design Year (2045), truck traffic would account for approximately nine percent of total daily volumes.

Energy Resources

California contains abundant sources of renewable and non-renewable energy. The primary energy resources within California are described in the following sections.

Non-Renewable Energy

Non-renewable energy resources include petroleum, natural gas, and coal. These energy resources are considered fossil fuels because they were formed when large quantities of dead organisms, usually zooplankton (i.e., microscopic organisms drifting in water bodies), algae, and other vegetation, were buried beneath sedimentary rock and exposed to intense heat and pressure over thousands of years. Fossil fuels are considered non-renewable resources because they cannot be replenished on a meaningful human timeframe. These resources will eventually run out because they cannot be renewed at a sufficient rate for sustainable economic extraction.

Petroleum

Petroleum is a broad category that includes both crude oil and other petroleum products. The terms oil and petroleum are sometimes used interchangeably. Crude oil is a naturally occurring, yellow-to-black liquid found in geological formations beneath the Earth's surface. It is a mixture of hydrocarbons, which are compounds of hydrogen and carbon. Crude oil is recovered mostly through oil drilling and refined and separated into a large number of petroleum products. These products include gasoline, diesel, liquefied petroleum gas/propane, kerosene, lubricants, waxes, asphalt, and various types of jet fuels, oils, and miscellaneous products.

Natural Gas

Natural gas is a hydrocarbon gas mixture, consisting primarily of methane, along with other gases in smaller quantities, including carbon dioxide (CO2), nitrogen, and hydrogen sulfide. Natural gas is often found in proximity to petroleum and coal in geological formations beneath the Earth's surface. Before natural gas can be used as fuel, it must be processed to remove impurities and water.

Coal

Coal is a combustible black or brownish-black sedimentary rock found beneath the Earth's surface in layers called coal beds. Coal is composed primarily of carbon, along with varying quantities of other elements, including hydrogen, sulfur, oxygen, and nitrogen.

Renewable Energy

Renewable energy is generally defined as energy that comes from resources that are naturally replenished on a human timescale. Sources of renewable energy include the wind, sun, waves, and the heat of the Earth (i.e., geothermal heat). In addition, organic matter (also referred to as biomass), such as crops, animal waste, and municipal solid waste, can serve as sources of renewable energy, called biofuels. Renewable energy (hydroelectric, solar, and geothermal [i.e., Geysers]) resources are continually replenished through natural processes.

Electricity

Electricity can be made from renewable or non-renewable energy resources. California has an electricity generation system that generates more than 285,000 gigawatt-hours each year. Non-renewable energy resources that produce electricity in California include coal, natural gas, and nuclear power. Only a few small coal-fired plants are operating in California. Natural gas power plants are the leading source of electricity in the State, accounting for 43 percent of electricity consumption in California. Nuclear power, another type of non-renewable energy, accounts for approximately 9 percent of electricity generation in California. Nuclear power is a non-renewable energy source because nuclear power plants usually use a very rare type of uranium, U-235.

California is among the top states in the nation in net electricity generation from renewable resources. Approximately 35 percent of California's electricity in 2018 was generated from renewable energy resources. The California Renewable Portfolio Standard set a goal that called for 33 percent of electricity generation to come from eligible renewable resources by 2020.

Transportation Fuels

Petroleum products are the leading source of energy used for transportation in the United States. Gasoline, the leading transportation fuel in the United States, accounted for 53 percent of the nation's transportation fuel consumption in 2019 and 97 percent of the State's transportation fuel consumption. Diesel is the second-largest transportation fuel in California, representing 17 percent of total fuel sales. Because of concerns about energy security and GHG emissions, other sources of motor vehicle fuels are being explored, including renewable fuels and alternative fuels.

Alternative fuels are generally alternatives to traditional gasoline and diesel fuels. These can include the fossil fuels, natural gas, and liquefied petroleum gas as well as renewable biofuels, which include biodiesel (vegetable-oil- or animal-fat-based diesel fuel) and alcohol (methanol, ethanol, and butanol) derived from crops, animal waste, or municipal solid waste. Other alternative fuels include electricity and hydrogen. Many renewable and alternative fuels result in substantially lower GHG emissions compared to fossil fuels. GHGs include CO2, methane, nitrous oxide, and fluorinated gases.

Energy Consumption

Energy consumption is commonly expressed in British thermal units (BTUs), which is the quantity of heat required to raise the temperature of one pound of water one-degree Fahrenheit at sea level. Because other units of energy can be converted into equivalent BTUs, the BTU is used as a basis for comparing the consumption of different types of energy resources, such as electricity (kilowatt hour), natural gas (cubic foot), gasoline (gallon), and diesel fuel (gallons).

In 2018, California's per capita energy consumption ranked 48th in the United States because of the state's mild climate and energy efficiency programs. The following describes the existing consumption rates of non-renewable energy resources (petroleum, transportation fuels, etc.) in the state of California.

Petroleum

Petroleum consumption in California is shown in Table 2.2.8-3, Petroleum Consumption in California 2018 for the year 2018. Data for petroleum consumption in Riverside County are not readily available. As shown in Table 2.2.8-3, approximately 583,547 in the thousands of barrels are used for transportation fuels, making up 85.7 percent of the total petroleum consumption in California.

Table 2.2.8-3: Petroleum Consumption in California 2018

Sector	Thousand Barrels	Percent Total Consumption
Residential	6,400	0.9
Commercial	17,254	2.5
Industrial	74,005	10.9
Transportation	583,547	85.7
Electric Power	66	0.01
Total	681,272	100.0

Source: ICF, Energy Analysis Report, January 2021.

Transportation Fuels

Fossil fuels, specifically, petroleum products, gasoline, and diesel, have been the leading transportation fuel in the United States, accounting for 97 percent of the State's transportation fuel consumption. California's fossil fuel consumption for the transportation sector is shown in Table 2.2.8-4, Traditional Fuel Consumption in California for the Transportation Sector in 2018. As shown in Table 2.2.8-4, approximately 1,764.4 in trillion BTU's of gasoline are consumed, making up approximately 56.6 percent of the total fossil fuel consumption in the State.

Table 2.2.8-4: Traditional Fuel Consumption in California for the Transportation Sector in 2018

Sector	Trillion BTU	Percent Total Consumption
Aviation gasoline	2.2	0.1
Distillate fuel oil	483.8	15.5

Sector	Trillion BTU	Percent Total Consumption
Jet fuel	684.8	22.0
Hydrocarbon gas liquids	0.7	0.0
Lubricants	13.2	0.4
Gasoline	1,764.4	56.6
Residual fuel oil	168.8	5.4
Total Fossil Fuel Consumption	3,118.0	100

Source: ICF, Energy Analysis Report, January 2021.

Methodology

The energy analysis is based on the methodology described in Caltrans' Standard Environmental Reference, Volume 1, Chapter 13 – Energy, as well as guidance provided by Caltrans regarding CEQA updates, effective April 27, 2019. The energy analysis addresses both direct and indirect energy consumption, which are defined as follows:

Direct Energy. In the context of transportation, direct energy involves all energy consumed by vehicles (e.g., automobiles, trains, airplanes) for propulsion. This energy consumption is a function of traffic characteristics, such as VMT, speed, vehicle mix, and the thermal value of the fuel being used. In addition, direct energy also includes the one-time energy expenditure involved in construction of the project. Therefore, analysis of direct energy use includes the following factors:

- Direct Energy (Mobile Sources): The energy consumed by vehicle propulsion within the facility during operation of the project.
- Direct Energy (Construction): The energy consumed by construction vehicles and equipment during construction of the project.
- Indirect Energy: Maintenance activities that would result in long-term indirect energy consumption from the use of the equipment required to operate and maintain the roadway.

Direct energy consumption from mobile sources associated with the project was estimated using traffic model forecasts for VMT from the Traffic Operations Analysis Report prepared for the project (refer to Section 2.2.9, Traffic and Transportation) and the EMFAC2017 air quality model, which provides estimated fuel consumption rates for the Existing Year 2019, Opening Year 2025, and Design Year 2045. Estimated energy consumption in 2045 is the most conservative (i.e., highest) because population and employment are projected to be higher in that year than in any earlier year. Therefore, the energy consumption of the Build Alternatives is compared with projected 2045 baseline conditions, which assumes that limited baseline transportation improvements have occurred and that the proposed project improvements were not implemented. The EMFAC2017 model incorporates energy and conservation measures that were adopted as of December 2017, such as the federal Phase 2 Greenhouse Gas Standards, but it does not consider policies that were not yet adopted. EMFAC2017 uses average values of energy consumption for various vehicle types, based on available data; using the level of VMT, it is possible to calculate energy consumption per VMT and, ultimately, per day or per year.

Direct energy use associated with fuel consumption during project construction was estimated by converting CO2 emissions generated by diesel and gasoline equipment for the 2-year construction period, using the rate of CO2 emissions emitted per gallon of combusted gasoline and diesel. These CO2 emissions were obtained from the I-10/Cherry Valley Boulevard Improvement Project Air Quality Report, which quantified CO2 emissions using the Sacramento Metropolitan Air Quality Management District Roadway Construction Emissions Model.

To assess indirect energy use from maintenance of the project facility, as well as maintenance of vehicles using the facility, energy use factors were obtained from Caltrans' Energy and Transportation Systems Handbook. The I-10/Cherry Valley Boulevard resource study area for potential energy impacts is a subarea of the overall Southern California Association of Governments (SCAG) region and defined by comparing 2045 regional travel demand model forecasts of daily traffic volumes using the highway network under the No-Build Alternative to one set of traffic volumes for future-year scenarios.

Environmental Consequences

The analysis of project impacts is conducted at the regional level and, therefore, by its nature, is an analysis of cumulative impacts. The analysis that follows discusses the direct and indirect energy use impacts for each project alternative.

Temporary Impacts

No-Build Alternative

Construction activities under the No-Build Alternative would not occur as a result of the I-10/Cherry Boulevard Interchange project. Therefore, energy consumption related to construction activities would not occur.

Build Alternatives 3 and 4

Direct energy use from construction sources is the energy that is consumed during construction activities by vehicles and equipment. Project construction would consume primarily diesel fuel through the operation of heavy-duty equipment as well as commercial trucks for material deliveries and debris hauling; gasoline would be consumed during workers' vehicle trips to and from the construction site.

Project construction would also involve the use of on-road gasoline vehicles by construction workers. Overall, construction fuel consumption for the proposed project was calculated by converting the estimated CO2 emission levels generated by diesel-powered off-road equipment and on-road gasoline vehicles for the construction period, as provided by the Air Quality Report prepared for the proposed project, into the number of gallons of diesel and gasoline that would be consumed during project construction activities.

As shown in Table 2.2.8-5, construction activities associated with implementation of Build Alternative 3 would consume approximately 249,785 gallons of diesel fuel and 16,224 gallons of gasoline, with energy consumption totaling approximately 33,619 million BTUs over the two-year period. As shown in Table 2.2.8-6, construction activities associated with implementation of Build Alternative 4 would result in the consumption of approximately 243,793 gallons of diesel fuel and 16,224 gallons of gasoline, with energy consumption totaling approximately 32,855 million BTUs over the two-year period. These energy consumption levels represent a nominal demand on local and regional fuel supplies and would be accommodated. Furthermore, this demand would be temporary and cease once construction is complete. The demand for fuel would have no noticeable effect on peak or baseline demands for energy.

Although construction would result in a short-term increase in energy use, construction design features would help conserve energy. For example, recycled materials, including removed asphalt concrete pavement and cement concrete pavement, would be used where feasible. Recycled products typically have lower energy costs for manufacturing and transportation because recycled products do not require raw materials, which must be mined and transported to a processing facility. If new materials must be used, a fly ash mix may be considered to lower the heat island effect (The heat island effect occurs when the sun heats dry, exposed urban surfaces, such as roofs and pavement, to temperatures 50 to 90 degrees Fahrenheit (°F) hotter than the air), depending on what is allowable under Caltrans specifications. Additionally, project construction would include the use of reclaimed water and energy-efficient lighting, such as light emitting diode (LED) traffic signals. The energy conservation features would be consistent with State and local policies to reduce energy consumption. Therefore, Build Alternatives 3 and 4 would not result in the inefficient, wasteful, or unnecessary consumption of energy and would not result in an adverse effect in this regard.

Table 2.2.8-5: Direct Energy Use During 2-Year Construction Period (Build Alternative 3)

Source	Diesel Consumption (gallons)	Gasoline Consumption (gallons)	Fuel Consumption (million BTUs)
Soil Hauling	7,450	--	950
Asphalt Hauling	9,853	--	1,256
Worker Commute	--	16,224	1,781
Water Truck	3,526	--	449
Off-road Equipment	228,958	--	29.183
Total	**249,785**	**16,224**	**33,619**

Source: ICF, Energy Analysis Report, January 2021.

Table 2.2.8-6: Direct Energy Use During 2-Year Construction Period (Build Alternative 4)

Source	Diesel Consumption (gallons)	Gasoline Consumption (gallons)	Fuel Consumption (million BTUs)
Soil Hauling	1,064	--	136
Asphalt Hauling	10,246	--	1,306
Worker Commute	--	16,224	1,781
Water Truck	3,526	--	449
Off-road Equipment	228,956	--	29,183
Total	**243,793**	**16,224**	**32,855**

Source: ICF, Energy Analysis Report, January 2021.

Permanent Impacts

No-Build Alternative

Direct Energy Use (Mobile Sources)

Under the No-Build Alternative, the increase in forecast traffic volumes would result in a worsening of traffic congestion, slower traffic speeds, and increases in traffic delays. As shown below in Tables 2.2.8-7 and 2.2.8-8, between the Opening Year and the Design Year, the annual VMT under the No-Build Alternative would increase by over 478,000. Without the improvements proposed under Build Alternatives 3 and 4, congested traffic conditions and limitations on mobility would be more prevalent throughout the study area. These conditions would contribute to inefficient energy consumption because vehicles would use extra fuel while idling in stop-and-go traffic or moving at slow speeds along congested roadways.

The No-Build Alternative would not be consistent with regional and local policies because there would be no decrease in traffic congestion, and operational, mobility, and travel-time conditions for the mainline, interchanges, and ramps would continue to deteriorate, thus contributing to inefficient energy consumption.

Indirect Energy Use

Indirect energy use involves the energy use that is consumed during maintenance of the facility, and the maintenance of vehicles using the facility. The indirect energy use factor is directly relative to the number of lane miles added to the facility; refer to the analysis described in the Build Alternatives 3 and 4 section, under the Indirect Energy Use subsection. As shown in Tables 2.2.8-12 and 2.2.8-13 below, the indirect energy use for facility maintenance in the study area under No-Build Alternative in Opening Year 2025 conditions would remain relatively similar to that of the No-Build Alternative in Design Year 2045. Indirect energy use for vehicle maintenance under No-Build Alternative in Opening Year 2025 conditions would increase to 2,805.99 in billion BTUs by the Design Year 2045. Build Alternatives 3 and 4 would have approximately 1.98 and 2.07 additional lane miles, respectively, along the I-10 corridor. This would result in higher levels of indirect energy use. As shown in Tables 2.2.8-12, by the Opening Year 2025 the No-Build would result in 0.02 percent less indirect energy use compared to Build Alternatives 3 and 4. Table 2.2.8-13 shows that by Design Year 2045 the No-Build alternative would result in 0.001 percent less indirect energy use compared to Build Alternative 3, and 0.002 percent less indirect energy use compared to Build Alternative 4.

Build Alternatives 3 and 4

Direct Energy Use (Mobile Sources)

Energy calculations for transportation projects are dependent on VMT and vehicle fuel consumption. For the study area, energy calculations are based on annual VMT. VMT for Opening Year (2025) and Design Year (2045) conditions for the No-Build Alternative and both Build Alternatives 3 and 4 are shown in Tables 2.2.8-7 and 2.2.8-8. As shown in Table 2.2.8-1, above, and Tables 2.2.8-7 and 2.2.8-8, below, daily and annual VMT under Existing (2019) conditions are lower than daily and annual VMT in the Opening Year 2025 and Design Year 2045 under all Alternatives. The increase in daily and annual VMT can be attributed to the projected increase in population growth as well as increased employment in the region as a result of planned projects in the vicinity. Table 2.2.8-8, Operational Vehicle Miles by Alternative (Design Year 2045), shows that by the Design Year 2045, the daily and annual VMT under Build Alternatives 3 and 4 would be less then when compared to each respective VMT under the No-Build Alternative.

Table 2.2.8-7: Operational Vehicle Miles by Alternative (Opening Year 2025)

VMT	No-Build Alternative	Build Alternative 3	Build Alternative 4
Daily VMT	2,389,676	2,389,676	2,389,676
Annual VMT[1]	829,217,628	829,217,628	829,217,628

Notes: 1. Annual values were derived by multiplying the daily values by 347, per California Air Resources Board methodology
Source: ICF, Energy Analysis Report, January 2021.

Table 2.2.8-8: Operational Vehicle Miles by Alternative (Design Year 2045)

VMT	No-Build Alternative	Build Alternative 3	Build Alternative 4
Daily VMT	3,768,143	3,767,723	3,767,723
Annual VMT[1]	1,307,545,581	1,307,399,796	1,307,399,796

Notes: 1. Annual values were derived by multiplying the daily values by 347, per California Air Resources Board methodology
Source: ICF, Energy Analysis Report, January 2021.

The energy consumption of each alternative is related directly to gasoline and diesel fuel consumption by automobiles and trucks. In addition to VMT, fleet mix and travel speeds also affect fuel consumption. Operational energy consumption was estimated based on vehicle types (e.g., automobiles, trucks, light-duty trucks, medium-duty trucks, and heavy-duty trucks) traveling within the project vicinity using the CT-EMFAC2017 model, which relies on emission factors from the EMFAC2017 (version 1.0.2) model. The EMFAC2017 model output provided the total gallons of combined gasoline and diesel fuel.

Energy use can be represented in terms of the thermal value of the fuel and is usually measured in BTU. Gallons of fuel can be converted to BTUs by using the heat content of the fuel. Diesel fuel has a heat content of 127,460 BTUs per gallon, and gasoline has a heat content of 109,772 BTUs per gallon. Annual direct energy use under each alternative is analyzed in Tables 2.2.8-9 and 2.2.8-10.

Table 2.2.8-9: Annual Direct Energy Use (Mobile Sources) (Opening Year 2025)

Fuel Usage	No-Build Alternative	Build Alternative 3	Build Alternative 4
Gasoline	69,426	69,423	69,423
Diesel	18,570	18,570	18,570

Source: ICF, Energy Analysis Report, January 2021.

Table 2.2.8-10: Annual Direct Energy Use (Mobile Sources) (Design Year 2045)

Fuel Usage	No-Build Alternative	Build Alternative 3	Build Alternative 4
Gasoline	81,993	81,984	81,984
Diesel	23,572	23,569	23,569
2019 BTU (billion)	7,332	N/A	N/A
2025 BTU (billion)	7,621	7,621	7,621
2045 BTU (billion)	9,001	9,000	9,000
2025 percent change from no build	---	0.005	0.005
2045 percent change from no build	---	0.011	0.011

Source: ICF, Energy Analysis Report, January 2021.

As shown in Tables 2.2.8-2, 2.2.8-9, and 2.2.8-10 the annual energy consumption between Existing Year 2019 and Design Year 2045 would increase by 1,669 million BTUs (23 percent) and VMT is projected to increase by 27 percent. This slight disparity is attributed to fleet turnover, as older, less fuel-efficient vehicles are replaced by later-model, more fuel-efficient vehicles over time. These later-model replacement vehicles would also include hybrid and all-electric vehicles. Among the Build Alternatives, only a slight change in energy consumption would occur because of the following reasons: 1) no change in project-vicinity VMT, and 2) the relatively small magnitude of this single interchange capacity enhancement considering the larger region. Therefore, energy consumption under either Build Alternatives 3 or 4 would be negligible compared with the No-Build Alternative.

Federal and State regulations and policies (e.g., Surface Transportation Act, Energy Policy Act, California's Transportation Plan) are intended to achieve goals that include reducing congestion, improving air quality, and increasing vehicle fuel efficiency. Build Alternatives 3 and 4 would not conflict with these regulations or policies. The regional and local policies (e.g., SCAG 2020-2045 RTP, City of Calimesa General Plan, and Riverside County General Plan) include goals that involve reducing congestion, reducing traffic on arterial roads, promoting mass transit, reducing VMT, and increasing vehicle occupancy rates. Build Alternatives 3 and 4 would be consistent with these policies because the project would enhance operations by improving reliability and travel times within the I-10 corridor and improve traffic flow by reducing congestion and offering motorists a faster and more reliable commute. Lastly, operations under Build Alternatives 3 and 4 would include implementation of intelligent transportation systems to help manage the efficiency of the existing highway system. Intelligent transportation systems are commonly referred to as electronics, communications, or information processing, used singly or in combination, to improve the efficiency or safety of a surface transportation system. Furthermore, based on the Energy Analysis Report, no substantial alterations to the existing energy infrastructure would be required and the project would have minimal impacts on operational energy consumption.

Indirect Energy Use

Indirect energy use is the energy that is consumed during maintenance of the facility, and the maintenance of vehicles using the facility. Indirect energy use may also include peripheral energy effects, which includes the use of energy sources that are not used by the transportation system itself, but rather energy used as a result of changes in land use, population density, or transportation patterns that are induced by the project, which would affect the energy demand, supply, and distribution within the surrounding area. However, because the project area is already urbanized and located along an existing transportation corridor, the project would not be expected to induce substantial changes in land use, population density, or transportation patterns that would increase energy demand, supply, or distribution.

To assess indirect energy use from maintenance of the project facility, as well as manufacturing and maintaining vehicles using the facility, energy use factors were obtained from Caltrans' Energy and Transportation Systems Handbook. These factors are shown in Table 2.2.8-11, Indirect Energy Use Factors.

Table 2.2.8-11: Indirect Energy Use Factors

Type of Indirect Energy Use	Indirect Energy Use Factor
Facility maintenance energy (urban roadway, asphalt concrete pavement)	1.776 x108 BTU per Lane Mile
Vehicle maintenance energy (medium truck; sum of oil: 594, tire: 366, and general maintenance and repair: 1,186)	2,146 BTU per Mile

Source: ICF, Energy Analysis Report, January 2021.

As shown in Table 2.2.8-9, the facility maintenance energy use factor is the energy used to maintain an urban roadway with asphalt concrete pavement. For vehicle manufacturing and maintenance, Caltrans’ Energy and Transportation Systems Handbook includes energy use factors for light, medium, and heavy trucks. For this analysis, the energy use factors for medium trucks were used as an average for the various types of vehicles that would use the project facility. Total vehicle maintenance energy is the sum of three factors: 1) the energy to produce the oil, 2) the energy to produce the tires, and 3) the energy to conduct general maintenance and repair. Indirect energy was calculated using indirect energy use factors provided by the Caltrans’ Energy and Transportation Systems Handbook. For facility maintenance, the indirect energy use factor is 1.776 x108 BTU per lane mile for an urban roadway with asphalt concrete pavement. For the resource study area, this indirect energy use factor for facility maintenance was multiplied by the total lane distances of the I-10/Cherry Valley Boulevard study area (2.48 miles) and then by the number of lanes along the corridor under each scenario (i.e., 12 lanes under the No-Build Alternative, 27 lanes under Build Alternative 3, and 31 lanes under Build Alternative 4).

For the regional area, the number of lane miles in 2018 in the SCAG planning area (137,732.92 miles) was multiplied by the indirect energy use factor for facility maintenance to obtain estimates for facility maintenance energy use. Although various types of roadways are in the SCAG planning area, the indirect energy use factor for an urban roadway with asphalt concrete pavement was used for the regional area to provide a general estimate of indirect energy use and simplify the calculations, thereby ensuring consistency with those for the study area. Build Alternatives 3 and 4 would have approximately 1.98 and 2.07 additional lane miles, respectively, compared with the No-Build Alternative. For this reason, the regional area energy was adjusted to include the additional energy that Build Alternatives 3 and 4 would require for facility maintenance above the No-Build scenario.

For vehicle maintenance, the indirect energy use factor is 2,146 BTU per mile for medium trucks. This indirect energy use factor is the sum of three factors: 1) oil energy, 2) tire energy, and 3) general maintenance and repair energy. The energy use factor for medium trucks was used as an average for the various types of vehicles that would use the project facility. The indirect energy use factor for vehicle maintenance was multiplied by the annual VMT numbers for the study area provided by Caltrans and the regional area obtained from SCAG's 2020-2045 RTP/SCS.

Tables 2.2.8-12 and 2.2.8-13 show that both Build Alternatives 3 and 4 would result in an increase in indirect energy use in the project study area under Opening Year 2025 (totaling approximately 0.02 percent for Build Alternatives 3 and 4) and Design Year 2045 conditions (totaling approximately 0.001 percent for Build Alternative 3 and 0.002 percent for Build Alternative 4) compared with the No-Build Alternative. Tables 2.2.8-14 and 2.2.8-15 show that both Build Alternatives 3 and 4 would result in negligible changes in indirect energy use in the region in Opening Year 2025 and Design Year 2045 conditions compared with the No-Build Alternative. Both Build Alternatives 3 and 4 would not substantially contribute to indirect energy use at the regional level and would not be expected to result in permanent adverse indirect energy impacts. Build Alternatives 3 and 4 would be consistent with federal, regional, and local plans and policies. Therefore, project implementation would not result in an inefficient, wasteful, or unnecessary consumption of energy. The Build Alternatives would not result in adverse effects in this regard.

Table 2.2.8-12: Indirect Energy Use in the Project Study Area (Opening Year 2025)

Alternative	Indirect Energy for Facility Maintenance (billion BTUs)	Indirect Energy for Vehicle Maintenance (billion BTUs)	Total Indirect Energy Use (billion BTUs)	Numeric Difference between Build Alternatives and No-Build Alternative	Percent Difference between Build Alternatives and No-Build Alternative
No-Build Alternative	0.57	1,779.50	1,780.07	--	--
Build Alternative 3	0.92	1,779.42	1,780.34	0.27	0.02
Build Alternative 4	0.94	1,779.42	1,780.35	0.28	0.02

Source: ICF, Energy Analysis Report, January 2021.

Table 2.2.8-13: Indirect Energy Use in the Project Study Area (Design Year 2045)

Alternative	Indirect Energy for Facility Maintenance (billion BTUs)	Indirect Energy for Vehicle Maintenance (billion BTUs)	Total Indirect Energy Use (billion BTUs)	Numeric Difference between Build Alternatives and No-Build Alternative	Percent Difference between Build Alternatives and No-Build Alternative
No-Build Alternative	0.57	2,805.99	2,806.56	--	--
Build Alternative 3	0.92	2,805.68	2,806.60	0.04	0.001
Build Alternative 4	0.94	2,805.68	2,806.62	0.05	0.002

Source: ICF, Energy Analysis Report, January 2021.

Table 2.2.8-14: Indirect Energy Use in the SCAG Regional Area (Opening Year 2025)

Alternative	Indirect Energy for Facility Maintenance (billion BTUs)	Indirect Energy for Vehicle Maintenance (billion BTUs)	Total Indirect Energy Use (billion BTUs)	Numeric Difference between Build Alternatives and No-Build Alternative	Percent Difference between Build Alternatives and No-Build Alternative
No-Build Alternative	24,461.37	352,536.01	376,997	--	--
Build Alternative 3	24,462.29	352,536.01	376,998	0.92	0.002
Build Alternative 4	24,462.30	352,536.01	376,998	0.94	0.002

Source: ICF, Energy Analysis Report, January 2021.

Table 2.2.8-15: Indirect Energy Use in the SCAG Regional Area (Design Year 2045)

Alternative	Indirect Energy for Facility Maintenance (billion BTUs)	Indirect Energy for Vehicle Maintenance (billion BTUs)	Total Indirect Energy Use (billion BTUs)	Numeric Difference between Build Alternatives and No-Build Alternative	Percent Difference between Build Alternatives and No-Build Alternative
No-Build Alternative	24,461.37	385,460.41	409,922	--	--
Build Alternative 3	24,462.29	385,460.41	409,923	0.92	0.0328

Alternative	Indirect Energy for Facility Maintenance (billion BTUs)	Indirect Energy for Vehicle Maintenance (billion BTUs)	Total Indirect Energy Use (billion BTUs)	Numeric Difference between Build Alternatives and No-Build Alternative	Percent Difference between Build Alternatives and No-Build Alternative
Build Alternative 4	24,462.30	385,460.41	409,923	0.94	0.0333

Source: ICF, Energy Analysis Report, January 2021.

Avoidance, Minimization, and/or Mitigation Measures
No measures are proposed.

2.3 Biological Environment

2.3.1 Natural Communities

This section of the document discusses natural communities of concern. The focus of this section is on biological communities, not individual plant or animal species. This section also includes information on wildlife corridors and habitat fragmentation. Wildlife corridors are areas of habitat used by wildlife for seasonal or daily migration. Habitat fragmentation involves the potential for dividing sensitive habitat and thereby lessening its biological value.

Habitat areas that have been designated as critical habitat under the Federal Endangered Species Act are discussed below in the Threatened and Endangered Species Section 2.3.5. Wetlands and other waters are also discussed below in Section 2.3.2.

Affected Environment
This section is based upon the Natural Environment Study (Minimal Impacts) (NES-MI) prepared for the project dated December 2020.

For the purposes of this analysis, a biological study area (BSA) was established for the project; refer to Figure 2.3.1-1, Biological Study Area. The BSA is comprised of a 500-foot buffer surrounding the combined grading limits of Build Alternatives 3 and 4.

Figure 2.3.1-1: Biological Study Area

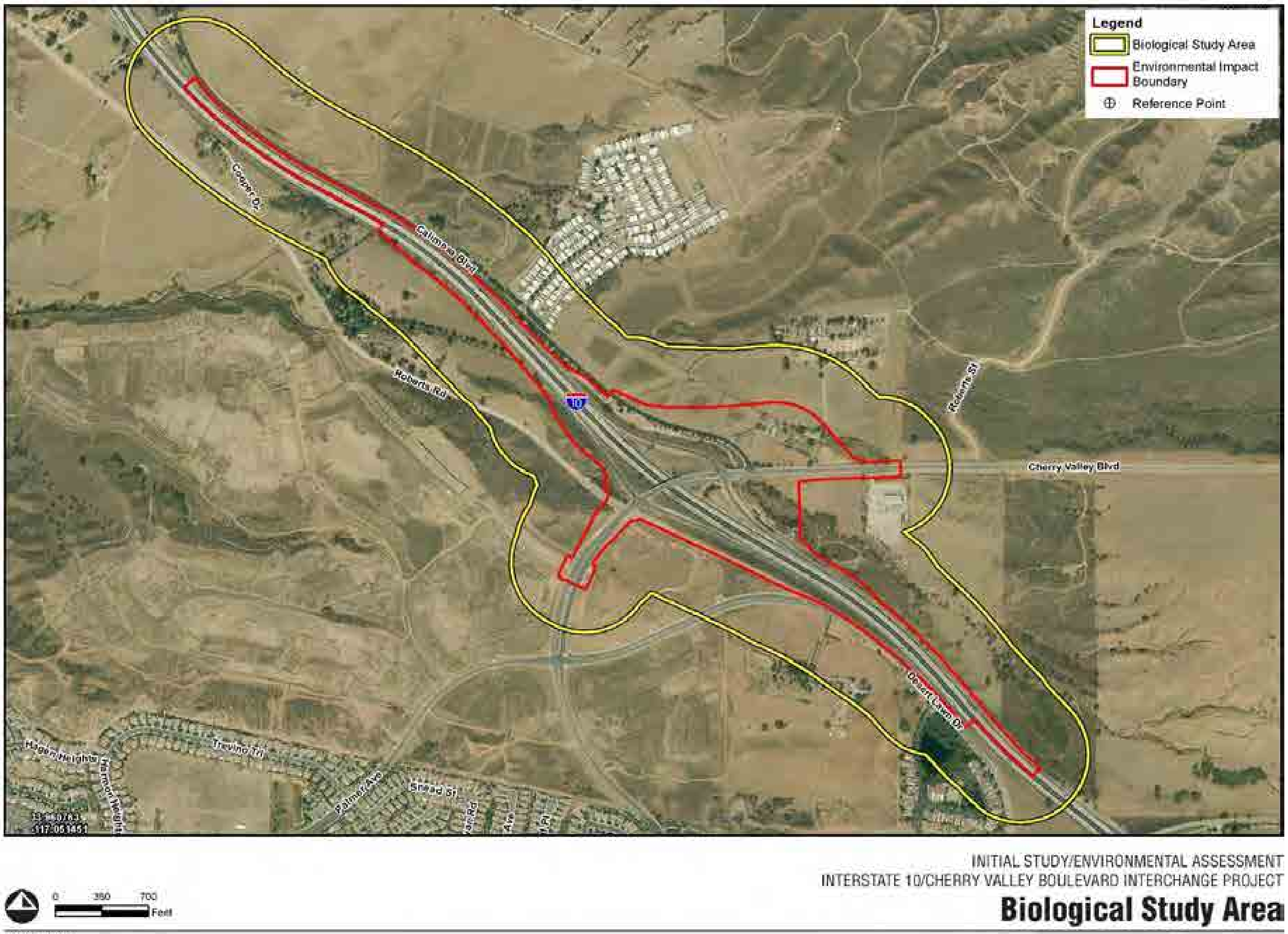


Figure 2.3.1-1

Existing Conditions

Eight special-status natural vegetation communities were identified by the California Natural Diversity Database (CNDDB) during the records search as occurring in the USGS Beaumont, El Casco, Forest Falls, and Yucaipa, California 7.5-minute quadrangles: Canyon Live Oak Ravine Forest, Riversidian Alluvial Fan Sage Scrub, Southern Coast Live Oak Riparian Forest, Southern Cottonwood Willow Riparian Forest, Southern Riparian Forest, Southern Riparian Scrub, Southern Sycamore Alder Riparian Woodland, and Southern Willow Scrub. However, none of these natural communities of special concern were found within the BSA during the field surveys. There are 10 vegetation communities that were observed during the field survey within the BSA. Additionally, the BSA were observed to contain four land cover types: open water, ornamental, disturbed habitat, and developed. Through delineation using aerial photographs, and then later digitized, these vegetation communities and the land cover types were quantified by existing acreage within the BSA. These calculations are listed within Table 2.3.1-1, Existing Vegetations and Figure 2.3.1-2, Vegetation Communities and Other Land Uses. It should be noted that one vegetation community listed, the Cuyamaca Cypress Stands, is identified as a Special-Status Plant Species.

Table 2.3.1-1: Existing Vegetation

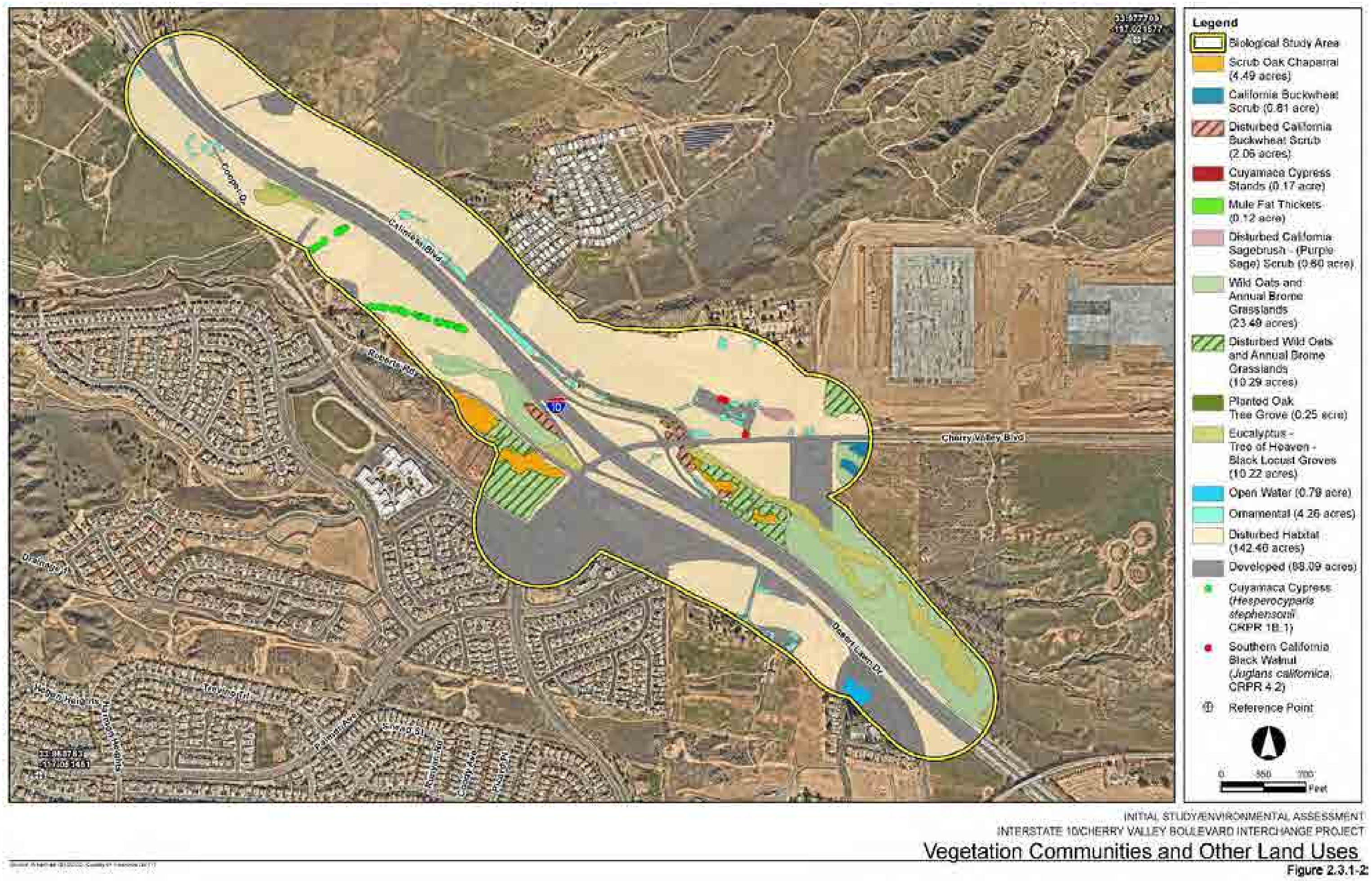
The following table has been amended since the Draft Environmental Document.

Vegetation Types and Other Areas in the BSA	Existing Acres
Scrub Oak Chaparral (*Quercus berberidifolia* Shrubland Alliance)	4.49
California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)	0.81
Disturbed California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)	2.06
Cuyamaca Cypress Stands (*Hesperocyparis stephensonii* Woodland Special Stands)	0.17
Mule Fat Thickets (*Baccharis salicifolia* Shrubland Alliance)	0.12
Disturbed California Sagebrush – (purple sage) Scrub (*Artemisia californica* – [*Salvia leucophylla]* Shrubland Alliance)	0.60
Wild Oats and Annual Brome Grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance)	23.49
Disturbed Wild Oats and Annual Brome Grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance)	10.29
Planted Oak Tree Grove (*Quercus agrifolia* Forest and Woodland Alliance)	0.25
Eucalyptus – Tree of Heaven – Black Locust Groves (*Eucalyptus* spp. - *Ailanthus altissima* - *Robinia pseudoacacia* Woodland Semi-Natural Alliance)	10.22
Open Water	0.79
Ornamental	4.26
Disturbed Habitat	142.46
Developed	88.09

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (December 2020).

Figure 2.3.1-2: Vegetation Communities and Other Land Uses

This figure has been amended since the Draft Environmental Document.



Scrub Oak Chaparral (4.49 acres)

Scrub oak chaparral (*Quercus berberidifolia* Shrubland Alliance) encompasses approximately 4.49 acres of the BSA. Specifically, this vegetation community can be found on the open parcels located to the south of Roberts Road and south of the Cherry Valley Boulevard, within the central portion of the BSA. Inland scrub oak (*Quercus berberidifolia*) is the dominant plant species in this vegetation community with chamise (*Adenostoma fasciculatum*), holly leaf cherry (*Prunus ilicifolia*), and redberry buckthorn (*Rhamnus crocea*) occurring at lower densities. California buckwheat (*Eriogonum fasciculatum*), turkey-mullein (Croton setiger), short podded mustard (*Hirschfeldia incana*), and various non-native grasses also occur within the understory.

California Buckwheat Scrub (0.81 acres)

Approximately 0.81 acre of California buckwheat scrub (*Eriogonum fasciculatum* Shrubland Alliance) vegetation occurs within the BSA, on the parcels located to the south of Cherry Valley Boulevard and north of I-10, in the eastern portion of the BSA. This vegetation community is intermixed with the wild oats and annual brome grasslands and is dominated by California buckwheat. Other plant species observed within this vegetation community include deerweed (*Acmispon glaber*), turkey-mullein, short podded mustard and various non-native grasses.

Disturbed California Buckwheat Scrub (2.06 acres)

Disturbed California buckwheat scrub vegetation (*Eriogonum fasciculatum* Shrubland Alliance) encompasses various portions of the BSA located to the north and south of I-10. Disturbances within this vegetation community have occurred as a result of past agricultural uses, weed abatement, illegal trash dumping, and off-road vehicle uses. This vegetation community is comprised of scattered patches of California buckwheat intermixed with Russian thistle (*Salsola tragus*), short podded mustard, and various non-native grasses.

Cuyamaca Cypress Stands (0.17 acres)

Approximately 0.17 acre of Cuyamaca cypress stands (*Hesperocyparis stephensonii* Woodland Special Stands) occurs within the western portion of the BSA, to the south of I-10 and north of Roberts Road. This vegetation community is dominated by Cuyamaca cypress (*Hesperocyparis stephensonii*), a California Rare Plant Rank (CRPR) 1B.1 species. In addition, Cuyamaca cypress stands have a State rank of S1; “critically imperiled in the State because of extreme rarity (often five or fewer occurrences) or because of some factor(s) such as very steep declines making it especially vulnerable to extirpation from the State/province.” 49 individuals of Cuyamaca cypress were recorded within the western portion of the BSA. In addition, multiple individuals were observed surrounding the commercial property located to the north of Roberts Road, within and outside of the BSA.

According to the NES-MI, cypresses have been located north of Roberts Road since 1996. Cuyamaca cypress is the rarest cypress in California and is only known from just four locations in San Diego County. Cuyamaca cypress is known to occur at elevations ranging from 3,396 to 5,594 feet above mean sea level (amsl) and is restricted to gabbroic soils. It appears that the Cuyamaca cypress stands that occur within the western portion of the BSA, have been ornamentally planted at some point in the past; the cypresses occur well outside their known elevation range and the soils present are not gabbroic and instead consist of sandy loam and gravelly loamy fine sand substrates. In addition, the Cuyamaca cypress is known only to occur in San Diego County, which further suggests that this vegetation community does not naturally occur within the western portion of the BSA and is instead an ornamentally planted community.

Mule Fat Thickets (0.12 Acre)

Approximately 0.12 acre of mule fat thickets (*Baccharis salicifolia* Shrubland Alliance) occur within the northwest portion of the BSA, to the south of I-10 and north of Roberts Road. This vegetation community is dominated by mule fat (*Baccharis salicifolia*). Saplings of tree of heaven (*Ailanthus altissima*) occur intermixed with the mule fat. Short podded mustard and various non-native grasses comprise the understory of this vegetation community.

Disturbed California Sagebrush – (purple sage) scrub (0.60 Acre)

Approximately 0.60 acre of disturbed California sagebrush – (purple sage) scrub (*Artemisia californica* – [*Salvia leucophylla*] Shrubland Alliance) vegetation occurs along a small hillside located to the east of Calimesa Boulevard and north of Cherry Valley Boulevard. In addition, this vegetation community occurs in the western portion of the BSA, to the north of Roberts Road and south of I-10. California sagebrush (*Artemisia californica*) and California buckwheat are co-dominant species within this disturbed vegetation community. Non-native grasses and short podded mustard can be found intermixed with the California sagebrush and California buckwheat. Disturbances within this vegetation community are primarily a result of weed abatement.

Wild Oats and Annual Brome Grasslands (23.49 Acres)

The wild oats and annual brome grasslands vegetation community (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance) comprises approximately 23.49 acres of the BSA. The wild oats and annual brome grasslands can be found in the southeast portion of the BSA, to the north of I-10, and central portion of the BSA, to the south of I-10. This vegetation community is primarily dominated by non-native plant species which include ripgut brome (*Bromus diandrus*), slender oat (*Avena barbata*), wild oat (*Avena fatua*), foxtail brome (*Bromus madritensis* ssp. *rubens*), red stemmed filaree (*Erodium cicutarium*), pigweed amaranth (*Amaranthus albus*), and short podded mustard.

Disturbed Wild Oats and Annual Brome Grasslands (10.29 Acres)

The disturbed wild oats and annual brome grasslands vegetation community (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance) encompasses approximately 10.29 acres of the BSA. The non-native plant species that dominate this vegetation community occur sparsely throughout and are in poor condition as a result of on-going weed abatement activities and historical agricultural uses. Additionally, a higher concentration of non-native, herbaceous plant species occurs throughout and include red stemmed filaree, pigweed amaranth, short podded mustard, Russian thistle, and prickly lettuce (*Lactuca serriola*).

Planted Oak Tree Grove (0.25 Acre)

A planted oak tree grove (*Quercus agrifolia* Forest and Woodland Alliance) consisting of California live oak (*Quercus agrifolia*) can be found within the central portion of the BSA. The oaks are located adjacent to Calimesa Boulevard paralleling I-10 and to the south of Calimesa Boulevard and north of I-10.

Eucalyptus – Tree of Heaven – Black Locust Groves (10.22 Acres)

Approximately 10.22 acres of eucalyptus – tree of heaven – black locust groves (*Eucalyptus* spp. - *Ailanthus altissima* - *Robinia pseudoacacia* Woodland Semi-Natural Alliance) occur within the BSA. This natural community occurs within the southeast portion of the BSA, to the north of I-10 and south of Cherry Valley Boulevard, within the central portion of the BSA in between the I-10 east off-ramp and Roberts Road, and within the northwest portion of the BSA, to the south of I-10 and north of Roberts Road. Tree of heaven, black locust (*Robinia pseudoacacia*), and eucalyptus (*Eucalyptus* spp.) dominate the canopy of this vegetation community. Within the southeast portion of the BSA, a few individuals of cottonwood (*Populus fremontii*) and mule fat can be found intermixed with the tree of heaven and eucalyptus.

Open Water (0.79 Acre)

Approximately 0.79 acre of open water occur within the southeast portion of the BSA, to the south of Desert Lawn Drive and east of Plantation Drive. Specifically, the open water consists of the artificial pond that occurs within the Plantation on the Lake residential community.

Ornamental (4.26 Acres)

Approximately 4.26 acres of ornamental vegetation occurs throughout the BSA. The ornamental vegetation primarily consists of carrotwood (*Cupaniopsis anacardioides*), China berry tree (*Melia azedarach*), olive (*Olea europaea*), black locust, pine (*Pinus* spp.), Peruvian pepper tree (*Schinus molle*), Brazilian pepper tree (*Schinus terebinthifolius*), Siberian elm (*Ulmus pumila*), and Mexican fan palm (*Washingtonia robusta*).

The following text has been amended since the Draft Environmental Document: Disturbed Habitat (142.46 Acres)

The following text has been amended since the Draft Environmental Document: Disturbed habitat areas comprise approximately 142.46 acres of the BSA. Disturbed habitat within the BSA has been physically disturbed by anthropogenic activities (e.g., routine weed abatement, historical agricultural activities, illegal trash dumping, and off-road vehicle uses). Surface soils within these areas have been heavily compacted/disturbed, are generally devoid of vegetation, or support non-native and ruderal/weedy plant species. Vegetation that is present primarily consists of non-native plant species including pigweed amaranth, wild oat, Pacific false bindweed (*Calystegia purpurata* ssp. *purpurata*), tocalote (*Centaurea melitensis*), lamb's quarters (*Chenopodium album*), red stemmed filaree, prostrate sandmat (*Euphorbia prostrata*), short podded mustard, stinknet (*Oncosiphon piluliferum*), and puncture vine (*Tribulus terrestris*).

The following text has been amended since the Draft Environmental Document: Developed (88.09 Acres)

The following text has been amended since the Draft Environmental Document: Developed areas make up approximately 88.09 acres of the BSA and consist of areas that have been constructed upon or have been physically altered to a degree that native vegetation is no longer supported. Developed areas within the BSA are permanent or semi-permanent structures, paved, or impervious surfaces (i.e., I-10 and associated on- and off-ramps, Calimesa Boulevard, Coit Avenue, Cherry Valley Boulevard, Roberts Road, Cooper Drive, Desert Lawn Drive, Plantation Drive, Peachtree Lane, the Rancho Calimesa Mobile Home Ranch, the Plantation on the Lake residential community, existing rural residential and commercial properties, and ongoing residential development).

Habitat Connectivity

Habitat linkages are key features for wildlife movement between habitat patches. Wildlife corridors are generally defined as those areas that provide opportunities for individuals or local populations to conduct seasonal migrations, permanent dispersals, or daily commutes, while linkages generally refer to broader areas that provide movement opportunities for multiple keystone/focal species or allow for propagation of ecological processes (e.g., for movement of pollinators), often between areas of conserved land.

There are no known designated Western Riverside Multiple Species Habitat Conservation Plan (WR-MSHCP) Criteria Cells, habitat linkages, or designated conservation areas within the BSA. Further, wildlife movement within and adjacent to the BSA potentially occurs within the ephemeral drainage features that connect to the surrounding interior areas, foothills, and mountain ranges. The north, east, and western portions of the BSA and surrounding areas consists of relatively undisturbed natural habitats which allows wildlife to move freely across the BSA to surrounding habitats. These areas provide movement opportunities for coyote, bobcat (Lynx rufus) as well as providing suitable nesting/foraging habitat for a variety of seasonal bird species that migrate through the region.

Environmental Consequences

Temporary Impacts

No-Build Alternative

No transportation improvements would occur under the No-Build Alternative; therefore, the No-Build Alternative would not impact natural communities.

Build Alternatives 3 and 4

The following text has been amended since the Draft Environmental Document: As described above, 10 natural vegetation communities were observed within the BSA: the Scrub Oak Chaparral (*Quercus berberidifolia* Shrubland Alliance), California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance), Disturbed California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance), Cuyamaca Cypress Stands (*Hesperocyparis stephensonii* Woodland Special Stands), Mule Fat Thickets (*Baccharis salicifolia* Shrubland Alliance), Disturbed California Sagebrush – (*purple sage*) Scrub (*Artemisia californica – [Salvia leucophylla]* Shrubland Alliance), Wild Oats and Annual Brome Grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance), Disturbed Wild Oats and Annual Brome Grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance), Planted Oak Tree Grove (*Quercus agrifolia* Forest and Woodland Alliance), and Eucalyptus – Tree of Heaven – Black Locust Groves (*Eucalyptus* spp. - *Ailanthus altissima - Robinia pseudoacacia* Woodland Semi-Natural Alliance). Of these 10 communities, the Cuyamaca cypress stands is the only natural community that is considered a natural community of special concern. According to the NES-MI, the Build Alternatives have the potential to result in indirect impacts to this special-status vegetation community related to fugitive dust or spread of non-native seeds. Adherence to Caltrans Standard Specifications Section 14-10.01, General (Solid Waste Disposal and Recycling), would ensure project materials are not cast from the project site into nearby habitats and project related debris, spoils, and trash are contained and removed to a proper disposal facility. Caltrans Standard Specifications Section 18-1.03A, General (Dust Palliatives), would ensure dust control during project construction. Refer to Section 2.3.6 for a discussion regarding invasive species. Additionally, workers will receive environmental awareness training prior to the initiation of work (Measure NC-1) and construction equipment shall be inspected and cleaned prior to use in the project area to minimize the importation of non-native plant material (Measure NC-2). Thus, based on the NES-MI, it was determined that the Build Alternatives would have “no effect” on the Cuyamaca cypress stands and no compensatory mitigation would be required.

Permanent Impacts

No-Build Alternative

No transportation improvements would occur under the No-Build Alternative; therefore, the No-Build Alternative would not result in permanent impacts on natural communities.

Build Alternatives 3 and 4

As stated above, the Cuyamaca cypress stands are considered to be a natural community of special concern. Based on the NES-MI, permanent impacts to the Cuyamaca cypress stands are not anticipated. Therefore, permanent impacts as a result of implementation of the Build Alternatives would not be adverse.

Table 2.3.1-2: Build Alternative 3 Impacts to Vegetation Communities and Other Land Uses

Vegetation Communities/Land Use Types	Temporary (acres)	Permanent (acres)
Scrub Oak Chaparral (*Quercus berberidifolia* Shrubland Alliance)	0.00	0.06
California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)	0.00	0.00
Disturbed California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)	0.22	0.30
Cuyamaca Cypress Stands (*Hesperocyparis stephensonii* Woodland Special Stands)	0.00	0.00
Mule Fat Thickets (*Baccharis salicifolia* Shrubland Alliance)	0.00	0.00
Disturbed California Sagebrush – California Buckwheat Scrub - (purple sage) scrub (*Artemisia californica* - (*Salvia leucophylla*) Shrubland Alliance)	0.00	0.00
Wild Oats and Annual Brome Grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance)	0.00	0.30
Disturbed Wild Oats and Annual Brome Grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance)	0.00	0.22
Eucalyptus – Tree of Heaven – Black Locust Groves (*Eucalyptus* spp. - *Ailanthus altissima - Robinia pseudoacacia* Woodland Semi-Natural Alliance)	0.00	0.28
Open Water	0.00	0.00
Ornamental	0.59	0.24
Planted Oak Tree Grove	0.21	0.002
Disturbed	6.09	14.61
Developed	16.89	9.08
TOTAL*	**24.00**	**25.10**

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (August 2020).

Table 2.3.1-3: Build Alternative 4 Impacts to Vegetation Communities and Other Land Uses

Vegetation Communities/Land Use Types	Temporary (acres)	Permanent (acres)
Scrub Oak Chaparral (*Quercus berberidifolia* Shrubland Alliance)	0.20	0.36
California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)	0.00	0.00
Disturbed California Buckwheat Scrub (*Eriogonum fasciculatum* Shrubland Alliance)	0.66	0.41
Cuyamaca Cypress Stands (*Hesperocyparis stephensonii* Woodland Special Stands)	0.00	0.00
Mule Fat Thickets (*Baccharis salicifolia* Shrubland Alliance)	0.00	0.00
Disturbed California Sagebrush – California Buckwheat Scrub - (purple sage) scrub (*Artemisia californica* - (*Salvia leucophylla*) *Shrubland Alliance*)	0.00	0.00
Wild Oats and Annual Brome Grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance)	0.00	0.51
Disturbed Wild Oats and Annual Brome Grasslands (*Avena* spp. - *Bromus* spp. Herbaceous Semi-Natural Alliance)	0.27	0.89
Eucalyptus – Tree of Heaven – Black Locust Groves (*Eucalyptus* spp. - *Ailanthus altissima - Robinia pseudoacacia* Woodland Semi-Natural Alliance)	0.39	0.42
Open Water	0.00	0.00
Ornamental	0.32	0.23
Planted Oak Tree Grove	0.22	0.01
Disturbed	6.70	14.72
Developed	16.43	8.37
TOTAL*	**25.19**	**25.92**

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (August 2020).

The following text has been amended since the Draft Environmental Document: There are no known designated WR-MSHCP Criteria Cells, habitat linkages, or designated conservation areas within the BSA. Following circulation of the Draft IS/EA and prior to completion of this Final IS/EA, on January 27, 2022, January 28, 2022, and on April 19, 2023, the project team consulted with multiple resource agencies (i.e., Carly Beck and Katrina Rehrer with the California Department of Fish and Wildlife [CDFW], and John Taylor with the United States Fish and Wildlife Service [USFWS]) and has prepared a Determination of Biologically Equivalent or Superior Preservation (DBESP) to ensure riparian/riverine resources along El Casco Creek are preserved at equivalent or superior levels as compared to their existing conditions, and to ensure that potential adverse effects to these resources are minimized and mitigated to reduce impacts to sensitive biological resources. Based on these discussions with the resource agencies and DBESP, the project would purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts will be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, will be developed in conjunction with the wildlife agencies. In addition, the project would include a number of enhancements to minimize impacts related to wildlife movement under Cherry Valley Boulevard. Construction would include the installation of a three-foot-high concrete roadway barrier that would shield headlight and noise intrusion into the culvert. Planting of trees and shrubs would occur along Calimesa Road to further shield headlight and noise from entering the culvert. Revegetation would be installed per Caltrans Standard Specifications Sections 13-05 and 21. Directional fencing will be installed along the existing drainage as needed to guide wildlife to the culvert crossing. These project features would offset potential impacts to sensitive biological resources on-site and within the project vicinity. CDFW and USFWS concurred with the DBESP findings and mitigation strategy on July 6, 2023. As such, the Build Alternatives are not expected to impede wildlife movement through the BSA, specifically through the north, east, and western portions, and the project site would continue to provide opportunities for local wildlife movement and function as a corridor for highly mobile wildlife species.

Avoidance, Minimization, and/or Mitigation Measures

Measure NC-3 has been deleted since the Draft Environmental Document.

NC-1: Prior to the commencement of construction, a qualified biologist shall prepare and present a Workers Environmental Awareness Program (WEAP) training in Spanish and English to all contractors, subcontractors, and workers expected to be on-site throughout the entire construction period. The WEAP shall include a brief review of any special-status vegetation communities and special-status species, including habitat requirements and where they might be found, and other sensitive biological resources that could occur in and adjacent to the project. The WEAP shall address the biological mitigation measures listed in the project's approved Mitigation Monitoring and Reporting Program, as well as applicable conditions and provisions of any associated environmental permits (e.g., Section 404 permit, Section 401 Certification, Section 1602 SAA), including but not limited to pre-construction biological surveys, pre-construction installation of perimeter sediment and erosion control best management practices per the RWQCB-approved Storm Water Pollution Prevention Plan, and any recurrent nesting bird surveys (as needed).

NC-2: All construction equipment shall be inspected and cleaned prior to use in the project area to minimize the importation of non-native plant material. A weed abatement program shall be implemented should invasive plant species colonize the area within the limits of disturbance post-construction.

2.3.2 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 United States Code [USC] 1344), is the primary law regulating wetlands and surface waters. One purpose of the CWA is to regulate 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. The lateral limits of jurisdiction over non-tidal water bodies extend to the ordinary high water mark (OHWM), in the absence of adjacent wetlands. When adjacent wetlands are present, CWA jurisdiction extends beyond the OHWM to the limits of the adjacent wetlands. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the CWA.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation’s waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the U.S. Environmental Protection Agency (U.S. EPA).

The USACE issues two types of 404 permits: General and Individual. There are two types of General permits: Regional and Nationwide. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to allow a variety of minor project activities with no more than minimal effects.

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of USACE’s Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with https://www.epa.gov/cwa-404/section-404b1-guidelines-40-cfr-230, and whether permit approval is in the public interest. The Section 404 (b)(1) Guidelines (Guidelines) were developed by the U.S. EPA in conjunction with the USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that the USACE may not issue a permit if there is a “least environmentally damaging practicable alternative” (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (EO 11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11990 states that a federal agency, such as FHWA and/or the Department, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm. A Wetlands Only Practicable Alternative Finding must be made.

At the state level, wetlands and waters are regulated primarily by the State Water Resources Control Board (SWRCB), the Regional Water Quality Control Boards (RWQCBs) and the California Department of Fish and Wildlife (CDFW). In certain circumstances, the Coastal Commission (or Bay Conservation and Development Commission or the Tahoe Regional Planning Agency) may also be involved. Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify CDFW before beginning construction. If CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

The RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA. In compliance with Section 401 of the CWA, the RWQCBs also issue water quality certifications for activities which may result in a discharge to waters of the U.S. This is most frequently required in tandem with a Section 404 permit request. Please see the Water Quality section for more details.

Affected Environment

This section is based upon the Natural Environment Study (Minimal Impacts) (NES-MI) prepared for the project dated December 2020, which included preparation of a Delineation of State and Federal Jurisdictional Waters (dated November 2020).

Methodology

Prior to the field delineation, a literature review was conducted to determine watershed characteristics and the locations/types of aquatic resources that may be present in the project area. High-resolution aerial photographs, USFWS National Wetland Inventory (NWI) maps, and USGS topographic maps were examined to determine the potential areas of USACE, RWQCB, and CDFW jurisdiction within the project boundary. The U.S. Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS), Web Soil Survey, and Flood Insurance Rate Map (FIRM), were concurrently reviewed for the project site's existing conditions.

The jurisdictional delineation was conducted on foot and included a systematic inspection and evaluation of all drainage features present within the survey area on August 14, 2019. The channel widths within drainage features were measured based on the discernible ordinary high-water mark (OHWM) in order to quantify acreage and linear feet of potential waters of the United States (WoUS). Where there were observed changes in the OHWM width, transects were recorded to obtain an accurate representation of the entire reach of each feature. Width of streambed and bank and associated riparian vegetation and/or wildlife resources were also measured in order to quantify potential jurisdictional streambed. The lateral extent of potential jurisdictional streambed was measured from bank to bank at the top of the channel, or to the drip-line of the associated riparian vegetation where it extends beyond the bank of the channel. While in the field data points were obtained with a Garmin 62 Global Positioning System (GPS) Map62 in order to record and identify the active channels using field indicators such as OHWM, picture locations, and drainage features. The data was then transferred and added to the project's jurisdictional map using Geographic Information System software.

Existing Conditions

Wetland: Based on the results of the field delineation, no jurisdictional wetland features were noted within the boundaries of the survey area. Soil pits were dug within the drainage features described below (Drainage 1), where dominant hydrophytic vegetation and hydrologic indicators were observed. Soil pit one (SP1) was dug within the central portion of the project site where dominant hydrophytic vegetation (mulefat; FAC) was observed. SP1 was dug to a depth of approximately 12 inches and consisted of a single soil horizon. SP1 exhibited a texture of sand and displayed a matrix color of 10YR 4/3 when moist. No redoximorphic features were identified within the matrix of SP1. Indicators of wetland hydrology including drift deposits and drainage patterns were noted around SP1. Based on the results of the field delineation, it was determined that SP1 only met two (hydrophytic vegetation; hydrology) of the three (hydrophytic vegetation, hydric soils, and hydrology) required wetland parameters and thus did not qualify as a wetland.

Non-Wetland Features: Multiple unnamed drainage features were observed to either enter the project site, or exist within the BSA. All on-site drainages exhibited a bed and bank and are considered CDFW jurisdictional streambed. All on-site drainages qualify as Corps non-wetland WoUS and evidence of an OHWM was noted within the project site, which totaled approximately 1.15 acres. Each observed drainage is described below:

Drainage 1

Drainage 1 is an unnamed, ephemeral drainage feature which enters the project site as an earthen feature from the southeast and flows northwest through the project site exiting at the northwestern boundary. It measures approximately 2,519 linear feet in length with an average width of approximately 21 feet within the boundaries of the project site. During significant storm events, surface water runoff from surrounding areas is collected within Drainage 1 and conveyed northwest across the central portion of the project site. Drainage 1 enters a 10-foot wide concrete box culvert underneath Cherry Valley Boulevard and flows continue within a trapezoidal concrete lined channel adjacent and parallel to Calimesa Boulevard. From there, Drainage 1 transitions into a 22-foot wide concrete box culvert as it proceeds west and underneath I-10. Drainage 1 daylights as earthen channel in the northwestern portion of the project site and continues northwest outside of the project area. The earthen segments of Drainage 1 are characterized by a loose substrate composed of fine sediment, sand, and cobble. No surface water was observed within Drainage 1 during the August 14, 2019 site visit. Evidence of an OHWM was observed during field delineation via a natural line impressed on the bank, change in particle size distribution, presence of a wrack line, and changes in vegetation community from a lack of vegetation within the channel to riparian scrub and upland species. Dominant vegetation species occurring within Drainage 1 include tree of heaven (Ailanthus altissima, Facultative Upland [FACU]) and mulefat (Baccharis salicifolia, Facultative [FAC]). Plant species vary in their tolerance of wetland conditions. On the National Wetland Plant List, there are five categories of wetland indicator status ratings, used to indicate a plant's likelihood for occurrence in wetlands versus non-wetlands:

- Obligate Wetland (OBL). Almost always occur in wetlands.
- Facultative Wetland (FACW). Usually occur in wetlands, but may occur in non-wetlands.
- Facultative (FAC). Occur in wetlands and non-wetlands.
- Facultative Upland (FACU). Usually occur in non-wetlands, but may occur in wetland.
- Obligate Upland (UPL). Almost always occur in non-wetlands.

SP1 was dug within the channel where dominant hydrophytic vegetation and hydrologic indicators were observed.

Drainage 3

Drainage 3 is an unnamed, ephemeral drainage feature located in the northern portion of the project site and is a tributary to Drainage 1. Drainage 3 is composed of grouted riprap and concrete within the project site. There is little to no vegetation associated with Drainage 3 which measures approximately 197 linear feet in length with an average width of approximately 40 feet. Evidence of an OHWM was observed via litter and debris, and a natural line impressed on the bank. During significant storm events, surface water runoff from the surrounding area to the east is collected within Drainage 3 and conveyed southwest into Drainage 1. No surface water was observed within Drainage 3 during the August 14, 2019 site visit and because Drainage 3 is composed of grouted riprap and concrete, no soil pits were performed.

Drainage 4

Drainage 4 is an unnamed, ephemeral drainage feature located in the northwestern portion of the project site along the southside of I-10. Due to limited access to this portion of the project site and safety concerns as a result of the proximity of Drainage 4 to I-10, this drainage feature was not surveyed during the August 14, 2019 site reconnaissance. Based on the reviewal of aerial imagery and a desktop delineation analysis, Drainage 4 is an earthen drainage feature and measures approximately 22 linear feet in length with an average width of approximately 14 feet. During precipitation events, run-off from the adjacent roadway and flows from the surrounding area to the north are collected within Drainage 4 and conveyed northwest parallel to I-10. No soil pits were dug within Drainage 4 due to the access restrictions noted above. Table 2.3.2-1, Summary of Jurisdictional Areas, below provides a summary of the jurisdictional limits for Drainages 1, 3, and 4.

Table 2.3.2-1: Summary of Jurisdictional Areas

Jurisdictional Feature	Linear Feet	Corps/RWQCB Non-Wetland Waters of the U.S. (acres)	CDFW Streambed/ Associated Riparian Vegetation (acres)
Drainage 1	2,519	0.61	1.36
Drainage 3	197	0.06	0.08
Drainage 4	22	0.01	0.01
TOTAL*	**2,738**	**0.68**	**1.45**

Source: Michael Baker International, Delineation of State and Federal Jurisdictional Waters, November 2020.

Environmental Consequences

No-Build Alternative

Project improvements would not occur under the No-Build Alternative; therefore, the No-Build Alternative would not impact wetlands and other waters.

Build Alternatives 3 and 4

Drainages 1, 3, and 4 are considered ephemeral drainage features and therefore would not meet the definition of a WoUS pursuant to the Navigable Waters Protection Rule. However, Drainages 1, 3, and 4 qualify as waters of the State and Regional Board jurisdiction totals approximately 0.68 acre (2,738 linear feet) non-wetland waters of the State. Additionally, all on-site drainages (Drainage 1, 3, and 4) exhibited a clear bed and bank and CDFW jurisdiction totaled approximately 1.45 acre. Based on the results of the field delineation, it was determined that approximately 0.40 acre of CDFW jurisdictional vegetated streambed, 0.87 acre of CDFW jurisdictional non-vegetated streambed, and 0.18 acre of associated riparian vegetation is located within the project site.

Based on the Delineation prepared for the project, Build Alternative 3 would permanently impact approximately 0.02 acre (63 linear feet) of Corps/Regional Board jurisdiction (non-wetland waters of the State) and 0.03 acre (63 linear feet) of CDFW jurisdiction. Build Alternative 4 would permanently impact approximately 0.06 acre (221 linear feet) of Corps/Regional Board jurisdiction (non-wetland waters of the State) and approximately 0.16 acre (221 linear feet) of CDFW jurisdiction; refer to Tables 2.3.2-2, Corps/RWQCB Jurisdictional Impact Summary, and 2.3.2-3, CDFW Jurisdictional Impact Summary, below.

Table 2.3.2-2: Corps/RWQCB Jurisdictional Impact Summary

Jurisdictional Feature	Corps/RWQCB On-Site Acreage (Linear Feet)	Alt. 3 Impact Acreage (Linear Feet)	Alt. 4 Impact Acreage (Linear Feet)
Drainage 1	0.61 (2,519)	0.01 (57)	0.06 (215)
Drainage 3	0.06 (197)	-	-
Drainage 4	0.01 (22)	0.001 (6)	0.001 (6)
TOTAL	**0.68 (2,738)**	**0.02 (63)**	**0.06 (221)**

Source: Michael Baker International, Jurisdictional Delineation Report, November 2020.

Table 2.3.2-3: CDFW Jurisdictional Impact Summary

Jurisdictional Feature	CDFW On-Site Acreage (Linear Feet)	Alt. 3 Impact Acreage (Linear Feet)	Alt. 4 Impact Acreage (Linear Feet)
Drainage 1	1.36 (2,519)	0.03 (57)	0.16 (215)
Drainage 3	0.08 (197)	-	-
Drainage 4	0.01 (22)	0.002 (6)	0.002 (6)
TOTAL	**1.45 (2,738)**	**0.03 (63)**	**0.16 (221)**

Source: Michael Baker International, Jurisdictional Delineation Report, November 2020.

The Build Alternatives would be subject to the following permits/approvals prior to construction:

- Receive a Section 404 Nationwide Permit No. 14: Linear Transportation Projects,
- Santa Ana Regional Water Quality Control Board 401 Water Quality Certification, and
- CDFW 1602 Streambed Alteration Agreement (SAA), satisfying all associated requirements, prior to completion of final design.

The following text has been amended since the Draft Environmental Document: Following circulation of the Draft IS/EA and prior to completion of this Final IS/EA, on January 27, 2022, January 28, 2022, and on April 19, 2023, the project team consulted with multiple resource agencies (i.e., Carly Beck and Katrina Rehrer with the California Department of Fish and Wildlife [CDFW], and John Taylor with the United States Fish and Wildlife Service [USFWS]) and has prepared a Determination of Biologically Equivalent or Superior Preservation (DBESP) to ensure potential adverse effects to riparian/riverine resources along El Casco Creek are minimized and mitigated to reduce impacts to sensitive biological resources. Based on these discussions with the resource agencies and DBESP, the project would purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts will be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, will be developed in conjunction with the wildlife agencies. In addition, the project would include a number of enhancements to minimize impacts related to wildlife movement under Cherry Valley Boulevard. Construction would include the installation of a three-foot-high concrete roadway barrier that would shield headlight and noise intrusion into the culvert. Planting of trees and shrubs would occur along Calimesa Road to further shield headlight and noise from entering the culvert. Revegetation would be installed per Caltrans Standard Specifications Sections 13-05 and 21. Directional fencing will be installed along the existing drainage as needed to guide wildlife to the culvert crossing. These project features would offset potential impacts to sensitive biological resources on-site and within the project vicinity. CDFW and USFWS concurred with the DBESP findings and mitigation strategy on July 6, 2023.

Regulatory approvals from the USACE, RWQCB, CDFW, and USFWS will be obtained prior to construction (Measure WET-1), and limits of construction will be clearly defined beforehand (WET-2). With the implementation of these measures, the Build Alternatives would not cause adverse effects to the unnamed drainage features in the project area.

Avoidance, Minimization, and/or Mitigation Measures

WET-1: The following text has been amended since the Draft Environmental Document: The following regulatory approvals shall be obtained prior to commencement of any construction activities within the identified jurisdictional areas: 1) A Nationwide Permit from USACE; 2) RWQCB CWA Section 401 Water Quality Certification (WQC); 3) CDFW Section 1602 Streambed Alteration Agreement (SAA); and 4) a determination from CDFW/USFWS via a Determination of Biologically Equivalent or Superior Preservation (DBESP). As part of the regulatory approval process, the project shall purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts shall be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, shall be developed in conjunction with the wildlife agencies.

WET-2: The limits of construction shall be clearly delineated by a survey crew prior to the commencement of project activities. The limits of construction shall be defined with silt fencing or orange construction fencing and checked by a qualified biologist before initiation of construction.

2.3.3 Plant Species

Regulatory Setting

The U.S. Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW) have regulatory responsibility for the protection of special-status plant species. “Special-status” species are selected for protection because they are rare and/or subject to population and habitat declines. Special status is a general term for species that are provided varying levels of regulatory protection. The highest level of protection is given to threatened and endangered species; these are species that are formally listed or proposed for listing as endangered or threatened under the Federal Endangered Species Act (FESA) and/or the California Endangered Species Act (CESA). Please see the Threatened and Endangered Species Section 2.3.5 in this document for detailed information about these species.

This section of the document discusses all other special-status plant species, including CDFW species of special concern, USFWS candidate species, and California Native Plant Society (CNPS) rare and endangered plants.

The regulatory requirements for FESA can be found at 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR)

Part 402. The regulatory requirements for CESA can be found at California Fish and Game Code, Section 2050, et seq. Department projects are also subject to the Native Plant Protection Act, found at California Fish and Game Code, Section 1900-1913, and the California Environmental Quality Act (CEQA), found at California Public Resources Code, Sections 21000-21177.

Affected Environment

This section is based upon the Natural Environment Study (Minimal Impacts) (NES-MI) prepared for the project dated December 2020. For the purposes of this technical report, a biological study area (BSA) was established for the project and would be referred to throughout this analysis; refer to Figure 2.3.1-1. The BSA is comprised of the project site plus a 500-foot buffer based on the grading limits of the Build Alternatives.

Methodology

The following text has been amended since the Draft Environmental Document: Prior to conducting the habitat assessment, a literature review and records search was conducted for special-status biological resources potentially occurring on or within the vicinity of the BSA. The record search was focused within USGS Beaumont, El Casco, Forest Falls, and Yucaipa, California 7.5-minute quadrangles, were determined through a query of the CDFW CNDDB RareFind 5, the CNPS Online Inventory of Rare and Endangered Plants of California (Online Inventory), the Calflora Database, species listings provided by the CDFW and the USFWS, the RCA online WR-MSHCP Information Application, and those species covered under the WR-MSHCP and evaluated in its associated technical documents. In addition, an Official Species List was obtained from the USFWS Carlsbad Field Office via the Information for Planning and Conservation (IPaC) database on June 5, 2023.

Additionally, available reports, survey results, and literature detailing the biological resources previously observed on or within the vicinity of the BSA were reviewed to gain an understanding of existing site conditions, confirm previous species observations, and note the extent of any disturbances that have occurred within the BSA that would otherwise limit the distribution of special-status biological resources. Standard field guides and texts were reviewed for specific habitat requirements of special-status and non-special-status biological resources.

The literature review provided a baseline from which to inventory existing biological resources and evaluate the ability of the BSA to support special-status biological resources. Additional occurrence records of those species that have been documented on or within the vicinity of the BSA were derived from database queries. The CNDDB was used, in conjunction with Geographic Information Systems (GIS) ArcView software, to identify special-status species occurrence records within the USGS Beaumont, El Casco, Forest Falls, and Yucaipa, California 7.5-minute quadrangles. In addition, the goals and objectives of the Western Riverside County Multiple Species Habitat Conservation Plan (WR-MSHCP) were reviewed for applicability to the BSA.

During the field surveys conducted on July 10, 2019 and June 9, 2020, biologists extensively surveyed all special-status habitats and/or natural areas, where accessible, that were determined to have a higher potential to support special-status plant species. All plant species observed during the field surveys, as well as dominant plant species within each vegetation community, were recorded in a field notebook. Plant species observed during the field surveys were identified by visual characteristics and morphology in the field, while unusual and less familiar plant species were photographed and later identified in the laboratory using taxonomical guides.

Existing Conditions

The NES-MI prepared for the project analyzes impacts to sensitive plant species.

A total of 63 special status plant species were identified during the CNDDB, CNPS, and IPaC records search as potentially occurring on the BSA. One special-status plant species was observed within the BSA during the field investigations: southern California black walnut (*Juglans californica*; CRPR 4.2). It should be noted that Cuyamaca cypress (*Hesperocyparis stephensonii*; CRPR 1B.1) did not come up in the literature review, however; 49 individuals were observed within the western portion of the BSA (refer to Section 2.3.1 for further discussion of the *Cuyamaca cypress*). Based on the results of the field surveys and a review of specific habitat preferences, occurrence records, known distributions, and elevation ranges, it was determined that the BSA has a low potential to support Yucaipa onion (*Allium marvinii*; CRPR 1B.2), Jaeger's milk-vetch (*Astragalus pachypus var. jaegeri*; CRPR 1B.1), Plummer's mariposa-lily (*Calochortus plummerae*; CRPR 4.2), Parry's spineflower (*Chorizanthe parryi var. parryi*; CRPR 1B.1), Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*; CRPR 4.3), and San Bernardino aster (*Symphyotrichum defoliatum*; CRPR 1B.2). All remaining special-status plant species identified during the literature review are not expected to occur within the BSA.

Southern California Black Walnut

The southern California black walnut (*Juglans californica*; CRPR 4.2) is a fully covered special-status species under the WR-MSHCP and is a CRPR species. Field survey results found three individuals of southern California black walnut were observed within the northeast portion of the BSA, to the north of Cherry Valley Boulevard. The three individuals were observed growing adjacent to existing rural residential land uses and were intermixed with various non-native ornamental tree species (i.e., tree of heaven (*Eucalyptus* spp. - *Ailanthus altissima -Robinia pseudoacacia* Woodland

Semi-Natural Alliance), Peruvian pepper tree (*Schinus molle*), pine (*Pinus* spp), etc.).

Environmental Consequences

Temporary Impact

No-Build Alternative

Project improvements would not occur under the No-Build Alternative; therefore, the No-Build Alternative would not impact plant species.

Build Alternatives 3 and 4

Cuyamaca cypress (*Hesperocyparis stephensonii*; CRPR 1B.1) and southern California black walnut (*Juglans californica*; CRPR 4.2) were the only special-status plant species observed within the western portion of the BSA. No additional special-status plant species were observed during the field surveys. Based on the results of the field surveys and a review of specific habitat preferences, occurrence records, known distributions, and elevation ranges, it was determined that the BSA has a low potential to support Yucaipa onion (*Allium marvinii*; CRPR 1B.2), Jaeger's milk-vetch (*Astragalus pachypus var. jaegeri;* CRPR 1B.1*)*, Plummer's mariposa-lily (*Calochortus plummerae*; CRPR 4.2), Parry's spineflower (*Chorizanthe parryi var. parryi*; CRPR 1B.1), Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*; CRPR 4.3), and San Bernardino aster (*Symphyotrichum defoliatum*; CRPR 1B.2). All remaining special-status plant species identified during the literature review are not expected to occur within the BSA. Although some marginal habitat preferred by Yucaipa onion (*Allium marvinii;* CRPR 1B.2), Jaeger's milk-vetch (*Astragalus pachypus var. jaegeri;* CRPR 1B.1), Plummer's mariposa-lily (*Calochortus plummerae;* CRPR 4.2), Parry's spineflower (*Chorizanthe parryi var. parryi;* CRPR 1B.1*)* Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*; CRPR 4.3), and San Bernardino aster (*Symphyotrichum defoliatum*; CRPR 1B.2) occurs within the BSA, these species were not observed during the field surveys. In addition, all these species are fully covered under the WR-MSHCP and require no further analysis.

Although marginal habitats preferred by Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*; CRPR 4.3) and San Bernardino aster (*Symphyotrichum defoliatum*; CRPR 1B.2) are present within the BSA, these species were not observed during the field surveys. In addition, the closest extant occurrence record for Robinson's pepper-grass (*Lepidium virginicum var. robinsonii*; CRPR 4.3) was observed in 2001, approximately four miles southwest of the BSA in a Riverside County landfill area located to the north of Moreno Valley. The closest extant occurrence record for San Bernardino aster (*Symphyotrichum defoliatum*; CRPR 1B.2) was observed in 1951 approximately four miles southwest of the BSA along a portion of San Timoteo Canyon.

The construction activities associated with the development of the proposed Build Alternatives have the potential to result in indirect impacts, such as fugitive dust or spread of non-native seeds, to potential habitats favored by the species that surround the BSA and the special-status species observed within the BSA (Cuyamaca cypress and southern California black walnut). As discussed, construction workers will receive environmental awareness training prior to the initiation of work (Measure NC-1) and construction equipment would be inspected and cleaned prior to use in the project area to minimize the importation of non-native plant material (Measure NC-2). Additionally, a survey crew will delineate the limits of construction, and the limits of construction would be defined with silt fencing or orange construction fencing and checked by a qualified biologist prior to construction (WET-2). As such, no adverse effects would occur to special-status plant species.

Permanent Impact
No-Build Alternative
Project improvements would not occur under the No-Build Alternative; therefore, the No-Build Alternative would not impact plant species.

Build Alternatives 3 and 4
Based on the presence of marginal habitat within the BSA, the results of the field surveys, and the lack of recent occurrence records in the area, direct impacts to Cuyamaca cypress are not anticipated to occur as a result of implementation of the Build Alternatives. Three individuals of southern California black walnut were observed within the northeast portion of the BSA, to the north of Cherry Valley Boulevard. Project implementation would result in direct impacts to one southern California black walnut located within the BSA. The remaining two walnuts on the rural residential property located to the north of Cherry Valley Boulevard would be indirectly impacted by the Build Alternatives. As discussed above, the Southern California black walnut is a fully covered species under the WR-MSHCP. Therefore, no compensatory mitigation would be required for the loss of the single tree directly north of Cherry Valley Boulevard. As such, there would be no adverse effects in this regard. As discussed above, the Southern California black walnut is a fully covered species under the WR-MSHCP. Therefore, no compensatory mitigation would be required for the loss of the single tree directly north of Cherry Valley Boulevard. As such, there would be no adverse effects in this regard.

Avoidance, Minimization, and/or Mitigation Measures
Please see Section 2.3.1 for Measures NC-1 and NC-2, and Section 2.3.2 for Measure WET-2.

2.3.4 Animal Species

Regulatory Setting
The following text has been amended since the Draft Environmental Document: Many state and federal laws regulate impacts to wildlife. The U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric

Administration's National Marine Fisheries Service (NOAA Fisheries), and the California Department of Fish and Wildlife (CDFW) are responsible for implementing these laws. This section discusses potential impacts and permit requirements associated with animals not listed or proposed for listing under the federal or state Endangered Species Act. Species listed or proposed for listing as threatened or endangered are discussed in the Threatened and Endangered Species Section 2.3.5, below. All other special-status animal species are discussed here, including CDFW fully protected species and species of special concern, and USFWS or NOAA Fisheries candidate species.

Federal laws and regulations relevant to wildlife include the following:

- National Environmental Policy Act
- Migratory Bird Treaty Act
- Fish and Wildlife Coordination Act

State laws and regulations relevant to wildlife include the following:

- California Environmental Quality Act
- Sections 1600 - 1603 of the California Fish and Game Code
- Sections 4150 and 4152 of the California Fish and Game Code

As discussed in Section 2.2.1 the City of Calimesa is a participant in the Western Riverside Multiple Species Habitat Conservation Plan (WR-MSHCP) which is intended to enhance and maintain biological diversity and ecosystem processes while allowing future economic growth. As a result, development in Calimesa follows the protocols for preservation and conservation of vegetation and wildlife identified in the WR-MSHCP. The proposed project is located within the Pass Area Plan of the WR-MSHCP.

Affected Environment

This section is based upon the Natural Environment Study (Minimal Impacts) (NES-MI) prepared for the project dated December 2020.

Methodology

The following text has been amended since the Draft Environmental Document: Prior to conducting the habitat assessment, a literature review and records search was conducted for special status biological resources potentially occurring on or within the vicinity of the BSA. The record search was focused on the USGS Beaumont, El Casco, Forest Falls, and Yucaipa, California 7.5-minute quadrangles. Previous special-status animal species occurrence records were determined through a query of the CDFW CNDDB RareFind 5, the CNPS Online Inventory of Rare and Endangered Plants of California (Online Inventory), the Calflora Database, species listings provided by the CDFW and the USFWS, the RCA online WR-MSHCP Information

Application, and those species covered under the WR-MSHCP and evaluated in its associated technical documents. In addition, an Official Species List was obtained from the USFWS Carlsbad Field Office via the IPaC database on June 5, 2023. In addition to these databases, available reports, survey results, aerial photography and literature detailing the biological resources previously observed on or within the vicinity of the BSA were reviewed. The CNDDB was referenced, in conjunction with Geographic Information Systems (GIS) ArcView software, to identify special-status species occurrence records within the BSA. Prior to conducting the habitat assessment, a literature review and records search was conducted for special status biological resources potentially occurring on or within the vicinity of the BSA. The record search was focused on the USGS Beaumont, El Casco, Forest Falls, and Yucaipa, California 7.5-minute quadrangles. Previous special-status plant and animal species occurrence records were determined through a query of the CDFW California Natural Diversity Database RareFind 5 (CNDDB), the CNPS Online Inventory of Rare and Endangered Plants of California (Online Inventory), the Calflora Database, species listings provided by the CDFW and the USFWS, the RCA online WR-MSHCP Information Application, and those species covered under the WR-MSHCP and evaluated in its associated technical documents. In addition, an Official Species List was obtained from the USFWS Carlsbad Field Office via the IPaC database on June 5, 2023. In addition to these databases, all available reports, survey results, aerial photography and literature detailing the biological resources previously observed on or within the vicinity of the BSA were reviewed. The CNDDB was referenced, in conjunction with Geographic Information Systems (GIS) ArcView software, to identify special-status species occurrence records within the BSA.

Special attention was given to special-status habitats and/or undeveloped areas, which have higher potential to support special-status animal species such as those identified during the records search. According to the WR-MSHCP, the BSA is within the designated survey area for the burrowing owl (*Athene cunicularia*). As such, focused surveys were conducted by a qualified biologists during the 2019 breeding season (March 1 to August 31) on July 10, July 24, August 7, and August 21, 2019 in accordance with the survey guidelines and protocols provided in the *Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area*.

All animal species observed were recorded in a field notebook. Wildlife detections were made through observation of scat, trails, tracks, burrows, nests, and/or visual and aural observation.

Existing Conditions

The CNDDB, IPaC, and CNPS literature records search identified 84 special-status animal species as having the potential to occur in the BSA. The BSA is not located within Federally designated Critical Habitat. Based on the results of the field surveys and a review of specific habitat preferences, occurrence records, known distributions, and elevation ranges, it was determined that the BSA has a high potential to support bird species, such as the Cooper's hawk, southern (*Accipiter cooperii*),California rufous-crowned sparrow(*Eremophila alpestris actia*), burrowing owl (BUOW); and a moderate potential to support the California horned lark (*Eremophila alpestris actia*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), white-tailed kite(*Elanus leucurus*), and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*); and a low potential to support orange-throated whiptail (*Aspidoscelis hyperythra*), tricolored blackbird (*Agelaius tricolor*), grasshopper sparrow (*Ammodramus savannarum*), southern California legless lizard (*Anniella stebbinsi*), golden eagle (*Aquila chrysaetos*), crotch bumble bee (*Bombus crotchii*), northern harrier (*Circus hudsonius*), Stephen's kangaroo rat (*Dipodomys stephensi*), loggerhead shrike (*Lanius ludovicianus*), western yellow bat (*Lasiurus xanthinus*), southern grasshopper mouse (*Onychomys torridus ramona*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), coast horned lizard (*Phrynosoma blainvillii*), and western spadefoot (*Spea hammondii*).

Bats occur throughout most of southern California and may forage throughout most of the open natural vegetation communities located throughout the BSA; however, their roosting habitat within the BSA is somewhat limited. The Cherry Valley Boulevard bridge, ornamental palm trees, and eucalyptus trees within the BSA have the potential to provide suitable roosting habitat for bats; however, no bats or sign were detected during the field surveys. The Cherry Valley Boulevard overcrossing (Cherry Valley Boulevard over I-10) provides marginal roosting habitat, if any, due to the continuous crossing of traffic above and below the bridge. Additionally, the palm trees appear to be routinely maintained and therefore would not be expected to provide suitable roosting opportunities.

The results of the burrowing owl focused survey resulted in no burrowing owls or sign were observed on or within the vicinity of the BSA. However, two special-status animal species were detected within the BSA during the field investigations: San Diegan tiger whiptail and double-crested cormorant.

San Diegan Tiger Whiptail

The San Diegan tiger whiptail is a fully covered species under the WR-MSHCP and a CDFW Species of Special Concern. It is found in coastal southern California, mostly west of the Peninsular Ranges and south of the Transverse Ranges, and north into Ventura County. It is found in a variety of ecosystems, primarily hot and dry open areas with sparse vegetation in chaparral, woodland, and riparian areas. It is associated with rocky areas with little vegetation or sunny microhabitats within shrub or grassland associations. According to the NES-MI, one individual San Diegan tiger whiptail was observed during the field surveys within the California buckwheat scrub vegetation community located in the northeast portion of the BSA, to the south of Cherry Valley Boulevard. In addition, the scrub oak chaparral vegetation community provides suitable habitat for this species.

Double-Crested Cormorant

The double-crested cormorant is a fully covered species under the WR-MSHCP and a CDFW Watch List species. This yearlong resident of California is usually found resting in the daytime and roosting overnight beside water on offshore rocks, islands, cliffs, dead branches of trees, wharfs, jetties, or sometimes transmission lines. This species forages in shallow water (less than 30 feet deep) and nests on the ground, on rocks, or in reeds with no vegetation or atop trees in a colony. The breeding season for double-crested cormorant generally extends from April to July or August, but can vary slightly from year to year based upon seasonal weather conditions. According to the NES-MI, one individual was observed in the southeast portion of the BSA during the field surveys. The individual was observed resting on a water pump associated with artificial pond that occurs within the Plantation on the Lake residential community. This individual was most likely passing through and used the artificial pond as a quick place to rest. This species is not expected to nest within the BSA; double-crested cormorant is known to nest closer to the coast in colonies.

Cooper's Hawk

The Cooper's hawk is a fully covered species under the WR-MSHCP and a CDFW Watch List species that is adapted to urban environments and commonly occurs within the vicinity of the BSA. This species typically forages along broken woodlands and habitat edges and usually nests in deciduous trees in dense woodland and riparian areas, often near streams. The breeding season for Cooper's hawk generally extends from January 1 through July 31, but can vary slightly from year to year based upon seasonal weather conditions. According to the NES-MI, no Cooper's hawks were detected during the field surveys; however, this species often occurs in urban environments within close proximity to humans and was determined to have a potential to forage across the various natural vegetation communities and disturbed areas within and adjacent to the BSA. This species is not expected to nest within the BSA due to the lack of suitable nesting habitat (i.e., hardwood stands and mature forests).

Southern California Rufous-Crowned Sparrow

Southern California rufous-crowned sparrow is a fully covered species under the WR-MSHCP and a CDFW Watch List species. This yearlong resident typically occurs from 3,000 to 6,000 feet above mean sea level (amsl), and breeds in sparsely vegetated scrubland on hillsides and canyons. It prefers coastal sage scrub dominated by California sagebrush, but it can also be found breeding in coastal bluff scrub, low-growing serpentine chaparral, and along the edges of tall chaparral habitats. The breeding season for southern California rufous-crowned sparrow generally extends from February 1 through August 31, but can vary slightly from year to year based upon seasonal weather conditions. According to the NES-MI, no Southern California rufous-crowned sparrows were detected during the field surveys. However, the scrub oak chaparral and California buckwheat scrub vegetation communities within the BSA provide suitable foraging and nesting habitat for this species. In addition, the closest extant occurrence record was recorded in 2002 on the properties located within and adjacent to the western portion of the BSA; three adults were captured between May 11 and July 25 in habitat consisting of grassland and coastal sage scrub ecotone.

Burrowing Owl

In addition to the NES-MI, this sub-section is based upon the Burrowing Owl Focused Survey for the Interstate 10/Cherry Valley Boulevard Interchange Improvement project – Riverside County, California (BUOW Survey), dated July 2020.

The burrowing owl (BUOW) is fully covered under the WR-MSHCP and is a CDFW Species of Special Concern. BUOW is a grassland specialist distributed throughout western North America where it occupies open areas with short vegetation and bare ground within shrub, desert, and grassland environments. BUOW use a wide variety of arid and semi-arid environments with well-drained, level to gently-sloping areas characterized by sparse vegetation and bare ground. BUOW are dependent upon the presence of burrowing mammals (e.g., California ground squirrels, coyotes, American badger [*Taxidea taxus*]) whose burrows are used for roosting and nesting. The presence or absence of mammal burrows is often a major factor that limits the presence or absence of BUOW. Where mammal burrows are scarce, BUOW have been found occupying man-made cavities, such as buried and non-functioning drainpipes, stand-pipes, and dry culverts. BUOW may also burrow beneath rocks and debris or large, heavy objects such as abandoned cars, concrete blocks, or concrete pads. They also require open vegetation allowing open line-of-sight of the surrounding habitat to forage as well as watch for predators. The breeding season for burrowing owl generally extends from March 1 through August 31 but can vary slightly from year to year based upon seasonal weather conditions.

Focused surveys were conducted by qualified biologists during the 2019 breeding season (March 1 to August 31) on July 10, July 24, August 7, and August 21. The BSA contains numerous suitable burrows (greater than four inches in diameter) and ground squirrel burrow complexes capable of providing roosting and nesting opportunities for BUOW. The majority of the suitable burrows and ground squirrel burrow complexes were located on the undeveloped parcels located within the north, northeast, northwest, and eastern portions of the BSA. Although the BSA contains numerous suitable burrows and line-of-site opportunities for BUOW, no BUOW sign (i.e., pellets, whitewash, feathers, or prey remains) were observed. Further, no BUOW were observed on or within the vicinity of the BSA during the four surveys.

Based on the NES-MI, most of the undeveloped parcels located within the BSA that would provide suitable habitat for BUOWs have been routinely disturbed and maintained through weed abatement since 1996. Additionally, undeveloped parcels located to the south of I-10 have been undergoing continual disturbance due to residential and commercial development since 2005. It is likely that these disturbances and lack of nearby populations have precluded BUOW from occurring within the BSA and surrounding areas. In addition, the existing telephone poles, light posts, fencing, and tall ornamental vegetation that occurs within and adjacent to the BSA further decrease the likelihood that BUOW would occur as these features provide perching opportunities for larger raptor species (i.e., red-tailed hawk) that prey on BUOW.

California Horned Lark

The California horned lark is a fully covered species under the WR-MSHCP and a CDFW Watch List species. It typically forages in groups in shortgrass prairies, grasslands, disturbed fields, or similar habitat types. This species nests on the open ground, often next to grass clumps or other objects. The breeding season for California horned lark generally extends from February 1 through August 31, but can vary slightly from year to year based upon seasonal weather conditions. The wild oats and annual brome grassland, disturbed wild oats and annual brome grassland, and disturbed habitat areas within and adjacent to the BSA provide suitable foraging and nesting habitat for California horned lark. Based on the NES-MI, no California horned larks, nests, or nesting behaviors were observed during the field surveys conducted as part of the project.

Northwestern San Diego Pocket Mouse

The Northwestern San Diego pocket mouse is a fully covered species under the WR-MSHCP and a CDFW Species of Special Concern. It is found in open habitat on the Pacific slope from southwestern San Bernardino County to northwestern Baja California. Habitat types include coastal sage scrub, sage scrub/grassland ecotones, and chaparral communities. A major habitat requirement is the presence of low growing vegetation or rocky outcroppings, as well as sandy soil to dig burrows. According to the NES-MI, northwestern San Diego pocket mouse was not detected during the field surveys. The scrub oak chaparral, wild oats and annual brome grasslands, and California buckwheat scrub vegetation communities within the BSA provide suitable habitat preferred by this species. In addition, the CNDDB records search identified 109 individuals were captured between May 11 and July 25, 2002 on the properties located within and adjacent to the western portion of the BSA. This occurrence record is presumed extant.

White-tailed Kite

The White-tailed Kite is a fully covered species under the WR-MSHCP and a CDFW Fully Protected species. It is a yearlong resident of the California that occurs in the coastal ranges and valleys. White-tailed kite can be found in low elevation, open grasslands, savannah-like habitats, agricultural areas, wetlands, and oak woodlands. It uses trees with dense canopies for cover. Important prey item for white-tailed kite is the California vole (*Microtus californicus*). It nests in tall (20 to 50 feet) coast live oaks.

Based on the NES-MI, white-tailed kite was not detected during the field surveys. All the natural vegetation communities and disturbed areas within the BSA provide suitable foraging habitat preferred by this species. This species is not expected to nest within the BSA due to the lack of tall coast live oaks and trees with dense canopies.

San Diego Black-tailed Jackrabbit
San Diego black-tailed jackrabbit is a fully covered species under the WR-MSHCP and a CDFW Species of Special Concern. It occupies many diverse habitats, but primarily is found in arid regions supporting short-grass habitats, agricultural fields, or sparse coastal scrub. The scrub oak chaparral, wild oats and annual brome grasslands, and California buckwheat scrub vegetation communities within the BSA provide suitable habitat preferred by this species. San Diego black-tailed jackrabbit was not detected during the field surveys conducted for the project.

Environmental Consequences

Temporary Impacts

No-Build Alternative
Project improvements would not occur under the No-Build Alternative; therefore, the No-Build Alternative would not impact animal species.

Build Alternatives 3 and 4

Bat Species
Bat species (i.e Yuma myotis (*Myotis yumanensis*), Mexican free-tailed bat (*Tadarida brasiliensis*), and big brown bat (*Eptesicus fuscus*)) may forage through most of the open natural vegetation communities located in the BSA. The Cherry Boulevard bridge, ornamental palm trees, and eucalyptus trees within the BSA have the potential to provide suitable roosting habitat for bats. However, there were no bats detected around the Cherry Valley Boulevard bridge, palm trees, or eucalyptus trees were detected during the field surveys. Prior to the commencement of project activities, a bat survey will be conducted to identify the presence of bats or potential bat roosting cavities (AS-1). As such, substantial adverse effects would not occur in this regard.

San Diegan Tiger Whiptail
Based on the NES-MI, the scrub oak chaparral vegetation community provides suitable habitat for the San Diegan tiger whiptail. Build Alternative 3 would result in 0.0 temporary impacts and Build Alternative 4 would result in approximately 0.20 acre of temporary impacts to suitable scrub oak habitat. As described in previous sections, one individual San Diegan tiger whiptail was observed during the field surveys, and the scrub oak chaparral

vegetation community found within the BSA provides suitable habitat for this species. Although Build Alternative 4 would result in impacts to suitable habitat for this species, impacts would be limited relative to the amount of suitable habitat that would remain available in the BSA and immediate vicinity. To prevent direct impacts, biological monitoring will occur on-site during ground and habitat disturbance activities (AS-2). As such, temporary construction effects on the San Diegan Tiger Whiptail would not be adverse.

Double-Crested Cormorant

Based on the NES-MI, one double-crested cormorant was observed in the southeast portion of the BSA during the field surveys. However, due to a lack of suitable nesting habitat within the BSA, no temporary direct or indirect impacts to nesting double-crested cormorants are anticipated to occur as a result of the proposed project. Double-crested cormorant is a fully covered species under the WR-MSHCP. According to the NES-MI, Build Alternatives 3 and 4 would not result in adverse effects to suitable foraging habitat for double-crested cormorant and no measures would be required.

Cooper's Hawk

Cooper's hawks were not observed during the field surveys and due to a lack of suitable nesting habitat within the BSA, no temporary direct or indirect impacts to nesting Cooper's hawks are anticipated to occur as a result of the proposed project. However, this species often occurs in urban environments within close proximity to humans and was determined to have a potential to forage across the various natural vegetation communities and disturbed areas within and adjacent to the BSA. Build Alternatives 3 and 4 would result in approximately 7.11 acres and 8.76 acres of temporary impacts to suitable foraging habitat for Cooper's hawk, respectively. Therefore, implementation of the Build Alternatives has the potential to result in temporary direct and indirect impacts to suitable foraging habitat preferred by Cooper's hawk; however, impacts would be limited relative to the amount of suitable foraging habitat that would remain available in the BSA and immediate vicinity. Additionally, Cooper's hawk is a fully covered species under the WR-MSHCP. With implementation of Measure NC-1 identified above, the proposed project would not result in adverse effects to Cooper's hawk.

Southern California Rufous-Crowned Sparrow

Southern California rufous-crowned sparrow was not observed during the field surveys. However, the scrub oak chaparral and California buckwheat scrub vegetation communities within the BSA provide suitable foraging and nesting habitat for this species. Based on the NES-MI, Build Alternative 3 would result in no temporary impacts, and Build Alternative 4 would result in approximately 0.20 acres of temporary impacts to the suitable foraging and nesting habitat for Southern California rufous-crowned sparrow. In addition, construction-related disturbance may have an adverse impact on this species, especially during the breeding season (generally February 1 through August 31 for this species) when individuals may be attempting to incubate eggs or raise young within or adjacent to the BSA. Construction-related noise, vibration, dust, or visual disturbances may disrupt nesting activities or may cause birds to leave the area until construction is completed. In extreme cases nesting efforts may be abandoned, resulting in take of young or eggs. Therefore, implementation of the Build Alternatives have the potential to result in temporary direct and indirect impacts to suitable foraging and nesting habitat preferred by California rufous-crowned sparrow. Nesting birds are protected pursuant to the Migratory Bird Treaty Act (MBTA) and California Fish and Game Code (Sections 3503, 3503.3, 3511, and 3513). To minimize potential impacts to this migratory bird species, implementation a pre-construction clearance survey would be performed if project activities occur during the breeding season (technically February 1st through September 30th) (Measure AS-3).

Southern California rufous-crowned sparrow is a fully covered species under the WR-MSHCP. Although the Build Alternatives would result in impacts to suitable foraging and nesting habitat for this species, impacts would be limited relative to the amount of suitable foraging and nesting habitat that would remain available in the BSA and immediate vicinity. With implementation of Measures NC-1 and AS-3, the Build Alternatives would not result in adverse effects to southern California rufous-crowned sparrow.

Burrowing Owl

Although there were no BUOW or BUOW signs observed during the field visit, ground squirrel burrow complexes capable of providing roosting and nesting opportunities as well as other suitable foraging and nesting habitat for the BUOW were observed. Based on the NES-MI, Build Alternative 3 would result in approximately 6.09 acres of temporary impacts and Build Alternative 4 would result in approximately 6.97 acres of temporary impacts to the suitable foraging and nesting habitat for burrowing owl. In addition, construction-related disturbance may have an adverse effect on this species, especially during the breeding season (generally March 1 through August 31) when individuals may be attempting to incubate eggs or raise young within or adjacent to the BSA. Construction-related noise, vibration, dust, or visual disturbances may disrupt nesting activities or may cause birds to leave the area until construction is completed. In extreme cases, nesting efforts may be abandoned, resulting in take of young or eggs. Therefore, implementation of the Build Alternatives has the potential to result in temporary direct and indirect impacts to suitable foraging and nesting habitat preferred by BUOW. To address this, implementing a pre-construction clearance survey shall be conducted no more than 30 days prior to initiating ground disturbance activities to confirm that BUOW remain absent and impacts do not occur to any occupied burrows that may be located on or within the BSA (Measure AS-4).

Although the Build Alternatives would result in impacts to suitable foraging and nesting habitat for BUOW, impacts would be limited relative to the amount of suitable foraging and nesting habitat that would remain available in the BSA and immediate vicinity. Therefore, with implementation of Measures NC-1 and AS-4, temporary construction activities would not result in adverse effects to BUOW.

California Horned Lark

No California horned larks, nests, or nesting behaviors were observed during the field surveys. However, wild oats and annual brome grassland, disturbed wild oats and annual brome grassland, and disturbed habitat areas within and adjacent to the BSA provide suitable foraging and nesting habitat for California horned lark. Based on the NES-MI, Build Alternative 3 would result in approximately 6.09 acres of temporary impacts and Build Alternative 4 would result in approximately 6.97 acres of temporary impacts to the suitable foraging and nesting habitat for the California horned lark. In addition, construction-related disturbance may have an adverse effect on this species, especially during the nesting bird breeding season (generally February 1 through September 30) when individuals may be attempting to incubate eggs or raise young within or adjacent to the BSA. Construction-related noise, vibration, dust, or visual disturbances may disrupt nesting activities or may cause birds to leave the area until construction is completed. In extreme cases nesting efforts may be abandoned, resulting in the take of young or eggs. Therefore, implementation of the Build Alternatives has the potential to result in temporary direct and indirect impacts to suitable foraging and nesting habitat preferred by California horned lark.

To minimize potential impacts to migratory bird species pursuant to the MBTA and CFGC, implementation of a pre-construction clearance survey would be performed if project activities occur during the breeding season (technically February 1st through September 30th) (Measure AS-3).

California horned lark is a fully covered species under the WR-MSHCP. Although the proposed project would result in impacts to suitable foraging and nesting habitat for this species, impacts would be limited relative to the amount of suitable foraging and nesting habitat that would remain available in the BSA and immediate vicinity. With implementation of Measures NC-1 and AS-3, temporary construction activities would not result in adverse effects to California horned lark.

Northwestern San Diego Pocket Mouse

The northwestern San Diego pocket mouse was not observed during the field surveys; however, the scrub oak chaparral, wild oats and annual brome grasslands, and California buckwheat scrub vegetation communities provide suitable habitat preferred by the species. Based on the NES-MI, Build Alternative 3 would not result in any temporary impacts. Build Alternative 4 would result in approximately 0.20 acres of temporary impacts to the suitable habitat for the northwestern San Diego pocket mouse. Therefore, implementation of the Build Alternatives has the potential to result in temporary direct and indirect impacts to suitable habitat preferred by northwestern San Diego pocket mouse.

Northwestern San Diego pocket mouse is a fully covered species under the WR-MSHCP. Although the Build Alternatives would result in impacts to suitable habitat for this species, impacts would be limited relative to the amount of suitable habitat that would remain available within the BSA and immediate vicinity. With the implementation of Measure NC-1, temporary construction impacts to the northwestern San Diego pocket mouse would not be adverse.

White-tailed Kite

White-tailed kite was not observed during the field surveys and is not expected to nest within the BSA due to the lack of tall coast live oaks and trees with dense canopies. However, all of the natural vegetation communities and disturbed areas within the BSA provide suitable foraging habitat preferred by this species. Based on the NES-MI, Build Alternative 3 would result in approximately 7.11 acres of temporary impacts and Build Alternative 4 would result in approximately 6.97 acres of temporary impacts to the suitable foraging habitat preferred by white-tailed kite. Therefore, implementation of the Build Alternatives has the potential to result in temporary direct and indirect impacts to suitable foraging habitat preferred by white-tailed kite.

White-tailed kite is a fully covered species under the WR-MSHCP. Although the Build Alternatives would result in impacts to suitable habitat for this species, impacts would be limited relative to the amount of suitable habitat that would remain available within the BSA and immediate vicinity. With the implementation of Measure NC-1, temporary construction impacts to the white-tailed kite would not be adverse.

San Diego Black-tailed Jackrabbit

San Diego black-tailed jackrabbit was not observed during the field surveys. However, the scrub oak chaparral, wild oats and annual brome grasslands, and California buckwheat scrub vegetation communities within the BSA provide suitable habitat preferred by this species. Based on the NES-MI, Build Alternative 3 would not result in any temporary impacts. Build Alternative 4 would result in approximately 0.20 acres of temporary impacts to the suitable habitat for San Diego black-tailed jackrabbit. Therefore, implementation of the Build Alternatives has the potential to result in temporary direct and indirect impacts to suitable foraging habitat preferred by San Diego black-tailed jackrabbit.

San Diego black-tailed jackrabbit is a fully covered species under the WR-MSHCP. Although the Build Alternatives would result in impacts to suitable habitat for this species, impacts would be limited relative to the amount of suitable habitat that would remain available within the BSA and immediate vicinity. With the implementation of Measure NC-1, temporary construction impacts to the San Diego black-tailed jackrabbit would not be adverse.

Permanent Impacts
No-Build Alternative
Project improvements would not occur under the No-Build Alternative; therefore, the No-Build Alternative would not impact animal species.

Build Alternatives 3 and 4
Orange-throated whiptail, (*Aspidoscelis hyperythra*), tricolored blackbird (*Agelaius tricolor*), grasshopper sparrow (*Ammodramus savannarum*), golden eagle (*Aquila chrysaetos*), northern harrier (*Circus hudsonius*), Stephen's kangaroo rat (*Dipodomys stephensi*), loggerhead shrike (*Lanius ludovicianus*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), coast horned lizard (*Phrynosoma blainvillii*), and western spadefoot (*Spea hammondii*) are all fully covered under the WR-MSHCP and require no further analysis. The Build Alternatives may result in direct impacts to marginal habitats preferred by southern California legless lizard, Crotch bumble bee, western yellow bat, and southern grasshopper mouse; however, impacts would be limited relative to the amount of suitable habitat that remains available in the BSA and surrounding immediate vicinity. Therefore, it has been determined that the Build Alternatives would have no effect on any federally-/State-listed species identified by the CNDDB or USFWS IPaC Species List.

Bat Species
Project operations are not anticipated to create significantly adverse effects towards any suitable foraging habitat for bat species.

San Diegan Tiger Whiptail
One individual San Diegan tiger whiptail and suitable habitat for the species were observed during the field survey. Based on the NES-MI, Build Alternative 3 would result in approximately 0.06 acres of permanent impacts and Build Alternative 4 would result in approximately 0.36 acres of permanent impacts to the suitable scrub oak chaparral habitat for the San Diegan tiger whiptail. Therefore, the Build Alternatives have the potential to result in permanent impacts to the suitable habitat preferred by San Diegan tiger whiptail.

San Diegan tiger whiptail is a fully covered species under the WR-MSHCP, and no mitigation for loss of this species would be required. Although the Build Alternatives would result in permanent impacts to suitable habitat for this species, impacts would be limited relative to the amount of suitable habitat that would remain available in the BSA and immediate vicinity. To avoid potential permanent impacts to San Diegan tiger whiptail individuals within the BSA, Measure AS-2 is recommended, which would require a qualified biological monitor be retained on-site during ground and habitat disturbance activities associated with the Build Alternatives. With implementation of Measure AS-2, the Build Alternatives would not result in permanent adverse effects to San Diegan tiger whiptail.

Double-Crested Cormorant

Based on the NES-MI, one double-crested cormorant was observed in the southeast portion of the BSA during the field surveys. However, due to a lack of suitable nesting habitat within the BSA, no permanent impacts to nesting double-crested cormorants are anticipated to occur as a result of the proposed project. Double-crested cormorant is a fully covered species under the WR-MSHCP. Build Alternatives 3 and 4 would not result in adverse effects to suitable foraging habitat for double-crested cormorant and no measures would be required.

Cooper's Hawk

Based on the NES-MI, Cooper's hawk was not detected during the field surveys and due to a lack of suitable nesting habitat within the BSA, no permanent impacts to nesting Cooper's hawks are anticipated to occur as a result of the Build Alternatives. However, this species often occurs in urban environments within close proximity to humans and was determined to have a potential to forage across the various natural vegetation communities and disturbed areas within and adjacent to the BSA. The NES-MI determined that Build Alternative 3 would result in approximately 16.02 acres of permanent impacts and Build Alternative 4 would result in approximately 8.37 acres of permanent impacts to the suitable foraging habitat for the Cooper's Hawk. Therefore, implementation of the Build Alternatives has the potential to result in permanent impacts to suitable foraging habitat preferred by Cooper's hawk.

Cooper's hawk is a fully covered species under the WR-MSHCP. Although the Build Alternatives would result in impacts to suitable foraging habitat for this species, impacts would be limited relative to the amount of suitable foraging habitat that would remain available in the BSA and immediate vicinity. With the implementation of a Workers Environmental Awareness Program (WEAP) (Measure NC-1), the Build Alternatives would not result in permanent adverse effects to suitable habitat for the Cooper's Hawk.

Southern California Rufous-Crowned Sparrow

Southern California rufous-crowned sparrow was not detected during the field surveys. However, the scrub oak chaparral and California buckwheat scrub vegetation communities within the BSA provide suitable foraging and nesting habitat for this species. Based on the NES-MI, Build Alternative 3 would result in approximately 0.06 acres of permanent impacts and Build Alternative 4 would result in approximately 0.36 acres of permanent impacts to the suitable foraging and nesting habitat for southern California rufous-crowned sparrow. In addition, construction-related disturbance may have an adverse impact on this species, especially during the breeding season (generally February 1 through August 31 for this species) when individuals may be attempting to incubate eggs or raise young within or adjacent to the BSA. Construction-related noise, vibration, dust, or visual disturbances may disrupt nesting activities or may cause birds to leave the area until construction is completed. In extreme cases nesting efforts may be abandoned, resulting in take of young or eggs. Therefore, implementation of the Build Alternatives has the potential to result in permanent impacts to suitable foraging and nesting habitat preferred by southern California rufous-crowned sparrow. To minimize potential impacts to this migratory bird species, implementation of a pre-construction clearance survey would be performed if project activities occur during the breeding season (February 1st through September 30th) (Measure AS-3). With the implementation of Measure AS-3, the Build Alternatives would not result in permanent adverse effects to suitable habitat for the southern California rufous-crowned sparrow.

Burrowing Owl

Although there were no BUOW or BUOW signs observed during the field visit, ground squirrel burrow complexes capable of providing roosting and nesting opportunities as well as other suitable foraging and nesting habitat for the BUOW were observed. Based on the NES-MI, Build Alternative 3 would result in approximately 15.13 acres of permanent impacts and Build Alternative 4 would result in approximately 16.12 acres of permanent impacts to the suitable foraging and nesting habitat for BUOW. In addition, construction-related disturbance may have an adverse impact on this species, especially during the breeding season (generally March 1 through August 31) when individuals may be attempting to incubate eggs or raise young within or adjacent to the BSA. Construction-related noise, vibration, dust, or visual disturbances may disrupt nesting activities or may cause birds to leave the area until construction is completed. In extreme cases nesting efforts may be abandoned, resulting in take of young or eggs. Therefore, implementation of the Build Alternatives has the potential to result in permanent impacts to suitable foraging and nesting habitat preferred by BUOW. To address this, implementing a pre-construction clearance survey shall be conducted no more than 30 days prior to initiating ground disturbance activities to confirm that BUOW remain absent and impacts do not occur to any occupied burrows that may be located on or within the BSA (Measure AS-4).

Although the Build Alternatives would result in impacts to suitable foraging and nesting habitat for BUOW, impacts would be limited relative to the amount of suitable foraging and nesting habitat that would remain available in the BSA and immediate vicinity. Therefore, with implementation of Measures NC-1 and AS-4, the Build Alternatives would not result in permanent adverse effects to BUOW.

California Horned Lark

No California horned larks, nests, or nesting behaviors were observed during the field surveys. However, wild oats and annual brome grassland, disturbed wild oats and annual brome grassland, and disturbed habitat areas within and adjacent to the BSA provide suitable foraging and nesting habitat for California horned lark. Based on the NES-MI, Build Alternative 3 would result in approximately 15.13 acres of permanent impacts and Build Alternative 4 would result in approximately 16.12 acres of permanent impacts to the suitable foraging and nesting habitat for the California horned lark. In addition, construction-related disturbance may have an adverse impact on this species, especially during the nesting bird breeding season (generally February 1 through September 30) when individuals may be attempting to incubate eggs or raise young within or adjacent to the BSA.. Construction-related noise, vibration, dust, or visual disturbances may disrupt nesting activities or may cause birds to leave the area until construction is completed. In extreme cases nesting efforts may be abandoned, resulting in take of young or eggs. Therefore, implementation of the proposed project has the potential to result in permanent impacts to suitable foraging and nesting habitat preferred by California horned lark.

To minimize potential impacts to migratory bird species pursuant to the MBTA and CFGC, implementation of a pre-construction clearance survey would be performed if project activities occur during the breeding season (technically February 1st through September 30th) (Measure AS-3).

California horned lark is a fully covered species under the WR-MSHCP. Although the Build Alternatives would result in impacts to suitable foraging and nesting habitat for this species, impacts would be limited relative to the amount of suitable foraging and nesting habitat that would remain available in the BSA and immediate vicinity. With implementation of Measures NC-1 and AS-3, the Build Alternatives would not result in permanent adverse effects to California horned lark.

<u>Northwestern San Diego Pocket Mouse</u>

Northwestern San Diego pocket mouse was not detected during the field surveys. The scrub oak chaparral, wild oats and annual brome grasslands, and California buckwheat scrub vegetation communities within the BSA provide suitable habitat preferred by this species. Based on the NES-MI, Build Alternative 3 would result in approximately 0.36 acres of permanent impacts and Build Alternative 4 would result in approximately 0.87 acres of permanent impacts to the suitable habitat for the northwestern San Diego pocket mouse. Therefore, implementation of the Build Alternatives has the potential to result in permanent impacts to suitable habitat preferred by northwestern San Diego pocket mouse.

Northwestern San Diego pocket mouse is a fully covered species under the WR-MSHCP. Although the Build Alternatives would result in impacts to suitable habitat for this species, it’s impacts would be limited relative to the amount of suitable habitat that would remain available in the BSA and immediate vicinity. With implementation of Measure NC-1, which would require a qualified biologist to prepare a WEAP prior to the beginning of construction (NC-1), permanent the Build Alternatives would not result in permanent adverse effects to northwestern Sab Diego pocket mouse.

White-tailed Kite
White-tailed kite was not detected during the field surveys and is not expected to nest within the BSA due to the lack of tall coast live oaks and trees with dense canopies. However, all the natural vegetation communities and disturbed areas within the BSA provide suitable foraging habitat preferred by this species. Based on the NES-MI, Build Alternative 3 would result in approximately 16.02 acres of permanent impacts and Build Alternative 4 would result in approximately 16.12 acres of permanent impacts to the suitable foraging habitat for the white-tailed kite. Therefore, implementation of the Build Alternatives has the potential to result in permanent impacts to suitable foraging habitat preferred by white-tailed kite.

White-tailed kite is a fully covered species under the WR-MSHCP. Although the Build Alternatives would result in impacts to suitable foraging habitat for this species, impacts would be limited relative to the amount of suitable habitat that would remain available within the BSA and immediate vicinity. With implementation of Measure NC-1, which would require a qualified biologist to prepare a WEAP prior to the beginning of construction, the Build Alternatives would not result in permanent adverse effects to white-tailed kite.

San Diego Black-tailed Jackrabbit
San Diego black-tailed jackrabbit was not detected during the field surveys. However, scrub oak chaparral, wild oats and annual brome grasslands, and California buckwheat scrub vegetation communities within the BSA provide suitable habitat preferred by this species. Based on the NES-MI, Build Alternative 3 would result in approximately 0.36 acres of permanent impacts and Build Alternative 4 would result in approximately 0.87 acres of permanent impacts to the suitable habitat for the San Diego black-tailed jackrabbit. Therefore, implementation of the Build Alternatives has the potential to result in permanent impacts to suitable foraging habitat preferred by San Diego black-tailed jackrabbit.

San Diego black-tailed jackrabbit is a fully covered species under the WR-MSHCP. Although the Build Alternatives would result in impacts to suitable habitat for this species, impacts would be limited relative to the amount of suitable habitat that would remain available in the BSA and immediate vicinity. With implementation of Measure NC-1, which would require a qualified biologist to prepare a WEAP prior to the beginning of construction, the Build Alternatives would not result in permanent adverse effects to San Diego black-tailed jackrabbit.

Avoidance, Minimization, and/or Mitigation Measures

AS-1: Prior to the commencement of project activities, a bat survey shall be conducted by a qualified bat specialist to identify the presence of bats or potential bat roosting cavities. The bat survey shall be conducted no more than three days prior to initiating project activities. Target areas include the trees along the proposed grading limits, where bats may roost, and in the surrounding open habitats where they may forage. Bats may utilize cavities within the trees, spaces behind loose bark or dense foliage, or cracks or splits in the trees for roosting, and these areas should be examined closely for roosting activity during the day. Bat roosting opportunities inside cracks in the Cherry Valley Boulevard overcrossing over Interstate 10 (I-10) are limited due to the continual disturbance from traffic above and below; however, this area shall be examined for roosting activity during the day. Surveys in any open fields should begin at dusk. Equipment will include an AnaBat Detector or other bat detecting unit for ease. Any bats found to be roosting during the pre-construction survey shall be safely evicted using exclusionary measures under the direction of the qualified bat specialist and California Department of Fish and Wildlife (CDFW).

AS-2: To avoid direct mortality, a qualified biological monitor shall be on-site during ground and habitat disturbance activities associated with implementation of the proposed project to move out of harm’s way any San Diegan tiger whiptails that would be injured or killed by grubbing or other project-related grading activities.

AS-3: If project-related activities are to be initiated during the nesting season (February 1 through September 30), a pre-construction nesting bird clearance survey shall be conducted by a qualified biologist no more than three days prior to the start of any vegetation removal or ground disturbing activities. The qualified biologist shall survey all suitable nesting habitat within the project footprint, and areas within a biologically defensible buffer zone (e.g., 500 feet) surrounding the project footprint. Documentation of surveys and findings shall be submitted to the City for review and file. If no active nests are detected during the clearance survey, project activities may begin, and no additional measures would be required.

If an active nest is found, the bird species shall be identified and a “no-disturbance” buffer shall be established around the active nest. The size of the “no-disturbance” buffer shall be increased or decreased based on the judgement of the qualified biologist and level of activity and sensitivity of the species. The qualified biologist shall periodically monitor any active nests to determine if project-related activities occurring outside the “no-disturbance” buffer disturb the birds and if the buffer should be increased. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, project activities within the “no-disturbance” buffer may occur.

AS-4: Prior to initiating any ground disturbance or vegetation removal activities, a qualified biologist shall conduct one pre-construction clearance survey no more than 30 days prior to initiating ground disturbance activities to confirm that burrowing owl (BUOW) remain absent and impacts do not occur to any occupied burrows that may be located on or within the Biological Study Area (BSA). Documentation of the survey and findings shall be provided to the City for review prior to initiating project activities. If no BUOW or occupied burrows are detected, project-related activities may begin. If BUOW are observed, active burrows shall be avoided in accordance with the Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area (RCA, 2006). The Regional Conservation Authority (RCA) and California Department of Fish and Wildlife (CDFW) shall be immediately notified of any BUOW observations. A BUOW avoidance and minimization plan would need to be prepared and submitted to the RCA and the CDFW for approval prior to initiating project activities. The plan shall detail specific avoidance measures that shall be implemented during construction, including any passive or active relocation methodology, and monitoring requirements.

2.3.5 Threatened and Endangered Species

Regulatory Setting

The following text has been amended since the Draft Environmental Document: The primary federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 United States Code (USC) Section 1531, et seq. See also 50 Code of Federal Regulations (CFR) Part 402. This act and later amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the Federal Highway Administration (FHWA) (and the Department, as assigned), are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration’s National Marine Fisheries Service (NOAA Fisheries) to ensure that they are not undertaking, funding, permitting, or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion with an Incidental Take Statement or a Letter of Concurrence. Section 3 of FESA defines take as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code Section 2050, et seq. CESA emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing CESA. Section 2080 of the California Fish and Game Code prohibits "take" of any species determined to be an endangered species or a threatened species. Take is defined in Section 86 of the California Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." CESA allows for take incidental to otherwise lawful development projects; for these actions an incidental take permit is issued by CDFW. For species listed under both FESA and CESA requiring a Biological Opinion under Section 7 of FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the California Fish and Game Code.

Another federal law, the Magnuson-Stevens Fishery Conservation and Management Act of 1976, was established to conserve and manage fishery resources found off the coast, as well as anadromous species and Continental Shelf fishery resources of the United States, by exercising (A) sovereign rights for the purposes of exploring, exploiting, conserving, and managing all fish within the exclusive economic zone established by Presidential Proclamation 5030, dated March 10, 1983, and (B) exclusive fishery management authority beyond the exclusive economic zone over such anadromous species, Continental Shelf fishery resources, and fishery resources in special areas.

The City of Calimesa is a participant in the Western Riverside Multiple Species Habitat Conservation Plan (WR-MSHCP) which is intended to enhance and maintain biological diversity and ecosystem processes while allowing future economic growth. As a result, development in Calimesa follows the protocols for preservation and conservation of vegetation and wildlife identified in the WR-MSHCP. The proposed project is located within the Pass Area Plan of the WR-MSHCP.

Affected Environment

This section is based upon the Natural Environment Study (Minimal Impacts) (NES-MI) prepared for the project dated December 2020.

The following text has been amended since the Draft Environmental Document: On June 5, 2023, an official USFWS Species List of Proposed, Threatened, and Endangered Species, and Critical Habitats was generated from the IPaC database. According to the IPaC Species List and the CNDDB and CNPS database queries, a total of 19 federally listed threatened or endangered plant or animal species have the potential to occur within the vicinity of the BSA. Based on the NES-MI that was prepared for this project, no federally listed plant or animal species were observed within the BSA during the field survey. All federally listed plant or animal species are not expected to occur within the BSA and would not be directly or indirectly impacted from implementation of the proposed project based on a review of specific habitat preferences, occurrence records, known distributions, and elevation ranges. As such, the proposed project is determined to have no effect on any federally listed species identified by the USFWS IPaC Species List, CNDDB, or CNPS; refer to Tables 2.3.5-1 through 2.3.5-7. Tables .3.5-1 through 2.3.5-7 have been amended since the Draft Environmental Document.

Table 2.3.5-1: Effects Determination for Identified Endangered Species - Crustaceans

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
Branchinecta lynchi Vernal Pool Fairy Shrimp	FT	-	Endemic to California and only found in vernal pools. Vernal pool habitats form in depressions above an impervious substrate layer, or claypan/duripan. This species does not occur in riverine, marine, or other permanent bodies of water. When the temporary pools dry, offspring persist in suspended development as desiccation-resistant embryos (commonly called cysts) in the pool substrate until the return of winter rains and appropriate temperatures allow some of the cysts to hatch.	No Effect	There is no suitable vernal pool habitat within or adjacent to the BSA. The mapped soils within the BSA primarily consist of sandy loam textures and terrace escarpments which do not support the formation of vernal pools or ponds. Additionally, Federally-designated Critical Habitat for this species is not present within the BSA and there have been no recorded occurrences of this species within 5 miles of the BSA (CNDDB, 2020). Therefore, it was determined that “No Effect” to vernal pool fairy shrimp would occur.
Streptocephalus woottoni Riverside fairy shrimp	FE		Restricted to deep seasonal vernal pools, vernal pool like ephemeral ponds, and stock ponds and other human modified depressions. Basins	No Effect	There are no suitable vernal pool habitat, ephemeral ponds, or stock ponds within or adjacent to the BSA. The mapped soils within the BSA

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
			that support Riverside fairy shrimp are typically dry a portion of the year, but usually are filled by late fall, winter, or spring rains, and may persist through May. Endemic to western Riverside, Orange, and San Diego Counties in tectonic swales/earth slump basins in grassland and coastal sage scrub. In Riverside County, the species been found in pools formed over the following soils: Murrieta stony clay loams, Las Posas series, Wyman clay loam, and Willows soils. All known habitat lies within annual grasslands, which may be interspersed through chaparral or coastal sage scrub vegetation.		primarily consist of sandy loam textures and terrace escarpments which do not support the formation of vernal pools or ponds. Additionally, Federally-designated Critical Habitat for this species is not present within the BSA and there have been no recorded occurrences of this species within 5 miles of the BSA (CNDDB, 2020). Therefore, it was determined that “No Effect” to Riverside fairy shrimp would occur.

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (December 2020).

Table 2.3.5-2: Effects Determination for Identified Endangered Species - Fish

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
Oncorhynchus mykiss irideus pop. 10 steelhead - southern California DPS	FE	-	Steelhead can survive in a wide range of temperature conditions. Species is found where dissolved oxygen concentration is at least 7 parts per million. In streams, deep low-velocity pools are important wintering habitats. Spawning habitat consists of gravel	No Effect	This species is not expected to occur within the BSA due to the lack of stream habitat with permeant flows. Additionally, federally designated Critical Habitat for this species is not present within the BSA and there have been no recorded occurrences of this species within 5 miles

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
			substrates free of excessive silt.		of the BSA (CNDDB, 2020).

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (December 2020).

Table 2.3.5-3: Effects Determination for Identified Endangered Species - Insects

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
Euphydryas editha quino Quino checkerspot butterfly	FE	-	Occupies a variety of habitat types that support California plantain (Plantago erecta), the species primary larval host plant, including grasslands, coastal sage scrub, chamise chaparral, red shank chaparral, juniper woodland, and semi-desert scrub. Can also be found in desert canyons and washes at the lower edge of chaparral habitats.	No Effect	Although the scrub oak chaparral, wild oats and annual brome grasslands, and California buckwheat scrub vegetation communities provide marginal habitat for this species, California plantain was not observed within the BSA during the field surveys. Additionally, federally designated Critical Habitat for this species is not present within the BSA and there have been no recorded occurrences of this species within 5 miles of the BSA (CNDDB, 2020).

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (December 2020).

Table 2.3.5-4: Effects Determination for Identified Endangered Species - Birds

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
Empidonax trailii extimus Southwestern Willow Flycatcher	FE	SE	Uncommon summer resident in southern California primarily found in lower elevation riparian habitats occurring along streams or in meadows. The structure of suitable breeding habitat typically consists of a dense mid-story and understory and can also include a dense canopy. Nest sites are generally located near surface water or saturated soils. The presence of surface water, swampy	No Effect; No Take	Suitable thickets of willows and dense riparian habitat along streams are not present within the BSA. Additionally, this species was not observed during the field surveys and Federally-designated Critical Habitat for this species is not present within the BSA. Therefore, it was determined that "No Effect" to southwestern willow flycatcher would occur.

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
			conditions, standing or flowing water under the riparian canopy are preferred.		
Polioptila californica californica Coastal California gnatcatcher	FT	SSC	Yearlong resident of sage scrub habitats that are dominated by California sagebrush. This species generally occurs below 750 feet amsl in coastal regions and below 1,500 feet amsl inland. Ranges from the Ventura County, south to San Diego County and northern Baja California and it is less common in sage scrub with a high percentage of tall shrubs. Prefers habitat with more low-growing vegetation.	No Effect	The BSA is outside of the known elevation range for this species. Additionally, Federally-designated Critical Habitat for this species is not present within the BSA and there have been no recorded occurrences of this species within 5 miles of the BSA (CNDDB, 2020). Therefore, it was determined that "No Effect" to coastal California gnatcatcher would occur.
Vireo bellii pusillus Least Bell's vireo	FE	SE SSC	Summer resident in southern California. Breeding habitat generally consists of dense, low, shrubby vegetation in riparian areas, and mesquite brushlands, often near water in arid regions. Early successional cottonwood-willow riparian groves are preferred for nesting. The most critical structural component of nesting habitat in California is a dense shrub layer that is 2 to 10 feet (0.6 to 3.0 meters) above ground. The presence of water, including ponded surface water or moist soil conditions, may also be a key component for nesting habitat.	No Effect; No Take	Suitable breeding and foraging habitat consisting of dense riparian vegetation is not present within the BSA. The mule fat thicket (0.12 acre) that occurs within the northwest portion of the BSA, just south of I-10, is sparsely vegetated and lacks the riparian tree species and dense understory preferred by this species for foraging/nesting. Additionally, Federally-designated Critical Habitat for this species is not present within the BSA. Therefore, it was determined that "No Effect" to least Bell's vireo would occur.

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (December 2020).

Table 2.3.5-5: Effects Determination for Identified Endangered Species: Flowering Plants

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
Ambrosia pumila San Diego ambrosia	FE	--	Perennial rhizomatous herb. Occurs on sandy loam or clay soils (often in disturbed areas) and sometimes alkaline soils. Habitats include chaparral, coastal scrub, valley and foothill grassland, and vernal pools. Grows in elevation ranging from 66 to 1,362 feet amsl. Blooming period is April through October.	No Effect	The BSA is outside of the known elevation range for this species. Therefore, it was determined that “No Effect” to San Diego ambrosia would occur.
Astragalus lentiginosus var. coachellae Coachella Valley milk-vetch	FE	--	Annual / perennial herb. Occurs in dunes and sandy flats along disturbed margins of sandy washes and in sandy soils along roadsides adjacent to existing sand dunes. May also occur in sandy substrates in creosote bush scrub. Found at elevations ranging from 130 through 2,150 feet amsl. Blooming period is February through May.	No Effect	The BSA is outside of the known elevation range for this species.
Atriplex coronata var. notatior San Jacinto Valley crownscale	FE	-	Annual herb. Occurs in alkaline soils within playas, valley and foothill grassland (mesic), and vernal pool habitats. Grows in elevations ranging from 456 through 1,640 feet amsl. Blooming period is April through August.	No Effect	The BSA is outside of the known elevation range for this species. Additionally, the BSA primarily consists of sandy loam textures and terrace escarpments and not the alkaline and mesic soils preferred by this species. Therefore, it was determined that “No Effect” to San Jacinto Valley crownscale would occur.
Brodiaea filifolia thread-leaved brodiaea	FT	SE	Perennial bulbiferous herb. Often found on clay soils within chaparral (openings), cismontane woodland, coastal scrub, playas, valley and foothill grassland, and vernal	No Effect; No Take	Although the scrub oak chaparral, wild oats and annual brome grasslands, and California buckwheat scrub vegetation communities provide marginal habitat, the

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
			pools. Found at elevations ranging from 82 through 3,675 feet amsl. Blooming period is March through June.		BSA primarily consists of sandy loam textures and terrace escarpments and not the clay soils preferred by this species. Additionally, there have been no recorded occurrences of this species within 5 miles of the BSA (CNDDB, 2020). Therefore, it was determined that “No Effect” to thread-leaved brodiaea would occur.
Dodecahema leptoceras slender-horned spineflower	FT	SE	Perennial herb. Grows in sandy or gravelly soils within chaparral and coastal scrub (alluvial fan) habitats. Found at elevations ranging from 298 through 2,001 feet amsl. Blooming period is April through September.	No Effect; No Take	Although the scrub oak chaparral and California buckwheat scrub vegetation communities provide marginal habitat, this species is possibly extirpated from the area (CNDDB, 2016).
Eriastrum densifolium ssp. sanctorum Santa Ana River woollystar	FE	SE	Perennial herb. Grows in sandy or gravelly soils within chaparral and coastal scrub (alluvial fan) habitats. Found at elevations ranging from 298 through 2,001 feet amsl. Blooming period is April through September.	No Effect; No Take	The BSA is outside of the known elevation range for this species. Therefore, it was determined that “No Effect” to Santa Ana River woollystar would occur.
Navarretia fossalis spreading navarretia	FE	-	Annual herb. Habitats include chenopod scrub, marshes and swamps (assorted shallow freshwater), playas, and vernal pools. Grows in elevation ranging from 98 through 2,149 feet amsl. Blooming period is April through June.	No Effect	The BSA is outside of the known elevation range for this species. Therefore, it was determined that “No Effect” to spreading navarretia would occur.

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (December 2020).

Table 2.3.5-6: Effects Determination for Identified Endangered Species: Amphibians

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
Rana Draytonii California red-legged frog	FT	SSC	Breeding sites are in a variety of aquatic habitats including streams, deep pools, backwaters within streams and creeks, ponds, marshes, sag ponds, dune ponds, lagoons, and artificial impoundments (i.e., stock ponds). Breeding adults are often associated with deep (greater than 2 feet) still or slow-moving water and dense shrubby riparian or emergent vegetation.	No Effect	Suitable aquatic habitats with permanent flows preferred by this species for breeding are not present within the BSA. Additionally, federally designated Critical Habitat for this species is not present within the BSA and there have been no recorded occurrences of this species within 5 miles of the BSA (CNDDB, 2020).
Rana muscosa southern mountain yellow-legged frog	FE	SE WL	The species inhabits ponds, lakes, and streams at moderate to high elevations. Usually associated with montane riparian habitats in lodgepole pine, ponderosa pine (Pinus ponderosa), sugar pine (Pinus lambertiana), white fir, whitebark pine (Pinusalbicaulis), and wet meadow vegetation types. Occupied alpine lakes usually have margins that are grassy or muddy and inhabit sandy or rocky shores at lower elevations. Streams utilized vary from rocky, high gradient streams with numerous pools, rapids, and small waterfalls to those with marshy edges and sod banks. Species seems to prefer streams of low gradient and slow or moderate flow with very small, shallow streams being less frequently used.	No Effect; No Take	Suitable aquatic habitats with permanent flows preferred by this species for breeding are not present within the BSA. Additionally, federally designated Critical Habitat for this species is not present within the BSA and this species is possibly extirpated/ extirpated from the area (CNDDB, 2020).

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (December 2020).

Table 2.3.5-7: Effects Determination for Identified Endangered Species: Mammals

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
Dipodomys merriami parvus San Bernardino kangaroo rat	FE	SSC	Primarily found in Riversidian alluvial fan sage scrub and sandy loam soils, alluvial fans and flood plains, and along washes with nearby sage scrub. May occur at lower densities in Riversidian upland sage scrub, chaparral and grassland in uplands and tributaries in proximity to Riversidian alluvial fan sage scrub habitats. Tend to avoid rocky substrates and prefer sandy loam substrates for digging of shallow burrows.	No Effect	Suitable Riversidian alluvial fan sage scrub habitat is not present within the BSA. Although chaparral and grassland vegetation communities occur within the BSA, they do not occur in proximity to Riversidian alluvial fan sage scrub habitat. Additionally, Federally-designated Critical Habitat for this species is not present within the BSA and there have been no recorded occurrences of this species within 5 miles of the BSA (CNDDB, 2020). Therefore, it was determined that “No Effect” to San Bernardino kangaroo rat would occur.
Dipodomys stephensi Stephens' kangaroo rat	FE	ST	Occur in arid and semi-arid habitats of open grassland or sparse shrublands with less than 50 percent protective cover. Require soft, well-drained substrate for building burrows and are typically found in areas with sandy soil in areas with < 30 percent slope.	No Effect; No Take	The wild oats and annual brome grasslands provides marginal habitat for this species. However, this species was not detected during the field surveys and Federally-designated Critical Habitat for this species is not present within the BSA. Therefore, it was determined that “No Effect” to Stephens’ kangaroo rat would occur.
Perognathus longimembris pacificus Pacific pocket mouse	FE	SSC	One of sixteen currently recognized subspecies of little pocket mouse (Perognathus longimembris), which is a widespread species that is distributed throughout arid regions of the western U.S. extending into northern part of Baja California	No Effect	The BSA is outside of the known range of this species and the habitats preferred by this species are not present within the BSA. Additionally, federally designated Critical Habitat for this species is not present within the BSA and there have been no recorded occurrences of this species

Scientific name Common Name	USFWS Status	CDFW Status	General Habitat Requirements	Effects Determination	Reason for Determination
			peninsula and west central Sonora, Mexico. Pacific pocket mouse is associated with fine grain, sandy substrates in coastal strand, coastal dunes, river alluvium and coastal sage scrub habitats within 2.5 miles of the ocean in southern California.		within 5 miles of the BSA (CNDDB, 2020).

Source: Michael Baker International, Natural Environment Study (Minimal Impacts) (December 2020).

Additionally, there has been no communication with the USFWS or with the National Oceanic and Atmospheric Administration's (NOAA) Fisheries regarding the FESA. The project site located outside of NOAA Fisheries jurisdiction; therefore, a NOAA Fisheries species list is not required and no effects to NOAA Fisheries species are anticipated. As discussed in Section 2.3.4 Animal Species, project site is not located within Federally designated Critical Habitat and consultation with USFWS pursuant to the FESA for the loss or adverse modification to Critical Habitat would not be required.

Environmental Consequences

No-Build Alternative

Project improvements would not occur under the No-Build Alternative; therefore, the No-Build Alternative would not impact threatened and endangered species.

Build Alternatives 3 and 4

The following text has been amended since the Draft Environmental Document: According to the NES-MI, threatened and endangered species listed within the USFWS Information System were not observed within the BSA during any of the field surveys. As described in Tables 2.3.5-1 through 2.3.5-7, the BSA does not provide suitable habitats for any of the listed species within the BSA. Therefore, implementation of the Build Alternatives would not lead to any direct or indirect impacts to the listed threatened and endangered species. As such, Caltrans determined that proposed Build Alternatives 3 and 4 would result in "No Effect" to any federally-listed threatened or endangered species, and "No Take" of any State-listed threatened or endangered species.

Avoidance, Minimization, and/or Mitigation Measures

No measures are proposed.

2.3.6 Invasive Species

Regulatory Setting

On February 3, 1999, President William J. Clinton signed Executive Order (EO) 13112 requiring federal agencies to combat the introduction or spread of invasive species in the United States. The order defines invasive species as "any species, including its seeds, eggs, spores, or other biological material capable of propagating that species, that is not native to that ecosystem whose introduction does or is likely to cause economic or environmental harm or harm to human health." Federal Highway Administration (FHWA) guidance issued August 10, 1999 directs the use of the State's invasive species list, maintained by the Invasive species of California (http://www.iscc.ca.gov/) to define the invasive species that must be considered as part of the National Environmental Policy Act (NEPA) analysis for a proposed project.

Affected Environment

This section is based upon the Natural Environment Study (Minimal Impacts) (NES-MI) prepared for the project dated December 2020.

Noxious weed species include species designated as federal noxious weeds by USDA, species listed by the California Department of Food and Agriculture, and other exotic pest plants designated by the California Invasive Plant Council (Cal-IPC). Invasive plant species occur throughout the various natural vegetation communities and land cover types within the BSA. According to the NES-MI, some of the more commonly exotic plants that are occurring within the BSA include tree of heaven, slender oat, wild oat, ripgut brome, foxtail brome, tocalote, yellow star thistle, Bermuda grass, red stemmed filaree, short podded mustard, tree tobacco, black locust, Russian thistle, and puncture vine.

Environmental Consequences

Noxious weeds can have a destructive impact on landscape by displacing native plant species, increasing soil erosion, and decreasing wildlife habitat. Thus, it is important to control or eradicate the invasive species.

Temporary Impact

No-Build Alternative

The No-Build Alternative would not require the construction of any of the project improvements. As a result, the No-Build Alternative would not result in new impacts related to invasive species. Locations within the BSA where invasive species currently occur would not be modified under the No-Build Alternative.

Build Alternatives 3 and 4

Potential impacts from invasive species associated with construction and operation of transportation projects are considered permanent. Refer to the Build Alternatives subsection under the Permanent Impacts for discussion regarding invasive species.

Permanent Impact

No-Build Alternative

Project improvements would not occur under the No-Build Alternative. As such, the No-Build Alternative would not result in impacts related to invasive species.

Build Alternatives 3 and 4

In compliance with the Executive Order on Invasive Species, EO 13112, and guidance from the Federal Highway Administration (FHWA), the landscaping and erosion control included in the Build Alternatives would not use species listed as invasive. None of the species on the California list of invasive species is used by Caltrans for erosion control or landscaping. As noted in Measure NC-2, all equipment and materials would be inspected for the presence of invasive species and cleaned prior to use in the project area. In areas of particular sensitivity, extra precautions would be taken if invasive species are found in or next to the construction areas. These include the inspection and cleaning of construction equipment and eradication strategies to be implemented should an invasion occur. Additionally, operation and maintenance of both Build Alternatives 3 and 4 would not increase the threat of invasive species beyond the existing condition associated with vehicle and pedestrian use on I-10 and Cherry Valley Boulevard. With implementation of NC-2, significantly adverse effects would not occur towards suitable habitat for endangered species.

Avoidance, Minimization, and/or Mitigation Measures

Refer to Measure NC-2 in Section 2.3.1, Natural Communities.

2.3.7 Cumulative Impacts

Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

The California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts under the National Environmental Policy Act (NEPA) can be found in 40 Code of Federal Regulations (CFR) Section 1508.7.

Methodology

Caltrans' Guidance for Preparers of Cumulative Impact Analysis (dated June 2005) was consulted in conjunction with preparation of the cumulative analysis for the I-10/Cherry Valley Boulevard Interchange Improvement Project. The potential for cumulative impacts was evaluated by considering those resources potentially impacted by the project, either directly or indirectly. In accordance with Caltrans' Guidance for Preparers of Cumulative Impact Analysis, if a project would not cause direct or indirect impacts on a resource, it would not contribute to a cumulative impact on that resource and need not be further evaluated. Resource Study Areas (RSAs) for those resources warranting analysis were identified for each respective resource. As discussed at the beginning of Chapter 2, or in the related sections of Chapter 2 of this environmental document, the Build Alternatives would result in minor impacts but would not result in direct or indirect impacts for the topics listed below; therefore, no discussion is provided for the following topics in the evaluation of potential cumulative impacts:

- Coastal Zone
- Wild and Scenic Rivers
- National Marine Fisheries Service
- Timberlands
- Land Use
- Parks and Recreational Facilities
- Farmlands
- Growth
- Community Character and Cohesion
- Relocations and Real Property Acquisition
- Environmental Justice
- Utilities/Emergency Services
- Traffic and Transportation/Pedestrian and Bicycle Facilities
- Visual/Aesthetics
- Cultural Resources

- Hydrology and Floodplain
- Water Quality and Storm Water Runoff
- Geology/Soils/Seismic/Topography
- Air Quality
- Noise
- Energy
- Threatened and Endangered Species
- Invasive Species

Resources Evaluated for Potential Cumulative Analysis

The following resources are evaluated in this section for cumulative impacts:

- Paleontology
- Hazardous Waste/Materials
- Biological Resources (Natural Communities, Wetlands and Other Waters, Plant Species, Animal Species)

The discussion of potential cumulative impacts is presented by the environmental resource area. Due to its location within a City's jurisdiction and in unincorporated areas of Riverside County, Tables 2.4-1, City of Calimesa Reasonably Foreseeable Projects, and 2.4-2, Riverside County Reasonably Foreseeable Projects, include the reasonably foreseeable projects within the project area.

Paleontology

The RSA pertaining to paleontological resources includes a records search area that consisted of the project area and the U.S. Geological Survey 7.5-minute El Casco quadrangle map, as identified in the PIR/PER prepared for the project. The literature, records search, and survey indicate that the project could have the potential to adversely affect important, nonrenewable, highly sensitive paleontological resources.

Based on analysis provided in the PIR/PER, a High Potential paleontological sensitivity ranking was assigned to several portions of the project area where very old alluvial-fan deposits (Qvof3) and old alluvial-fan deposits (Qof2) are mapped at the ground surface as these units are potentially fossiliferous in the finer-grained beds. The PIR/PER also includes within the High Potential subareas portions of the project area near the interchange where the young axial-valley deposits (Qya5) are mapped, as observations from the survey indicate these deposits, at least in this subarea, may shallowly overlie the old alluvial-fan deposits (Qof2). In addition, data within the PIR/PER indicates the presence of deposits consistent with the Live Oak Canyon (Qlo) unit and/or upper San Timoteo Formation at a depth of 29 feet bgs near the center of the interchange.

Unit Qlo also may be present at shallower depths farther to the southwest of the site near Roberts Road. The PIR/PER notes an abundance of fossil localities within three miles of the project area, mostly from the San Timoteo Formation. This formation likely is also present at unknown depths in and around the interchange in the project area, and could be impacted by project-related ground-disturbing activities, which are anticipated to reach 12 to 25 feet bgs.

Table 2.4-1: City of Calimesa Reasonably Foreseeable Projects

Map ID	Project Name	Project Description	Location	Status
1	Majestic Realty	Two pad proposal for one gas station and one drive through restaurant	California Street and County Line Road	No approvals have been granted.
2	Stearns property	82-acre industrial development	9950 Calimesa Boulevard	No formal application has been submitted and no approvals have been granted.
3	The Heights at Calimesa Specific Plan	High density multi-family residential development	East of I-10, south of Rancho Calimesa Mobile Home Park	No formal application has been submitted and no approvals have been granted.
4	Oak Valley Town Center	Industrial/commercial development	West of I-10, south of Singleton Road	A formal application has been submitted but no approvals have been granted.
5	Beaumont Unified School District	K-8 school	Within the Summerwind Ranch Specific Plan area	An addendum to the Summerwind Ranch Specific Plan EIR was approved by school board. Currently under construction.
6	TTM 37802 – Reidman	179-lot single-family Residential subdivision	West of I-10 and Desert Lawn Drive	A formal application has been submitted but no approvals have been granted at this time.
7	Summerwind Trails – Phase 1 Lennar Tract	141-unit single-family Residential subdivision	Within the Summerwind Ranch Specific Plan area	Currently under construction.
8	Summerwind Commons	75,000 sf commercial/retail development	Within the Summerwind Ranch Specific Plan area	No approvals have been granted.

Map ID	Project Name	Project Description	Location	Status
9	San Gorgonio Crossings Project	229-acre high cube warehouse development	East of I-10, north of Cherry Valley Boulevard	EIR re-opened in July 2019 per court order and Board of Supervisors Action.

Source: Community Impact Assessment Memorandum (January 2021).

Table 2.4-2: Riverside County Reasonably Foreseeable Projects

Map ID	Project Name	Project Description	Location	Status
10	PM36564	228-acre subdivision	East of I-10, north of Cherry Valley Boulevard	Approval has been granted.
11	PP25337	230-acre industrial warehouse development	East of I-10, north of Cherry Valley Boulevard	Approval has been granted.
12	CUP03322	Truck and equipment garage and office	East of I-10, south of Cherry Valley Boulevard	Approval has been granted.
13	PP16147	Unmanned telecommunications building	East of I-10, south of Cherry Valley Boulevard	Approval has been granted.

Source: Community Impact Assessment Memorandum (January 2021).

Construction activities in the project area below the present ground surface may uncover vertebrate fossil remains. Therefore, impacts on paleontological resources in these areas may occur during project construction. To minimize these potential impacts, Measure PAL-1 would require preparation of a Worker's Environmental Awareness Program (WEAP) regarding the types of fossils that could be found in the project area and the procedures to follow shall paleontological resources be encountered. Measure PAL-2 would include preparation of a Paleontological Mitigation Plan (PMP) for the project. The project's PMP would include measures based on the assigned sensitivity rankings as well as the proposed depths of ground disturbance throughout the project area, as surface and near-surface geologic units are well documented while geologic units at greater depths remain undocumented. Measure PAL-3 would be required and would implement a program for recovery and procurement of fossils encountered during construction.

As mentioned previously, construction activities in the project area below the present ground surface may uncover vertebrate fossil remains. Therefore, other development projects in the RSA could disturb nonrenewable paleontological resources. However, because these projects would be discretionary actions and subject to project-specific environmental review, they would be required to incorporate measures to reduce impacts on unknown, nonrenewable paleontological resources. Therefore, construction activities associated with the Build Alternatives, in conjunction with other projects, would not result in cumulative impacts related to unknown and nonrenewable paleontological resources.

Once the Build Alternatives and other projects are operational, they would not have the potential to affect unknown and nonrenewable paleontological resources. Therefore, operation of the Build Alternatives, in conjunction with other projects, would not substantially contribute to cumulative impacts related to paleontological resources.

Hazardous Waste/Materials

The RSA for hazardous materials/hazards is the area within 0.5-mile of the project site, which includes all cumulative projects listed in Tables 2.4-1 and 2.4-2 except for the Majestic Realty development in the City of Calimesa, located approximately two miles north of the project site. During the short-term construction process, there is a potential for construction workers to be exposed to hazardous waste/materials as a result of on-site conditions and contamination. These potential effects relate to lead-based paints, asbestos-containing materials, treated wood waste, electrical transformers, leaking storage tanks, aerially-deposited lead, and pesticides/herbicides related to agricultural uses. This IS/EA includes Measures HAZ-1 through HAZ-8 to minimize impacts in this regard.

The Build Alternatives would not result in permanent impacts related to hazardous waste/materials, since routine maintenance activities during operation of the Build Alternatives 3 and 4 would be required to follow applicable regulations with respect to the use, storage, handling, transport, and disposal of potentially hazardous materials.

The Build Alternatives are not anticipated to result in an increase in the amount of hazardous materials in the RSA. The other development projects in the RSA could result in similar short-term exposure to hazardous materials during the construction period. However, because these projects would be discretionary actions and subject to project-specific environmental review, they would be required to incorporate measures to reduce impacts related to hazardous waste/materials. Therefore, construction activities associated with the Build Alternatives, in conjunction with other projects, would not substantially contribute to cumulative impacts related to hazardous waste/materials resources.

Biological Resources (Natural Communities, Wetlands and Other Waters, Plant Species, Animal Species)

The RSA associated with the analysis of cumulative impacts for biological resources is the plan area associated with the WR-MSHCP. According to the Western Riverside County RCA’s online WR-MSHCP Interactive Map, the BSA is not located within a Subunit of the WR-MSHCP. The project is considered to be a Covered Activity under Section 7.1 of the WR-MSHCP; pursuant to this section, public and private development, including the construction of buildings, structures, infrastructure and all alterations of the land, that are carried out by Permittees that are outside of Criteria Areas and P/QP Lands are permitted under the WR-MSHCP, subject to consistency with the policies that apply outside the Criteria Area. Since the project is a Covered Activity and located outside designated Conservation Areas, Criteria Cells, P/QP Lands, Cores, or Linkages, the Build Alternatives are considered consistent with the WR-MSHCP.

The BSA is comprised of rural residential and commercial land uses, parcels currently undergoing construction for residential development, I-10 and surrounding roadways, remnant agricultural lands, ranching land, natural vegetation communities, and ornamental vegetation. Within the boundaries of the BSA, parcels located to the north of I-10 are primarily composed of rural residential land uses, ranching land, remnant agricultural land, the Rancho Calimesa Mobile Home Ranch, a commercial trucking business, natural vegetation communities, and ornamental vegetation. Parcels within the BSA located to the south of I-10 are primarily undergoing residential development; however, scattered patches of natural and ornamental vegetation are present throughout. In addition, rural residential land uses and the Plantation on the Lake residential community comprise the southeast portion of the BSA. Vacant land with scattered rural residential and commercial land uses primarily surround the BSA to the north, east, and west. Residential housing is located to the south of the BSA.

The following text has been amended since the Draft Environmental Document: Based on the NES-MI, impacts related to natural communities could result as a result of the Build Alternatives. An ornamentally planted oak tree grove consisting of California live oak is located within the central portion of the BSA, and the Build Alternatives could result in indirect impacts to Cuyamaca cypress stands. In addition to the implementation of Caltrans Standard Specifications, Measures NC-1 and NC-2 have been included to minimize impacts to natural communities.

The Build Alternatives could result in impacts to jurisdictional waters. Based on the NES-MI, jurisdictional waters subject to regulation by the RWQCB and CDFW exist within the project site. Thus, Measures WET-1 and WET-2 would be required to minimize impacts to jurisdictional waters.

The following text has been amended since the Draft Environmental Document: Based on the NES-MI, impacts related to plant species would occur as a result of the Build Alternatives. Cuyamaca cypress and southern California black walnut were the only special-status plant species observed, within the western portion of the BSA. As noted above, the Build Alternatives would include the implementation of Caltrans Standard Specifications in addition to Measures NC-1 and NC-2. Adherence to these specifications/measures would minimize impacts related to plant species.

The NES-MI indicates that the Build Alternative could result in impacts to a range of various animal species. These animal species include bats, San Diegan tiger whiptail, Cooper's hawk, Southern California rufous-crowned sparrow, burrowing owl, California horned lark, northwestern San Diego pocket mouse, white-tailed kite, and San Diego black-tailed jackrabbit. Thus, Measures NC-1 and AS-1 through AS-4 have been included in this IS/EA in order to minimize impacts to sensitive animal species.

The following text has been amended since the Draft Environmental Document: As noted above, with implementation of Caltrans Standard Specifications and Measures NC-1, NC-2, WET-1, WET-2, AS-1, AS-2, AS-3, and AS-4, the Build Alternatives would not result in adverse effects related to biological resources. The Build Alternatives are not anticipated to result in cumulative impacts; although other development projects in the RSA could result in similar effects related to sensitive biological resources, these projects would be discretionary actions and subject to project-specific environmental review, they would be required to incorporate measures to reduce impacts related to biological resources. In addition, as noted previously, the project is considered to be a Covered Activity under Section 7.1 of the WR-MSHCP, which is a planning level document focused on the conservation of species and habitats on a regional basis, including the RSA for this analysis. Since the project is a Covered Activity and located outside designated Conservation Areas, Criteria Cells, P/QP Lands, Cores, or Linkages, the Build Alternatives are considered consistent with the WR-MSHCP. Therefore, the Build Alternatives, in conjunction with other projects, would not substantially contribute to cumulative impacts related to biological resources.

Chapter 3 CEQA Evaluation

3.1 Determining Significance Under CEQA

The following text has been amended since the Draft Environmental Document: The proposed project is a joint project by the California Department of Transportation (Department) and the Federal Highway Administration (FHWA) and is subject to state and federal environmental review requirements. Project documentation, therefore, has been prepared in compliance with both the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). FHWA's responsibility for environmental review, consultation, and any other actions required by applicable Federal environmental laws for this project are being, or have been, carried out by Caltrans pursuant to 23 United States Code Section 327 (23 USC 327) and the Memorandum of Understanding dated May 27, 2022, and executed by FHWA and Caltrans. The Department is the lead agency under CEQA and NEPA.

One of the primary differences between NEPA and CEQA is the way significance is determined. Under NEPA, significance is used to determine whether an EIS, or a lower level of documentation, will be required. NEPA requires that an EIS be prepared when the proposed federal action (project) as a whole has the potential to "significantly affect the quality of the human environment." The determination of significance is based on context and intensity. Some impacts determined to be significant under CEQA may not be of sufficient magnitude to be determined significant under NEPA. Under NEPA, once a decision is made regarding the need for an EIS, it is the magnitude of the impact that is evaluated, and no judgment of its individual significance is deemed important for the text. NEPA does not require that a determination of significant impacts be stated in the environmental documents.

CEQA, on the other hand, does require the Department to identify each "significant effect on the environment" resulting from the project and ways to mitigate each significant effect. If the project may have a significant effect on any environmental resource, then an EIR must be prepared. Each and every significant effect on the environment must be disclosed in the EIR and mitigated if feasible. In addition, the CEQA Guidelines list a number of "mandatory findings of significance," which also require the preparation of an EIR. There are no types of actions under NEPA that parallel the findings of mandatory significance of CEQA. This chapter discusses the effects of this project and CEQA significance.

3.2 CEQA Environmental Checklist

This checklist identifies physical, biological, social, and economic factors that might be affected by the proposed project. In many cases, background studies performed in connection with the projects will indicate that there are no impacts to a particular resource. A NO IMPACT answer in the last column reflects this determination. The words "significant" and "significance" used throughout the following checklist are related to CEQA, not NEPA, impacts. The questions in this form are intended to encourage the thoughtful assessment of impacts and do not represent thresholds of significance.

Project features, which can include both design elements of the project, and standardized measures that are applied to all or most Caltrans projects such as Best Management Practices (BMPs) and measures included in the Standard Plans and Specifications or as Standard Special Provisions, are considered to be an integral part of the project and have been considered prior to any significance determinations documented below; see Chapters 1 and 2 for a detailed discussion of these features. The annotations to this checklist are summaries of information contained in Chapter 2 in order to provide the reader with the rationale for significance determinations; for a more detailed discussion of the nature and extent of impacts, please see Chapter 2. This checklist incorporates by reference the information contained in Chapters 1 and 2.

3.2.1 Aesthetics

Except as provided in Public Resources Code Section 21099, would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?	☐	☐	☐	☒
b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway?	☐	☐	☐	☒
c) In non-urbanized areas, substantially degrade the existing visual character or quality of public views of the site and its surroundings? (Public views are those that are experienced from a publicly accessible vantage point). If the project is in an urbanized area, would the project conflict with applicable zoning and other regulations governing scenic quality?	☐	☐	☒	☐
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	☐	☐	☒	☐

The potential for Build Alternatives 3 and 4 to result in visual impacts was assessed in the Visual Impact Assessment for the Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (July 2021) and Section 2.1.10, above. The following discussion is based on those analyses.

a) and b) <u>No Impact</u>

As discussed in Section 2.1.10, there are no officially designated or eligible State scenic highways in the vicinity of the project site. Additionally, the project site does not afford local/county-designated scenic corridors, views, or vistas that are identified in the Calimesa General Plan or the Riverside County General Plan. As such, no impact would occur in this regard.

c) <u>Less than Significant</u>

Temporary Construction Impacts

As discussed in Section 2.1.10, community residents, recreational users, and motorists traveling along the project corridor would be exposed to construction vehicles, staging areas, debris, and other common construction activities. However, these impacts would be short-term and would cease upon project completion (construction is anticipated to be completed in approximately 24 months). As such, impact in this regard would be less than significant.

The proposed project could require nighttime construction activities which would potentially result in light impacts to nearby residents and motorists traveling on roadways through and adjacent to the project site. However, the project area contains existing sources of nighttime lighting (i.e., vehicle headlights, streetlights, residential lights, etc.) and therefore the new light source may not be perceived as obtrusive by viewers. Additionally, Avoidance and Minimization Measure VIS-1 is recommended to minimize temporary project-related light and glare effects by directing construction lighting away from off-site land uses, containing and directing lighting toward the specific area of construction. Thus, temporary impacts are anticipated to be less than significant in this regard.

Operational Impacts

Although both Build Alternatives would result in the reconstruction of a new overcrossing structure at the I-10/Cherry Valley Boulevard interchange, they would not substantially degrade the visual character of the project site or its surroundings. Under both Build alternatives, the proposed overcrossing structure and soundwalls would be similar in form, line, color, and texture to existing transportation uses in the project area. The proposed project would be designed in conformance with the applicable zoning regulations outlined in the City of Calimesa Municipal Code, as well as the policies identified in the Calimesa and Riverside County General Plans, and the County of Riverside Corridor Master Plan, to maintain visual character/quality. Implementation of Avoidance and Minimization Measures VIS-2 and VIS-4 would further maintain consistency with the existing visual character of the project site by implementing landscape and/or architectural treatments and by installing compatible landscaping along the freeway. Impacts would be less than significant in this regard.

d) <u>Less than Significant</u>

As discussed in Section 2.1.10, nighttime construction of both Build Alternatives would introduce new sources of light to the project area and result in light impacts to nearby residents and motorists traveling along the project site. The existing project site contains existing sources of light (i.e., vehicle headlights, streetlights, residential lights, etc.). Therefore, potential visual impacts regarding light and glare during construction would not be significantly adverse. Implementation of Avoidance and Minimization Measure VIS-1 would require the construction contractor to minimize project-related light and glare by directing construction lighting away from land uses located off-site and contain and direct lighting toward the specific area of construction.

Under Build Alternatives 3 and 4, new roadway lighting would be installed throughout the interchange, and a new traffic signal would be installed at the intersection of Cherry Valley Boulevard and Calimesa Boulevard and at the I-10 eastbound and westbound off- and on-ramps at Cherry Valley Boulevard.

However, the lighting and traffic signal would be similar in character to existing lighting/signal facilities within the project area. As such, impacts would be less than significant in this regard.

3.2.2 Agriculture and Forest Resources

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Dept. of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and the forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board.

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	☐	☐	☒	☐
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?	☐	☐	☐	☒
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	☐	☐	☐	☒
d) Result in the loss of forest land or conversion of forest land to non-forest use?	☐	☐	☐	☒
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	☐	☐	☐	☒

The potential for Build Alternatives 3 and 4 to result in impacts to agriculture and forest resources was assessed in the Community Impact Assessment Memorandum (January 2021) and Section 2.1.3, above. The following discussion is based on those analyses.

a) <u>Less Than Significant Impact</u>

The project would impact land that has been designated by the California Department of Conservation as “Farmland of Local Importance,” “Prime Farmland,” and “Farmland of Statewide Importance.” There are no properties designated as Unique Farmland on-site. Build Alternative 3 would directly convert 11.02 acres and indirectly convert 0.22 acres of farmland-designated land. Build Alternative 4 would directly convert 9.22 acres and indirectly convert 0.22 acres of farmland-designated land. These farmland-designated parcels represent less than one percent of all farmlands County-wide; therefore, impacts would be nominal. Additionally, the affected parcels are not currently used for the purposes of agricultural production. A less than significant impact would occur in this regard.

b) <u>No Impact</u>

The project site is not located in an area that has been designated or zoned by the City or County for agricultural use in the Calimesa General Plan or Riverside County General Plan. There are no Williamson Act contracts for the properties that would be impacted by the project. As such, no impact would occur in this regard.

c) and d) <u>No Impact</u>

There are no forest lands or timberlands located within or adjacent to the project site. Therefore, the project would not conflict with existing zoning for, or cause rezoning of, forest land, timberland, or timberland zoned Timberland Production, nor would the project result in the loss of forest land or conversion of forest land to non-forest use. No impact would occur in this regard.

e) <u>No Impact</u>

The project’s impacts on agricultural lands have been described above. There are no changes as a result of the project that would have the potential to affect farmland or forest land. No impacts would occur in this regard.

3.2.3 Air Quality

Where available, the significance criteria established by the applicable air quality management district or air pollution control district may be relied upon to make the following determinations.

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non- attainment under an applicable federal or state ambient air quality standard?	☐	☐	☒	☐
c) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
d) Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?	☐	☐	☒	☐

The potential for Build Alternatives 3 and 4 to result in impacts related to air quality was assessed in the Air Quality Report (December 2020) and Section 2.2.6, above. The following discussion is based on those analyses.

a) and b) <u>Less Than Significant Impact</u>

The proposed project is located in the South Coast Air Basin (SCAB) and is within the jurisdiction of the South Coast Air Quality Management District (SCAQMD) and the California Air Resources Board (CARB). As discussed in the Air Quality section of Chapter 2, the Basin is an attainment area for CO, NO_2, and SO_2 and nonattainment for O_3, $PM_{2.5}$, and PM_{10} for State standards. The Basin is an attainment area for NO_2 and SO_2, is a maintenance area for CO, PM_{10}, and is a nonattainment area for O_3 and $PM_{2.5}$ under federal standards.

The proposed project would construct a new I-10/Cherry Valley Boulevard interchange and will also include realignment of Calimesa Boulevard. With adherence to local, State, and federal rules and regulations, including Caltrans Standard Specifications for Construction (Sections 14-11.04 [Dust Control]) and 14-9.02 [Air Pollution Control]), the project would not violate any air quality standards during construction. No temporary impacts would occur in this regard and no measures are required.

Based on Section 2.2.6, Air Quality, the Build Alternatives under opening-year (2025) and design-year (2045) conditions would increase PM_{10}, and $PM_{2.5}$ emissions compared to existing conditions and decrease ROG, NO_X, and CO emissions. However, the increase in PM is partly due to background growth in vehicle miles traveled (VMT) from 2019 to 2045, because PM fugitive dust emissions are a function of VMT. In addition, although PM exhaust emission factors decrease over time, fugitive dust PM emission factors increase over time due to the increase in truck percentages as a fraction of overall VMT within the study area. Accordingly, the total PM emissions increase over time. The decreases in other pollutants are due to expected improvements in vehicle engine technology, fuel efficiency, and turnover in older, more heavily polluting vehicles, which reduces exhaust emissions. Another reason the implementation of the Build Alternatives would result in an increase in PM_{10} and $PM_{2.5}$ criteria pollutant emissions compared to no-build conditions is because the project would increase regional capacity, although there would be no increase in trip generation. Although AM and PM peak vehicle hours of delay through the I-10/Cherry Valley Boulevard interchange would decrease as a result of the proposed project, PM_{10} and $PM_{2.5}$ criteria pollutant emissions would increase due to the increase in overall daily VMT in the transportation study area.

The following text has been amended since the Draft Environmental Document: The proposed project is included in the SCAG 2020-2045 financially constrained Regional Transportation Plan Sustainable Communities Strategy (RTP/SCS) and 2023 Federal Transportation Improvement Program (FTIP), both of which were found to be conforming (see Section 2.2.6, Air Quality, of this IS/EA). Therefore, the proposed project would not conflict with the AQMP, violate any air quality standard, or result in a net increase of any criteria pollutant. Thus, a less than significant impact would occur in this regard and no measures are required.

c) Less than Significant Impact

Temporary Construction Impacts

The closest sensitive receptors to the proposed project include two nearby parks (Trevino Park and Palmer Park), an existing residential use, and a planned residential area under the Summerwind Specific Plan. Temporary impacts to sensitive receptors regarding fugitive dust resulting from construction activities would occur during demolition, grading/trenching, new pavement construction, and the restriping phase. However, adherence to local, State, and federal rules and regulations, including Caltrans Standard Specifications for Construction (Sections 14-11.04 [Dust Control]) and 14-9.02 [Air Pollution Control]) would minimize temporary air quality impacts to sensitive receptors, and sensitive receptors would not be exposed to substantial pollutant concentrations. As such, a less than significant impact would occur in this regard and no measures are required.

Operational Impacts

As discussed in Section 2.2.6, Air Quality, the CO screening analysis concluded that project implementation would reduce congestion and overall travel time due to overall improvements in LOS and vehicle hours traveled (VHT) during build conditions. Additionally, the proposed project does not involve parking lots, and therefore would not increase the number of vehicles operating in cold start mode. Accordingly, impacts would be less than significant, and no measures are required.

d) <u>Less Than Significant Impact</u>

As stated, the closest sensitive receptors to the proposed project include two nearby parks (Trevino Park and Palmer Park), an existing residential use, and a planned residential area under the Summerwind Specific Plan. Accordingly, the proposed project would not create objectionable odors affecting a substantial number of people; however, minor sources of odors would be present during construction. The predominant source of power for construction equipment is diesel engines and emissions associated with asphalt paving. Because odors would be temporary and would disperse rapidly with distance from the source, construction-generated odors would not be expected to result in the frequent exposure of receptors to objectionable odorous emissions. Impacts would be less than significant, and no measures are required.

3.2.4 Biological Resources

Would the project:	**Significant and Unavoidable Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, or NOAA Fisheries?	☐	☐	☒	☐
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	☐	☒	☐	☐
c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	☐	☐	☐	☒
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	☐	☐	☒	☐
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	☐	☐	☒	☐
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?	☐	☐	☐	☒

The potential for Build Alternatives 3 and 4 to result in impacts to biological resources was assessed in the Natural Environment Study (Minimal Impacts) (NES-MI), (December 2020) and the following sections in Chapter 2: Wetlands and Other Waters; Plant Species; Animal Species; Threatened and Endangered Species, and Invasive Species. The following discussions are based on those analyses.

a) Less than Significant

Plant Species: As discussed in Section 2.3.1, Natural Communities, Cuyamaca cypress (*Hesperocyparis stephensonii*) is a natural community of special concern that was observed within the Biological Study Area (BSA) during the site investigation for this project. As discussed in Section 2.3.3, Plant Species, a total of 63 special status plant species were identified as potentially occurring on the BSA. The southern California black walnut (*Juglans californica*), a special-status plant species, was observed within the BSA during the site investigation. All remaining special-status plant species have a low potential to occur or are not expected to occur within the BSA. Construction activities associated with the development of the project has the potential to result in indirect impacts related to fugitive dust or spread of non-native seeds, to this vegetation community. Adherence to Caltrans Standard Specifications Section 14-10.01, General (Solid Waste Disposal and Recycling), would ensure project materials are not cast from the project site into nearby habitats and project related debris, spoils, and trash are contained and removed to a proper disposal facility. Caltrans Standard Specifications Section 18-1.03A, General (Dust Palliatives), would ensure dust control during project construction. Additionally, workers will receive environmental awareness training prior to the initiation of work (Avoidance and Minimization Measure NC-1) and construction equipment shall be inspected and cleaned prior to use in the project area to minimize the importation of non-native plant material (Avoidance and Minimization Measure NC-2). With adherence to existing standards and Avoidance and Minimization Measures NC-1 and NC-2, potential impacts to these species of special concern would be reduced to less than significant levels.

Bat Species: The following text has been amended since the Draft Environmental Document: Certain bat species (i.e., Yuma myotis [*Myotis yumanensis*], Mexican free-tailed bat [*Tadarida brasiliensis*], and big brown bat [*Eptesicus fuscus*]) may forage through most of the open natural vegetation communities located in the BSA. The Cherry Valley Boulevard bridge, ornamental palm trees, and eucalyptus trees within the BSA have the potential to provide suitable roosting habitat for bats. However, there were no bats detected around the Cherry Valley Boulevard bridge, palm trees, or eucalyptus trees were detected during the field surveys. Prior to the commencement of project activities, a bat survey will be conducted to identify the presence of bats or potential bat roosting cavities (AS-1). With adherence to this avoidance and minimization measure, potential impacts to bat species would be reduced to less than significant levels.

Animal Species: As discussed in Section 2.3.4, Animal Species, a total of 84 special-status animal species were identified as potentially occurring within the BSA. Two special status-animal species were observed within the BSA during the site investigation: San Diegan tiger whiptail (*Aspidoscelis tigris stejnegeri*) and double-crested cormorant (*Phalacrocorax auritus*). The BSA has a high potential to support the Cooper's hawk (*Accipiter cooperii*), the southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and the Burrowing Owl (BUOW). All other special status animal species either have moderate, low potential, or are not expected to occur within the BSA. Construction activities associated with the project could directly impact San Diegan tiger whiptail and indirectly impact suitable scrub oak chaparral habitat (Build Alternative 4 only). Implementation of Avoidance and Minimization Measure AS-2 would require a qualified biological monitor be present on-site during ground and habitat disturbance activities, to determine whether or not construction activities would disturb potential habitat of the San Diegan tiger whiptail. The double-crested cormorant individual that was observed on-site was most likely passing through and used the artificial Plantation on the Lake pond as a quick place to rest. Due to a lack of suitable nesting habitat within the BSA, no temporary direct or indirect impacts to nesting double-crested cormorants are anticipated to occur as a result of the proposed project. Additionally, implementation of the proposed project has the potential to result in temporary direct and indirect impacts to suitable foraging habitat and/or nesting habitat preferred by Cooper's Hawk (*Accipiter cooperii*), Southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*)(Build Alternative 4 only); Burrowing Owl (*Athene cunicularia*)(BUOW), California horned lark (*Eremophila alpestris actia*), northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*) (Build Alternative 4 only), White-tailed kite (*Elanus leucurus*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*) (Build Alternative 4 only). However, impacts would be limited relative to the amount of suitable foraging and nesting habitat that would remain available in the BSA and immediate vicinity. All special-status species discussed above are fully covered species under the WR-MSHCP. Additionally, implementation of Avoidance and Minimization Measure NC-1 would require environmental awareness training be provided to all construction workers prior to the initiation of construction work associated with the project. Avoidance and Minimization Measure AS-3 would require pre-construction nesting bird surveys prior to construction during the nesting season. Avoidance and Minimization Measure AS-4 would require a pre-construction clearance survey be conducted more than 30 days prior to initiating ground disturbance activities to confirm that BUOW remain absent and impacts do not occur to any occupied burrows that may be located on or within the BSA. With implementation of Avoidance and Minimization Measures NC-1 and AS-2 through AS-4 identified above, impacts to special-status animal species would be less than significant.

b) <u>Less than Significant Impact With Mitigation Incorporated</u>

The following text has been amended since the Draft Environmental Document: As discussed in Section 2.3.1, Natural Communities, 10 natural communities were observed within the BSA: scrub oak chaparral (*Quercus berberidifolia* Shrubland Alliance), California buckwheat scrub (*Eriogonum fasciculatum* Shrubland Alliance), disturbed California buckwheat scrub

(*Eriogonum fasciculatum* Shrubland Alliance), Cuyamaca cypress stands (*Hesperocyparis stephensonii Woodland* Special Stands), mule fat thickets (*Baccharis salicifolia* Shrubland Alliance), disturbed California sagebrush – (purple sage) scrub (*Artemisia californica – [Salvia leucophylla]* Shrubland Alliance), wild oats and annual brome grasslands (*Avena spp. - Bromus* spp. Herbaceous Semi-Natural Alliance), disturbed wild oats and annual brome grasslands (*Avena spp. - Bromus spp.* Herbaceous Semi-Natural Alliance), planted oak tree grove (*Quercus agrifolia* Forest and Woodland Alliance), and eucalyptus – tree of heaven – black locust groves (*Eucalyptus spp. - Ailanthus altissima - Robinia pseudoacacia* Woodland Semi-Natural Alliance). Build Alternative 3 would result in 0.22 acres of temporary impacts and 1.16 acres of permanent impacts to sensitive natural vegetation communities. Build Alterative 4 would result in 1.52 acres of temporary impacts and 2.59 acres of permanent impacts to sensitive natural vegetation communities. Adherence to Caltrans Standard Specifications Section 14-10.01, General (Solid Waste Disposal and Recycling), would ensure project materials are not cast from the project site into nearby habitats and project related debris, spoils, and trash are contained and removed to a proper disposal facility. Caltrans Standard Specifications Section 18-1.03A, General (Dust Palliatives), would ensure dust control during project construction. Additionally, workers will receive environmental awareness training prior to the initiation of work (Avoidance and Minimization Measure NC-1) and construction equipment shall be inspected and cleaned prior to use in the project area to minimize the importation of non-native plant material (Avoidance and Minimization Measure NC-2). Implementation of Caltrans Standard Specifications and Avoidance and Minimization Measures NC-1, and NC-2 would reduce impacts to sensitive natural communities to less than significant levels.

According to Section 2.3.2, multiple unnamed drainage features (Drainages 1, 3, and 4) were found on-site to qualify as waters of the U.S. and Corps/Regional Board jurisdiction and totals approximately 0.68 acre (2,738 linear feet) of non-wetland waters of the State. Additionally, all on-site drainages (Drainage 1, 3, and 4) exhibit a clear bed and bank and CDFW jurisdiction totaled 1.45 acres (approximately 0.40 acre of CDFW jurisdictional vegetated streambed, 0.87 acre of CDFW jurisdictional non-vegetated streambed, and 0.18 acre of associated riparian vegetation). Build Alternative 3 would impact approximately 0.02 acre (63 linear feet) of Regional Board jurisdiction (non-wetland waters of the State) and 0.03 acre (63 linear feet) of CDFW jurisdiction. Build Alternative 4 would permanently impact approximately 0.06 acre (221 linear feet) of Regional Board jurisdiction (non-wetland waters of the State) and approximately 0.16 acre (221 linear feet) of CDFW jurisdiction.

The following text has been amended since the Draft Environmental Document: Following circulation of the Draft IS/EA and prior to completion of this Final IS/EA, on January 27, 2022, January 28, 2022, and on April 19, 2023, the project team consulted with multiple resource agencies (i.e., Carly Beck and Katrina Rehrer with the California Department of Fish and Wildlife [CDFW], and John Taylor with the United States Fish and Wildlife Service [USFWS]) and has prepared a Determination of Biologically Equivalent or Superior Preservation (DBESP) to ensure potential adverse effects to riparian/riverine resources along El Casco Creek are minimized and mitigated to reduce impacts to sensitive biological resources. Based on these discussions with the resource agencies and DBESP, the project would purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts will be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, will be developed in conjunction with the wildlife agencies. In addition, the project would include a number of enhancements to minimize impacts related to wildlife movement under Cherry Valley Boulevard. Construction would include the installation of a three-foot-high concrete roadway barrier that would shield headlight and noise intrusion into the culvert. Planting of trees and shrubs would occur along Calimesa Road to further shield headlight and noise from entering the culvert. Revegetation would be installed per Caltrans Standard Specifications Sections 13-05 and 21. Directional fencing will be installed along the existing drainage as needed to guide wildlife to the culvert crossing. These project features would offset potential impacts to sensitive biological resources on-site and within the project vicinity. CDFW and USFWS concurred with the DBESP findings and mitigation strategy on July 6, 2023.

A Nationwide Permit from USACE, RWQCB CWA Section 401 Water Quality Certification (WQC), and a CDFW Section 1602 Streambed Alteration Agreement (SAA) will be obtained prior to construction (Mitigation Measure WET-1), and limits of construction will be clearly defined beforehand (Avoidance and Minimization Measure WET-2). With the implementation of these measures, impacts to riparian habitat would be reduced to less than significant levels.

c) <u>No Impact</u>

As discussed in Section 2.3.2, Wetlands and other Waters, there are no jurisdictional wetland features that within the BSA. Soil pits were dug within the drainage features (Drainage 1), where dominant hydrophytic vegetation and hydrologic indicators were observed. Soil pit one (SP1) only met two (hydrophytic vegetation; hydrology) of the three (hydrophytic vegetation, hydric soils, and hydrology) required wetland parameters and thus did not qualify as a wetland. Therefore, implementation of the proposed project would not impact federally protected wetlands as defined by Section 404 of the

Clean Water Act. As such, no impacts would occur in this regard and no measures are required.

d) <u>Less Than Significant Impact</u>

The following text has been amended since the Draft Environmental Document: As discussed in Section 2.3.1, Natural Communities, there are no known designated WR-MSHCP Criteria Cells, habitat linkages, or designated conservation areas within the BSA. Potential wildlife movement within and adjacent to the BSA would occur within the ephemeral drainage features that connect to the surrounding interior areas, foothills, and mountain ranges. Following circulation of the Draft IS/EA and prior to completion of this Final IS/EA, on January 27, 2022, January 28, 2022, and on April 19, 2023, the project team consulted with multiple resource agencies (i.e., Carly Beck and Katrina Rehrer with the California Department of Fish and Wildlife [CDFW], and John Taylor with the United States Fish and Wildlife Service [USFWS]) and has prepared a draft Determination of Biologically Equivalent or Superior Preservation (DBESP) to ensure potential adverse effects to riparian/riverine resources along El Casco Creek are minimized and mitigated to reduce impacts to sensitive biological resources.

Based on these discussions with the resource agencies and DBESP, the project would purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1, subject to resource agencies' approval, for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts will be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, will be developed in conjunction with the wildlife agencies. In addition, the project would include a number of enhancements to minimize impacts related to wildlife movement under Cherry Valley Boulevard. Construction would include the installation of a three-foot-high concrete roadway barrier that would shield headlight and noise intrusion into the culvert. Planting of trees and shrubs would occur along Calimesa Road to further shield headlight and noise from entering the culvert. Revegetation would be installed per Caltrans Standard Specifications Sections 13-05 and 21. Directional fencing will be installed along the existing drainage as needed to guide wildlife to the culvert crossing. These project features would offset potential impacts to sensitive biological resources on-site and within the project vicinity. CDFW and USFWS concurred with the DBESP findings and mitigation strategy on July 6, 2023.. As such, project activities under Build Alternatives 3 and 4 are not expected to impede wildlife movement within these features and through the BSA, specifically through the north, east, and western portions. The BSA would continue to provide opportunities for local wildlife movement and function as a corridor for highly mobile wildlife species. As such, less than significant impacts would occur in this regard and no measures are required.

Construction-related disturbance may have an adverse impact on migratory bird species, including southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*) and California horned lark (*Eremophila alpestris actia*), especially during the breeding season (generally February 1 through August 31) when individuals may be attempting to incubate eggs or raise young within or adjacent to the BSA. Construction-related noise, vibration, dust, or visual disturbances may disrupt nesting activities or may cause birds to leave the area until construction is completed. In extreme cases nesting efforts may be abandoned, resulting in take of young or eggs. To minimize potential impacts to migratory bird species on-site and within the project vicinity, implementation of a pre-construction clearance survey would be performed if project activities occur during the breeding season (February 1st through September 30th) (Avoidance and Minimization Measure AS-3). With the implementation of Avoidance and Minimization Measure AS-3, a less than significant impact to migratory birds would occur.

e) <u>Less than Significant Impact</u>

The following text has been amended since the Draft Environmental Document: local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance do not apply to this project.

f) <u>No Impact</u>

The project site is located within the boundaries of the WR-MSHCP. The proposed project is considered to be Covered Activity under Section 7.1 of the WR-MSHCP. Pursuant to this section, public and private development that occurs outside of Criteria Areas and Public/Quasi-Public (P/QP) Lands is permitted under the WR-MSHCP. As noted in the analysis above, the project would not result in significant impacts to biological resources, and would not result in any conflicts with the WR-MSHCP. As such, no impacts would occur in this regard.

3.2.5 Cultural Resources

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource pursuant to §15064.5?	☐	☐	☒	☐
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	☐	☐	☒	☐
c) Disturb any human remains, including those interred outside of dedicated cemeteries?	☐	☐	☒	☐

a) and b) <u>Less Than Significant Impact</u>

As discussed in Section 2.1.11, based on the literature and records review performed as part of the HPSR, two historic resources were identified within the APE. A historic-period refuse scatter (CA-RIV-7924H/(33-014869) and a historic-period structural remnants site (CA-RIV-7925H/33-014870) were previously documented, evaluated and determined ineligible for inclusion in the NRHP/CRHR.

As a result of the survey conducted for the HPSR, two newly identified historic resources were documented within the APE: 1) a historic-period structural remnants site (Æ-3997-01H); and 2) a historic-period built-environment farm complex site (APN 413-270-014). These resources were documented and evaluated according to NRHP and CRHR criteria, and both resources were determined to be ineligible for inclusion in the NRHP/CRHR. There were no other historical resources identified as part of the analysis for the proposed project.

While no historical or archaeological resources eligible for inclusion in the NRHP/CRHR were determined to be present on-site, the possibility exists that previous unknown buried resources could be discovered during construction. In accordance with Caltrans standards, if cultural materials are discovered during construction, 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. Additionally, the project would be subject to compliance with California Health and Safety Code (H&SC) Section 7050.5 in the event human remains are discovered. Thus, impacts in this regard would be less than significant, and no measures are required.

c) <u>Less Than Significant Impact</u>

As noted above, there were no archaeological resources determined to be present on-site as part of preparation of the HPSR. It is not anticipated that human remains would be discovered as part of the construction process. However, if human remains are discovered, California H&SC Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. If the remains are thought by the coroner to be Native American, the coroner will notify the Native NAHC, who, pursuant to PRC Section 5097.98, will then notify the Most Likely Descendent (MLD). At this time, the person who discovered the remains will contact Andrew Walters, the District Environmental Branch Chief ([909] 383-2647) or Gary Jones, District Native American Coordinator ([909] 383-7505), Principal Investigator for the NAHC, so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable. Thus, impacts in this regard would be less than significant, and no measures are required.

3.2.6 Energy

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation?	☐	☐	☐	☒
b) Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?	☐	☐	☐	☒

a) <u>No Impact</u>

Direct Energy (Construction)

During construction of the proposed project, direct energy use from construction sources is the energy that is consumed during construction activities by vehicles and equipment. Project construction would consume primarily diesel fuel through the operation of heavy-duty equipment as well as commercial trucks for material deliveries and debris hauling; gasoline would be consumed during workers’ vehicle trips to and from the construction site. Project construction would also involve the use of on-road gasoline vehicles by construction workers. As shown in Table 2.2.8-56, construction activities associated with implementation of Build Alternative 3 would consume approximately 249,785 gallons of diesel fuel and 16,224 gallons of gasoline, with energy consumption totaling approximately 33,619 million BTUs over the two-year period. As shown in Table 2.2.8-67, construction activities associated with implementation of Build Alternative 4 would result in the consumption of approximately 243,793 gallons of diesel fuel and 16,224 gallons of gasoline, with energy consumption totaling approximately 32,855 million BTUs over the two-year period. These energy consumption levels represent a nominal demand on local and regional fuel supplies and would be accommodated. Although construction would result in a short-term increase in energy use, construction design features would help conserve energy. For example, recycled materials, including removed asphalt concrete pavement and cement concrete pavement, would be used where feasible. Recycled products typically have lower energy costs for manufacturing and transportation because recycled products do not require raw materials, which must be mined and transported to a processing facility. If new materials must be used, a fly ash mix may be considered to lower the heat island effect, depending on what is allowable under Caltrans specifications. Additionally, project construction would include the use of reclaimed water and energy-efficient lighting, such as light emitting diode (LED) traffic signals. The energy conservation features would be consistent with State and local policies to reduce energy consumption. Therefore, project would not result in the wasteful, inefficient, or unnecessary consumption of energy and no impacts would occur in this regard and no measures are required.

Direct Energy (Operational Mobile Sources)

Energy calculations for transportation projects are dependent on VMT and vehicle fuel consumption. As shown in Tables 2.2.8-2, 2.2.8-9, and 2.2.8-10 the annual energy consumption between Existing Year 2019 and Design Year 2045 would increase by 1,669 million BTUs (23 percent) and VMT is projected to increase by 27 percent. This slight disparity is attributed to fleet turnover, as older, less fuel-efficient vehicles are replaced by later-model, more fuel-efficient vehicles over time. These later-model replacement vehicles would also include hybrid and all-electric vehicles. For the project, only a slight change in energy consumption would occur because of the following reasons: 1) no change in project-vicinity VMT, and 2) the relatively small magnitude of this single interchange capacity enhancement considering the larger region. Therefore, energy consumption under the proposed project would be negligible compared with the No-Build Alternative. No impacts would occur in this regard.

Federal and State regulations and policies (e.g., Surface Transportation Act, Energy Policy Act, California's Transportation Plan) are intended to achieve goals that include reducing congestion, improving air quality, and increasing vehicle fuel efficiency. Build Alternatives 3 and 4 would not conflict with these regulations or policies. The regional and local policies (e.g., SCAG 2020-2045 RTP, City of Calimesa General Plan, and Riverside County General Plan) include goals that involve reducing congestion, reducing traffic on arterial roads, promoting mass transit, reducing VMT, and increasing vehicle occupancy rates. Build Alternatives 3 and 4 would be consistent with these policies because the project would enhance operations by improving reliability and travel times within the I-10 corridor and improve traffic flow by reducing congestion and offering motorists a faster and more reliable commute. Lastly, operations under Build Alternatives 3 and 4 would include implementation of intelligent transportation systems to help manage the efficiency of the existing highway system. Intelligent transportation systems are commonly referred to as electronics, communications, or information processing, used singly or in combination, to improve the efficiency or safety of a surface transportation system. Furthermore, based on the Energy Analysis Report, no substantial alterations to the existing energy infrastructure would be required and the project would have minimal impacts on operational energy consumption. No impacts would occur in this regard, and no measures are required.

Indirect Energy

Based on Section 2.2.8, the analysis of indirect energy consumption shows that the project would result in an increase in indirect energy use in the project study area under Opening Year 2025 (totaling approximately 0.02 percent) and Design Year 2045 conditions (totaling approximately 0.001 percent for Build Alternative 3 and 0.002 percent for Build Alternative 4) compared with the No-Build Alternative. Tables 2.2.8-147 and 2.2.8-158 show that both Build Alternatives 3 and 4 would result in negligible changes in indirect energy use in the region in Opening Year 2025 and Design Year 2045 conditions compared with the No-Build Alternative. Both Build Alternatives 3 and 4 would not substantially contribute to indirect energy use at the regional level and would not be expected to result in permanent adverse indirect energy impacts. The project would be consistent with federal, regional, and local plans and policies. Therefore, project implementation would not result in an inefficient, wasteful, or unnecessary consumption of energy, and no impacts would occur in this regard. No measures are required.

b) No Impact

As noted in Section 2.2.8, Federal and State regulations and policies (e.g., Surface Transportation Act, Energy Policy Act, California's Transportation Plan) are intended to achieve goals that include reducing congestion, improving air quality, and increasing vehicle fuel efficiency. The project would not conflict with these regulations or policies. The regional and local policies (e.g., SCAG 2020-2045 RTP, City of Calimesa General Plan, and Riverside County General Plan) include goals that involve reducing congestion, reducing traffic on arterial roads, promoting mass transit, reducing VMT, and increasing vehicle occupancy rates. The project would be consistent with these policies because the project would enhance operations by improving reliability and travel times within the I-10 corridor and improve traffic flow by reducing congestion and offering motorists a faster and more reliable commute. Lastly, operations under the project would include implementation of intelligent transportation systems to help manage the efficiency of the existing highway system. Intelligent transportation systems are commonly referred to as electronics, communications, or information processing, used singly or in combination, to improve the efficiency or safety of a surface transportation system. Furthermore, based on the Energy Analysis Report, no substantial alterations to the existing energy infrastructure would be required and the project would not impact operational energy consumption. Thus, no impacts would occur in this regard and no measures are required.

3.2.7 Geology and Soils

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Directly or indirectly cause potential substantial adverse effects, including the risk of loss, injury, or death involving:	---	---	---	---
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	☐	☐	☐	☒
ii) Strong seismic ground shaking?	☐	☐	☒	☐
iii) Seismic-related ground failure, including liquefaction?	☐	☐	☒	☐
iv) Landslides?	☐	☐	☐	☒
b) Result in substantial soil erosion or the loss of topsoil?	☐	☐	☒	☐
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?	☐	☐	☐	☒
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial direct or indirect risks to life or property?	☐	☐	☒	☐
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?	☐	☐	☐	☒
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☐	☒	☐	☐

The potential for the Build Alternatives to result in impacts to geology and soils was assessed in the Preliminary Geotechnical Design Report (PGDR) (June 2020), and the Geology/Soils/Seismic/Topography and Paleontology sections in Chapter 2. The following discussions are based on those analyses.

a) i) <u>No Impact</u>

The project area is not in an Alquist-Priolo Earthquake Fault Zone (California Department of Conservation, Earthquake Zones of Required Investigation, https://maps.conservation.ca.gov/cgs/EQZApp/app/, accessed on December 15, 2020), and there are no known active or potentially active faults mapped as crossing or in the immediate vicinity of the project site; refer to Figure 2.2.3-1, Regional Fault Map. No impacts would occur in this regard, and no measures are required.

a) ii) <u>Less than Significant Impact</u>

The project site is located within the seismically active region of southern California. During the life of the project, seismic activity is likely to generate moderate to strong seismic shaking at the site during earthquakes. Build Alternatives 3 and 4 would comply with the most current Caltrans' procedures and design criteria regarding seismic design to minimize any adverse effects related to seismic ground shaking. Earthwork would be performed in accordance with Caltrans Standard Specifications, Section 19, which require standardized measures related to compacted fill, over-excavation and recompaction, and retaining walls, among other requirements. Additionally, Caltrans Highway Design Manual (HDM) Topic 113, Geotechnical Design Report, would require that a site-specific, geotechnical field investigation is performed for the project during the Plans, Specifications, and Estimates (PS&E) phase. Impacts in this regard would be less than significant, and no measures are required.

a) iii) <u>Less Than Significant Impact</u>

The following text has been amended since the Draft Environmental Document: Preliminary liquefaction analysis within the PGDR determined that, due to the absence of shallow groundwater within the project site, the potential for adverse effects related to liquefaction would be low. However, the PGDR recommends that liquefaction potential is further examined during the PS&E phase of the project to confirm the conclusions of the PGDR. As such, a less than significant impact would occur in this regard.

The following text has been amended since the Draft Environmental Document:

a) iv) No Impact

Topography of the project site is determined to be relatively flat, and there are no landforms in the project area capable of generating a landslide; therefore, landslide potential is considered low. As such, no impact would occur in this regard.

b) <u>Less than Significant Impact</u>

Temporary Construction Impacts

Grading and earthwork associated with proposed construction activities would result in exposed soils subject to erosion. As noted in Section 2.2.2, Best Management Practices (BMPs), including construction site BMPs (e.g., storm drain inlet protection, temporary fiber rolls, gravel bed berms, etc.) and job management BMPs (i.e., wind erosion control, spill prevention and control, etc.) would minimize potential erosion impacts to downstream waterbodies. The project would be required to adhere to existing temporary construction related National Pollutant Discharge Elimination System (NPDES) requirements, which would minimize impacts in this regard. Compliance with the Construction General Permit would require preparation and implementation of a Stormwater Pollution Prevention Plan (SWPPP). The SWPPP would specify BMPs to be used during construction of the project to minimize or avoid water pollution, including erosion. With adherence to these requirements, impacts in this regard would be less than significant.

Operational Impacts

Native soils within the project limits are anticipated to bed fine- to coarse-grained silty sands, and therefore are subject to moderate to severe erosion. The majority of slopes proposed as part of the Build Alternatives would be sloped at 4H:1V or flatter; based on the PGDR, fill slopes of up to 2H:1V are feasible from a geotechnical standpoint. These areas would be maintained with erosion protection and drainage control in accordance with Section 21 of Caltrans Standard Specifications (2022). Additionally, the project will adhere to the earthwork recommendations provided in the PGDR. As such, operational impacts would be less than significant. No measures are required.

c) <u>No Impact</u>

As discussed in Response a) (iii), due to the absence of shallow groundwater, the project site is not subject to liquefaction hazards. Additionally, the potential for landslide, lateral spreading, subsidence, or collapse is not anticipated to be a design concern. Nonetheless, these conclusions would be confirmed during the PS&E phase. No impact would occur in this regard, and no measures are required.

d) <u>Less than Significant Impact</u>

As discussed in Section 2.2.3, the soils associated with the project site are primarily fine-grained soils (silts and clays) which are not expected to be expansive. The expansion potential for silty and clayey soils range from very minimal to high. The project would adhere to the earthwork recommendations provided in the PGDR, and soil expansion would be further evaluated during the PS&E phase. As such, less than significant impacts would occur, and no measures are required.

e) <u>No Impact</u>

The Build Alternatives would not use septic tanks or alternative methods for disposal of wastewater into subsurface soils and would not connect to existing public wastewater infrastructure. No measures are required.

f) <u>Less than Significant With Mitigation Incorporated</u>

Based on Section 2.2.4, no paleontological resources are known to occur on-site or within a mile radius of the site. However, the project area consists of surficial and subsurface geologic units ranked as low to high in potential for buried fossils. As a result, ground-disturbing activities associated with the construction of the project could result in the disturbance or loss of previously undiscovered paleontological resources. Implementation of Avoidance and Minimization Measure PAL-1 would require worker's environmental awareness training. Mitigation Measure PAL-2 would additionally require retainment of a qualified Principal Paleontologist, and the implementation of a Paleontological Mitigation Plan (PMP) for the project. If paleontological resources are discovered during ground-disturbing activities, fossil preparation, curation, and reporting would occur in accordance with Avoidance and Minimization Measure PAL-3. With the implementation of these measures, impacts to potential paleontological resources would be less than significant.

3.2.8 Greenhouse Gas Emissions

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	☐	☒	☐	☐
b) Conflict with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?	☐	☒	☐	☐

The potential for Build Alternatives 3 and 4 to result in impacts to greenhouse gas emissions was assessed in the Air Quality Report (December 2020) and Section 3.4, below. The following discussion is based on those analyses.

a) <u>Less than Significant With Mitigation Incorporated</u>

Temporary Construction Impacts

Construction greenhouse gas (GHG) emissions would result from material processing, on-site construction equipment, and traffic delays due to construction. These emissions would be produced at different levels throughout the construction phase. Based on Section 3.4, Build Alternative 3 would emit 2,728 metric tons per year of CO_2 equivalent (CO_{2e}) from construction activities, refer to Table 3.4-3, Summary of Construction Emissions under Build Alternative 3, in Section 3.4 below. Under Build Alternative 4, the project would emit a similar level of construction emissions of 2,664 metric tons of CO_{2e}; refer to Table 3.4-5, Summary of Construction Emissions under Build Alternative 4. Under both Build Alternatives, the project would emit about one metric ton of CH_4 and less than one metric ton of N_2O per year. These emissions would occur over a 24-month long period.

Under Build Alternatives 3 and 4, construction activities would comply with all State laws and regulations regarding GHG emissions reductions. The project would comply with Section 7-104A, Air Pollution Control, of the Caltrans Standard *Construction Manual*, which requires compliance with the Clean Air Act. Build Alternatives 3 and 4 would comply with Caltrans Standard Specifications Section 7-1.02C, Emissions Reduction, which require contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all CARB emission reduction regulations. A TMP Transportation Management Plan (TMP) would be prepared during the final design phase to minimize emissions by reducing the number of traffic delays and idling during construction (Greenhouse Gas Reduction Strategy CC-2). The construction contractor would comply with CARB's anti-idling rule (Section 2489 of the California Code of Regulations) (Greenhouse Gas Reduction Strategy GHG-1). The construction contractor would minimize the amount of GHG-emitting construction materials (Greenhouse Gas Reduction Strategy GHG-8). Rather, the project would utilize energy- and fuel-efficient vehicles and equipment (Greenhouse Gas Reduction Strategy GHG-8) that would be maintained in proper condition and would comply with Best Available Control Technology requirements (Greenhouse Gas Reduction Strategy GHG-3). Build Alternatives 3 and 4 would comply with State laws and regulations, and construction activities would not emit substantial GHG emissions that would surpass the local inventory of transportation emissions. As such, temporary impacts would be less than significant in this regard and no measures are required.

Operational Impacts

Based on Section 3.4, below, implementation of the project would result in an increase in GHG emissions relative to existing conditions. However, it is important to note that this increase in GHG emissions relative to existing conditions is not due to the proposed project, but rather is associated with new residential and nonresidential developments that would occur within the project vicinity between the existing year (2019) and project open to traffic year (2025). This increase in development would cause growth in background traffic volumes and related GHG emissions.

As discussed in Chapter 2 of this IS/EA and indicated above, project implementation would improve mobility and interstate highway access, reduce congestion, and enhance traffic operations. Rather than induce additional growth, the project would accommodate future planned growth in the area. Implementation of sidewalks and turn lane bicycle buffers along Cherry Valley Boulevard would increase opportunities for nonmotorized transportation and provide connectivity between Cherry Valley Boulevard and residential and commercial units within the project area. These features support GHG-related policies of the Riverside County and City of Calimesa Climate Action plans, and the City of Calimesa General Plan. Implementation of the project, along with other projects included in the regional 2020–2045 RTP, should further improve traffic flow and decrease congestion within the region. Under Build Alternatives 3 and 4, the project would incorporate the use of energy-efficient lighting, such as LED traffic signals, to help reduce the project’s CO2 emissions (Greenhouse Gas Reduction Strategy GHG-2). As a method of offsetting CO^2 emissions, the project would implement landscaping during final design in coordination with the County of Riverside (Greenhouse Gas Reduction Strategy GHG-4). As such, impacts in this regard would be less than significant with mitigation incorporated.

b) <u>Less Than Significant Impact With Mitigation Incorporated</u>

Implementation of the project may conflict with AB-32 goals to reduce GHG emissions as the project would result in construction/operational emissions. Accordingly, Measures CC-1 through CC-8 and GHG-1 through GHG-8 would be required to ensure construction emissions are mitigated during the construction phase of the project and that conflicts with an applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases do not occur. Impacts would be less than significant with mitigation incorporated.

3.2.9 Hazards and Hazardous Materials

Would the project:	**Significant and Unavoidable Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	☐	☐	☒	☐
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	☐	☐	☒	☐
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	☐	☐	☐	☒
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	☐	☐	☒	☐
e) For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard or excessive noise for people residing or working in the project area?	☐	☐	☐	☒
f) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	☐	☐	☐	☒
g) Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?	☐	☐	☒	☐

The potential for the Build Alternatives to result in impacts regarding hazards and hazardous materials was assessed in the Phase I Initial Site Assessment I-10/Cherry Valley Boulevard Interchange Improvement Project (Phase I ISA) (December 2020), and the Hazardous Waste/Materials section in Chapter 2. The following discussions are based on those analyses.

a) <u>Less than Significant Impact</u>

The project is not anticipated to create a substantial hazard to the public or the environment through any reasonably foreseeable hazard to the public through the routine transport, use, or disposal of hazardous materials. During operations, it is anticipated that any use of hazardous materials on-site would consist of routine hazardous materials such as paint, solvents, and fuel for maintenance activities and landscaping. All such materials would be used, handled, stored, and disposed of in accordance with applicable local, State, and federal regulations. The routine transport, use, and disposal of hazardous materials under the project would be similar to what occurs under existing conditions. Potential hazardous material impacts in this regard are considered less than significant, and no measures are required.

b) <u>Less than Significant Impact</u>

As detailed in Section 2.2.5, Hazardous Waste/Materials, the records search conducted as part of the Phase I ISA reported one spill site within the boundaries of the subject site. This spill was reported in 1988, and the type of contaminant, amount, and containment status were not reported. This past spill is anticipated to be associated with a petroleum spill that may have occurred during an automobile accident. Thus, the incident is anticipated to have been minor in nature and occurred more than 25 years ago. Therefore, based on the Phase I ISA this spill is de minimis in nature and has not resulted in a recognized environmental condition (REC). The Phase I ISA also included eight off-site regulatory properties that were identified as part of the records search.

Based on the Phase I ISA, there are a number of on-site conditions that could result in risk of upset in regards to hazardous materials. These conditions relate to traffic striping, asbestos-containing materials (ACMs), lead based paint (LBP), treated wood waste, relocation of transformers, storage tanks, aerially deposited lead (ADL), and pesticides/herbicides resulting from historical agricultural uses. As noted within Section 2.2.5, Hazardous Waste/Materials, the project would implement Avoidance and Minimization Measures HAZ-1 through HAZ-8 to minimize impacts in this regard. Upon implementation of these measures, impacts would be less than significant.

c) <u>No Impact</u>

The nearest existing high school to the project site is Beaumont High School (located at 39139 Cherry Valley Blvd, Beaumont, CA 92223), approximately 2.9 miles east of the project site. No impact would occur in this regard and no measures are required.

d) <u>Less Than Significant Impact</u>

Based on Section 2.2.5, one residential property located at Plantation on the Lake (10961 Desert Lawn Drive) is on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5: the Cortese regulatory database. The property reported a liquid mercury spill in 2013. However, the off-site release (reported on concrete) has not resulted in a release on the project site and no impact would occur. Impacts would be less than significant in this regard, and no measures are required.

e) <u>No Impact</u>

The nearest airport to the project site is the Banning Municipal Airport, which is approximately 9.9 miles southeast of the project site (200 S Hathaway St, Banning, CA 92220). No impacts would occur in this regard and no measures are required.

f) <u>No Impact</u>

The City of Calimesa has an Operations Emergency Plan and a Local Hazard Mitigation Plan. Additionally, the City of Calimesa is a participant in the County of Riverside Operational Area Emergency Operations Plan and the County of Riverside Multi-Jurisdictional Local Hazard Mitigation Plan.

The project is anticipated to result in beneficial impacts in relation to vehicular movement, connectivity, and mobility in the area. This would result in associated benefits related to emergency response and evacuation over the long-term. Temporary disruption of traffic would occur during the short-term construction process. Temporary closures and/or detours may occur during periods of the construction phase. However, implementation of the Transportation Management Plan (TMP) identified in Section 2.1.9, Traffic and Transportation/Pedestrian Bicycle Facilities, will implement alternate route strategies to minimize impacts to roadways and reduce potential congestion. These strategies would help improve circulation during the construction phase of the project, to maintain adequate access for emergency responders or evacuation purposes. As such, less than significant impacts would occur in this regard.

g) <u>Less than Significant Impact</u>

Based on the California Department of Forestry and Fire Protection (CalFire) Very High Fire Hazard Severity Zones in Locally Responsibility Area (LRA) (dated December 4, 2009 for West Riverside County and incorporated areas), a very small portion of the project site fall within a “Very High Fire Hazard Severity Zone” in a “Local Responsibility Area.”

The likelihood of a wildfire resulting from demolition and construction activities is low. Additionally, the project would be subject to adherence to Chapter 33 of the California Fire Code, Fire Safety During Construction and Demolition, which includes safety provisions and precautions to minimize the potential for fires. Upon adherence to this existing standard, impacts would be less than significant in this regard.

The project is not anticipated to result in permanent impacts related to exacerbation of fire hazards in a “Very High Fire Hazard Severity Zone.” The project would improve an existing interchange, and would not include the extension of new roadways or other infrastructure through an area that is subject to high fire risk.

Additional detail and analysis are provided below under the Wildfire subsection.

3.2.10 Hydrology and Water Quality

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?	☐	☐	☒	☐
b) Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin?	☐	☐	☐	☒
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:	---	---	---	---
(i) result in substantial erosion or siltation on- or off-site;	☐	☐	☒	☐
(ii) substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;	☐	☐	☒	☐
(iii) create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff; or	☐	☐	☒	☐
(iv) impede or redirect flood flows?	☐	☐	☐	☒
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?	☐	☐	☐	☒
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?	☐	☐	☐	☒

The potential for project to result in impacts regarding hydrology and water quality was assessed in the Location Hydraulic Study/Summary Floodplain Encroachment Report (August 2020) (LHS/SFER), the Preliminary Drainage Report (PDR) (dated August 2020), the Scoping Questionnaire for Water Quality Issues (August 2020) (SQWQI), and the Hydrology and Floodplain and Water Quality sections in Chapter 2. The following discussions are based on those analyses.

a) Less than Significant Impact

As discussed in the Section 2.2.2, Water Quality, construction of the project would not violate any water quality standards or waste discharge requirements. The project would not result in substantial water quality impacts to downstream receiving bodies, the El Casco Creek and San Timoteo Creek Reach 3 during operations. As noted in Section 2.2.2, the San Timoteo Creek Reach 3 is listed as impaired for Indicator Bacteria, specifically E. coli. Pursuant to Caltrans MS4 Permit requirements, the project would be required to implement a range of design pollution prevention and treatment and maintenance BMPs. These BMPs would meet the objective of maximizing vegetated surfaces, preventing downstream erosion, and stabilizing soil areas. The project would also include Detention Pollution Prevention (DPP) strategies to minimize runoff, maximize infiltration and reduce erosion. Upon adherence to the Caltrans MS4 Permit, impacts to water quality would be less than significant and no measures are required.

b) No Impact

According to the SQWQI, there are five groundwater wells within a one-mile of the existing interchange that that contained groundwater measurements with groundwater depth between 92 feet and 264 feet below ground surface (bgs). The historical high groundwater and current depth to standing groundwater at the project site are anticipated to be deeper than 50 feet bgs.

The project would not result in any direct injection or extraction of groundwater. However, the project would result in an increase in impervious surfaces (an increase of 9.48 acres under Build Alternative 3, and 11.84 acres under Build Alternative 4). However, as noted in Section 2.2.2, Water Quality and Storm Water Runoff, the project would be required to include DPP strategies to minimize runoff, maximize infiltration and reduce erosion. DPP strategies include implementing slope/surface protection systems, implementing concentrated flow conveyance systems, and preserving existing vegetation. These strategies, in addition to the proposed treatment BMPs, would aim to treat at a minimum 100% of the Water Quality Flow (WQF) generated from the proposed increase in impervious surface. Thus, the project would not deplete groundwater supplies or interfere with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level. No impacts would occur in this regard and no measures are required.

c) i) ii) and iii) Less than Significant

As discussed in the Hydrology and Floodplain and Water Quality and Storm Water Runoff sections in Chapter 2, the project would add impervious surface to the project site. Impervious surface would increase by 9.48 acers for a total impervious area of 10.83 acres under Build Alternative 3, and by 11.84 acres for a total impervious area of 12.85 acres under Build Alternative 4. This increase would result in a permanent increase in impervious surfaces that would induce an increase in the volume of stormwater runoff. Based on Section 2.2.1, the project would result in minor increases in off-site stormwater runoff tributary to El Casco Creek. To provide additional capacity and freeboard to the El Casco Creek, the project would increase the depth of the existing channel by extending the tops of the channel side slopes in kind while maintaining the invert of the channel. The proposed increase in channel depth would not result in an increase to the existing water surface elevations, as the increase in channel depth will maintain the existing channel invert and side slope dimensions, while extending the tops of the channel side slopes in kind. These channel improvements would require minimal proposed grading as the existing and proposed elevations of Calimesa Boulevard and the I-10 westbound on-ramp are considerably higher than the concrete channel. As discussed in Response a), the project would implement Treatment BMPs and DPP strategies to minimize runoff, maximize infiltration and reduce erosion from the project. As such, less than significant impacts would occur in this regard and no measures are required.

c) iv) <u>No Impact</u>

The project area is located in a Federal Emergency Management Agency (FEMA) Zone X designated area; a zone designated as outside the 0.2 percent annual chance of flood, and is located outside the of 100-year floodplain. The project would not introduce significant risk, nor would it result in a localized rise in the water surface elevation at El Casco Creek; the 100-year storm event flow would be contained within the channel. There are no floodplains and no surrounding inundation areas within the project limits. As such, no impacts would occur in this regard and no measures are required.

d) <u>No Impact</u>

The project site is not located in a flood hazard zone. The project site is located outside the of 100-year floodplain in a FEMA Zone X designated area. Additionally, the project site is located approximately 50 miles east of the Pacific Ocean, and there is no anticipated risk of inundation from a tsunami under the Build Alternatives. No impact would occur in this regard and no measures are required.

A seiche is a tsunami-like condition that would occur in an enclosed body of water like a lake or reservoir. The nearest enclosed body of water to the project site is the El Casco Lake, located approximately 4.2 miles to the northwest. Based on the distance of the project site to the northwest and intervening topography, there is no anticipated risk of inundation from a seiche under the Build Alternatives. No impact would occur in this regard and no measures are required.

e) <u>No Impact</u>

According to the SQWQI, the project site is located within the jurisdiction of the Riverside County Watershed Action Plan (WAP), addresses) "watershed scale water quality impacts of urbanization in the Permit Area associated with Urban Total Maximum Daily Load (TMDL) Waste Load Allocations (WLAs), stream system vulnerability to hydromodification from Urban Runoff, cumulative impacts of development on vulnerable streams, preservation of Beneficial Uses of waterbodies in the SAR, and protection of water resources, including groundwater recharge areas" (Riverside County Flood Control and Water Conservation District, 2017). The project is located within the San Timoteo Watershed, which is not listed as impaired for any established TMDLs.

Pursuant to Caltrans NPDES permit requirements, the project would implement a range of DPP, treatment, and maintenance BMPs. Implementation of BMPs would meet the objective of maximizing vegetated surfaces, preventing downstream erosion, and stabilizing soil areas. The selection of BMPs will be determined during final design. As such, no conflicts with a water quality control plan or groundwater management plan would occur in this regard and no measures are required.

3.2.11 Land Use and Planning

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Physically divide an established community?	☐	☐	☐	☒
b) Cause a significant environmental impact due to a conflict with any land use plan, policy, or regulation adopted for the purpose of avoiding or mitigating an environmental effect?	☐	☐	☐	☒

The potential for the project to result in impacts regarding land use and planning was assessed in the Community Impact Assessment (CIA) Memorandum (January 2021) and the Land Use section in Chapter 2. The following discussion is based on those analyses.

a) <u>No Impact</u>

The project involves the reconstruction of the I-10/Cherry Valley Boulevard interchange, as well as realignment of Calimesa Boulevard; both of which are existing linear infrastructure facilities. The project improvements would not have the potential to create a new barrier between developed uses. Rather, the project would result in a beneficial impact since it would improve traffic operations, connectivity, and mobility at the I-10/Cherry Valley Boulevard interchange and within the project limits. Therefore, the improvements would not have the potential to divide an established community. No impacts would occur, and no measures are required.

b) <u>No Impact</u>

The project would construct a new I-10/Cherry Valley Boulevard Interchange, which would accommodate traffic for existing and planned development in the area. As discussed in Section 2.1.1, Land Use, the project would be consistent with applicable State, regional, and local plans and programs. Thus, no impacts would occur, and no measures are required.

3.2.12 Mineral Resources

Would the project:	**Significant and Unavoidable Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?	☐	☐	☐	☒
b) Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	☐	☐	☐	☒

a) and b) <u>No Impact</u>

Based on Figure 4.12.1 in the Riverside County Integrated Project General Plan Final Program EIR, the project site is located with MRZ-3, areas where the available geologic information indicates that mineral deposits (are likely to) exist, however, the significance of the deposit is undetermined. The project includes the improvement of an existing freeway interchange, and there are no known mineral resources associated with the project site. No mineral recovery activities occur on site or in the project area. Therefore, the project would not result in the loss of availability of any known mineral resources, or loss of availability of a mineral resource recovery site. No impacts would occur, and no measures are required.

3.2.13 Noise

Would the project result in:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	☐	☐	☒	☐
b) Generation of excessive groundborne vibration or groundborne noise levels?	☐	☐	☒	☐
c) For a project located within the vicinity of a private airstrip or an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	☐	☐	☐	☒

The potential for the project to result in transportation/traffic impacts was assessed in the Noise Study Report (NSR) (April 2021), the I-10/Cherry Valley Boulevard Interchange Project Noise Abatement Decision Report (NADR) (August 2021), and the Noise section in Chapter 2. The following discussion is based on those analyses.

a) and b) Less than Significant Impact

Land uses in the project area have been grouped into a series of lettered analysis areas that are identified in Figures 2.2.7-2 to 2.2.7-11. Land uses within the project area include several single-family residences and mobile homes identified as Areas A, B, C, F, I, J, and K. Additionally, there are commercial properties and undeveloped/unpermitted lands.

Temporary Construction Impacts

Temporary construction noise would occur and may intermittently dominate the noise environment for land uses within in the immediate area of construction. As stated in Section 2.2.7, construction activities associated with Build Alternatives 3 and 4 could expose these uses to temporary noise levels of up to approximately 89 dBA. However, construction noise and vibration would be short term, intermittent, and overshadowed by local traffic noise. Additionally, construction would comply with the Caltrans Standard Specification Section 14-8.02, which would require noise levels from construction activities to not exceed 86 dBA L_{max} at 50 feet from 9 PM. to 6 AM. Caltrans Standard Specification Section 14-8.02 would also combustion engines would be equipped with appropriate muffler. By adhering to the

Caltrans Standard Specifications, temporary impacts related to noise and vibration would be less than significant.

Operational Impacts

Operational noise levels under Build Alternatives 3 and 4 would exceed the noise abatement criteria (NAC) of 67 dBA $L_{eq(h)}$ in sensitive land use areas (Areas A, B, J and K). As such, soundwalls are proposed as the solitary form of noise abatement for these areas. Feasible and reasonable soundwalls are identified in the NADR and Section 2.2.7 at various heights and costs. These would include soundwalls S401 and S452 with a height of 14 feet; refer to Figures 2.2.7-2 and 2.2.7-5 for locations of each soundwall. As summarized in Section 2.2.7, noise abatement surveys were distributed to property owners and non-owner occupants potentially benefiting from the soundwalls, asking whether or not they would be in favor of a noise barrier; the majority voted in favor of Soundwalls S401 and S452. With the implementation of noise abatement, impacts would be reduced to less than significant and no measures are required.

c) <u>No Impact</u>

The project site is not located within the vicinity of a private airstrip or within two miles of a public airport or public use airport. Additionally, the project site and area are not within the Riverside County Airport Land Use Compatibility Plan area of influence for the Banning Municipal Airport. As such, no impacts would occur in this regard.

3.2.14 Population and Housing

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Induce substantial unplanned population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	☐	☐	☒	☐
b) Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?	☐	☐	☒	☐

The potential for the project to result in impacts related to population and housing was assessed in the Growth section in Chapter 2. The following discussion is based on that analysis.

a) <u>Less Than Significant Impact</u>

Project implementation would not accelerate or otherwise influence growth beyond what is already planned in the project area. Project improvements generally include the reconstruction of the I-10/Cherry Valley Boulevard interchange and realignment of Calimesa Boulevard. While traffic operations at the interchange would be improved with implementation of the project, it would not substantially change accessibility to adjacent and nearby properties. As discussed in Section 2.1.4 of this IS/EA, the project is not anticipated to result in substantial changes in accessibility or growth. The proposed project would not influence growth because the project would not directly result in substantial changes to land use or directly encourage changes in population density. Development within the project area is governed by the Calimesa General Plan and Riverside County General Plan. Although the project would provide operational improvements to local access, it is not expected that the project would affect growth at the local or regional level. As such, impacts in this regard are less than significant. No measures are required.

b) <u>Less than Significant Impact</u>

As discussed in Section 2.1.6 prepared for this IS/EA, two residential relocations on APN 413-270-014 would occur under Build Alternative 4, which would result in the displacement of people and housing. However, as noted in Section 2.1.6, adequate housing stock is available in proximity to the project area to meet the decent, safe, and sanitary standards to relocate the displaced residents from the impacted area. With the implementation of Avoidance and Minimization Measure ROW-1, which will ensure impacted property owners receive just compensation, project implementation would not displace a substantial number of existing people or housing. Less than significant impacts would occur in this regard.

3.2.15 Public Services

a) Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:	**Significant and Unavoidable Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
(i) Fire protection?	☐	☐	☒	☐
(ii) Police protection?	☐	☐	☒	☐
(iii) Schools?	☐	☐	☐	☒
(iv) Parks?	☐	☐	☐	☒
(v) Other public facilities?	☐	☐	☐	☒

The potential for the Build Alternatives to result in impacts related to public services was assessed in the Utilities and Emergency Services section in Chapter 2. The following discussion is based on that analysis.

a) i) and ii) <u>Less than Significant</u>

Fire protection services in the City of Calimesa are provided by the City of Calimesa Fire Department. Police protection services are provided through a contract with Riverside County Sheriff’s Department. The project would improve an existing freeway interchange, and would not result in the development of any new land uses. Thus, the project would not result in the need for new or physically altered fire or police protection facilities. However, access to developed areas in proximity to the project may potentially be constrained intermittently during construction. A TMP has been included as a project feature to minimize potential traffic-related impacts during construction of the project. Travel through the project area would be maintained for emergency service vehicles during project construction. The Caltrans TMP Guidelines require consideration and notification of emergency service providers to provide for adequate emergency access during the temporary construction process. With preparation of the TMP during the PS&E phase, temporary impacts related to temporary construction activities and effects on the provision of emergency services would be reduced to a less than significant level. No measures are required.

a) iii) and v) <u>No impact</u>

As discussed in Section 2.1.3, Growth, project improvements would not induce growth. As such, the project would not result in the generation of new residents or populations capable of requiring additional services for schools or other public facilities. Thus, no impacts would occur in this regard.

iv) <u>No Impact</u>

As discussed in section 2.1.2, Parks and Recreation, Trevino Park occurs within a 0.5-mile distance from the project site at 11286 Tukwet Canyon Parkway, in the City of Beaumont. Build Alternatives 3 and 4 would not directly or indirectly impact Trevino Park through permanent acquisition, or by temporarily impacting access, visual resources, water quality, air quality, noise, or biological resources within the project vicinity. Project improvements would not induce growth. As such, the project would not result in the generation of new residents or populations capable of requiring additional park services. Thus, no impacts would occur in this regard.

3.2.16 Recreation

---	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	☐	☐	☐	☒
b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?	☐	☐	☐	☒

a) and b) <u>No Impact</u>

The project involves interchange transportation improvements and would not include any new land uses that would increase the use of existing neighborhood and regional parks or other recreational facilities. The project does not include any new recreational facilities or the expansion of recreational facilities that could have an adverse physical effect on the environment. Thus, no impacts would occur in this regard, and no measures are required.

3.2.17 Transportation

Would the project:	**Significant and Unavoidable Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?	☐	☐	☐	☒
b) Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?	☐	☐	☐	☒
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	☐	☐	☐	☒
d) Result in inadequate emergency access?	☐	☐	☒	☐

The potential for the project to result in transportation/traffic impacts was assessed in the I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document Traffic Operations Analysis Report (TOAR) dated November 2020, and the Traffic and Transportation/ Pedestrian and Bicycle Facilities section in Chapter 2. The following discussion is based on those analyses.

On September 27, 2013, Governor Jerry Brown signed Senate Bill (SB) 743 into law, which initiated a process to change transportation impact analyses completed in support of California Environmental Quality Act (CEQA) documentation. SB 743 eliminates level of service (LOS) as a basis for determining significant transportation impacts under the CEQA and provides a new performance metric, vehicle miles travelled (VMT). SB 743 went into effect on July 1, 2020.

Pursuant to SB 743, Caltrans has developed guidelines and significance thresholds for VMT assessment for transportation projects. However, Caltrans has determined that certain projects initiated prior to December 28, 2018 that have begun the environmental documentation milestone prior to September 15, 2020 can be screened from preparing a VMT assessment. The proposed project meets these requirements, and Caltrans has determined the project would not likely lead to a substantial increase in VMT. Thus, an analysis of VMT is not required, and the use of LOS is used as the metric for this project.

a) and c) <u>No Impact</u>

The following text has been amended since the Draft Environmental Document: The project would not conflict with a program, plan, ordinance, or policy addressing the circulation system. As noted in Section 2.1.1 of the IS/EA, the project would be consistent with the 2020-2045 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) and the SCAG 2023 Federal Transportation Improvement Program (FTIP). The project was also determined consistent with the goals and policies of the Riverside County General Plan and City of Calimesa General Plan. The project would result in beneficial impacts related to traffic congestion, connectivity, and mobility in the project area, and would provide new pedestrian and bicyclist facilities where limited facilities currently exist. The project would also be subject to Caltrans review for consistency with safety standards (such as the Highway Design Manual) to ensure that no hazardous design features would occur. As such, no impacts would occur in this regard.

b) No Impact

As noted below in Table 3.4-2, when comparing both build alternatives to no-build conditions, the build alternatives would result in a reduction in CO2e and also a reduction in VMT. The project in itself would not generate traffic. Therefore, no significant impact related to greenhouse gas emissions would occur. Operational mobile source emissions associated with the project are not expected to increase emissions from mobile sources. The project itself would not generate new vehicle trips and therefore would not have a significant impact on air quality in the air basin. Implementation of the project, along with other projects included in the regional 2020-2040 RTP, should further improve traffic flow and decrease congestion within the region. No impact would occur in this regard, and no measures are required.

d) Less than Significant Impact

Freeway, ramp, and lane closures are anticipated for the construction phase of the project. As discussed in Section 2.1.9, Traffic and Transportation/Pedestrian Bicycle Facilities, temporary lane closures are anticipated throughout the 24 months of construction for the project. The project would implement a TMP during the PS&E phase. The TMP will implement alternate route strategies to minimize impacts to roadways and reduce potential congestion. As discussed in Section 2.1.6, Utilities/Emergency Services, as part of the TMP, the project would provide for adequate emergency access during the temporary construction process.

3.2.18 Tribal Cultural Resources

Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:	**Significant and Unavoidable Impact**	**Less Than Significant with Mitigation Incorporated**	**Less Than Significant Impact**	**No Impact**
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or	☐	☐	☐	☒
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.	☐	☐	☐	☒

a) and b) No Impact.

In compliance with AB 52, Caltrans distributed letters to applicable Native American tribes informing them of the project on April 25, 2019. Three responses were received from the tribes. Refer to Chapter 4.0, Comments and Coordination, of this IS/EA, as well as Section 3, Consulting Parties/Public Participation, of the HPSR, for information regarding efforts undertaken by Caltrans to consult pertinent Native American tribes to identify tribal cultural resources in the APE.

As detailed in Section 2.1.11, Cultural Resources, of the IS/EA, the project would result in a finding of No Historic Properties Affected. Additionally, Caltrans has notified the California State Historic Preservation Officer (SHPO) of its determination that no properties within the area of potential effect (APE) are eligible for inclusion in the National Register of Historic Places (NRHP), and concurrence in its determination of Finding of No Historic Properties Affected was provided on June 16, 2021. Ground disturbance activities associated with construction of the Build Alternatives could result in the inadvertent discovery of cultural resources. If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area be diverted until a qualified archaeologist can assess the nature and significance of the find. Therefore, the project would not impact a historical resource, as defined in PRC Section 5020.1(k). There are no significant resources for a California Native American tribe identified near or within the project study area; thus, project implementation would result in no impacts to a listed or eligible resource under the California Register of Historical Resources or a local register as defined under Public Resources Code section 5020.1(k). No measures are required.

3.2.19 Utilities and Service Systems

Would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?	☐	☐	☒	☐
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?	☐	☐	☐	☒
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	☐	☐	☐	☒
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?	☐	☐	☐	☒
e) Comply with federal, state, and local management and reduction statutes and regulations related to solid waste?	☐	☐	☐	☒

The potential for Build Alternatives 3 and 4 to result in impacts related to utilities and service systems was assessed in the Utilities/Emergency Services section in Chapter 2. The following discussion is based on those analyses.

a) <u>Less than Significant Impact</u>

The project proposes the relocation of existing sewer, potable water, electrical, communication cable lines, and natural gas lines; refer to Section 2.1.8 for detail regarding utility locations. Implementation of the project would not include new or expanded utilities. Prior to the final design phase, affected utility providers would be contacted to verify that the project would not disrupt services within the community. Based on the Hydrology and Water Quality section of this chapter, the Build Alternatives would not result in any substantial impacts related to stormwater drainage. As such, impacts would be less than significant in this regard. No measures are required.

b) and c) <u>No Impact</u>

The use of water during project construction would be limited to water trucked to the site for dust control. The amount of water used during construction would be minimal. Landscaping associated with the proposed project would be drought tolerant, and would be consistent with the existing desert environment in the project area. If landscape irrigation is required, it is not anticipated that the irrigation would result in a substantial increase in the water supply required for the project site. As a result, the project would not require new or expanded entitlements to meet the need for water during construction and operation of the project. No impact would occur and no measures are required.

As a roadway infrastructure improvement, the project would not generate wastewater. Thus, the project would not exceed wastewater treatment requirements, require or result in the construction of new wastewater treatment facilities, or result in the need for a determination by a wastewater treatment provider that it has adequate capacity to serve the project. No impact would occur, and no measures are required.

d) <u>No Impact</u>

Solid waste would be generated during the construction phase of the project. The waste generated during construction would be limited and would occur for a limited duration, and then properly disposed of at an existing landfill. That amount of waste would be a very small amount of the total waste disposed of at area landfills, on both a daily and annual basis. Therefore, it is anticipated that any waste generated would be accommodated by existing landfill facilities in Riverside County, and the project would not generate solid waste in excess of State or local standards. No impacts would occur in this regard.

e) <u>No impact</u>

Any solid waste generated during construction of the Build Alternatives or collected during normal waste collection activities would be collected, handled, transported, and disposed of consistent with applicable federal, State, regional, and local regulations. No impact would occur, and no measures are required.

3.2.20 Wildfire

If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Substantially impair an adopted emergency response plan or emergency evacuation plan?	☐	☐	☒	☐
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?	☐	☐	☒	☐
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment?	☐	☐	☒	☐
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?	☐	☐	☒	☐

The potential for Build Alternatives 3 and 4 to result in impacts related to wildfire was assessed in Section 3.3, Wildfire. The following discussion is based on that analysis.

a) <u>Less than Significant Impact</u>

The project would improve an existing freeway interchange, and would not result in the development of any new land uses. However, access to developed areas in proximity to the project may potentially be constrained intermittently during construction. A TMP has been included as a project feature to minimize potential traffic-related impacts during construction of the project. Travel through the project area would be maintained for emergency service vehicles during project construction. The Caltrans TMP Guidelines require consideration and notification of emergency service providers to provide for adequate emergency access during the temporary construction process. With preparation of the TMP during the PS&E phase, temporary impacts related to temporary construction activities and effects related to emergency response and evacuation would not be significant.

The project would result in beneficial impacts related to emergency response and evacuation over the long term. Since the project would reduce traffic congestion and improve connectivity in the project area, emergency access and circulation would be improved. Impacts would be less than significant in this regard.

b), c) and d) <u>Less than Significant Impact</u>

Based on the California Department of Forestry and Fire Protection (CalFire) Very High Fire Hazard Severity Zones in Locally Responsibility Area (LRA) (dated December 4, 2009 for West Riverside County and incorporated areas), a very small portion of the project site fall within a “Very High Fire Hazard Severity Zone” in a “Local Responsibility Area.”

- Southwest: Three parcels (APNs 413-270-19, 413-270-20, and 413-270-21) located in the southwestern quadrant of the I-10/Cherry Valley Boulevard interchange (between I-10 Eastbound and Roberts Road) are designated as a “Very High Fire Hazard Severity Zone.” Small portions of these designated areas encroach into project boundaries.
- Northwest: A “Very High Fire Hazard Severity Zone” is located northwest of the project site.

The following text has been amended since the Draft Environmental Document: The project would require construction and partial/full right-of-way (ROW) acquisition for the three parcels that are located in the “Very High Fire Hazard Severity Zone”. The realignment and the reconstruction of the eastbound off-ramp to I-10 would occur at this location. The parcels impacted by the project located within a “Very High Fire Hazard Severity Zone” make up a small area of vegetated vacant land that and is surrounded by urban development and graded land that has been prepared for new development. As such, the likelihood of a wildfire resulting from demolition and construction activities is low. Additionally, the project would be subject to adherence to Chapter 33 of the California Fire Code, Fire Safety During Construction and Demolition, which includes safety provisions and precautions to minimize the potential for fires. Upon adherence to this existing standard, impacts would be less than significant in this regard.

The project is not anticipated to result in permanent impacts related to exacerbation of fire hazards in a “Very High Fire Hazard Severity Zone.” The project would improve an existing interchange, and would not include the extension of new roadways or other infrastructure through an area that is subject to high fire risk.

In addition, the project would not result increased risks related to stormwater runoff or drainage changes. As noted in Section 2.2.1, Hydrology and Floodplain, the project would include drainage improvements within and surrounding El Casco Creek that would maintain adequate capacity during a 100-year storm event, and the project would not cause an increase in existing water surface elevations. Impacts in this regard would be less than significant.

3.2.21 Mandatory Findings of Significance

---	Significant and Unavoidable Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a) Does the project have the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, substantially reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?	☐	☒	☐	☐
b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?	☐	☐	☒	☐
c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☐	☐	☒	☐

a) <u>Less Than Significant with Mitigation Incorporated</u>

The potential for the project to result in significant impacts to cultural resources, paleontological resources, biological resources, or greenhouse gas emissions is discussed in Sections 2.1.11, 2.2.4, 2.3, and 3.4 respectively.

The analysis of cultural resources determined that no historical or archaeological resources eligible for inclusion in the NRHP/CRHR were determined to be present on-site. However, the possibility exists that previous unknown buried resources could be discovered during construction. In accordance with Caltrans standards, if cultural materials are discovered during construction, 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. Additionally, the project would be subject to compliance with California H&SC Section 7050.5 in the event human remains are discovered. Thus, impacts in this regard would be less than significant, and no measures are required.

Portions along the project site have been identified as areas of High Potential for paleontological resources, meaning that based on the surficial and subsurface geologic units found at the ground surface, the area in question would be high in potential for buried paleontological resources at unknown depths. Ground-disturbing activities associated with the construction of the project could result in long-term disturbance or loss of previously undiscovered paleontological resources. Avoidance and Minimization Measure PAL-1 would require worker's environmental awareness training for awareness of paleontological resources. Mitigation Measure PAL-2 would additionally require retainment of a qualified Principal Paleontologist, and the implementation of a Paleontological Mitigation Plan (PMP) for the project. If paleontological resources are discovered during ground-disturbing activities, fossil preparation, curation, and reporting would occur in accordance with Avoidance and Minimization Measure PAL-3. With the implementation of Measures PAL-1 through PAL-3, impacts would be less than significant in this regard.

The following text has been amended since the Draft Environmental Document: Based on information provided in Section 2.3, the project would have the potential to result in impacts to sensitive natural communities, jurisdictional waters, plant communities, and animal species. However, upon implementation of Avoidance and Minimization Measures NC-1 and NC-2, Mitigation Measure WET-1 and Avoidance and Minimization Measure WET-2, and Avoidance and Minimization Measures AS-1 through AS-4, impacts to biological resources would be less than significant.

As discussed in Section 3.4, project implementation would result in an increase in GHG emissions compared to existing conditions due to planned growth in the project vicinity. However, implementation of project-level GHG reduction strategies (Measures CC-1 through CC-8 and GHG-1 through GHG-8) would reduce GHG emissions to a less than significant level. Additionally, the project would comply with regional and local GHG reduction policies and strategies presented in Table 3.4-1. As such, impacts to GHG emissions would be less than significant.

b) <u>Less Than Significant Impact</u>

As discussed in Section 2.4, Cumulative Impacts, several planned projects may be under construction and/or operation at the same time as the proposed project. Cumulative impacts were analyzed for the following resources: paleontology, hazardous waste/materials, and biological resources (natural communities, wetlands and other waters, plant species, and animal species). Based on the analysis provided in Section 2.4, it was determined that the project would not have the capacity to substantially contribute to cumulative impacts, in combination with other planned projects and developments. All future development projects within the project vicinity would be subject to independent environmental review on a case-by-case basis and would be required to implement project-specific design features and/or measures to reduce any identified impacts to these resources. Accordingly, the Build Alternatives, in combination with other planned projects, would not result in cumulative considerable impacts. Impacts would be less than significant, and no measures are required.

c) Less Than Significant Impact

As discussed in Section 2.1.6, Relocations and Real Estate Property, Build Alternative 4 would result in the relocation of one commercial/multiple single-family residency (3607 Cherry Valley Blvd). Implementation of Avoidance and Minimization Measure ROW-1 would reduce potential relocation impacts. Therefore, the potential impacts to human beings would be reduced to a less than significant impact.

3.3 Wildfire

Regulatory Setting

Senate Bill 1241 required the Office of Planning and Research, the Natural Resources Agency, and the California Department of Forestry and Fire Protection to develop amendments to the "CEQA Checklist" for the inclusion of questions related to fire hazard impacts for projects located on lands classified as very high fire hazard severity zones. The 2018 updates to the CEQA Guidelines expanded this to include projects "near" these very high fire hazard severity zones.

Affected Environment

The project area is located in a narrow alluvial valley between the foothills of the San Gorgonio Mountains and San Jacinto Mountains. As discussed in the PGDR prepared for this project, while the project site is surrounded by mountain ranges and hillsides, the project site itself ranges from approximately 2,364 feet above mean sea level (amsl) to 2,350 feet amsl. High winds, such as the Santa Ana winds, are prevalent within the project site and surrounding area.

Vegetation communities were observed to exist within the project study area as well as the project alignment, As discussed in Section 2.3.1, Natural Communities, vegetation surrounding the project alignment include scrub oak chaparral (*Quercus berberidifolia* Shrubland Alliance), California buckwheat scrub (*Eriogonum fasciculatum* Shrubland Alliance), disturbed California buckwheat scrub (Eriogonum fasciculatum Shrubland Alliance), Cuyamaca cypress stands (*Hesperocyparis stephensonii Woodland* Special Stands), mule fat thickets (*Baccharis salicifolia* Shrubland Alliance), disturbed California sagebrush – (purple sage) scrub (*Artemisia californica – [Salvia leucophylla]* Shrubland Alliance), wild oats and annual brome grasslands (*Avena spp. - Bromus* spp. Herbaceous Semi-Natural Alliance), disturbed wild oats and annual brome grasslands (*Avena spp. - Bromus spp.* Herbaceous Semi-Natural Alliance), planted oak tree grove (*Quercus agrifolia* Forest and Woodland Alliance), and eucalyptus – tree of heaven – black locust groves (*Eucalyptus spp. - Ailanthus altissima - Robinia pseudoacacia* Woodland Semi-Natural Alliance).

Fire Hazard Severity Zone

Based on the California Department of Forestry and Fire Protection (CalFire) Very High Fire Hazard Severity Zones in Locally Responsibility Area (LRA) (dated December 4, 2009 for West Riverside County and incorporated areas), a very small portion of the project site fall within a "Very High Fire Hazard Severity Zone" in a "Local Responsibility Area;" refer to Figure 3.3-1, Fire Severity.

- Southwest: Three parcels (APNs 413-270-19, 413-270-20, and 413-270-21) located in the southwestern quadrant of the I-10/Cherry Valley

Boulevard interchange (between I-10 Eastbound and Roberts Road) are designated as a “Very High Fire Hazard Severity Zone.” Small portions of these designated areas encroach into project boundaries.

- Northwest: A “Very High Fire Hazard Severity Zone” is located northwest of the project site.

Emergency Response Plan or Emergency Evacuation Plan

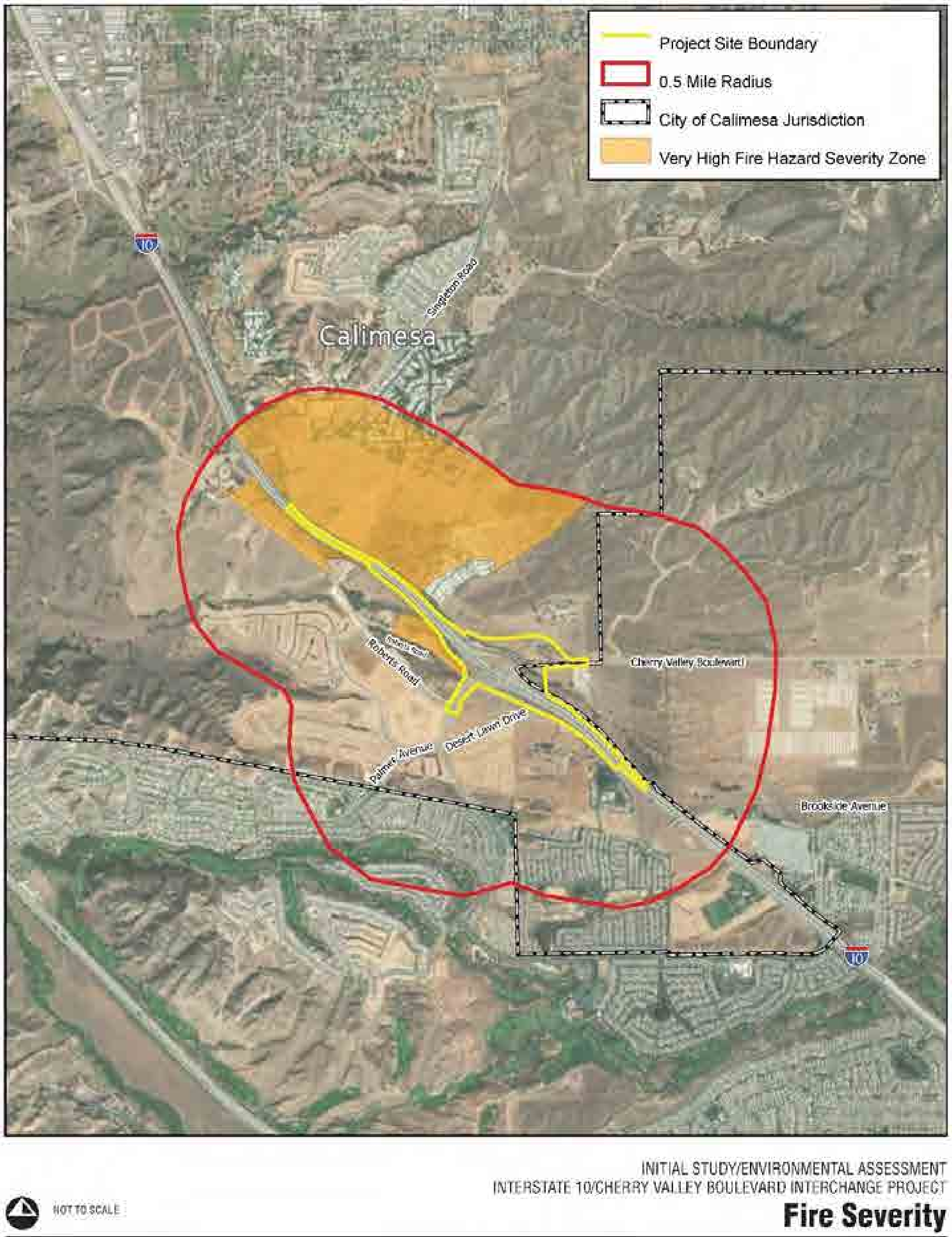
The City of Calimesa has implemented an Operations Emergency Plan and a Local Hazard Mitigation Plan to prepare for natural and man-made disasters. Additionally, the County of Riverside implemented a multi-jurisdictional hazard mitigation and an emergency operation plan at the county level and for unincorporated areas and communities. Table 3.3-1, below, summarizes the purpose of each plan.

Table 3.3-1: Emergency Response Plan Summary

Emergency Response Plan	Purpose
City of Calimesa Operations Emergency Plan	The purpose of this plan is to incorporate and coordinate all the facilities and personnel of the City into an efficient organization capable of responding effectively to any emergency.
City of Calimesa Local Hazard Mitigation Plan	The purpose of this local hazard mitigation plan is to identify hazards, review and assess past disaster occurrences, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term risk to people and property from natural and man-made hazards. The plan identifies vulnerabilities, provides recommendations for prioritized mitigation actions, evaluates resources and identifies mitigation shortcomings, and provides future mitigation planning and maintenance of existing plan.
County of Riverside Operational Area Emergency Operations Plan	The purpose of this plan is to incorporate and coordinate all the facilities and personnel of the County and Operational Area member jurisdictions into an efficient organization capable of responding effectively to any emergency. The County’s Operational Area Emergency Operations Plan does not identify the City of Calimesa or the Unincorporated Community of Cherry Valley as a city/special district most vulnerable to wildland fires.
County of Riverside Multi-Jurisdictional Local Hazard Mitigation Plan	The purpose of this plan is to identify the County’s hazards, review and assess past disaster occurrences, estimate the probability of future occurrences, and set goals to mitigate potential risks to reduce or eliminate long-term risk to people and property from natural and man-made hazards.

Source: City of Calimesa, City of Calimesa General Plan, 2014.
City of Calimesa, City of Calimesa Local Hazard Mitigation Plan,2012.

Figure 3.3-1: Fire Severity



INITIAL STUDY/ENVIRONMENTAL ASSESSMENT
INTERSTATE 10/CHERRY VALLEY BOULEVARD INTERCHANGE PROJECT

Fire Severity

Figure 3.3-1

Environmental Consequences

Fire Hazard Severity Zone

The following text has been amended since the Draft Environmental Document: The project would require construction and partial/full right-of-way (ROW) acquisition for the three parcels that are located in the "Very High Fire Hazard Severity Zone" for Local Responsibility Area; refer to Section 2.1.6, Relocations and Real Property Acquisition. The realignment and the reconstruction of the eastbound off-ramp to I-10 would occur at this location. The parcels impacted by the project located within a "Very High Fire Hazard Severity Zone" make up a small area of vegetated vacant land that and is surrounded by urban development and graded land that has been prepared for new development. As such, the likelihood of a wildfire resulting from demolition and construction activities is low. Additionally, the project would be subject to adherence to Chapter 33 of the California Fire Code, Fire Safety During Construction and Demolition, which includes safety provisions and precautions to minimize the potential for fires. Upon adherence to this existing standard, impacts would be less than significant in this regard.

The project is not anticipated to result in permanent impacts related to exacerbation of fire hazards in a "Very High Fire Hazard Severity Zone." The project would improve an existing interchange, and would not include the extension of new roadways or other infrastructure through an area that is subject to high fire risk. The project would comply Caltrans Standard Specifications (dated 2018), Section 20-2.0B(3), which would require the project to install backflow preventers that are fire resistant. The project would also comply with Section Spec 82-2.02F of the Caltrans Standard Specifications, which would require the project to install fiberglass-reinforced plastic where needed that would contain additives designed to suppress fire ignition and flame propagation.

In addition, the project would not result increased risks related to stormwater runoff or drainage changes. As noted in Section 2.2.1, Hydrology and Floodplain, the project would include drainage improvements within and surrounding El Casco Creek that would maintain adequate capacity during a 100-year storm event, and the project would not cause an increase in existing water surface elevations. Impacts in this regard would be less than significant.

Emergency Response Plan or Emergency Evacuation Plan

The project involves demolition and reconstruction of the I-10/Cherry Valley Boulevard interchange. Construction activities for the project may temporarily impact the vehicular flow of traffic within the project limits, which could impact emergency routes and response times. With implementation of the TMP identified in Chapter 1, travel through the project area would be maintained for emergency service vehicles during project construction. The Caltrans TMP Guidelines require consideration and notification of emergency service providers to provide for adequate emergency access during the temporary construction process. With preparation of the TMP during the PS&E phase, temporary impacts related to temporary construction activities and effects on the provision of emergency services would be reduced to a less than significant level. No measures are required. The project is anticipated to result in beneficial impacts over the long term, since the project would reduce traffic congestion, connectivity, and mobility within the project area.

Avoidance, Minimization, and/or Mitigation Measures
No measures are required.

3.4 Climate Change

The following text has been amended since the Draft Environmental Document: Climate change refers to long-term changes in temperature, precipitation, wind patterns, and other elements of the Earth's climate system. The Intergovernmental Panel on Climate Change, established by the United Nations and World Meteorological Organization in 1988, is devoted to greenhouse gas (GHG) emissions reduction and climate change research and policy. Climate change in the past has generally occurred gradually over millennia, or more suddenly in response to cataclysmic natural disruptions. The research of the Intergovernmental Panel on Climate Change and other scientists over recent decades, however, has unequivocally attributed an accelerated rate of climatological changes over the past 150 years to GHG emissions generated from the production and use of fossil fuels.

The following text has been amended since the Draft Environmental Document: Human activities generate GHGs consisting primarily of carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), tetrafluoromethane, hexafluoroethane, sulfur hexafluoride (SF_6), and various hydrofluorocarbons (HFCs). CO_2 is the most abundant GHG; while it is a naturally occurring and necessary component of Earth’s atmosphere, fossil-fuel combustion is the main source of additional, human-generated CO_2 that is the main driver of climate change. In the U.S. and in California, transportation is the largest source of GHG emissions, mostly CO_2.

The following text has been amended since the Draft Environmental Document: The impacts of climate change are already being observed in the form of sea level rise, drought, more intense heat, extended and severe fire seasons, and historic flooding from changing storm patterns. Both mitigation and adaptation strategies are necessary to address these impacts. The most important strategy to address climate change is to reduce GHG emissions. In the context of climate change (as distinct from CEQA and NEPA), “mitigation” involves actions to reduce GHG emissions or to enhance the “sinks” that store them (such as forests and soils) to lessen adverse impacts. “Adaptation” is planning for and responding to impacts to reduce vulnerability to harm, such as by adjusting transportation design standards to withstand more intense storms, heat, and higher sea levels. This analysis will include a discussion of both in the context of this transportation project.

3.4.1 Regulatory Setting

This section outlines federal and state efforts to comprehensively reduce GHG emissions from transportation sources.

Federal

To date, no national standards have been established for nationwide mobile-source GHG reduction targets, nor have any regulations or legislation been enacted specifically to address climate change and GHG emissions reduction at the project level.

The National Environmental Policy Act (NEPA) (42 United States Code [USC] Part 4332) requires federal agencies to assess the environmental effects of their proposed actions prior to making a decision on the action or project.

The following text has been amended since the Draft Environmental Document: The Federal Highway Administration (FHWA) recognizes the threats that extreme weather, sea-level change, and other changes in environmental conditions pose to valuable transportation infrastructure and those who depend on it. FHWA therefore supports a sustainability approach that assesses vulnerability to climate risks and incorporates resilience into planning, asset management, project development and design, and operations and maintenance practices (FHWA 2022). This approach encourages planning for sustainable highways by addressing climate risks while balancing environmental, economic, and social values— “the triple bottom line of sustainability” (FHWA n.d.). Program and project elements that foster sustainability and resilience also support economic vitality and global efficiency, increase safety and mobility, enhance the environment, promote energy conservation, and improve the quality of life.

The following text has been amended since the Draft Environmental Document: The federal government has taken steps to improve fuel economy and energy efficiency to address climate change and its associated effects. The most important of these was the Energy Policy and Conservation Act of 1975 (42 USC Section 6201) as amended by the Energy Independence and Security Act (EISA) of 2007; and Corporate Average Fuel Economy (CAFE) Standards. This act established fuel economy standards for on-road motor vehicles sold in the United States. The U.S. Department of Transportation’s National Highway Traffic and Safety Administration (NHTSA) sets and enforces the CAFE standards based on each manufacturer’s average fuel economy for the portion of its vehicles produced for sale in the United States. The Environmental Protection Agency (U.S. EPA) calculates average fuel economy levels for manufacturers, and also sets related GHG emissions standards under the Clean Air Act. Raising CAFE standards leads automakers to create a more fuel-efficient fleet, which improves our nation's energy security, saves consumers money at the pump, and reduces GHG emissions (U.S. DOT 2014).

The following text has been amended since the Draft Environmental Document: U.S. EPA published a final rulemaking on December 30, 2021, that raised federal GHG emissions standards for passenger cars and light trucks for model years 2023 through 2026, increasing in stringency each year. The updated GHG emissions standards will avoid more than 3 billion tons of GHG emissions through 2050. In April 2022, NHTSA announced corresponding new fuel economy standards for model years 2024 through 2026, which will reduce fuel use by more than 200 billion gallons through 2050 compared to the old standards and reduce fuel costs for drivers (U.S. EPA 2022a; NHTSA 2022).

State

California has been innovative and proactive in addressing GHG emissions and climate change by passing multiple Senate and Assembly bills and executive orders (EOs) including, but not limited to, the following:

EO S-3-05 (June 1, 2005): The goal of this EO is to reduce California's GHG emissions to: (1) year 2000 levels by 2010, (2) year 1990 levels by 2020, and (3) 80 percent below year 1990 levels by 2050. This goal was further reinforced with the passage of Assembly Bill (AB) 32 in 2006 and Senate Bill (SB) 32 in 2016.

Assembly Bill (AB) 32, Chapter 488, 2006, Núñez and Pavley, The Global Warming Solutions Act of 2006: AB 32 codified the 2020 GHG emissions reduction goals outlined in EO S-3-05, while further mandating that the California Air Resources Board (CARB) create a scoping plan and implement rules to achieve "real, quantifiable, cost-effective reductions of greenhouse gases." The Legislature also intended that the statewide GHG emissions limit continue in existence and be used to maintain and continue reductions in emissions of GHGs beyond 2020 (Health and Safety Code [H&SC] Section 38551(b)). The law requires CARB to adopt rules and regulations in an open public process to achieve the maximum technologically feasible and cost-effective GHG reductions.

Senate Bill (SB) 375, Chapter 728, 2008, Sustainable Communities and Climate Protection: This bill requires CARB to set regional emissions reduction targets for passenger vehicles. The Metropolitan Planning Organization (MPO) for each region must then develop a "Sustainable Communities Strategy" (SCS) that integrates transportation, land-use, and housing policies to plan how it will achieve the emissions target for its region.

The following text has been amended since the Draft Environmental Document: EO B-30-15 (April 2015) establishes an interim statewide GHG emission reduction target of 40 percent below 1990 levels by 2030 to ensure California meets its target of reducing GHG emissions to 80 percent below 1990 levels by 2050. It further orders all state agencies with jurisdiction over sources of GHG emissions to implement measures, pursuant to statutory authority, to achieve reductions of GHG emissions to meet the 2030 and 2050 GHG emissions reductions targets. It also directs CARB to update the Climate Change Scoping Plan to express the 2030 target in terms of million metric tons of carbon dioxide equivalent ($MMTCO_2e$). [GHGs differ in how much heat each traps in the atmosphere, called global warming potential, or GWP. CO2 is the most important GHG, so amounts of other gases are expressed relative to CO2, using a metric called “carbon dioxide equivalent,” or CO2e. The global warming potential of CO2 is assigned a value of 1, and the GWP of other gases is assessed as multiples of CO2.] Finally, it requires the Natural Resources Agency to update the state’s climate adaptation strategy, Safeguarding California, every 3 years, and to ensure that its provisions are fully implemented.

SB 32, Chapter 249, 2016, codifies the GHG reduction targets established in EO B-30-15 to achieve a mid-range goal of 40 percent below 1990 levels by 2030.

SB 1386, Chapter 545, 2016, declared “it to be the policy of the state that the protection and management of natural and working lands … is an important strategy in meeting the state’s greenhouse gas reduction goals, and would require all state agencies, departments, boards, and commissions to consider this policy when revising, adopting, or establishing policies, regulations, expenditures, or grant criteria relating to the protection and management of natural and working lands.”

SB 743, Chapter 386 (September 2013): This bill changes the metric of consideration for transportation impacts pursuant to CEQA from a focus on automobile delay to alternative methods focused on vehicle miles traveled, to promote the state’s goals of reducing greenhouse gas emissions and traffic related air pollution and promoting multimodal transportation while balancing the needs of congestion management and safety.

SB 150, Chapter 150, 2017, Regional Transportation Plans: This bill requires CARB to prepare a report that assesses progress made by each metropolitan planning organization in meeting their established regional greenhouse gas emission reduction targets.

EO B-55-18 (September 2018) sets a new statewide goal to achieve and maintain carbon neutrality no later than 2045. This goal is in addition to existing statewide targets of reducing GHG emissions.

The following text has been amended since the Draft Environmental Document: AB 1279, Chapter 337, 2022, The California Climate Crisis Act: This bill mandates carbon neutrality by 2045 and establishes an emissions reduction target of 85% below 1990 level as part of that goal. This bill solidifies a goal included in EO B-55-18. It requires ARB to work with relevant state agencies to ensure that updates to the scoping plan identify and recommend measures to achieve these policy goals and to identify and implement a variety of policies and strategies that enable carbon dioxide removal solutions and carbon capture, utilization, and storage technologies in California, as specified.

Note, references to AB 134, Chapter 254, 2017, EO N 79 20 (September 2020), EO S-01-07 (January 18, 2007), SB 391, Chapter 585, 2009, California Transportation Plan, EO B-16-12 (March 2012), and EO N-19-19 (September 2019) have been removed since the Draft Environmental Document.

3.4.2 Environmental Setting

The following text has been amended since the Draft Environmental Document: The project site is located within the City of Calimesa and unincorporated Riverside County at I-10 and Cherry Valley Boulevard. The I-10/Cherry Valley Boulevard Interchange’s existing land uses are predominately residential and commercial uses, with existing residences characterized by older structures in a rural environment. Uses within project site boundaries can be characterized as primarily transportation facilities (I-10, Cherry Valley Boulevard, Calimesa Boulevard), and undeveloped open space. Refer to Figure 1-1, Regional Vicinity, and Figure 1-2, Site Vicinity, for a depiction of project location and on-site conditions.

Based on Section 2.1.9 of this IS/EA, traffic conditions along the freeway and intersections within the project area are anticipated to degrade at several locations, due to planned growth and development in the project area.

SCAG’s 2020-2045 RTP guides transportation development in the project area.

GHG Inventories

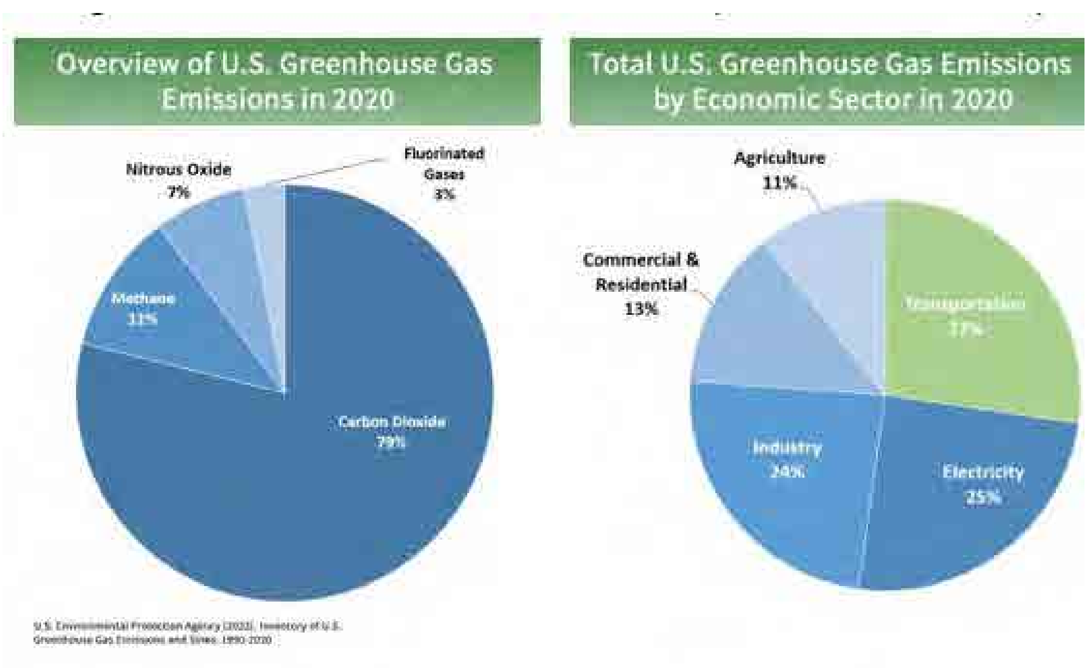
The following text has been amended since the Draft Environmental Document: A GHG emissions inventory estimates the amount of GHGs discharged into the atmosphere by specific sources over a period of time. Tracking annual GHG emissions allows countries, states, and smaller jurisdictions to understand how emissions are changing and what actions may be needed to attain emission reduction goals. U.S. EPA is responsible for documenting GHG emissions nationwide, and the CARB does so for the state, as required by H&SC Section 39607.4. Cities and other local jurisdictions may also conduct local GHG inventories to inform their GHG reduction or climate action plans.

National GHG Inventory

The following text has been amended since the Draft Environmental Document: The annual GHG inventory submitted by the U.S. EPA to the United Nations provides a comprehensive accounting of all human-produced sources of GHGs in the United States. Total GHG emissions from all sectors in 2020 were 5,222 million metric tons (MMT), factoring in deductions for carbon sequestration in the land sector. Of these, 79 percent were CO_2, 11 percent were CH_4, and 7 percent were N_2O; the balance consisted of fluorinated gases. Total GHGs in 2020 decreased by 21% from 2005 levels and 11% from 2019. The change from 2019 resulted primarily from less demand in the transportation sector during the COVID-19 pandemic. The transportation sector was responsible for 27 percent of total U.S. GHG emissions in 2020, more than any other sector, and for 36% of all CO_2 emissions from fossil fuel combustion. Transportation CO_2 emissions for 2020 decreased 13 percent from 2019 to 2020, but were 7 percent higher than transportation CO_2 emissions in 1990 (U.S. EPA 2022b) refer to Figure 3.4-1..

Figure 3.4-1: U.S. 2020 Greenhouse Gas Emissions (Source: U.S. EPA 2022b)

This figure has been amended since the Draft Environmental Document.



State Greenhouse Gas Inventory

The following text has been amended since the Draft Environmental Document: CARB collects GHG emissions data for transportation, electricity, commercial/residential, industrial, agricultural, and waste management sectors each year. It then summarizes and highlights major annual changes and trends to demonstrate the state's progress in meeting its GHG reduction goals. The 2022 edition of the GHG emissions inventory reported emissions trends from 2000 to 2020. Total California GHG emissions in 2020 were 369.2 $MMTCO_2e$, a reduction of 35.3 $MMTCO_2e$ from 2019 and 61.8 $MMTCO_2e$ below the 2020 statewide limit of 431 $MMTCO_2e$. Much of the decrease from 2019 to 2020, however, is likely due to the effects of the COVID-19 pandemic on the transportation sector, during which vehicle miles traveled declined under stay-at-home orders and reductions in goods movement. Nevertheless, transportation remained the largest source of GHG emissions, accounting for 37 percent of statewide emissions; refer to Figure 3.4-2. (Including upstream emissions from oil extraction, petroleum refining, and oil pipelines in California, transportation was responsible for about 47 percent of statewide emissions in 2020; however, those emissions are accounted for in the industrial sector.) California's gross domestic product (GDP) and GHG intensity (GHG emissions per unit of GDP) both declined from 2019 to 2020; refer to Figure 3.4-3. It is expected that total GHG emissions will increase as the economy recovers over the next few years (CARB 2022a).

Figure 3.4-2: California 2020 Greenhouse Gas Emissions by Scoping Plan Category (Source: CARB 2022a)

This figure has been amended since the Draft Environmental Document.

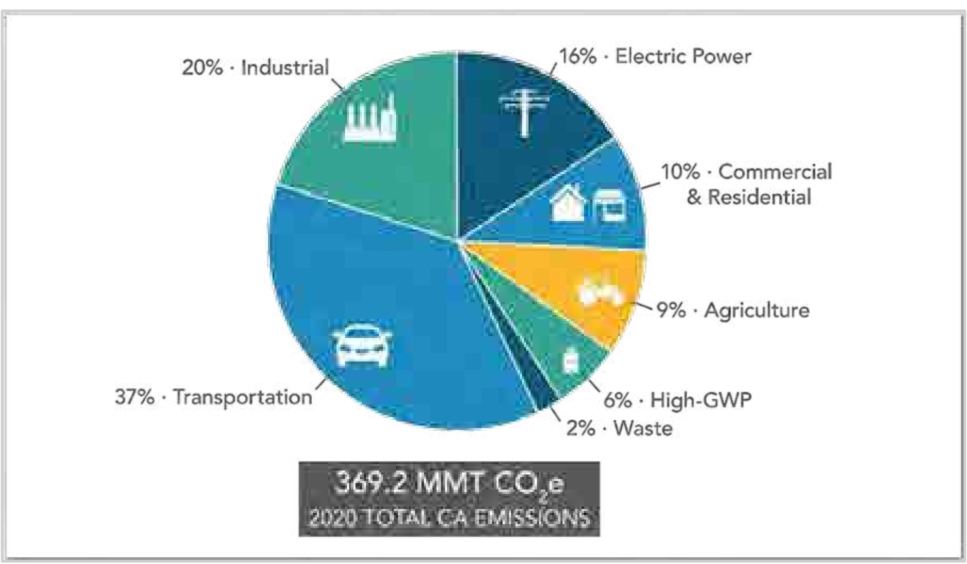
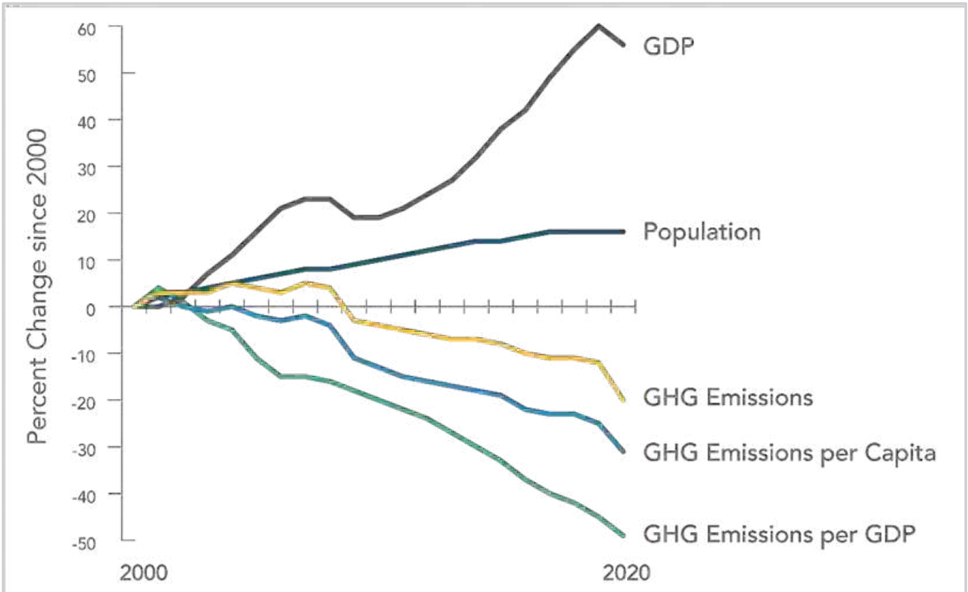


Figure 3.4-3: Change in California GDP, Population, and GHG Emissions Since 2000 (Source: CARB 2022a)

This figure has been amended since the Draft Environmental Document.



The following text has been amended since the Draft Environmental Document: AB 32 required CARB to develop a Scoping Plan that describes the approach California will take to achieve the goal of reducing GHG emissions to 1990 levels by 2020, and to update it every 5 years. CARB adopted the first scoping plan in 2008. The second updated plan, *California's 2017 Climate Change Scoping Plan*, adopted on December 14, 2017, reflects the 2030 target established in EO B-30-15 and SB 32. The draft 2022 Scoping Plan Update additionally lays out a path to achieving carbon neutrality by 2045 (CARB 2022b).

Regional Plans

The following text has been amended since the Draft Environmental Document: CARB sets regional GHG reduction targets for California's 18 metropolitan planning organizations (MPOs) to achieve through planning future projects that will cumulatively achieve those goals, and reporting how they will be met in the Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. The project is included in SCAG's 2020-2045 RTP/SCS (SCAG 2020 as RTP ID RIV060116), as discussed in Section 2.1.1, Land Use. CARB's regional reduction target for SCAG as of October 2018 is 8 percent by 2020 and 19 percent by 2035 (CARB 2022c). It should be noted that the SCAG planning region comprises Imperial, Orange, San Bernardino, and Ventura Counties in addition to

Riverside County, and that targets apply to the region as a whole and to all GHG emission sources, not individual counties or transportation alone. The RTP/SCS concluded that implementing the plan would result in an 8 percent per capita GHG reduction by 2020, and a 19 percent reduction by 2035.

The following text has been amended since the Draft Environmental Document: The Riverside County General Plan Air Quality Element addresses GHGs in the project area. Riverside County adopted a Climate Action Plan Update in December 2019 (2019 CAP Update) to facilitate streamlining project-level CEQA review by tiering from the 2019 CAP Update and refine the County's GHG reduction strategies in the 2015 CAP. Consistent with CARB's Scoping Plan reduction targets, Riverside County's 2019 CAP Update sets a target to reduce countywide GHG by 15 percent from 2008 levels by 2020, 49 percent from 2008 levels by 2030, and 83 percent from 2008 levels by 2050. The Riverside County 2019 CAP Update serves as a tool to implement the goals and policies of the various elements of the Riverside County General Plan related to GHG emissions. It provides a list of specific actions that will reduce countywide GHG emissions consistent with the reduction targets of AB 32.

The City of Calimesa also has a CAP dated September 2014. Similar to the Riverside County CAP, the Calimesa CAP integrates local planning efforts to reduce GHG emissions, implement the City's General Plan goals and policies for greenhouse gas emissions, and improve the quality of life in the community.

Calimesa is also one of twelve communities that participated in the Western Riverside Council of Governments' (WRCOG) Subregional CAP, published in 2014. The WRCOG CAP conducted community emissions inventories, established a subregional greenhouse gas emissions reduction target and reduction measures, and adopted a sustainability framework. WRCOG's subregional emissions reduction targets are 15% below 2010 levels by 2020, and 49% below 2010 levels by 2035. Strategies include reducing single-occupancy vehicle travel, increasing nonmotorized travel, improving public transit access, increasing motor vehicle efficiency, and promoting sustainable growth patterns (WRCOG 2014).

Table 3.4-1: Regional and Local Greenhouse Gas Reduction Plan

The following table has been amended since the Draft Environmental Document.

Title	GHG Reduction Policies or Strategies
Southern California Association of Governments 2020–2045 Regional Transportation	• Focus growth near destinations and mobility options. • Promote diverse housing choices. • Leverage technology innovations. • Support implementation of sustainability policies.

Title	GHG Reduction Policies or Strategies
Plan/Sustainable Communities Strategy	• Promote a green region.
Riverside County General Plan (July 2018)	**Circulation Element (Revised July 7, 2020)** • Policy C1.2: Support development of a variety of transportation options for major employment and activity centers including direct access to transit routes, primary arterial highways, bikeways, park-n-ride facilities, and pedestrian facilities. • Policy C1.7: Encourage and support the development of projects that facilitate and enhance the use of alternative modes of transportation, including pedestrian-oriented retail and activity centers, dedicated bicycle lanes and paths, and mixed-use community centers. • Policy C 5.2: Encourage the use of drought-tolerant native plants and the use of recycled water for roadway landscaping. • Policy C 20.14 (Previously C 20.12): Encourage the use of alternative non-motorized transportation and the use of non-polluting vehicles. **Healthy Communities Element (Revised September 21, 2021)** • Policy HC 6.1: Coordinate with transportation service providers and transportation planning entities to improve access to multi-modal transportation options throughout the County of Riverside, including public transit. **Land Use Element (September 28, 2021)** • Policy LU 2.1(f): Site development to capitalize upon multi-modal transportation opportunities and promote compatible land use arrangements that reduce reliance on the automobile. • Policy LU 11.4: Provide options to the automobile in communities, such as transit, bicycle and pedestrian trails, to help improve air quality. • Policy LU 13.4: Incorporate safe and direct multi-modal linkages in the design and development of projects, as appropriate.
Riverside County General Plan Amendments (Adopted July 17, 2018)	**Air Quality Element (Revised July 17, 2018)** • Policy AQ 20.1: Reduce VMT by requiring expanded multi-modal facilities and services that provide transportation alternatives, such as transit, bicycle and pedestrian modes. Improve connectivity of the multimodal facilities by providing linkages between various uses in the developments. • Policy AQ 20.3: Reduce VMT and GHG emissions by improving circulation network efficiency. **Circulation Element (Amendment No. 960 – Public Review Draft, February 2015)** • Policy C 1.8: Ensure that all development applications comply with the California Complete

Title	GHG Reduction Policies or Strategies
	Streets Act of 2008 as set forth in California Government Code Sections 65040.2 and 65302.
Riverside County Climate Action Plan Update (November 2019)	• R1-T3: Executive Order S-1-07 (Low Carbon Fuel Standard) • R2-T1: Alternative Transportation Options • R2-L2: Light Reflecting Surfaces for Energy Saving

Calimesa General Plan (August 2014)	**Goal AQ-5: Reduce greenhouse gas emissions and adapt to the anticipated effects of climate change**.
	• Policy AQ-18: Support local, regional, and statewide efforts to reduce greenhouse gas emissions.
	  • Action Item AQ-18.1: Establish a goal and strategies to reduce community-wide greenhouse gas emissions by 2020 and 2035.
	  • Action Item AQ-18.2: Adopt and implement Calimesa-specific actions identified in the Western Riverside Council of Governments (WRCOG) Regional Climate Action Plan.
	  • Action Item AQ-18.3: Continue to participate in WRCOG regional climate change, renewable energy, and energy-efficiency programs that benefit Calimesa residents and businesses.
	  • Action Item AQ-18.4: Update Calimesa's greenhouse gas emissions inventory every three to five years.
	Policy AQ-19: The City will work to evaluate the potential effects of climate change on Calimesa's human and natural systems and prepare strategies that allow the City to appropriately respond.
	  • Action Item AQ-19.1: Consult with state resource and emergency management agencies regarding updates to climate change science and development of adaptation priorities.
	  • Action Item AQ-19.2: As needed, amend this General Plan and the City's Zoning Code and other codes to incorporate strategies to adapt to climate change.
	Goal TM-2: Public transit services, trails, paths, and pedestrian amenities that promote the mobility of Calimesa residents and provide a reasonable alternative to the personal automobile.
	• Policy TM-4: Maintain and rehabilitate roadways to preserve and improve the quality of City streets and thoroughfares that promote access and mobility between residential neighborhoods, employment centers, shopping, and health services.
	  • Action Item TM-4.1: Following the principles of "complete streets," maximize visibility and access for pedestrians and encourage the removal of barriers (walls, easements, and fences) for safe and convenient movement of pedestrians. Ensure that the entire travel way is

Title	GHG Reduction Policies or Strategies

	included in the design from building façade to building facade.
	• Policy TM-5: Design each roadway with sufficient width to accommodate projected traffic at acceptable service levels, based on the intensity or density of planned land uses.
	• Policy TM-10: Support the development of the Short- and Long-Range Transit Plans.
	  • Action Item TM-10.2: Implement freeway ramp/arterial roadway interchange improvements that promote the safe and efficient movement of vehicles, pedestrians, and cyclists.
	  • Action Item TM-10.3: Coordinate the planning for Calimesa's transportation needs with adjacent jurisdictions, the County of Riverside, Caltrans, and public transit providers.
	• Policy TM-11: Reduce vehicle trips through design and changes in operations.
	  • Action Item TM-11.1: Develop measures that will reduce the number of vehicle trips during peak travel periods.
	  • Action Item TM-11.2: Coordinate with Caltrans, the Riverside County Transportation Commission (RCTC), the Western Riverside Council of Governments (WRCOG), transit agencies, and other responsible agencies to identify the need for additional park-and-ride facilities along major commuter travel corridors and at major activity centers.
	• Policy LU 11.5: Ensure that all new developments reduce Greenhouse Gas emissions as prescribed in the Air Quality Element and Climate Action Plan.

Calimesa Climate Action Plan (September 2014)	**Transportation**
	• Measure T-1: Support community investment in full scale electric vehicles (EVs) and neighborhood electric vehicles (NEVs).
	  • Action T 1.1: Designate a network of slower-speed streets as NEV-accessible, including signage and designated lanes for NEVs as appropriate.
	  • Action T 1.2: Encourage new nonresidential and multifamily development to include designated parking spaces with charging stations for EVs and NEVs.
	  • Action T 1.3: Work with developers to pre-wire new buildings for electric vehicle charging stations.
	  • Action T 1.4: Install electric vehicle charging stations in public parking lots.

Title	GHG Reduction Policies or Strategies
	• Measure T 2: Promote ridesharing as a commute option for Calimesa residents. • Action T 2.1: Work with companies and communities who employ large numbers of Calimesa residents to establish a safe and easy-to-use ridesharing network for morning and evening commutes. • Action T 2.2: Distribute information about formal and casual ridesharing systems to Calimesa residents at public events and through local media.

3.4.3 Project Analysis

The following text has been amended since the Draft Environmental Document: GHG emissions from transportation projects can be divided into those produced during operation of the SHS and those produced during construction. The primary GHGs produced by the transportation sector are CO_2, CH_4, N_2O, and HFCs. CO_2 emissions are a product of burning gasoline or diesel fuel in internal combustion engines, along with relatively small amounts of CH_4 and N_2O. A small amount of HFC emissions related to refrigeration is also included in the transportation sector.

The CEQA Guidelines generally address greenhouse gas emissions as a cumulative impact due to the global nature of climate change (Pub. Resources Code, § 21083(b)(2)). As the California Supreme Court explained, “because of the global scale of climate change, any one project's contribution is unlikely to be significant by itself.” (Cleveland National Forest Foundation v. San Diego Assn. of Governments (2017) 3 Cal.5th 497, 512). 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. Although climate change is ultimately a cumulative impact, not every individual project that emits greenhouse gases must necessarily be found to contribute to a significant cumulative impact on the environment.

Operational Emissions

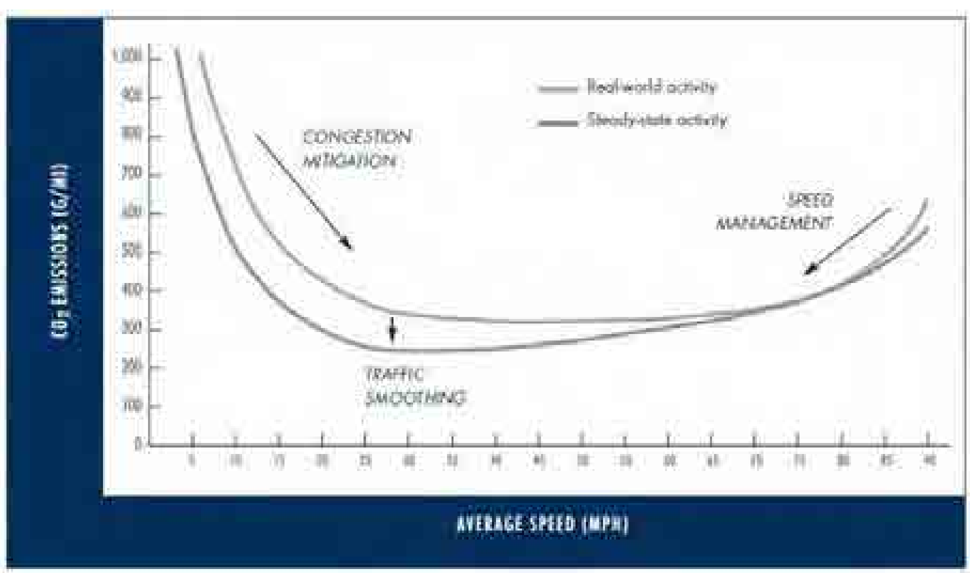
The following text has been amended since the Draft Environmental Document: CO_2 from fossil fuel combustion is the largest component of U.S. GHG emissions, and transportation is the largest contributor of CO_2. The largest emitters of transportation CO_2 emissions in 2020 were passenger cars (38.5 percent), freight trucks (26.3 percent), and light-duty trucks (18.9 percent). The remainder came from other modes of transportation, including aircraft, ships, boats, and trains, as well as pipelines and lubricants (U.S. EPA 2022b). Because CO_2 emissions represent the greatest percentage of GHG emissions, it has been selected as a proxy for the following analysis of potential climate change impacts.

The following text has been amended since the Draft Environmental Document: The highest levels of CO_2 from mobile sources such as automobiles occur at stop-and-go speeds (0–25 miles per hour) and speeds over 55 miles per hour; the most severe emissions occur from 0–25 miles per hour (see Figure 3.4-4). To the extent that a project enhances operational efficiency and improves travel times in high-congestion travel corridors, GHG emissions, particularly CO_2, may be reduced, provided that improved travel times do not induce additional VMT.

The following text has been amended since the Draft Environmental Document: Four primary strategies can reduce GHG emissions from transportation sources: (1) improving the transportation system and operational efficiencies, (2) reducing travel activity (e.g., vehicle miles travelled), (3) transitioning to lower GHG-emitting fuels, and (4) improving vehicle technologies/efficiency. To be most effective, all four strategies should be pursued concurrently.

Figure 3.4-4: Possible Use of Traffic Operation Strategies in Reducing On-road CO^2 Emissions (Source: Barth and Boriboonsomsin 2010)

This figure has been amended since the Draft Environmental Document.



The purpose of this project is to improve traffic flow within the interchange by upgrading infrastructure and reconfiguring Cherry Valley Boulevard at the I-10 interchange. The City identified Cherry Valley Boulevard as a major arterial roadway that provides access to I-10. To address anticipated growth and development in and around the interchange, the City initiated a Project Study

Report–Project Development Study (PSR-PDS) and received Caltrans concurrence in June 2018. The City, with support from the Riverside County Transportation Department, recognizes the need to improve the I-10/Cherry Valley Boulevard interchange and proposes to reconstruct the interchange to improve traffic flow, multimodal connectivity, and operational performance of the interchange.

The approved PSR-PDS recommended a no-build alternative and three build alternatives for study in the Project Approval/Environmental Document (PA/ED) phase: Build Alternative 2, Roundabouts; Build Alternative 3, Diverging Diamond; and Build Alternative 4, Partial Cloverleaf. Alternative 2 was removed from further consideration during the March 11, 2020 Project Development Team (PDT) meeting due to its projected insufficient traffic operations, particularly at the westbound I-10 ramps intersection.

Transit and multi-modal features are included in both Build Alternatives, including sidewalks on the I-10/Cherry Valley Boulevard eastbound structure right turn pockets, and crosswalks. The overall transportation framework in the project area is automobile driven; however, the I-10/Cherry Valley Boulevard Interchange project, as stated above, includes multi-modal components and is consistent with existing transit facilities. This includes the Yucaipa Dial-A-Ride, which provides on-call transit services in portions of the City. The improvements would enhance north-south connection across I-10 for all users.

The project is included in SCAG's 2020-2045 RTP/SCS under the listing of State Highway Projects as RTP ID RIV060116.

The following text has been amended since the Draft Environmental Document: 2020 RTP Project Description: I-10/CHERRY VALLEY BOULEVARD IC: REPLACEMENT OF EXISTING CURVED OVERCROSSING EXTENDING 500 LINEAR FEET FROM ROBERTS ROAD (SOUTH) TO APPROXIMATELY 1000FT E/O CALIMESA BLVD. ASSOCIATED PROJECT IMPROVEMENTS INCLUDE REALIGNMENT/WIDENING FOR ALL FOUR RAMPS.

The proposed project would result in beneficial impacts on congestion that would result from existing and planned development anticipated to occur in the project area. The proposed improvements would generally result in improvements related to freeway segment and intersection operations; refer to Section 2.1.9 for a detailed analysis of traffic operations under the Build Alternatives for Opening Year 2025 and Design Year 2045 conditions. On a system-wide basis, the TOAR prepared for the project identifies substantial improvements in average delay per vehicle, total delay, total travel time, and average speed.

Quantitative Analysis

Operational emissions were modeled using the CT-EMFAC2017 model. Annual VMT values derived from daily VMT values were multiplied by 347, per CARB methodology (CARB 2008). Model defaults were used for the VMT fraction for trucks and non-trucks, while project-specific VMT distribution by speed was used. The results of the analysis are shown in Table 3.4-2.

Table 3.4-2: Summary of Operational GHG Emissions-Opening Year 2025

Alternative	CO_2e Emissions (metric tons/year)	Annual Vehicle Miles Traveled
Existing Year (2019)	254,693	652,991,540
Opening Year (2025) No-Build Alternative	269,627	829,217,628
Opening Year (2025) Build Alternative 3	269,614	829,178,378
Opening Year (2025) Build Alternative 4	269,614	829,178,378
Design Year (2045) No-Build Alternative	326,338	1,307,545,581
Design Year (2045) Alternative 3	326,302	1,307,399,796
Design Year (2045) Alternative 4	326,302	1,307,399,796

Note: Modeled using CT-EMFA2017. CO_2e = carbon dioxide equivalent.
1. Annual VMT values derived from daily VMT values multiplied by 347, per CARB methodology (CARB 2008).
Source: Air Quality Report Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, December 2020.

As identified in Table 3.4-2, project GHG emissions would increase relative to existing conditions under the Build Alternatives and No-Build Alternative. However, it is important to note that this increase in GHG emissions relative to existing conditions is not due to the proposed project, but rather is associated with new residential and nonresidential developments that would occur in the project vicinity between the existing year (2019) and the project's open to traffic year (2025). This increase in development would cause growth in background traffic volumes and related GHG emissions.

Despite the increase in VMT, both Build Alternatives would improve traffic operations and reduce total travel time (VHT) thereby reducing GHG emissions in comparison to the No-Build Alternative. Project implementation would improve mobility and interstate highway access, reduce congestion, and enhance traffic operations. Rather than induce additional growth, the project would accommodate future planned growth in the area. Implementation of sidewalks and turn-lane bicycle buffers along Cherry Valley Boulevard would increase opportunities for nonmotorized transportation and provide connectivity between Cherry Valley Boulevard and residential and commercial units within the project area. These features support GHG-related policies of the Riverside County and City of Calimesa Climate Action plans, and the City of Calimesa General Plan. Implementation of the project, along with other projects included in the regional 2020–2045 RTP, should further improve traffic flow and decrease congestion within the region.

The following text has been amended since the Draft Environmental Document: ARB developed the EMission FACtors (EMFAC) model to facilitate preparation of statewide and regional mobile source emissions inventories. The model generates emissions rates that can be multiplied by vehicle activity data from all motor vehicles, including passenger cars to heavy-duty trucks, operating on highways, freeways, and local roads in California. EMFAC has a rigorous scientific foundation, has been approved by U.S. EPA, and has been vetted through multiple stakeholder reviews. Caltrans developed CT-EMFAC to apply project-specific factors to ARB’s model.

The following text has been amended since the Draft Environmental Document: EMFAC’s GHG emission rates are based on tailpipe emissions test data and the model does not account for factors such as the rate of acceleration and vehicle aerodynamics, which influence the amount of emissions generated by a vehicle. GHG emissions quantified using CT-EMFAC are therefore estimates and may not reflect actual on-road emissions. Furthermore, the model does not account for induced travel. Modeling GHG estimates with EMFAC or CT-EMFAC nevertheless remains the most precise means of estimating future greenhouse gas emissions. While CT-EMFAC is currently the best available tool for calculating GHG emissions from mobile sources, it is important to note that the GHG results are only useful for a comparison of alternatives. Federal CAFE and GHG emissions standards continue to evolve, and models will be updated to account for regulatory changes.

Construction Emissions

The following text has been amended since the Draft Environmental Document: Construction GHG emissions would result from material processing and transportation, on-site construction equipment, and traffic delays due to construction. These emissions will be produced at different levels throughout the construction phase; their frequency and occurrence can be reduced through innovations in plans and specifications and by implementing better traffic management during construction phases.

The following text has been amended since the Draft Environmental Document: Use of long-life pavement, improved traffic management plans, and changes in materials can also help offset GHG emissions produced during construction by allowing longer intervals between maintenance and rehabilitation activities.

In addition, with innovations such as longer pavement lives, improved traffic management plans, and changes in materials, the GHG emissions produced during construction can be offset to some degree by longer intervals between maintenance and rehabilitation activities.

The *Road Construction Emissions Model* (RCEM) (version 9.0) from the Sacramento Metropolitan Air Quality Management District was used to estimate GHG emissions from project construction. Construction of either alternative is expected to take approximately 24 months. Tables 3.4-3 through 3.4-4 show that constructing Build Alternative 3 would emit approximately 2,728 metric tons per year of CO_2 equivalent (CO_2e) and constructing Build Alternative 4 would emit 2,664 of metric tons of CO_2e per year. Under both Build Alternatives, the project would emit approximately one metric ton of CH_4 and less than one metric ton of N_2O per year. GHG emissions for Alternative 3 would be slightly more than Alternative 4 because the Diverging Diamond configuration would require larger bridge structures for traffic to cross to opposite sides between signalized crossover intersections.

Table 3.4-3: Summary of Construction Emissions under Build Alternative 3

Year	CO_2	CH_4	N_2O	CO_{2e}
Year 1	1,622	<1	<1	1,643
Year 2	1,071	<1	<1	1,085
Total	**2,693**	**1**	**<1**	**2,728**

Note: CH_4 = methane; CO_2 = carbon dioxide; CO_2e = CO_2 equivalent; N_2O = nitrous oxide.

Table 3.4-4: Summary of Construction Emissions under Build Alternative 4

Year	CO_2	CH_4	N_2O	CO_{2e}
Year 1	1,557	<1	<1	1,575
Year 2	1,075	<1	<1	1,089
Total	**2,632**	**1**	**<1**	**2,664**

Note: CH_4 = methane; CO_2 = carbon dioxide; CO_2e = CO_2 equivalent; N_2O = nitrous oxide.

All construction contracts include Caltrans Standard Specifications related to air quality. Section 7-1.02A and 7 1.02C, Emissions Reduction, requires contractors to comply with all laws applicable to the project and to certify they are aware of and will comply with all CARB emission reduction regulations. Section 14-9.02, Air Pollution Control, requires contractors to comply with all air pollution control rules, regulations, ordinances, and statutes. Certain common regulations, such as equipment idling restrictions, that reduce short-term construction vehicle emissions also help reduce GHG emissions.

CEQA Conclusion

The proposed project is identified in SCAG's 2020–2045 RTP/SCS, and the Build Alternatives directly support the 2020–2045 RTP/SCS mobility and accessibility performance outcome by reducing vehicle delay and congestion. This strategy contributes to overall GHG reduction efforts for mobile sources within the SCAG region.

Pedestrian facilities, associated mobility, and connectivity within the project area are limited. Sidewalks are located at the I-10/Cherry Boulevard overcrossing, and along Roberts Road. There are currently no designated bicycle lanes or facilities within the study area. Project implementation would improve pedestrian and bicycle movement within the area by replacing existing facilities and includes additional pedestrian and bicycle facilities to enhance mobility. Under Build Alternative 3, sidewalks would be provided on each side of Cherry Valley Boulevard, excluding the overcrossing structures. An eight-foot sidewalk would be provided on the eastbound structure to serve both directions of pedestrian travel. Crosswalks would be provided and would connect to the eastbound structure's sidewalk to the sidewalk on both sides of Cherry Valley Boulevard. Right turn pockets would be provided approaching the westbound on-ramp and eastbound on-ramp. These right turn pockets would include a four-foot bicycle buffer and bypass the Cherry Valley Boulevard crossovers. Under Build Alternative 4, Cherry Valley Boulevard would be widened to two lanes in each direction with sidewalk in the eastbound direction. The I-10/Cherry Valley Boulevard overcrossing would be reconstructed to include a ten-foot sidewalk. A six-foot bicycle buffer would be provided on all proposed right turn pockets within the project limits. The Build Alternatives would result in permanent beneficial impacts to bicycle and pedestrian movement within the study area, as it would provide non-motorized facilities in areas where limited facilities exist.

As discussed in Chapter 2.2.8, Energy, the project would not result in the inefficient, wasteful, or unnecessary consumption of energy during construction or operations. Construction design features would help conserve energy and minimize GHG emissions. For example, recycled materials, including removed asphalt concrete pavement and cement concrete pavement, would be used where feasible. If new materials must be used, a fly ash mix may be considered to lower the heat island effect (The heat island effect occurs when the sun heats dry, exposed urban surfaces, such as roofs and pavement, to temperatures 50 to 90 degrees Fahrenheit (°F) hotter than the air), depending on what is allowable under Caltrans specifications. Operational energy consumption would be consistent with federal, regional, and local plans and policies and would not substantially contribute to direct or indirect energy use within the region.

Although operations at the interchange and adjacent roadways would improve, GHG emissions would increase compared to existing conditions due to planned growth in the project vicinity. Although the project would not reduce GHG emissions compared to existing conditions, the regional and local GHG reduction policies and strategies presented in Table 3.4-1 and project-level GHG reduction strategies provided below (CC-1 through CC-8 and GHG-1 through GHG-8) would reduce GHG emissions to a less than significant level. Moreover, vehicular emission rates, including GHGs, are anticipated to lessen in future years because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

Accordingly, the impact would be less than significant with mitigation incorporated.

Caltrans is firmly committed to implementing measures to help reduce GHG emissions. These measures are outlined in the following section.

3.4.4 Greenhouse Gas Reduction Strategies

Statewide Efforts

The following text has been amended since the Draft Environmental Document: In response to AB 32, California is implementing measures to achieve emission reductions of GHGs that cause climate change. Climate change programs in California are effectively reducing GHG emissions from all sectors of the economy. These programs include regulations, market programs, and incentives that will transform transportation, industry, fuels, and other sectors, to take California into a sustainable, low-carbon and cleaner future, while maintaining a robust economy (CARB 2022d).

The following text has been amended since the Draft Environmental Document: Major sectors of the California economy, including transportation, will need to reduce emissions to meet 2030 and 2050 GHG emissions targets. The Governor's Office of Planning and Research identified five sustainability pillars in a 2015 report: (1) increasing the share of renewable energy in the State's energy mix to at least 50 percent by 2030; (2) reducing petroleum use by up to 50 percent by 2030; (3) increasing the energy efficiency of existing buildings by 50 percent by 2030; (4) reducing emissions of short-lived climate pollutants; and (5) stewarding natural resources, including forests, working lands, and wetlands, to ensure that they store carbon, are resilient, and enhance other environmental benefits (OPR 2015). OPR later added strategies related to achieving statewide carbon neutrality by 2045 in accordance with EO B-55-18 and AB 1279 (OPR 2022).

The following text has been amended since the Draft Environmental Document: The transportation sector is integral to the people and economy of California. To achieve GHG emission reduction goals, it is vital that the state build on past successes in reducing criteria and toxic air pollutants from transportation and goods movement. GHG emission reductions will come from cleaner vehicle technologies, lower-carbon fuels, and reduction of vehicle miles traveled (VMT). Reducing today's petroleum use in cars and trucks by 50 percent is a key state goal for reducing greenhouse gas emissions by 2030 (California Environmental Protection Agency 2015).

The following text has been amended since the Draft Environmental Document: In addition, SB 1386 (Wolk 2016) established as state policy the protection and management of natural and working lands and requires state agencies to consider that policy in their own decision making. Trees and vegetation on forests, rangelands, farms, and wetlands remove carbon dioxide from the atmosphere through biological processes and sequester the carbon in above- and below-ground matter.

The following text has been amended since the Draft Environmental Document: Subsequently, Governor Gavin Newsom issued Executive Order N-82-20 to combat the crises in climate change and biodiversity. It instructs state agencies to use existing authorities and resources to identify and implement near- and long-term actions to accelerate natural removal of carbon and build climate resilience in our forests, wetlands, urban greenspaces, agricultural soils, and land conservation activities in ways that serve all communities and in particular low-income, disadvantaged, and vulnerable communities. To support this order, the California Natural Resources Agency (2022a) released *Natural and Working Lands Climate Smart Strategy Draft*, with a focus on nature-based solutions.

Caltrans Activities

Caltrans continues to be involved on the Governor's Climate Action Team as the CARB works to implement EOs S-3-05 and S-01-07 and help achieve the targets set forth in AB 32. EO B-30-15, issued in April 2015, and SB 32 (2016), set an interim target to cut GHG emissions to 40 percent below 1990 levels by 2030. The following major initiatives are underway at Caltrans to help meet these targets.

Climate Action Plan for Transportation Investments

The following text has been amended since the Draft Environmental Document: *The California Action Plan for Transportation Infrastructure* (CAPTI) builds on executive orders signed by Governor Newsom in 2019 and 2020 targeted at reducing GHG emissions in transportation, which account for more than 40 percent of all polluting emissions, to reach the state's climate goals. Under CAPTI, where feasible and within existing funding program structures, the state will invest discretionary transportation funds in sustainable infrastructure projects that align with its climate, health, and social equity goals (California State Transportation Agency 2021).

California Transportation Plan

The following text has been amended since the Draft Environmental Document: The California Transportation Plan (CTP) is a statewide, long-range transportation plan to meet our future mobility needs and reduce GHG emissions. It serves as an umbrella document for all the other statewide transportation planning documents. The CTP 2050 presents a vision of a safe, resilient, and universally accessible transportation system that supports vibrant communities, advances racial and economic justice, and improves public and environmental health. The plan's climate goal is to achieve statewide GHG emissions reduction targets and increase resilience to climate change. It demonstrates how GHG emissions from the transportation sector can be reduced through advancements in clean fuel technologies; continued shifts toward active travel, transit, and shared mobility; more efficient land use and development practices; and continued shifts to telework (Caltrans 2021a).

Caltrans Strategic Plan
The following text has been amended since the Draft Environmental Document: The *Caltrans 2020–2024 Strategic Plan* includes goals of stewardship, climate action, and equity. Climate action strategies include developing and implementing a Caltrans Climate Action Plan; a robust program of climate action education, training, and outreach; partnership and collaboration; a VMT monitoring and reduction program; and engaging with the most vulnerable communities in developing and implementing Caltrans climate action activities (Caltrans 2021b).

Caltrans Policy Directives and Other Initiatives
The following text has been amended since the Draft Environmental Document: Caltrans Director's Policy 30 (DP-30) Climate Change (June 22, 2012) established a Department policy to ensure coordinated efforts to incorporate climate change into Departmental decisions and activities. *Caltrans Greenhouse Gas Emissions and Mitigation Report* (Caltrans 2020) provides a comprehensive overview of Caltrans' emissions. The report documents and evaluates current Caltrans procedures and activities that track and reduce GHG emissions and identifies additional opportunities for further reducing GHG emissions from Department-controlled emission sources, in support of Departmental and State goals.

Project-Level Greenhouse Gas Reduction Strategies
The following measures will also be implemented in the project to reduce GHG emissions and potential climate change impacts from the project.

CC-1 The project will incorporate facilities to promote mobility for pedestrians and bicyclists, including sidewalks, crosswalks, and bicycle buffers.

CC-2 A Transportation Management Plan (TMP) will be prepared during the final design phase to minimize traffic delays and idling during construction.

CC-3 The project will incorporate the use of energy-efficient lighting, such as LED traffic signals, to help reduce the project's CO_2 emissions.

CC-4 The project will incorporate complete streets components, specifically pedestrian sidewalks and turn-lane bicycle buffers along Cherry Valley Boulevard.

CC-5 The project will implement landscaping as determined during final design in coordination with the City of Calimesa and the Caltrans District Landscape Architect. This landscaping will include energy- and water-efficient irrigation systems and native plants as appropriate, to conserve energy and help offset any potential CO2 emissions increase.

CC-6 The project will recycle construction debris as practicable.

CC-7 The following text has been amended since the Draft Environmental Document: Tree removals required for project implementation will be subject to tree removal permit(s) associated requirements for replacement consistent with the City of Calimesa Zoning Code, Chapters 18.70 and 18.80 and Caltrans Project Development Procedures Manual (PDPM).

CC-8 Idling is limited to five minutes for delivery and dump trucks and other diesel-powered equipment (with some exceptions).

GHG-1 According to the Caltrans' Standard Specifications, the contractor must comply with all local Air Pollution Control District's (APCD) rules, ordinances, and regulations for air quality restrictions. This includes CARB's anti-idling rule (Section 2489 of the California Code of Regulations) and South Coast Air Quality Management District's (SCAQMD) Rule 2449 (In-Use Mobile Source Emission Reduction Programs).

GHG-2 According to the Caltrans Standard Specifications, idling time for lane closure during construction will be limited to 10 minutes in each direction. In addition, the contractor will comply with all SCAQMD rules, ordinances, and regulations regarding air quality restrictions.

GHG-3 The project will maintain equipment in proper tune and working condition. Construction equipment fleets will be in compliance with Best Available Control Technology requirements.

GHG-4 Bids will be solicited that include use of energy and fuel-efficient fleets in accordance with current practices.

GHG-5 The project will use cement blended with the maximum feasible amount of fly ash or other materials that reduce GHG emissions from cement production.

GHG-6 The project will incorporate design measures to reduce GHG emissions from solid waste management through solid waste reduction, recycling, and reuse.

GHG-7 The project will utilize energy- and fuel-efficient vehicles and equipment that meet and exceed U.S. EPA/NHTSA/CARB standards relating to fuel efficiency and emission reduction.

GHG-8 The project will use the minimum feasible amount of GHG-emitting construction materials.

3.4.5 Adaptation

Reducing GHG emissions is only one part of an approach to addressing climate change. Caltrans must plan for the effects of climate change on the state's transportation infrastructure and strengthen or protect the facilities from damage. Climate change is expected to produce increased variability in precipitation, rising temperatures, rising sea levels, variability in storm surges and their intensity, and in the frequency and intensity of wildfires. Flooding and erosion can damage or wash out roads; longer periods of intense heat can buckle pavement and railroad tracks; storm surges combined with a rising sea level can inundate highways. Wildfire can directly burn facilities and indirectly cause damage when rain falls on denuded slopes that landslide after a fire. Effects will vary by location and may, in the most extreme cases, require that a facility be relocated or redesigned. Accordingly, Caltrans must consider these types of climate stressors in how highways are planned, designed, built, operated, and maintained.

Federal Efforts

Under NEPA assignment, Caltrans is obligated to comply with all applicable federal environmental laws and FHWA NEPA regulations, policies, and guidance.

The following text has been amended since the Draft Environmental Document: The *Fourth National Climate Assessment*, published in 2018, presents the foundational science and the "human welfare, societal, and environmental elements of climate change and variability for 10 regions and 18 national topics, with particular attention paid to observed and projected risks, impacts, consideration of risk reduction, and implications under different mitigation pathways."

The following text has been amended since the Draft Environmental Document: The U.S. DOT Policy Statement on Climate Adaptation in June 2011 committed the federal Department of Transportation to "integrate consideration of climate change impacts and adaptation into the planning, operations, policies, and programs of DOT in order to ensure that taxpayer resources are invested wisely, and that transportation infrastructure, services and operations remain effective in current and future climate conditions" (U.S. DOT 2011). The U.S. DOT Climate Action Plan of August 2021 followed up with a statement of policy to "accelerate reductions in greenhouse gas emissions from the transportation sector and make our transportation infrastructure more climate change resilient now and in the future," following this set of guiding principles (U.S. DOT 2021):

- Use best-available science

- Prioritize the most vulnerable
- Preserve ecosystems
- Build community relationships
- Engage globally

The following text has been amended since the Draft Environmental Document: U.S. DOT developed its climate action plan pursuant to the federal EO 14008, Tackling the Climate Crisis at Home and Abroad (January 27, 2021). EO 14008 recognized the threats of climate change to national security and ordered federal government agencies to prioritize actions on climate adaptation and resilience in their programs and investments (White House 2021).

FHWA order 5520 (*Transportation System Preparedness and Resilience to Climate Change and Extreme Weather Events*, December 15, 2014) established FHWA policy to strive to identify the risks of climate change and extreme weather events to current and planned transportation systems. FHWA has developed guidance and tools for transportation planning that foster resilience to climate effects and sustainability at the federal, state, and local levels (FHWA 2019).

State Efforts

The following text has been amended since the Draft Environmental Document: Climate change adaptation for transportation infrastructure involves long-term planning and risk management to address vulnerabilities in the transportation system. A number of state policies and tools have been developed to guide adaptation efforts.

The following text has been amended since the Draft Environmental Document: *California's Fourth Climate Change Assessment* (Fourth Assessment) (2018) is the state's effort to "translate the state of climate science into useful information for action." It provides information that will help decision makers across sectors and at state, regional, and local scales protect and build the resilience of the state's people, infrastructure, natural systems, working lands, and waters. The State's approach recognizes that the consequences of climate change occur at the intersections of people, nature, and infrastructure. The Fourth Assessment reports that if no measures are taken to reduce GHG emissions by 2021 or sooner, the state is projected to experience a 2.7 to 8.8 degrees Fahrenheit increase in average annual maximum daily temperatures, with impacts on agriculture, energy demand, natural systems, and public health; a two-thirds decline in water supply from snowpack and water shortages that will impact agricultural production; a 77 percent increase in average area burned by wildfire, with consequences for forest health and communities; and large-scale erosion of up to 67 percent of Southern California beaches and inundation of billions of dollars' worth of residential and commercial buildings due to sea level rise (State of California 2018).

The following text has been amended since the Draft Environmental Document: Sea level rise is a particular concern for transportation infrastructure in the coastal zone. Major urban airports will be at risk of flooding from sea level rise combined with storm surge as early as 2040; San Francisco airport is already at risk. Miles of coastal highways vulnerable to flooding in a 100-year storm event will triple to 370 by 2100, and 3,750 miles will be exposed to temporary flooding. The Fourth Assessment's findings highlight the need for proactive action to address these current and future impacts of climate change.

The following text has been amended since the Draft Environmental Document: In 2008, then-governor Arnold Schwarzenegger recognized the need when he issued EO S-13-08, focused on sea level rise. Technical reports on the latest sea level rise science were first published in 2010 and updated in 2013 and 2017. The 2017 projections of sea level rise and new understanding of processes and potential impacts in California were incorporated into the *State of California Sea-Level Rise Guidance Update* in 2018. This EO also gave rise to the *California Climate Adaptation Strategy* (2009), updated in 2014 as *Safeguarding California: Reducing Climate Risk* (Safeguarding California Plan), which addressed the full range of climate change impacts and recommended adaptation strategies. The Safeguarding California Plan was updated in 2018 and again in 2021 as the *California Climate Adaptation Strategy*, incorporating key elements of the latest sector-specific plans such as the *Natural and Working Lands Climate Smart Strategy, Wildfire and Forest Resilience Action Plan, Water Resilience Portfolio*, and the CAPTI (described above). Priorities in the 2021 California Climate Adaptation Strategy include acting in partnership with California Native American Tribes, strengthening protections for climate-vulnerable communities that lack capacity and resources, nature-based climate solutions, use of best available climate science, and partnering and collaboration to best leverage resources (California Natural Resources Agency 2022b).

The following text has been amended since the Draft Environmental Document: EO B-30-15, signed in April 2015, requires state agencies to factor climate change into all planning and investment decisions. This EO recognizes that effects of climate change in addition to sea level rise also threaten California's infrastructure. At the direction of EO B-30-15, the Office of Planning and Research published *Planning and Investing for a Resilient California: A Guidebook for State Agencies* in 2017, to encourage a uniform and systematic approach.

The following text has been amended since the Draft Environmental Document: AB 2800 (Quirk 2016) created the multidisciplinary Climate-Safe

Infrastructure Working Group to help actors throughout the state address the findings of California’s Fourth Climate Change Assessment. It released its report, *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*, in 2018. The report provides guidance to agencies on how to address the challenges of assessing risk in the face of inherent uncertainties still posed by the best available science on climate change. It also examines how state agencies can use infrastructure planning, design, and implementation processes to address the observed and anticipated climate change impacts (Climate Change Infrastructure Working Group 2018).

Caltrans Adaptation Efforts

Caltrans Vulnerability Assessments

The following text has been amended since the Draft Environmental Document: Caltrans completed climate change vulnerability assessments to identify segments of the State Highway System vulnerable to climate change effects of precipitation, temperature, wildfire, storm surge, and sea level rise.

The following text has been amended since the Draft Environmental Document: The climate change data in the assessments were developed in coordination with climate change scientists and experts at federal, state, and regional organizations at the forefront of climate science. The findings of the vulnerability assessments guide analysis of at-risk assets and development of Adaptation Priority Reports as a method to make capital programming decisions to address identified risks.

Project Adaptation Analysis

Sea Level Rise

The proposed project is outside the coastal zone and not in an area subject to sea-level rise. Accordingly, direct impacts to transportation facilities due to projected sea-level rise are not expected.

Precipitation and Flooding

The project site is located in a FEMA-designated Zone X area. Zone X areas are determined to be outside the 0.2 percent annual chance floodplain. As described in Section 2.2.1, Hydrology and Floodplain, El Casco Creek is the primary drainage feature within the project area, consisting of an unlined natural waterway upstream of Cherry Valley Boulevard. It traverses Cherry Valley Boulevard east of the I-10/Cherry Valley Boulevard overcrossing via an existing 10-foot by 9-foot reinforced concrete box (RCB). This RCB then outlets to an existing concrete lined trapezoidal channel, where El Casco Creek continues to flow northwesterly between the I-10 westbound on-ramp and Calimesa Boulevard. It ultimately reaches a confluence with San Timoteo Creek approximately 3 miles west of the project site. The LHS determined that the implementation of Build Alternatives 3 and 4 would not result in a localized rise in the water surface elevation at El Casco Creek. However, the Build Alternatives would result in minor increases in off-site stormwater runoff tributary to El Casco Creek. The LHS found that the existing tributary to El

Casco Creek (a concrete trapezoidal channel) would be insufficient to convey the 100-year peak runoff upon implementation of Build Alternatives 3 and 4. The existing channel has a depth of 4 feet, while the calculated maximum flow depth is approximately 6 feet (particularly at the confluence with the double 8-foot by 5-foot RCB crossing Calimesa Boulevard). In order to provide additional capacity and freeboard, the Build Alternatives would increase the depth of the existing channel by from 1 to 3.5 feet by extending the tops of the channel side slopes in kind while maintaining the invert of the channel (see Section 2.2.1 for details). Water surface elevation would remain the same because the invert would not change.

The Caltrans Climate Change Vulnerability Assessment for District 8 (Caltrans 2019) assesses and maps changes in the 100-year storm precipitation depth in the district. At the project location, 100-year storm depth is anticipated to increase by less than 5% through 2085 under the RCP 8.5 (business as usual) climate change scenario. The project is not located in a 100-year floodplain or an inundation area. Because the sides of the concrete-lined channels would be raised if either project alternative is implemented, the channel would be adequate to convey current and potentially greater future 100-year storm runoff. Accordingly, the project would be adapted and resilient to future increases in 100-year storm precipitation.

Wildfire

According to California Department of Forestry and Fire Protection (2009) a small portion of the project site falls within a very high fire hazard severity zone in a Local Responsibility Area. The Caltrans District 8 Climate Change Vulnerability Assessment digital mapping tool shows that the project limits would be considered exposed roadway in an area of moderate wildfire concern through 2055, increasing to high wildfire concern by 2085 under the RCP 8.5 (business as usual) climate change scenario. This is consistent with a projected increase in maximum 7-day average temperature of as much as 10.3 degrees Fahrenheit (F) under the same scenario. Increasing temperature and changing precipitation patterns result in changes to land cover that make it more prone to ignition. Human infrastructure introduces elements such as electrical infrastructure that further increase fire potential (Caltrans 2019).

The project is proposed to address planned development in the area, which would introduce new human factors that could cause fire. However, it would improve the existing interchange without introducing new roadways or other structures vulnerable to fire. Construction will adhere to Chapter 33 of the California Fire Code, Fire Safety During Construction and Demolition, which includes safety provisions and precautions to minimize the potential for fires. All construction contracts include Caltrans 2018 revised Standard Specification 7-1.02M(2) mandating fire prevention procedures, including a fire prevention plan, to avoid accidental fire starts during construction.

The following text has been amended since the Draft Environmental Document: During project operation, local fire protection services will serve the project site, and firefighting capacity is likely to increase as the area develops (Southern California Association of Governments. *Connect SoCal Program Environmental Impact Report.* May 2020). Pavement design includes a temperature assessment in determining materials, and pavement is generally replaced after about 20 years. Maximum 7-day average temperatures are projected to increase up to 6.4 degrees F by 2055; pavement materials will be selected appropriately. Drainage features would include new or reconstructed culverts that would meet Caltrans Specifications 61-6.02. Landscaping would be designed to lessen the risk of catching fire within the roadside areas and would consist of plants low in water use. Landscaping concepts and plant palette would be developed in coordination with and approved by the Caltrans District Landscape Architect. Accordingly, the proposed project would not exacerbate wildfire risk, and the project would not be more vulnerable to wildfire and extreme heat than it is under existing conditions.

Temperature

The following text has been amended since the Draft Environmental Document: The District Climate Change Vulnerability Assessment does not indicate temperature changes during the project’s design life that would require adaptive changes in pavement design or maintenance practices.

Barth, Matthew and Kanok Boriboonsomsin. 2010. *Real-World Carbon Dioxide Impacts of Traffic Congestion*. Berkeley, CA: University of California Transportation Center. UCTC-FR-2010-11. Available: https://www.researchgate.net/publication/46438207.

The following text has been amended since the Draft Environmental Document: California Air Resources Board (CARB). 2008. *Climate Change Scoping Plan Appendices. Volume II: Analysis and Documentation*. Appendix I, p. I-19. December. https://ww2.arb.ca.gov/sites/default/files/classic/cc/scopingplan/document/appendices_volume2.pdf. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: California Air Resources Board (CARB). 2022a. *Greenhouse Gas Emissions and Trends for 2000 to 2020.* Available: https://ww2.arb.ca.gov/our-work/programs/ghg-inventory-program. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: California Air Resources Board (CARB). 2022b. *AB 32 Climate Change Scoping Plan.* Available: https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: California Air Resources Board (CARB). 2022c. *SB 375 Regional Plan Climate Targets*. https://ww2.arb.ca.gov/our-work/programs/sustainable-communities-program/regional-plan-targets. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: California Air Resources Board (CARB). 2022d. *Climate Change*. https://ww2.arb.ca.gov/our-work/topics/climate-change. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: Climate Change Infrastructure Working Group. 2018. *Paying it Forward: The Path Toward Climate-Safe Infrastructure in California*. September. https://files.resources.ca.gov/climate/climate-safe-infrastructure-working-group/. Accessed: December 13, 2021.

California Department of Transportation (Caltrans). 2019. *Caltrans Climate Change Vulnerability Assessments*. District 8 Technical Report. June. Prepared by WSP. https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/2019-climate-change-vulnerability-assessments/ada-remediated/d5-technical-report-a11y.pdf.

The following text has been amended since the Draft Environmental Document: California Department of Transportation (Caltrans). 2020. *Caltrans Greenhouse Gas Emissions and Mitigation Report*. Final. August. Prepared by ICF, Sacramento, CA. https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/air-quality-and-climate-change. (located under the Technical Resources, Tools and Training tab). Accessed: January 11, 2023.

The following text has been amended since the Draft Environmental Document: California Department of Transportation (Caltrans). 2021a. *California Transportation Plan 2050*. February. https://dot.ca.gov/programs/transportation-planning/division-of-transportation-planning/state-planning-equity-and-engagement/california-transportation-plan. Accessed: January 11, 2023.

The following text has been amended since the Draft Environmental Document: California Department of Transportation (Caltrans). 2021b. *Caltrans 2020-2024 Strategic Plan*. https://dot.ca.gov/-/media/dot-media/programs/risk-strategic-management/documents/sp-2020-16p-web-a11y.pdf. Accessed: November 2, 2022.

California Environmental Protection Agency. 2015. *California Climate Strategy*. https://calepa.ca.gov/wp-content/uploads/sites/6/2016/10/Climate-Documents-2015yr-CAStrategy.pdf. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: California Governor's Office of Planning and Research (OPR). 2015. *A Strategy for California @ 50 Million*. November. https://opr.ca.gov/docs/EGPR_Nov_2015.pdf. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: California Governor's Office of Planning and Research (OPR). 2022. *Carbon Neutrality by 2045.* https://opr.ca.gov/climate/carbon-neutrality.html. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: California Natural Resources Agency. 2022a. *Natural and Working Lands Climate Smart Strategy*. https://resources.ca.gov/Initiatives/Expanding-Nature-Based-Solutions. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: California Natural Resources Agency. 2022b. *California Climate Adaptation Strategy*. https://climateresilience.ca.gov/. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: California State Transportation Agency. 2021. *Climate Action Plan for Transportation Infrastructure (CAPTI)*. Adopted July 2021. https://calsta.ca.gov/subject-areas/climate-action-plan. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: Federal Highway Administration (FHWA). 2022. *Sustainability*. https://www.fhwa.dot.gov/environment/sustainability/resilience/. Last updated July 29, 2022. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: Federal Highway Administration (FHWA). No date. *Sustainable Highways Initiative*. https://www.sustainablehighways.dot.gov/overview.aspx. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: National Highway Traffic Safety Administration (NHTSA). 2022. *USDOT Announces New Vehicle Fuel Economy Standards for Model Year 2024–2026*. Press release. April 21. https://www.nhtsa.gov/press-releases/usdot-announces-new-vehicle-fuel-economy-standards-model-year-2024-2026. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: State of California. 2018. *California's Fourth Climate Change Assessment*. http://www.climateassessment.ca.gov/. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: U.S. Department of Transportation (U.S. DOT). 2011. *Policy Statement on Climate Change Adaptation*. https://www.transportation.gov/sites/dot.dev/files/docs/Policy_on_Aaptation2011.pdf. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: U.S. Department of Transportation (U.S. DOT). 2014. *Corporate Average Fuel Economy (CAFE) Standards*. https://www.transportation.gov/mission/sustainability/corporate-average-fuel-economy-cafe-standards. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: U.S. Department of Transportation (U.S. DOT). 2021. *Climate Action Plan: Ensuring Transportation Infrastructure and System Resilience*. https://www.transportation.gov/sites/dot.gov/files/docs/DOT%20Adaptation%20Plan.pdf. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: U.S. Environmental Protection Agency (U.S. EPA). 2022a. *Final Rule to Revise Existing National GHG Emissions Standards for Passenger Cars and Light Trucks Through Model Year 2026*. December. https://www.epa.gov/regulations-emissions-vehicles-and-engines/final-rule-revise-existing-national-ghg-emissions. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: U.S. Environmental Protection Agency (U.S. EPA). 2021b. *Fast Facts 1990-2019*. EPA 430-F-21-011. April. https://www.epa.gov/sites/production/files/2021-04/documents/fastfacts-1990-2019.pdf.pdf. Accessed: April 28, 2021.

The following text has been amended since the Draft Environmental Document: U.S. Environmental Protection Agency (U.S. EPA). 2022b. *Inventory of U.S. Greenhouse Gas Emissions and Sinks 1990-2020*. https://www.epa.gov/ghgemissions/inventory-us-greenhouse-gas-emissions-and-sinks. Accessed: November 2, 2022.

The following text has been amended since the Draft Environmental Document: The White House. 2021. *Executive Order on Tackling the Climate Crisis at Home and Abroad*. January 27. https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/. Accessed: November 14, 2022.

Chapter 4 Comments and Coordination

Early and continuing coordination with the general public and public agencies is an essential part of the environmental process. It helps planners determine the necessary scope of environmental documentation and the level of analysis required, and identifies potential impacts and avoidance, minimization, and/or mitigation measures and related environmental requirements. Agency and tribal consultation and public participation for this project have been accomplished through a variety of formal and informal methods, including Project Development Team (PDT) meetings and interagency coordination, outreach, and consultation. This chapter summarizes the results of Caltrans’ efforts to identify, address, and resolve project-related issues through early and continuing coordination.

Consultation and Coordination

Meetings and/or consultations with the resource agencies and interested parties listed below have occurred in conjunction with development of the project.

Native American Coordination

The following text has been amended since the Draft Environmental Document: As part of the cultural investigation, a record search was conducted with the Eastern Information Center (EIC) of the California Historical Resources Information System (CHRIS) located at University of California, Riverside. The Native American Heritage Commission (NAHC) was contacted on March 6, 2019 and letters were sent to Native American tribes consistent with Assembly Bill 52 (AB52) on April 25, 2019. Two tribal responses were received by Caltrans. The consultation with the NAHC and Native American representatives is summarized in Table 4.1-1, Summary of Native American Consultation.

Table 4.1-1 Summary of Native American Consultation

The following table has been amended since the Draft Environmental Document.

Agency	Date of First Contact (Formal Letter)	Date of Reply	Point of Contact(s)	Consultation Topic
Native American Heritage Commission	March 6, 2019	March 13, 2019	Mr. Steven Quinn, Associate Governmental	**March 6, 2019:** A sacred land files and Native American Contacts List Request was provided to the Native American

Agency	Date of First Contact (Formal Letter)	Date of Reply	Point of Contact(s)	Consultation Topic
			Program Analyst	Heritage Commission by Applied Earthworks. **March 13, 2019:** The Native American Heritage Commission responded that there are no sacred lands within the Area of Potential Effects (APE). However, the area is sensitive for cultural resources. A list of Native American Contacts was provided.
San Manuel Band of Mission Indians	April 25, 2019	May 30, 2019	Ms. Lee Clauss, Director of Cultural Resources	**April 25, 2019:** A letter was sent via certified mail to the listed contact for the San Manuel Band of Mission Indians that provided a preliminary project description and location and discussed upcoming cultural resources studies of the project area. **May 30,2019:** An email from Ms. Lee Clauss responded to the April 25 letter, noting the project exists within Serrano ancestral territory. As such, the project is of interest to San Manuel Band of Mission Indians. Ms. Lee Clauss requested a copy of the Phase I archaeological investigation report, as well as the nature and exact location of where the construction activities would occur. **March 15, 2021:** A copy of the combined Historic Property Survey Report (HPSR), Archaeological Survey Report (ASR), and Historical Resources Evaluation Report (HRER) was transmitted to the Tribe. **March 17, 2021:** An email from the Tribe confirmed receipt of the cultural report and stated that the Tribe does not have any concerns with project implementation, as planned, at this time. However, the Tribe requested inclusion of provisions for unanticipated discoveries. The Tribe's request is covered within the Environmental Commitments Record (Appendix E)

Agency	Date of First Contact (Formal Letter)	Date of Reply	Point of Contact(s)	Consultation Topic
Morongo Band of Mission Indians	April 25, 2019	May 2, 2019	Mr. Travis Armstrong, Tribal Historic Preservation Officer (former) Ms. Ann Brierty, Tribal Historic Preservation Officer (current)	**April 25,2019:** A letter was sent via certified mail to the listed contact for the Morongo Band of Mission Indians that provided a preliminary project description and location and discussed upcoming cultural resources studies of the project area. **May 2, 2019:** An email from Travis Armstrong of the Morongo Band of Mission Indians stated the following: preliminary review provided by a representative of the Morongo Band of Mission Indians did not find tribal cultural resources in the project footprint. However, the tribal representative noted that the general area is of concern. **March 15, 2021:** A copy of the combined HPSR, ASR, and HRER was transmitted to the Tribe. **March 26, 2021**: An email from Ann Brierty of the Morongo Band of Mission Indians confirmed receipt of the cultural report and stated that the Tribe would review the HPSR packet and provide comments. No comments have been received to date.
Soboba Band of Luiseno Indians	April 25, 2019	N/A	Mr. Joseph Ontiveros, Tribal Historic Preservation Officer	**April 25, 2019:** A letter was sent via certified mail to the listed contact for the Soboba Band of Luiseno Indians that provided a preliminary project description and location and discussed upcoming cultural resources studies of the project area. **July 22, 2019:** An email from Joseph Ontiveros of the Soboba Band of Luiseno Indians stated the Tribe has specific information regarding the project area. The Tribe requested a copy of the record search, the radius map of previously identified resources and studies, and archaeological records. **March 15, 2021:** A copy of the combined HPSR, ASR, and HRER was transmitted to the Tribe. **April 2, 2021:** Follow up communication was sent via email. No response has been received to date.

Caltrans consulted with the California Office of Historic Preservation (OHP) and State Historic Preservation Officer (SHPO) for concurrence regarding the Historic Property Survey Report (HPSR) prepared for the proposed project. On May 5, 2021, the HPSR was provided to SHPO for review and on June 16, 2021, SHPO provided concurrence. See correspondence letters, below.

Local Historical Society/Historic Preservation Group

On June 11, 2020, the San Gorgonio Pass Historical Society and the Yucaipa Valley Historical Society were mailed a letter, prepared by Applied Earthworks, regarding the Historical Resource Evaluation Report (HRER) for the project. The letter requested identification of potentially significant historic resources within the project vicinity and known historical sources of a sensitive nature within the project area be provided. A follow-up letter was sent to each historical society on July 1, 2020. Neither historical society responded with knowledge of any known historical resources within the project vicinity. Refer to correspondence letter, below.

U.S. Fish and Wildlife Service

The following text has been amended since the Draft Environmental Document: On June 5, 2023, an official U.S Fish and Wildlife Service (USFWS) List of Proposed, Threatened and Endangered Species, and Critical Habitats was obtained through the USFWS Information System. Refer to the species list, below.

Air Quality

Pursuant to the interagency consultation requirement of 40 Code of Federal Regulations 93.105 (c)(1)(i), a particulate matter (PM) hot-spot conformity analysis for the project (Project ID RIV060116) was presented to the Southern California Association of Governments (SCAG) Transportation Conformity Working Group (TCWG) for consideration at its meeting on April 28, 2020. The TCWG determined that the project is not a project of air quality concern (POAQC). Refer to the TCWG determination, below.

The following text has been amended since the Draft Environmental Document: In addition, an Air Quality Conformity Analysis (AQCA) was prepared for the project and FHWA provided concurrence on April 28, 2020. The Caltrans Transportation Air Quality Conformity Findings Checklist is provided below.

Agricultural Resources

As part of the analysis for potential impacts related to agricultural resources and per the Farmland Protection Policy Act (FPPA), a Farmland Conversion Impact Rating Form (Form AD-1006) was prepared and submitted to Peter Fahnestock of the U.S Department of Agriculture (USDA) Natural Resource

Conservation Service (NRCS) for review on December 16, 2020. NRCS responded with the finalized AD-1006 on December 22, 2020 and provided farmland soil units on January 28, 2021. Refer to Appendix G, Farmland Conversion Impact Rating Form.

Parks and Recreational Facilities

As part of the analysis for potential impacts related to Section 4(f) resources, the City of Calimesa was contacted via email on July 19, 2019 to confirm existing and planned recreational facilities within a 0.5-mile radius of the project site. The City of Calimesa responded via email on August 7, 2019. Refer to Appendix A, Resources Evaluated Relative to the Requirements of Section 4(f): No-Use Determination for further information regarding Section 4(f) resources.

City of Calimesa - Identification of Locally Preferred Alternative

The following text has been amended since the Draft Environmental Document: A regular meeting of the City Council of the City of Calimesa was held in the Council Chamber at 6:00 PM on September 8, 2020. Under Item No. 11 of the City Council agenda, a recommendation to select a locally preferred alternative (Build Alternative 3 or Build Alternative 4) was considered and Build Alternative 3 was selected as the locally preferred alternative by the City Council. Refer to the September 8, 2020, City Council meeting minutes, below.

Agency Coordination Documentation

Correspondence obtained from agencies in response to the Department’s request for information and input/concurrence related to the proposed I-10/Cherry Valley Boulevard Interchange Project is included on the pages that follow.

The following text has been amended since the Draft Environmental Document:

Noise Abatement

On April 20, 2023, soundwall survey letters were distributed to the property owners and residents potentially benefitted by proposed Soundwall S401 and Soundwall S452. A follow-up letter was distributed on May 15, 2023, to those parties who had not yet responded. Refer to the letters dated April 19, 2023 and May 15, 2023, below.

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Native American Heritage Commission Correspondence

Ashimine, Alan

From: Tribal Historic Preservation Office <thpo@morongo-nsn.gov>
Sent: Thursday, May 2, 2019 4:03 PM
To: Jones, Gary A@DOT
Subject: Section 106 - EA OG170

Hello Gary,

Thank you for your April 25, 20190 letter regarding the I-10/Cherry Valley Blvd. Interchange Project.

A preliminary review of our materials did not immediately find tribal cultural resources in the project footprint, although that general area is of concern. We would ask to receive copies of any cultural resources reports prepared for this project and continue consultation once those reports are available.

Sincerely,
Travis Armstrong
Tribal Historic Preservation Officer Morongo Band of Mission Indians 951-755-5259
Email: thpo@morongo-nsn.gov

From: Tribal Historic Preservation Office
To: Jones, Gary A@DOT
Subject: Section 106 - EA OG170
Date: Thursday, May 2, 2019 4:02:59 PM
Attachments: image001.jpg

Hello Gary,

Thank you for your April 25, 20190 letter regarding the I-10/Cherry Valley Blvd. Interchange Project.

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Sincerely,

Travis Armstrong
Tribal Historic Preservation Officer Morongo Band of Mission Indians
951-755-5259
Email: thpo@morongo-nsn.gov

Morongo

CALIFORNIA STATETRANSPORTATION AGENCY GA VIN C. NEWSOM. Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
ENVIRONMENTAL PLANNING (MS 825)
464 W. FOURTH STREET, 6"1"H FLOOR
SAN BERNARDINO, CA 92401-1400
PHONE (909) 383-4042
FAX (909) 383-6494
TTY (909) 383-6300

Make Conservation a
California Way of Life!

April 25, 2019

Lee Clauss
Director of Cultural Resources
San Manuel Band of Mission Indians
26569 Community Center Drive
Highland, CA 92346

Interstate-10/Cherry Valley Boulevard Interchange Improvement Project

EA0G170

Dear Ms. Clauss,

Subject: Initial Section 106 and AB52 Native American Consultation for the 1-10 / Cherry Valley Boulevard Interchange Improvement Project

The California Department of Transportation (Caltrans) as assigned by the Federal Highway Administration **(FHWA)** and in cooperation with City of Calimesa (City), and the County of Riverside (County), proposes to upgrade and reconfigure Cherry Valley Boulevard at Interstate- 10 (I-10) in an effort to improve traffic flow. The I-10/Cherry Valley Boulevard Interchange Improvement Project (Project) limits and immediately surrounding area is depicted on the attached portions of the U.S. Geological Survey 7.5-minute topographic maps El Casco, California Quad (T2S, Rl W and 2W, Section 30 and Tract between the San Jacinto and San Gorgonio Land Grant).

Please consider this letter and preliminary project information as the initiation of Section 106 consultation pursuant to the National Historic Preservation Act and formal notification of a proposed project as required under the California Environmental Quality Act, specifically Public Resources Code 21080.3.1 and Chapter 532 Statutes of 2014 (i.e. AB 52). Please respond within 30 days, pursuant to PRC 21080.3.l(d) if you would like to consult on this Project. Please provide a designated lead contact person if you have not provided that information to us already.

Caltrans requested that a Sacred Lands File (SLF) Search be performed by the Native American Heritage Commission (NAHC). The results of the SLF search were negative for the immediate Project vicinity.

Additional studies for the Project shall include cultural resource investigations and consultation with interested parties. On behalf of the City and County, Caltrans is interested in receiving input from your community regarding any concerns related to the proposed Project. If you know of any cultural resources that may be of religious or cultural significance to your community, or if you would like more information, please contact me at (909) 383-7505, or the above address, or my email at gary.jones@dot.ca.gov. In return correspondence, please refer to this Project by the EA number, EA 0G170.

Your time and involvement in this process is appreciated.

Respectfully,

»7j--

GARY JONES

Associate Environmental Planner, Archaeologist District 8 Native American Coordinator Environmental Support/Cultural Studies

Enclosure

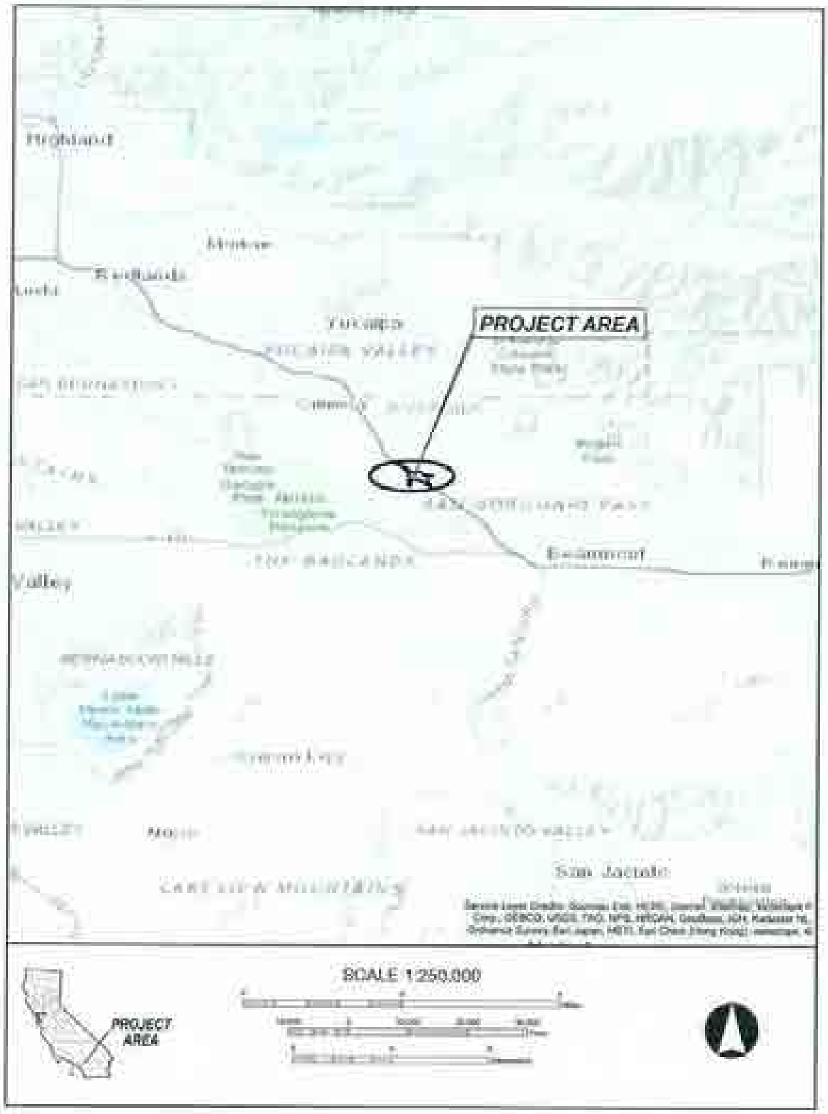

Figure 1 Project vicinity map.

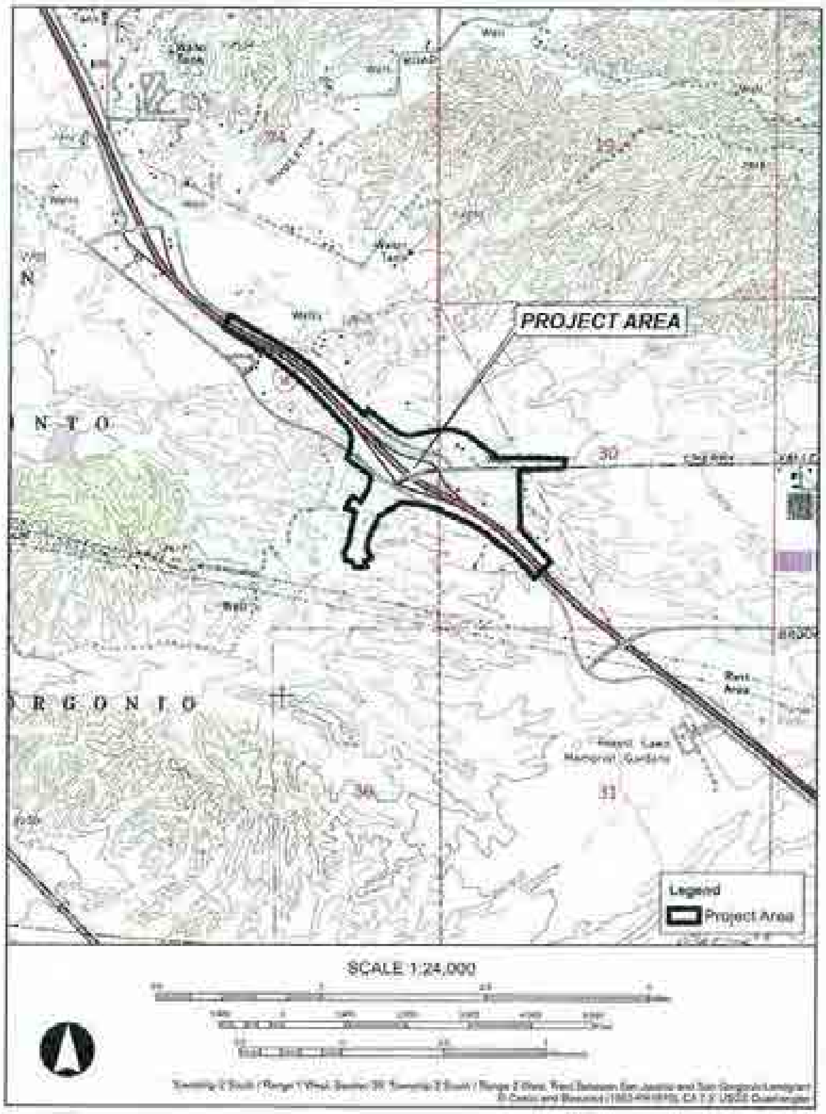

Figure 2 Project location map.

CALIFORNIA STATETRANSPORTATION AGENCY GA VIN C. NEWSOM. Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
ENVIRONMENTAL PLANNING (MS 825)
464 W. FOURTH STREET, 6"1"H FLOOR
SAN BERNARDINO, CA 92401-1400
PHONE (909) 383-4042
FAX (909) 383-6494
TTY (909) 383-6300

Make Conservation a
California Way of Life!

April 25, 2019

Joseph Ontiveros
Tribal Historic Preservation Officer Soboba Band of Luiseno Indians
P.O. Box 487
San Jacinto, CA 92583

Interstate-10/Cherry Valley Boulevard Interchange Improvement Project

EA0G170

Dear Mr. Ontiveros,

Subject: Initial Section 106 and AB52 Native American Consultation for the 1-10 / Cherry Valley Boulevard Interchange Improvement Project

The California Department of Transportation (Caltrans) as assigned by the Federal Highway Administration **(FHWA)** and in cooperation with City of Calimesa (City), and the County of Riverside (County), proposes to upgrade and reconfigure Cherry Valley Boulevard at Interstate- 10 (I-10) in an effort to improve traffic flow. The I-10/Cherry Valley Boulevard Interchange Improvement Project (Project) limits and immediately surrounding area is depicted on the attached portions of the U.S. Geological Survey 7.5-minute topographic maps El Casco, California Quad (T2S, RI W and 2W, Section 30 and Tract between the San Jacinto and San Gorgonio Land Grant).

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Your time and involvement in this process is appreciated.

Respectfully,

»7j--

GARY JONES

Associate Environmental Planner, Archaeologist District 8 Native American Coordinator Environmental Support/Cultural Studies

Enclosure

CALIFORNIA STATETRANSPORTATION AGENCY GA VIN C. NEWSOM. Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
ENVIRONMENTAL PLANNING (MS 825)
464 W. FOURTH STREET, 6"1"H FLOOR
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FAX (909) 383-6494
TTY (909) 383-6300

Make Conservation a
California Way of Life!

April 25, 2019

Travis Armstrong
Tribal Historic Preservation Officer Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220

Interstate-10/Cherry Valley Boulevard Interchange Improvement Project

EA0G170

Dear Mr. Armstrong,

Subject: Initial Section 106 and AB52 Native American Consultation for the 1-10 / Cherry Valley Boulevard Interchange Improvement Project

The California Department of Transportation (Caltrans) as assigned by the Federal Highway Administration **(FHWA)** and in cooperation with City of Calimesa (City), and the County of Riverside (County), proposes to upgrade and reconfigure Cherry Valley Boulevard at Interstate- 10 (I-10) in an effort to improve traffic flow. The I-10/Cherry Valley Boulevard Interchange Improvement Project (Project) limits and immediately surrounding area is depicted on the attached portions of the U.S. Geological Survey 7.5-minute topographic maps El Casco, California Quad (T2S, RI W and 2W, Section 30 and Tract between the San Jacinto and San Gorgonio Land Grant).

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Respectfully,

»7j--

GARY JONES

Associate Environmental Planner, Archaeologist District 8 Native American Coordinator Environmental Support/Cultural Studies

Enclosure

STATE OF CALIFORNIA Gavin Newsom, Governor

NATIVE AMERICAN HERITAGE COMMISSION
Cultural and Environmental Department
1550 Harbor Blvd., Suite 100
West Sacramento, CA 95691 Phone: (916) 373-3710
Email: nahc@nahc.ca.gov
Website: http://www.nahc.ca.gov

March 13, 2019

Joan George Applied EarthWorks

VIA Email to: jgeorge@appliedearthworks.com

RE: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, I-10/Cherry Valley Interchange Improvement Project, Riverside County

Dear Ms. George:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) (“Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.”)

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

> Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California

> Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

    - A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
    - Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
    - Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
    - If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

    - Any report that may contain site forms, site significance, and suggested mitigation measures.

      All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the NAHC was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: steven.quinn@nahc.ca.gov.

Sincerely,

Steven Quinn
Associate Governmental Program Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Riverside County
3/13/2019

Agua Caliente Band of Cahuilla Indians
Jeff Grubbe, Chairperson
5401 Dinah Shore Drive — Cahuilla
Palm Springs, CA, 92264
Phone: (760) 699 - 6800
Fax: (760) 699-6919

Augustine Band of Cahuilla Mission Indians
Amanda Vance, Chairperson
P.O. Box 846 — Cahuilla
Coachella, CA, 92236
Phone: (760) 398 - 4722
Fax: (760) 369-7161
hhaines@augustinetribe.com

Cabazon Band of Mission Indians
Doug Welmas, Chairperson
84-245 Indio Springs Parkway — Cahuilla
Indio, CA, 92203
Phone: (760) 342 - 2593
Fax: (760) 347-7880
jstapp@cabazonindians-nsn.gov

Cahuilla Band of Indians
Daniel Salgado, Chairperson
52701 U.S. Highway 371 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 5549
Fax: (951) 763-2808
Chairman@cahuilla.net

Los Coyotes Band of Cahuilla and Cupeño Indians
Shane Chapparosa, Chairperson
P.O. Box 189 — Cahuilla
Warner Springs, CA, 92086-0189
Phone: (760) 782 - 0711
Fax: (760) 782-0712
Chapparosa@msn.com

Morongo Band of Mission Indians
Robert Martin, Chairperson
12700 Pumarra Rroad — Cahuilla, Serrano
Banning, CA, 92220
Phone: (951) 849 - 8807
Fax: (951) 922-8146
dtorres@morongo-nsn.gov

Ramona Band of Cahuilla
Joseph Hamilton, Chairperson
P.O. Box 391670 — Cahuilla
Anza, CA, 92539
Phone: (951) 763 - 4105
Fax: (951) 763-4325
admin@ramonatribe.com

San Fernando Band of Mission Indians
Donna Yocum, Chairperson
P.O. Box 221838 — Kitanemuk, Vanyume, Tataviam
Newhall, CA, 91322
Phone: (503) 539 - 0933
Fax: (503) 574-3308
ddyocum@comcast.net

San Manuel Band of Mission Indians
Lee Clauss, Director of Cultural Resources
26569 Community Center Drive — Serrano
Highland, CA, 92346
Phone: (909) 864 - 8933
Fax: (909) 864-3370
lclauss@sanmanuel-nsn.gov

Santa Rosa Band of Cahuilla Indians
Steven Estrada, Chairperson
P.O. Box 391820 — Cahuilla
Anza, CA, 92539
Phone: (951) 659 - 2700
Fax: (951) 659-2228
mflaxbeard@santarosacahuilla-nsn.gov

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and Section 5097.98 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed I-10/Cherry Valley Interchange Improvement Project, Riverside County.

PROJ-2019-001705 — 03/13/2019 10:44 AM — 1 of 2

Native American Heritage Commission
Tribal Consultation List
Riverside County
3/13/2019

Serrano Nation of Mission Indians Goldie Walker, Chairperson P.O. Box 343 Patton, CA, 92369 Phone: (909) 528 - 9027	Serrano
Soboba Band of Luiseno Indians Scott Cozart, Chairperson P. O. Box 487 San Jacinto, CA, 92583 Phone: (951) 654 - 2765 Fax: (951) 654-4198 jontiveros@soboba-nsn.gov	Cahuilla Luiseno
Torres-Martinez Desert Cahuilla Indians Thomas Tortez, Chairperson P.O. Box 1160 Thermal, CA, 92274 Phone: (760) 397 - 0300 Fax: (760) 397-8146 tmchair@torresmartinez.org	Cahuilla

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PROJ-2019-001705 03/13/2019 10:44 AM 2 of 2

State Historic Preservation Officer Correspondence

STATE OF CALIFORNIA -- CALIFORNIA STATETRANSPORTATION AGENCYGA VIN C. NEWSOM. Governor

DEPARTMENT OF TRANSPORTATION
DISTRICT 8
ENVIRONMENTAL PLANNING (MS 825)
464 W. FOURTH STREET, 6TH FLOOR
SAN BERNARDINO, CA 92401-1400
PHONE (909) 383-4042

Make Conservation a
California Way of Life

May 5. 2021

Julianne Polanco
State Historic Preservation Officer
1725 23rd Street Suite 100
Sacramento, CA 95816-1700

PROJECT: I-10/Cherry Valley IC Project

PM R2.1/R3.8

EA: 0G170

EA0G170

RE: DETERMINATION OF ELIGIBILITY FOR THE INTERSTATE 10/CHERRY VALLEY BLVD. INTERCHANGE PROJECT, RIVERSIDE COUNTY, CALIFORNIA

Attention: Lucinda Woodward

The California Department of Transportation is initiating consultation with the SHPO regarding the proposed I-10/Cherry Valley Blvd. Improvement Project (EA: 0G170) in Riverside County. This consultation is undertaken in accordance with procedures outlined in the January 1, 2014 *First Amended Programmatic Agreement among the Federal Highway Administration, the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation* (Section 106 PA. Caltrans is currently complying with PRC 5024 pursuant to Stipulation III of the *Memorandum of Understanding between the California Department of Transportation and the California State Historic Preservation Officer regarding compliance with Public Resource Code 5024 and Governor's Executive Order W-26- 92* (PRC 5024 MOU).

The proposed project would upgrade and reconfigure the existing Interstate 10 (I-10)/Cherry Valley Boulevard Interchange from Post Mile R2.1 to R3.8 to improve traffic operations and relieve congestion at the interchange.

Enclosed please find a Historic Properties Survey Report (HPSR), Archaeological Survey Report (ASR), and Historic Resources Evaluation Report (HRER) for the project. The HRER evaluates 2 cultural resources for NRHP eligibility. Caltrans has determined that the resources are not eligible for the NRHP and seeks SHPOs concurrence on this determination under PA Stipulation VIII.C.6:

Name	Address/Location	Community	OHP Status Code	State Owned	Map Reference Number
Æ-3997-01H	36015 Cherry Valley Blvd. in Section 30 of Township 2S, Range 1W, SBBM	Calimesa	6Z	No	1
APN 413-270-014	3607 Cherry Valley Blvd. in Section 30 of Township 2S, Range 1W, SBBM	Calimesa	6Z	No	2

Pursuant to Stipulation IX.A of the Section 106 PA, Caltrans is proposing that a finding of No Historic Properties Affected is appropriate for the Undertaking.

We look forward to receiving your written response within 30 days of your receipt of this transmittal in accordance with Stipulation VIII.C.6 of the Section 106 PA. If you have any questions, please contact me (phone: 909-260-5178; email: Andrew.walters@dot.ca.gov). Thank you for your assistance with this undertaking.

Sincerely,

Andrew M. Walters

Andrew Walters
Branch Chief
Environmental Support/Cultural Studies
Caltrans District 8

c. David Price, Section 106 Coordinator, Division of Environmental Analysis, HQ

Enclosure: *Historic Property Survey Report (HPSR) for the I-10/Cherry Valley Blvd. IC Improvement Project, Riverside County.*

State of California • Natural Resources Agency Gavin Newsom, Governor
Armando Quintero, Director

DEPARTMENT OF PARKS AND RECREATION
OFFICE OF HISTORIC PRESERVATION

Julianne Polanco, State Historic Preservation Officer
1725 23rd Street, Suite 100, Sacramento, CA 95816-7100
Telephone: (916) 445-7000 FAX: (916) 445-7053
calshpo.ohp@parks.ca.gov www.ohp.parks.ca.gov

June 16, 2021

VIA EMAIL In reply refer to: FHWA_2021_0505_001
CATRA_2021_0505_002

Mr. Andrew Walters, Branch Chief
Environmental Support/Cultural Studies
Caltrans District 8
464 W Fourth Street
San Bernardino, CA 92401-1400

Subject: Determinations of Eligibility for the Proposed I-10/Cherry Valley Blvd. Improvement Project, Riverside County, CA

Dear Mr. Walters:

Caltrans is initiating consultation regarding the above project in accordance with the January 1, 2014 First Amended Programmatic Agreement Among the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, the California State Historic Preservation Officer, and the California Department of Transportation Regarding Compliance with Section 106 of the National Historic Preservation Act, as it Pertains to the Administration of the Federal-Aid Highway Program in California (PA). Caltrans is also currently complying with PRC 5024 pursuant to Stipulation III of the Memorandum of Understanding between the California Department of Transportation and the California State Historic Preservation Officer regarding compliance with Public Resource Code 5024 and Governor’s Executive Order W-26-92 (MOU). As part of your documentation, Caltrans submitted Historic Property Survey Report (HPSR), Historic Resources Evaluation Report, and Archaeological Survey Report for the proposed project.

The proposed project would upgrade and reconfigure the existing Interstate 10 (I- 10)/Cherry Valley Boulevard Interchange from Post Mile R2.1 to R3.8 to improve traffic operations and relieve congestion at the interchange.

Pursuant to Stipulation VIII.C.6 of the PA, Caltrans determined that the following properties are not eligible for the NRHP:

- 36015 Cherry Valley Boulevard
- 3607 Cherry Valley Boulevard

Mr. Walters FHWA_2021_0505_001
June 16, 2021 CATRA_2021_0505_002
Page 2 of 2

Based on review of the submitted documentation, I concur with the above determinations.

If you have any questions, please contact Natalie Lindquist at (916) 445-7014 with e- mail at natalie.lindquist@parks.ca.gov .

Sincerely,

Julianne Polanco
State Historic Preservation Officer

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Local Historical Society/Historic Preservation Group

Applied EarthWorks Inc.
3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

Date: July 1, 2020

To: Jackie Davis
Calimesa Historical Society
C/O Yucaipa Valley Historical Society
P.O. Box 297
Yucaipa, Ca. 92399

Re: Follow Up Letter: I-10/Cherry Valley Boulevard Interchange Improvements Project

Dear Ms. Davies,

Please accept this letter as a follow up on the I-10/Cherry Valley Boulevard Interchange Improvements Project consultation inquiry sent on June 11, 2020. A copy of the original letter is attached.

To summarize, AppliedEarthWorks, Inc. is completing a Historic Resource Evaluation Report (HRER) for an interchange improvement project in the County of Riverside. The City of Calimesa, in cooperation with California Department of Transportation, proposes to upgrade and reconfigure the existing I-10/Cherry Valley Boulevard interchange from Post Mile R2.1 to R3.8.

The Historic Resource Evaluation Report requires a historic context for the area and identification of potentially significant historic resources in the project vicinity. AppliedEarthWorks, Inc. is asking local historical societies and repositories to identify known historical sources of a sensitive nature in the project area, as well as comments and concerns about the project from their constituencies. Does the Calimesa Historical Society have any historical sources relevant to Cherry Valley Road at I-10 and its surrounding areas? We appreciate any assistance you may provide.

Thank you for your time. Please do not hesitate to contact AppliedEarthworks, Inc. with any questions or concerns. You can contact me by phone at (951) 766-2000 xt 524 or email at swood@appliedearthworks.com.

All the Best,

Susan Wood

Susan M. Wood, PhD
Senior Architectural Historian/Historical Archaeologist
AppliedEarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

Date: June 11, 2020

To: Sean Balingit, Museum/Society Director
San Gorgonio Pass Historical Society
P.O. Box 331, Beaumont, CA 92223

Re: I-10/Cherry Valley Boulevard Interchange Improvements Project

Dear Mr. Balingit,

AppliedEarthWorks, Inc. is completing a Historic Resource Evaluation Report (HRER) for an interchange improvement project in the County of Riverside. The City of Calimesa, in cooperation with California Department of Transportation, proposes to upgrade and reconfigure the existing I-10/Cherry Valley Boulevard interchange from Post Mile R2.1 to R3.8.

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Thank you for your time. Please do not hesitate to contact AppliedEarthworks, Inc. with any questions or concerns. You can contact me by phone at (951) 766-2000 xt 524 or email at swood@appliedearthworks.com.

All the Best,

Susan Wood

Susan M. Wood, PhD
Senior Architectural Historian/Historical Archaeologist
AppliedEarthWorks, Inc.

Applied EarthWorks Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

Date: July 1, 2020

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San Gorgonio Pass Historical Society
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Thank you for your time. Please do not hesitate to contact AppliedEarthworks, Inc. with any questions or concerns. You can contact me by phone at (951) 766-2000 xt 524 or email at swood@appliedearthworks.com.

All the Best,

Susan Wood

Susan M. Wood, PhD
Senior Architectural Historian/Historical Archaeologist
AppliedEarthWorks, Inc.

Applied EARTHWORKS Inc.

3550 E. Florida Ave., Suite H
Hemet, CA 92544-4937
O: (951) 766-2000 | F: (951) 766-0020

Date: June 11, 2020

To: Claire Teeters
Yucaipa Valley Historical Society
P.O. Box 297
Yucaipa, Ca. 92399

Re: I-10/Cherry Valley Boulevard Interchange Improvements Project

Dear Ms. Teeters,

AppliedEarthWorks, Inc. is completing a Historic Resource Evaluation Report (HRER) for an interchange improvement project in the County of Riverside. The City of Calimesa, in cooperation with California Department of Transportation, proposes to upgrade and reconfigure the existing I-10/Cherry Valley Boulevard interchange from Post Mile R2.1 to R3.8.

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Susan Wood

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Senior Architectural Historian/Historical Archaeologist
AppliedEarthWorks, Inc.

Applied EarthWorks Inc.

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Date: July 1, 2020

To: Claire Teeters
Yucaipa Valley Historical Society
P.O. Box 297
Yucaipa, Ca. 92399

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Please accept this letter as a follow up on the I-10/Cherry Valley Boulevard Interchange Improvements Project consultation inquiry sent on June 11, 2020. A copy of the original letter is attached.

To summarize, AppliedEarthWorks, Inc. is completing a Historic Resource Evaluation Report (HRER) for an interchange improvement project in the County of Riverside. The City of Calimesa, in cooperation with California Department of Transportation, proposes to upgrade and reconfigure the existing I-10/Cherry Valley Boulevard interchange from Post Mile R2.1 to R3.8.

The Historic Resource Evaluation Report requires a historic context for the area and identification of potentially significant historic resources in the project vicinity. AppliedEarthWorks, Inc. is asking local historical societies and repositories to identify known historical sources of a sensitive nature in the project area, as well as comments and concerns about the project from their constituencies. Does the Calimesa Historical Society have any historical sources relevant to Cherry Valley Road at I-10 and its surrounding areas? We appreciate any assistance you may provide.

Thank you for your time. Please do not hesitate to contact AppliedEarthworks, Inc. with any questions or concerns. You can contact me by phone at (951) 766-2000 xt 524 or email at swood@appliedearthworks.com.

All the Best,

Susan Wood

Susan M. Wood, PhD
Senior Architectural Historian/Historical Archaeologist
AppliedEarthWorks, Inc.

U.S. Fish and Wildlife Service Species List

The USFWS species list has been updated since the Draft Environmental Document.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
Phone: (760) 431-9440 Fax: (760) 431-5901

In Reply Refer To: June 06, 2023
Project Code: 2023-0089646
Project Name: Interstate 10/Cherry Valley Boulevard Interchange Improvement Project

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A biological assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2) (c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a biological assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a biological assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found at the Fish and Wildlife Service's Endangered Species Consultation website at:

https://www.fws.gov/endangered/what-we-do/faq.html

Migratory Birds: In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see https://www.fws.gov/birds/policies-and-regulations.php.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see https://www.fws.gov/birds/bird-enthusiasts/threats-to- birds.php.

In addition to MBTA and BGEPA, Executive Order 13186: Responsibilities of Federal Agencies to Protect Migratory Birds, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit https://www.fws.gov/birds/policies-and-regulations/ executive-orders/e0-13186.php.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Carlsbad Fish And Wildlife Office
2177 Salk Avenue - Suite 250
Carlsbad, CA 92008-7385
(760) 431-9440

Project Summary

Project Code: 2023-0089646

Project Name: Interstate 10/Cherry Valley Boulevard Interchange Improvement Project

Project Type: Road/Hwy - Maintenance/Modification

Project Description: The City of Calimesa (City), in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside (County), is proposing to upgrade and reconfigure the existing I-10/ Cherry Valley Boulevard Interchange from Post Mile (PM) R2.1 to R3.8.

Alternative 3 – Diverging Diamond

This alternative would reconstruct the current interchange into a diverging diamond interchange (DDI) and realign Calimesa Boulevard (refer to Figure 4A, Proposed Improvements – Alternative 3). This interchange configuration crosses each direction of traffic to the opposite side, optimizing left-turn movements and reducing conflict points. This alternative would utilize two separate overcrossing structures for each direction of Cherry Valley Boulevard. Cherry Valley Boulevard would be widened to two lanes in each direction within the Project limits. Sidewalks would be provided along Cherry Valley Boulevard to allow pedestrian access along the corridor. Right-turn pockets would be provided approaching the westbound on-ramp and eastbound on-ramp. These right turn pockets would include a bicycle buffer and bypass the Cherry Valley Boulevard crossovers. Channelized turning would also be added on Cherry Valley Boulevard to connect to Calimesa Boulevard, which would have a signalized stop control at Calimesa Boulevard turning onto Cherry Valley Boulevard. All on- and off-ramps at the interchange would be realigned and reconstructed to multilane ramps. The entry ramps in both directions will accommodate California Highway Patrol (CHP) enforcement areas and ramp metering that reduce to a single lane entering the freeway. An auxiliary lane would be added to the eastbound off-ramp and westbound on-ramp to provide additional storage.

Alternative 4 – Partial Cloverleaf

This alternative would reconstruct the current interchange into a partial cloverleaf configuration and realign Calimesa Boulevard (refer to Figure 4B, Proposed

Improvements – Alternative 4). The proposed westbound loop on-ramp would serve eastbound vehicles on Cherry Valley Boulevard and a proposed westbound direct on-ramp would provide a free-flow movement for westbound vehicles on Cherry Valley Boulevard. The eastbound ramps would be widened and maintain their current tight diamond configuration.

Cherry Valley Boulevard would be widened to two lanes in each direction with sidewalk in the eastbound direction. The I-10/Cherry Valley Boulevard OC would be reconstructed to accommodate two through lanes in each direction, channelized left-turn lanes, and sidewalks. Right-turn pockets would be provided approaching the westbound on-ramp and eastbound on-ramp. Channelized turning would also be added on Cherry Valley Boulevard to connect to Calimesa Boulevard, which would have a signalized stop control at Calimesa Boulevard turning onto Cherry Valley Boulevard. The westbound loop on- and off-ramps would be realigned and reconstructed to intersect adjacent to Calimesa Boulevard creating a signalized intersection. The proposed westbound direct on-ramp and eastbound on- and off-ramps would be realigned and widened to multi lane ramps. The entry ramps in both directions will accommodate CHP enforcement areas and ramp metering that reduce to a single lane entering the freeway. An auxiliary lane would be added to the eastbound off-ramp and westbound on-ramp to provide additional storage.

Project Location:

The approximate location of the project can be viewed in Google Maps: https:// www.google.com/maps/@33.969514950000004,-117.03479039269999,14z

Counties: Riverside County, California

Endangered Species Act Species

There is a total of 12 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

Name	Status
San Bernardino Merriam's Kangaroo Rat *Dipodomys merriami parvus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/2060	Endangered
Stephens' Kangaroo Rat *Dipodomys stephensi (incl. D. cascus)* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/3495	Threatened

Birds

Name	Status
Coastal California Gnatcatcher *Polioptila californica californica* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8178	Threatened
Least Bell's Vireo *Vireo bellii pusillus*	Endangered

There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/5945

Southwestern Willow Flycatcher *Empidonax traillii extimus* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6749	Endangered

Insects

Name	Status
Monarch Butterfly *Danaus plexippus* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9743	Candidate

Crustaceans

Name	Status
Riverside Fairy Shrimp *Streptocephalus wootoni* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8148	Endangered
Vernal Pool Fairy Shrimp *Branchinecta lynchi* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/498	Threatened

Flowering Plants

Name	Status
San Diego Ambrosia *Ambrosia pumila* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/8287	Endangered
San Jacinto Valley Crownscale *Atriplex coronata var. notatior* There is **final** critical habitat for this species. However, no *actual* acres or miles were designated due to exemptions	Endangered

or exclusions. See Federal Register publication for details. Species profile: https://ecos.fws.gov/ecp/species/4353

Spreading Navarretia *Navarretia fossalis* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/1334	Threatened
Thread-leaved Brodiaea *Brodiaea filifolia* There is **final** critical habitat for this species. Your location does not overlap the critical habitat. Species profile: https://ecos.fws.gov/ecp/species/6087	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

YOU ARE STILL REQUIRED TO DETERMINE IF YOUR PROJECT(S) MAY HAVE EFFECTS ON ALL ABOVE LISTED SPECIES.

IPaC User Contact Information

Agency: County of Riverside
Name: Tom Millington
Address: 5 Hutton Centre Drive, Suite 500
City: Santa Ana
State: CA
Zip: 92707
Email tommillington@mbakerintl.com
Phone: 9498555777

Lead Agency Contact Information

Lead Agency: Department of Transportation

Southern California Association of Governments Transportation Conformity Working Group Meeting Minutes

TRANSPORTATION CONFORMITY WORKING GROUP
of the
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

April 28, 2020
Minutes

THE FOLLOWING MINUTES ARE A SUMMARY OF THE MEETING OF THE TRANSPORTATION CONFORMITY WORKING GROUP. A DIGITAL RECORDING OF THE ACTUAL MEETING IS AVAILABLE FOR LISTENING IN SCAG'S OFFICE.

The Meeting of the Transportation Conformity Working Group was held via teleconference.

SCAG

Asuncion, John
Calderon, Karen
Luo, Rongsheng
McAlpine, Shannon
Sangkapichai, Mana

Via Teleconference

Acosta, Brooke	IBI Group
Bade, Rabindra	Caltrans, District 12
Brugger, Ron	LSA Associates
Cacatian, Ben	VCAPCD
Cooper, Keith	ICF
Huddleston, Lori	LA Metro
Kalandiyur, Nesamani	ARB
Lay, Keith	HDR Engineering
Lugaro, Julie	Caltrans, District 12
Masters, Martha	RCTC
O'Connor, Karina	EPA Region 9
Sanchez, Lucas	Caltrans Headquarters
Sun, Lijin	SCAQMD
Vaughn, Joseph	FHWA
Yoon, Andrew	Caltrans, District 7

TRANSPORTATION CONFORMITY WORKING GROUP
of the
SOUTHERN CALIFORNIA ASSOCIATION OF GOVERNMENTS

April 28, 2020
Minutes

1.0 CALL TO ORDER AND SELF-INTRODUCTION

Martha Masters, TCWG Chair, called the meeting to order at 10:05 am.

2.0 PUBLIC COMMENT PERIOD

None.

3.0 CONSENT CALENDAR

3.1 January 28, 2020 TCWG Meeting Minutes
The meeting minutes were approved.

3.2 February 25, 2020 TCWG Meeting Minutes
The meeting minutes were approved.

3.3 March 24, 2020 TCWG Meeting Minutes
The meeting minutes were approved.

4.0 INFORMATION ITEMS

4.1 Review of PM Hot Spot Interagency Review Forms

1) **LA0G1562rev**
It was determined that this project is not a POAQC.

2) **RIV060116**
It was determined that this project is not a POAQC.

3) **20190010**
It was determined that this project is not a POAQC.

4.2 RTP Update
John Asuncion, SCAG, reported that Proposed Final Connect SoCal was scheduled to be considered for approval by Regional Council on May 7, 2020.

Rongsheng Luo, SCAG, reported the following:

- Transportation Conformity Analysis Technical Report including transportation conformity determination would be presented as part of Proposed Final Connect SoCal to SCAG's Regional Council for consideration for approval on May 7, 2020.

- SCAG's Executive Director emailed a letter to FHWA and FTA Regional Administrators requesting their advance review of Proposed Final Connect SoCal pending Regional Council's approval because SCAG needs to receive federal approval of transportation conformity determination by June 1, 2020. The letter was forwarded to TCWG members on April 9, 2020. In addition, SCAG staff followed up with EPA and Caltrans Headquarters staff with whom FHWA and FTA staff consult in their review of the Plan.

At request of Mr. Luo, Joseph Vaughn, FHWA, Karina O'Connor, EPA Region 9, and Lucas Sanchez, Caltrans Headquarters, all confirmed their agencies' respective advance review of Proposed Final Connect SoCal and no issues at that time.

4.3 <u>FTIP Update</u>
John Asuncion, SCAG, reported the following:

- SCAG staff was working on 2019 FTIP Amendment #19-20 for which project submittals were due to SCAG April 28.
- It would be under discussion at California Federal Programming Group meeting on April 28, 2020 whether 2021 FTIP would be delayed by several months or postponed until 2023 FTIP.

4.4 <u>EPA Update</u>
Karina O'Connor, EPA Region 9, reported the following:

- EPA's proposed approval of Imperial County 2018 PM10 Redesignation Request and Maintenance Plan was published in Federal Register on April 2, 2020 and comment period closes May 4, 2020.
- EPA staff was reviewing comments received on proposed action on Coachella Valley 2008 8-hour ozone standard SIP published in January 2020.
- EPA staff continued work on South Coast 2012 Annual PM2.5 standard Moderate Plan and hoped to propose action in May 2020.
- Signed on March 30, 2020, SAFE Vehicles Rule Part 2 was expected to be published in Federal Register on April 30, 2020 and become effective June 30, 2020.

4.5 ARB Update
Nesamani Kalandiyur, ARB, reported the following:

- ARB staff presented the base year emissions inventory along with the VMT offset demonstration under 2015 8-hour ozone standard for South Coast and Coachella Valley at South Coast

AQMP Advisory Group Meeting on April 16, 2020. Both regions met applicable requirements.

- After reviewing and evaluating pre-publication SAFE Vehicles Rule Part 2, ARB staff found no need for additional adjustment factors for criteria pollutants. In addition, the pre-publication itself says that EMFAC2014 and EMFAC2017 adjustment factors for SAFE Vehicles Rule Part 1 continued to be valid and should be used for SIP and transportation conformity purposes.

Rongsheng Luo, SCAG, expressed thanks and appreciation to ARB staff for evaluation of Part 2 Rule before its publication and for confirming no additional adjustment factors.

In response to questions regarding ARB staff's finding on Part 2 Rule, Mr. Kalandiyur did not think that US EPA action would be needed; Both Karina O'Connor, EPA Region 9, and Joseph Vaughn, FHWA, concurred; In addition, Mr. Vaughn confirmed that the verbal agreement was sufficient for transportation conformity purposes.

4.6 Air Districts Update

Lijin Sun, SCAQMD, reported the following:

- A South Coast AQMP Advisory Group Meeting was held on April 16, 2020.
- SCAQMD staff was working on Reasonably Available Control Technology Analysis and Emission Statement Certification. These two items were scheduled to be presented to SCAQMD Board for consideration in June 2020.

Ben Cacatian, VCAPCD, reported the following:

- EPA's final approval of Ventura County 2008 8-hour ozone standard SIP was published on February 27, 2020.
- VCAPCD staff was working on 2022 Ventura County SIP for 2015 8-hour ozone standard. Draft Ventura County 2020 Reasonably Available Control Technology SIP was under public comment, available at vcapcd.org. VCAPCD Staff was also updating emissions inventory for the SIP.

5.0 INFORMATION SHARING

None.

6.0 ADJOURNMENT

The meeting was adjourned at 10:35 am. The next Transportation Conformity Working Group meeting will be held on Tuesday, May 26, 2020 via Zoom meeting and teleconference.

PM Conformity Hot Spot Analysis – Project Summary for Interagency Consultation

PM Conformity Hot Spot Analysis – Project Summary for Interagency Consultation

RTIP ID# *(required)* RIV060116

TCWG Consideration Date: 4/28/2020

Project Description *(clearly describe project)*

The City of Calimesa (City), in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside (County), is proposing to upgrade and reconfigure the existing I-10/Cherry Valley Boulevard Interchange (project) from Post Mile (PM) R2.1 to R3.8. The I-10/Cherry Valley Boulevard interchange is located on I-10 between Singleton Road and Oak Valley Parkway (See Figures 1 and 2). The I-10/Cherry Valley Boulevard interchange is a major access point for existing and proposed residential and commercial development. The existing configuration is a diamond interchange, with stop control at the ramp termini. The on- and off- ramps at the interchange consist of one lane. Within the project area, Cherry Valley Boulevard is a two-lane roadway with a posted speed limit of 35 miles per hour west of the interchange and a posted speed limit of 55 miles per hour east of the interchange. Per the City of Calimesa's General Plan, Cherry Valley Boulevard is classified as a Major Arterial. The Cherry Valley Boulevard Overcrossing (OC) (PM R3.05, Bridge Number 56-0481) is a four-span, concrete-girder bridge constructed in 1965 and is approximately 273 feet long, 47 feet wide, and crosses six lanes of traffic over I-10. Reconfiguring the interchange would improve traffic operations and relieve congestion associated with existing and planned development anticipated in the City of Calimesa and surrounding areas.

Alternative 1 – No-Build. Under this alternative, no reconstruction or improvements would be made to the existing I-10/ Cherry Valley Boulevard interchange, other than routine roadway maintenance and the current relocation of Roberts Road south along Cherry Valley Boulevard, resulting in a signalized intersection, by another project. This alternative does not address the purpose and need of the proposed project.

Alternative 3 – Diverging Diamond. Depicted in Figure 3, this alternative would reconstruct the current interchange into a diverging diamond interchange (DDI) and realign Calimesa Boulevard. This interchange configuration crosses each direction of traffic to the opposite side, optimizing left-turn movements and reducing conflict points. This alternative would utilize two separate overcrossing structures for each direction of Cherry Valley Boulevard.

Cherry Valley Boulevard would be widened to two lanes in each direction within the project limits. Sidewalks would be provided along Cherry Valley Boulevard to allow pedestrian access along the corridor. Right-turn pockets would be provided approaching the westbound on-ramp and eastbound on-ramp. These right turn pockets would include a bicycle buffer and bypass the Cherry Valley Boulevard crossovers. Channelized turning would also be added on Cherry Valley Boulevard to connect to Calimesa Boulevard, which would have a signalized stop control at Calimesa Boulevard turning onto Cherry Valley Boulevard. All on- and off-ramps at the interchange would be realigned and reconstructed to multilane ramps. The entry ramps in both directions will accommodate California Highway Patrol (CHP) enforcement areas and ramp metering that reduce to a single lane entering the freeway. An auxiliary lane would be added to the eastbound off-ramp and westbound on-ramp to provide additional storage.

Alternative 4 – Partial Cloverleaf. Depicted in Figure 4, this alternative would reconstruct the current interchange into a partial cloverleaf configuration and realign Calimesa Boulevard. The proposed westbound loop on-ramp would serve eastbound vehicles on Cherry Valley Boulevard and a proposed westbound direct on-ramp would provide a free-flow movement for westbound vehicles on Cherry Valley Boulevard. The eastbound ramps would be widened and maintain their current tight diamond configuration.

Cherry Valley Boulevard would be widened to two lanes in each direction with sidewalk in the eastbound direction. The I-10/Cherry Valley Boulevard OC would be reconstructed to accommodate two through lanes in each direction, channelized left-turn lanes, and sidewalks. Right-turn pockets would be provided approaching the westbound on-ramp and eastbound on-ramp. Channelized turning would also be added on Cherry Valley Boulevard to connect to Calimesa Boulevard, which would have a signalized stop control at Calimesa Boulevard turning onto Cherry Valley Boulevard. The westbound loop on- and off-ramps would be realigned and reconstructed to intersect adjacent to Calimesa Boulevard creating a signalized intersection. The proposed westbound direct on-ramp and eastbound on- and off-ramps would be realigned and widened to multilane ramps. The entry ramps in both directions will accommodate CHP enforcement areas and ramp metering that reduce to a single lane entering the freeway. An auxiliary lane would be added to the eastbound off-ramp and westbound on-ramp to provide additional storage.

Type of Project *(use Table 1 on instruction sheet)*
Reconfigure existing interchange

County
Riverside

Narrative Location/Route & Postmiles: 08-RIV-10-R2.1/R3.8
Caltrans Projects – EA# 0G170

Lead Agency: California Department of Transportation

Contact Person
Keith Cooper

Phone#
(213) 312-1752

Fax#
N/A

Email
Keith.Cooper@icf.com

Hot Spot Pollutant of Concern (check one or both) **PM2.5 X** **PM10 X**

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

	Categorical Exclusion (NEPA)
X	EA or Draft EIS
	FONSI or Final EIS
	PS&E or Construction
	Other

Scheduled Date of Federal Action: 2021

NEPA Assignment – Project Type *(check appropriate box)*

	Exempt
	Section 326 –Categorical Exemption
X	Section 327 – Non-Categorical Exemption

Current Programming Dates *(as appropriate)*

PE/Environmental

Start 12/27/2018

End 10/1/2021

ENG

Start 10/1/2021

End 10/1/2023

ROW

Start 10/1/2021

End 10/1/2023

CON

Start 1/1/2024

End 09/01/2025

Project Purpose and Need (Summary): *(attach additional sheets as necessary)*

The purpose of the proposed project is to:

- Relieve congestion and improve traffic operations at the Interstate 10 (I-10)/Cherry Valley Boulevard interchange; and
- Address increased travel associated with existing and planned development anticipated in the City of Calimesa and surrounding areas.

The project addresses the following needs and transportation deficiencies:

- Due to expected continuing increases in traffic volumes associated with planned development in the area, this interchange is expected to not satisfy applicable operational performance standards by the design horizon year of 2045.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*
Land uses north of I-10 in the vicinity of the proposed project predominantly consists of residential development, with interspersed commercial land uses. South of I-10, land uses within the project vicinity consists of residential development.

Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

AADT and Truck AADT Opening Year (2025) Conditions for the No-Build and Build Alternatives

Segment	AADT	Non-Trucks	Trucks
I-10 north of the Cherry Valley Blvd ramps	84,500	77,700	6,800
I-10 south of the Cherry Valley Blvd ramps	122,900	113,000	9,900
Cherry Valley Blvd east of the I-10 ramps	14,900	13,700	1,200
Cherry Valley Blvd west of the I-10 ramps	24,500	22,500	2,000

AADT, non-truck, and truck volumes are estimated to be unchanged under the Build Alternatives when compared to the No-Build Alternative at Opening Year 2025.

The truck percentage is estimated to be **8.7 percent** for Opening Year 2025 conditions.

RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

AADT and Truck AADT Design Year (2045) Conditions for the No-Build and Build Alternatives

Segment	AADT	Non-Trucks	Trucks
I-10 north of the Cherry Valley Blvd ramps	116,600	107,200	9,400
I-10 south of the Cherry Valley Blvd ramps	176,400	162,200	14,200
Cherry Valley Blvd east of the I-10 ramps	30,700	28,200	2,500
Cherry Valley Blvd west of the I-10 ramps	58,200	53,500	4,700

AADT, non-truck, and truck volumes are estimated to be unchanged under the Build Alternatives when compared to the No-Build Alternative at Horizon Year 2045.

The truck percentage is estimated to be **8.7 percent** for Design Year 2045 conditions.

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

Intersection Operations – Opening Year (2025) Conditions for the No-Build and Build Alternatives

Intersection	Control	Alt. 1 – No-Build (AM)	Alt. 1 – No-Build (PM)	Alt. 3 – Diverging Diamond (AM)	Alt. 3 – Diverging Diamond (PM)	Alt. 4 – Partial Cloverleaf (AM)	Alt. 4 – Partial Cloverleaf (PM)
1. I-10 EB Off / On-Ramps / Singleton Rd	Side Street Stop	A / 9.9 (SBR)	B / 12.6 (SBL)	B / 10.3 (SBL)	B / 11.4 (SBL)	B / 10.7 (SBL)	B / 11.2 (SBL)
2. I-10 WB Off / On-Ramps / Singleton Rd	Side Street Stop	A / 8.0 (NBR)	B / 11.1 (NBR)	A / 9.0 (NBL)	B / 14.4 (NBL)	B/ 10.2 (NBL)	B / 11.3 (NBR)
3. Cherry Valley Blvd / Palmer Ave / Desert Lawn Drive	Signal	**F / 499.7**	**F / 378.1**	C / 27.7	C / 22.1	C / 25.8	C / 20.8
4A. Cherry Valley Blvd / Roberts Rd	Signal	**F / 166.5**	**F / 318.6**	B / 13.5	B / 19.0	B / 12.3	B / 19.0
4B. Old Roberts	--	--	--	--	--	--	--

Road / Cherry Valley Blvd							
5. I-10 EB Off / On-Ramps / Cherry Valley Blvd	Signal / Roundabouts	**E / 70.4**	**F / 125.8**	C / 22.0	B / 14.7	B / 11.4	B / 13.4
6. I-10 WB Off / On-Ramps / Cherry Valley Blvd	Signal / Roundabouts	**E / 57.4**	C / 27.1	A / 7.1	A / 5.7	--	--
7. Calimesa Blvd / Cherry Valley Blvd	Side Street Stop / Signal	**F / 146.4 (WBT)**	C / 14.2 (SBL)	C / 22.0	A / 9.5	C / 20.6	B / 15.2
8. I-10 EB Off / On-Ramps / Oak Valley Pkwy	Signal	B / 11.1	B / 17.1	B / 11.1	B / 17.4	B / 11.6	B / 17.0
9. I-10 WB Off / On-Ramps / Oak Valley Pkwy	Signal	A / 8.4	B / 11.0	A / 8.6	B / 10.9	A / 8.9	B / 11.1

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

Intersection Operations – Design Year (2045) Conditions for the No-Build and Build Alternatives

Intersection	Control	Alt. 1 – No-Build (AM)	Alt. 1 – No-Build (PM)	Alt. 3 – Diverging Diamond (AM)	Alt. 3 – Diverging Diamond (PM)	Alt. 4 – Partial Cloverleaf (AM)	Alt. 4 – Partial Cloverleaf (PM)
1. I-10 EB Off / On-Ramps / Singleton Rd	Signal	C / 29.3	**F / 143.6**	C / 29.1	**E / 57.2**	C / 29.1	**E / 56.1**
2. I-10 WB Off / On-Ramps / Singleton Rd	Signal	**E / 60.8**	**F / 150.5**	**E/ 71.2**	D/ 53.8	**E / 69.0**	**E / 57.0**
3. Cherry Valley Blvd / Palmer Ave / Desert Lawn Drive	Signal	**F / 994.6**	**F / 171.4**	C / 25.9	B / 18.2	C / 23.8	B / 17.2

4A. Cherry Valley Blvd / Roberts Rd	Signal	**F / 264.8**	**F / 174.7**	C / 26.1	**E / 63.8**	C / 23.4	**E / 66.5**
4B. Old Roberts Road / Cherry Valley Blvd	--	--	--	--	--	--	--
5. I-10 EB Off / On-Ramps / Cherry Valley Blvd	Signal / Roundabouts	**F / 108.9**	**F / 103.8**	C / 24.3	B / 16.9	B / 10.4	B / 19.7
6. I-10 WB Off / On-Ramps / Cherry Valley Blvd	Signal / Roundabouts	**F / 100**	**E / 64.6**	B / 11.3	A / 8.9	--	--
7. Calimesa Blvd / Cherry Valley Blvd	Side Street Stop / Signal	C / 20.5 (SBL)	C / 21.1 (SBL)	C / 22.1	A / 9.3	C / 25.5	B / 18.6
8. I-10 EB Off / On-Ramps / Oak Valley Pkwy	Signal	B / 15.4	B / 18.4	B / 14.3	C/ 31.2	B / 14.5	C / 32.4
9. I-10 WB Off / On-Ramps / Oak Valley Pkwy	Signal	**E / 56**	B / 12	B / 10.8	B / 12.7	B / 11	B / 13.0

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)*
No traffic redistribution is anticipated to occur as a result of proposed project improvements. The proposed project would improve existing roadway facilities rather than develop new facilities or provide access to areas that currently lack access.

Comments/Explanation/Details *(attach additional sheets as necessary)*

Project construction would require less than 5 years. As such, construction emissions analysis for project-level conformity is not required.

Under 40 CFR 93.123(b)—PM10 and PM2.5 Hot Spots—the following criteria are utilized to determine the potential for the proposed project to qualify as a Project of Air Quality Concern (POAQC):

(i) *New or expanded highway projects with significant number/increase in diesel vehicles?*
- Not a new highway project

- Minor interchange improvements to relieve congestion (reducing delay and air pollutant emissions)
- No substantial change in traffic volumes or truck percentages

(ii) Affects intersections at LOS D, E, or F with a significant number of diesel vehicles?

- Improves operations at local intersections with projected LOS of E for the Design Year (2045), but these intersections do not have a significant number or percentage of diesel vehicles.

(iii) New bus and rail terminals and transfer points?—Not Applicable

(iv) Expanded bus and rail terminals and transfer points?—Not Applicable

(v) Affects areas identified in PM10 or PM2.5 implementation plan as site of violation?

- Not identified in a PM10 or PM2.5 implementation plan as an area of potential violation

For the reasons noted above, the proposed project would not be considered a POAQC.

AUGUST, 2020 +

JULY, 2020 +

JUNE, 2020 +

MAY, 2020 +

APRIL, 2020 −

April, 2020	Determination
2018U010 April 2020	Not a POAQC-Hot Spot Analysis Not Required
RIV050116 April 2020	Not a POAQC-Hot Spot Analysis Not Required
LA0G1562 April 2020	Not a POAQC-Hot Spot Analysis Not Required

FEBRUARY, 2020 +

JANUARY, 2020 +

Transportation Air Quality Conformity Findings Checklist

Transportation Air Quality Conformity Findings Checklist

PROJECT INFORMATION

Project Name: I-10/Cherry Valley Boulevard Interchange Project

DIST-CO-RTE-PM: 08-RIV-10-PM R2.1-R3.8

EA: **Federal Aid Number:**

Document Type: ☐ 23 USC 326 CE ☐ 23 USC 327 CE ☒ EA ☐ EIS

CHECKLIST

Step 1. Is the project located in a nonattainment or maintenance area for ozone, nitrogen dioxide, carbon monoxide (CO), PM2.5, or PM10 per EPA's Green Book listing of non-attainment areas?

☐ If no, go to Step 18. **Transportation conformity does not apply to the project.**

☒ If yes, go to Step 2.

Step 2. Is the project exempt from conformity per 40 CFR 93.126 or 40 CFR 93.128?

☐ If yes, go to Step 18. **The project is exempt from all project-level conformity requirements (40 CFR 93.126 or 128)** (check one box below and identify the project type, if applicable).

☐ 40 CFR 93.126[1]

Project type from Table 2:

☐ 40 CFR 93.128

☒ If no, **go** to Step 3.

Step 3. Is the project exempt from regional conformity per 40 CFR 93.127?

☐ If yes, go to Step 8. **The project is exempt from regional conformity requirements (40 CFR 93.127)** (identify the project type).

Project type:

☒ If no, go to Step 4.

[1] Please refer to Clarifications on Exempt Project Determinations to verify exempt project type from Table 2. Road diets, auxiliary lanes less than one-mile, and ramp metering may be exempt under "projects that correct, improve, or eliminate a hazardous location or feature."

Step 4. Is the project located in a region with a currently conforming RTP and TIP?

☐ If yes, t**he project is included in a currently conforming RTP and TIP per 40 CFR 93.115. The project's design and scope have not changed significantly from what was assumed in RTP conformity analysis (40 CFR 93.115[b])** Go to Step 8.

☐ If no and the project is located in an isolated rural area, go to Step 5.

☐ If no and the project is not located in an isolated rural area, STOP and do not proceed until a conforming RTP and TIP are adopted.

Step 5. For isolated rural areas, is the project regionally significant per 40 CFR 93.101, based on review by Interagency Consultation?

☐ If yes, go to Step 6.

☐ If no, go to Step 8. **The project, located in an isolated rural area, is not regionally significant and does not require a regional emissions analysis (40 CFR 93.101 and 93.109[e]).**

Step 6. Is the project included in another regional conformity analysis that meets the isolated rural area analysis requirements per 40 CFR 93.109, including Interagency Consultation and public involvement?

☐ If yes, go to Step 8. **The project, located in an isolated rural area, has met its regional analysis requirements through inclusion in a previously-approved regional conformity analysis that meets current requirements (40 CFR 93.109[e]).**

☐ If no, go to Step 7.

Step 7. The project, located in an isolated rural area, requires a separate regional emissions analysis.

☐ **Regional emissions analysis for regionally significant project, located in an isolated rural area, is complete. Regional conformity analysis was conducted that includes the project and reasonably foreseeable regionally significant projects for at least 20 years. Interagency Consultation and public participation were conducted. Based on the analysis, the interim or emission budget conformity tests applicable to the area are met (40 CFR 93.109[e] and 95.105).[2]** Go to Step 8.

Step 8. Is the project located in a CO nonattainment or maintenance area? (South Coast Air Basin only)

[2] The analysis must support this conclusion before going to the next step.

☐ If no, go to Step 9. **CO conformity analysis is not required.**

☒ If yes, **hot-spot analysis requirements for CO per the** CO Protocol (or per EPA's modeling guidance, CAL3QHCR can be used with EMFAC emission factors[3]) **have been met. Project will not cause or contribute to a new localized CO violation (40 CFR 93.116 and 93.123)[4]**. Go to Step 9.

Step 9. Is the project located in a PM10 and/or a PM2.5 nonattainment or maintenance area?

☐ If no, go to Step 13. **PM2.5/PM10 conformity analysis is not required.**

☒ If yes, go to Step 10.

Step 10. Is the project considered to be a Project of Air Quality Concern (POAQC), as described in EPA's Transportation Conformity Guidance for PM 10 and PM 2.5?

☒ If no, **the project is not a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Analysis Guidance. Interagency Consultation concurred with this determination on** April 28, 2020. Go to Step 12.

☐ If yes, go to Step 11.

Step 11. The project is a POAQC.

☐ **The project is a project of concern for PM10 and/or PM2.5 hot-spot analysis based on 40 CFR 93.116 and 93.123, and EPA's Hot-Spot Guidance. Interagency Consultation concurred with this determination on __. Detailed PM hot-spot analysis, consistent with 40 CFR 93.116 and 93.123 and EPA's Hot-Spot Guidance, shows that the project would not cause or contribute to, or worsen, any new localized violation of PM10 and/or PM2.5 standards.** Go to Step 12.

Step 12. Does the approved PM SIP include any PM10 and/or PM2.5 control measures that apply to the project, and has a written commitment been made as part of the air quality analysis to implement the identified SIP control measures? [Control measures can be found in the applicable Federal Register notice at: https://www.epa.gov/state-and-local-transportation/conformity-adequacy-review-region-9#ca.]

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[3] Use of the CO Protocol is strongly recommended due to its use of screening methods to minimize the need for modeling. When modeling is needed, the Protocol simplifies the modeling approach. Use of CAL3QHCR must follow U.S. EPA's latest CO hot spot guidance, using EMFAC instead of MOVES; see: http://www.epa.gov/otaq/stateresources/transconf/projectlevel-hotspot.htm#co-hotspot.

[4] As of October 1, 2007, there are no CO nonattainment areas in California. Therefore, the requirements to not worsen existing violations and to reduce/eliminate existing violations do not apply.

☐ If yes, **a written commitment is made to implement the identified SIP control measures for PM10 and/or PM2.5 through construction or operation of this project (40 CFR 93.117).** Go to Step 14.

☒ If no, go to Step 13.

Step 13a. Have project-level mitigation or control measures for CO, PM10, and/or PM2.5, included as part of the project's design concept and scope, been identified as a condition of the RTP or TIP conformity determination? AND/OR

Step 13b. Are project-level mitigation or control measures for CO, PM10, and/or PM2.5 included in the project's NEPA document? AND

Step 13c (applies only if Step 13a and/or 13b are answered "yes")**.** Has a written commitment been made as part of the air quality analysis to implement the identified measures?

☒ If yes to 13a and/or 13b and 13c, **a written commitment is made to implement the identified mitigation or control measures for CO, PM10, and/or PM2.5 through construction or operation of this project. These mitigation or control measures are identified in the project's NEPA document and/or as conditions of the RTP or TIP conformity determination (40 CFR 93.125(a)).** Go to Step 14.

☐ If no, go to Step 14.

Step 14. Does the project qualify for a Categorical Exclusion pursuant to 23 USC 326?

☐ If yes, go to step 15.

☒ If no, the project requires preparation of a Categorical Exclusion, EA, or EIS pursuant to 23 USC 327. Go to Step 16.

Step 15. Is any analysis required by steps 1-13 of this form?[5]

☐ If yes, then Caltrans prepares the appropriate analysis and documentation for the project file and makes the conformity determination through its

[5] Please note that not all projects that qualify for a categorical exclusion will be exempt from air quality conformity requirements. Many types of projects that may qualify for a CE (such as the addition of auxiliary lanes less than one-mile, weaving lanes less than one-mile, turning lanes less than one-mile, climbing lanes less than one-mile, parking, road diets, ramp metering, and even many bridge projects) MAY require some level of project level conformity analysis and may even require interagency consultation. Additionally, please note that for ALL projects the project file must include evidence that one of the three following situations apply: 1) Conformity does not apply to the project area; or 2) The project is exempt from all conformity analysis requirements; or 3) The project is subject to project-level conformity analysis (and possibly regional conformity analysis) and meets the criteria for a conformity determination. The project file must include all supporting documentation and this checklist.

signature on the CE form. No FHWA involvement is required. See the AQCA Annotated Outline. Go to Step 18.

☐ If no, then Caltrans makes the conformity determination through its signature on the CE form. No FHWA involvement is required. Go to Step 18.

Step 16. Is the project located in a non-attainment/maintenance area for **ozone only** and considered not regionally significant/non-exempt?

☐ If yes, go to Step 18.[6]

☒ If no, then **an AQCA is needed**. See the AQCA Annotated Outline. Caltrans submits a conformity determination request to FHWA for FHWA's conformity determination. Go to Step 17.

Step 17. Send FHWA Request for Conformity Determination package and FHWA Submittal Package Checklist to DOTP- Air Quality (rodney.tavitas@dot.ca.gov) and DEA-Air Quality (daisy.laurino@dot.ca.gov) for completeness review. Please direct technical questions to DOTP-Air Quality office. Headquarters staff will coordinate with FHWA on behalf of the district.

Date of FHWA air quality conformity determination:

Step 18. STOP as all air quality conformity requirements have been met.

SIGNATURE

Edison Jaffery	Edison Jaffery	9/28/23
Transportation Engineer	Signature	Date

[6] Project-level conformity analysis shows that the project will conform to the State Implementation Plan. Because the project area is Attainment/Unclassified for carbon monoxide (CO) and particulate matter (PM10 and PM2.5), no hot spot analysis is required for the project-level conformity determination by 40 CFR 93.116 and 93.123. The project comes from a conforming Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). Include documentation of interagency consultation review in the final CE/EA/EIS, if applicable.

City of Calimesa - Identification of Locally Preferred Alternative City Council Meeting Minutes

EXCERPTS FROM MINUTES OF A REGULAR MEETING CITY COUNCIL,
CITY OF CALIMESA, CALIFORNIA
HELD SEPTEMBER 8, 2020

A Regular meeting of the City Council of the City of Calimesa was called to order in the Council Chambers of the City Council located at 908 Park Avenue, City of Calimesa, at the hour of 6:00 p.m., on the 8th day of September 2020 with Mayor Davis presiding.

ROLL CALL

PRESENT: Mayor Davis, Mayor Pro Tern Molina,
Council Members Cervantez and Clark.
ABSENT: Council Member Smith
A quorum of the City Council was present.

ITEM NO.11

CHERRY VALLEY INTERCHANGE LOCALLY PREFERRED ALTERNATIVE

RECOMMENDATION: That the City Council select a Locally Preferred Alternative interchange geometric design for the Cherry Valley Interchange - either the Diverging Diamond Interchange (DD/) or a Partial Four-Leaf Clover (Parclo).

ACTION: MOTION BY MAYOR PRO TEM MOLINA, SECONDED BY COUNCIL MEMBER CLARK, CARRIED 4-0-1-0(COUNCIL MEMBER SMITH WAS ABSENT) TO SELECT THE LOCALLY PREFERRED ALTERNATIVE INTERCHANGE GEOMETRIC DESIGN FOR THE CHERRY VALLEY INTERCHANGE AS THE DIVERGING DIAMOND INTERCHANGE (DOI).

STATE OF CALIFORNIA }
COUN1Y OF RNERSIDE } SS.
CITY OF CALIMESA }

I, **DARLENE GERDES**, City Clerk of the City of Calimesa, California, DO HEREBY CERTIFY, that the foregoing is a full and correct excerpt of the Minutes of a Regular meeting of the City Council held on the 8th day of September 2020

CITY OF CALIMESA
INCORPORATED
December 1, 1990
STATE OF
CALIFORNIA

DARLENE GERDES, CITY CLERK
Dated this 9th day of September 2020.

Noise Abatement Correspondence

DISTRICT 8
ENVIRONMENTAL PLANNING DIVISION (MS 1228)
464 WEST 4TH STREET, 6TH FLOOR | SAN BERNARDINO, CA 92401-1400
MAIN (909) 693-9066 | TTY 711
www.dot.ca.gov/dist8

April 19, 2023

Property Owner/Occupants Adjacent to Proposed Soundwall S401
10320 Calimesa Boulevard
Calimesa, CA 92320
APN No. 407-230-031

Dear Property Owner/Occupant:

The City of Calimesa, in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside, proposes to upgrade and reconfigure the existing Interstate 10 (I-10)/Cherry Valley Boulevard Interchange. The project is located on I-10, between the Singleton Road and Oak Valley Parkway interchanges. Additional information related to the proposed project can be found at https://rcprojects.org/.

Caltrans circulated an Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment for public review and comment between December 23, 2021 and February 14, 2022. After reviewing all comments received, the Project Development Team identified Alternative 3, Diverging Diamond Interchange, as the Preferred Alternative. As part of the Preferred Alternative, Caltrans is considering building a noise barrier in proximity to your residence/property.

You have received this letter because you own or live on the property, referenced above by parcel number, which would benefit from the proposed 14-foot high noise barrier (see proposed soundwall location map on attached figure). As noted in the survey below, we are requesting your preference as to whether you would be in favor of a new noise barrier to reduce traffic noise adjacent to your residence/property. The property owner must be in favor of the noise barrier for it to be considered for construction.

Please complete and return the enclosed survey sheet in the provided stamped addressed envelope. **In order to be counted, the survey sheet must be completed (signed and postmarked) by no later than May 11, 2023.** Surveys may also be emailed to CherryValleyInterchange@dot.ca.gov. If the survey is not received by this date, it will be counted as a “no” vote.

Property Owner/Occupants
April 19, 2023
Page 2

If you have any questions regarding the noise barrier survey or the project, please email CherryValleyInterchange@dot.ca.gov.

Sincerely,

Shawn Oriaz

SHAWN ORIAZ
Senior Environmental Planner
Caltrans

Attachment: Figure with proposed soundwall

Property Owner/Occupants
April 19, 2023
Page 3

Survey Sheet

For the Property Owner/Occupants located at 10320 Calimesa Boulevard, Calimesa, CA, 92320

Please review the enclosed figure, complete this survey, and use the enclosed stamped addressed envelope to mail in your response. Surveys may also be emailed to CherryValleyInterchange@dot.ca.gov. To be counted, the survey sheet must be received no later than May 11, 2023.

_____ Yes, I am in favor of proposed Soundwall S401.

_____ No, I am not in favor of proposed Soundwall S401.

Additional Comments:

Print First, Last Name(s)	Signature
Street Address of the Property	Date
City, Zip Code	

"Provide a safe and reliable transportation network that serves all people and respects the environment"


PROPOSED SOUNDWALL S401
- Along I-10 edge of shoulder
- 14 feet high
- 1,166 feet long
RANCHO CALIMESA
MOBILE HOME PARK
10
LEGEND
Proposed Soundwall S401
Parcel
Michael Baker
INTERNATIONAL
NOT TO SCALE
INTERSTATE 10/CHERRY VALLEY BOULEVARD
INTERCHANGE PROJECT
Proposed Soundwall Location Map

DISTRICT 8
ENVIRONMENTAL PLANNING DIVISION (MS 1228)
464 WEST 4TH STREET, 6TH FLOOR | SAN BERNARDINO, CA 92401-1400
MAIN (909) 693-9066 | TTY 711
www.dot.ca.gov/dist8

April 19, 2023

Property Owner/Occupant Adjacent to Proposed Soundwall S452
10961 Desert Lawn Drive
Calimesa, CA 92320
APN No. 413-270-001

Dear Property Owner/Occupant:

The City of Calimesa, in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside, proposes to upgrade and reconfigure the existing Interstate 10 (I-10)/Cherry Valley Boulevard Interchange. The project is located on I-10, between the Singleton Road and Oak Valley Parkway interchanges. Additional information related to the proposed project can be found at https://rcprojects.org/.

Caltrans circulated an Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment for public review and comment between December 23, 2021 and February 14, 2022. After reviewing all comments received, the Project Development Team identified Alternative 3, Diverging Diamond Interchange, as the Preferred Alternative. As part of the Preferred Alternative, Caltrans is considering building a noise barrier in proximity to your residence/property.

You have received this letter because you own or live on the property, referenced above by parcel number, which would benefit from the proposed 14-foot high noise barrier (see proposed soundwall location map on attached figure). As noted in the survey below, we are requesting your preference as to whether you would be in favor of a new noise barrier to reduce traffic noise adjacent to your residence/property. The property owner must be in favor of the noise barrier for it to be considered for construction.

Please complete and return the enclosed survey sheet in the provided stamped addressed envelope. **In order to be counted, the survey sheet must be completed (signed and postmarked) by no later than May 11, 2023.** Surveys may also be emailed to CherryValleyInterchange@dot.ca.gov. If the survey is not received by this date, it will be counted as a “no” vote.

Property Owner/Occupants
April 19, 2023
Page 2

If you have any questions regarding the noise barrier survey or the project, please email CherryValleyInterchange@dot.ca.gov.

Sincerely,

Shawn Oriaz

SHAWN ORIAZ
Senior Environmental Planner
Caltrans

Attachment: Figure with proposed soundwall

Property Owner/Occupants
April 19, 2023
Page 3

Survey Sheet

For the Property Owner/Occupants located at 10961 Desert Lawn Drive, Calimesa, CA, 92320

Please review the enclosed figure, complete this survey, and use the enclosed stamped addressed envelope to mail in your response. Surveys may also be emailed to CherryValleyInterchange@dot.ca.gov. To be counted, the survey sheet must be received no later than May 11, 2023.

_____ Yes, I am in favor of proposed Soundwall S452.

_____ No, I am not in favor of proposed Soundwall S452.

Additional Comments:

Print First, Last Name(s)	Signature
Street Address of the Property	Date
City, Zip Code	

"Provide a safe and reliable transportation network that serves all people and respects the environment"


10
PLANTATION DRIVE
PLANTATION ON THE LAKE
PROPOSED SOUNDWALL S452
- Along I-10 edge of shoulder
- 14 feet high
- 1,511 feet long
LEGEND
Proposed Soundwall S452
Parcel
Michael Baker INTERNATIONAL
INTERSTATE 10/CHERRY VALLEY BOULEVARD INTERCHANGE PROJECT
Proposed Soundwall Location Map

I DISTRICT 8
ENVIRONMENTAL PLANNING DIVISION (MS 1228)
464 WEST 4TH STREET, 6TH FLOOR | SAN BERNARDINO, CA 92401-1400
MAIN (909) 693-9066 | TTY 711
www.dot.ca.gov/dist8

May 15, 2023

Property Owner/Occupants Adjacent to Proposed Soundwall S401
10320 Calimesa Boulevard
Calimesa, CA 92320
APN No. 407-230-031

Dear Property Owner/Occupant:

The City of Calimesa, in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside, proposes to upgrade and reconfigure the existing Interstate 10 (I-10)/Cherry Valley Boulevard Interchange. The project is located on I-10, between the Singleton Road and Oak Valley Parkway interchanges. Additional information related to the proposed project can be found at https://rcprojects.org/.

Caltrans circulated an Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment for public review and comment between December 23, 2021 and February 14, 2022. After reviewing all comments received, the Project Development Team identified Alternative 3, Diverging Diamond Interchange, as the Preferred Alternative. As part of the Preferred Alternative, Caltrans is considering building a noise barrier in proximity to your residence/property.

You have received this letter because you own or live on the property, referenced above by parcel number, which would benefit from the proposed 14-foot high noise barrier (see proposed soundwall location map on attached figure). As noted in the survey below, we are requesting your preference as to whether you would be in favor of a new noise barrier to reduce traffic noise adjacent to your residence/property. The property owner must be in favor of the noise barrier for it to be considered for construction.

Please note that this letter was previously sent to you on April 19, 2023 and no response has been received. As such, this letter is being resent to you to solicit your feedback. Please complete and return the enclosed survey sheet in the provided stamped addressed envelope. **In order to be counted, the survey sheet must be completed (signed and postmarked) by no later than May 22, 2023.** Surveys may also be emailed to CherryValleyInterchange@dot.ca.gov. If the survey is not received by this date, it will be counted as a “no” vote.

Property Owner/Occupants
May 15, 2023
Page 2

If you have any questions regarding the noise barrier survey or the project, please email CherryValleyInterchange@dot.ca.gov.

Sincerely,

Shawn Oriaz

SHAWN ORIAZ
Senior Environmental Planner
Caltrans

Attachment: Figure with proposed soundwall

Property Owner/Occupants
May 15, 2023
Page 3

Survey Sheet

For the Property Owner/Occupants located at 10320 Calimesa Boulevard, Calimesa, CA, 92320

Please review the enclosed figure, complete this survey, and use the enclosed stamped addressed envelope to mail in your response. Surveys may also be emailed to CherryValleyInterchange@dot.ca.gov. To be counted, the survey sheet must be received no later than May 22, 2023.

_____ Yes, I am in favor of proposed Soundwall S401.

_____ No, I am not in favor of proposed Soundwall S401.

Additional Comments:

______________________________ ______________________________
Print First, Last Name(s) Signature

______________________________ ______________________________
Street Address of the Property Date

____
City, Zip Code

"Provide a safe and reliable transportation network that serves all people and respects the environment"

Michael Baker INTERNATIONAL

INTERSTATE 10/CHERRY VALLEY BOULEVARD INTERCHANGE PROJECT

Proposed Soundwall Location Map

DISTRICT 8
ENVIRONMENTAL PLANNING DIVISION (MS 1228)
464 WEST 4TH STREET, 6TH FLOOR | SAN BERNARDINO, CA 92401-1400
MAIN (909) 693-9066 | TTY 711
www.dot.ca.gov/dist8

May 15, 2023

Property Owner/Occupant Adjacent to Proposed Soundwall S452
10961 Desert Lawn Drive
Calimesa, CA 92320
APN No. 413-270-001

Dear Property Owner/Occupant:

The City of Calimesa, in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside, proposes to upgrade and reconfigure the existing Interstate 10 (I-10)/Cherry Valley Boulevard Interchange. The project is located on I-10, between the Singleton Road and Oak Valley Parkway interchanges. Additional information related to the proposed project can be found at https://rcprojects.org/.

Caltrans circulated an Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment for public review and comment between December 23, 2021 and February 14, 2022. After reviewing all comments received, the Project Development Team identified Alternative 3, Diverging Diamond Interchange, as the Preferred Alternative. As part of the Preferred Alternative, Caltrans is considering building a noise barrier in proximity to your residence/property.

You have received this letter because you own or live on the property, referenced above by parcel number, which would benefit from the proposed 14-foot high noise barrier (see proposed soundwall location map on attached figure). As noted in the survey below, we are requesting your preference as to whether you would be in favor of a new noise barrier to reduce traffic noise adjacent to your residence/property. The property owner must be in favor of the noise barrier for it to be considered for construction.

Please note that this letter was previously sent to you on April 19, 2023 and no response has been received. As such, this letter is being resent to you to solicit your feedback. Please complete and return the enclosed survey sheet in the provided stamped addressed envelope. **In order to be counted, the survey sheet must be completed (signed and postmarked) by no later than May 22, 2023.** Surveys may also be emailed to CherryValleyInterchange@dot.ca.gov. If the survey is not received by this date, it will be counted as a "no" vote.

Property Owner/Occupants
May 15, 2023
Page 2

If you have any questions regarding the noise barrier survey or the project, please email CherryValleyInterchange@dot.ca.gov.

Sincerely,

Shawn Oriaz

SHAWN ORIAZ
Senior Environmental Planner
Caltrans

Attachment: Figure with proposed soundwall

Property Owner/Occupants
May 15, 2023
Page 3

Survey Sheet

For the Property Owner/Occupants located at 10961 Desert Lawn Drive, Calimesa, CA, 92320

Please review the enclosed figure, complete this survey, and use the enclosed stamped addressed envelope to mail in your response. Surveys may also be emailed to CherryValleyInterchange@dot.ca.gov. To be counted, the survey sheet must be received no later than May 22, 2023.

_____ Yes, I am in favor of proposed Soundwall S452.

_____ No, I am not in favor of proposed Soundwall S452.

Additional Comments:

Print First, Last Name(s)	Signature
Street Address of the Property	Date
City, Zip Code	

"Provide a safe and reliable transportation network that serves all people and respects the environment"


10
DESERT LAWN DRIVE
PLANTATION DRIVE
PLANTATION ON THE LAKE
PROPOSED SOUNDWALL S452
- Along I-10 edge of shoulder
- 14 feet high
- 1,511 feet long
LEGEND
Proposed Soundwall S452
Parcel
Michael Baker INTERNATIONAL
INTERSTATE 10/CHERRY VALLEY BOULEVARD INTERCHANGE PROJECT
Proposed Soundwall Location Map

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The following text related to circulation of the IS/EA, public hearing, public comments, and responses to comments has been amended since the Draft Environmental Document.

Public Distribution of IS/EA and Public Hearing

Circulation of IS/EA

Caltrans circulated the Draft Initial Study with Proposed Mitigated Negative Declaration/Environmental Assessment (IS/EA) for public review and comment between December 23, 2021 and January 24, 2022, which was based on the State Clearinghouse receiving the Notice of Completion on December 23, 2021 and the holiday that occurred during the public review period. The public review end date was extended to February 14th, 2022, to provide additional time for public and agency review and comment. The State Clearinghouse's e-mail acknowledging that Caltrans complied with the State Clearinghouse review requirements for draft environmental documents, pursuant to CEQA, is provided below.

Advertisements announcing the public hearing were placed in the following newspapers on the following dates:

- Press Enterprise: December 23, 2021
- Yucaipa News Mirror: December 24, 2021
- La Prensa: December 24, 2021

Public Hearing

A public hearing was conducted on January 13, 2022 from 5:00 PM to 7:00 PM utilizing the Zoom platform; the hearing was conducted virtually due to the COVID-19 pandemic. The date and location of the public hearing was included in the published notices (advertisements) and in mailers sent to all agencies and persons included on the distribution list; refer to Chapter 6 of this Environmental Document.

The public hearing utilized the virtual Zoom format, and a court reporter was available to record verbal comments provided by attendees on the Draft IS/EA. A presentation was provided during the public hearing, which addressed the purpose of the public hearing; project overview and location; the design characteristics of the two Build Alternatives (Alternatives 3 and 4); the key steps of the environmental process; frequently asked questions; and next steps relative to the project development process.

Approximately 17 members of the public participated in the public hearing. Attendees included local residents, business owners and representatives, property owners, and others interested in the project. Eight participants provided verbal comments to the court reporter. Verbal questions and comments from those in attendance primarily focused on project impacts to the surrounding uses as it relates to accessibility during construction; truck access and vehicular circulation during project operations; and potential impacts related to noise and air quality.

Press Enterprise, December 23, 2021

THE PRESS-ENTERPRISE

Ad Copy:

1825 Chicago Ave, Suite 100
Riverside, CA 92507
951-684-1200
951-368-9018 FAX

PROOF OF PUBLICATION
(2010, 2015.5 C.C.P)

Publication(s): The Press-Enterprise

PROOF OF PUBLICATION OF

Ad Desc.: (1/4 Page) /

I am a citizen of the United States. I am over the age of eighteen years and not a party to or interested in the above entitled matter. I am an authorized representative of THE PRESS-ENTERPRISE, a newspaper in general circulation, printed and published daily in the County of Riverside, and which newspaper has been adjudicated a newspaper of general circulation by the Superior Court of the County of Riverside, State of California, under date of April 25, 1952, Case Number 54446, under date of March 29, 1957, Case Number 65673, under date of August 25, 1995, Case Number 267864, and under date of September 16, 2013, Case Number RIC 1309013; that the notice, of which the annexed is a printed copy, has been published in said newspaper in accordance with the instructions of the person(s) requesting publication, and not in any supplement thereof on the following dates, to wit:

12/23/2021

I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Date: December 23, 2021
At: Riverside, California

Legal Advertising Representative, The Press-Enterprise

MICHAEL BAKER INTERNATIONAL
3760 KILROY AIRPORT WAY, #270
LONG BEACH, CA 90806

Ad Number: 0011507779-01

P.O. Number:

PUBLIC NOTICE

Notice of Intent to Adopt a Mitigated Negative Declaration
Announcement of a Public Hearing for
Interstate 10 / Cherry Valley Boulevard Interchange Project
Study Results Available

WHAT'S BEING PLANNED?	The City of Calimesa (City), in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside (County), proposes to upgrade and reconfigure the existing Interstate 10 (I-10)/Cherry Valley Boulevard Interchange. The project is located on I-10, between the Singleton Road and Oak Valley Parkway interchanges. Three alternatives are being evaluated: Alternative 1 (No Build), Alternative 3 (Diverging Diamond Interchange), Alternative 4 (Partial Cloverleaf Interchange). Key components of the project would include the widening of Cherry Valley Boulevard (including the I-10 overcrossing), realignment and reconstruction of on- and off-ramps, auxiliary lanes along I-10 in both the eastbound and westbound directions, and provisions for sidewalks and bicycle facilities along Cherry Valley Boulevard.
WHY THIS AD?	The team (City, County, and Caltrans) has studied the effects this project may have on the environment. Our studies show it will not significantly affect the quality of the environment. The Draft Initial Study/Environmental Assessment (Draft IS/EA) report outlines why the project will not significantly affect the quality of the environment. This notice is to tell you of the preparation of the Draft IS/EA and of its availability for you to read. A public hearing will be held to give you an opportunity to comment on certain design features of the project with Caltrans, City and County staff before the report is finalized and a final design is selected.
WHAT'S AVAILABLE?	The Draft IS/EA and other project information is available for review at: • City of Calimesa, City Hall, 908 Park Avenue, Calimesa, California 92320 • Calimesa Library, 974 Calimesa Boulevard, Calimesa, California 92320 • Caltrans District 8, 464 West 4th Street, San Bernardino, California 92401 An electronic copy (PDF format) of the Draft IS/EA can be viewed at: • County of Riverside website: https://rcprojects.org/
WHERE YOU COME IN	Do you have any comments about the project with an Initial Study with [Proposed] Mitigated Negative Declaration/Environmental Assessment (IS/EA)? Would you care to make any other comments on the project? Please submit your comments in writing no later than **January 24, 2022** to: California Department of Transportation ATTN: Shawn Oriaz, Senior Environmental Planner 464 West 4th Street, 6th Floor, MS-827 San Bernardino, CA 92401 or via e-mail to: CherryValleyInterchange@dot.ca.gov. Please include "Interstate 10 Cherry Valley Boulevard" in the subject line. **We will begin accepting comments on December 23, 2021.**
WHEN & WHERE?	A virtual public hearing (open forum format with court reporter) will be held on January 13, 2022 from 5:00 p.m. to 7:00 p.m. The meeting will be conducted via Zoom at https://us06web.zoom.us/j/85829724839. • Call-in information: ◦ iPhone one-tap: +13462487799,,85829724839# or +17207072699,,85829724839# ◦ Telephone: 346-248-7799 or 720-707-2699 ◦ Webinar ID: 858 2972 4839
CONTACT & SPECIAL REQUESTS	For more information about this study or this project, please contact the Caltrans District 8 Office of Public Affairs at (909) 383-4631. For those with sensory disabilities requiring alternate formats (i.e. Braille, large print, sign language interpreter, etc.) and those needing information in a language other than English, please contact Terry Kasinga, Chief, Public and Media Affairs at 909-383-4646 or TTY 711.

Yucaipa News Mirror: December 24, 2021

Yucaipa News Mirror
35154 Yucaipa Blvd
Yucaipa, CA 92399
909-797-9101

Proof of Publication
(2015.5 C.C.P.)

I10/CHERRY VALLEY BLVD

State of California)
County of San Bernardino) ss.

I am a citizen of the United States and a resident of the State of California; I am over the age of eighteen years, and not a party to or interested in the above matter. I am the principal clerk of the printer and publisher of Yucaipa News Mirror, a newspaper published in the English language in the City of Yucaipa, County of San Bernardino, and adjudicated a newspaper of general circulation as defined by the laws of the state of California by the Superior Court of the County of San Bernardino, under the date May 3, 1954, Case No. 78001. That the notice, of which the annexed is a copy, has been published in each regular and entire issue of said newspaper and not in any supplement thereof on the following dates, to-wit:

December 24, 2021

Executed on: December 24, 2021

At Yucaipa , California

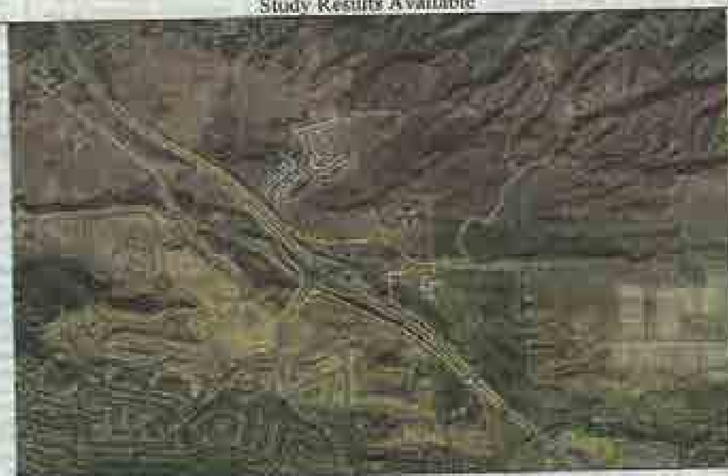
I certify (or declare) under penalty of perjury that the foregoing is true and correct.

Michelle R Earnest

Signature

PUBLIC NOTICE

Notice of Intent to Adopt a Mitigated Negative Declaration
Announcement of a Public Hearing for
Interstate 10 / Cherry Valley Boulevard Interchange Project
Study Results Available



WHAT'S BEING PLANNED?

The City of Calimesa (City), in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside (County), proposes to upgrade and reconfigure the existing Interstate 10 (I-10)/Cherry Valley Boulevard Interchange. The project is located on I-10, between the Singleton Road and Oak Valley Parkway interchanges. Three alternatives are being evaluated: Alternative 1 (No Build), Alternative 3 (Diverging Diamond Interchange), Alternative 4 (Partial Cloverleaf Interchange). Key components of the project would include the widening of Cherry Valley Boulevard (including the I-10 overcrossing), realignment and reconstruction of on- and off-ramps, auxiliary lanes along I-10 in both the eastbound and westbound directions, and provisions for sidewalks and bicycle facilities along Cherry Valley Boulevard.

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WHAT'S AVAILABLE?

The Draft IS/EA and other project information is available for review at:

- City of Calimesa, City Hall, 908 Park Avenue, Calimesa, California 92320
- Calimesa Library, 974 Calimesa Boulevard, Calimesa, California 92320
- Caltrans District 8, 464 West 4th Street, San Bernardino, California 92401

An electronic copy (PDF format) of the Draft IS/EA can be viewed at:

- County of Riverside website: [illegible]

WHERE YOU COME IN

Do you have any comments about the project with an Initial Study with [Proposed] Mitigated Negative Declaration/Environmental Assessment (IS/EA)? Would you care to make any other comments on the project? Please submit your comments in writing no later than **January 24, 2022** to:

California Department of Transportation
ATTN: Shawn Oriaz, Senior Environmental Planner
464 West 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401

or via e-mail at: [illegible]. Please include "Interstate 10 Cherry Valley Boulevard" in the subject line. We will **begin accepting comments on December 13, 2021.**

WHEN & WHERE?

A virtual public hearing (open forum format with court reporter) will be held on January 13, 2022 from 5:00 p.m. to 7:00 p.m. The meeting will be conducted via Zoom at [illegible]

- Call-in information:
  - iPhone one-tap: +13462487799,,85829724839# or +17207072699,,85829724839#
  - Telephone: 346 248 7799 or 720 707 2699
  - Webinar ID: 858 2972 4839

CONTACT & SPECIAL REQUESTS

For more information about this study or this project, please contact the Caltrans District 8 Office of Public Affairs at (909) 383-4631. For those with sensory disabilities requiring alternate formats (i.e. Braille, large print, sign language interpreter, etc.) and those needing information in a language other than English, please contact Terry Kasinga, Chief, Public and Media Affairs at 909-383-4646 or TTY 711.

La Prensa: December 24, 2021

NOTICIAS LOCALES

INLAND EMPIRE

Más patrullaje y restricciones para visitantes a las montañas

Tirar basura, interferir con la vida silvestre, invadir propiedad privada puede traer fuertes multas

Steve Scauzillo

Actividades ilegales

EL DATO:

Llegar temprano

Breves

Distribuyen pruebas de coronavirus gratuitas

Bloquean proyecto hidroeléctrico de Lake Elsinore

Venden Dos Lagos Center por $47 millones

AVISO PÚBLICO

Proyecto del cruce de la Autopista Interestatal 10 y Cherry Valley Boulevard

¿QUÉ SE PLANEA HACER?	[illegible]
¿POR QUÉ HACEMOS ESTE ANUNCIO?	[illegible]
¿QUÉ ESTÁ DISPONIBLE?	[illegible]
¿DÓNDE PUEDE COMENTAR?	[illegible]
¿CUÁNDO Y DÓNDE?	[illegible]
CONTACTO	[illegible]

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Public Distribution of IS/EA and Public Hearing Comments

The following section contains a reproduction of each of the comments received during the circulation period for the IS/EA, as well as the complete court reporter transcripts generated at the public hearing. The comments are presented, followed by responses.

As discussed previously, the IS/EA was circulated for public and agency review between December 23, 2021 and January 24, 2022, which was based on the State Clearinghouse receiving the Notice of Completion on December 23, 2021 and the holiday that occurred during the public review period. The public review end date was extended to February 14th, 2022, to provide additional time for public and agency review and comment. A virtual public hearing was held on January 13, 2022 from 5:00 p.m. to 7:00 p.m. Caltrans received a total of 23 separate comments regarding the IS/EA and/or project.

Fifteen comments were received by regular mail or e-mail (i.e., Comment ID P-1 through P-15), and eight comments were verbally recorded by the court reporter at the public hearing (i.e., Comment ID PH-1 through PH-8).

Table 4.1-2 Index of Commenters

Comment ID	Commenter	Date
P-1	David Anderson Charter Communications	December 28, 2021
P-2	Dave Dolney Charter Communications	December 29, 2021
P-3	Martha Van Rooijen MVR Consulting	December 30, 2021
P-4	Mayor Lloyd White City of Beaumont	January 7, 2022
P-5	Lieutenant Mike Vargas California Highway Patrol	January 10, 2022
P-6	Chris Taylor	January 14, 2022
P-7	Mauricio Alvarez Riverside Transit Agency	January 17, 2022
P-8	Marven E. Norma Inland Empire Biking Alliance	January 23,2022
P-9	Kristeen Penrod/Cara Lacey SC Wildlands/The Nature Conservancy	January 23, 2022
P-10	J.P. Rose Center for Biological Diversity	January 24, 2022
P-11	Elsa L. Paster Glaser Weil	January 24, 2022
P-12	James R. Watson and Judy R. Watson J.R. Watson & Associates Development Corporation	January 26, 2022

Comment ID	Commenter	Date
P-13	Kristeen Penrod/Cara Lacey The Nature Conservancy	February 14, 2022
P-14	Kristeen Penrod/Cara Lacey The Nature Conservancy	February 28, 2022
P-15	Ann Brierty Morongo Band of Mission Indians	March 1, 2022
PH-1	Timothy Reeves	January 13, 2022
PH-2	Andrew Walcker	January 13, 2022
PH-3	Michael F. Ballard	January 13, 2022
PH-4	Steve Mehlman	January 13, 2022
PH-5	Rich Rowland	January 13, 2022
PH-6	Paul King	January 13, 2022
PH-7	Martha Van Rooijen	January 13, 2022
PH-8	Elaine Morgan	January 13, 2022

Comment P-1

-----Original Message-----
From: Anderson, David M <David.Anderson1@charter.com>
Sent: Tuesday, December 28, 2021 4:02 PM
To: DL-socal-charter-engineering <DL-socal-charter-engineering@charter.com>
Cc: CherryValleyInterchange@dot.ca.gov; Hobson, Lee <Lee.Hobson@charter.com>
Subject: Calimesa Cherry Valley I/10 Project

CAUTION: This email originated from outside of the organization. If you are not expecting this communication, proceed with caution; do not click links, open attachments, or provide sensitive information unless you recognize the sender and can verify the content is safe.

Please assit with this request P-1.1

Thank you, Respectfully,
David Anderson | Construction Supervisor
O: 951.406.1606 | C: 951-634-1584
7337 Central Ave |Riverside, CA 92504

Comment P-1

PUBLIC NOTICE

Notice of Intent to Adopt a Mitigated Negative Declaration
Announcement of a Public Hearing for
Interstate 10 / Cherry Valley Boulevard Interchange Project
Study Results Available

WHAT'S BEING PLANNED?	The City of Calimesa (City), in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside (County), proposes to upgrade and reconfigure the existing Interstate 10 (I-10)/Cherry Valley Boulevard Interchange. The project is located on I-10, between the Singleton Road and Oak Valley Parkway interchanges. Three alternatives are being evaluated: Alternative 1 (No Build), Alternative 3 (Diverging Diamond Interchange), Alternative 4 (Partial Cloverleaf Interchange). Key components of the project would include the widening of Cherry Valley Boulevard (including the I-10 overcrossing), realignment and reconstruction of on- and off-ramps, auxiliary lanes along I-10 in both the eastbound and westbound directions, and provisions for sidewalks and bicycle facilities along Cherry Valley Boulevard.
WHY THIS AD?	The team (City, County, and Caltrans) has studied the effects this project may have on the environment. Our studies show it will not significantly affect the quality of the environment. The Draft Initial Study/Environmental Assessment (Draft IS/EA) report outlines why the project will not significantly affect the quality of the environment. This notice is to tell you of the preparation of the Draft IS/EA and of its availability for you to read. A public hearing will be held to give you an opportunity to comment on certain design features of the project with Caltrans, City and County staff before the report is finalized and a final design is selected.
WHAT'S AVAILABLE?	The Draft IS/EA and other project information is available for review at: • City of Calimesa, City Hall, 908 Park Avenue, Calimesa, California 92320 • Calimesa Library, 974 Calimesa Boulevard, Calimesa, California 92320 • Caltrans District 8, 464 West 4th Street, San Bernardino, California 92401 An electronic copy (PDF format) of the Draft IS/EA can be viewed at: • County of Riverside website: https://rcprojects.org/
WHERE YOU COME IN	Do you have any comments about the project with an Initial Study with [Proposed] Mitigated Negative Declaration/Environmental Assessment (IS/EA)? Would you care to make any other comments on the project? Please submit your comments in writing no later than **January 24, 2022** to: California Department of Transportation ATTN: Shawn Oriaz, Senior Environmental Planner 464 West 4th Street, 6th Floor, MS-827 San Bernardino, CA 92401 or via e-mail to: CherryValleyInterchange@dot.ca.gov. Please include "Interstate 10 Cherry Valley Boulevard" in the subject line. **We will begin accepting comments on December 23, 2021.**

WHEN & WHERE?	A virtual public hearing (open forum format with court reporter) will be held on January 13, 2022 from 5:00 p.m. to 7:00 p.m. The meeting will be conducted via Zoom at https://us06web.zoom.us/j/85829724839.
	• Call-in information:
	  o iPhone one-tap: +13462487799,,85829724839# or +17207072699,,85829724839#
	  o Telephone: 346 248 7799 or 720 707 2699
	  o Webinar ID: 858 2972 4839

CONTACT & SPECIAL REQUESTS	For more information about this study or this project, please contact the Caltrans District 8 Office of Public Affairs at (909) 383-4631. For those with sensory disabilities requiring alternate formats (i.e. Braille, large print, sign language interpreter, etc.) and those needing information in a language other than English, please contact Terry Kasinga, Chief, Public and Media Affairs at 909-383-4646 or TTY 711.

P-1.1
(Cont.)

Comment P-1

Project Fact Sheet
Winter 2021

Interstate 10 / Cherry Valley Boulevard Interchange Project

PROJECT SCHEDULE

Preliminary Planning Phase (Completed Summer 2018)

↓

Project Approval and Environmental Document (Approval Anticipated Spring 2022)

↓

Final Design Completed (Anticipated Summer 2024[1])

↓

Construction Start (Anticipated Fall 2024[1])

[1] Subject to the availability of funds, dates are estimated.

PROJECT LOCATION:

Cherry Valley Boulevard, on I-10 between the Singleton Road and Oak Valley Parkway interchanges

ESTIMATED INVESTMENT:

$50,000,000 to $60,000,000

P-1.1 (Cont.)

PROJECT OVERVIEW:

The City of Calimesa (City), in cooperation with the California Department of Transportation (Caltrans) and the County of Riverside (County), proposes to reconstruct the Interstate 10 (I-10)/Cherry Valley Boulevard interchange to relieve congestion and improve traffic operations. The project is currently evaluating three alternatives:

- Alternative 1 – No Build Alternative
- Alternative 3 – Diverging Diamond Interchange
- Alternative 4 – Partial Cloverleaf Interchange

Alternative 3 was identified as the Locally Preferred Alternative at a City of Calimesa City Council meeting on September 8, 2020. The proposed project will include the following key components:

- Widen Cherry Valley Boulevard to two lanes in each direction
- Add turn pockets along Cherry Valley Boulevard approaching on-ramps
- Add pedestrian crosswalks and curb ramps
- Reconstruct and realign on- and off-ramps
- Realign Calimesa Boulevard north of the I-10/Cherry Valley Boulevard interchange
- Provide channelized turning on Cherry Valley Boulevard to Calimesa Boulevard
- Install new traffic signals
- Construct sidewalks and bicycle lanes along Cherry Valley Boulevard
- Add a 1,300-foot long auxiliary lane to the eastbound off-ramp and 3,400-foot long auxiliary lane to the westbound on-ramp

Stay Involved

Public participation plays an important role in the environmental approval process. To be added to the project contact list and be updated on future project events, please email CherryValleyInterchange@dot.ca.gov.

Response to Comment Letter P-1

David Anderson
Charter Communications
December 28, 2021

Response P-1.1

This email correspondence includes communication from Charter Communications requesting their engineering team provide comment on the Draft Initial Study/Environmental Assessment (Draft IS/EA) and attached the Public Notice and Project Fact Sheet. Receipt of this email correspondence is acknowledged. Thank you for your comment and interest in the project.

-----Original Message-----
From: Jacqie R. Salczenko <jacqie.salczenko@ccisystems.com>
Sent: Wednesday, December 29, 2021 8:45 AM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Cc: Yanes, Rocio <Rocio.Yanes@charter.com>
Subject: RE: Calimesa Cherry Valley I/10 Project

EXTERNAL EMAIL. Links/attachments may not be safe.

Hello,
Please see attached for requested information. P-2.1

Thank you,
Jacqie Salczenko
Engineering Department Drafter I
jacqie.salczenko@ccisystems.com
CCI SYSTEMS

12/29/2021

Shawn Oriaz
Caltrans
464 West 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401

Requester Project:	Map Request
Project Name	Cherry Valley Boulevard & Calimesa Boulevard
DOCK/PRISM Project Name:	Cherry Valley Boulevard
Conflict:	YES

Thank you for your recent Utility Request to Charter Communications for: Cherry Valley Boulevard & Calimesa Boulevard

Please review the attached maps for any possible conflicts with Charter facilities.
There ***ARE*** existing Charter aerial/or underground facilities within the project limits.

We have provided maps showing where our services are located but cannot make any comment on how to deal with possible conflicts during construction. This type of information should come from the Construction Manager, Supervisor or Construction Coordinator for the area in question. **P-2.1 (Cont.)**

If you should require any field meet or any further coordination of the project with Charter please contact the Construction Manager listed below.

Construction Manager Contact:
Mock, James
Construction Manager - Zone 9
7337 Central Ave
Riverside CA 92504
951-406-1627
james.mock@charter.com

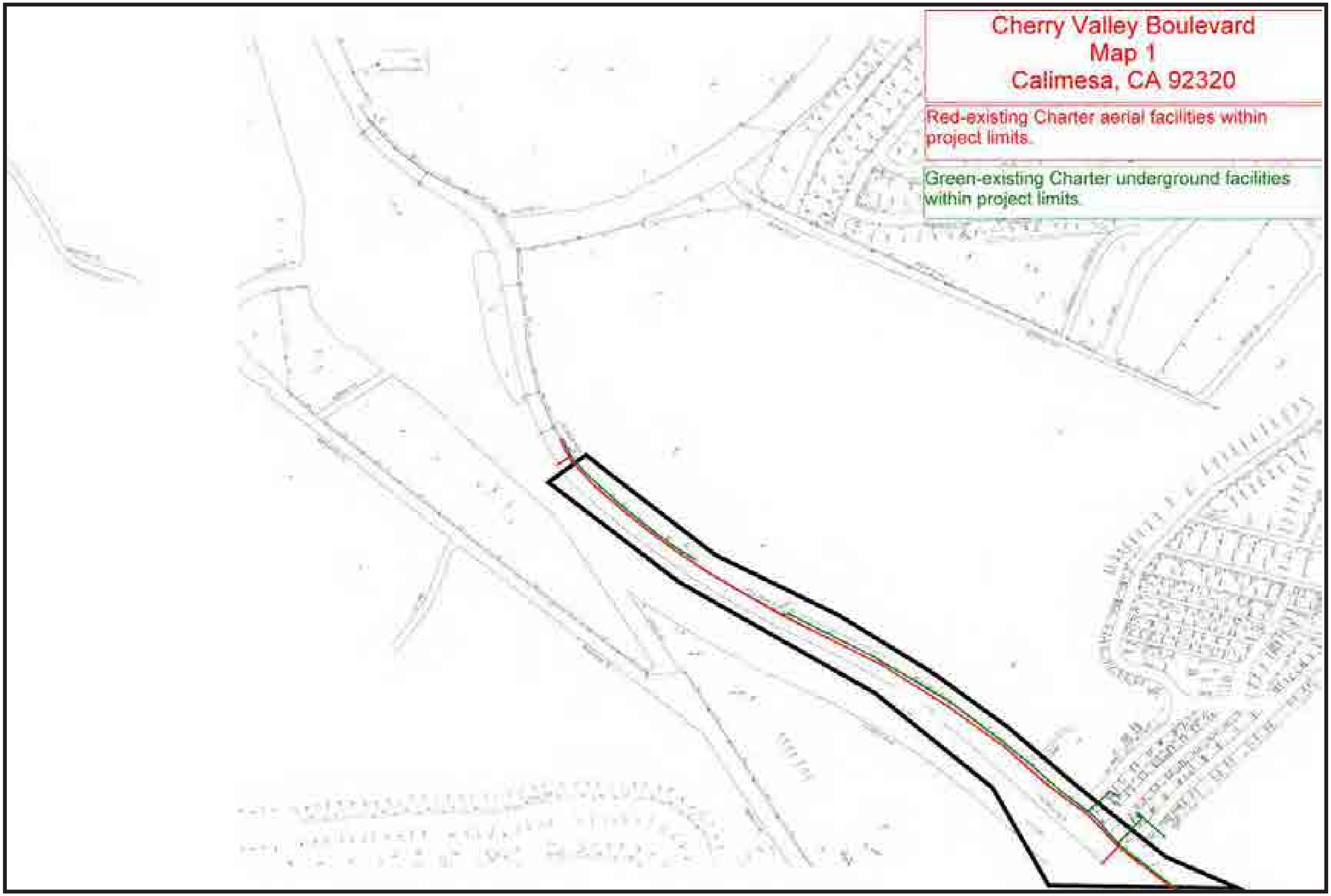
If you have any questions about the maps provided, please contact DL-socal-charter-engineering@charter.com.
This communication is for a project being handled by Charter Communications or Spectrum, a Charter Communications brand name, or Legacy Time Warner Cable.

Sincerely,

Dave Dolney

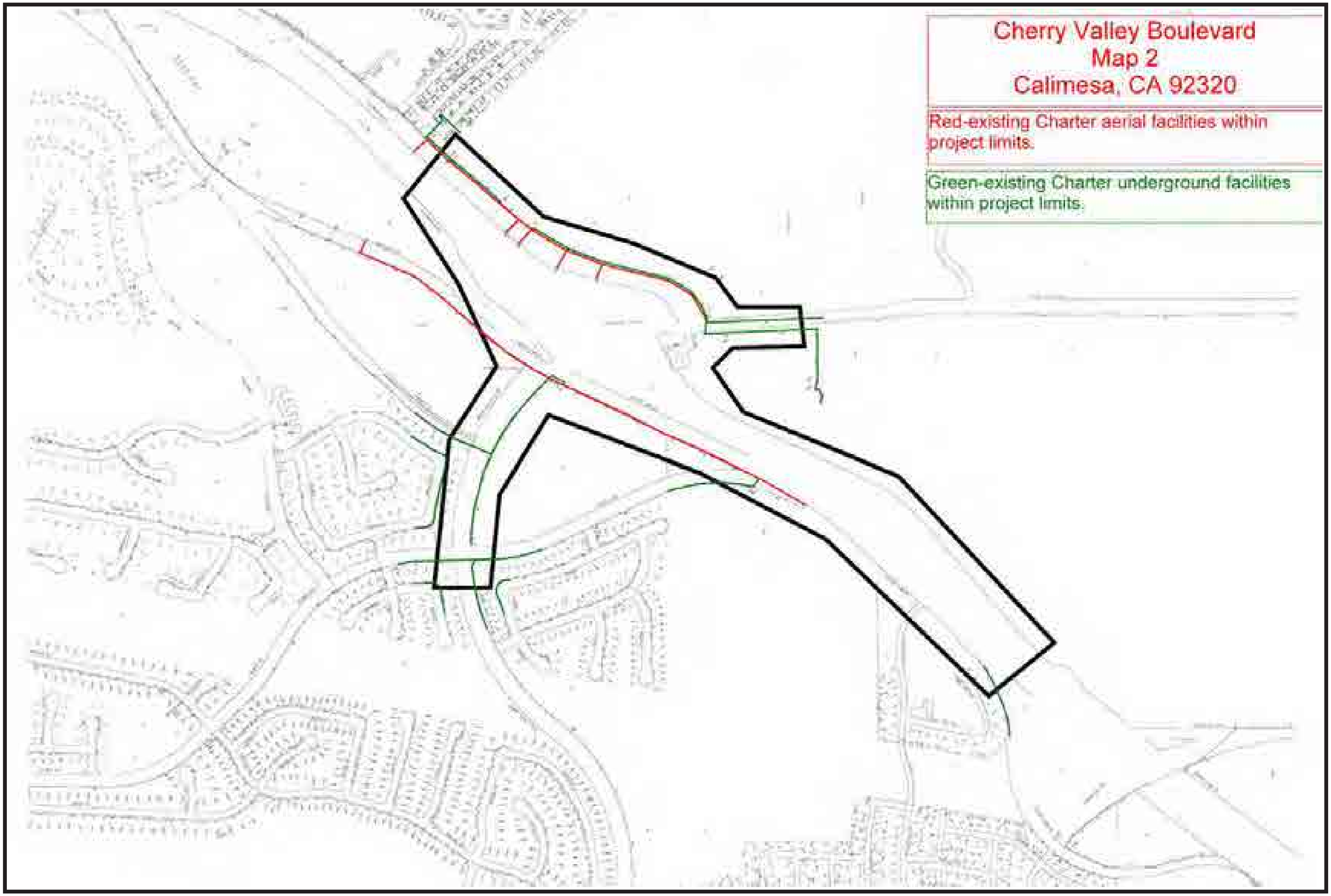
Dave Dolney
Sr. Manager, PACWEST Construction
Charter Communications
12051 Industry Street
Garden Grove, CA 92841

Comment P-2



P-2.1
(Cont.)

Comment P-2



P-2.1
(Cont.)

Comment P-2

P-2.1
(Cont.)

Response to Comment Letter P-2

Dave Dolney
Charter Communications
December 29, 2021

Response P-2.1

It is acknowledged that utilities, including Charter Communications facilities, occur within the project limits and continued coordination with affected utility providers, including Charter Communications, will occur during the final design phase of the project. Thank you for your comment and interest in the project.

Comment P-3

From: martha@mvrconsulting.com <martha@mvrconsulting.com>
Sent: Thursday, December 30, 2021 8:01 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Subject: Email list for Cherry Valley/Interchange

To: Caltrans;

Please add me to the email list for Cherry Valley/Interchange project. **P-3.1**

Thank you,

Martha van Rooijen

MVR Consulting
DBE/WBE/SBE

Response to Comment Letter P-3

Martha Van Rooijen
MVR Consulting
December 30, 2021

Response P-3.1

The request to add the commenter to the distribution list, receiving future correspondence associated with the IS/EA is acknowledged. The project distribution list within Chapter 6 of this Final IS/EA has been updated to include the requested additional contacts. Future correspondence associated with the IS/EA will be sent to the requested parties. Thank you for your comment and interest in the project.

Comment P-4

From: Todd Parton <TParton@beaumontca.gov>
Sent: Friday, January 7, 2022 1:19 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Cc: Lloyd White <LWhite@beaumontca.gov>; Julio Martinez <jmartinez@beaumontca.gov>; David Fenn <dfenn@beaumontca.gov>; Rey Santos <RSantos@beaumontca.gov>; Mike Lara <MLara@beaumontca.gov>
Subject: Interstate 10 Cherry Valley Boulevard
Importance: High

To Whom It May Concern,

Attached written comments from the City of Beaumont pursuant to the Notice of Intent to Adopt A Mitigated Negative Declaration for the Interstate 10/Cherry Valley Boulevard Interchange Project. P-4.1

Please feel free to contact me with any questions or if I may be of service.

Thank you,

Todd Parton
City Manager
550 E. Sixth Street
Beaumont, Ca 92223
(951) 769-8520

BEAUMONT
CALIFORNIA

January 7, 2022

California Department of Transportation
ATTN: Shawn Oriaz, Senior Environmental Planner
464 West 4th Street, 6th Floor, MS-827
San Benardino, CA 92401

RE: Interstate 10/Cherry Valley Boulevard Interchange Project

Dear Mr. Oriaz,

The City of Beaumont is in receipt of the Public Notice of the public hearing pertaining to the adoption of a mitigated negative declaration for the Interstate 10/Cherry Valley Boulevard Interchange Project. Beaumont appreciates the opportunity to enter these written comments into the record.

Development along Interstate 10 through the San Gorgonio Pass continues to be one of California's most dynamic growth corridors. Consequently, highway improvements along this corridor are vital to help mitigate environmental impacts, protect public safety, enhance transportation efficiency, and protect residential communities. The Beaumont City Council supports the proposed upgrade and reconfiguration of the Interstate 10/Cherry Valley Boulevard interchange and views this as a critical regional project. **P-4.1 (Cont.)**

The Beaumont City Council officially supports the selection of Alternative 3 – Diverging Diamond Interchange. This alternative will provide for greater operational efficiency, will require less right-of-way, and will reduce opportunities for vehicle conflicts. This option will also provide for safer pedestrian and bicycle modes of transportation.

Please feel free to contact the City with any questions.

Sincerely,

Lloyd White
Mayor

Response to Comment Letter P-4

Mayor Lloyd White
City of Beaumont
January 7, 2022

Response P-4.1

Thank you for your comment. The expressed interest in the Interstate 10/Cherry Valley Boulevard Interchange Project is acknowledged.

Page intentionally left blank.

Comment P-5

From: Vargas, Michael@CHP <MiVargas@chp.ca.gov>
Sent: Monday, January 10, 2022 12:59 PM
To: Oriaz, Shawn M@DOT <shawn.oriaz@dot.ca.gov>
Cc: Knarr, Aaron@CHP <AKnarr@chp.ca.gov>; Lange, Kristen@CHP <Kristen.Lange@chp.ca.gov>; Pietsch, Roland@CHP <RPietsch@chp.ca.gov>; state.clearinghouse@opr.ca.gov; Harris, Dejuan@CHP <DHarris@chp.ca.gov>
Subject: RE: Environmental Document Review – SCH # 2021120553 – Due to Lead Agency by 01/24/2022

Good afternoon,

The document has been reviewed. No impact to Area operations and/or public safety by SCH #2021120553 was identified.

Please contact me with any questions.

1

Thank you,

P-5.1

-Mike

M. Vargas, Lieutenant
California Highway Patrol
San Gorgonio Pass Area
195 Highland Springs Avenue
Beaumont, CA 92223
(951) 769-2000
Mivargas@chp.ca.gov

Comment P-5

ENVIRONMENTAL IMPACT REPORT
EVALUATION/RESPONSE CHECKLIST
FOR AREA/SECTION

Reference: General Order 41.2

	Action	Reference GO 41.2
☒	Review memorandum for the due date(s).	
☒	Determine if the proposed project might impact local operations and/or public safety. Examples include: housing developments, large commercial projects, large recreational developments or expansions, landfill or quarry operations, hazardous materials storage and/or dump sites, highway construction/improvement projects, new schools, airport improvements, annexations/incorporations, off-highway vehicle facilities, and Indian gaming facilities.	Page 5
☒	Review environmental impact documents to identify issues or concerns with possible impact to departmental operations (i.e., increased response times, enforcement, emergency services, service calls, telecommunications, public safety).	
	Responses	
☐	If comments are advisable:	
☐	Correspondence should focus primarily on traffic safety, congestion, or other impacts to the CHP's mission; however, **Areas shall not indicate to the lead agency that additional personnel, facilities, vehicles, etc., are a means to mitigate departmental service issues**.	Page 7
☐	Ensure the State Clearinghouse number (SCH#) is included in all correspondence.	
☐	Comments shall be provided directly to the lead agency and emailed to State Clearinghouse at state.clearinghouse@opr.ca.gov no later than the designated due date. Provide a copy to Special Projects Section (SPS) via electronic mail (e-mail).	
	For project tracking purposes, SPS must be notified of Area/Section's assessment of the project. After mailing your comments to the SCH or lead agency, send a scanned copy via e-mail to SPS.	
☒	If no impact is determined:	
☒	Via e-mail, please respond "no impact to San Gorgonio Pass Area's local operations and/or public safety by SCH# 2021120553 was identified," by the designated SCH due date to the SPS analyst listed on the Environmental Document Review and Response memorandum. Ensure the SCH# is included.	

P-5.1
(Cont.)

Response to Comment Letter P-5

Lieutenant Mike Vargas
California Highway Patrol
January 10, 2022

Response P-5.1

It is acknowledged that the California Highway Patrol (CHP) has reviewed the Draft IS/EA and CHP identified no impacts to the San Gorgonio Pass Area's local operations and/or public safety. Thank you for your comment and interest in the project.

Page intentionally left blank.

Comment P-6

From: Chris Taylor <chris.landpro@gmail.com>
Sent: Friday, January 14, 2022 4:00 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Cc: Todd Key <srlandpro@gmail.com>; kathy taylor <kathleen.taylor@cox.net>
Subject: Re: I10 cherry valley interchange project

On Fri, Jan 14, 2022 at 4:48 PM Chris Taylor <chris.landpro@gmail.com> wrote:

> I am manager for ESS, Llc, an owner of 23+ acres adjacent to the project.
>
> We granted permission to access our property for noise and biological studies. The right of way agent no longer works for the agency? **P-6.1**
>
> Pursuant to the access agreement, We were supposed to have been provide copies of the preliminary studies before they were finalized.
>
> Can you please provide a update contact?
>
> Thanks!
>
> Chris Taylor
> 714-323-0470

Response to Comment Letter P-6

Chris Taylor
January 14, 2022

Response P-6.1

It is acknowledged that a copy of the technical studies prepared in support of the Draft IS/EA has been requested, and the project team has responded by providing the technical studies to the commenter. Thank you for your comment and interest in the project.

Comment P-7

From: Mauricio Alvarez <malvarez@riversidetransit.com> FYU
Sent: Monday, January 17, 2022 4:01 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Subject: Interstate 10/Cherry Valley Interchange Project

Hello,

Riverside Transit Agency has reviewed the NOI regarding the interchange project and have no comments. **P-7.1**

Thank you,

Mauricio Alvarez, MBA
Planning Analyst
Riverside Transit Agency
p: 951.565.5260 | e: malvarez@riversidetransit.com
Website | Facebook | Twitter | Instagram
1825 Third Street, Riverside, CA 92507

Response to Comment Letter P-7

Mauricio Alvarez
Riverside Transit Agency
January 17,2022

Response P-7.1

It is acknowledged that the Riverside Transit Agency has reviewed the Notice of Intent to Adopt (NOI) for the proposed project and has no comments related to the project. Thank you for your comment and interest in the project.

Comment P-8

From: Marven Norman <mnorman@iebike.org>
Sent: Monday, January 24, 2022 4:05 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Cc: Oriaz, Shawn M@DOT <shawn.oriaz@dot.ca.gov>
Subject: Cherry Valley Interchange ISMNDEA

Hello Shawn,

Please find attached a letter from the Inland Empire Biking Alliance in response to the IS/MND/EA for the proposed Cherry Valley Blvd/I-10 Interchange Project which has been released for review and comment. A response acknowledging receipt of this letter would be appreciated. Thank you. P-8.1

Cheers,

Marven E. Norman, MPA
Executive Director
Inland Empire Biking Alliance
PO Box 8636
Redlands, CA 92375
951.394.3223

Please consider supporting IEBA with your donation or membership today!

INLAND EMPIRE
BIKING ALLIANCE

23 January 2022

California Department of Transportation, District 8
ATTN: Shawn Oriaz, Senior Environmental Planner
464 W. 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401

Submitted via email to CherryValleyInterchange@dot.ca.gov.

Re: Interstate 10 (I-10)/Cherry Valley Boulevard Interchange Project Initial Study/(Proposed) Mitigated Negative Declaration/Environmental Assessment

Dear Shawn,

I am writing on behalf of the Inland Empire Biking Alliance to respond to the Initial Study/(Proposed) Mitigated Negative Declaration/Environmental Assessment which has been prepared for the I-10/Cherry Valley Boulevard Interchange Project. After reviewing the documents that were made available, there are a number of concerns that we are raising with what is proposed and which should be addressed before the Project continues on the development process.

First, perhaps it is merely an oversight, but on page 133, the document states that the speed limit on I-10 through study area is 65 miles per hour, but the signage installed on both directions of I-10 in the area list the speed limit as 70 miles per hour. P-8.2

We also challenge several of the assertions made in in the Traffic Forecasting Methodology section starting on Page 136. On page 137, it lists several other projects which are stated to have been included in the Future Year roadway networks. The listed projects are:

- RTP ID 3A04WT144: Widen Cherry Valley Boulevard from two to four lanes from Desert Lawn Drive to Noble Street. Noble Street is located approximately four miles east of the project footprint. The Cherry Valley Boulevard overcrossing bridge was assumed to reman as a two-lane cross section in the 2045 No Build Scenario.
- RTP ID RIV060117: Widen Singleton Road from two to four lanes from Woodhouse Road to Calimesa Boulevard. Widen eastbound I-10 on-ramp from one to two lanes. Widen westbound I-10 offramp from one to three lanes. Construct eastbound I-10 off-ramp with three lanes. Construct westbound on-ramp with two lanes. P-8.3
- RTP ID RIV060115: Widen Oak Valley Parkway from two to six lanes from 500 feet west of Desert Lawn Drive to Golf Club Drive. Widen eastbound on-ramp from one to two lanes. Widen westbound on-ramp from one to three lanes. Widen westbound and eastbound off-ramps from one to four lanes. Construct I-10 eastbound and I-10 westbound loop on-ramps.

INLAND EMPIRE BIKING ALLIANCE

- RTP ID 3TK04MA12: I-10 add/construct new I-10 eastbound truck climbing lane from San Bernardino County Line to I-10/SR-60 Junction.

In a worrying trend, the description of the Opening Year (2025) forecasts in the first paragraph of page 138 states that none of these projects would provide "major capacity enhancing improvements" despite the substantial outlay of new lane-miles that would be provided. It defies logic and runs counter to what is stated in Section 1.2.1 Purpose which expressly states that "[t]he purpose of the project is to…**[a]ddress increased travel** associated with existing and planned development [emphasis added] anticipated in the City of Calimesa and surrounding areas..." Thus, either the Purpose and Need for the Project is not being fulfilled or the analysis of the outcome of this Project and other associated projects is flawed. P-8.3 (Cont.)

Several times throughout the document (e.g. page 139), it is stated that this Project is exempt from the requirements of SB 743 to analyze (and mitigate) VMT because it was already in progress as of December 28, 2018 and had passed the environmental milestone date of September 15, 2020 set by Caltrans and as such, would only be evaluating the Project on the basis of LOS. However, per the April 13, 2020 Memo regarding SB 743 implementation, Section 2.1 of the Implementation Timeline in that document states that "[f]actors that will weigh in favor of including a VMT-based significance determination include but are not limited to: - Project scope includes a new alignment and/or additional lane miles and project location is in a corridor/area with existing or projected congestion" [1] Based on Exhibit 4: Freeway PM Peak Speed Maps: Plan 2045 of the SCAG Connect SoCal 2020 RTP SCS, the portion of the I-10 corridor where the Project is located is projected to operate at less than 35 MPH in the westbound direction, indicating that it would be congested[2]. Thus, as this Project will add lane-miles via auxiliary lanes as well as capacity on the bridge, on the mainline via removing queuing to the auxiliary lanes, and on several surrounding roadways, it was inappropriate for VMT to not be used as the metric for evaluating the Project given the projected congestion. That is an oversight which needs to be remedied before this Project can move forward. P-8.4

The Project Need statement references "the existing gaps in pedestrian and bicycle infrastructure across the [existing] interchange [which] break[s] the multi-modal connection between communities and businesses on either side of I-10." However, although dozens of tables are provided with LOS values for the intersections and freeway mainlines, nowhere are LOS values for pedestrians or P-8.5

[1] Greenberg, E. & C. Schmidt (2020). VMT CEQA Significance determinations for State Highway System projects implementation timeline memorandum. Retrieved from https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-04-13-implementation-timing-memo-fnl-a11y.pdf.

[2] Southern California Association of Governments (2020). Plan Performance: Performance Measures Technical Report. Connect SoCal. Retrieved from https://scag.ca.gov/sites/main/files/file-attachments/0903fconnectsocal_performance-measures.pdf?1606001734.

P.O. BOX 8636 Redlands, CA 92375 www.iebike.org 951.394.3223

bicyclists presented for any part of the Project itself or any of the other study intersections provided. The failure to do so, especially given the decision to skip a VMT analysis for the Project, is appalling. It is a slap in the face of these vulnerable road user groups to claim that the Project intends to improve conditions for them, but then refuse to provide any analysis to actually support how that would be accomplished by the Project. Not once is it noted how or how much travel times would be improved for bicyclists or pedestrians by the Project despite numerous discussions of that projected improvement for cars. **P-8.5 (Cont.)**

Furthermore, the precious little information which is provided about the accommodation for bicyclists and pedestrians shows that the Project will leave a lot to be desired by those user groups, particularly bicyclists. In Section 1.4.4 Transportation Demand Management (TDM), Transportation System Management (TSM), and Mass Transit Alternatives, it is stated that "the project would provide sidewalk along Cherry Valley Boulevard and a four-foot to six-foot bicycle buffer at turn pockets" and the Pedestrian and Bicycle Facilities portion on page 219 of the Study Conclusions section further clarifies that "a four-foot bicycle buffer" would be provided under Alternative 3 while "a six-foot bicycle buffer would be provided on all proposed right turn pockets within the project limits." Additionally, on page 34, it is noted that "six-foot bicycle lanes would be included along Cherry Valley Boulevard, between Roberts Road and the Overcrossing as well as Calimesa Boulevard and the Overcrossing." **P-8.6**

In 2022, it is mind-numbingly asinine and disappointing to see that this is what Caltrans is still *proposing* for bicycle facilities. This proposal runs counter to Caltrans internal recommendations for bicycle facilities[3][4], counter the recommendations for bicycle facilities from the Federal Highway Administration[5], and counter the recommendations from NACTO[6] which Caltrans has endorsed for use. Referencing those resources in comparison to the planned Alternatives for the Project, it is immediately evident that the planned six-foot Class II bike lanes on Cherry Valley Boulevard are woefully inadequate and create a hazard due to design by way of putting bicyclists in the paved shoulder of the roadway which is designed for among other things, "errant vehicle recovery." When that happens to coincide with the presence of a bicyclist, it guarantees that someone will be injured or even killed.

---

[3] Flournoy, M. (2020). Contextual guidance for bike facilities. Caltrans. Retrieved from https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/office-of-smart-mobility-and-climate-change/planning-contextual-guidance-memo-03-11-20-a11y.pdf.

[4] Benton, J. (2020). Bikeway facility selection guidance. Caltrans. Retrieved from https://dot.ca.gov/-/media/dot-media/programs/design/documents/dod-bikeway-selection-memo_06302020_signed-a11y.pdf.

[5] Schultheiss, B., Goodman, D., Blackburn, L., Wood, A., Reed, D., & Elbech, M. (2019). Bikeway selection guide (FHWA-SA-18-077). US Department of Transportation, Federal Highway Administration. Retrieved from https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf.

[6] NACTO (2017). Designing for all ages and abilities: Contextual guidance for high-comfort bicycle facilities. Retrieved from https://nacto.org/wp-content/uploads/2017/12/NACTO_Designing-for-All-Ages-Abilities.pdf.

Additionally, a Class II bike lane does not meet the mobility needs of all ages and abilities. With the continued growth in the vicinity of the Project, it is inevitable that more and more people will seek to cross I-10 using the Cherry Valley Boulevard interchange facilities to access destinations on either side of the freeway. It is imperative that those facilities are designed in a manner that enables easy use by as wide a spectrum of society as possible to ensure their safety as well as coax them away from driving.

The environmental document indicates that TDM/TSM would not be sufficient to meet the Project needs, but the lack of providing bikeways which meet the needs of all ages and abilities draws that conclusion into question. By refusing to plan to provide appropriate bikeways that appeal to all, the Project sets up a self-fulfilling prophecy of a situation where other alternatives are unable to meet the needs because it is assumed that people would not use them, but the necessary steps to encourage their use are also not being taken. **P-8.6 (Cont.)**

Thus, it is imperative that the provision of either Class I bike paths or Class IV separated bikeways be included in all Project Alternatives in all locations meeting the requirements in the contextual guidance referenced above. Doing so is to ensure that the Project is able to deliver bike facilities which meet a maximum Level of Traffic Stress[7] of 2, including along Cherry Boulevard from Calimesa Boulevard to Roberts Road, inclusive of the Overcrossing, as well as any realigned portions of any other roads in the vicinity such as Roberts Road and Calimesa Boulevard. This must also include the proper traffic controls at intersections such as bike-specific signals and phasing to avoid conflicting turning movements and maintain safety.

In conclusion, while we agree that the Cherry Valley Boulevard/I-10 Interchange Project will bring some improvements to a long overdue location, the Project as currently proposed is comically inadequate in several areas. First, it is improperly claimed to be exempt from SB 743 and using VMT for analysis. Then, an improved environment for bicyclists is promised, but none of the studies presented in the environmental document include any metrics or concrete information quantifying how exactly the Project would improve the environment for bicyclists. The few scraps of information which are available on the topic paint a worrisome picture of a Project that will not meet the needs of bicyclists. This is especially critical because there is no alternative to cross I-10 without taking a detour of several miles. **P-8.7**

It is also critical because of the longevity of these structures. As noted by the Project documents, the existing bridge structure was constructed in 1965. Thus, the projected Opening Year for the proposed Project is 2025 which would be approximately 60 years after the existing bridge was built. Additionally, the Design Year for the Project is 2045, 20 years in the future beyond the Opening

[7] Mekuria, M. C., Furth, P. G., & Nixon, H. (2012). Low-stress bicycling and network connectivity.

Year. Thus, the Project will be built with the intention of standing for decades and leaves two possibilities: That it will be a strong point to look up to or it will be a weak point and impediment to the growth of the bikeway network in the region in the future. Failure to implement the best designs in its construction ensures that this Project will turn into a liability and sore point in the bicycle network as it grows in the future.

We call on Caltrans to rectify this situation by conducting updated studies, including a VMT analysis, and to include fully separate Class I or Class IV bike facilities as part of the Project. It is vital that as the outlay of resources for a project as consequential as is proposed not be squandered by not providing facilities which meet the needs of all. If there are any questions relating to our comments, please do not hesitate to reach out to have them answered. **P-8.7 (Cont.)**

Sincerely,

Marven E. Norman, Executive Director

About IEBA The Inland Empire Biking Alliance is advocating for making the Inland Empire a better place for people from all rolls of life. From the children just learning how to ride to the mountain bikers to those headed back and forth to work, school, or their preferred shopping center and beyond, we speak up to make sure they all have safe and convenient place to ride.

P.O. BOX 8636 Redlands, CA 92375 www.iebike.org 951.394.3223

Response to Comment Letter P-8

Marven E. Norman
Inland Empire Biking Alliance
January 23, 2022

Response P-8.1

Receipt of this comment from the Inland Empire Biking Alliance has been acknowledged. Thank you for your comment and interest in the project.

Response P-8.2

It is acknowledged that the Draft IS/EA states the speed limit along I-10 within the project limits is 65 miles-per-hour (mph), when the posted speed limit is 70 mph. The correct speed limit of 70 mph has been incorporated within this Final IS/EA, in Section 2.1.9, Traffic and Transportation/Pedestrian and Bicycle Facilities.

Response P-8.3

The concern regarding traffic forecasting for the project and “major capacity enhancing improvements” is acknowledged. The project, along with the identified planned improvements in the project area, would represent operational improvements to existing transportation facilities. None of these improvements, including the proposed project, would represent a “major capacity enhancing improvement,” such as a new roadway alignment where one does not currently exist, a roadway gap closure project, new interchange project, or freeway mainline improvement that could substantially alter regional traffic circulation. The proposed project would result in beneficial impacts, as it would implement bicycle and pedestrian facilities in an area where no such facilities currently exist.

Response P-8.4

The concern regarding vehicle miles traveled (VMT) analysis is acknowledged. As discussed in Section 2.1.9, Traffic and Transportation/Pedestrian and Bicycle Facilities of the Draft IS/EA and in accordance with Caltrans guidance, projects that were initiated prior to December 28, 2018, and have begun the environmental documentation milestone prior to September 15, 2020, can be screened from preparing a VMT assessment. The proposed project meets these requirements as the project was initiated on June 13, 2018 and the environmental phase of the project began on April 15, 2019.

In addition, in accordance with Caltrans requirements, the proposed project was subject to a screening process to determine whether the project could result in significant VMT impacts. The Caltrans screening process is guided by the Governor's Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA, which notes that certain types of projects are not likely to lead to substantial increase in vehicle miles travelled and do not typically need a VMT induced travel. The *VMT Analysis Screening Form* provides a description of the project milestones, project description, purpose and need, and screened out reasoning. Based on the Caltrans *VMT Analysis Screening Form* prepared at the onset of the environmental process, the project was screened out from preparing a VMT assessment for the following reasons:

- The proposed auxiliary lanes for the project are less than one mile in length and are designed to improve roadway safety;
- The project proposes to reconfigure traffic lanes to include turn pockets and does not add new through lanes;
- The project proposes to widen local streets and improve conditions for pedestrians and cyclists;
- The project proposes ramp metering to optimize vehicle flow;
- The project proposes new intersection signalization timing to optimize vehicle flow; and
- The project proposes new sidewalks and bicycle buffer zones on existing streets within the project limits.

Accordingly, Caltrans determined that the project would not likely lead to a substantial increase in VMT and a VMT assessment was determined not to be required. The *VMT Analysis Screening Form* was approved by Caltrans on July 14, 2020.

Response P-8.5

The concern regarding the operational benefits of the proposed bicycle and pedestrian facilities is acknowledged. As discussed Section 2.1.9, Traffic and Transportation/Pedestrian and Bicycle Facilities of the Draft IS/EA, there are currently no designated bicycle facilities on-site. Pedestrian facilities are limited and intermittent within the project limits. Opportunities for safe and efficient travel for bicyclists and pedestrians is limited within the project area and across I-10. Project implementation would improve pedestrian and bicycle movement within the project vicinity by providing new bicycle facilities, where facilities do not currently exist, and improving pedestrian facilities to promote connectivity and mobility for alternative modes of transportation.

As discussed Section 2.1.9 of the Draft IS/EA, Build Alternative 3 (Preferred Alternative) would provide an eight-foot wide sidewalk on the eastbound overcrossing structure to serve both directions of pedestrian travel. East and west of the overcrossing structure, sidewalks would be provided on each side of Cherry Valley Boulevard. Crosswalks would be provided and would connect to the eastbound structure's sidewalk to the sidewalk on both sides of Cherry Valley Boulevard. Right turn pockets would be provided approaching the westbound on-ramp and eastbound on-ramp. These right turn pockets would include a four-foot wide bicycle buffer and bypass the Cherry Boulevard crossovers.

Build Alternative 3 (Preferred Alternative) would result in permanent beneficial impacts to bicycle and pedestrian mobility within the project area, as it would provide non-motorized facilities in areas where limited facilities exist.

Response P-8.6

Class II bike lanes are on-street facilities that share the roadway with vehicles and are considered transportation facilities as opposed to Class I or Class IV bicycle facilities. Class I facilities are trails/paths with exclusive right-of-way for bicyclists and pedestrians, separate from the roadway and motorized vehicles. Class IV bicycle facilities are protected bike lanes/cycle tracks, separated from the roadway and motorized vehicles.

The project proposes Class II bicycle facilities, consistent with the planned bicycle facilities along Roberts Road and Palmer Avenue within the southern portion of the project boundaries. It should be noted that the project is consistent with local/regional planning documents, as Class I/Class IV facilities have not been identified as planned improvements within the project site or surrounding areas within the City or County planning documents (City of Calimesa General Plan, Chapter 3: Transportation and Mobility; Summerwind Ranch Specific Plan, Circulation Plan; and Riverside County General Plan, Circulation Element). As indicated in Response P-8.5 above, fully accessible sidewalks with Americans with Disabilities Act (ADA) compliant curb ramps to accommodate the mobility needs of the non-vehicular public are proposed. The project would also provide standard roadway and crosswalk lighting at the intersections and ramps, and retroreflective signage and pavement markings to maximize nighttime visibility, compliant with Caltrans standards. It is acknowledged that the project does not preclude the ability to add separate bicycle and pedestrian facilities in the future. All recent and applicable standards for Class II bicycle and pedestrian facilities would be utilized during the final design phase, as appropriate.

Response P-8.7

This closing statement is acknowledged. Thank you for your comment and interest in the project.

Page intentionally left blank.

Comment P-9

From: Kristeen Penrod <kristeen@scwildlands.org>
Sent: Monday, January 24, 2022 7:07 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Cc: Cara Lacey <cara.lacey@tnc.org>
Subject: Comments on Proposed Cherry Valley Interchange

P-9.1

We've attached our comments on the proposed Cherry Valley Interchange project. Please let us know if you need any additional information or data.

Respectfully Submitted,
Kristeen Penrod, SC Wildlands
Cara Lacey, The Nature Conservancy

SC Wildlands

The Nature Conservancy
Protecting nature. Preserving life.

January 23, 2022

Shawn Oriaz, Senior Environmental Planner
California Department of Transportation, District 8
464 W. 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401
Sent via email: CherryValleyInterchange@dot.ca.gov

Subject: I-10/Cherry Valley Boulevard Interchange Project Initial Study with (Proposed) Mitigated Negative Declaration/Environmental Assessment

The Nature Conservancy and SC Wildlands thank you for the opportunity to comment on the I-10/Cherry Valley Interchange Project Initial Study with (Proposed) Mitigated Negative Declaration/Environmental Assessment (IS/PMND/EA).

Our organizations have reviewed the IS/PMND/EA and have found significant omissions in the document's analyses of habitat connectivity, and respectfully request an extension so that we may provide a more in-depth review of the project.

Background

SC Wildlands and The Nature Conservancy have been working with the City of Calimesa Planning Director and developers on the El Casco Creek wildlife corridor, which is the **last chance for a coastal sage scrub connection in the San Bernardino-San Jacinto Linkage**, since May of 2021 to explore a successful solution. The El Casco Creek corridor is one of California's most critical wildlife corridors. The El Casco Creek Corridor, if adequately protected (and connected across I-10 with an upgraded crossing structure), would secure a regionally important habitat linkage between the Peninsular Ranges south of Interstate 10 (I-10) and the Transverse, Coast and Sierra Nevada ranges north of I-10. This linkage is a critical connection between Peninsula Ranges of Orange, Riverside and San Diego Counties and the mountain ranges in the rest of the state. The linkage sits at the key transition zone between the South Coast, Mojave, and Sonoran Desert Ecoregions, and is considered a key contact zone for species adaptation and evolution. The San Bernardino to San Jacinto Mountains Linkage is one of 15 "Missing Linkages" identified by the South Coast Missing Linkage Project that, if protected, would secure an interconnected system of protected wildlands from the U.S. - Mexico border to the Sierra Nevada. P-9.2

Given our recent work with the City of Calimesa, SC Wildlands and The Nature Conservancy's comments focus on the potential impacts of the proposed Cherry Boulevard Interchange project on habitat connectivity and wildlife movement corridors and the need to incorporate additional mitigation measures to ensure wildlife movement is protected and improved.

Specific Comments Regarding IS/PMNDC/EA Connectivity Analyses

The intent of CEQA is to provide full disclosure of the potential environmental impacts of a proposed project for public review. The IS/PMND/EA for the I-10/Cherry Boulevard Interchange Project did not sufficiently evaluate potential adverse impacts of the proposed project on habitat connectivity and wildlife movement for native resident or migratory wildlife species, including federally and state listed and candidate species, and established wildlife corridors as required by CEQA.

Page 394 of the IS/PMND/EA includes the following as the full extent of the impact assessment on wildlife movement, which states, "There are no known designated Western Riverside Multiple Species Habitat Conservation Plan (WR-MSHCP) Criteria Cells, habitat linkages, or designated conservation areas within the BSA. Further, wildlife movement within and adjacent to the BSA potentially occurs within the ephemeral drainage features that connect to the surrounding interior areas, foothills, and mountain ranges. The north, east, and western portions of the BSA and surrounding areas consists of relatively undisturbed natural habitats which allows wildlife to move freely across the BSA to surrounding habitats. These areas provide movement opportunities for coyote, bobcat (Lynx rufus) as well as providing suitable nesting/foraging habitat for a variety of seasonal bird species that migrate through the region".

Section 3.2.4 Biological Resources CEQA checklist on page 457 of the IS/PMND/EA asks:

> Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? The "Less than Significant Impact" box was checked.

P-9.2 (Cont.)

Section 3.2.4 Biological Resources CEQA checklist on page 457 of the IS/PMND/EA asks:

> Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife, or NOAA Fisheries? The "Less than Significant Impact" box was checked.

The El Casco Creek corridor requires urgent protection to ensure the long-term genetic viability of mountain lions, a candidate species, in Southern California because the Transverse Range mountain lion population is considered critical to sustaining statewide mountain lion gene flow. This location is currently the only viable connection for mountain lions and other coastal wildlife species between the Transverse and Peninsular Ranges. An onsite biologist with Helix Environmental for the Oak Valley Town Center of Summerwind Ranch indicated that they had recently recorded a mountain lion at the El Casco Creek I-10 undercrossing. If this connection is lost, there could be have far-reaching impacts to the viability of mountains lions in the broader region.

The IS/PMND/EA did not use the latest science to evaluate adverse impacts of the proposed project on wildlife movement and habitat connectivity. The Western Riverside County MSHCP was completed in 2004. Several more recent connectivity models, reports, and plans highlight the importance of this area to wildlife movement including:

- South Coast Missing Linkages A Linkage Design for the San Bernardino-San Jacinto Connection (Penrod et al. 2005) GIS data available on BIOS ds 419; report available at www.scwildlands.org/reports/SCML_SanBernardino_SanJacinto.pdf. Tricia Campbell, Manager of Reserve Management and Monitoring at the Regional Conservation Authority stated at a recent linkage implementation workshop, "The Western Riverside County MSHCP doesn't capture the fine scale data and information as what was provided in the South Coast Missing Linkages", available www.scwildlands.org/reports/GreaterI-10WorkshopSummaryReport_FINAL.pdf.

- Connectivity and Climate Flow from The Nature Conservancy's (2020) Resilient and Connected Network analysis underscores the critical importance of this linkage both today and for climate adaptation. Map viewer and data available at Resilient Land Mapping Tool (tnc.org)
- Climate Resilient Connectivity Prioritized Linkage Network (Jennings et al. 2019), available on Data Basin Climate Resilient Connectivity Prioritized Linkage Network | Data Basin
- Terrestrial Connectivity, Areas of Conservation Emphasis version 3.1 (CDFW 2019; BIOS dataset ds 2734). CDFW compiled and synthesized the best-available spatial information in California on connectivity and wildlife movement into the Terrestrial Connectivity Dataset to better integrate biodiversity conservation with transportation and infrastructure planning. The Terrestrial Connectivity data layer shows the IS/PMND/EA project limits as Connectivity Rank 4 with the immediate adjacent hexagon to the east with Connectivity Rank 5, on a scale of 1-5 with 5 being most important. Map viewer available CDFW ACE 3 (ca.gov) **P-9.2 (Cont.)**

The Terrestrial Connectivity dataset is one of the four key components of CDFW's Areas of Conservation Emphasis (ACE) data visualization platform, along with Terrestrial Biodiversity, Significant Habitats, and Climate Resilience (CDFW 2019). The IS/PMND/EA project limits and surrounding areas are also identified as biologically important, particularly for terrestrial species and habitats, in the following ACE datasets:

- SWAP Terrestrial Targets (CDFW 2015; BIOS dataset ds1966): El Casco Creek to the west and east of I-10 identified as SWAP Terrestrial Target including within the project limits of the IS/PMND/EA to the east of I-10. Map viewer available CDFW ACE 3 (ca.gov)
- Terrestrial Climate Vulnerable Species (BIOS dataset ds 2701) shows the Climate Vulnerable Vertebrate Count in the IS/PMND/EA project limits and surrounding area as the two highest classes. Map viewer available CDFW ACE 3 (ca.gov)
- Terrestrial Significant Habitats Summary (BIOS dataset ds 2721). Map viewer available CDFW ACE 3 (ca.gov)

Furthermore, it is critical that all transportation improvement projects consider vulnerability of the State Highway System (SHS) due to increases in precipitation and wildfire as a result of climate change and incorporate design considerations into transportation projects to ensure resilience of the SHS. El Casco Creek has a history of flooding, most notably in 2009-2010, when flooding in the vicinity of the I-10 culvert resulted in the shutting down of Interstate 10 at this location. The culvert was built in 1938 and is currently undersized for wildlife use (and flood flows, evidently). It is unclear why the El Casco Creek culvert wasn't specifically identified in the Caltrans Adaptation Priorities Report for District 8. However, Chester and Li (2020) identified the El Casco Creek area of the SHS as having a current vulnerability ranking of 4 (i.e., wildfire and likely precipitation likely to trigger debris flow < 20 years) on a scale of 1-7, while the ranking increases from 4-6 for future vulnerability under different climate change scenarios. The Chester and Li (2020) paper is available at Vulnerability of California Roadways to Post-Wildfire Debris Flow (escholarship.org). **P-9.3**

The Nature Conservancy and SC Wildlands are currently working with Chester and Li (2020) on an assessment that looks at the nexus between California roadways that are vulnerable to wildfire debris flows and also important for wildlife movement and habitat connectivity. In fact, at the completion of the project in June 2022, we plan to provide the data and information generated by the project to Caltrans for integration into their transportation planning and asset management.

Finally, the recently released Caltrans' Thirteen Ecoregion Subsections of the Southern California Coast and Southern California Mountains and Valleys Regional Advance Mitigation Needs Assessment ("RAMNA") Version 1.0. Establishing Caltrans' Need for Advance Mitigation for Caltrans District 7 and Surroundings forecast fiscal years 2019/20 to 2028/29 (Caltrans 2021) identifies the San Bernardino-San Jacinto Linkage (Penrod et al. 2005) as a target for advanced mitigation, which includes the IS/PMND/EA project limits.

P-9.3 (Cont.)

In closing, our organizations feel that we have a real opportunity to work with the City of Calimesa, Caltrans and developers in this area to use the best available science to make strides towards positive outcomes that will minimize impacts and enable the creation of wildlife crossings that will allow the region's wildlife to thrive and adapt in this critical linkage between the Transverse and Peninsular Ranges. This is truly a "last chance linkage" of regional importance, and if we work together, we strongly believe that we can bring creative solutions, attention and funding to make it a reality.

P-9.4

Sincerely,

Kristeen Penrod
SC Wildlands

Cara Lacey
The Nature Conservancy

Response to Comment Letter P-9

Kristeen Penrod/Cara Lacey
SC Wildlands/The Nature Conservancy
January 23, 2022

Response P-9.1

This email correspondence provides The Nature Conservancy's comment letter via attachment. Thank you for your comment and interest in the project.

Response P-9.2

The Nature Conservancy's concern for habitat connectivity and wildlife movement for native resident or migratory wildlife species, including federally and State listed species and candidate species, and established wildlife corridors is acknowledged.

As discussed in Section 2.2.1, Hydrology and Floodplain, El Casco Creek is the primary drainage feature within the project area, consisting of an existing unlined natural waterway upstream of Cherry Valley Boulevard. It traverses Cherry Valley Boulevard east of the I-10/Cherry Valley Boulevard overcrossing via an existing reinforced concrete box (RCB) that is 10 feet wide by 9 feet high. This RCB then outlets to an existing concrete lined trapezoidal channel, where El Casco Creek continues to flow northwesterly in between the I-10 westbound on-ramp and Calimesa Boulevard. El Casco Creek then traverses under I-10 via a culvert that includes double RCBs that are each 10 feet wide by 7 feet high. At the outlet of the double RCB culvert crossing at I-10, El Casco Creek returns to an unlined natural waterway where it continues to flow westerly until it confluences with the San Timoteo Creek Reach 3 (Yucaipa Creek to Headwaters) approximately three miles west of the project site.

The reference documents noted within this comment have been reviewed and considered as part of this response. It is acknowledged that the South Coast Missing Linkages Project, dated September 2005, provides comprehensive information prepared by a range of governmental and non-governmental organizations to maintain wildlife connectivity within the South Coast Ecoregion, and specifically the San Bernardino-San Jacinto connection. The South Coast Missing Linkages Project provides landscape permeability analyses, patch size and configuration analyses, and linkage designs focusing on a range of species, including mountain lion. The proposed project site is situated within the westerly portion of the study area, and was identified as having varying ranges of suitability for providing wildlife connectivity for various species.

The Greater I-10 Linkage Implementation Workshop included a number governmental and non-governmental organizations that met virtually on April

19, 20, 27, and 28, 2021. The workshop series focused on implementation of linkages in the Greater Interstate 10 area of Riverside County, including the San Bernardino-San Jacinto Mountains Linkage, the San Bernardino-Little San Bernardino Mountains Linkage, and the Joshua Tree-Chocolate Mountains Linkage. The primary objectives of the workshop were to: 1) engage diverse stakeholders involved in various aspects of linkage implementation, such as wildlife and transportation agencies, land manager and planners, academic and professional scientists, land trusts and conservancies, and conservation organizations; 2) identify specific actions to further connectivity conservation; and 3) begin to develop coordinated strategies to maximize our collective impact for linkage implementation. The project site is located within the San Bernardino-San Jacinto linkage area. El Casco Creek is identified as a “threat/opportunity” area and notes the existing double box culvert beneath I-10.

Additional mapping tools noted by the commenter were also reviewed as part of developing this response.

It is important to note that the existing El Casco Creek culvert at I-10 would not be affected by the proposed project. As noted above, this culvert includes double 10-foot by 7-foot RCBs, and is the largest culvert along El Casco Creek within project limits. However, the proposed project would construct an approximately 62-foot extension of the existing 10-foot by 9-foot RCB beneath Cherry Valley Boulevard to allow for ramp reconfigurations associated with the interchange.

Following circulation of the Draft IS/EA and prior to completion of this Final IS/EA, on January 27, 2022, January 28, 2022, and again on April 19, 2023, the project team consulted with multiple resource agencies (i.e., Carly Beck and Katrina Rehrer with the California Department of Fish and Wildlife [CDFW], and John Taylor with the United States Fish and Wildlife Service [USFWS]) and has prepared a draft Determination of Biologically Equivalent or Superior Preservation (DBESP) to ensure potential adverse effects to riparian/riverine resources along El Casco Creek are minimized and mitigated to reduce impacts to sensitive biological resources, including impacts related to wildlife movement.

Based on these discussions with the resource agencies and DBESP, the project would purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts will be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, will be developed in conjunction with the wildlife agencies. In addition, the project would include a number of enhancements to minimize impacts related to wildlife movement under Cherry Valley Boulevard.

Construction would include the installation of a three-foot-high concrete roadway barrier that would shield headlight and noise intrusion into the culvert. Planting of trees and shrubs would occur along Calimesa Road to further shield headlight and noise from entering the culvert. Revegetation would be installed per Caltrans Standard Specifications Sections 13-05 and 21. Directional fencing will be installed along the existing drainage as needed to guide wildlife to the culvert crossing. CDFW and USFWS concurred with the DBESP findings and mitigation strategy on July 6, 2023. This Final IS/EA has been updated to reflect these project features and measures to avoid, minimize, or mitigate impacts to connectivity.

Response P-9.3

The Nature Conservancy's concern for the project due to increases in flooding and wildfire as a result of climate change is acknowledged. Project impacts related to flooding, wildfire, and climate change are discussed in Sections 2.2.1, Hydrology and Floodplain; 3.3, Wildfire; and 3.4, Climate Change, respectively.

As discussed in Section 2.2.1, the project site is outside of the 0.2 percent annual chance floodplain. Implementation of Build Alternative 3 (Preferred Alternative) would not result in increased risk related to stormwater runoff or drainage. The Local Hydraulic Study (LHS) prepared for the proposed project concluded that Build Alternative 3 (Preferred Alternative) would not introduce significant risk, nor would it result in a localized rise in the water surface elevation at El Casco Creek; refer to Section 2.2.1.

The project would improve an existing interchange, and would not include the extension of new roadways or other infrastructure that would support new development or otherwise increase the risk of upset related to wildfire hazards. In addition, as discussed in Section 3.3, the project would require construction and partial/full right-of-way (ROW) acquisition for the three parcels (APNs 413-270-19, 413-270-20, and 413-270-21) that are located in the "Very High Fire Hazard Severity Zone" for Local Responsibility Area. However, since the land is surrounded by urban development and disturbed graded land that has been prepared for new development, the likelihood of a wildfire resulting from demolition and construction activities is low. Additionally, the project would be subject to adherence to Chapter 33 of the California Fire Code, Fire Safety During Construction and Demolition, which includes safety provisions and precautions to minimize the potential for fires.

As noted in the Draft IS/EA, adverse impacts related to flooding and wildfire would not occur as a result of the project.

Response P-9.4

The closing statement is acknowledged by the project team. Again, thank you for your comment and interest in the project.

Page intentionally left blank.

Comment P-10

From: J.P. Rose <JRose@biologicaldiversity.org>
Sent: Monday, January 24, 2022 7:11 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Subject: Center for Biological Diversity Comments on Interstate 10 Cherry Valley Boulevard Project

Dear California Department of Transportation, **P-10.1**

Attached please find a comment letter from the Center for Biological Diversity regarding the Interstate 10 Cherry Valley Boulevard Project and associated Proposed Mitigated Negative Declaration/Environmental Assessment.

Please confirm that you received this email and the attached letter.

Thank you for your attention to this matter!

J.P. Rose (he/him)
Senior Attorney
CENTER *for* BIOLOGICAL DIVERSITY
660 S. Figueroa Street #1000
Los Angeles, CA 90017
Cell: (408) 497-7675
Office: (213) 785-5406
Twitter: @JPRose5
jrose@biologicaldiversity.org

CENTER for BIOLOGICAL DIVERSITY   Because life is good.

January 24, 2022

Sent via email

California Department of Transportation
Attn: Shawn Oriaz, Senior Environmental Planner
464 West 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401
CherryValleyInterchange@dot.ca.gov

Re: Comments on Interstate 10/Cherry Valley Boulevard Interchange Project and Proposed Mitigated Negative Declaration/Environmental Assessment

Dear California Department of Transportation:

The Center for Biological Diversity ("Center") submits the following comments on the Proposed Mitigated Negative Declaration/Environmental Assessment ("Proposed MND") for the Interstate 10/Cherry Valley Boulevard Interchange Project ("Project"). We share the concerns raised in the letter submitted by SC Wildlands and the Nature Conservancy (the "SC Wildlands/TNC Letter"), particularly regarding potential impacts of the Project on imperiled mountain lions and wildlife connectivity. We urge the California Department of Transportation ("Caltrans") and the City of Calimesa ("City") to extend the review period for the Proposed MND or recirculate the Proposed MND, and also consider preparation of an environmental impact report ("EIR") in order to fully assess and mitigate the impacts of the Project. P-10.2

The Center is a non-profit, public interest environmental organization dedicated to the protection of native species and their habitats through science, policy, and environmental law. The Center has over one million members and online activists throughout California and the United States. The Center has worked for many years to protect imperiled plants and wildlife, open space, air and water quality, and overall quality of life for people in Southern California.

I. The Project Requires Preparation of an Environmental Impact Report.

The California Environmental Quality Act ("CEQA") was enacted for the state to "take all action necessary to protect, rehabilitate, and enhance the environmental quality of the state" and to "[e]nsure that the long-term protection of the environment . . . shall be the guiding criterion in public decisions." (Cal. Pub. Res. Code § 21001.) The CEQA Guidelines state that "CEQA was intended to be interpreted in such a manner as to afford the fullest possible protection to the environment within the reasonable scope of the statutory language," and that "[t]he purpose of CEQA is . . . to compel government at all levels to make decisions with environmental consequences in mind." (Cal. Code Regs. tit. 14, § 15003 [hereinafter Guidelines].)

Only when "there is no substantial evidence in light of the whole record before the public agency that the project . . . may have a significant effect on the environment" may an agency prepare a negative declaration or mitigated negative declaration instead of an EIR. (Cal. Pub. Res. Code § 21064.5; *see also id.* §§ 21064, 21080(c).) A mitigated negative declaration, in particular, is prepared "when the initial study has identified potentially significant effects on the environment, but . . . revisions in the project plans or proposals . . . would avoid the effects or mitigate the effects to a point where clearly no significant effect on the environment would occur" and there is no substantial evidence the project may have a significant effect on the environment. (*Id.* § 20164.5.) If there is substantial evidence that a project may have a significant effect on the environment, an agency must prepare an EIR. *Id.* § 21080(d).

If an agency is presented with so much as "a fair argument that a project may have a significant effect on the environment, the lead agency shall prepare an EIR even though it may also be presented with other substantial evidence that the project will not have a significant effect." (Guidelines § 15064(f)(1); *see also No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 75.) If there is "disagreement among expert opinion supported by facts over the significance of an effect on the environment, the Lead Agency shall treat the effect as significant and shall prepare an EIR." (Guidelines § 15064(g).) **P-10.3**

The CEQA Guidelines provide guidance for determining if a project's effects are significant. Such a determination "calls for careful judgment on the part of the public agency involved, based to the extent possible on scientific and factual data" and a "consider[ation of] the views held by members of the public in all areas affected." (*Id.* § 15064(b)-(c).) The lead agency must consider both direct and indirect physical changes in the environment caused by the project. (*Id.* § 15064(d).) Direct changes include impacts to wildlife, including sensitive species, and indirect changes include, for example, population growth and a resulting increase in air pollution, so long as the changes are reasonably foreseeable. *Id.*

CEQA also requires consideration of cumulative impacts. An EIR is required "if the cumulative impact may be significant and the project's incremental effect, though individually limited, is cumulatively considerable . . . when viewed in connection with the effects of past projects, the effects of other current project, and the effects of probable future projects." (*Id.* § 15064(h)(1).) Cumulatively considerable environmental effects require a mandatory finding of significance. (*Id.* § 15065(a)(3).)

CEQA also has a substantive mandate and requires effective mitigation. "[P]ublic agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects." (Cal. Pub. Res. Code § 21002.) CEQA requires mitigation measures to be "fully enforceable through permit conditions, agreements, or other measures." (*See id.* § 21081.6(b); Guidelines § 15126.4(a)(2).) "Formulation of mitigation measures should not be deferred until some future time." (Guidelines § 15126.4(a)(1)(B).) **P-10.3 (Cont.)**

As outlined below, we are concerned that the Project has the potential to have significant unmitigated and cumulative impacts on imperiled mountain lions and wildlife connectivity, thereby requiring preparation of an EIR and adoption of appropriate mitigation measures.

A. The Project has the potential to significantly impact Southern California mountain lions.

The Proposed MND does not describe or assess the impacts of the Project to mountain lions, a candidate species under the California Endangered Species Act ("CESA"). As a candidate species, mountain lions are afforded the same protections as a listed species under CESA. Moreover, CEQA requires a "mandatory finding of significance" if there is substantial evidence in the record that the Project *may* cause a "wildlife *population* to drop below self-sustaining levels; threaten to eliminate a plant or animal community; substantially reduce the number or restrict the range of an endangered, rare or threatened species . . . ." (Guidelines § 15065a)(1).) This means that "a project is deemed to have a significant impact on the environment as a matter of law if it reduces the habitat of a species, or reduces the number or range of an endangered, rare, or threatened species. . . ." (*Endangered Habitats League, Inc. v. County of Orange* (2005) 131 Cal.App.4th 777, 792 fn. 12 [citing *Defend the Bay v. City of Irvine* (2004) 119 Cal.App.4th 1261, 1273–1274].) Such a finding triggers a duty to consider and adopt all feasible alternatives or mitigation measures to reduce such impacts. (Pub. Res. Code § 21002.) In addition, under CESA, Caltrans may not approve projects that could jeopardize the continued existence of these populations or result in destruction of essential habitat (Fish & Game Code § 2053(a)) and agencies must require that appropriate mitigation measures be implemented for projects that could destroy mountain lion habitat or impair connectivity (Fish & Game Code § 2054). **P-10.4**

Here, there is no analysis or mitigation of impacts to mountain lions in the Proposed MND. As outlined in the SC Wildlands/TNC Letter, the El Casco Creek corridor must be protected to ensure the long-term genetic viability of mountain lions, particularly mountain lions in the Transverse Ranges. The San Gabriel/San Bernardino mountain lion population exhibits low genetic diversity due to limited gene flow between this population and other populations, and this population represents a critical linkage between mountain lion populations in northern, central coast, and southern mountain ranges in California.[1] Impacts of this Project could have far-reaching impacts to the viability of mountains lions in the broader region.

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[1] See Yap TA, Rose J.P., Cummings B (2019) A Petition to List the Southern California/Central Coast Evolutionarily Significant Unit (ESU) of Mountain Lions as Threatened under the California Endangered Species

Caltrans and the City have a duty under both CEQA and CESA to ensure that the Project does not jeopardize the existence of local mountain lion populations, and to consider project alternatives and implement adequate mitigation measures. **P-10.4 (Cont.)**

B. The Project has the potential to significantly impact wildlife connectivity.

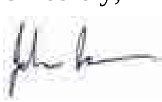
The Proposed MND includes as an adopted threshold of significance whether the Project will "[i]nterfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites . . . ." (Proposed MND at 457.) As outlined in the SC Wildlands/TNC Letter, the El Casco Creek Corridor is the last available coastal sage scrub connection in the San Bernardino-San Jacinto Linkage. The Proposed MND does not appear to adequately analyze or address these impacts. Consistent with CEQA, Caltrans and the City must analyze the direct, indirect, and cumulative impacts of the Project on wildlife connectivity, and consider and adopt appropriate alternatives and/or mitigation strategies. **P-10.5**

II. Conclusion

The potential impacts of the Project on wildlife connectivity and sensitive species such as mountain lions easily meet the standards triggering EIR preparation. At minimum, there is "a fair argument that a project may have a significant effect on the environment … " (*See* Cal. Pub. Res. Code § 21064.5; Guidelines § 15064(f)(1).) Before moving forward with Project, we urge Caltrans and the City to properly analyze and mitigate the Project's environmental impacts consistent with applicable laws and regulations. **P-10.6**

We look forward to working to assure that the Project conforms to the federal and state requirements governing environmental review and that the impacts are adequately analyzed and mitigated or avoided. Please do not hesitate to contact us if you would like to meet to further discuss these issues.

Sincerely,



J.P. Rose
Senior Attorney
Center for Biological Diversity
660 S. Figueroa Street, Suite 1000
Los Angeles, California, 90017
jrose@biologicaldiversity.org

Act (CESA), available at https://www.biologicaldiversity.org/species/mammals/California-mountain-lion/pdfs/CESA-petition-for-Southern-California-Central-Coast-Mountain-Lions.pdf.

Response to Comment Letter P-10

J.P. Rose
Center for Biological Diversity
January 24, 2022

Response P-10.1

This email correspondence provides the Center for Biological Diversity's comment letter via attachment. Thank you for your comment and interest in the project.

Response P-10.2

The Center for Biological Diversity's concern for mountain lions and wildlife connectivity is acknowledged. Thank you for your comment and interest in the project.

Response P-10.3

The cited range of provisions under CEQA, case law, and fair argument standard are acknowledged. Thank you for your comment and interest in the project.

Response P-10.4

The Center for Biological Diversity's concerns related to impacts to Southern California mountain lion and wildlife connectivity are acknowledged. It is important to note that the existing El Casco Creek culvert at I-10 would not be affected by the proposed project. As noted above, this culvert includes double 10-foot by 7-foot RCBs, and is the largest culvert along El Casco Creek within project limits. However, the proposed project would construct an approximately 62-foot extension of the existing 10-foot by 9-foot RCB beneath Cherry Valley Boulevard to allow for ramp reconfigurations associated with the interchange.

Following circulation of the Draft IS/EA and prior to completion of this Final IS/EA, on January 27, 2022, January 28, 2022, and again on April 19, 2023, the project team consulted with multiple resource agencies (i.e., Carly Beck and Katrina Rehrer with the California Department of Fish and Wildlife [CDFW], and John Taylor with the United States Fish and Wildlife Service [USFWS]) and has prepared a draft Determination of Biologically Equivalent or Superior Preservation (DBESP) to ensure potential adverse effects to riparian/riverine resources along El Casco Creek are minimized and mitigated to reduce impacts to sensitive biological resources, including impacts related to wildlife movement.

Based on these discussions with the resource agencies and DBESP, the project would purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts will be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, will be developed in conjunction with the wildlife agencies. In addition, the project would include a number of enhancements to minimize impacts related to wildlife movement under Cherry Valley Boulevard. Construction would include the installation of a three-foot-high concrete roadway barrier that would shield headlight and noise intrusion into the culvert. Planting of trees and shrubs would occur along Calimesa Road to further shield headlight and noise from entering the culvert. Revegetation would be installed per Caltrans Standard Specifications Sections 13-05 and 21. Directional fencing will be installed along the existing drainage as needed to guide wildlife to the culvert crossing. CDFW and USFWS concurred with the DBESP findings and mitigation strategy on July 6, 2023. This Final IS/EA has been updated to reflect these project features and measures to avoid, minimize, or mitigate impacts to connectivity.

Response P-10.5

The Center for Biological Diversity's concerns related to impacts to wildlife connectivity are acknowledged. It is important to note that the existing El Casco Creek culvert at I-10 would not be affected by the proposed project. As noted above, this culvert includes double 10-foot by 7-foot RCBs, and is the largest culvert along El Casco Creek within project limits. However, the proposed project would construct an approximately 62-foot extension of the existing 10-foot by 9-foot RCB beneath Cherry Valley Boulevard to allow for ramp reconfigurations associated with the interchange.

Following circulation of the Draft IS/EA and prior to completion of this Final IS/EA, on January 27, 2022, January 28, 2022, and again on April 19, 2023, the project team consulted with multiple resource agencies (i.e., Carly Beck and Katrina Rehrer with the California Department of Fish and Wildlife [CDFW], and John Taylor with the United States Fish and Wildlife Service [USFWS]) and has prepared a draft Determination of Biologically Equivalent or Superior Preservation (DBESP) to ensure potential adverse effects to riparian/riverine resources along El Casco Creek are minimized and mitigated to reduce impacts to sensitive biological resources, including impacts related to wildlife movement.

Based on these discussions with the resource agencies and DBESP, the project would purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts will be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, will be developed in conjunction with the wildlife agencies. In addition, the project would include a number of enhancements to minimize impacts related to wildlife movement under Cherry Valley Boulevard. Construction would include the installation of a three-foot-high concrete roadway barrier that would shield headlight and noise intrusion into the culvert. Planting of trees and shrubs would occur along Calimesa Road to further shield headlight and noise from entering the culvert. Revegetation would be installed per Caltrans Standard Specifications Sections 13-05 and 21. Directional fencing will be installed along the existing drainage as needed to guide wildlife to the culvert crossing. CDFW and USFWS concurred with the DBESP findings and mitigation strategy on July 6, 2023. This Final IS/EA has been updated to reflect these project features and measures to avoid, minimize, or mitigate impacts to connectivity.

Response P-10.6

The closing statement summarizing the topics of concern is acknowledged. Again, thank you for your comment and interest in the project.

Comment P-11

From: Stephanie DeHerrera <sdeherrera@glaserweil.com>
Sent: Monday, January 24, 2022 1:14 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Cc: Kelly Lucia <klucia@cityofcalimesa.net>; Hunter, John <JHunter@majesticrealty.com>; Elisa Paster <epaster@glaserweil.com>
Subject: Interstate 10 Cherry Valley Boulevard - Majestic Cherry Valley Partners

Mr. Oriaz,

Please find the attached comment letter regarding the initial study with mitigated negative declaration/environmental assessment for the I-10/Cherry Valley Blvd Interchange Project on behalf of our client, Majestic Cherry Valley Partners. This letter has also been sent today via first class mail to the address provided in the notice of availability. **P-11.1**

Thank you very much,

Stephanie

Stephanie DeHerrera | Associate
333 S. Hope St., Suite 2610, Los Angeles, CA 90071
Main: 310.553.3000 | Cell: 714.362.1478 | Fax: 310.843.2651
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January 24, 2022

VIA E-MAIL AND FIRST CLASS MAIL

Shawn Oriaz
Senior Environmental Planner
Caltrans District 8
464 W. 4th Street, 6th floor, MS-827
San Bernardino, CA 92401
CherryValleyInterchange@dot.ca.gov

Re: **Majestic Comments on Interstate 10/ Cherry Valley Blvd Interchange Project - Initial Study with Proposed Mitigated Negative Declaration/ Environmental Assessment**

Dear Mr. Oriaz,

We write this letter on behalf of our client, Majestic Cherry Valley Partners, LLC (“Majestic”), urging Caltrans to reject the adoption of the environmental assessment/ initial study with mitigated negative declaration (together, “MND”) for the Interstate-10 (“I-10”)/ Cherry Valley Boulevard Interchange Project (“Interchange Project”). That an MND is proposed is troubling due to the size and nature of the Interchange Project. As a transportation project it is especially important that the public and decision-makers understand the potential for growth-inducing impacts and impacts related to increased vehicle miles traveled (“VMT”), both of which greatly contribute to greenhouse gas (“GHG”) impacts and are completely absent from the MND. Further, the MND’s GHG analysis is inadequate as it fails to explain how proposed mitigation reduces impacts to a less than significant level. Finally, the MND’s discussion of right-of-way (“ROW”) impacts fails to describe all parcels that will be affected by the Interchange Project. Accordingly, Caltrans should fully analyze all potential impacts and incorporate all feasible mitigation measures, and prepare, circulate and certify a full Environmental Impact Statement (“EIS”)/ Environmental Impact Report (“EIR”) under the National Environmental Policy Act (“NEPA”) and the California Environmental Quality Act (“CEQA”), respectively. P-11.2

I. Background

We understand the City of Calimesa (“City”), together with the County of Riverside (“County”) and Caltrans, proposes the Interchange Project to include upgrades to and reconfiguration of Cherry Valley Boulevard at I-10 and realignment of Calimesa Boulevard. Caltrans, as lead agency under both NEPA and CEQA, prepared the MND, which proposes various mitigation measures and identifies three alternatives to the Interchange Project: a No Build Alternative, a Diverging Diamond Alternative, which was voted by the Calimesa City Council as the Locally Preferred Alternative, and a Partial Clover Alternative. The MND is under public review until January 24, 2022. P-11.2 (Cont.)

II. The MND completely omits analysis of major impact areas.

If a lead agency determines that a proposed project would not have a significant effect on the environment, a negative declaration shall be prepared. Even if potentially significant effects were identified, but either mitigation measures or alternatives to the proposal would reduce such effects to less than significant, a *mitigated* negative declaration may be prepared and circulated to the public per CEQA Guidelines[1] Section 15073.[2] If substantial revisions are made to a negative declaration or mitigated negative declaration after it is publicly circulated but before it is adopted by the lead agency, the document must be recirculated.[3] However, if a fair argument can be made on the basis of substantial evidence in the record that a project may have a significant adverse environmental impact, then a full EIR, the most robust form of CEQA analysis, is required.[4] P-11.3

In preparing the MND, Caltrans has excluded analysis of impact areas most severely affected by this capacity-increasing project. Specifically, the MND is entirely lacking of analysis of potential VMT impacts, in direct contravention of Senate Bill ("SB") 743[5] (2013), the resulting 2018 update to the CEQA Guidelines ("Updated CEQA Guidelines"),[6] the Office of Planning and Research ("OPR") 2018 Technical Advisory on Evaluating Transportation Impacts in CEQA ("OPR Technical Advisory")[7], and Caltrans'

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[1] CEQA Guidelines are located in the California Code of Regulations, 14 C.C.R. 15000, *et seq.*
[2] Pub. Res. Code § 21080(c).
[3] CEQA Guidelines § 15073.5.
[4] Pub. Res. Code § 21080(d); *Laurel Heights Improvement Assoc. v. U.C. Regents* (1993) 47 Cal.4th 376.
[5] The full text of SB 743 is available at https://leginfo.legislature.ca.gov/faces/billTextClient.xhtml?bill_id=201320140SB743 (last accessed 1/19/22).
[6] The full text of the Updated CEQA Guidelines is available at https://resources.ca.gov/CNRALegacyFiles/ceqa/docs/2018_CEQA_FINAL_TEXT_122818.pdf (last accessed 1/19/22).
[7] The full text of the OPR Technical Advisory is available at http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf (last accessed 1/19/22).

2020 Transportation Analysis Under CEQA ("Caltrans TAC")[8]. It also glosses over analysis of growth-inducing impacts, ignoring Caltrans' own criteria for assessing the potential for project-related growth. Accordingly, Caltrans must fully analyze these potential impacts in a new EIS/EIR as opposed to a recirculated MND.

A. The Interchange Project is a capacity-increasing project, and Caltrans must analyze potential VMT impacts.

Beginning July 1, 2020, automobile delay (i.e., level of service ["LOS"]) was replaced by VMT as the metric for analyzing transportation impacts under CEQA. This fundamental shift in transportation analysis was initiated by SB 743, which was enacted by the State Legislature in 2013. SB 743 required that the CEQA Guidelines be updated to reflect the requirement for new VMT metrics.[9] On December 28, 2018 the Updated CEQA Guidelines became effective, incorporating new CEQA Guidelines Section 15064.3, which outlines the requirements of the new VMT analysis. As of July 1, 2020, lead agencies are required to apply VMT instead of LOS metrics as the CEQA threshold for transportation impacts. Yet, the MND violates SB 743 and the CEQA Guidelines by applying the LOS instead of the VMT metrics, and use of the LOS-based threshold is not supported by substantial evidence. Further, despite its use of the LOS-based threshold, CEQA requires that Caltrans consider fair arguments, which are based on substantial evidence, that the Interchange Project would result in potential VMT impacts. **P-11.3 (Cont.)**

Lead agencies have the discretion to adopt standard thresholds of significance under which they analyze CEQA impacts, or they may use thresholds of significance on a case-by-case basis.[10] Significance thresholds must be supported by substantial evidence.[11] Therefore, an agency's use of a significance threshold will be upheld so long as it is supported by substantial evidence. However, this discretion is not unlimited or absolute.[12] Further, compliance with a lead agency's chosen threshold does not

[8] The full text of the TAC is available at https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-09-10-1st-edition-tac-fnl-a11y.pdf (last accessed 1/19/22).
[9] Pub. Res. Code § 21099(b).
[10] CEQA Guidelines 15064.7(b).
[11] *Id.*
[12] *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 893, *as modified on denial of reh'g (Mar. 20, 2020)*.

relieve the lead agency of the obligation to consider substantial evidence indicating that the project's environmental effects may still be significant.[13]

Regarding transportation projects specifically, CEQA Guidelines Section 15064.3 provides clear guidance for lead agencies in choosing thresholds for roadway capacity projects.[14] Indeed, Caltrans has concurred that VMT is the most appropriate measure of transportation impacts under CEQA and committed Caltrans to using VMT analysis in its own roadway capacity projects.[15] The Caltrans TAC states that, "[t]he determination of significance of a VMT impact will require a supporting induced travel analysis for capacity-increasing transportation projects on the [State highway system] when Caltrans is lead agency or when another entity acts as the lead agency."[16] Thus, capacity-increasing transportation projects proposed or reviewed by Caltrans after July 1, 2020 must include a VMT analysis.

In fact, the Interchange Project is precisely the type of project that is expected to create VMT impacts that must be analyzed under CEQA, and there is no substantial evidence that supports the use of a different threshold. The OPR Technical Advisory, released in December 2018, identified project types that would likely lead to measurable and substantial increase in vehicle travel, including, the "[a]ddition of through lanes on existing or new highways, including general purpose lanes, HOV lanes, peak period lanes, auxiliary lanes, or lanes through grade-separated interchanges."[17] The OPR Technical Advisory recommends that, "[i]f a project would likely lead to a measurable and substantial increase in vehicle travel, the lead agency should conduct an analysis assessing the amount of vehicle travel the project will induce."[18] Caltrans explicitly concurs with and incorporates these OPR Technical Advisory recommendations. Under the Caltrans TAC, "[i]f a project increases capacity, it will generally require an analysis to determine if there will be a significant transportation impact caused the increase in VMT attributable to the project."[19] Specifically, the Caltrans TAC requires, "an induced travel analysis…to determine how much of the increase in VMT is attributable to the project (versus other variables such as the

P-11.3
(Cont.)

[13] CEQA Guidelines 15064(b)(2). *See* *Keep Our Mountains Quiet v. County of Santa* Clara (2015) 236 Cal.App.4th 714, 732 (court applied the fair argument standard in holding that the lead agency must analyze noise impacts even though MND shows noise would not exceed chosen thresholds).
[14] CEQA Guidelines § 15064.3(b)(2).
[15] Caltrans, TAC (2020) p. 11.
[16] *Id.*
[17] OPR, Technical Advisory (2018) p. 20.
[18] *Id.*
[19] Caltrans, TAC (2020) p. 12.

economy and population growth), and where impacts are significant, whether mitigation can reduce the impacts to a less than significant impact.[20]

The Interchange Project is undoubtedly a capacity-increasing project that will lead to a measurable and substantial increase in vehicle travel. It includes the widening of Cherry Valley Boulevard and new auxiliary and High Occupancy Vehicle ("HOV") lanes.[21] Thus, according to State law and by Caltrans' own published guidance, it must analyze traffic impacts of the Interchange Project using VMT, not LOS metrics, and there is no rationale for Caltrans' use of LOS. However, contrary to the clear guidance of SB 743, CEQA Guidelines Section 15064.3, and even Caltrans' own guidance, Caltrans completely omitted any analysis of VMT impacts in the MND. The following is the explanation for the glaring omission in full:

> Pursuant to SB 743, Caltrans has developed guidelines and significance thresholds for VMT assessment for transportation projects. However, Caltrans has determined that certain projects initiated prior to December 28, 2018 that have begun the environmental documentation milestone prior to September 15, 2020 can be screened from preparing a VMT assessment. The proposed project meets these requirements, and Caltrans has determined the project would not likely lead to a substantial increase in VMT. Thus, an analysis of VMT is not required, and the use of LOS is used as the metric for this project.[22]

P-11.3 (Cont.)

Caltrans' use of LOS metrics violate CEQA and are not supported by substantial evidence. The proposed threshold is contrary to Caltrans' own policies and those of other agencies with the responsibility to impose such thresholds. Caltrans' explanation in the MND, which simply identifies an arbitrary date, does not comply with CEQA's mandate.

Moreover, a closer analysis of the arbitrary September 15, 2020 date actually demonstrates the irrationality of Caltrans' decision. Caltrans, along with all other lead agencies in California, was made aware of the shift to VMT in 2013 when SB 743 was enacted. In December 2018, long before the environmental review for the Interchange Project began, the CEQA Guidelines were revised to require the use of VMT by July 1, 2020 and statewide guidance was issued. The MND was not even released until December 2021, a year and a half after the VMT requirement became effective and

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[20] *Id.*
[21] MND, Section 1.4.2.
[22] MND, pp. 139 and 492.

three years after the Updated CEQA Guidelines and the OPR Technical Advisory were made available. Similarly, the City released its Notice of Intent to Adopt the MND in December, not earlier. Further, the September 15, 2020 environmental milestone deadline identified in the MND appears to be completely arbitrary as it falls after the July 1, 2020 deadline contained in CEQA Guidelines Section 15064.3. Despite the statement in the MND, the Caltrans TAC contains no screening criteria for, "certain projects initiated prior to December 28, 2018 that have begun the environmental documentation milestone prior to September 15, 2020."

We also note that in the MND text excerpted above, Caltrans also concludes that the Interchange Project would not likely lead to a substantial increase in VMT. However, Caltrans provides no evidence, let alone substantial evidence, that would provide the basis for this conclusion. In fact, as demonstrated above, Caltrans' own guidance clearly identifies capacity-increasing projects like the Interchange Project that add through lanes on existing highways as a project that will lead to measurable and substantial increase in VMT, an environmental impact under CEQA. No matter Caltrans' use of LOS metrics, CEQA requires that Caltrans consider fair arguments, based on substantial evidence, that a VMT impact would be potentially significant. As described above, the OPR Technical Advisory and the Caltrans TAC provide substantial evidence that the Interchange Project would result in a potential VMT impact. P-11.3 (Cont.)

Accordingly, in order to provide full disclosure of environmental impacts to both the public and decision-makers, Caltrans must evaluate the Interchange Project's induced vehicle travel, analyze VMT impacts, and mitigate such impacts to the greatest extent feasible, including considering alternatives that would reduce VMT impacts. The recommendations and guidance provided in the OPR Technical Advisory and the Caltrans TAC constitute a fair argument that the Interchange Project may have a significant adverse environmental impact. Therefore, Caltrans must prepare and circulate for public review a full EIS/EIR.

B. The Interchange Project will induce project-related growth, and Caltrans must analyze potential growth-inducing impacts.

Both CEQA and NEPA require the analysis of growth-inducing impacts.[23] Impacts related to growth are discussed in MND Section 2.1.4, which includes Figure 2.1.4-1 that Caltrans uses to evaluate the risk for project-related growth. According to Figure 2.1.4-1, projects that are at high risk of causing project-related growth are those occurring in the "Urban/Suburban Fringe" where there are, "undeveloped parcels near P-11.4

[23] CEQA Guidelines § 15126.2(e) and 44 C.F.R. § 1508.8.

expanding urban or suburban areas" that are high in consumer demand. Despite this accurate description of the Interchange Project area, the MND concludes that there is a low risk for project-related growth and foregoes analysis of direct and indirect impacts to resources due to such growth.[24] This conclusion flies in the face of Caltrans' own guidance, and thus is not based on substantial evidence, much less a fair argument.

The Interchange Project is crucial to the vast development proposed and planned in the Interchange Project area, without which future development would be stifled. In fact, the Summerwind Ranch and Oak Valley Specific Plan Draft EIR assumes major facility upgrades in order to accommodate the projected growth:

> The City of Calimesa and neighboring jurisdictions are projecting significant construction of homes and industry on vacant land to address jobs/housing balance issues, lack of affordable housing and leverage the lowest interest rates in decades. As a result, major facility improvements will be necessary in advance of 2030.[25]

Specifically, the Summerwind Ranch and Oak Valley Specific Plan Draft EIR concluded that the construction of the I-10/Cherry Valley Interchange improvements is necessary to satisfy 2030 travel demand.[26] This previous analysis demonstrates that without the upgrades proposed as part of the Interchange Project, the projected growth in the area could not be accommodated. Accordingly, although the housing and employment growth is associated with the proposed and planned development in vicinity, the Interchange Project is a crucial prerequisite to accommodating such growth.

Therefore, Caltrans must fully analyze potential indirect and direct impacts on area resources, resulting from project-related growth in a full EIS/EIR.

P-11.4 (Cont.)

III. The GHG analysis is inadequate as it fails to explain how proposed mitigation reduces impacts to less than significant.

CEQA was adopted to provide more meaningful public disclosure of potential environmental effects of agency actions and approvals.[27] To facilitate CEQA's

P-11.5

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[24] MND, p. 105.

[25] Summerwind Ranch at Oak Valley Specific Plan, Draft EIR, p. 3.10-58, available at http://www.cityofcalimesa.net/Forms/Planning%20Docs/Summerwind%20-%20Jan%202005%20Draft%20EIR.pdf (last accessed 1/19/22).

[26] *Id.* at p. 3.10-64.

[27] Pub. Res. Code § 21002.1(e).

informational role, CEQA documents must contain facts and analysis, not just the agency's bare conclusions or opinions.[28] To meet this objective, mitigation measures must include specific performance standards that are needed in order to show that the final mitigation measure is feasible and will be effective.[29]

The MND's GHG impact analysis identifies sixteen Project-Level Greenhouse Gas Reduction Strategies: CC-1 through CC-8 and GHG-1 through GHG-8. However, these Project-Level Greenhouse Gas Reduction Strategies are impermissibly vague and lack enforceable standards. For example, CC-6 requires that the project recycle construction debris as practicable without any quantifiable goal; GHG-6 requires that the project incorporate design measures to reduce GHG emissions from solid waste management through solid waste reduction, recycling, and reuse without even attempting to describe potential design features; and GHG-8 requires that the project use the minimum feasible amount of GHG-emitting construction materials without describing such materials or setting quantifiable goals. These measures are vague and lack any effort to create performance standards, and thus there is no way to understand how they could potentially reduce impacts. The MND baldly concludes the that the sixteen Project-Level Greenhouse Gas Reduction Strategies would reduce GHG emissions to a less than significant level.[30] There is no discussion whatsoever about how the Project-Level Greenhouse Gas Reduction Strategies will reduce GHG impacts, let alone below a significant level.

The MND also fails to provide a substantive analysis of how the Interchange Project complies with applicable plans and policies for the purpose of reducing greenhouse gases. In particular, the MND fails to quantify the extent to which any mitigation complies with such plans and to quantify the reduction in GHG levels.

Therefore, Caltrans must revise the GHG impact analysis and the Project-Level Greenhouse Gas Reduction Strategies in a full EIS/EIR in order to fulfill CEQA's goal of public disclosure.

P-11.5 (Cont.)

IV. Impacts to the Majestic Site is not fully described in the MND.

P-11.6

Majestic owns a 2.14-acre parcel, which will be severely impacted by the Interchange Project, located adjacent to the Interchange Project with frontage along

[28] *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 404–405; *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 526.

[29] *Sacramento Old City Assoc. v. City Council of Sacramento* (1991) 229 Cal. App. 3d 1011.

[30] MND, p. 525.

Roberts Road (APNs 413-270-019 and 413-270-020) ("Majestic Site") in the City. Currently, the Majestic Site only has access to the street system from Roberts Road southeast at the intersection of Roberts Road and Cherry Valley Boulevard. Without the Roberts Road and Cherry Valley Boulevard intersection, the Majestic Site would have no access to the street system. Majestic has proposed a gas station and a drive-through restaurant on the Majestic Site, which would become completely infeasible after the implementation of the Interchange Project. Without street access, the Majestic Site would be deprived of all economic value.

The MND includes analysis of impacts related to temporary and permanent ROW acquisitions.[31] Figures 2.6.1-1 and 2.6.1-2 in the MND show permanent physical encroachments on the Majestic Site to accommodate the Interchange Project ROW. However, Table 2.6.1-2 does not list the Majestic Site as one of the parcels that will be impacted by ROW acquisition.[32] In fact, both the Diverging Diamond and Partial Clover Alternatives would require the permanent physical encroachment of the Majestic Site. Not only is this a physical taking, but the environmental impacts of this physical change have not been fully analyzed in the MND. For example, there is no analysis of how traffic would be rerouted upon the closure of the intersection at Roberts Road and Cherry Valley Boulevard. **P-11.6 (Cont.)**

Further, the MND also states that all nearby properties would maintain their access during construction and operation of the Interchange Project.[33] However, both the Diverging Diamond and the Partial Clover Alternatives would involve the closing of the intersection at Roberts Road and Cherry Valley Boulevard. Thus, not only will the Interchange Project take a portion of the Majestic Site, it will result in depriving the Majestic Site of all access to the street system, draining it of all economic use.

To address ROW-related impacts, the MND includes Mitigation Measure ROW-1, which provides, "Right-of-way shall be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and property owners shall receive just compensation and fair market value for their property."[34] When Caltrans revises the environmental review of the Interchange Project, it must include the Majestic Site in the analysis of impacts related to temporary

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[31] MND, Section 2.1.6.

[32] Note that MND Tables 1-10 and 1-13 do identify the Majestic Site a parcel that will be impacted by ROW acquisition.

[33] MND, p. 116.

[34] MND, p. 121.

Comment P-11

and permanent ROW acquisitions, and mitigation measure ROW-1 must cover the Majestic Site. P-11.6 (Cont.)

For the reasons described herein, the MND fails as an informational document and lacks substantial evidence. Because there is substantial evidence of a fair argument that the Interchange Project will result in a significant impacts, we urge Caltrans to fully analyze all potential impacts and incorporate all feasible mitigation measures and alternatives, and prepare, circulate and certify a full EIS/EIR. P-11.7

Sincerely,

Elisa Paster

ELISA L. PASTER
of GLASER WEIL FINK HOWARD AVCHEN & SHAPIRO LLP

ELP:sd

cc: John Hunter, Majestic Cherry Valley Partners, LLC
Kelly Lucia, City of Calimesa

Response to Comment Letter P-11

Elisa L. Paster
Glaser Weil
January 24, 2022

Response P-11.1

This email correspondence provides the Glaser Weil's comment letter via attachment. Thank you for your comment and interest in the project.

Response P-11.2

The Glaser Weil's concern for right-of-way impacts and greenhouse gas impacts as a result of potential project-related growth-inducing impacts and impacts related to increased vehicle miles traveled ("VMT") is acknowledged. Thank you for your comment and interest in the project.

This comment provides a general summary of the concerns presented in the comment letter and provides background related to the proposed project. This comment is acknowledged by the project team. Please refer to Responses P-11.3 through P-11.6, below, which address each topic of concern.

As stated in Response P-11.4, below, an analysis of project's potential for growth-inducing impacts is provided in Section 2.1.4, Growth (pages 102 through 105), of the Draft IS/EA. Construction activities would not result in long-term changes to growth within in the project vicinity. Although the construction activities for the project would result in an influx of workers to the local area, this influx would be temporary and would cease upon completion of project construction. Operationally, the project improvements would increase local roadway capacity along Cherry Valley Boulevard and provide enhanced connections to I-10 and would subsequently also result in improved accessibility; however, the project would not create new opportunities for access to areas that are not already afforded access under the existing conditions at the interchange. Therefore, while traffic operations at the interchange would be improved with implementation of the project, the project would not substantially change accessibility to adjacent and nearby properties, and would not accelerate or otherwise influence growth beyond what is already planned in the area. Additionally, while growth pressure within the project area is considered high when accounting for existing and planned development, the project is on an existing interstate facility near existing roadways, providing access to existing and already planned development. Consistent with the purpose and need of the project, the project has been designed to accommodate current and projected increases in traffic volumes expected as a result of previously implemented and planned development in the area that is consistent with long-range planning documents, including the General Plans of the City of Calimesa and County of Riverside. This planned growth has already been accounted for and analyzed as part of the City of Calimesa and County of Riverside General Plan EIRs. Therefore, project-related growth is not anticipated as a result of the project.

As noted in Response P-8.4, above, Caltrans provides that projects that were initiated prior to December 28, 2018, and have begun the environmental documentation milestone prior to September 15, 2020, can be screened from preparing a VMT assessment. The proposed project meets these requirements as the project was initiated on June 13, 2018 and the environmental phase of the project began on April 15, 2019.

In addition, in accordance with Caltrans requirements, the proposed project was subject to a screening process to determine whether the project could result in significant VMT impacts. The Caltrans screening process is guided by the Governor’s Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA, which notes that certain types of projects are not likely to lead to substantial increase in vehicle miles travelled and do not typically need a VMT induced travel. The *VMT Analysis Screening Form* provides a description of the project milestones, project description, purpose and need, and screened out reasoning. Based on the Caltrans *VMT Analysis Screening Form* prepared at the onset of the environmental process, the project was screened out from preparing a VMT assessment for the following reasons:

- The proposed auxiliary lanes for the project are less than one mile in length and are designed to improve roadway safety;
- The project proposes to reconfigure traffic lanes to include turn pockets and does not add new through lanes;
- The project proposes to widen local streets and improve conditions for pedestrians and cyclists;
- The project proposes ramp metering to optimize vehicle flow;
- The project proposes new intersection signalization timing to optimize vehicle flow; and
- The project proposes new sidewalks and bicycle buffer zones on existing streets within the project limits.

Accordingly, Caltrans determined that the project would not likely lead to a substantial increase in VMT and a VMT assessment was determined not to be required. The *VMT Analysis Screening Form* was approved by Caltrans on July 14, 2020.

As stated in Response P-11.5, below, Section 3.4, Climate Change, of the Draft IS/EA provides a detailed analysis of potential project impacts related to GHG, federal and State regulations, a description of the existing environmental setting including nationwide and statewide GHG inventories, and areawide/regional planning documents and policies that aim to reduce GHG emissions. Through incorporation of design features and avoidance, minimization, and mitigation measures that promote energy efficiency, encourage alternative modes of transportation, and reduce emissions, the project would be consistent with State and regional legislation and planning documents and policies that focus on reducing GHG, including Assembly Bill 32 (AB 32), Senate Bill 391 (SB 391)/California Transportation Plan, Executive Order S-3-05 (EO S-3-05), and Executive Order S-01-07 (EO S-01-07). Moreover, as shown in Table 3.4-1, Regional and Local Greenhouse Gas Reduction Plan of the Draft IS/EA, the project would be consistent with a range of GHG reduction policies and strategies associated with the Southern California Association of Governments (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), Riverside County General Plan and Climate Action Plan, and Calimesa General Plan/Climate Action Plan.

The California Air Resources Board (CARB) sets regional targets for California's 18 Metropolitan Planning Organizations (MPOs) to use in their Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) to plan future projects that will cumulatively achieve GHG reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. As discussed in the Draft IS/EA, the project is included and is consistent with SCAG's 2020-2045 RTP/SCS (SCAG 2020 as RTP ID RIV060116). Build Alternative 3 (Preferred Alternative) directly support the 2020–2045 RTP/SCS mobility and accessibility performance outcome by reducing vehicle delay and congestion.

Table 3.4-2 of the Draft IS/EA provides information related to operational GHG emissions for various scenarios for both the No-Build and Build Alternatives. As shown in the table, project GHG emissions would increase relative to existing conditions under the Build Alternatives and No-Build Alternative. However, it is important to note that this increase in GHG emissions relative to existing conditions is not due to the proposed project, but rather is associated with new residential and nonresidential developments that would occur in the project vicinity between the existing year (2019) and the project's open to traffic year (2025). This increase in development would cause growth in background traffic volumes and related GHG emissions.

Despite the increase in VMT, Build Alternative 3 (Preferred Alternative) would improve traffic operations and reduce total travel time (VHT) thereby reducing GHG emissions in comparison to the No-Build Alternative. The proposed project would result in beneficial impacts related to congestion that would result from existing and planned development anticipated to occur in the project area. The proposed improvements would result in improvements related to freeway segment and intersection operations. On a system-wide basis, the project would result in substantial improvements in average delay per vehicle, total delay, total travel time, and average speed. Build Alternative

3 (Preferred Alternative) would result in permanent beneficial impacts to bicycle and pedestrian movement within the study area, as it would provide non-motorized facilities in areas where limited facilities exist. Moreover, vehicular emission rates, including GHGs, are anticipated to lessen in future years because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

As noted within the Draft IS/EA, in consideration of the project's consistency with Statewide and regional plans that promote reductions in GHG emissions, and with the numerous avoidance, minimization, and mitigation measures provided within the Draft IS/EA, impacts related to GHG would be less than significant with mitigation.

As stated in Response P-11.6, below, under the proposed project, Build Alternative 3 (Preferred Alternative) would result in permanent right-of-way acquisition of 0.01 acres of APN 413-270-019, and 0.002 acres of permanent right-of-way acquisition for APN 413-270-020. No temporary right-of-way acquisition would apply under Build Alternative 3 (Preferred Alternative). This information has been clarified in the Final IS/EA.

Response P-11.3

The cited range of provisions under CEQA, case law, and fair argument standard are acknowledged. Additionally, Glaser Weil's concern regarding VMT analysis for the project is acknowledged.As noted in Response P-8.4, above, Caltrans provides that projects that were initiated prior to December 28, 2018, and have begun the environmental documentation milestone prior to September 15, 2020, can be screened from preparing a VMT assessment. The proposed project meets these requirements as the project was initiated on June 13, 2018 and the environmental phase of the project began on April 15, 2019.

In addition, in accordance with Caltrans requirements, the proposed project was subject to a screening process to determine whether the project could result in significant VMT impacts. The Caltrans screening process is guided by the Governor's Office of Planning and Research Technical Advisory on Evaluating Transportation Impacts in CEQA, which notes that certain types of projects are not likely to lead to substantial increase in vehicle miles travelled and do not typically need a VMT induced travel. The *VMT Analysis Screening Form* provides a description of the project milestones, project description, purpose and need, and screened out reasoning. Based on the Caltrans *VMT Analysis Screening Form* prepared at the onset of the environmental process, the project was screened out from preparing a VMT assessment for the following reasons:

- The proposed auxiliary lanes for the project are less than one mile in length and are designed to improve roadway safety;

- The project proposes to reconfigure traffic lanes to include turn pockets and does not add new through lanes;
- The project proposes to widen local streets and improve conditions for pedestrians and cyclists;
- The project proposes ramp metering to optimize vehicle flow;
- The project proposes new intersection signalization timing to optimize vehicle flow; and
- The project proposes new sidewalks and bicycle buffer zones on existing streets within the project limits.

Accordingly, Caltrans determined that the project would not likely lead to a substantial increase in VMT and a VMT assessment was determined not to be required. The *VMT Analysis Screening Form* was approved by Caltrans on July 14, 2020.

Response P-11.4

The Glaser Weil's concern for population growth in the project area is acknowledged. An analysis of project's potential for growth-inducing impacts is provided in Section 2.1.4, Growth (pages 102 through 105), of the Draft IS/EA. Construction activities would not result in long-term changes to growth within in the project vicinity. Although the construction activities for the project would result in an influx of workers to the local area, this influx would be temporary and would cease upon completion of project construction. Operationally, the project improvements would increase local roadway capacity along Cherry Valley Boulevard and provide enhanced connections to I-10 and would subsequently also result in improved accessibility; however, the project would not create new opportunities for access to areas that are not already afforded access under the existing conditions at the interchange. Therefore, while traffic operations at the interchange would be improved with implementation of the project, the project would not substantially change accessibility to adjacent and nearby properties, and would not accelerate or otherwise influence growth beyond what is already planned in the area. Additionally, while growth pressure within the project area is considered high when accounting for existing and planned development, the project is on an existing interstate facility near existing roadways, providing access to existing and already planned development. Consistent with the purpose and need of the project, the project has been designed to accommodate current and projected increases in traffic volumes expected as a result of previously implemented and planned development in the area that is consistent with long-range planning documents, including the General Plans of the City of Calimesa and County of Riverside. This planned growth has already been accounted for and analyzed as part of the City of Calimesa and County of Riverside General Plan EIRs. Therefore, project-related growth is not anticipated as a result of the project.

Response P-11.5

The Glaser Weil's concern regarding Greenhouse Gas (GHG) emissions is acknowledged. Section 3.4, Climate Change, of the Draft IS/EA provides a detailed analysis of potential project impacts related to GHG, federal and State regulations, a description of the existing environmental setting including nationwide and statewide GHG inventories, and areawide/regional planning documents and policies that aim to reduce GHG emissions. Through incorporation of design features and avoidance, minimization, and mitigation measures that promote energy efficiency, encourage alternative modes of transportation, and reduce emissions, the project would be consistent with State and regional legislation and planning documents and policies that focus on reducing GHG, including Assembly Bill 32 (AB 32), Senate Bill 391 (SB 391)/California Transportation Plan, Executive Order S-3-05 (EO S-3-05), and Executive Order S-01-07 (EO S-01-07). Moreover, as shown in Table 3.4-1, Regional and Local Greenhouse Gas Reduction Plan of the Draft IS/EA, the project would be consistent with a range of GHG reduction policies and strategies associated with the Southern California Association of Governments (SCAG) 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS), Riverside County General Plan and Climate Action Plan, and Calimesa General Plan/Climate Action Plan.

The California Air Resources Board (CARB) sets regional targets for California's 18 Metropolitan Planning Organizations (MPOs) to use in their Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) to plan future projects that will cumulatively achieve GHG reduction goals. Targets are set at a percent reduction of passenger vehicle GHG emissions per person from 2005 levels. As discussed in the Draft IS/EA, the project is included and is consistent with SCAG's 2020-2045 RTP/SCS (SCAG 2020 as RTP ID RIV060116). The project directly supports the 2020–2045 RTP/SCS mobility and accessibility performance outcome by reducing vehicle delay and congestion.

Table 3.4-2 of the Draft IS/EA provides information related to operational GHG emissions for various scenarios for both the No-Build and Build Alternatives. As shown in the table, project GHG emissions would increase relative to existing conditions under the Build Alternatives and No-Build Alternative. However, it is important to note that this increase in GHG emissions relative to existing conditions is not due to the proposed project, but rather is associated with new residential and nonresidential developments that would occur in the project vicinity between the existing year (2019) and the project's open to traffic year (2025). This increase in development would cause growth in background traffic volumes and related GHG emissions.

Despite the increase in VMT, both Build Alternative 3 (Preferred Alternative) would improve traffic operations and reduce total travel time (VHT) thereby reducing GHG emissions in comparison to the No-Build Alternative. The proposed project would result in beneficial impacts related to congestion that would result from existing and planned development anticipated to occur in the project area. The proposed improvements would result in improvements related to freeway segment and intersection operations. On a system-wide basis, the project would result in substantial improvements in average delay per vehicle, total delay, total travel time, and average speed. The project would result in permanent beneficial impacts to bicycle and pedestrian movement within the study area, as it would provide non-motorized facilities in areas where limited facilities exist. Moreover, vehicular emission rates, including GHGs, are anticipated to lessen in future years because of continuing improvements in engine technology and the retirement of older, higher-emitting vehicles.

As noted within the Draft IS/EA, in consideration of the project's consistency with Statewide and regional plans that promote reductions in GHG emissions, and with the numerous avoidance, minimization, and mitigation measures provided within the Draft IS/EA, impacts related to GHG would be less than significant with mitigation.

<u>Response P-11.6</u>

The commenter states that access to APNs 413-270-019 and 413-270-020 will be "severely impacted" by the proposed project, during construction and upon completion. As stated in the Draft IS/EA, project construction activities under Build Alternatives 3 and 4 would result in temporary impacts to roadways that are typical of a roadway construction zone. Although these impacts would affect those traveling in the community on an intermittent basis during construction, access would be maintained throughout the duration of construction. Temporary impacts in this regard would not be adverse. As to project impacts after construction, Section 2.1.4 of the Draft IS/EA notes that "[T]he project would not substantially change accessibility to adjacent and nearby properties." Accordingly, access to APNs 413-270-019 and 413-270-020 will be maintained.

Under the proposed project, Build Alternative 3 (Preferred Alternative) would result in a potential right-of-way acquisition of 0.01 acres of APN 413-270-019, and 0.002 acres of permanent right-of-way acquisition for APN 413-270-020. No temporary right-of-way acquisition would apply under Build Alternative 3 (Preferred Alternative). This information has been clarified in the Final IS/EA. As discussed in Section 2.1.6, Relocation and Real Property Acquisition, of the Draft IS/EA, Minimization Measure ROW-1 would ensure property owners receive just compensation for any real property interests required for the proposed project under the Uniform Relocation Assistance and Real Property Acquisition. As such, the proposed project would not result in adverse effects in this regard.

Response P-11.7

The conclusion statement is acknowledged. Again, thank you for your comment and interest in the project.

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Comment P-12

From: Monika Justin <mjustin@jrwatson.com>
Sent: Wednesday, January 26, 2022 4:14 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Cc: Ted Stream (ted.stream@streamkim.com) <ted.stream@streamkim.com>; Andrew Walcker <andrew@overlanddevco.com>; Christine Saunders <csaunders@sagecrestplanning.com>; James Watson <jrwatson@jrwatson.com>; Rob McCone <rmccone@jrwatson.com>; kurtmowery@optalytics.com; Monika Justin <mjustin@jrwatson.com>
Subject: Comments on the Interstate 10/Cherry Valley Boulevard Interchange Project Initial Study/Environmental Assessment (IS/EA) (SCH2021120553)

Dear Shawn Oriaz,

Please find attached a letter in regards to the above referenced Cherry Valley Boulevard Interchange Project. I will also Fed/Ex an original letter to you at the following address:

California Department of Transportation
ATTN: Shawn Oriaz, Senior Environmental Planner
464 West 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401

Please let me know next steps in this process and thank you for your help with this matter.

P-12.1

Warmest regards,

Monika

Monika E. Justin
Vice President, Operations

J. R. Watson & Associates Development Corp.
101 Main Street, Suite A
Seal Beach, CA 90740
Office: (562) 430-0503 Cell: (714) 793-3800
MJustin@jrwatson.com

J.R. WATSON & ASSOCIATES DEVELOPMENT CORP.

January 24, 2022

California Department of Transportation
ATTN: Shawn Oriaz, Senior Environmental Planner
464 West 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401
By email: CherryValleyInterchange@dot.ca.gov

James R. Watson and Judy R. Watson
J.R. Watson & Associates Development Corporation
101 Main Street, Suite A
Seal Beach, CA 90740
jrwatson@jrwatson.com

Subject: Comments on the Interstate 10/Cherry Valley Boulevard Interchange Project Initial Study/Environmental Assessment (IS/EA) (SCH2021120553)

Thank you for the opportunity to review and provide comments on the proposed Interstate 10/Cherry Valley Boulevard Interchange Project (Proposed Project) Initial Study/Environmental Assessment (IS/EA).

Impacts to Adjacent Properties

James R. Watson and Judy R. Watson (Property Owners) own APNs 407-230-016 (0.99 acres) and -017 (2.87 acres) in the County of Riverside (Subject Property). The Property Owners have submitted a development application to the County of Riverside (Case Numbers CUP03778R01, TPM37205, CEQ210042, CFW210031) for a 5,378 SF Fast-Food, 12 VFP Convenience Store/Gas Station, and 7,790 SF Strip Retail Plaza on the southeast quadrant of the I-10 West/Cherry Valley Boulevard off-ramp (Owner's Project). Access to the proposed development would be from Cherry Valley Boulevard, east of I-10. This development application was submitted to the County in 2017 and was resubmitted in 2021. However, it is not identified in *Table 2.1.1-3: Planned Projects in the County* or *Figure 2.1.1-2: Planned City and County Projects.*

P-12.2

Comment P-12

The IS/EA identifies two project alternatives, both of which impact the Subject Property as further discussed in this comment letter. The IS/EA only identifies a temporary construction easement in Alternative 3 (Diverging Diamond), and a partial taking in Alternative 4 (Partial Cloverleaf). However, both alternatives would result in access restrictions that would essentially render the Subject Property inaccessible and undevelopable. The proposed realignment of Intersection 7 - Calimesa Boulevard/Cherry Valley Boulevard from its current location to its proposed location to the east would also eliminate the opportunity for safe and efficient signalized access to the Subject Property. **P-12.3**

Request for Additional Alternative to be Studied

The Property Owners respectfully request that Caltrans analyze a hybrid alternative to Alternative 3 and Alternative 4. This hybrid alternative could include the I-10 westbound off-ramp to Cherry Valley Boulevard in generally its configuration as shown in Alternative 3 and realign Calimesa Boulevard in generally its configuration shown in Alternative 4, excepting that it would be located further to the east in order to align its centerline directly across from the property line of APNs 407-230-017 and 407-230-018. This would allow a private shared access driveway to serve both properties. This hybrid alternative would allow a safe and efficient signalized access to the Subject Property and result in less right of way impacts to APN 413-270-015 on the northeast of the realigned Calimesa Boulevard. Maintaining safe access to the Subject Property would allow it, and the surrounding properties, to be developed for their planned commercial use and contribute sales tax revenue, employment, and services to residents of the County of Riverside and City of Calimesa. **P-12.4**

Public Noticing

Pursuant to CEQA Guidelines Section 15072(b), please include the following parties on all future project notices: **P-12.5**

James R. Watson
Chairman & Chief Executive Officer
Watson & Associates
jrwatson@jrwatson.com

Monika E. Justin
Vice President of Operations
Watson & Associates
mjustin@jrwatson.com

Judy R. Watson
Senior Vice President
Watson & Associates
Judy@jrwatson.com

Jan Stachowiak
Chief Financial Officer
Watson & Associates
janstach@jrwatson.com

Robert W. McCone
President, Chief Operations Officer
Watson & Associates
rmccone@jrwatson.com

Kenneth Gertz
General Counsel
Watson & Associates
kgertz@gertzlawfirm.com

Kurt Mowery
Financial Consultant
Watson & Associates
kurtmowery@optalytics.com

Theodore Stream
Shareholder & CEO
Stream Kim Hicks Wrage & Alfaro, PC
3403 Tenth Street, Suite 700
Riverside CA, 92501
ted.stream@streamkim.com

The Public Notice provided for the Proposed Project identifies Caltrans as the Lead Agency but does not provide any information regarding when or where the public hearing would occur when the Lead Agency would "give environmental approval" and appropriate funding for the Proposed Project. Please provide this information, pursuant to CEQA Guidelines Section 15074(b) in all subsequent notices. The property owners reserve the right to provide additional public comment on any topic analyzed in the IS/EA up to and including the public hearing at which time the decision-making body considers the IS/EA for adoption. **P-12.5 (Cont.)**

The IS/EA fails to disclose all discretionary actions required by the Lead Agency, Caltrans, and Responsible Agencies – the City of Calimesa and the Riverside County Transportation Department. Any additional subsequent discretionary actions by any other public agency should be disclosed.

Public Comment Period

The public comment period for the IS/EA is from December 23, 2021, through January 24, 2022. Releasing a CEQA/NEPA document for public review the day before the Christmas and New Year's holiday, while many people were out of the office on vacation and/or struggling with the recent Omnicron Covid variant, does not provide the public with adequate time to review and comment on the IS/EA and could be perceived as rushing this project through the review process. Many members of the public affected by the Proposed Project likely did not receive the notice until on or after January 4, 2022. **P-12.6**

The IS/EA does not include the technical studies listed in Appendix F, and the Project's website[1] does not include links to the technical studies. Therefore, meaningful review of the impacts of the Proposed Project by the public is not possible, and the IS/EA should be recirculated pursuant to CEQA Guidelines Section 15073.5 with full disclosure of the Proposed Project's potential impacts.

[1] https://rcprojects.org/cherryvalley (Accessed January 24, 2022)

Comment P-12

Inadequate Disclosure and Analysis of Permanent Right of Way Impacts

Chapter 2.1.1: Land Use identifies its primary source as the Community Impact Assessment Memorandum (CIA Memorandum), January 26, 2021. This document is not included in an appendix or on the Project website. The IS/EA should be recirculated with a complete set of appendices available for public review pursuant to CEQA Guidelines Section 15073.5.

Figure 1-4d: Build Alternative 3 (Diverging Diamond) (Page 45), *Table 1-10: Potential Permanent Right-of-Way Acquisitions – Build Alternative 3* (Page 65), and *Appendix C, Table C-2: Potential Permanent ROW Acquisitions and Relocations* identifies only Temporary Construction Easements for APNs 407-230-016 and -017 in Alternative 3. Corresponding figures and tables for Alternative 4 show only partial/temporary ROW impacts. However, the access limitations to the Subject Property effectively results in an inverse condemnation of these parcels. The IS/EA should study and disclose both direct property acquisition and access restrictions that would render any affected parcel inaccessible and result in a full taking. Table C-2 references a Relocation Impact Memorandum by Michael Baker International, July 2020, as its source. This document is not included in an appendix or on the Project website. The IS/EA should be recirculated with a complete set of appendices available for public review pursuant to CEQA Guidelines Section 15073.5. P-12.7

Figure 1-5d: Build Alternative 4 (Partial Cloverleaf) (Page 57) shows the incorrect improvement. However, the alignment of the on and off ramps with the intersection of a realigned Calimesa Boulevard would fully take APN 407-230-017, it would almost fully take APN 407-230-016 and preclude commercial access to any remaining property. This action would also effectively result in an inverse condemnation of both parcels and restrict the Property Owner from developing the planned commercial use on the Subject Property and contribute sales tax revenue, employment, and services to residents of the County of Riverside and City of Calimesa.

Inadequate Analysis of Transportation Impacts

The Project Description and subsequent analysis in the transportation section of the document is deficient in disclosing and analyzing the required local land use and circulation plan action(s) by the City of Calimesa, a Responsible Agency, in order to implement the Proposed Project.

Chapter 2.1.9: Traffic and Transportation/Pedestrian and Bicycle Facilities and *Chapter 3.2.17: Transportation* reference the I-10 Cherry Valley Boulevard Interchange Project Approval and Environmental Document Traffic Operations Analysis Report (TOAR), November 2020, however, this document was not made available for public review and a complete analysis was not possible during the public comment period. The IS/EA should be recirculated with a complete set of appendices available for public review pursuant to CEQA Guidelines Section 15073.5. P-12.8

Chapter 3.2.17: Transportation (a) and (c) (Page 493) erroneously concludes that there would be No Impact to the circulation system or hazards with the assertion, without substantial evidence, that "The project would result in beneficial impacts related to traffic congestion, connectivity, and mobility in the project area, and would provide new pedestrian and bicyclist facilities where limited facilities currently exist. The project would also be subject to Caltrans review for consistency with safety standards (such as the Highway Design Manual) to ensure that no hazardous design features would occur. As such, no impacts would occur in this regard." In fact, associated impacts of the Proposed Project to the Subject Property would occur. The Proposed Project would have detrimental impacts to the Subject Property's connectivity to the circulation system, and implementation of safety standards in the Highway Design Manual could result in the elimination of safe vehicular access to the Subject Property. The IS/EA should analyze and disclose how implementation of Caltrans safety standards, i.e., the Highway Design Manual, would affect safe and efficient access to all affected properties in the Study Area. **P-12.8 (Cont.)**

Incomplete Disclosure of Cumulative Projects

As previously mentioned, the Property Owners have submitted a development application to the County of Riverside to develop the Subject Property with a commercial use, consistent with the existing land use designation and zoning, that would be accessed from Cherry Valley Boulevard. The Owner's Project is not identified in the IS/EA. Conversely, Projects 12 and 13 on *Figure 2.1.1-2: Planned City and County Projects* (Page 84) are shown as being on the Subject Property, when they are not.

Figure 2.1.1-1: General Plan Land Use Designations (Page 82) shows approximately 229 acres in the County of Riverside (inclusive of approximately 16 acres in Calimesa) that was approved in May 2020 for Light Industrial Uses associated with the San Gorgonio Crossings Project. This project will result in the construction of approximately 1.8 million square feet of warehouse uses, identified as Project 9 in *Figure 2.1.1-2: Planned City and County Projects* (Page 84). **P-12.9**

The developer of the San Gorgonio Crossing Project was conditioned to make improvements to the existing intersection of Calimesa Boulevard, Cherry Valley Boulevard, and the I-10 on- and off-ramps. *Chapter 2.1.9: Traffic and Transportation/Pedestrian and Bicycle Facilities* (Page 137) does not identify these planned improvements located within the Study Area. The County of Riverside is currently processing *Signing and Striping Plans for Cherry Valley Boulevard Parcel Map 36564* (County File No. 969-SS) and *Street Improvement Plans for Cherry Valley Boulevard – I-10 Interchange PP 25337* that affect the operations of Cherry Valley Boulevard and the Westbound on/off ramps in the Project Area. The No-Build Alternative Opening Year (2025) (Page 156) states that it assumes that the ramp intersections are signalized as an interim improvement, but this is the only mention of this non-specific assumption.

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These planned improvements do not seem to have been included in the Opening Year No Project – Opening Year (2025) scenario and may result in an overstatement of traffic improvements of the Proposed Project from existing conditions in the No Project alternative. However, complete comments on the traffic improvements are not possible as the TOAR was not released for public review and comment. The IS/EA should be recirculated with a complete set of appendices available for public review pursuant to CEQA Guidelines Section 15073.5. P-12.9 (Cont.)

Inadequate Analysis of Impacts to Land Use and Planning

Chapter 2.1.1: Land Use (Page 81) incorrectly characterizes commercially zoned properties as "open space", when in fact, these are vacant commercial properties.

Table 2.1.1-4: Consistency with State, Regional, and Local Plans and Programs (Page 89) determines that Alternative 3 and Alternative 4 would be consistent with the City of Calimesa General Plan, and *Chapter 3.2.17: Transportation (a) and (c)* concludes that the Proposed Project would not conflict with a program, plan, ordinance, or policy addressing the circulation system. These determinations are erroneous. Calimesa Boulevard is identified as a Major Arterial in the City of Calimesa General Plan Circulation Element (Figure TM-1: Circulation Map)[2]. The proposed realignment of Calimesa Boulevard changes the access to surrounding properties and should be identified and analyzed as an amendment to the City' s General Plan, pursuant to the City's Zoning Code Section 18.05.040 (B)[3]. As such, the Proposed Project would be subject to the noticing and consultation requirements of all applicable regulations concerning General Plan Amendments, i.e., SB18 and would require approval of a legislative action by the City of Calimesa City Council. P-12.10

The land area of APNs 413-270-004, 413-270-014, and 413-270-015 are designated as Regional Commercial (C-R) land use with Regional Commercial (C-R) zoning in the City of Calimesa General Plan Land Use Map[4]. The realignment of Calimesa Boulevard bisects these APNs and effectively precludes viable commercial development, resulting in inverse condemnation that is not identified in on *Figure 2.1.6-1: Build Alternative 3 Potential ROW Acquisition Map* (Page 117), *Figure 2.1.6-2: Build Alternative 4 Potential ROW Acquisition Map* (Page 118), and *Table 2.1.6-2: Potential Permanent ROW Acquisitions and Relocations* (Page 120). Removing this site acreage from productive commercial use would restrict the property owners from developing their properties with the allowable commercial uses, which would contribute sales tax revenue, employment, and services to residents of the County of Riverside and City of Calimesa.

The Project Description fails to disclose any discretionary actions to vacate the current alignment of Calimesa Boulevard and the subsequent assignment of a land use designation and zone of the underlying land area. The Project Description fails to disclose and analyze

[2] http://www.cityofcalimesa.net/Forms/Calimesa%20General%20Plan.pdf
[3] https://www.codepublishing.com/CA/Calimesa/#!/Calimesa18/Calimesa1805.html#18.05.040
[4] http://www.cityofcalimesa.net/Forms/GPA%20LUP%20063020.pdf

Comment P-12

construction activities to remediate the land area of the existing Calimesa Boulevard to return the land to a productive land use consistent with the Regional Commercial Zone. The Project Description fails to disclose the land use, zoning, and property ownership implications of vacating the existing alignment of Calimesa Boulevard.

The land area of APNs 407-230-016 and -017 are designated as Commercial Retail (CR) land use with Scenic Highway Commercial (C-P-S) zoning in the County of Riverside General Plan Land Use Map. The Land Use and Traffic/Transportation sections should analyze the access implications of implementing Caltrans design standards as discussed in *Chapter 3.2.17: Transportation (a) and (c)* (Page 493). Alternative 3 would change the proposed signalized intersection of Cherry Valley Boulevard to the I-10 Westbound on and off ramps (improvements part of the San Gorgonio Crossings Project) to unsignalized movements and change the I-10 westbound off-ramp to a free right (eastbound) fronting the Subject Property on Cherry Valley Boulevard. The combined frontage on Cherry Valley Boulevard of these two parcels is approximately 525 feet. The Caltrans preferred intersection spacing of a minimum of 500 feet from the off ramp would preclude access from the Subject Property to the public right of way with a signalized intersection. P-12.10 (Cont.)

Chapter 3.2.11: Land Use and Planning (Page 483) identifies no impacts to land use and planning. The analysis was based on the Community Impact Assessment (CIA) Memorandum (January 2021), which was not made available for public review and comment. This determination is erroneous and requires significant additional analysis as the realignment of Calimesa Boulevard is not consistent with the City's General Plan Circulation Element, Land Use Plan, and Zoning Code. The land use analysis should also include a discussion of the applicability and consistency with the Subdivision Map Act for the affected parcels. The IS/EA should be recirculated with a complete set of appendices available for public review pursuant to CEQA Guidelines Section 15073.5.

Lack of Details in the Project Description

Section 1.3: Project Description does not include sufficient quantifiable and measurable information about the Proposed Project in either text or figure format. For example, the Project Description does not include information regarding acreage/square footage of disturbed land, volume of earthwork required, linear feet or square footage of roadway, sidewalks, and bike lanes affected, height of any retaining walls or sound walls, dimensions of project features i.e., lane widths and distances between driveways, transitions, and intersections. These details are necessary to determine the impacts of the Proposed Project on most impact categories. The Project Description should be more robust to include this type of information in both text and figures in order to adequately analyze and disclose the impacts of the Proposed Project. P-12.11

Comment P-12

Conclusion

Thank you again for the opportunity to review and comment on the Interstate 10/Cherry Valley Boulevard Interchange Project Initial Study/Environmental Assessment (IS/EA). We respectfully request the following:

- Analyze a hybrid alternative of Alternatives 3 and 4 that would maintain vehicular access to the Subject Property;
- Provide a complete analysis of impacts of the Proposed Project as outlined in this letter;
- Release the technical studies in Appendix F, and any other supporting documentation referenced as a Source in the IS/EA, for public review and comment; and
- Recirculate the IS/EA for public review and comment pursuant to CEQA Guidelines Section 15073.5.

P-12.12

Sincerely,

James R. Watson

James R. Watson
Chairman & Chief Executive Officer
Watson & Associates

Judy R Watson

Judy R. Watson
Senior Vice President
Watson & Associates

Response to Comment Letter P-12

James R. Watson and Judy R. Watson
J.R. Watson & Associates Development Corp.
January 26, 2022

Response P-12.1

This email correspondence provides the J.R. Watson & Associates Development Corporation's (Watson) comment letter via attachment. Thank you for your comment and interest in the project.

Response P-12.2

The Watson's concern regarding the future planned project at Assessor Parcel Numbers (APNs) 407-230-016, 407-230-17 is acknowledged. Tables 2.1.1-2 and 2.1.1-3 and Figure 2.1.1-2 of the Draft IS/EA show the approved planned development projects within the project area. Information for planned projects within the County of Riverside was based on a list of cumulative projects provided by County staff on May 20, 2020. The commenter's planned fast-food restaurant, convenience store/gas station, and retail plaza was not included within the information provided by the County. Development applications are submitted and withdrawn frequently, and the information regarding planned projects provided in the Draft IS/EA is based on the information that was available to the City of Calimesa and the County of Riverside and provided to the project team at the time of initiation of environmental studies. As such, the City and County projects included in the Draft IS/EA are considered a sufficient basis for analysis provided within the environmental document.

Response P-12.3

Build Alternative 3 (Preferred Alternative) would result in temporary right-of-way acquisition (temporary construction easements [TCEs]) of APN 407-230-016 (0.06 acres) and APN 407-230-017 (0.13 acres); no permanent right-of-way would occur for these properties with implementation of Build Alternative 3 (Preferred Alternative). Realignment of Calimesa Boulevard under Build Alternative 3 (Preferred Alternative) may also affect access to these properties.

The Watson's concerns regarding right-of-way acquisition and access are acknowledged. Coordination of both temporary and permanent right-of-way impacts would occur during the PS&E/right-of-way appraisal and acquisition phase of the project, and additional consultation and coordination with affected property owners would occur. During construction associated with Build Alternative 3 (Preferred Alternative), access to APNs 407-230-016 and 407-230-017 would be maintained to the greatest extent possible and would be further defined during the PS&E phase. As discussed in Section 2.1.6, Relocation and Real Property Acquisition, of the Draft IS/EA, Minimization Measure ROW-1 would ensure property owners receive just compensation and fair market value for their property under the Uniform Relocation Assistance and Real Property Acquisition.

Response P-12.4

The realignment location of a "hybrid alternative" as proposed by the Watson's has been reviewed and considered; however, the hybrid alternative would introduce a Caltrans non-standard design feature for intersection spacing, increase congestion, and increase right-of-way impacts as compared to Build Alternative 3 (Preferred Alternative)4. Caltrans requires a minimum distance (curb return to curb return) of 500 feet between ramp intersections and local road intersections. Additionally, the non-standard intersection spacing could result in increased congestion along Cherry Valley Boulevard, which would not meet the purpose and need of the project to improve mobility and congestion. Lastly, the proposed hybrid alternative would result in increased right-of-way impacts (full acquisition of APN 413-270-014). Accordingly, the proposed hybrid alternative would not meet the purpose and need of the project.

Response P-12.5

The Watson's concerns regarding public noticing and discloser of discretionary actions required for the project are acknowledged. Permits, licenses, agreements, and certifications required for the project are discussed in Table 1-17 of the Draft IS/EA, which describes the various permits and approvals required for the project. A Public Notice for the project was circulated to the public, noting availability of the Draft IS/EA for public review between December 23, 2021, and January 24, 2022 and extended until February 14, 2022. The Public Notice was also available for review on the Riverside County Transportation Department website, the City of Calimesa website, and California Office of Planning Research/State Clearinghouse, and was published in the following local newspapers: La Prensa, Press Enterprise, and Yucaipa News Mirror. The Public Notice notified the public of the Draft IS/EA availability for public review, and where to review the document. The Public Notice also included the date, time, and means of participating in the public hearing for the proposed project, which was held on January 13, 2022 at 5:00 PM. The contact information for various interested parties provided by the commenter has been added to Chapter 6 of this Final IS/EA.

Response P-12.6

The Watson's concerns regarding public review period of the Draft IS/EA and review of the supporting technical studies are acknowledged. In accordance with federal and State environmental requirements, the Draft IS/EA was subject to a 30-day public review period from December 23, 2021 through January 24, 2022. As a means of providing ample opportunity for agencies, interested parties, and members of the community to review and provide comments on the document, the public review end date was extended from January 24, 2022, to February 14, 2022. Notification of the public review extension was provided to the commenter, the County of Riverside's website, and the State Clearinghouse website. Additionally, page 2 of the Draft IS/EA lists the locations in which the technical studies that were used as supporting documentation in the preparation of this IS/EA are available for review. The technical studies have been provided to those of whom have requested them, including this commenter.

Response P-12.7

The Watson's concerns regarding review of the supporting technical studies are acknowledged. As stated in Response P-12.6, above, all technical studies prepared for the project have been provided to the commenter. Concerns regarding permanent access restrictions and right-of-way acquisitions are acknowledged by the project team. Build Alternative 3 (Preferred Alternative) would result in temporary right-of-way acquisition (temporary construction easements [TCEs]) of APN 407-230-016 (0.06 acres) and APN 407-230-017 (0.13 acres); no permanent right-of-way would occur for these properties with implementation of Build Alternative 3 (Preferred Alternative). Realignment of Calimesa Boulevard under Build Alternative 3 (Preferred Alternative) may also affect access to these properties.

Coordination of both temporary and permanent right-of-way impacts would occur during the PS&E/right-of-way appraisal and acquisition phase of the project, and additional consultation and coordination with affected property owners would occur. During construction associated with Build Alternative 3 (Preferred Alternative), access to APNs 407-230-016 and 407-230-017 would be maintained to the greatest extent possible and would be further defined during the PS&E phase. As discussed in Section 2.1.6, Relocation and Real Property Acquisition, of the Draft IS/EA, Minimization Measure ROW-1 would ensure property owners receive just compensation and fair market value for their property under the Uniform Relocation Assistance and Real Property Acquisition. As such, the proposed project would not result in significantly adverse effects to the access to the properties of concern.

It should be noted that Figure 1-4d is not intended to demonstrate the project's right-of-way impacts; it is intended to demonstrate the design features of the project. Figures 2.1.6-1 and 2.1.6-2 of the Draft IS/EA show project right-of-way impacts. As shown on Figure 2.1.6-1, Build Alternative 3 (Preferred Alternative) would result in partial TCE right-of-way acquisitions to APNs 407-230-016 and 407-230-017. As noted above, implementation of Minimization Measure ROW-1 would ensure that the property owners of both parcels would receive compensation and fair market value for their property.

Response P-12.8

The Watson's concerns regarding review of the supporting technical studies are acknowledged. As discussed in Response P-12.6 and P-12.7, all technical studies prepared for the project were provided to the commenter prior to the conclusion of public review.

As discussed in Section 2.1.9, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the Draft IS/EA, which is based on the TOAR prepared for the project, Build Alternative 3 (Preferred Alternative) would result in substantive benefits related to level of service, queuing, traffic delay, and total travel time under the Opening Year (2025) and Design Year (2045) scenarios for the proposed project. Although the commenter is concerned regarding access and right-of-way impacts to the two parcels under their ownership, these parcel-specific issues are not indicative of the systemwide transportation benefits that are clearly described in the Draft IS/EA.

The project would not result in design hazards, such as, but not limited to, sharp turns or reduced line of sight within the project boundaries. As discussed in Response P-12.7, the project would result in temporary and permanent right-of-way impacts to APNs 407-230-016 and 407-230-017. Right-of-way and community impacts are discussed in Draft IS/EA Sections 2.1.1, Land Use, 2.1.5, Community Character and Cohesion, 2.1.6, Relocations and Real Property Acquisition, and 2.1.7, Environmental Justice, among others. Build Alternative 3 (Preferred Alternative) would result in temporary partial TCEs to APNs 407-230-016 and 407-230-017 and would not preclude access to these properties. Implementation of Minimization Measure ROW-1 would ensure that the property owners of both parcels would receive compensation and fair market value for their property.

Response P-12.9

The Watson's concern regarding the future planned project at Assessor Parcel Numbers (APNs) 407-230-016, 407-230-17 is acknowledged. Tables 2.1.1-2 and 2.1.1-3 and Figure 2.1.1-2 of the Draft IS/EA show the approved planned development projects within the project area. Information for planned projects within the County of Riverside was based on a list of cumulative projects provided by County staff on May 20, 2020. The commenter's planned fast-food restaurant, convenience store/gas station, and retail plaza was not included within the information provided by the County. Development applications are submitted and withdrawn frequently, and the information regarding planned projects provided in the Draft IS/EA is based on the information that was available to the City of Calimesa and the County of Riverside and provided to the project team at the time of initiation of environmental studies. As such, the City and County projects included in the Draft IS/EA are considered a sufficient basis for analysis provided within the environmental document. Due to the scale of the graphic provided on Figure 2.1.1-2 in the Draft IS/EA, the locations of planned projects are approximate, and it is acknowledged that Projects 12 and 13 are not situated on APNs 407-230-016, 407-230-17.

Section 2.1.9, Traffic and Transportation/Pedestrian and Bicycle Facilities, is based on the TOAR and the methodology subsection of Section 2.1.9 clearly indicates the planned transportation improvements in the project area that were included in the future year roadway network for the analysis. The Riverside County Traffic Analysis Model (RIVTAM) was used to develop volumes for the project. The RIVTAM model is based upon regional information and data provided by the Southern California Association of Governments (SCAG) and Western Riverside Council of Governments (WRCOG). Given the regional focus of the model, the range of planned transportation improvements included in the future year roadway network were projects in the vicinity that were identified in the Regional Transportation Plan (RTP) that would have the potential to influence traffic patterns on a regional basis. These included four projects from the RTP that include improvements along Cherry Valley Boulevard, Singleton Road, Oak Valley Parkway, and I-10 (truck climbing lane).

<u>Response P-12.10</u>

The Watson’s concern regarding the land use analysis is acknowledged. Based on the Calimesa 2014 General Plan, Figure LU-1, Land Use Map, existing land uses are predominately commercial ("Regional Commercial," "Community Commercial," and "Commercial Neighborhood") (the Riverside County Land Use Map adds "Commercial Retail") and residential ("Residential Low Medium" and "Open Space Residential") (the Riverside County Land Use Map adds "Very Low Density Residential"), and a small portion is designated "Business Park" and "Office-Professional." The Final IS/EA had been updated accordingly.

As noted in the Draft IS/EA, the City’s Circulation Map identifies Calimesa Boulevard as a Major Arterial. The roadway classification of Major Arterial would not change as part of the proposed project, and the capacity of the roadway would not be altered. While the project proposes a minor realignment of Calimesa Boulevard, this realignment would occur at the southerly terminus of the roadway (at its intersection with Cherry Valley Boulevard) and would not have the potential to substantially affect or alter circulation in the project in and of itself. As such, the project is considered consistent with the City’s General Plan. Additional coordination regarding right-of-way acquisition and property access will occur during the PS&E phase.

Right-of-way impacts related to APNs 413-270-004, 413-270-014, and 413-270-015 are analyzed in detail in the Draft IS/EA, and within the Relocation Impact Memorandum prepared for the project. As discussed in Section 2.1.6, Relocation and Real Property Acquisition, of the Draft IS/EA, Minimization Measure ROW-1 would ensure property owners receive just compensation and fair market value for their property under the Uniform Relocation Assistance and Real Property Acquisition. As such, the proposed project would not result in adverse effects in this regard.

Concerns regarding discretionary actions to vacate the current alignment of Calimesa Boulevard are acknowledged; however, while the realignment of Calimesa Boulevard would result in the vacation of the existing alignment, a reuse of the existing alignment is not proposed nor is it required for the proposed project to be implemented. Should a secondary use arise that is proposed within or surrounding the existing alignment to be vacated, potential environmental impacts of said use would be evaluated at that time as part of a separate environmental document.

Realignment of Calimesa Boulevard under Build Alternative 3 (Preferred Alternative) may affect access to APNs 407-230-016 and 407-230-017. Coordination of both temporary and permanent right-of-way impacts would occur during the PS&E/right-of-way appraisal and acquisition phase of the project, and additional consultation and coordination with affected property owners would occur. During construction associated with Build Alternative 3 (Preferred Alternative), access to APNs 407-230-016 and 407-230-017 would be maintained to the greatest extent possible and would be further defined during the PS&E phase. Minimization Measure ROW-1 would ensure property owners receive just compensation and fair market value for their property under the Uniform Relocation Assistance and Real Property Acquisition.

Response P-12.11

The Watson’s concern regarding the level of detail of Section 1.3, Project Description, of the Draft IS/EA is acknowledged. Sections 1.3 and 1.4 of the Draft IS/EA provide text, tables, and graphics that provide an adequate description of the proposed project. Subsections 1.4.2, Common Design Features of the Build Alternatives, and 1.4.3, Unique Features of Build Alternatives, of the Draft IS/EA note the common and unique features of Build Alternative 3 (Preferred Alternative)4, with additional subsections describing utility relocations, construction phasing/timing, geometric features, ADA features, bridge structure, temporary/permanent right-of-way acquisition, and non-standard design features. Table 1-15 of the Draft IS/EA provides a comparison of each project alternative regarding project design and environmental impacts. Additionally, Figures 1-4a through 1-4e and 1-5a through 1-5e of the Draft IS/EA show the proposed roadway geometry and improvements under Build Alternative 3 (Preferred Alternative) 4. These figures also include a key map and four “zoomed in” plan sheets for Build Alternative 3 (Preferred Alternative) to ensure that project improvements are clearly depicted. Additional detail is provided throughout Chapters 2 and 3 of the Draft IS/EA to support impact conclusions, as needed. As discussed above, Tables 2.1.6-1 and 2.1.6-2 provide the total acreages of temporary and permanent right-of-way impacts under Build Alternative 3 (Preferred Alternative). The height of all proposed soundwalls under Build Alternative 3 (Preferred Alternative) are discussed in Section 2.2.7, Noise and Vibration, of the Draft IS/EA (refer to Tables 2.2.7-12 through 2.2.7-25). Additionally, the linear feet of the existing I-10/ Cherry Valley Boulevard Overcrossing is provided in Section 3.4.3, Project Analysis of the Draft IS/EA.

Response P-12.12

The concluding statement is acknowledged. Again, thank you for your comment and interest in the project.

Comment P-13

From: Kristeen Penrod <kristeen@scwildlands.org>
Sent: Monday, February 14, 2022 1:35 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Cc: Cara Lacey <cara.lacey@tnc.org>; Trish Smith <trish_smith@tnc.org>
Subject: Cherry Valley Interchange Comment Letter

Many thanks for the opportunity to review the draft environmental documents for the proposed Cherry Valley Interchange Project. Please confirm receipt of our attached comment letter. **P-13.1**

Respectfully Submitted,

Kristeen Penrod, SC Wildlands
Cara Lacey, The Nature Conservancy
Kristeen Penrod, Director
SC Wildlands
www.scwildlands.org
Direct 626-497-6492

SC Wildlands

The Nature Conservancy
Protecting nature. Preserving life.

February 14, 2022

Shawn Oriaz, Senior Environmental Planner
California Department of Transportation, District 8
464 W. 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401
Sent via email: CherryValleyInterchange@dot.ca.gov

Subject: I-10/Cherry Valley Boulevard Interchange Project Initial Study with (Proposed) Mitigated Negative Declaration/Environmental Assessment

SC Wildlands and The Nature Conservancy thank you for the opportunity to comment on the I-10/Cherry Valley Interchange Project Initial Study with (Proposed) Mitigated Negative Declaration/Environmental Assessment (IS/PMND/EA).

Our organizations have reviewed the IS/PMND/EA and have found significant omissions in the document's analyses of habitat connectivity, and respectfully submit this amended letter to our previous submission on January 23, 2022.

Background

SC Wildlands and The Nature Conservancy have been working with the City of Calimesa Planning Director and developers on the El Casco Creek/Cherry Valley wildlife corridor, which is the **last chance for a coastal sage scrub connection in the San Bernardino-San Jacinto Linkage**, since May of 2021 to explore a successful solution. The El Casco Creek corridor is one of California's most critical wildlife corridors. The El Casco Creek Corridor, if adequately protected (and connected across I-10 with an upgraded crossing structure), would secure a regionally important habitat linkage between the Peninsular Ranges south of Interstate 10 (I-10) and the Transverse, Coast and Sierra Nevada ranges north of I-10. This linkage is a critical connection between Peninsula Ranges of Orange, Riverside and San Diego Counties and the mountain ranges in the rest of the state. The linkage sits at the key transition zone between the South Coast, Mojave, and Sonoran Desert Ecoregions, and is considered a key contact zone for species adaptation and evolution. The San Bernardino to San Jacinto Mountains Linkage is one of 15 "Missing Linkages" identified by the South Coast Missing Linkage Project that, if protected, would secure an interconnected system of protected wildlands from the U.S. - Mexico border to the Sierra Nevada. P-13.2

Given our recent work with the City of Calimesa, SC Wildlands and The Nature Conservancy's comments focus on the potential impacts of the proposed Cherry Boulevard Interchange project on habitat connectivity and wildlife movement corridors and the need to incorporate additional mitigation measures to ensure wildlife movement is protected and improved.

Specific Comments Regarding IS/PMNDC/EA Connectivity Analyses

The intent of CEQA is to provide full disclosure of the potential environmental impacts of a proposed project for public review. The IS/PMND/EA for the I-10/Cherry Boulevard Interchange Project did not sufficiently evaluate potential adverse impacts of the proposed project on habitat connectivity and wildlife movement for native resident or migratory wildlife species, including federally and state listed and candidate species, and established wildlife corridors as required by CEQA. P-13.2 (Cont.)

Page 390 of the IS/PMMND/EA includes a figure, Figure 2.3.1-2: "Vegetation Communities and Other Land Uses." This map is inaccurate as it portrays the area east of I-10 and north of Cherry Valley Boulevard (e.g., the Price Property) as developed, when in fact it is only partially and should be depicted as disturbed habitat. This map and the associated calculations must be corrected as it makes the biological picture appear differently than it actually is on the ground today.

Page 394 of the IS/PMND/EA includes the following as the full extent of the impact assessment on wildlife movement, which states, "There are no known designated Western Riverside Multiple Species Habitat Conservation Plan (WR-MSHCP) Criteria Cells, habitat linkages, or designated conservation areas within the BSA. Further, wildlife movement within and adjacent to the BSA potentially occurs within the ephemeral drainage features that connect to the surrounding interior areas, foothills, and mountain ranges. The north, east, and western portions of the BSA and surrounding areas consists of relatively undisturbed natural habitats which allows wildlife to move freely across the BSA to surrounding habitats. These areas provide movement opportunities for coyote, bobcat (Lynx rufus) as well as providing suitable nesting/foraging habitat for a variety of seasonal bird species that migrate through the region".

Section 3.2.4 Biological Resources CEQA checklist on page 457 of the IS/PMND/EA asks:

> Would the project conflict with any local policies or ordinances protecting biological resources such as a tree preservation policy or ordinance? The "Less than Significant Impact" box was checked.

Section 3.2.4 Biological Resources CEQA checklist on page 457 of the IS/PMND/EA asks: P-13.3

> Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites? The "Less than Significant Impact" box was checked.

Section 3.2.4 Biological Resources CEQA checklist on page 457 of the IS/PMND/EA asks:

> Would the project conflict with a Habitat Conservation Plan, Natural Communities Conservation Plan or other approved local, regional, or state habitat conservation plan?

Section 3.2.4 Biological Resources CEQA checklist on page 457 of the IS/PMND/EA asks:

> Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife, U.S. Fish and Wildlife, or NOAA Fisheries? The "Less than Significant Impact" box was checked.

Comment P-13

The El Casco Creek corridor requires urgent protection to ensure the long-term genetic viability of multiple species in southern California, particularly for mountain lions, because the Transverse Range mountain lion sub population is considered critical to sustaining statewide mountain lion gene flow (Gustafson et al, 2022) https://onlinelibrary.wiley.com/doi/epdf/10.1111/eva.13341. The El Casco Creek Corridor is currently the only viable connection for mountain lions and other coastal wildlife species between the Transverse and Peninsular Ranges. An onsite biologist with Helix Environmental for the Oak Valley Town Center indicated that they had recently recorded a mountain lion at the El Casco Creek I-10 undercrossing. If this connection is lost, there could be far-reaching impacts to the viability of mountains lions in southern California and the broader region.

Furthermore, in April 2020, the CDFW Commission found that listing of the mountain lion may be warranted and designated mountain lion in southern California as a candidate species. As a result, CDFW is now completing a status review of mountain lions within the proposed. At the end of the review, CDFW will make its recommendation on listing to the Commission. **Under CESA, species classified as a candidate species are afforded the same protection as listed species. As a result, mountain lions in this proposed area are CESA-protected during the review period.** The mountain lion is not reviewed as a protected species within the IS/PMND/EA and therefore, due to changed conditions, this species must be evaluated within the Cherry Valley IS/PMND/EA, and its connectivity considered as well as mitigated within the proposed alternatives. It is possible that if Caltrans, the City of Calimesa, Wildlife Agencies and partner NGOs work together, we may find that incorporation of a wildlife crossing – one that could address species movement along with addressing highway vulnerability to heavy precipitation and flood flows – could mitigate the significant impacts to mountain lions and other wildlife. This would ensure better compliance with CESA and the Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP).

P-13.3 (Cont.)

The IS/PMND/EA did not use the latest science to evaluate adverse impacts of the proposed project on wildlife movement and habitat connectivity. The Western Riverside County MSHCP was completed in 2004. The MSHCP includes the mountain lion as a covered species. The El Casco Creek is essential for implementing the MSHCP, since the MSHCP-planned linkage to the north (Linkage #23/Garden Air Wash) has been developed east of I-10. It appears that Caltrans also did not follow the WRCMSHCP Permittee Implementation Guidance Manual – as permittees are still required to follow the Implementation Guidance Manual even if impacted areas are outside of criteria cells.

Below we also list conservation plans in which this linkage is designated as a wildlife movement corridor. Several more recent connectivity models, reports, and plans highlight the importance of this area to wildlife movement including:

- South Coast Missing Linkages A Linkage Design for the San Bernardino-San Jacinto Connection (Penrod et al. 2005) GIS data available on BIOS ds 419; report available at www.scwildlands.org/reports/SCML_SanBernardino_SanJacinto.pdf. Tricia Campbell, Manager of Reserve Management and Monitoring at the Regional Conservation Authority stated at a recent linkage implementation workshop, “The Western Riverside County MSHCP doesn’t capture the fine scale data and information as what was provided in the South Coast Missing Linkages”, available www.scwildlands.org/reports/GreaterI-10WorkshopSummaryReport_FINAL.pdf.
- Connectivity and Climate Flow from The Nature Conservancy’s (2020) Resilient and Connected Network analysis underscores the critical importance of this linkage both today and for climate adaptation. Map viewer and data available at Resilient Land Mapping Tool (tnc.org)

P-13.4

- Climate Resilient Connectivity Prioritized Linkage Network (Jennings et al. 2019), available on Data Basin Climate Resilient Connectivity Prioritized Linkage Network | Data Basin
- Terrestrial Connectivity, Areas of Conservation Emphasis version 3.1 (CDFW 2019; BIOS dataset ds 2734). CDFW compiled and synthesized the best-available spatial information in California on connectivity and wildlife movement into the Terrestrial Connectivity Dataset to better integrate biodiversity conservation with transportation and infrastructure planning. The Terrestrial Connectivity data layer shows the IS/PMND/EA project limits as Connectivity Rank 4 with the immediate adjacent hexagon to the east with Connectivity Rank 5, on a scale of 1-5 with 5 being most important. Map viewer available CDFW ACE 3 (ca.gov)

The Terrestrial Connectivity dataset is one of the four key components of CDFW's Areas of Conservation Emphasis (ACE) data visualization platform, along with Terrestrial Biodiversity, Significant Habitats, and Climate Resilience (CDFW 2019). The IS/PMND/EA project limits and surrounding areas are also identified as biologically important, particularly for terrestrial species and habitats, in the following ACE datasets:

- SWAP Terrestrial Targets (CDFW 2015; BIOS dataset ds1966): El Casco Creek to the west and east of I-10 identified as SWAP Terrestrial Target including within the project limits of the IS/PMND/EA to the east of I-10. Map viewer available CDFW ACE 3 (ca.gov)
- Terrestrial Climate Vulnerable Species (BIOS dataset ds 2701) shows the Climate Vulnerable Vertebrate Count in the IS/PMND/EA project limits and surrounding area as the two highest classes. Map viewer available CDFW ACE 3 (ca.gov)
- Terrestrial Significant Habitats Summary (BIOS dataset ds 2721). Map viewer available CDFW ACE 3 (ca.gov)

P-13.4 (Cont.)

Furthermore, it is critical that all transportation improvement projects consider vulnerability and resilience of the State Highway System (SHS) to increased precipitation and wildfire due to climate change. El Casco Creek has a history of flooding, most notably in 2009-2010, when flooding in the vicinity of the I-10 culvert resulted in the closure of Interstate 10 at this location. The culvert was built in 1938 and is currently undersized for wildlife use (and flood flows, evidently). It is unclear why the El Casco Creek culvert wasn't specifically identified in the Caltrans Adaptation Priorities Report for District 8. However, Chester and Li (2020) identified the El Casco Creek area of the SHS as having a current vulnerability ranking of 4 (i.e., wildfire and likely precipitation likely to trigger debris flow < 20 years) on a scale of 1-7, while the ranking increases from 4-6 for future vulnerability under different climate change scenarios. The Chester and Li (2020) paper is available at Vulnerability of California Roadways to Post-Wildfire Debris Flow (escholarship.org).

The Nature Conservancy and SC Wildlands are currently working with Chester and Li (2020) on an assessment that looks at the nexus between California roadways that are vulnerable to wildfire debris flows and also important for wildlife movement and habitat connectivity. In fact, at the completion of the project in June 2022, we plan to provide the data and information generated by the project to Caltrans for integration into their transportation planning and asset management.

Finally, the recently released Caltrans' Thirteen Ecoregion Subsections of the Southern California Coast and Southern California Mountains and Valleys Regional Advance Mitigation Needs Assessment ("RAMNA") Version 1.0. Establishing Caltrans' Need for Advance Mitigation for Caltrans District 7 and Surroundings forecast fiscal years 2019/20 to 2028/29 (Caltrans 2021) identifies the San Bernardino-San

P-13.5

Jacinto Linkage (Penrod et al. 2005) as a target for advanced mitigation, which includes the IS/PMND/EA project limits.

Papers and reports referenced herein have been posted to a Dropbox folder entitled Cherry Valley Interchange for your convenience, which can be accessed at the following link: https://www.dropbox.com/sh/v8hd53gfv27ddfg/AACTPiRPbfBdv8lxkSsJ3dOZa?dl=0. Please confirm that you were able to access and retrieve this information, which are included as part of our comments. P-13.5 (Cont.)

In closing, our organizations feel that we have a real opportunity to work with the City of Calimesa, Caltrans and developers in this area to use the best available science to make strides towards positive outcomes that will minimize impacts and enable the creation of wildlife crossings that will allow the region's wildlife to thrive and adapt in this critical linkage between the Transverse and Peninsular Ranges. This is truly a "last chance linkage" of regional importance, and if we work together, we strongly believe that we can bring creative solutions, attention and funding to make it a reality. P-13.6

Sincerely,

Kristeen Penrod
SC Wildlands

Cara Lacey
The Nature Conservancy

Comment P-13

Greater I-10 Linkage Implementation Workshop

Held Virtually April 19, 20, 27, 28, 2021 **P-13.7**

Greater I-10 Linkage Implementation Workshop Planning Team ("Planning Team") Many thanks to the Planning Team, which engaged in all aspects of planning and design of the workshop. The Planning Team includes:
Caltrans District 8: Scott Quinnell, Nancy Frost, and Luz Quinnell
Coachella Valley Conservation Commission: Katie Barrows and Kathleen Brundige
Western Riverside County Regional Conservation Authority: Tricia Campbell and Elizabeth Dione
The Nature Conservancy: Trish Smith, Charlotte Stanley, and Cara Lacey
Science & Collaboration for Connected Wildlands: Kristeen Penrod

Cover Photo: Janvier 2017

This workshop and summary report were made possible through the generous support of The Nature Conservancy.

P-13.7
(Cont.)

Suggested Citation: Penrod, K., T. Smith, C. Stanley, and C. Lacey. 2021. Greater I-10 Linkage Implementation Workshop Summary Report. Prepared by Science & Collaboration for Connected Wildlands and The Nature Conservancy. 89 pp. plus appendices.

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Figure 12. Joshua Tree-Chocolate Mountains Linkage Needs, Threats & Opportunities

Appendix A. Workshop Recordings

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1. Background

This workshop series focused on implementation of linkages in the Greater Interstate 10 (I-10) area of Riverside County, including the San Bernardino - San Jacinto Mountains Linkage, the San Bernardino - Little San Bernardino Mountains Linkage, and the Joshua Tree - Chocolate Mountains Linkage (Figure 1). The San Bernardino-San Jacinto and San Bernardino-Little San Bernardino linkage designs were both completed in 2005 as part of the South Coast Missing Linkages effort (Penrod et al. 2005a,b, Beier et al. 2006), while the Joshua Tree-Chocolate Mountains connection was completed in 2012 as part of A Linkage Network for the California Deserts (Penrod et al. 2012). While several years have passed since these linkage designs were developed, other more recent connectivity and climate assessments have reinforced the landscape level importance and continued permeability of these linkages. These critical linkages are important to maintain and restore habitat connectivity between existing reserves and allow natural ecological processes—such as migration and range shifts with climate change--to continue operating as they have for millennia.

South Coast Missing Linkages was a highly collaborative inter-agency effort to identify and conserve the highest priority linkages associated with the South Coast Ecoregion, including connections to adjacent ecoregions. The effort engaged diverse stakeholders (270 participants from 126 agencies and organizations) from the inception through a series of habitat connectivity workshops to lay the biological foundation for designing the linkages. The primary purpose of those workshops was to select focal species that are sensitive to habitat loss and fragmentation, but another essential goal of the workshops was to generate momentum and enthusiasm among participants for implementing the resulting linkage designs. The linkages were designed based on the habitat and movement needs of 109 focal species across the 15 priority linkages, including 26 plants, 25 insects, 4 fish, 5 amphibians, 12 reptiles, 20 birds and 17 mammals. These focal species cover a broad range of habitat and movement requirements such that planning adequate linkages for their needs is expected to cover connectivity needs for the ecosystems they represent. The South Coast Missing Linkages are widely considered the backbone of a regional conservation strategy for southern California (Figure 2), stitching together over 18 million acres of existing conservation lands, and maintaining connected wildlife populations from Baja California Norte to the southern Sierra Nevada, and from the beaches of Camp Pendleton eastward to the deserts of Anza-Borrego Desert State Park. **P-13.7 (Cont.)**

The primary goal of A Linkage Network for the California Deserts (Penrod et al. 2012) was to identify areas where maintenance or restoration of ecological connectivity is essential for conserving the unique biological diversity of California's deserts. The effort engaged 60 participants from over 30 agencies and organizations. The Desert Linkage Network (Penrod et al. 2012) was developed, in part, based on the habitat and movement requirements of 44 different focal species that are sensitive to habitat loss and fragmentation across the 22 priority linkages, including 12 mammals, 8 birds, 10 herpetofauna, 9 plants, and 5 invertebrates. These 44 focal species capture a diversity of movement needs and ecological requirements and include area-sensitive species, barrier-sensitive species, less mobile species or corridor-dwellers, habitat specialists, and ecological indicator species. These focal species were selected to represent a diversity of interactions and are intended to serve as an umbrella for all native species and ecological processes of interest in the region. In addition to linkages designed for focal species, the Desert Linkage Network also used the land facet approach (Brost and Beier 2010) to design climate-robust linkages. The focal species linkages and land facet linkages were combined and then refined (e.g., adding riparian connections, removing redundant strands) to delineate the final Desert Linkage Network (Figure 3) that was intended to provide information concerning where and how to maintain connectivity and sustain ecological functions in a changing climate.

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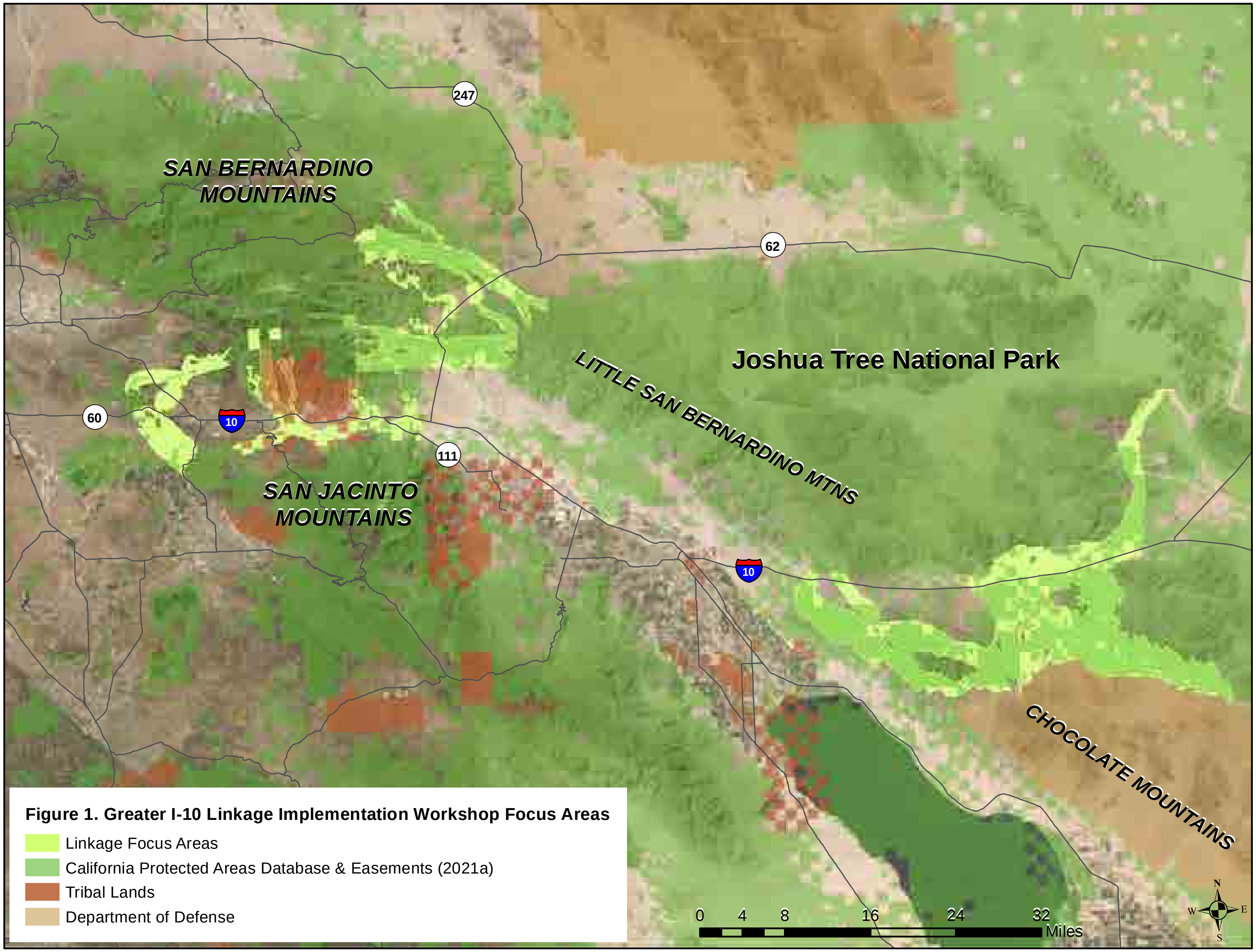

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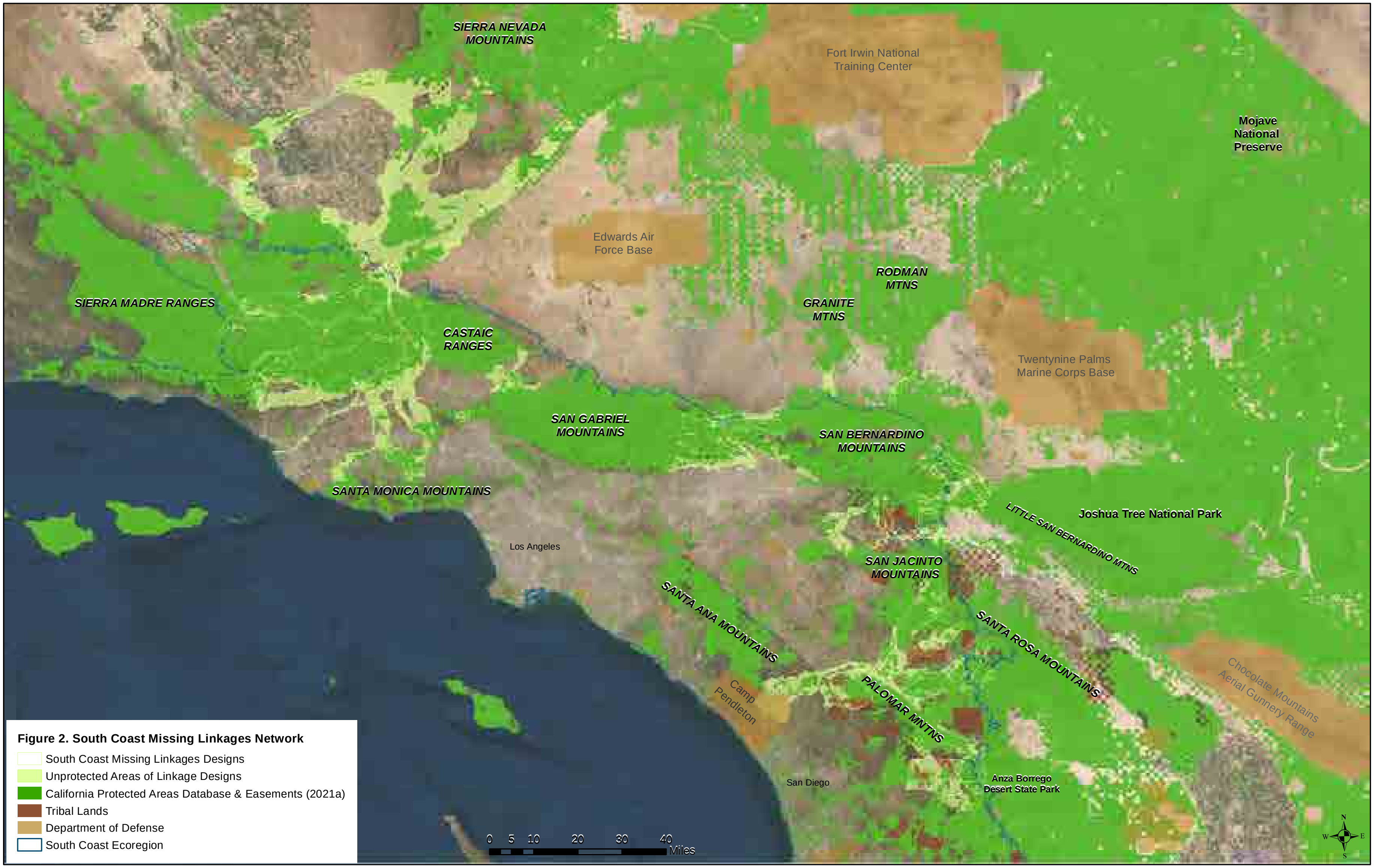

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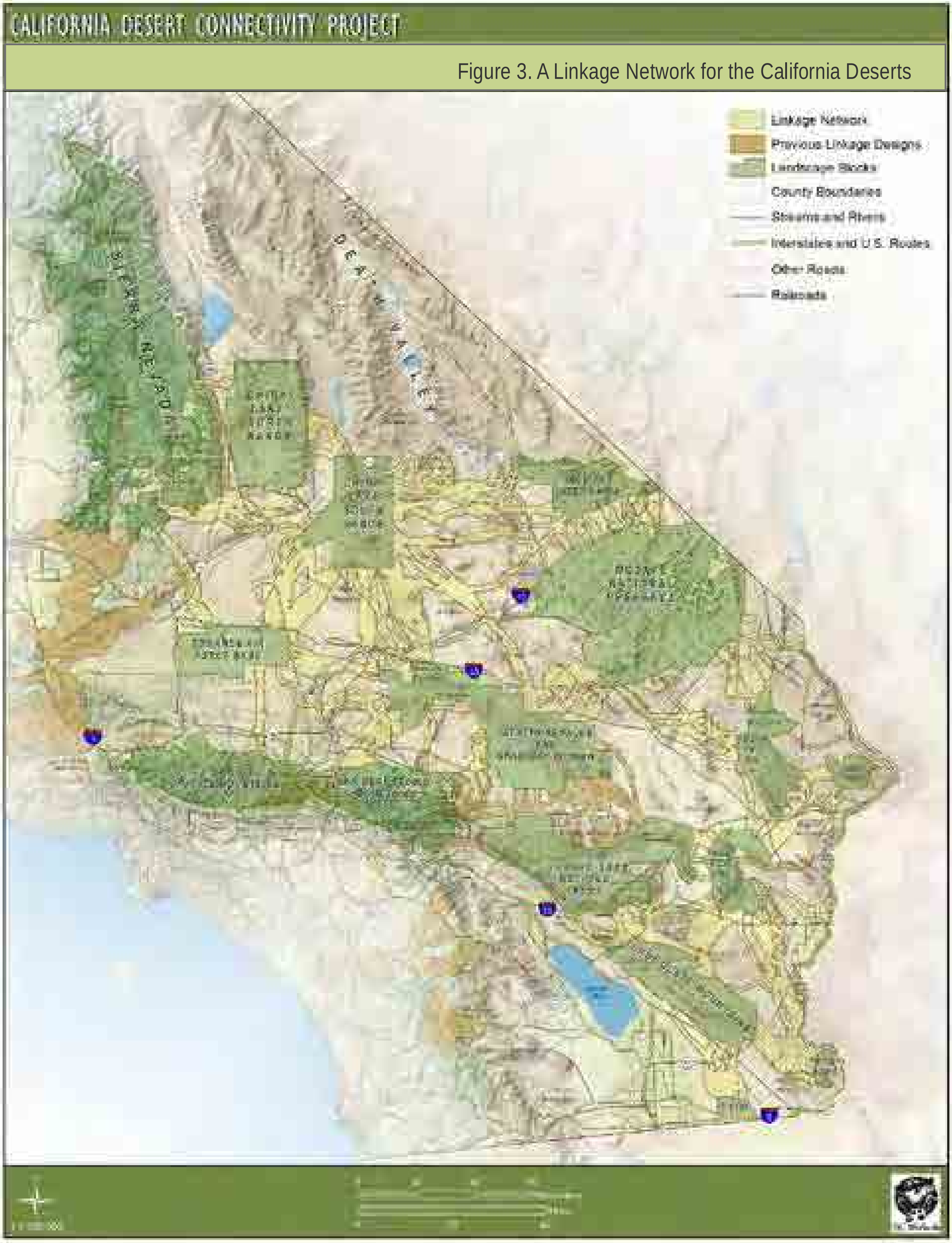

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The Nature Conservancy's Connectivity and Climate Flow (2020) captured all three of the linkages the workshop focused on and underscores the critical importance of these linkages both today and for climate adaptation (Figure 4). The Resilient and Connected Network analysis (The Nature Conservancy 2020) quantifies the importance of an area by measuring how much flow passes through it and how concentrated that flow is. The four prevalent flow types identified each suggest a different conservation strategy:

Diffuse flow: areas that are extremely intact and consequently facilitate high levels of dispersed flow that spreads out to follow many different and alternative pathways. A conservation aim might be to keep these areas intact and prevent the flow from becoming concentrated. This might be achievable through land management or broad-scale conservation easements.

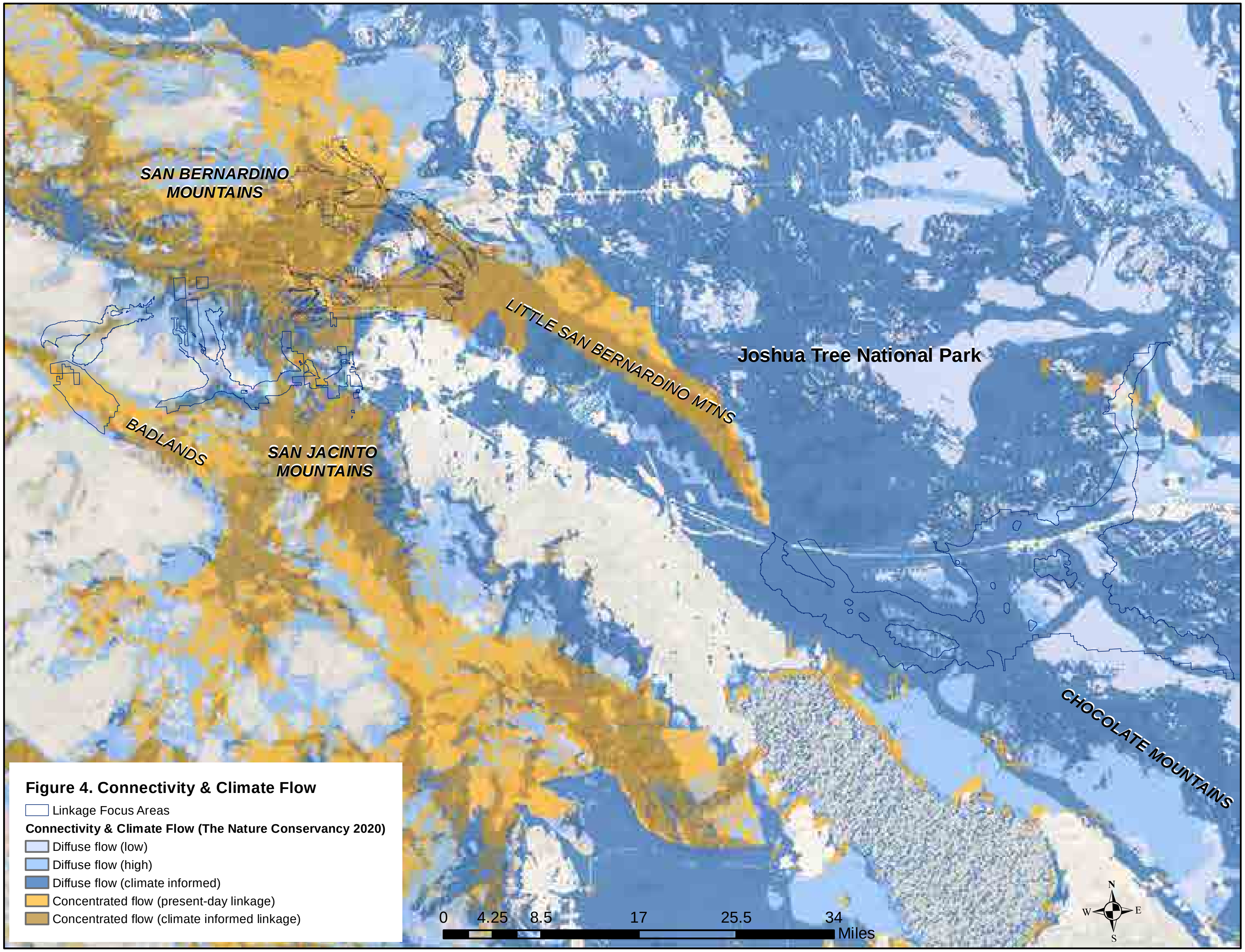
Concentrated flow: areas where large quantities of flow are concentrated through a narrow area. Because of their importance in maintaining flow across a larger network, these pinch points are good candidates for land conservation.

The three linkage designs are identified as having either Concentrated flow or Diffuse flow (Figure 4). The Joshua Tree-Chocolate Mountains linkage and the targeted landscape blocks it connects have almost continuous climate-informed diffuse flow, indicating the area is *extremely intact and consequently facilitates high levels of dispersed flow*. The other two linkages have both concentrated flow and diffuse flow, with the San Gorgonio River strand of the San Bernardino-San Jacinto linkage also having continuous diffuse flow. It is essential to conserve these critical linkages to allow species and full communities to shift their ranges in response to climate change.

California Department of Fish and Wildlife (CDFW) recently compiled and synthesized the best-available spatial information in California on connectivity and wildlife movement into the Terrestrial Connectivity Dataset (Figure 5) to better integrate biodiversity conservation with transportation and infrastructure planning. The Terrestrial Connectivity dataset is one of the four key components of CDFW's Areas of Conservation Emphasis (ACE) data visualization platform, along with Terrestrial Biodiversity, Significant Habitats, and Climate Resilience (CDFW 2019). The Terrestrial Connectivity dataset summarizes information by ACE hexagons (2.5 square miles each) including the presence of mapped corridors or linkages and the juxtaposition with large, contiguous, natural areas. This map builds on the California Essential Habitat Connectivity Project (Spencer et al. 2010), based on guidance given in that report, and incorporates species-specific, fine-scale linkage information, including the San Bernardino-San Jacinto and San Bernardino-Little San Bernardino linkages (Penrod et al. 2005a,b) and the Joshua Tree-Chocolate Mountains Connection (Penrod et al. 2012). CDFW's (2019) Terrestrial Connectivity further justifies the importance of these critical linkages to California's conservation network. **P-13.7 (Cont.)**

The three linkages that the workshop focused on are critical ecoregional connections (Figure 6) and their importance to the state's conservation network cannot be overstated. The linkage designs have been used by federal, state, regional, and local agencies to guide conservation of critical linkages to sustain wildlife populations and to allow species to shift their ranges in response to climate change. As climate conditions such as temperature and precipitation patterns change, the distribution of plant communities will change, and wildlife will need to move to new areas to find suitable habitat. The linkages are identified as priorities in the California Wildlife Conservation Board's Strategic Plan (2014) and overlap two Natural Community Conservation Plans (NCCP), the Western Riverside County Multiple Species Habitat Conservation Plan (WRCMSHCP wrc-rca.org) and the Coachella Valley MSHCP (CVMSHCP cvmshcp.org). While the

Comment P-13



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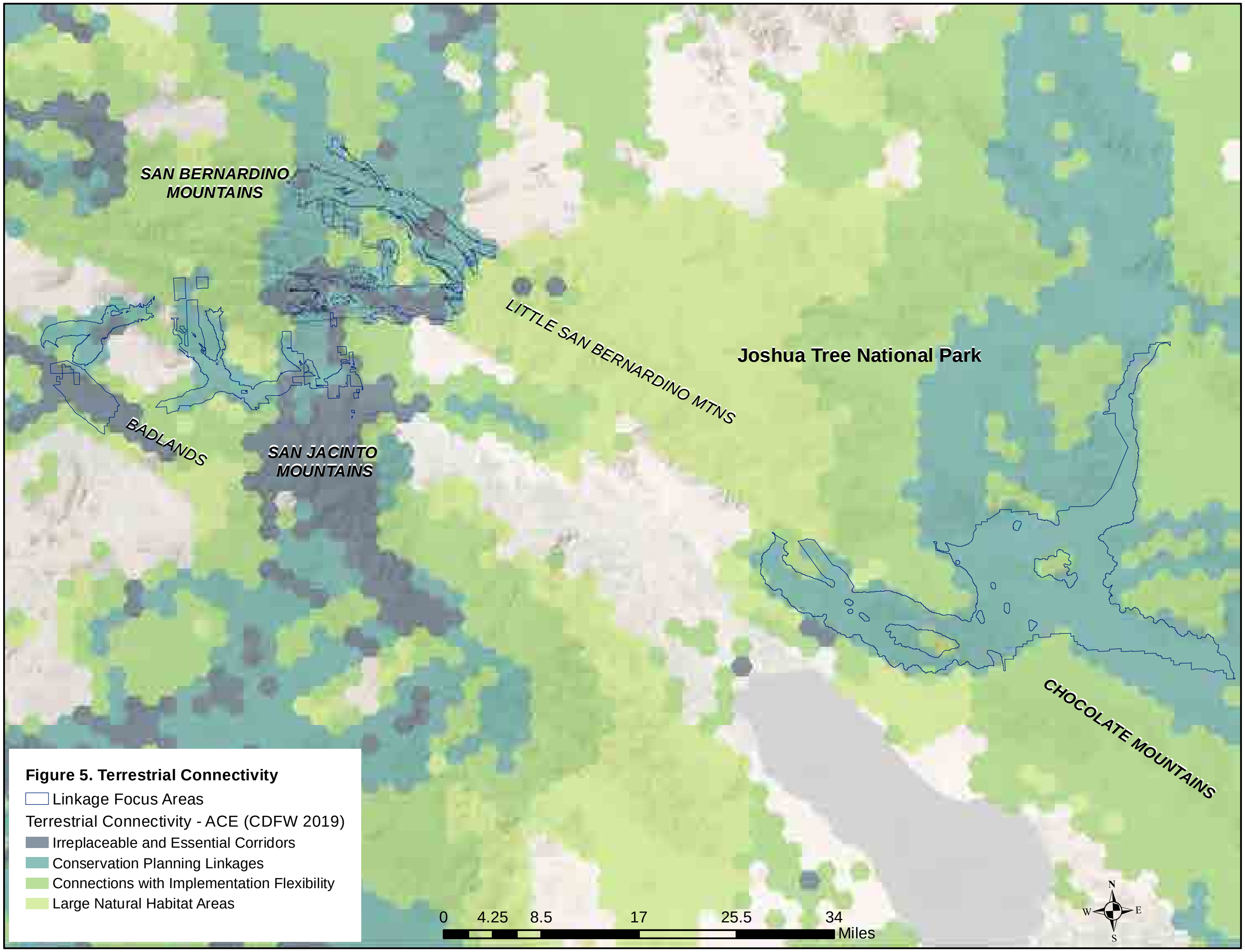

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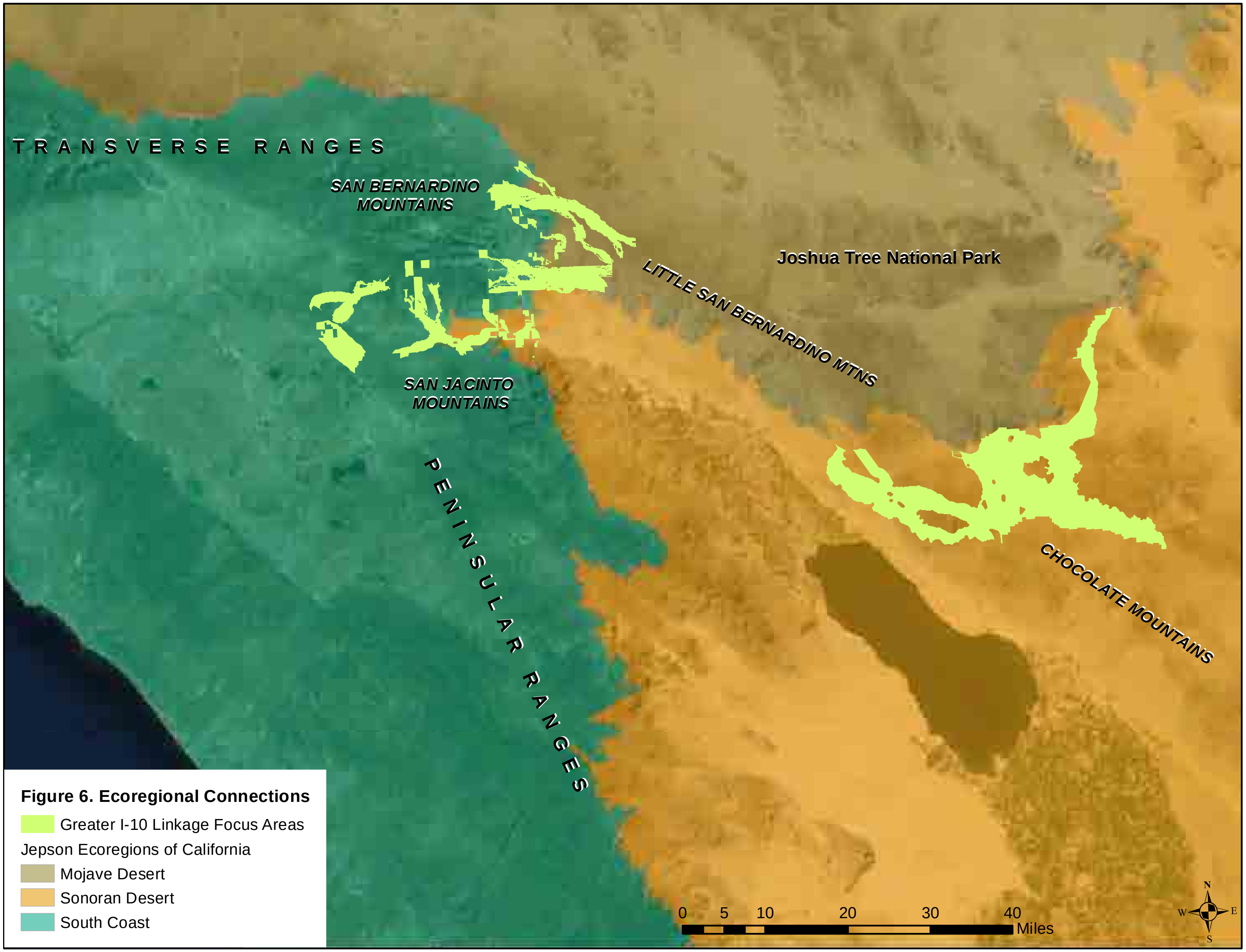

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CVMSHCP has adopted the San Bernardino to San Jacinto and San Bernardino to Little San Bernardino SCML design into their reserve design, the WRMSCP did not specifically adopt the SCML designs. They are irreplaceable connections between essential core habitats that are vital to maintaining California's biodiversity.

California has recognized the importance of identifying, maintaining, and restoring wildlife movement corridors, habitat linkages and landscape connectivity with statutory authority and legislative intent found in California Fish and Game Code Sections 1345, 1346, 1347, 1850, 1851, 1930, 1930.5, 1932, 1932.5, 2053, 2055, 2787; Public Resources Code Sections 37015, 71154, 80076, 80130, 80132; and Street and Highways Code Sections 90-92, 156.1, 2704.09. California's State Wildlife Action Plans (California Department of Fish and Game [CDFG] 2005, CDFW 2015) highlight the importance of connectivity to maintain biodiversity and restore populations of imperiled species. The California Biodiversity Initiative: A Roadmap for Protecting the State's Natural Heritage (2018) directs state agencies to integrate biodiversity conservation with transportation and infrastructure planning, and focus investments on projects that maintain and restore habitat connectivity and support landscape resiliency. Furthermore, all of California's climate adaptation strategies (California Resources Agency 2009, 2014, 2018, *in prep* 2021) identify maintaining habitat connectivity as one of the most important adaptation strategies to conserve biodiversity and support ecological functions as the climate changes.

2. Purpose and Need

While there have been significant conservation investments in these linkages, much more remains to be done in order to secure and protect suitable habitat and linkage opportunities into the future. Residential, commercial, and industrial development, energy and resource extraction, and transportation infrastructure threaten to sever these linkages and genetic connectivity, as well as natural processes for large and small species. Land protection, wildlife crossings and directional fencing, are needed to maintain and restore connectivity in all three linkages. The next decade is critical to ensuring connectivity in Southern California. **P-13.7 (Cont.)**

Linkage implementation can't be accomplished by any one agency or organization. It takes wildlife, land management, planning, transportation, and infrastructure agencies, academic and research institutions, land trusts and conservation organizations, environmental consulting firms, and others. Various skill sets are needed for linkage conservation (e.g., land use, land acquisition, habitat restoration, transportation, rangeland science). Most importantly, an ongoing forum and communication network to promote coordination across diverse disciplines and jurisdictional boundaries is needed to conserve connectivity at this scale.

There is tremendous capacity for linkage implementation in the region with numerous agencies, conservation organizations, and research institutions working on various aspects of linkage implementation. However, regular coordination amongst all of the players is currently lacking, and opportunities are being missed for proactive linkage protection. Science and stewardship capacity is strong, with the added benefit of having the NCCPs in place. Regular coordination between the two MSHCPs is essential, not just at the shared boundary in the San Gorgonio River where the two MSHCPs meet, but across linkages to share science, tools, and best management practices. Wildlife crossing infrastructure and land protection needs are largely known. Thus, the capacity and knowledge shared among workshop participants forms a strong foundation, which can influence critical planning efforts so that connectivity can be maintained, restored, and conserved.

3. Workshop Objectives and Approach

The primary goal of the Greater I-10 Linkage Implementation Workshop series was to establish a dialogue among participants and begin to develop communication and information sharing strategies to ensure that each partner's efforts are coordinated with the actions of others through a mutually beneficial plan of action that leverages resources for linkage conservation. The primary objectives of the workshop were to: (1) engage diverse stakeholders involved in various aspects of linkage implementation, such as wildlife and transportation agencies, land manager and planners, academic and professional scientists, land trusts and conservancies, and conservation organizations; (2) identify specific actions to further connectivity conservation; and (3) begin to develop coordinated strategies to maximize our collective impact for linkage implementation. The Greater I-10 Linkage Implementation Alliance (LIA) is envisioned as an ongoing forum and communication network that would meet regularly to promote coordination across jurisdictional boundaries and diverse disciplines with the primary goal of implementing these three linkages.

This workshop series was based on the work of an existing Linkage Implementation Alliance that has galvanized agencies and organizations from across diverse sectors to coordinate on various activities to promote and maintain connectivity between the Santa Monica Mountains National Recreation Area and Los Padres and Angeles National Forests. That Alliance was initiated in 2011 through a partnership with National Park Service, California Department of Fish and Wildlife, Caltrans, Santa Monica Mountains Conservancy, The Nature Conservancy, SCV Green, and SC Wildlands. The Alliance has met quarterly since its inception, and has been highly successful working to improve connectivity through research and monitoring, acquisition and conservation easements, and working with city and county planning departments on land use and policy, transportation departments on infrastructure improvements, and partner agencies on restoration, stewardship and outreach. This workshop series was organized around these same key issues. **P-13.7 (Cont.)**

The virtual workshop series was held over a four-day period to minimize online meeting fatigue. Each meeting was highly interactive and focused on key issues related to implementation, as indicated below.

April 19, 2021 10 am to 12:30 pm: Land Use, Policy, and Protection
April 20, 2021 10 am to 12:30 pm: Transportation & Infrastructure
April 27, 2021 10 am to 12:30 pm: Research & Monitoring
April 28, 2021 10 am to 12:30pm: Restoration, Stewardship & Outreach

Participants were asked to complete a few tasks in advance of the workshop to enrich the conversation and to help capture the data and information needed to help implement the Greater I-10 Linkages. Specifically, participants were asked to:

1. Fill out online datasheets to identify existing or past efforts, needs or opportunities for each focus area (e.g., land use, transportation, research) for which they have information.

2. Visit and explore the Greater I-10 Linkage Workshop Web Tool. If the effort, need, or opportunity identified in #1 above had a spatial location or study area, participants were asked to draw the location on the map, and give it a unique ID that was linked to the corresponding datasheet.

3. Upload any relevant documents, journal articles, GIS data, etc. to share with the project to the Greater I-10 Linkage Workshop TNC Box.

Each of the four sessions began with a series of presentations related to the focus issue to set the stage for the following discussions. Speakers for each session included:

Land Use, Policy, and Protection

- Keynote Speaker Dr. Paul Beier: Factors Influencing Successful Connectivity Conservation
- Katie Barrows/Coachella Valley Association of Governments (CVAG): Coachella Valley Multiple Species Habitat Conservation Plan Overview
- Tricia Campbell /Regional Conservation Authority (RCA): Western Riverside County Multiple Species Habitat Conservation Plan Overview

Transportation & Infrastructure

- Reyna Baeza/Caltrans: Caltrans Corridor Planning
- Jen Hoffman/RCA: Camera trap and Wildlife studies for the WRCMSHCP
- Michelle Mariscal/Puente-Chino Hills Habitat Authority: Camera trapping monitoring results for the Greater I-10 Linkage Area
- Brock Ortega/Dudek: SR 62/Morongo Basin Wildlife Linkage Plan Interim Results

Research & Monitoring

- Cam Barrows/University of California (UC) Riverside: Conservation and Linkages for the Coachella Valley MSHCP
- Jeff Lovich/U.S. Geological Survey (USGS): Are tortoise populations linked around the Coachella Valley?
- Robert Fisher/USGS: Golden Eagle Movement patterns, urbanization related responses and nest site occupancy analysis
- Winston Vickers/UC Davis and Justin Dellinger/CDFW: Mountain Lions and I-10: A Critical Corridor

P-13.7 (Cont.)

Restoration, Stewardship & Outreach

- Frazier Haney, The Wildlands Conservancy: Sand to Snow Interface Project
- Geary Hund, Mojave Desert Land Trust: Outreach & Coordination in Protection of Habitat Linkage

Following the presentations and a short Q&A period, the next part of each session focused on identifying and discussing needs, opportunities and threats in each linkage related to the topic covered that day. First, input provided prior to the workshop via the web map and datasheets were discussed, and then participants were encouraged to identify other needs, opportunities, or threats and, if applicable, add any spatially related information to the map. For example, in the Land Use, Policy and Protection session, participants were asked to identify needs, opportunities, or threats related to land use or policy that may support or hinder wildlife movement (e.g., proposed specific plan), or opportunities or needs to protect land in the linkages, such as a key parcel in a chokepoint or a willing seller. Participants were also asked to share what they are currently working on or know about that may be relevant to linkage implementation. For example, is there a proposed development that threatens connectivity? A planning effort that provides opportunities for conserving or restoring connectivity, like a watershed plan? Each workshop session was wrapped up with a group discussion to identify specific actions to further connectivity conservation related to each key issue. Links to recordings of each session are provided in Appendix A.

4. Summary of Presentations

4.1 Land Use, Policy, and Protection Session

Paul Beier, Factors Influencing Successful Connectivity Conservation

Paul is a world-renowned conservation biologist focused on science-based design of wildlife corridors and working to conserve them on the ground. He was a Regents' Professor of Conservation Biology at Northern Arizona University. He recently retired and is now a Conservation Research Fellow at the Center for Large Landscape Conservation. Paul was a founding board member of SC Wildlands serving for over 15 years, the lead scientist for both South Coast Missing Linkages and the Desert Linkage Network, coauthored all of the reports, and conducted much of the field work.

Keeley and Beier et al. (2019) reviewed 263 connectivity plans from around the globe, 109 authors completed surveys, 77 authors interviewed, to identify factors influencing implementation of connectivity conservation plans developed over the last 30 years. Two types of connectivity conservation plans: shovel ready (specific recommendations acquisition, crossings, focal species) and vision plans (get it on the radar of key decision makers, inspire future actions, like California Essential Habitat Connectivity Project).

There were multiple key findings from the study. Crossing structures were 2.4 times more likely to be built if a plan called for it and 3 times more likely if there was a connectivity law. Land protection was 5.1 times more likely if called for in plan, and more likely when recommendations were from shovel ready plans. Restoration was 4 times more likely if a plan called for it. Time was also found to be important. Linkage implementation can take a long time ~20 years. The key is to ask for what is needed by including detailed recommendations in the plans. Laws help too. **P-13.7 (Cont.)**

Other key factors were identified as influencing successful connectivity conservation. Stakeholder involvement was identified as vital. NGOs can compensate for turnover in government staff. Evidently, implementation was not influenced by the type of connectivity model. However, the science should be transparent and repeatable. The study also concluded that when transportation, land use or regulatory agencies were asked to develop Connectivity Conservation Plans, it influenced implementation.

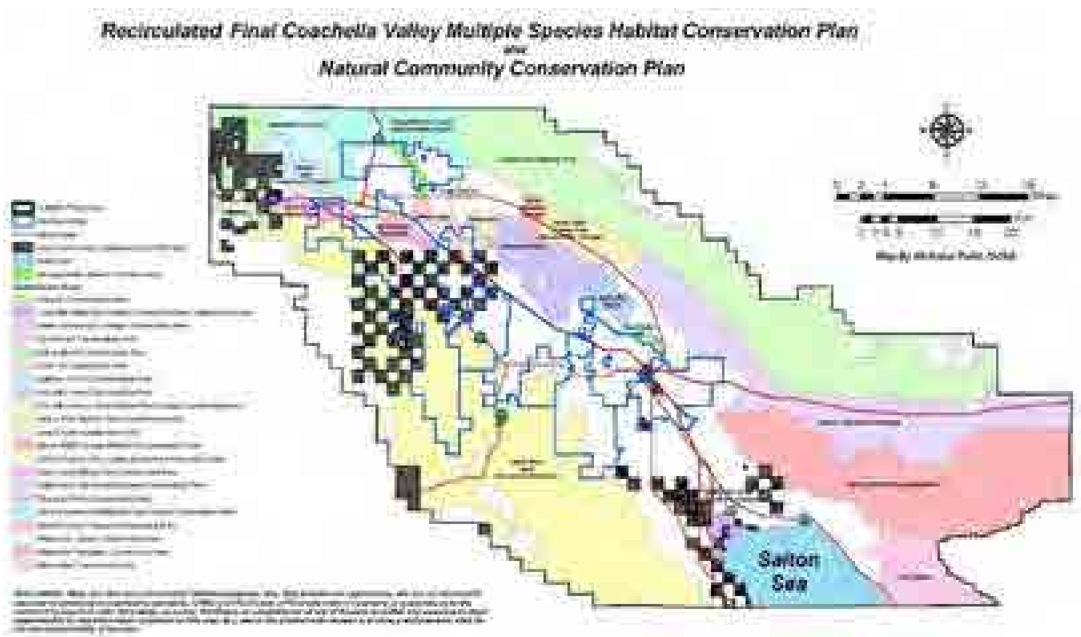
The three linkages focused on in this workshop have all the factors influencing linkage implementation:

- Shovel Ready plans call for crossing structures, land protection, and restoration
- Mandates or enabling law (e.g., MSCP)
- Initial buy-in from government agencies
- Stakeholder involvement after initial buy-in
- NGOs that help government agencies stay on task
- Transparent and repeatable science

Katie Barrows – Coachella Valley Multiple Species Habitat Conservation Plan Overview

Katie Barrows is the Director of Environmental Resources for the Coachella Valley Association of Governments (CVAG) (since retired). CVAG provides staff to the Coachella Valley Conservation Commission, the regional agency that coordinates the land acquisition, monitoring and management *programs for the Coachella Valley Multiple Species Habitat Conservation Plan. Katie has been involved in development and implementation of the Plan since its inception.*

Coachella Valley MSHCP (CVMSHCP) is a visionary plan at the landscape scale that includes 21 conservation areas with hardline boundaries in Riverside County. Within each of the 21 conservation areas depicted in the image below, 90% of the land is slated to be conserved, less than 10% can be developed. The total plan area covers 1.1 million acres and the reserve system will eventually be 724,780 acres, including land already conserved at the plan's inception, as well as, approximately 240,000 acres in conservation areas targeted by the plan. The CVMSHCP aims to conserve over 240,000 acres of open space and protect 27 plant and animal species. In addition to the 27 covered species, the CVMSHCP intends to conserve 27 different natural communities, ecosystem processes such as sand transport, and linkages.



The CVMSHCP has acquired about 98,000 acres towards goal to date. The CVMSHCP website has a video of land acquisitions in the plan area over the years from 1996 through 2020, which is available at https://www.cvmshcp.org/videos/AcqOverYears-2020.mp4. Tribal lands are not a part of the plan but the Coachella Valley Conservation Commission that works to implement the plan coordinated with multiple tribes within the plan area. Overall management of the Plan is provided by the Coachella Valley Conservation Commission (CVCC), a joint powers authority of elected representatives.

Six of the CVMSHCP Conservation Areas overlap the San Bernardino-San Jacinto Linkage, which from west to east include: Cabazon, Stubbe and Cottonwood Canyons, Snow Creek Windy Point, Whitewater Canyon, Highway 111, and Whitewater Floodplain. The Science Advisors for the CVMSHCP said the eastern branch of the San Bernardino-San Jacinto Linkage is the most important connection in the plan area. This is a connection between Whitewater River that originates in the San Bernardino Mountains and Snow Creek in the San Jacinto Mountains. The CVMSHCP has protected most of this part of the linkage, providing a vitally

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(Cont.)

important desert connection between the Peninsular and Transverse Ranges. Good wildlife crossings exist, with bridges over the Whitewater River on I-10 and the service road north of the freeway, and another bridged crossing for Snow Creek on SR-111. The structures are good and while wildlife use them, there are issues with human use of the structures too that likely deters use of the crossing structures by some species.

The southern portion of the San Bernardino-Little San Bernardino Linkage in Riverside County falls within the CVMSHCP and is included in the Upper Mission Creek/Big Morongo Canyon Conservation Area. There are a few nice bridges over Mission creek on SR-62 that help connect SB-LSB. East of SR-62, Mission Creek is included in the Morongo Wash Special Provision Area for flood control, which also provides a connection south to the Willow Hole Conservation Area. The CVMSHCP includes other corridors in between the San Bernardino-Little San Bernardino and the Joshua Tree-Chocolate Mountains, such as the Indio Hills/Joshua Tree National Park Linkage and West Deception Canyon, linking Joshua Tree National Park and the Thousand Palms/Coachella Valley Preserves.

Many of the connections for wildlife are along washes and drainages, which are also important connections for sand transport and flow from sand sources in the surrounding mountains. A speaker for the Research and Monitoring session will focus on the importance of sand flow along alluvial systems for sustaining habitat for many listed and endemic species, such as the fringe-toed lizard (*Uma inornata*) that relies on sand dunes.

The Joshua Tree-Chocolate Mountains Linkage overlaps three of the CVMSHCP Conservation Areas. Most of the linkage to the north and south of I-10 is included in the Desert Tortoise and Linkage Conservation Area that connects two other Plan Conservation Areas, Joshua Tree National Park and Orocopia and Mecca Hills Conservation Area. A field assessment of existing crossings structures was used to map corridors in that area. Another of the speakers for the Research & Monitoring session will focus on the Desert Tortoise Conservation Area along I-10. **P-13.7 (Cont.)**

How does the plan work with proposed developments? Proposed developments within the 21 Conservation Areas go through a Joint Project Review (JPR) to make sure any development is consistent with the MSHCP. They try to work with the developers to minimize impacts to species and communities. The proposed Paradise Valley Project included 1800 acres development, 10 miles east of Coachella within the Desert Tortoise Conservation Area. The Paradise Valley Project went through several JPR's to try to find consistency but ended up getting denied because it was right smack in the middle of critical corridors along alluvial fan dry washes that support multiple species covered by the plan. The plan provides ability to work with developers to minimize impacts but in case of Paradise Valley, a consistency determination was not possible and it was officially denied in November 2019.

Several species use the existing bridges and culverts in the Conservation Areas. Photos of numerous species were shown using the crossing structures in the San Bernardino-San Jacinto and San Bernardino-Little San Bernardino Linkages.

Q&A related to Katie Barrow's presentation on the CVMSHCP

Fraser Shilling from UC Davis explained that they have used wildlife occurrence data to test various hypothetical linkage models for the DRECP area and for the state. They have found no ability of the hypothetical linkages to statistically explain wildlife occurrence. Katie Barrows was asked how might this affect MSHCP and MCP planning? In other words, since linkages don't explain where wildlife are, how should we and can we change the planning process?

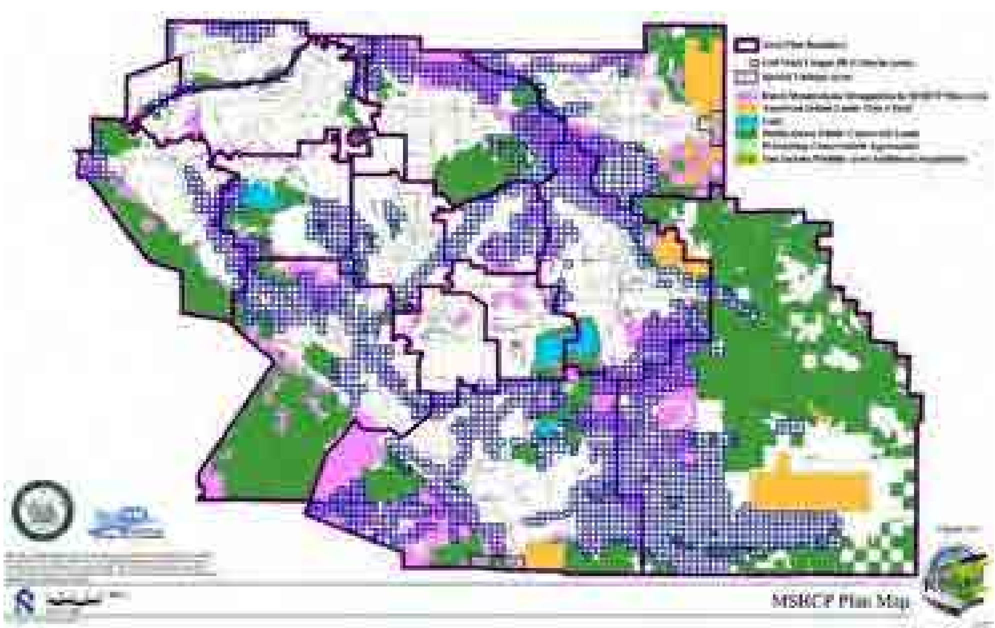
Katie Barrows responded that, in terms of boundaries, major changes are a huge process. She suggested coordinating with Fraser on the data he referred to and will follow up.

Kerry Holcomb from USFWS, commented that they used occurrence data to calculate the priority ranking index for protective fence installation (described above) and habitat suitability models. He said there is concern about genetic inferences because Interstate 10 has been there for so many decades, and before the freeway there was another road, so genetic imprints may be misleading if we don't look at land use.

Tricia Campbell – Western Riverside County Multiple Species Habitat Conservation Plan Overview

Tricia Campbell is the Manager of Reserve Management and Monitoring at the Regional Conservation Authority, Riverside, California. She oversees the monitoring and management programs for the Western Riverside County Multiple Species Habitat Conservation Plan as well as provides implementation oversight to the member agencies of the Plan and guidance for reserve acquisitions.

The Western Riverside County MSHCP, approved in 2004, covers 1.2 million acres and has a goal to set aside 500,000 acres in a reserve system. The vision is for a 500,000-acre reserve system, 347,000 acres are already conserved, and roughly 153,000 acres are to be preserved through plan implementation. The Western Riverside County MSHCP doesn't have hardline conservation areas like the CVMSHCP. The plan aims to conserve 146 covered plant and animal species, including 33 species listed as threatened or endangered. A Western Riverside County MSHCP reserve assembly summary map is online at https://wrcrca.maps.arcgis.com/apps/opsdashboard/index.html#/60fb5a8df60c49628b9cc779333824b4. **P-13.7 (Cont.)**



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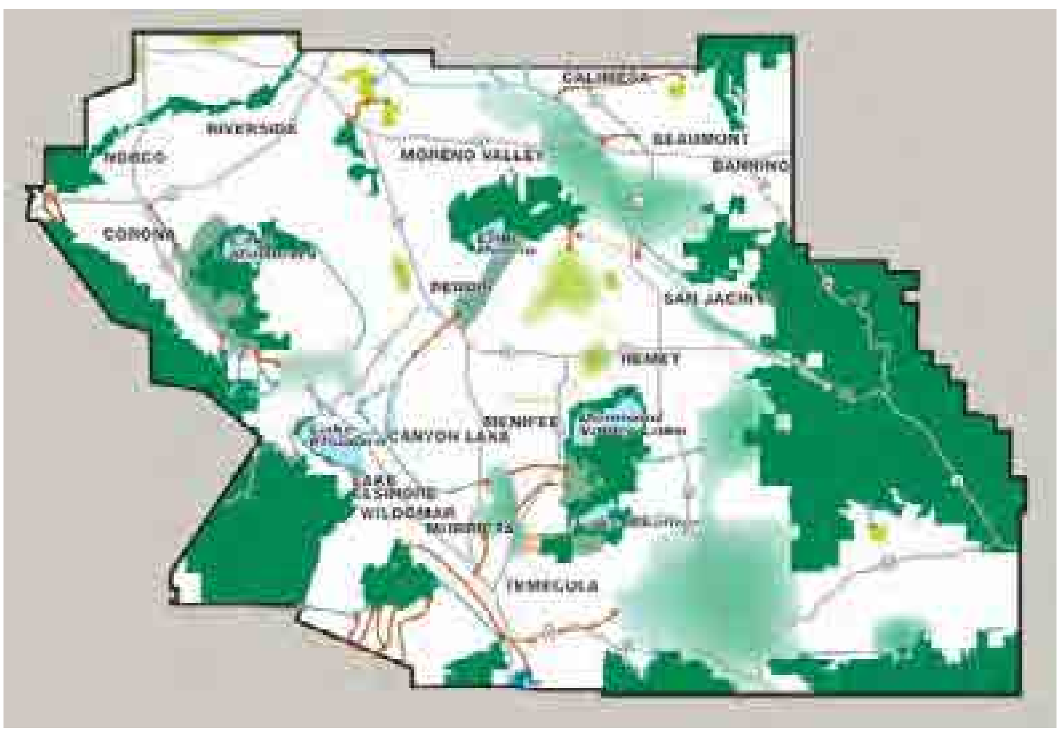
Within the plan area, 18 cities and the county of Riverside work with the Regional Conservation Authority (RCA) to ensure plan compliance. Entities that are not permittees of the Plan such as water agencies and school districts don't have to comply with the plan but need to comply with the California Environmental Quality Act (CEQA) which includes on the CEQA checklist a section on potential impacts to regional or local HCP/NCCPs. Areas identified as important for plan implementation are designated by "Criteria Cells" (image from presentation above), each cell is roughly 160 acres. Within these cells, the RCA reviews proposed projects. No consistency reviews by the RCA are required for proposed development projects outside of Criteria Cells, but does occur by the MSHCP permittee (e.g., city, county) processing the proposed project. The remaining lands to be conserved are to occur within the Criteria Cells. It is important to understand that development is the reason HCPs are created. The MSHCP provides a streamlined approach for development, including infrastructure while ensuring a regional approach to species conservation.

The Western Riverside County MSHCP doesn't capture all key movement areas. There is a Schematic of Cores and Linkages (image from presentation below) that includes a number of Constrained Linkages known at the time the plan was developed. The plan evaluated the length to width ratio of each of the Constrained Linkages. While the plan addresses 146 covered species, not all are listed species, such as bobcat (*Lynx rufus*) and long-tailed weasel (*Mustela frenata*), but are important for linkage functionality.



Constrained Linkage #23 overlaps the westernmost branch of the San Bernardino-San Jacinto Linkage. This linkage was envisioned as connecting San Timeteo Creek and the Badlands west of I-10 with Bogart Park in the foothills of the San Bernardino Mountains east of I-10, for species such as Least Bell's vireo (*Vireo bellii pusillus*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), and bobcat. A few developments in two Criteria Cells east of I-10 and the Calimesa Country Club Golf Course already had

P-13.7 (Cont.)

approval by the time the MSHCP was adopted, thus a functional corridor has somewhat been precluded there for all but possibly birds and more generalist species.

Constrained Linkage #22 is outside of the western branch of the San Bernardino-San Jacinto Linkage, to the southeast. It links the Norton Younglove Reserve to the Badlands via Noble Creek. Criteria Cells for this linkage are only on the west side of I-10, no cells occur east of I-10 up to Bogart Park.

The San Gorgonio River section of the San Bernardino-San Jacinto Linkage is identified as a Special Linkage in the Western Riverside County MSHCP where it connects to the Coachella Valley MSHCP plan but no Criteria Cells targeting conservation occur in this area. Tribal coordination is essential here too.

How does the Western Riverside County MSHCP compare with the South Coast Missing Linkages? The South Coast Missing Linkages regional report was completed in 2008, the San Bernardino-San Jacinto Linkage report was completed in 2005, while the Western Riverside County MSHCP was approved in 2004. The linkages were not yet mapped when the MSCP was approved. The Plan does have some overlap and specifically requires proposed projects go through CEQA and MSCP for Special Linkages, such as those that are bisected by two MSHCPs, as in the San Bernardino-San Jacinto at the San Gorgonio River, and the Santa Ana-Palomar Linkage, which is also included in the Northern San Diego County MSHCP. The Western Riverside County MSHCP doesn't capture the fine scale data and information as what was provided in the South Coast Missing Linkages.

The plan does include special regulations to reduce edge effects within Criteria Cells. For example, only certain roads in Criteria Cells are able to be upgraded. Developments at the urban wildland interface near existing or future conservation areas have special regulations to mitigate impacts and reduce edge effects that address drainage, toxics, lighting, noise, invasive species, fencing, grading, etc. **P-13.7 (Cont.)**

Q&A related to Tricia Campbell's presentation on the WRMSHCP

Regarding the San Gorgonio River, which is not an identified linkage with criteria cells in the WRCMSHCP but is identified as a Special Linkage. How does that work when a development proposal comes through in the Special Linkage? Does it require a Joint Project Review?

Tricia Campbell responded that it's a bit different. The RCA is included in the process but it's primarily between USFWS, CDFW, and the developers. For example, the proposed I-10 Bypass team is working with the agencies, the RCA is included in the conversation but does not play a formal consistency review role.

Dr. Paul Beier commented how unfortunate it is that Constrained Linkage #23 is considered a lower-level linkage in the WRCMSHCP, because of its significance. There is still an opportunity there and it's critical!

Cara Lacey - Overview of Connectivity Related National and State Legislation

Cara Lacey, the Director of the Connected Lands Cities Program of The Nature Conservancy of California, provided a brief summary of national and state level legislation related to connectivity.

Cara explained that there is bipartisan support at the federal and state level for wildlife movement corridors and crossings.

Federal Level Legislation Related to Habitat Connectivity and Wildlife Movement

S.1499 - Wildlife Corridors Conservation Act of 2019-2020 (Wildlife Corridors Conservation Act of 2019 (2019; 116th Congress S. 1499) - GovTrack.us) was introduced by Senator Tom Udall in 2019. The Act would authorize funding for wildlife corridors and crossings. It would require annual appropriations, and also includes $50 million in annual allocations for private lands. It passed the House, and still has bipartisan support. It is possible that the new Congress will take it back up.

S.2302 - America's Transportation Infrastructure Act of 2019 was introduced by Senator Barasso in the last congress in 2019. It includes real money and mandatory spending that doesn't require appropriations. Wildlife corridors are explicit in this bill, which includes several key provisions to improve safety, resiliency to disasters and reduce emissions. This bill would also reauthorize FY2021-FY2025 federal-aid highway program and the transportation infrastructure finance and innovation program; increases funding for tribal and federal lands transportation programs; bridge investment program and animal detection systems to reduce wildlife-vehicle collisions, among other things. S.2302 - 116th Congress (2019-2020): America's Transportation Infrastructure Act of 2019 | Congress.gov | Library of Congress.

H.R.3684 - INVEST (Investing in a New Vision for the Environment and Surface Transportation) in America Act was introduced by Representative Peter DeFazio in June 2021, passed with bipartisan support, and signed by President Biden November 15, 2021. This huge infrastructure package specifically calls out wildlife crossings and habitat connectivity, and allocates funding for improving infrastructure to support wildlife movement. The budgetalso addresses surface transportation, programmatic infrastructure investments, project level investments, planning and asset management, federal and tribal lands, and several other provisions. Text - H.R.3684 - 117th Congress (2021-2022): INVEST in America Act | Congress.gov | Library of Congress.

Section 1310, Wildlife Crossings Program under project level investments would provide a competitive wildlife crossing grant program specifically to reduce wildlife-vehicle collisions and improve habitat connectivity for terrestrial and aquatic species. Planning, engineering and design, construction, acquisition, research on wildlife-vehicle collisions, integration of wildlife conservation and transportation plans, and education and outreach.

Section 1641 Establishment of Western Riverside County National Wildlife Refuge under other provisions would establish a National Wildlife Refuge within the Western Riverside County MSHCP to conserve, manage, and restore habitat for listed species and "to provide for wildlife habitat connectivity and migratory corridors within the Western Riverside County Multiple Species Habitat Conservation Plan Area." The acquisition boundaries of the Refuge would be the same as Final Western Riverside County MSHCP (2003), and a cooperative agreement would be put in place between the Department of Interior and State of California. The Western Riverside County MSHCP is the only such conservation plan specifically called out in the bill.

H.R.2773 Recovering America's Wildlife Act of 2021 was introduced in April of 2021 by Representative Dingell. The Act would provide 1.3 billion annually from the general fund of the treasury each fiscal year to a competitive grant program administered by State fish and wildlife departments to fund "techniques, tools, strategies, or collaborative partnerships that accelerate, expand, or replicate effective and measurable recovery efforts for species of greatest conservation need and species listed under the Endangered Species

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Act of 1973 (15 U.S.C. 1531 et seq.) and the habitats of such species." The Act would also provide $97.5 million annually to Indian Tribes for proactive conservation actions to restore Tribal species of greatest conservation need and to secure those species before listing is warranted under the Endangered Species Act. The fund would support Wildlife Conservation Strategies, habitat conservation, restoration, conservation education, wildlife associated recreation, invasive species control, and law enforcement related to protecting listed and candidate species and their habitats. This proposed legislation has been referred to the House Committee on Natural Resources. H.R.2773 - 117th Congress (2021-2022): Recovering America's Wildlife Act of 2021 | Congress.gov | Library of Congress.

State Level Legislation Related to Habitat Connectivity and Wildlife Movement

Senate Bill (SB) 790 – Wildlife Connectivity Mitigation Credits was introduced in February 2021 by Senators Stern and Cortese, has made its way through various committees at the time of the workshop, and was recently signed by Governor Newsom September 28, 2021. This bill requires California Department of Fish and Wildlife to work with Caltrans to provide compensatory mitigation credits to transportation improvement projects on the state highway system that integrate improvements for fish and terrestrial wildlife passage to improve local and regional habitat connectivity, and other environmental improvements. Bill Text - SB-790 Wildlife connectivity actions: compensatory mitigation credits. (ca.gov).

SB-45 Wildfire Prevention, Safe Drinking Water, Drought Preparation, and Flood Protection Bond Act of 2020 would authorize the issuance of bonds in the amount of nearly 5.6 billion to reduce vulnerability to fire, flood, drought, and other climate change-related events and increase climate resilience that enhance and protect natural, rural, and urban environments. The bill includes specific allocations to the State's Wildlife Conservation Board for fish and wildlife protection and climate adaptation. It is expected to go before voters in the November 2022 statewide election. Bill Text - SB-45 Wildfire Prevention, Safe Drinking Water, Drought Preparation, and Flood Protection Bond Act of 2022. (ca.gov).

Assembly Bill (AB) 1500 Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, and Workforce Development Bond Act of 2022 was introduced by Eduardo Garcia and Kevin Mullin, and many other coauthors in February 2021. This bill is similar to Proposition 68 approved by voters in 2018. AB1500 is expected to go before voters in the June 2022 statewide election. If approved by the voters, it would authorize the issuance of bonds in the amount of 7.8 billion to the State General Obligation Bond Law to support climate adaptation projects related to safe drinking water, wildfire prevention, drought preparation, flood protection, extreme heat mitigation, and workforce development programs. The bill seeks to improve climate resilience through strategic restoration and stewardship based on the best available science, including local and traditional ecological knowledge. Bill Text - AB-1500 Safe Drinking Water, Wildfire Prevention, Drought Preparation, Flood Protection, Extreme Heat Mitigation, and Workforce Development Bond Act of 2022. (ca.gov).

AB-1183 California Desert Conservation Program was introduced by Assemblyman Ramos in early 2021, approved by the Governor September 2021, and became law November 2021. The California Desert Conservation Program will be folded into the state's Wildlife Conservation Board and provide funding to acquire, preserve, restore and enhance desert habitat within the California deserts region, including land in critical linkages. The Wildlands Conservancy, Mojave Desert Land Trust, and California Wilderness Coalition who participated in the linkage implementation workshop worked closely with Assemblyman Ramos, as sponsors of this bill. Bill Text - AB-1183 California Desert Conservation Program.

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4.2 Transportation and Infrastructure Session

Reyna Baeza, Caltrans: Caltrans Corridor Planning and Transportation Improvement Plans

Reyna is a landscape architect that works in Caltrans District 8. She began her career at Caltrans nearly 14 years ago and has worked in various divisions, including Design and Maintenance Engineering. She's spent the last three years in the Division of Transportation Planning, working on Complete Streets, Wildlife Connectivity, and Corridor Planning.

Background: Reyna has worked on many Caltrans Transportation Enhancement (TE) proposals, a few seeking federal funding under the eligible category of Environmental Mitigation, specifically to reduce vehicle-caused wildlife mortality while maintaining habitat connectivity. One proposal developed was for SR-62 in Yucca Valley from Yucca Park Road to Shaftner Avenue. The funding was requested to study various options for improving crossing opportunities along a recently installed median barrier, new under crossings and over crossings, as well as culvert improvements for mule deer (*Odocoileus hemionus*), bobcat, and small mammals to cross safely. Unfortunately, due to the very competitive process, the project was not selected to move forward. Luckily, in 2019, the Divisions of Environmental and Transportation Planning partnered on a proposal for a Special Study, and together we were able to secure funding for the SR 62 Morongo Basin Wildlife Linkage Study, for which Reyna is currently the Contract Manager for and is planned for completion in June of this year. This project will be covered during Brock Ortega's presentation.

Background info on SR 62 Project:

This project placed a concrete barrier on State Route (SR)-62 in the Town of Yucca Valley from Yucca Park Road to Shaftner Avenue (Post Mile 7.64-8.54). The purpose of the project was to reduce the number of cross-median collisions which are occurring on the four-lane road (two lanes in each direction) with variable 8ft to 12ft median width. This location was included in the 2005 median barrier monitoring report and met the crash criteria (cross-median collisions). **P-13.7 (Cont.)**

Some history on previous plans which include Transportation Concept Reports (TCR). TCR's include a very brief section for Environmental Considerations. Usually, TCRs consist of 2 pages including an environmental scan of resources to be considered within the corridor. This Environmental Scan is provided in the form of a table and identified the probability of environmental resource issues arising along the corridor and includes a ranking of high, medium, or low.

The assessment however did not consider any planned or programmed projects and only accounted for the existing environmental setting. The scan assessed a few of the Environmental Resources listed on this slide in addition to the following which could be included:

- Visual Aesthetics and Scenic Resources
- Floodplains
- Climate Change and Sea Level Rise
- Waters and Wetlands
- Wild and Scenic Rivers
- Special Status Species

TCR's for I-10 and SR-62 were completed in 2017.

I-10 TCR Environmental Considerations:

- **Section 4(f) Lands**: Publicly owned parks, recreation areas, or wildlife and waterfowl refuges, and any land from a historic site of national, state, or local significance. Segments 12-14 run through federally protected land in central and eastern Riverside County. Segment 10 runs through adjacent ecological reserves and Segment 14 traverses conservation easements over public and private property.
- **Habitat Connectivity**: Includes wildlife crossings and Essential connectivity Areas. Segments 9, 10, and 14 traverse Essential Connectivity Areas according to the California Department of Fish and Wildlife.

SR-62 TCR Environmental Considerations:

- **Section 4(f) Land:** Section 4(f) Lands include publicly owned parks, recreation areas, or wildlife and waterfowl refuges, and any land from a historic site of national, state, or local significance. Along segments 1 and 2, the newly designated Sand to Snow National Monument is located on both sides of SR-62 and Big Morongo Canyon Preserve is located on the route's eastern edge. Along segments 3-11, Joshua Tree National Park runs along in close proximity to the route's southern edge, with BLM-owned territory located on the opposite side of the highway and the Mojave National Preserve beyond.
- **Habitat Connectivity:** Habitat connectivity identifies wildlife crossings and if the segment runs through an essential connectivity area. SR-62 in both Riverside and San Bernardino counties traverse migratory bird passages.

P-13.7
(Cont.)

Corridor System Management Plans (CSMP) which are another document produced by Transportation Planning. Existing CSMP's include the:

- Interstate 15
- Interstate 215
- State Route 91 and
- Interstate 10 – Was completed in June of 2011. Shown here are the study limits of I-10 CSMP. As seen, this study covered a 36-mile section of I-10 in San Bernardino and Riverside County from I-15 in Ontario to SR 60 in Riverside County. As you can see the limits of this plan do not include the I-10 Greater Linkage study area.

The CSMP focused on increasing transportation options, decreasing congestion and improvement of travel times along the corridor. Thus, CSMP's do not include wildlife and habitat connectivity assessments.

- The California Transportation Commission (CTC) required that CSMPs be developed for corridors with projects funded by the Corridor Mobility Improvement Account (CMIA), which was created by the passage of Proposition 1B in November 2006.

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Caltrans has a new Corridor Planning Process, finalized in 2020 and developed in collaboration with the CTC Comprehensive Multimodal Corridor Plan Guidelines approved in December of 2018.

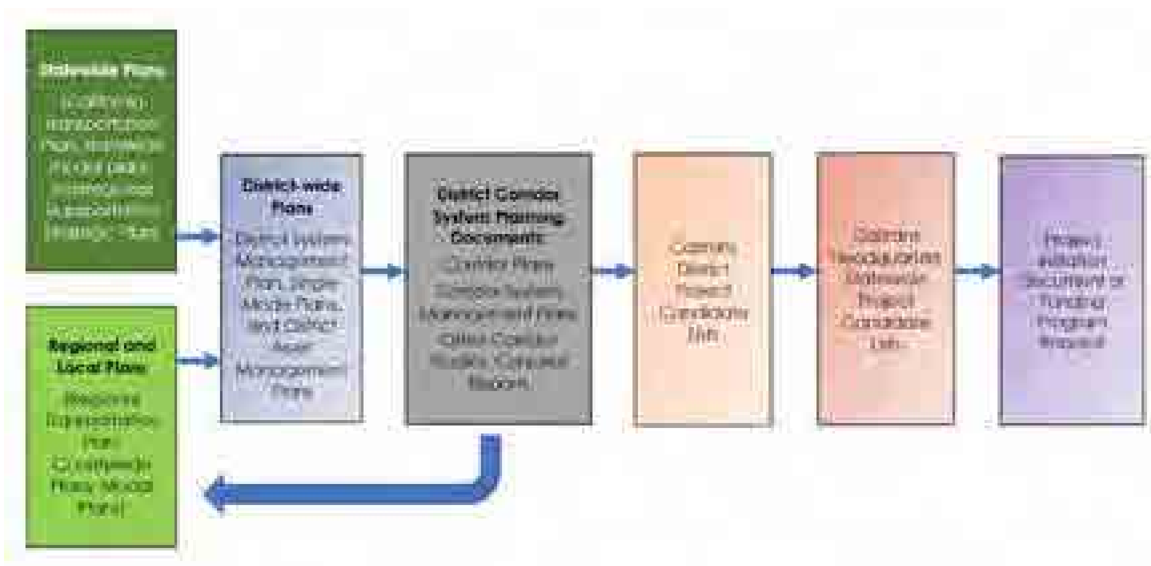
Caltrans is committed to developing corridor plans that identify and recommend strategies and improvements in coordination with our planning partners, resulting in a range of pre-Project Initiation Document project candidates and non-project strategies that achieve Caltrans goals and objectives. These project candidates and strategies are advanced to implementation through regional planning, system planning and programming processes.

The corridor plans and recommended projects should strive to meet local, regional, statewide goals for a safe, sustainable, integrated, and effective transportation system that positively impacts all Californians. They should also outline a corridor vision for improving and operating the system in a manner that achieves these goals. Link below:

https://dot.ca.gov/programs/transportation-planning/multi-modal-system-planning/system-planning/corridor-planning-process-guide

The Eight-Step Corridor Planning Process.

This process should include:
• Internal and External Partners
• Stakeholders
• Tribal Governments and
• Advocacy Groups
The image on the bottom corner illustrates the District System Planning process within Caltrans and its key products, note TCRs, CSMPs and Corridor Plans can be found in the gray colored box. P-13.7 (Cont.)



The Corridor Planning Process lists Environmental Considerations as an Emphasis Area and requires an in-depth narrative of the following key topics:

- Advance Mitigation
- Fish Passage Barrier Remediation
- Wildlife and Habitat Connectivity
- And Other landscape-scale considerations like GHG emissions

<u>Key differences between the TCR/CSMPs and the new process:</u>

- All corridor planning teams should include at least one Environmental Planner (Generalist) and specialists to develop the Environmental Considerations Section
- Identification of transportation strategies that accommodate environmentally sensitive areas and habitats.
- Include an assessment of wildlife connectivity; and provide a map of potentially important linkage areas along a corridor
- Must reference potentially important habitat linkages
- Include recommendations to improve connectivity through identifying ranges of alternatives that provide solutions for remediating barriers to wildlife movement
- And, lastly, project should include an identification of mitigation strategies tied to planned transportation investments.

Integrating environmental considerations into Caltrans' transportation planning efforts supports Caltrans' Strategic Plan. Considering environmental issues and needs during the corridor planning process best aligns with the Goal to "Strengthen Stewardship and Drive Efficiency" while also comprehensively integrating sustainability principles across all goals, addressing people, planet, and prosperity.

Additionally, the recent Corridor Planning Guidebook aligns with California Transportation Plan (CTP) 2050 Goal #6 to "Practice Environmental Stewardship" and lists two policies to strengthen stewardship and addressing people, planet and prosperity:

Policy 1 (to)- *Integrate Environmental Considerations in All Stages of Planning and Implementation*

(and) Policy 2 – *Conserve and Enhance Natural, Agricultural, and Cultural Resources*

Policy 1 - *Integrate Environmental Considerations in All Stages of Planning and Implementation* – This policy within the CTP recommends that Caltrans develop robust State and regional advance-mitigation plans that consider the environmental effects of several planned infrastructure projects to streamline project delivery while maximizing biological benefits.

Policy 2 – *Conserve and Enhance Natural, Agricultural, and Cultural Resources* – The recommendations on how to implement this policy include suggestions such as convening stakeholders to provide guidance on how to enhance environmental stewardship at the regional and local levels and supporting

District 8 has a 5-year workplan for completing Corridor Plans. The Transportation Planning team is currently working on the I-15 Multimodal Corridor Plan. The I-10 and SR-62 Corridor Plans will not kick-off until year 4. District 8's team will leverage past and current studies. For example, the SR-62 Morongo Basin Wildlife Linkage Study, I-10 Greater Linkage effort and multiple previous studies will feed into wildlife and habitat connectivity recommendations for these corridor plans

P-13.7
(Cont.)

The study area for the I-15 Multimodal Corridor Plan is divided into 3 segments, Southern, Middle and Northern. The Northern segment is from north of 395/15 JCT to Nevada State Line. The Middle segment is from South of 395/15 to 91/15 Junction. The Southern Segment is from South of 91/15 Junction to SD County Line. The study area includes a 3-mile radius, similar to other corridor plans like the Highway 101 Corridor Plan in District 7 and Inland Empire Comprehensive Multimodal Corridor Plan also known as IECMCP.

Corridor Plan Goals

- The Plans will be holistic and multimodal
- Clearly define corridor goals, objectives, and performance measures to be used
- Conduct a performance assessment to identify and quantify performance issues
- Develop and analyze improvement strategies
- Select and prioritize projects and strategies into recommendations to be implemented in the short, medium, or long term, and
- Provide a list of programs for eligible funding from various State, Federal, and local programs

Stakeholder Outreach

- Only through robust stakeholder outreach will District 8 Corridor Plans be a comprehensive, multimodal, performance-based plan aimed at safely and effectively managing and operating an efficient and integrated transportation system.
- Cross-divisional input will be solicited at key milestones.
- Transportation stakeholders and regional partners including MPOs, resource agencies, NGO's and NPO's within the corridor will also be engaged throughout plan development. The resulting recommendations will achieve corridor goals and objectives and help optimize the corridor to meet future needs.

P-13.7 (Cont.)

Jen Hoffman/WRCMSHCP and SAWA: Camera Trap and Wildlife Monitoring for the Western Riverside County MSHCP

Jennifer Hoffman has worked with the Western Riverside County MSHCP Biological Monitoring Program as the Mammal Taxa Lead for 11 years. Her Favorite mammalian Covered Species by the plan is the San Diego Black-tailed jackrabbit.

The Western Riverside County Multiple Species Habitat Conservation Plan area extends eastward to San Gorgonio wash where we have attempted to monitor wildlife use with cameras. This presentation focused on mammals documented during MSHCP monitoring efforts. Starting in the eastern plan area with San Gorgonio Wash monitoring, cameras often are stolen or vandalized at this location. For the limited monitoring that was done at the San Gorgonio Wash location, some MSHCP covered species have been documented, including bobcat and coyote (*Canis latrans*). This site was monitored in 2007, 2009, 2010 and 2013.

Banning Bench: small mammal trapping was performed at this Core Area composed of river habitat. Species documented include Bryant's woodrat (*Neotoma bryanti*), Dulzura kangaroo rat (*Dipodomys simulans*), and Los Angeles pocket mouse; bear (*Ursus americanus*) and mountain lion (*Puma concolor*) tracks were also documented at this location.

Bogart Park: (Western SB-SJ Linkage, Linkage 23) Cameras operated in 2008 and 2014 documented puma, bobcat, coyote, gray fox (*Urocyon cinereoargenteus*), mule deer, and several meso carnivores.

Singleton Property, part of MSHCP Constrained Linkage 23: Cameras operated 2008-2010, 2014-2016. Documented puma, deer, bobcat, coyotes, gray fox. Beautiful, diverse oak woodland and chaparral habitat.

Badlands/San Timeteo: LA pocket mouse trapping was performed at this location in 2010. Documented Dulzura kangaroo rat, LA pocket mouse, and Stephens' kangaroo rat (*Dipodomys stephensi*).

Badlands: Camera traps were operated at this location in 2010 and 2011 at existing culverts before SR-60 construction began, which is going on now. These culverts have a natural bottom, with both animals and humans using them. Documented long-tailed weasel, bobcat, badger (*Taxidea taxus*) and mule deer on these camera traps.

Jackrabbit Trail: Operated Camera Traps in 2015 and 2016. This location, owned by the RCA, is off Gilman Springs Road and the target species for this location was badger. Documented bobcat, badger, coyote and San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). Quite a few badger roadkills have been documented on Gilman Springs Road that appear to be moving between San Jacinto Wildlife Area and the Badlands.

Lamb Canyon: Camera traps were operated at this location in 2008 and 2009. Three cameras placed in Lamb Canyon culverts under SR-79. There is not a lot of data from these cameras, and it is likely that cameras were stolen. Documented use by bobcat, coyote and gray fox, as well as lots of humans. Lots of debris in culverts at the time, could be a good culvert for wildlife if it were maintained.

The WRCMSHCP has 146 covered species, including 14 covered mammals

P-13.7
(Cont.)

Michelle Marsical, Camera Trapping Monitoring Results for the Greater Interstate 10 Linkage Area

Michelle Mariscal conducted biological monitoring for the Multiple Species Habitat Conservation Plans in the Coachella Valley and Western Riverside County for ten years before taking her current position with the Puente Hills Habitat Preservation Authority, which manages the Puente Hills Preserve in Los Angeles County. A camera trap study conducted in the Coachella Valley was part of her Master thesis while at the University of California Riverside.

Michelle conducted a camera study of underpasses along I-10 and SR 62 as part of her Masters' thesis at UCR. Results of this study have been published in Southwestern Naturalist.

Michelle monitored 7 underpass sites for 29 months between 2010 – 2012 in the San Gorgonio Pass area. The study focused on understanding wildlife use patterns and wildlife use constraints.

<u>Wildlife Use of Underpasses</u>

Wildlife species aren't shy about using underpasses, however, neither are humans as human occurrences outnumbered animal passages.

The Stubbe Canyon underpass also supports the Pacific Coast Trail, so humans are present night and day several months out of the year. She also documented a lot of vehicle traffic by utility companies at this underpass.

315 domestic animals were documented on underpass cameras over the course of the study.

Many wildlife species were documented at underpasses: small rodents, birds, jackrabbits, brush rabbits (*Sylvilagus bachmani*), squirrels, crows, reptiles, desert cottontails (*S. audobonii*), coyote and mountain lion.

Michelle reviewed the structural attributes and wildlife use of each underpass. Bobcat use of underpasses is positively correlated with width. Bobcat use is also statistically negatively associated with off road vehicles and other vehicle use. Lagomorphs use of underpasses is negatively associated with openness.

She also placed cameras further away from highways, in more natural canyon environment to compare use, and found that wildlife occurs more frequently on cameras than humans or domestic animals in the more natural environment. Documented one burrowing owl (*Athene cunicularia*) at one more natural site. Cattle were also recorded in the more natural environment but were not documented at underpasses.

Michelle also compared human spatial patterns, and identified that more hikers are found at canyon sites but fewer vehicles.

Rodents are 9 times more frequent at underpasses than lagomorphs. At canyon sites, birds were more common than lagomorphs.

Evaluated the 24-hour cycle of use by humans and wildlife species

Total human activity occurs at all hours at underpass sites, but human use ramped up near dawn and during all daylight hours.

Canyon sites: Human use peaked at 10 am and waned at 4pm.

Coyotes: Activity at underpasses peaked at 2 am; activity of coyotes at canyon site peaked at dawn. As human activity increased at dawn at underpasses, coyote use declined.

Bobcat activity at underpasses is more nocturnal. At canyon sites, bobcat use peaks at dusk and near dawn. As human activity ramped up near dawn at underpasses, bobcat use declined.

Results indicate that coyotes and bobcats modify their habitat use in response to human presence.

Threats and Opportunities

Dry Morongo Wash Underpass/SR 62: lots of human presence at this location, including fire pits and debris. Dogs frequently documented off leash from neighboring parcels. This is the only crossing in the study area used by deer and mountain lion. The size of underpass is great for wildlife use and close to where mountain ranges come together. Documented bighorn sheep near this underpass but did not document them using it.

P-13.7 (Cont.)

Brock Ortega: Sr Wildlife Biologist, Dudek: SR 62/Morongo Basin Wildlife Linkage Plan Interim Results

Brock is a Senior Wildlife Biologist and principal at Dudek, where he has worked for 26 years. He holds federal permits for several listed species, and particularly enjoys working on wildlife movement and renewable energy projects. Brock's Co-Presenters include Fraser Shilling, Norris Dodd/Aztec Engineering, and Travis Longcore. Funding for this project came from Caltrans District 8.

Methods:

The project team performed literature review, track, camera and road mortality studies, highway noise and light studies, as well as a drone study of the entire highway.

Land ownership is critically important when siting crossing structures and requires protected lands on either side of highway.

Yucca Grade Segment: wildlife cameras set up on protected lands owned by the Mohave Desert Land Trust and BLM.

Track stations were set up along dirt roads that paralleled the highway, with cameras set up at crossing structures.

Morongo Valley Segment: only a few crossing structures are located along this segment, including Little Morongo Creek, a San Bernardino County Flood facility and one other crossing.

Morongo Grade Segment: this included the bridge location at Dry Morongo Wash that Michelle spoke of plus a few other crossing structures. **P-13.7 (Cont.)**

Results

The project team examined available connectivity modelling as part of this study, however, models don't indicate what's happening on the ground, so the team examined site conditions in more detail.

Roadkill and wildlife sightings data were obtained from California Highway Patrol, California Roadkill Observation System (Home | CROS (wildlifecrossing.net)), U.S. Geological Study, California Natural Diversity Database, and through track stations. Concrete barriers along roads can be an impediment to successful wildlife crossings. Some significant roadkill was documented along Morongo Grade.

In addition to focused surveys, the team completed track and sign surveys, hiking surveys to document track and scat, which was especially important in areas like Mission Creek and Morongo Wash Bridge where cameras were stolen.

Documented bighorn sheep (*Ovis canadensis*), mule deer and mountain lion. Wildlife camera results documented >1000 human influence photos. Cameras documented lots of jackrabbits.

Green highlights in table below indicate crossing structures. One desert tortoise (*Gopherus agassizii*) showed up at a camera trap station on Yucca Grade. High concentration areas for bighorn sheep and people circled.

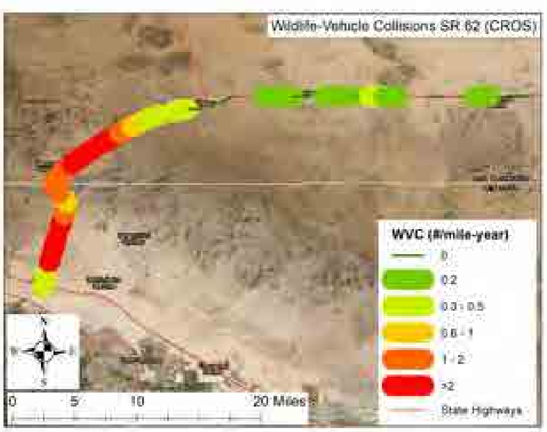
Wildlife Camera Results

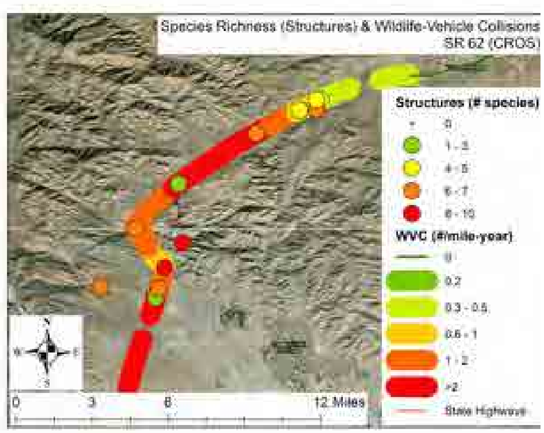
- Over 13,000 wildlife photos
- Over 1,000 human influence photos
- Over 5,900 focal species (2,100 hares)

Row Labels	Domestic Dog	Human	Grand Total
Big Morongo Cyn Preserve 1	38	77	115
Lower Morongo Wash Culvert		112	112
Mission Creek Bridge (North)		171	171
Mission Creek Bridge (South)		12	12
Mission Creek Preserve	40	92	132
Morongo Grade Roadside Camera (MGRCA)		250	250
Morongo Valley Box Culvert		16	16
Morongo Valley Storm Channel	6	38	44
Morongo Wash Bridge		42	42
[illegible]		1	1
Yucca Grade Sand Trail Sec	3	4	7
Yucca Grade Oval Culvert	29	23	52
Yucca Grade Twin Pipe Culvert		41	41
Yucca Grade West (YGW)	5	66	71
Grand Total	121	1024	1145

Count of Species / Row Labels	American Badger	Bighorn Sheep	Black Bear	Black-Tailed Jackrabbit	Bobcat	Coyote	Desert Tortoise	Gray Fox	Greater Roadrunner	Mountain Lion	Mule (or Black-tailed) Deer	Grand Total
Big Morongo Cyn Preserve 1		18		254	2	59		210	2	3	4	541
Lower Morongo Wash Culvert	1			32	15	28		564				644
Mission Creek Bridge (North)	12			2,280	50	557			135			3125
Mission Creek Bridge (South)				1	1	3			1			5
Mission Creek Preserve	1		1	36	1	141			34			214
Morongo Grade Roadside Camera (MGRCA)		10		35	5	71		21	12	3		166
Morongo Valley Box Culvert				100	52	4			32			232
Morongo Valley Storm Channel				46		6		1	16			72
Morongo Wash Bridge		16			28	123			33		52	234
[illegible]				15	34	33			3			113
Yucca Grade Sand Trail Sec				102	10	106		4	3		35	260
Yucca Grade Oval Culvert				35		6			16			55
Yucca Grade Twin Pipe Culvert	3					3			4			10
Yucca Grade West (YGW)				32		33	3		25			173
Grand Total	17	38	3	3120	268	1100	3	808	279	3	98	5923

The study also examined wildlife collisions along Mission Creek floodplain and Morongo Valley area, with slightly less collisions noted on Morongo Grade.





1) wildlife vehicle collision (final dataset, n=258, 2015-2020), 2) camera data (species richness for whole study, draft data).

P-13.7 (Cont.)

The study examined areas with high mortality and high utilization of crossings. Blue dots indicate wildlife collisions, green dots indicate successful crossings on the map below. Three mountain lions were killed at at-grade crossings, and one mule deer mortality was documented, plus two black bear mortalities.

Results indicated that bridges are conveying more wildlife species than other structures.

Recommendations

Mission Creek Bridges: major drawback with this structure is that there is a lot of human use, but there are also a high number of wildlife detections. Structures are good and represent good candidates for noise and light mitigation. It is recommended that the bench at the undercrossing be removed to create more height/passage for wildlife; may require periodic maintenance to clear sediment.

Lower Morongo Wash Concrete Box: the study only documented one gray fox using this structure; it possibly needs light and sound screening, as well as directional fencing. It may be a good idea to install sound protected light wells in the median, but this is not recommended if it is only used by night-time animals. This structure should be enlarged to allow more use by coyotes and mountain lions. This crossing would need to be an overcrossing to make it usable by deer.

Dry Morongo wash: mountain lion, mule deer and many other species use this structure currently. A fair number of bighorn sheep at this location. The optimal spacing of bighorn sheep crossings is 2 miles; currently there is 3 miles between existing crossings. One possibility is to shave down the fill under the crossing in this location to provide more clearance for bighorn sheep; this crossing also needs light and sound mitigation. It

P-13.7 (Cont.)

is also recommended that gates be established at the Southern California Edison Access Road to limit vehicle use of structure.

Little Morongo Wash bridges: lots of deer collisions were documented in Morongo Valley and this is the only crossing. This crossing is silted-in and used by only a few species (only 1 foot clearance). This is a SBCFD facility that needs maintenance so that mule deer could use it. Light and sound mitigation is also needed for this location, as well.

Big Morongo Wash Culvert: The only possible fixes for this existing crossing, short of replacement with a larger structure, would be light and sound mitigations. Not much wildlife use documented at this location. To enhance its function, this crossing needs to be replaced with a larger structure.

Proposed New Crossings:

The study recommends the installation of 2 new overpass structures where there are conserved lands on both sides of highway to connect Yucca Grade at the north end and Morongo Grade at the south end on the San Bernardino-Little San Bernardino Linkage. These 2 locations reflect areas with high wildlife use and represent areas where such structures are feasible to construct.

Yucca Grade and Morongo Grade site inspections were conducted for overcrossings with Contech Engineering. Establishment of a pre-cast modular crossing would require setting up frames on either side of highway and then dropping in pre-cast segments in the middle. Minimum 24'10" clearance is required for this structure, and the structure would be 80 feet wide. Would also require establishing directional fencing to lead wildlife to structures. Modular crossing structures can be installed without affecting the existing SCE powerline. Some potential wetland and Joshua Tree impacts associated with installation of this structure. **P-13.7 (Cont.)**

Morongo Grade Overpass: Existing topography works well for the placement of a modular overcrossing in this location but would need to incorporate another crossing to accommodate SCE utility road in addition to SR- 62.

The cost of a modular structure would be approximately $1-2 million on its own. It is estimated that 2 modular crossing structures could be permitted and installed for less than $10 million.

Q&A Related to Brock Ortega's Presentation on the Morongo Basin Wildlife Linkage Study

How was wildlife collision data collected for SR-62 Study?
Brock Ortega responded that data were collected from UC Davis Road Ecology Center, Caltrans Maintenance crews, and California Highway Patrol. A technician intern from UC Riverside also collected roadkill data while driving to and from the site.

What time of day were bighorn sheep crossing at Dry Morongo Bridge, and how did you determine where overpass should go?
Brock Ortega responded that Bighorn sheep were detected mostly in the morning. The location of the overpass was determined by: topography, constructability, evidence of bighorn sheep use and establishing 2-mile distance between crossings. Powerlines are also a constraint. Generally, the narrower the distance between edges of the road, the better. Directional fencing will help guide animals to structures as well.

What is the estimated Cost for an overpass?

Brock Ortega responded that structures are estimated to cost $1-2million each; this cost estimate doesn't include pouring footing, earthwork, placing soil or fencing, planning, engineering design, or permitting. Need to understand if this structure type meets Caltrans standards.

Do you see bighorn sheep crossing at one time of year and is it multi-directional?
Brock Ortega responded that yes, they do cross both directions, not sure able to address seasonal use. Seemed like consistent use during the time of the study.

What is the cost for wildlife fencing?
Norris Dodd responded that they estimate wildlife fencing to cost $130k per mile depending on rock substrate. Scott Quinnell reported that for the recent I-15 wildlife fencing (2020), it's costing $500k/mile, while SR-241 was $1 million per mile. Cost highly dependent on substrate – rock increases price. Really need to focus on final installation to make sure there are no gaps in fencing. Amount of rock substrate can really drive up the cost of fence construction, and you won't know that until you start building it.

Fraser Shilling commented that for the Hwy 89 fencing in the Sierra Nevada, long sections of fence are currently down, but it cost roughly $100k /mile. Fencing is only effective if there is maintenance and if, like the SR-241 fencing, is robust and sturdy.

4.3 Research and Monitoring Session

Cameron Barrows, UC Riverside: Conservation and Linkages for the Coachella Valley: Ecosystem Processes: Sand Transport

P-13.7 (cont.)

Dr. Cameron Barrows – spent the first 27 years of his career working for conservation NGOs, focused on establishing networks of protected natural landscapes throughout southern California. For the past 16 years, he's been at UC Riverside's Center for Conservation Biology, focused on developing metrics for evaluating how well protected land networks meet their objectives under a barrage of stressors, like habitat fragmentation, invasive species, and climate change.
Talk will focus on how severing linkages impacts ecosystem processes.

1985: First HCP in Coachella Valley led to expanded MSHCP in 2008

Coachella Valley History

If we go back in history, 150-200 years ago, there was a massive 100 square mile sand dune system in the Coachella Valley that supports species found nowhere else in the world. During droughts, species might have shifted to cooler wetter portions of the dunes in the north/west end of the valley, vs wetter periods, when species shifted to hotter drier areas to the south end of the valley.

Historically, fluvial processes carried sand from the San Gorgonio River, Mission Creek, Little Morongo Wash, plus a few washes that flow south from Joshua Tree and Whitewater River. Whitewater River was the primary source of sand, as was San Gorgonio River but sand flows have decreased due to I-10 and other constrictions upstream.

Sand moves through the system via water and then is carried by wind; first west to east through the San Gorgonio Pass. East of the Pass, sand is transported by winds to the south-east.

Sand dune system supports two endangered species: Coachella Valley Fringed toad lizard and Coachella Valley milk vetch (*Astragalus lentiginosus* var. *coachellae*). Also supports many arthropods found nowhere else in world.

Today, very little, maybe 5 percent, of the sand dunes remain today.

After the serious drought of 2000 to 2004, there became a genetic partitioning of fringed toad lizards across the valley, and no connectivity is occurring anymore. This is a particular concern from a genetic, as well as, climate change standpoint, as is sand transport, for their long-term survival.

Freeway construction began in 1925 with Hwy 99, which turned into I-10 in the 1960s. But even the railroad, which was built in the 1860-1880s (which should have been built at the base on the mountains to the south instead of right thru the middle of the sand dunes), limited southern sand transport and began the sand starvation of dune systems south of what is now I-10.

Sand sources have pretty much now been limited to Whitewater River, but it becomes channelized south of the I-10 to create percolation ponds to support the regions 30 golf courses. Colorado River water is sent down the Whitewater River to replenish groundwater used by golf courses. So instead of water and sand coming down the Whitewater River, very little does. Sand flows pretty much stop at percolation beds on Whitewater River.

Genetic separation has caused an interesting dialog, as USGS has determined that the Flat-tailed horned lizards in the San Gorgonio River are different from the other populations. USGS suggests that we consider mixing the populations; however, it is possible the separate subpopulations have become more adapted in their locations and maybe we would be detracting from their adaptations to their local environments if we mixed them. This needs further study.

P-13.7 (cont.)

Indian Avenue, near the percolation areas, gets closed down multiple times a year due to flooding or sand flows and engineers want to block sand/water flows west of Indian Ave. Scientists have told the engineers that this would be devastating to the species that rely on the sand habitat. We instead have suggested they create modular vehicle overpasses to accommodate flows underneath to sustain connectivity between the two fringed toad lizard populations and sand flows

Largest dune left is 1000-2000 acres in the southeastern portion of the valley, north of I-10. This dune system still receives some sand flows from Indian Hills and Joshua Tree. The Joshua Tree corridor is the only protected sand corridor that allows species and sand to travel from 5000 feet at Keys View in Joshua Tree to just above sea level. County has allowed a lot of development to occur in this area and Army Corps of Engineers and the County are creating a flood dike that will protect houses from sand and flood flows while also maintaining the dune habitat and wildlife populations.

In this location, the County and USFWS regularly collect sand on 38th Avenue and transport it upwind from the dunes – unfortunately a necessary action to sustain NW to SE sand flows to the dunes. The sand trucking effort is helping, but the County needs to make sure they don't stabilize the sand when they drop it upwind.

Flat tailed horned lizard (*Phrynosoma mcallii*) – most northern population is found in Coachella Valley, in only one location, but hasn't made threatened or endangered list. This is the densest population recorded, much denser than populations to the south of the Salton Sea. This remains a healthy population.

Fringe toad lizards seem to be doing well, despite drought and not having the option of moving up mountain sides in response to drought and climate change like other lizards.

Jeff Lovich, USGS: Are tortoise populations linked around the Coachella Valley?

Dr. Jeff Lovich is a Research Ecologist with the U.S. Geological Survey. He has been researching the ecology and systematics of turtles and other wildlife for 40 years. His research has taken him throughout the United States, as well as to Morocco, Japan, and the Galápagos, but he keeps coming back to the Coachella Valley where he started working in 1992. His current research focuses on all aspects of turtle ecology, and the impacts of utility-scale wind and solar energy development on wildlife, especially desert tortoises.

Tortoises are confined to the upland areas around the valley, as the sandy valleys aren't good tortoise habitat. First study population was in the Mesa wind farms of Whitewater River.

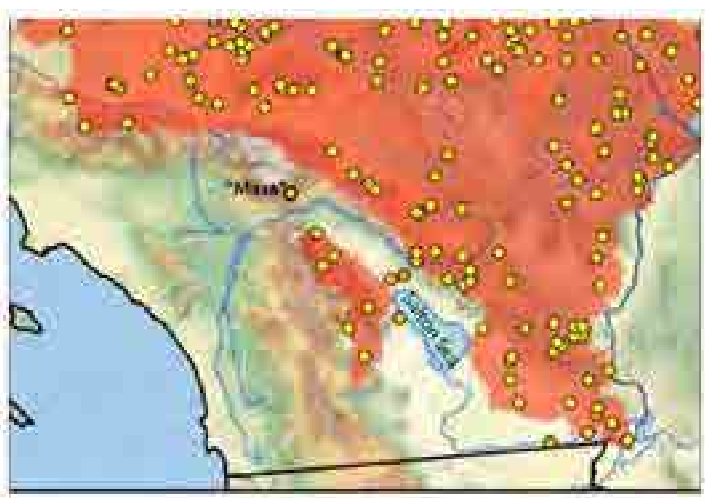
Funders of Jeff's tortoise research: CA Energy Commission, Coachella Valley Conservation Commission, and Bureau of Land Management.

Desert tortoise reaches the southern limit of their range in the Coachella Valley. There are a few records from the Peninsular Range, but the valley floor is devoid of tortoise due to sandy habitat which they don't like, short flowering season, and extreme heat. Coachella Valley is a lowland depression known as lowland trough that is considered a barrier to tortoise movement.

Kristie Cummings and Sharon Pluffer: two techs that have supported Jeff's research. **P-13.7 (cont.)**

Working with CVCC to answer basic questions:

What constitutes a population? Many records exist, a population must have multiple individuals, successful reproduction, and subadults present. Tortoise can live 50 years, but if there's no recruitment, populations become decadent and will disappear, yet it takes a long time.



Modified from Berry, K.H. and R. W. Murphy. [illegible]

Cottonwood Canyon in Joshua Tree is a special place for tortoise: good wildflowers, gets more rain and thus is good habitat. Composed of tilting bajadas and rocky hills – classic Sonoran vegetation. Great habitat. Worked there from 2015-16. Alice Carl did surveys in 1980s. In 2016 documented 18 tortoises, including one Jeff marked in 1990s and 18 carcasses, one of which was killed by badger. Put radios on live tortoises. Found 3 juveniles and one subadult at this site so there is breeding.

Right across the I-10 is the Orocopia site, which is very different as it is composed of a creosote flat with scattered trees. 2017 experienced good plant production, whereas 2018 was terrible. Found 22 live tortoises but it took a lot of walking. USFWS has done line transects for tortoises and results were very similar - only found one juvenile and one subadult. Found 57 carcasses, biased toward females, likely from drought that took place between 2012 and 2016. The number of living tortoises were mostly male, with most of the dead biased toward females. Likely females bet-hedge their egg production, sometimes with two egg clutches in good years, but they lose a lot of body mass, which doesn't do them well when we have long droughts after a productive year.

No surveys have been completed in Paradise Valley to the east. In 2003, a 100 percent survey coverage was completed for the Orocopia population, where they found 10 live tortoises (including 1 sub-adult and 1 juvenile) and 123 dead ones. Something is going on with tortoise south of I-10, likely due to drought. This is consistent with results from USFWS/Utah Game and Fish surveys in the Colorado Desert Unit, where they had a 36% decline in tortoises between 2004 and 2014. What we are seeing with declines is a sub sample of the larger area.

Moving to the west is Deep Canyon, a remote site managed by UC Riverside. This site has had a historical breeding population and is the only natural population in the Peninsular Ranges. There are some tortoises in Anza Borrego but they were likely released. Deep Canyon is a harsh place for tortoises, very dry with lots of cactus. Over the past few years, we have found 8 live, 6 dead tortoises (including 3 hatchlings killed on the road), and 1 gravid female, so there has been breeding. Hatchlings are usually found every year. No tortoises found in 2021 despite intensive searches of burrows that have been occupied for many years.

Mission Creek Population: 3 live tortoises found in 2021, including one hatchling. No dead tortoises found. A very small population but it does appear that there is reproduction happening.

Jeff's long term study site is located in Mesa/Upper Whitewater Canyon, where he has been studying tortoises since a wind farm was installed there in the early 1980s. Between 1997 and 2013, he marked 70 non-hatchling tortoises. This site has consistently supported a population of around 100 tortoises, one of the largest populations with high reproductive output. However, despite high reproduction, there is little evidence of recruitment, with a very aged population that may soon be dying off.

Major threats to the Mesa/Upper Whitewater Canyon population of tortoises include fires started by wind turbines, causing invasion of red brome and mustard. Site operations may also be an issue, as the site is currently being repowered, and the increased human activity could have significant impacts. Jeff has published a number of research papers on this population, and even has camera traps set up where burrows are visited by bobcats and even bighorn sheep, who may be seeking minerals from excavated burrows.

Jeff published a paper last year about gene flow from the Mesa/Whitewater population in the western Coachella Valley to the populations at the Orocopia and Cottonwood sites in the east and thought that gene flow

P-13.7 (cont.)

would be interrupted by the Salton Trough (6 million years ago Gulf of CA was a major barrier, and it wasn't until 3 million years ago that the Colorado river was a barrier too). Despite these long term barrier effects, all tortoises in the Coachella Valley show some genetic connectivity to the Colorado desert population. Deep Canyon might be a bellweather of climate change impacts of the past.

Conclusions:

- Tortoise populations in the Coachella Valley are widely separated and may be relicts of a past wider distribution.
- Despite scattered nature of populations, gene flow has occurred.
- Major barriers existed in the region for over 6 million years.
- Tortoise population declines in low elevation areas may be a sign of the effects of climate change.

Winston Vickers, UC Davis Wildlife Health Center: Mountain Lions and I-10: A Critical Corridor

Dr. Winston Vickers is an associate veterinarian for UC Davis Karen C. Drayer Wildlife Health Center and the lead investigator for the California Mountain Lion Project. He has been studying mountain lions for 19 years, and his research with UC Davis, and that of others, has been critical to the recognition of the major threats to mountain lion populations and possible mitigation measures that can reduce those threats. He has also devoted extensive time to education about mountain lions, including directing both short and full-length documentaries about mountain lions that have been viewed over one million times.

The UC Davis Southern California Mountain lion study was started by Dr. Walter Boyce in Anza-Borrego Desert State Park, and while originally focused on bighorn sheep, the study team soon realized mountain lions were facing big issues as well. **P-13.7 (cont.)**

Recent genetics work by Guftasen, Ernst and Delle identified there are 10 distinct mountain lion populations in California, with southern California having especially small geographic subpopulations.

Santa Cruz and the 5 Southern California subpopulations have been petitioned for listing under the California Endangered Species Act. Researchers are finding inbreeding going on in these populations with significant barriers to connectivity, especially highways.

There is a great deal of mountain lion research collaboration throughout the state, with Justin Dellinger/CDFW bringing state-wide data and habitat suitability mapping to bear on mountain lion research.

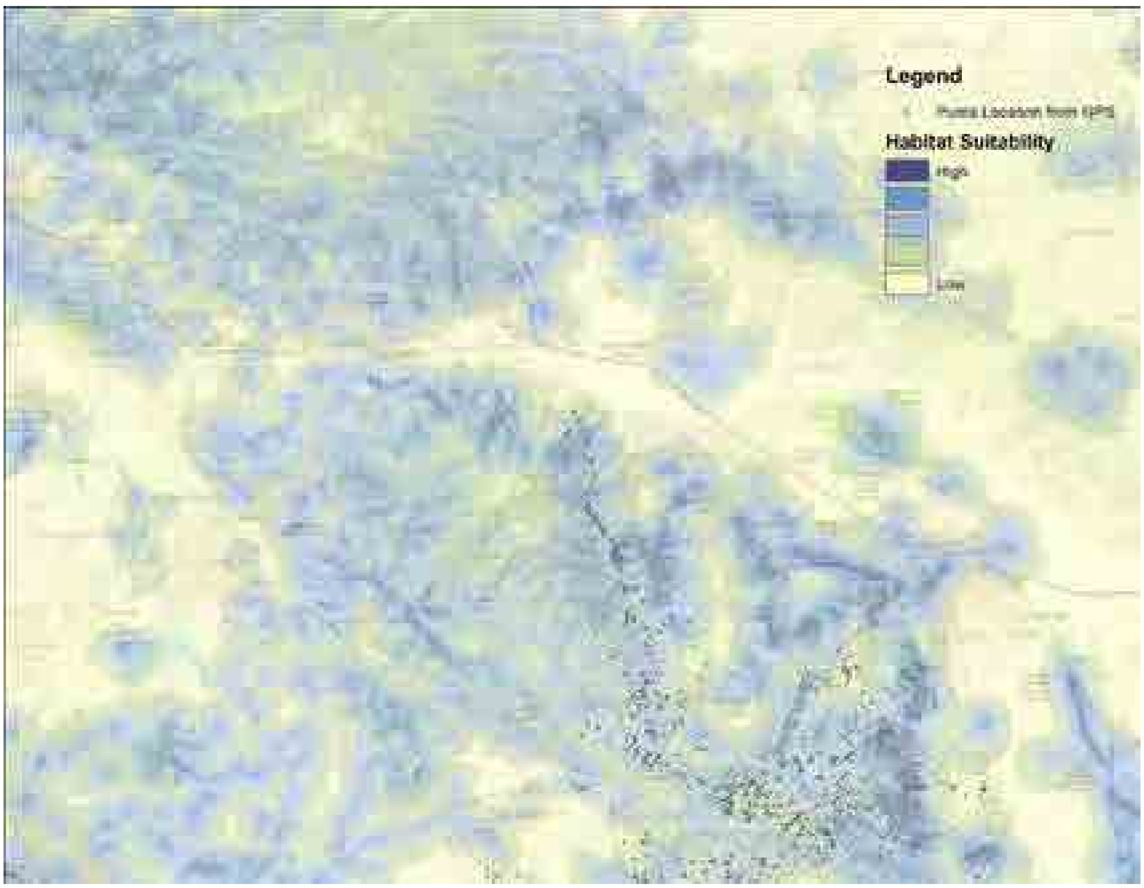
Mountain lion habitat is mainly restricted to major mountain ranges. Desert habitat is too open and not really very good for lions.

At least 10,000 square kilometers of suitable habitat is needed to sustain a viable population. Connecting these 3 populations (Santa Anas, Eastern Peninsular and Transverse) to the north to the Tehachapi Mountains, securing crossings across major highways, and protecting habitat are all critically important to creating a sustainable population.

Data indicate that five of the 10 populations in the state do not have that level of habitat protection, including the Santa Monica Mountains, Santa Ana Mountains, and the Eastern Peninsular Range. Even when you combine the Transverse, Eastern Peninsular and Santa Ana populations, you still don't have the 10,000 square kilometers of protected habitat needed to sustain a population.

The good news is that the San Gabriel and San Bernardino Mountains are still connected and represent one subpopulation. The population is in the mid-range regarding genetic diversity. It is a key population hub to connect the 5 separate southern California sub populations. There have been a couple of collared lions in the Transverse Range – one's natal home range is in the San Gabriel Mountains but has gone east of I-15 into the San Bernardino Mountains, and has crossed I-15 several times. We don't know exactly where she crossed I-15, but it looks like she possibly crossed I-15 near Devore, also south of Cajon Junction. Probably used an existing undercrossing. She even wandered into Palmdale!

Winston then showed a map of the Greater I-10 Area and the Mountain Lion Habitat suitability mapping from CDFW. One collared lion came from the San Bernardino Mountains southward, came close to I-10 at Whitewater, but didn't cross the highway. Riparian habitat is likely the most suitable mountain lion habitat for gene flow in this location, but Whitewater's riparian habitat is very sparse (map below).



P-13.7 (cont.)

Winston explained that in the Calimesa area, a male disperser came down from Big Bear and, if we look closely where he came down and with Dudek's, RCA's, and M. Mariscal's data, you can see he came where other evidence has pointed to mountain lion activity, but he didn't cross I-10. His data points right behind houses but there is only a narrow pathway to get to I-10 and across just west of the 60/I-10 merge.

Lions are sensitive to people and transportation infrastructure; their work at Temecula Creek and I-15 shows that, if there is a lot of human presence, lions are not willing to cross even when there are suitable crossings. Dispersing juveniles are more willing.

Both the Calimesa and desert linkages have very little vegetation cover, which would need to be improved to support lion movement. All the human activity with the Pacific Coast Trail crossing on I-10 could also deter lion use.

One collared lion headed from the west to Morongo Valley at Hwy 62 region, where he approached the highway but went back, but then got struck and killed on Hwy 62 between Yucca and Morongo Valley.

From a habitat perspective there was good lion habitat between Beaumont and Banning but that is no longer the case.

San Gorgonio River provides a possible linkage and there is evidence of lions on both sides of I-10, but there isn't much cover on the desert floor, even along the river, which is probably too daunting for a lion. We know from genetic info that lions aren't crossing now so the habitat should or must be improved for them to use this area. Lion Canyon and Whitewater Canyon to the east of San Gorgonio River are also very open. If we could increase plant cover along the rivers and washes, it might be suitable, otherwise a lion would have to cross 2.3 km of open habitat in San Gorgonio Pass area, and 3 km of open habitat along Whitewater River.

The example of Temecula Creek looks great but heavily impacted by people and noise and light. Lions are approaching I-15 from both sides but only documented one successful crossing of a lion from the Palomar Mountains east of the freeway to the Santa Ana Mountains. We are now facing extirpation of lions from inbreeding in the Santa Ana Mountains. Ongoing and planned wildlife crossing improvements could improve this outlook. **P-13.7 (cont.)**

Winston explained that Justin Dellinger at CDFW will be doing a scat dog survey in the Transverse Ranges to find out how large the population is. Now we are using mark-recapture using hair snare set-ups with attractants with hair snare in front. Looking at different ways of estimating population size of the populations because we want to sequence the genome, especially from small populations, and to quickly quantify genetic health to identify critical levels when management interventions, e.g., genetic rescue, are warranted. Also looking at reducing major causes of mortality caused by depredation and roadkill.

Robert Fisher, USGS: Habitat Connectivity for Golden Eagles

Dr. Robert Fisher has been a research scientist at the USGS for the past 23 years. Over the years Robert has worked on various species and topics with his research team to understand the biotic responses (and potential mitigative measures) to urbanization in the southern California landscape, working on a diversity of species, from parasites to mountain lions. Much of his work looks at fragmentation effects, connectivity, genetics, and developing monitoring programs for cryptic and rare species. He has been leading a program on the Golden Eagle addressing these questions since 2014.

Although not a bird biologist, Robert was tasked for tagging golden eagles (*Aquila chrysaetos*) to understand habitat use, occupancy, estimate number of eagle pairs, collect genetic samples for statewide genetics, and examine any issues with toxicants.

Seminal 1937 paper on golden eagles comes from San Diego, which estimated an eagle territory at 36 square miles. The paper also told us that they avoid each other and their territories don't overlap. The 1937 paper states: Eagles are better able to survive in Southern California if we don't develop their habitat, so USGS has focused on direct and indirect effects of humans on eagle dynamics (e.g., recreation).

Renewable energy coming online in San Diego and research being used in developing considerations for such projects in the county.

Study Methods: Bait eagles with calves from milk industry, process the eagles and fit with GPS backpacks. Pete Bloom is the eagle trapper. We've captured 50 eagles, 49 fitted with CTT or backpacks. USGS targeted birds previously banded by others so could examine natal use. USGS worked to identify where each eagle came from and where it's nesting now to get a sense of how the current landscape is functioning for eagles.

High resolution data: for example, one bird lives in the Carrizo Gorge and goes to Mexico every day for foraging.

USGS reduced the point data and modelled areas important for eagles. Bigger the dots, the more important it is to avoid land uses that will impair eagles. This data has provided a useful management tool.

2020 report: 27 eagles have travelled to the Rocky Mountains in Canada and down into Baja, California, but most stay in Southern California. **P-13.7 (cont.)**

None of the monitored eagles have crossed Coachella Valley or gone into Arizona or Mainland Mexico.

2 eagles sending data since 2014. One appears unable to breed due to Department of Homeland Security activities at the border.

USGS developing an "Urban avoidance threshold" to use as a planning tool to show the probably eagles will use an area. Eagles typically avoid areas 1300-2000 meters from the Wildland-Urban Interface.

USGS performed a site occupancy study based on Altamont Pass study in Northern California's East Bay. USGS placed a mapping grid across Southern California, and completed 175 breeding surveys in prioritized grids over 2 years to come up with a density and occupancy probability. Only surveyed cells with less than 50 percent urban and more than 50 percent open. Eagles are less detectable in forests and we think they avoid it. Also, eagles seem to like terrain roughness and avoid flat areas. 53 pairs of eagles identified across the sampling frame. Reports are available on the USGS Website, plus two publications are in press.

Data from I-10 Corridor Eagles:

Golden eagle "F-11" from San Diego was captured in Proctor Valley and flew up to the I-10 San Gorgonio pass area. Also crosses the Pechanga/ I-15 corridor, so this bird uses the same crossings that are important for lions.

Another eagle crossed I-15 at the Steele Peak area, also crossed I-10, visited San Gabriel Mountains, and then came back to Orange County.

Another San Diego eagle went to San Gorgonio River, came back, then returned to the San Gorgonio River and then back to San Diego. She is really focused on crossing back and forth in San Gorgonio pass area (really important to keep open) between the San Bernardino and San Jacinto Mountains. This eagle avoids Cabazon, Banning and the PCT where it goes through Whitewater River area.

Another eagle is using Calimesa area to cross from Badlands to San Bernardino Mountains, avoiding Whitewater, using San Gorgonio River. If it gets more developed may not want to cross there.

There is also concerned about a rabbit virus (Hemorrhagic fever), as jackrabbits are the main food source for golden eagles.

Eagles avoid urbanization and wind development, and we are on the verge of squeezing them out.

Q&A for Session

A participant asked if anyone is working on conservation near Hemet?

Robert Fisher answered that some of the degraded ex-farmlands and grasslands in French Valley have a lot of rabbits and may be important for eagles.

Is the Morongo Tribe engaged in connectivity? Cameron Barrows offered that the Agua Caliente Tribe had started their own NCCP. He also mentioned that the Tribe is suing the water district due to over-use of water and could have an outcome of managing the Whitewater River better for people and wildlife

Is anyone studying Coachella Valley round-tailed ground squirrels (*Spermophilus tereticaudus chlorus*)?

P-13.7 (cont.)

Cameron Barrows answered that the round-tailed ground squirrel is a covered species in the CVMSHCP, they do monitor them, associated with blow sand habitat, occur throughout the valley floor at low densities but are in high densities at mesquite dunes, but most of them are drying up and not doing very well. Replaced by antelope ground squirrels in rocky areas. Need blow sand/aeolian sand. Seem to be doing ok, population ebbs and flows. A couple of years ago almost gone but coming back in last few years. Seem to do ok in irrigated areas next to dunes, like golf courses.

Would vegetated overcrossings be beneficial for eagles?

Robert Fisher answered that, yes, golden eagles would use a vegetated overcrossing, as long overcrossings do not serve as recreational bridges for people. Golden eagles don’t mind cars, but they do mind people. Pechanga Crossing would be good. Birds likely foraging in San Gorgonio pass for rabbits so that’s why they travel through the pass area.

Are nonnative fire ants on golf courses in Coachella?

Cam Barrows responded that, yes there are fire ants present in golf courses in Coachella Valley.

What can be done about vibration in large freight transportation corridors? Is it just about distance above grade of the crossing?

Fraser Shilling commented that for I-90, some of their mitigations for herps and underground mammals were due to ground vibrations from heavy vehicles.

Jeff Lovich responded that USGS did transects for tortoise in this area and found very little evidence of tortoise in this area but was a drought year. Thermal Canyon is a very dry, hot portion of Coachella Valley, so not sure of its utility to wildlife.

Robert Fisher commented that the greater linkage area, particularly the San Gorgonio Pass, is important for genetic connectivity for Sonoran and Mojave. USGS prepared a paper on this and can share the data.

Fraser Shilling also suggested that the literature that relates to wildlife-vehicle conflict poses the question supported by meta-analysis, that for ground dwelling animals, connectivity may be less important than mortality from roads. Roadway mortality needs more focus. Also need to deal with rate of population loss.

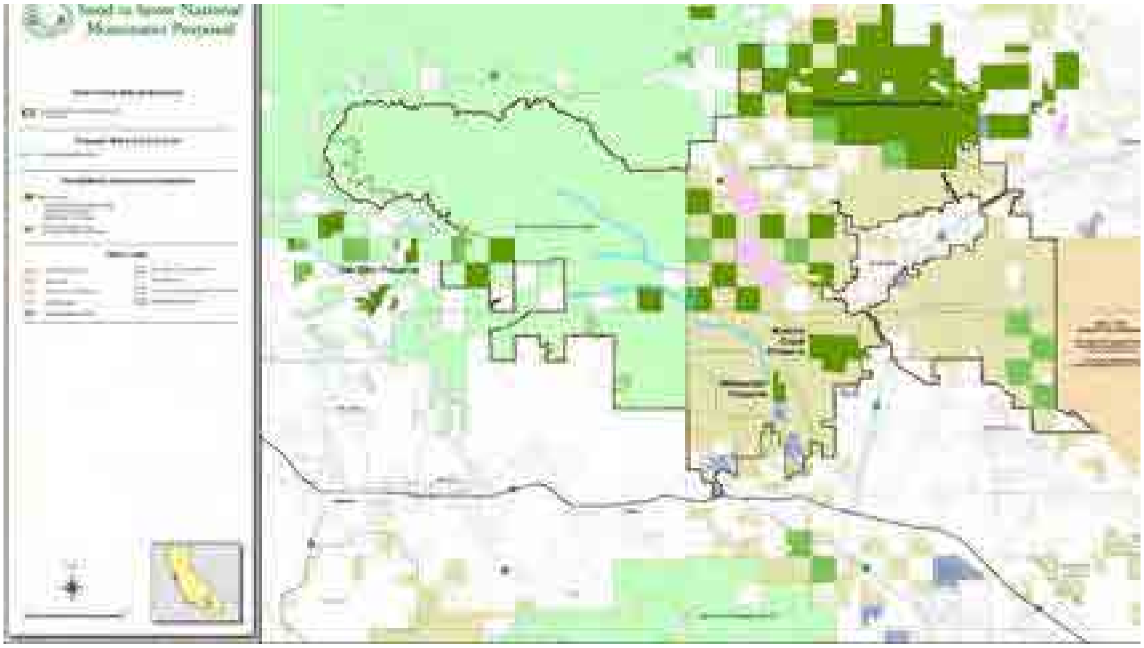
4.4 Restoration, Stewardship, and Outreach Session

Frazier Haney, The Wildlands Conservancy: Sand to Snow Interface Project

Frazier Haney has been working to protect natural landscapes and people's access to the outdoors for over fifteen years in various professional positions. He grew up hiking, climbing, and camping in the Midwest and the California Desert, a privilege which left him with a deep love of the outdoors. He attended UC Santa Cruz and received a Bachelor of Science degree in Ecology and Evolution, and later University of Redlands to complete an MBA. Frazier currently volunteers as a Board Member of the California Desert Coalition and works as the Executive Director for The Wildlands Conservancy based in Oak Glen, California. He lives in the town of Beaumont, CA with his wife Jamie and kids Lily and Owen. **P-13.7 (cont.)**

The Wildlands Conservancy's (TWC) mission is to preserve the beauty and biodiversity of the earth and to provide programs so that children may know the wonder and joy of nature. One of TWC's first major projects as an organization was the Sand to Snow Wilderness Interface Project, which aimed to acquire critical lands to connect the San Gorgonio Wilderness with the Bighorn Mountain Wilderness to the north, with Joshua Tree to the east (San Bernardino-Little San Bernardino Linkage), and with the San Jacinto Wilderness to the south (San Bernardino-San Jacinto Linkage). That effort became the foundation for the Sand to Snow National Monument, which was designated in 2016 by President Obama. The Whitewater River that cuts through the Monument was designated as a Wild and Scenic River. Much of the land acquired in Sand to Snow (image from presentation below) became TWC Preserves including Whitewater, Mission Creek, Pioneertown, Bear Paw, Bluff Lake, and Oak Glen Preserve, while other lands where appropriate were donated or transferred to public agencies.

TWC is still acquiring key lands for conservation but also focuses on children's outdoor education, connecting visitors with nature, recreation, stewardship, and restoration. All of TWC's Preserves are free to the public, and there are many repeat and regular visitors who also volunteer. TWC provides more outdoor education programs for youth in underserved communities than any NGO in California. Many times, it's the first-time kids have been exposed to natural areas, and TWC seeks to engage them in a safe, friendly, and fun way to get to know wildlands. At Oak Glen, there are kid quizzes throughout the preserve to pique their interest. Visitors form the basis for preserve management, often returning as volunteers to help with restoration. For



example, at Wind Wolves Preserve volunteers help plant the endangered Bakersfield cactus, which TWC has a permit to propagate, and now Wind Wolves is one of the strongholds for this species. Almost every cactus planted with volunteer help. Nettle plants grown in the Mojave Desert Land Trust's native plant nursery were sent to Wind Wolves to restore tricolored blackbird habitat, all with volunteer help. After the Water Fire last summery, volunteers helped reline burned out trails, manage invasives, and plant willow shoots and other natives to help with recovery. All volunteers coming out to help were first visitors to the preserves. **P-13.7 (cont.)**

In the last decade, the number of visitors to the preserves has grown significantly. Over the past year, TWC launched the Behold the Beauty Association to engage visitors and the general public in a more formal way. TWC welcomes over a million and half visitors per year across their preserve system, which is a great opportunity to tell people about connectivity, wilderness, monuments, and various campaigns, as well as, to get to know TWC's philosophy. One of TWC's key tenets is "*Since this wonderous Earth is our home, all of our preserves are open to the public for free because having to pay to visit Nature is to be dispossessed of a birthright. Free access to our preserves removes the socio-economic barriers that tend to promote a disconnect with nature".* Once visitors have joined the Behold the Beauty Association, they are encouraged to participate in campaigns, volunteer for plantings, and other preserve needs. It's all part of a bigger idea of connecting people with nature.

Q&A related to Frazier Haney' presentation on the Sand to Snow Interface Project

Joan Taylor from the Sierra Club asked if Frazier could talk about the large desert land acquisition of the Catellus lands that The Wildlands Conservancy did years ago and then how they had to defend those lands.

Frazier provided the following background on that effort. In late 90s, The Wildlands Conservancy found out about former railroad lands owned by Catellus Lands all across the California desert, from San Gorgonio Wilderness, Joshua Tree National Park, Mojave Preserve, all the way out to the Colorado River. The

Wildlands Conservancy Board, David Myers, and others raised 63 million dollars, including 18 million in public funds (e.g., Land and Water Conservation Funds), and 45 million in private funds, to purchase over 530,000 acres, which was then donated to the Department of Interior as conservation gift to the American people. It included 21,000 acres in Joshua Tree, 87,000 acres in the Mojave Preserve, 200,000 acres in various desert Wilderness Areas, and over 200,000 acres to BLM in limited use areas, like Ord Rodman Desert Wildlife Management Area. Elden Hughes, dreamed of a Mother Road National Monument, which would connect 17 Wilderness Areas, Joshua Tree, Mojave Preserve, and incorporate many of the acquired Catellus lands. After the lands were donated, solar and wind development was proposed on thousands of acres. The Wildlands Conservancy led the charge to protect Mother Road National Monument and Sand to Snow NM and fought for years to keep solar out. In 2008, Senator Feinstein introduced Mojave Trails National Monument that included Sand to Snow, and the Soda and Avawatz Mountains. In 2016, Obama designated Mojave Trails and Sand to Snow National Monuments under the Antiquities Act. The Wildlands Conservancy played a central role because of their acquisition of the Catellus lands.

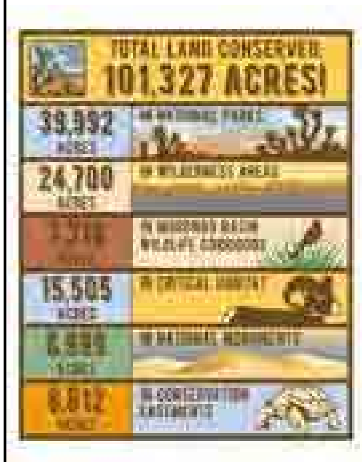
Paul Beier commented, “I have visited all of the TWC Preserves. Seeing the slides and seeing the commitment to free access with a focus on underserved groups has brought tears to my eyes.”

Geary Hund, Mojave Desert Land Trust: Outreach & Coordination in Protection of Habitat Linkages

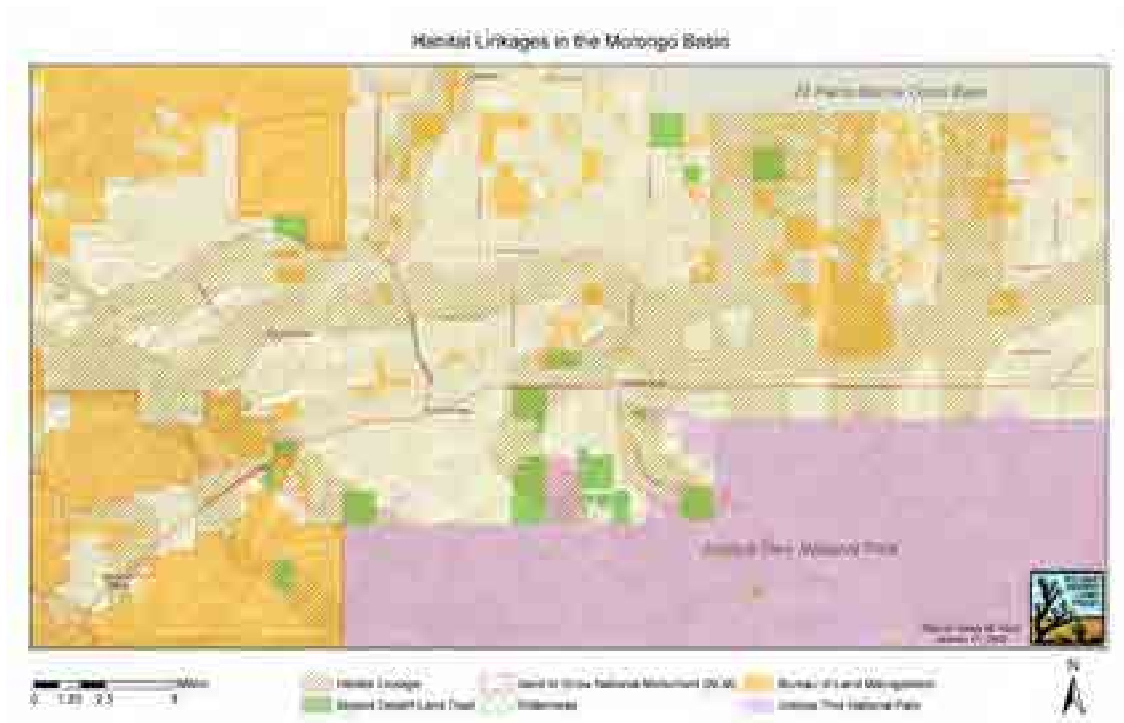
Geary has worked in conservation for more than 40 years. He began his career with California State Parks, first as a ranger and then as an ecologist. He was recognized by the Director of State Parks for his role on a team that secured permanent resource management funding for State Parks, and by the Lieutenant Governor for his work on wildlife corridors. After retiring from State Parks, Geary worked as a refuge and then endangered species biologist for the United States Fish and Wildlife Service. Geary also served as Associate Director of the Coachella Valley Mountains Conservancy, and he worked for The Wilderness Society on National Conservation Land issues. He received a Wilderness Hero's award in 2011 from The Wilderness Society in recognition of his role in the passage of wilderness and wild and scenic river legislation in Riverside County. Geary joined the Mojave Desert Land Trust board in early 2017, and he became the Executive Director in February of 2019.

The Mojave Desert Land Trust's (MDLT) mission is to protect the Mojave and Colorado Desert ecosystems and their natural, cultural, and scenic resource values. MDLT has a vast service area covering 26 million acres across these desert ecosystems. MDLT has a number of programs in addition to land acquisition, such as habitat restoration, public engagement and outreach, conservation education, and public policy work. MDLT's plant conservation program and native plant nursery provides plants to numerous agencies and organizations for habitat restoration. An active public engagement and outreach program complements their classroom work, serving underserved and disadvantaged communities, to introduce and include them in the outdoor experience. MDT also have a very robust volunteer program and engages in public policy work on multiple levels.

P-13.7 (cont.)



After just 15 years since the inception of the organization, MDLT has reached a major milestone. Over 100,000 acres have been conserved. MDLT has acquired land in National Parks, Wilderness Areas, and National Monuments, conserved designated critical habitat for federally listed species, and secured critical wildlife movement corridors. In the Morongo Basin, MDLFT has protected over 7,300 acres in critical wildlife movement linkages (image from presentation below). This includes land on both sides of State Route 62 on the Yucca Grade where Caltrans has proposed a vegetated wildlife overpass. Long ago MDLT made a decision to not just buy and transfer land but also to keep some in permanent ownership. MDLT has four permanent preserves. One, the Palisades Ranch along the Mojave River provides outstanding desert riparian habitat along this key wildlife movement corridor, while also providing nesting habitat for listed species, such as Least Bell's vireo and yellow-billed cuckoo (*Coccyzus americanus*). P-13.7 (cont.)



MDLT does outreach and coordination at multiple levels. At the federal level, they work with National Park Service and Bureau of Land Management to set priorities for acquisitions based on Conservation Plans, such as the DRECP, MSHCP, linkage studies like South Coast Missing Linkages, and other internal analyses. They also share information on MDLT's priority acquisitions with the agencies. MDLT also does outreach to gain support for LWCF funding requests to acquire land in linkages. MDLT provides technical assistance to agencies, writing LWCF funding request for agencies that have limited staff. BLM received 1.5 million for acquisitions in Mojave as a result of MDLT support.

At the state level, MDLT works with the California Department of Fish and Wildlife's (CDFW) Wildlife Conservation Board to implement a Conceptual Area Protection Plan for the Morongo Basin, which includes over 20,000 acres in the linkages that are preapproved for acquisition or easements if there are willing sellers. MDLT is also coordinating with the San Bernardino Regional Conservation Investment Strategy, which is a voluntary, non-regulatory, and non-binding conservation assessment that includes information and analyses focused on conserving target species, their habitats, and the conservation status of the land within the RCIS focus area. Caltrans SR-62 study also drives MDLT work. MDLT acquired land on both sides of highway, where there is now a recommendation to integrate a wildlife overpass on MDLT acquired land.

At the local level, MDLT works with local governments, communities, and congressional representatives. They work with local governments on conservation endeavors, such as the City of Apple Valley's Multiple Species Conservation Plan, and the Coachella Valley Conservation Commission to implement the Coachella Valley MSHCP. MDLT also works with local communities, who value open space as part of their identity and quality of life, and as a gateway to the National Parks. MDLT and TWC work with congressional representatives for funding acquisitions and other conservation endeavors.

Geary shared a map of MDLT's Mojave Desert Linkage Acquisitions Program, which looks at modeled linkages and private property within linkages to target acquisitions. Two areas rose to the top, the San Bernardino – Granite Mountains Linkage identified as part of SCML in the Lucerne and Apple Valley area, which was designated as an Area of Critical Environmental Concern (ACEC) during DRECP, the Granite Mountains Linkage ACEC, the majority of which is private land. MDLT just closed on the first parcel in this linkage, can't wait on RCIS or Apple Valley MSHCP. The other area that rose to the top was between Mecca Hills Wilderness, Orocopia Mountains Wilderness, Chuckwalla Mountains Wilderness, and Joshua Tree National Park, in the Joshua Tree-Chocolate Mountains Linkage (image from presentation below). **P-13.7 (cont.)**

Here, there is potential for residential and renewable energy development because of the Development Focus Area (DFA) identified in the DRECP and existing solar facilities further east of this area. Most of this area is already ACEC, Wilderness, and National Conservation Land, so it's really essential. We found out how quickly things can change during the Trump Administration, so we need to acquire private land and gain permanent protection for these linkage areas. TWC, MDLT, California Wilderness Coalition, and many others are working with Congressman Ruiz on a potential monument, suggested name Chuckwalla Mountains National Monument, which was identified at the Land Use, Policy and Protection session. The Monument proposal includes the ACEC, Wilderness additions, and other important cultural areas. If you like to support this proposal or would like more information, please reach out to Geary at MDLT.

Another policy initiative MDLT is involved in with TWC and many other sponsors, is State Assembly Bill 1183, California Desert Conservation Program, which was introduced by Assemblyman Ramos. This program would be folded into the state's Wildlife Conservation Board and would provide funding for acquisitions. Geary testified on Monday April 26, 2021, and it passed out of first committee. Next stop appropriations. This could be a great funding opportunity to help acquire land in critical linkages.

Q&A for Geary Hund's presentation on Outreach & Coordination in Protection of Habitat Linkages

Gordon Pratt asked if invertebrate surveys have been conducted in the Chocolate Mountains Gunnery Range and if there is a partnership with the Gunnery Range.

Geary responded that the Mojave Desert Land Trust works with the Gunnery Range in the Chuckwalla Bench area to connect to the Chocolate Mountains but is not sure to what extent the area has been surveyed.

Gordon Pratt asked if the Cadiz Dunes have been surveyed, as there are many insects found only in dune systems. **P-13.7 (cont.)**

Geary answered that he suspects comprehensive surveys have not been completed. He made a note to ask BLM, and mentioned it would be a great thing to fund invertebrate surveys.

Lynn Sweet commented that there is currently a vegetation map being developed for the Chocolate Mountains that should be coming out soon. They have mapped stands of some rare plants including Orocopia sage (*Salvia greatae*).

5. San Bernardino-San Jacinto Linkage Needs, Opportunities, and Threats

5.1 Ecological Significance of the Linkage

The San Bernardino-San Jacinto Connection links the Transverse and Peninsular Mountain Ranges of the South Coast Ecoregion. The San Bernardino Mountains are part of the east-west trending Transverse Ranges and feature the highest peak in southern California, Mount San Gorgonio, while the San Jacinto Mountains are the highest and northernmost of the Peninsular Ranges. The Badlands are contiguous with the San Jacinto Mountains, forming a peninsula of coastal foothill habitats extending roughly 30 km (19 mi) toward the northwest.

These mountain ranges provide a rich assemblage of vegetative communities and a classic display of elevational life zones. The lower elevation coastal foothills are a mosaic of grassland, coastal sage, chaparral, oak savannas and woodlands, and riparian forests. At mid elevations there is a shift to montane chaparral interspersed with conifer hardwood forests dominated by Jeffrey pine (*Pinus jeffreyi*), ponderosa pine (*P. ponderosa*) and sugar pine (*P. lambertiana*) and mixed with patches of canyon live oak (*Quercus chrysolepis*) or black oak (*Q. kelloggii*). Montane riparian forests are tucked into deep canyons and montane meadows occur where the terrain is gentle and the substrate fairly impervious. At the highest elevations there is a transition to subalpine habitats, with white fir (*Abies concolor*), lodgepole pine (*P. contorta*), and limber pine (*P. flexilis*) being the most prominent species. Descending down the desert side of the mountains, one passes through pinyon-juniper woodland, redshank chaparral, and desert scrub.

P-13.7 (cont.)

Both coastal and desert habitats occur in the lowlands between these mountain masses, with the San Gorgonio River marking the transition between these major vegetative zones. Coastal habitats dominate the pass to the west of the San Gorgonio River, where Noble, Little San Gorgonio, El Casco, and Wildwood creeks flow westward into San Timoteo Canyon. Desert habitats dominate to the east, with numerous alluvial plains fanning out from the canyons on the floor of the San Gorgonio Pass. The San Gorgonio and Whitewater rivers emanate from the San Bernardino Mountains to form extensive alluvial fans in concert with tributaries from the north and east sides of the San Jacinto Mountains. These rivers and streams transport and deposit sands eroded from the mountains to the desert lowlands. These sands are essential to sustaining rare dune ecosystems in the Coachella Valley. A number of sensitive natural communities occur in the planning area, including desert fan palm oasis, cottonwood willow riparian forest, and southern coast live oak riparian forest.

This variety of habitats support a diversity of organisms, including many species listed as endangered, threatened, or sensitive by government agencies (USFWS 1980, 1987, 1998, CVAG 2004, CNDDB 2021ab). These include riparian songbirds, such as yellow warbler (*Setophaga petechia*), yellow-breasted chat (*Icteria virens*), and the endangered least Bell's vireo, and southwestern willow flycatcher (*Empidonax traillii extimus*). Sensitive reptiles that prefer drier habitats and sparser vegetative cover, such as the coast horned lizard (*Phrynosoma blainvillei*), and the endangered Coachella Valley fringe-toed lizard, also have the potential to occur in the linkage planning area. The threatened arroyo toad (*Anaxyrus californicus*) occurs in the lower reaches of the Whitewater River. A number of sensitive birds of prey have been recorded in the linkage, including Cooper's hawk (*Accipiter cooperii*), golden eagle, long-eared owl (*Asio otus*), and burrowing owl. The planning area also provides habitat for imperiled plant species, such as slender-horned spineflower (*Dodecahema leptoceras*) and Coachella Valley milk-vetch.

In addition, because this regionally important linkage is situated where the Transverse and Peninsular Ranges converge, and in an ecological transition zone between the South Coast and Sonoran ecoregions, it is considered a contact zone for many subspecies. This interchange of genetic material is most prevalent among mammals and reptiles, such as the little pocket mouse (*Perognathus longimembris brevinasus and P.l. bangsi*) (Williams 1986), and western patch-nosed snake (*Salvadora hexalepis hexalepis and S.h. virgultea*) (Stewart and Hogan 1980). The San Gorgonio Pass is situated at a unique evolutionary crossroads where genetic interactions occur at multiple temporal and spatial scales.

Finally, in addition to providing habitat for rare and endangered species and a contact zone where species intergrade along a genetic continuum, the linkage provides live-in and move-through habitat for numerous other native species that require extensive wildlands to thrive, such as American badger, mule deer, and mountain lion.

P-13.7 (cont.)

5.2 Land Use, Policy, and Protection Needs, Opportunities, and Threats

The San Bernardino-San Jacinto Linkage is complicated jurisdictionally, with two counties, five cities, and one sovereign nation. Morongo Tribal lands cover 10,986 acres of the linkage, mostly along the San Gorgonio River and Upper Stubbe Canyon, which are delineated as stewardship zones in the linkage. The linkage also includes significant unincorporated lands, primarily in Riverside County, with a small section of the western branch in San Bernardino County. Five cities overlap portions of this linkage. Three in the western branch, including the cities of Redlands, Calimesa, and Beaumont. The City of Banning overlaps portions of the San Gorgonio River branch, and the City of Palm Springs overlaps the easternmost branch of the linkage south of Interstate 10 at Whitewater River.

There are also several conservation planning efforts and designations in the linkage (Figure 7). The Coachella Valley Multiple Species Conservation Plan covers roughly 7,053 acres of the linkage, capturing the San Gorgonio River, Stubbe Canyon and Whitewater River strands of the linkage. Stubbe Canyon and Whitewater River are also included in the Sand to Snow National Monument. Whitewater River is also designated as an Area of Critical Environmental Concern, and the Pacific Crest Trail Special Resource Management Area follows Stubbe Canyon. The Western Riverside County MSHCP covers about 16,638 acres in the linkage, most of which is identified as core habitat in the Badlands, with Constrained Linkage

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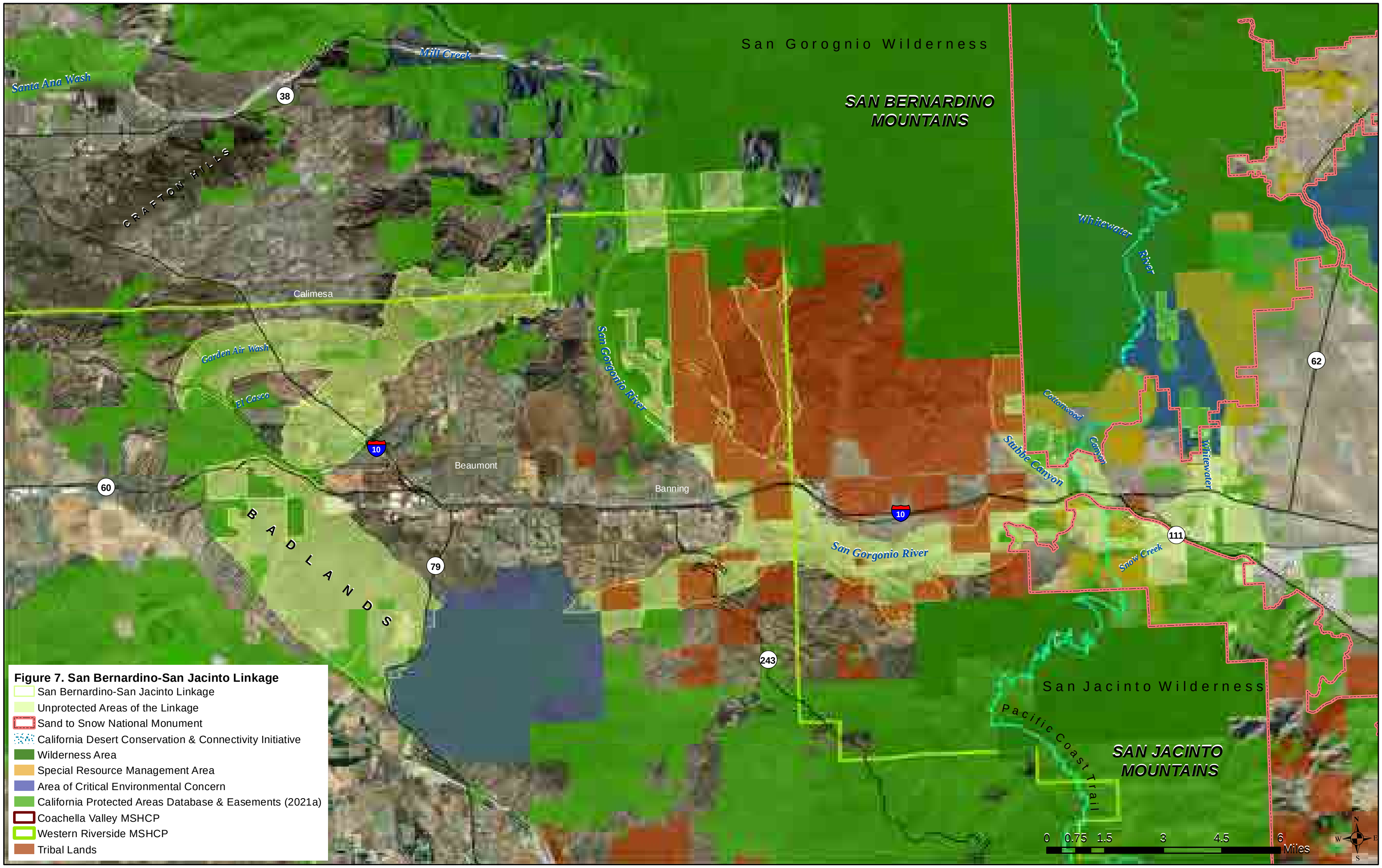

P-13.7
(Cont.)

#23 covering part of the western branch of the linkage, and a Special Linkage along a section of the San Gorgonio River. Most branches of the Linkage Design include some ownerships that protect natural habitats from conversion to urban uses, including lands administered by BLM, California State Parks, Coachella Valley Mountains Conservancy, Western Riverside County Regional Conservation Authority, The Wildlands Conservancy, Friends of the Desert Mountains, Rivers and Lands Conservancy, and State Lands Commission. At the time the SCML report for the San Bernardino-San Jacinto was released in 2005 (Penrod et al.), roughly 29% of the linkage (21,223/74,414 acres) was conserved. Since that time, roughly 5,200 acres have been conserved in the linkage. Workshop participants identified several land use, policy, and protection needs, opportunities and threats in the San Bernardino-San Jacinto Linkage.

By far, the most threatened part of the linkage is the westernmost branch that links the San Bernardino Mountains to the Badlands and San Jacinto Mountains. Most of the land in this branch of the linkage falls within the jurisdictions of either the City of Calimesa or unincorporated Riverside County, though small sections in the north are in San Bernardino County and the City of Redlands, and a section in the southeast fork is in Beaumont, which has been severed by development. Immediately following the Linkage Implementation Workshop series, TNC and SC Wildlands reached out to the City of Calimesa to schedule a Zoom meeting with the Planning Manager to alert them to the critical importance of the westernmost branch of the San Bernardino-San Jacinto Linkage, and the last opportunity to conserve a coastal sage connection between the Transverse and Peninsular Ranges, which is vital to countless species, including mountain lion, which is a candidate for listing under the California Endangered Species Act (CESA). The Planning Manager alerted the various developers of the importance of this wildlife linkage and called a meeting between the developers and TNC, SC Wildlands, and Two Canyons Conservancy, which was held at the City of Calimesa on July 6, 2021. Although this branch of the linkage will be restricted to mere choke-points in some areas, maintaining connectivity here will benefit multiple species. Discussions with the city and developers are ongoing at the time of this report. **P-13.7 (cont.)**

THREAT: San Bernardino-San Jacinto Linkage Not Adopted by Western Riverside County MSHCP
The western branch of the linkage dominated by coast sage scrub and middle San Gorgonio Wash branches of the San Bernardino to San Jacinto Mountains Linkage, except for Constrained Linkage #23, were not adopted by this MSHCP which presents a major challenge for achieving significant conservation outcomes at these locations. Because these locations were not specifically described for conservation through the "Criteria Cell" process, opportunities to extract land protection, restoration or other conservation measures from proposed land uses are minimal. Any conservation outcomes will require the work of local jurisdictions and environmental groups to be proactive in identifying threats and opportunities for securing connectivity. *Recommended Actions:* Prepare a Conceptual Area Protection Plan (CAPP) to address conservation needs for the San Bernardino-San Jacinto Linkage, 2) create a listserv that alerts local stakeholders to proposed threats to connectivity in the linkage and opportunities to engage in the environmental review process for identified projects and 3) engage with local jurisdictions (cities, county) and wildlife agencies to elevate understanding of the importance of the linkage.

THREAT/OPPORTUNITY: Constrained Linkage #23 from the MSHCP (AE-1 on Figure 8, where AE stands for Acquisition/Easement) is conserved from the Badlands all the way to the west side of Interstate 10 along Garden Air Wash. The City of Calimesa says that the criteria cells in Constrained Linkage #23 were planned for development back in the late 1990s, so it's unclear why the MSHCP identified those for conservation. The Garden Air Country Club golf course, which the current owner closed with no plans to

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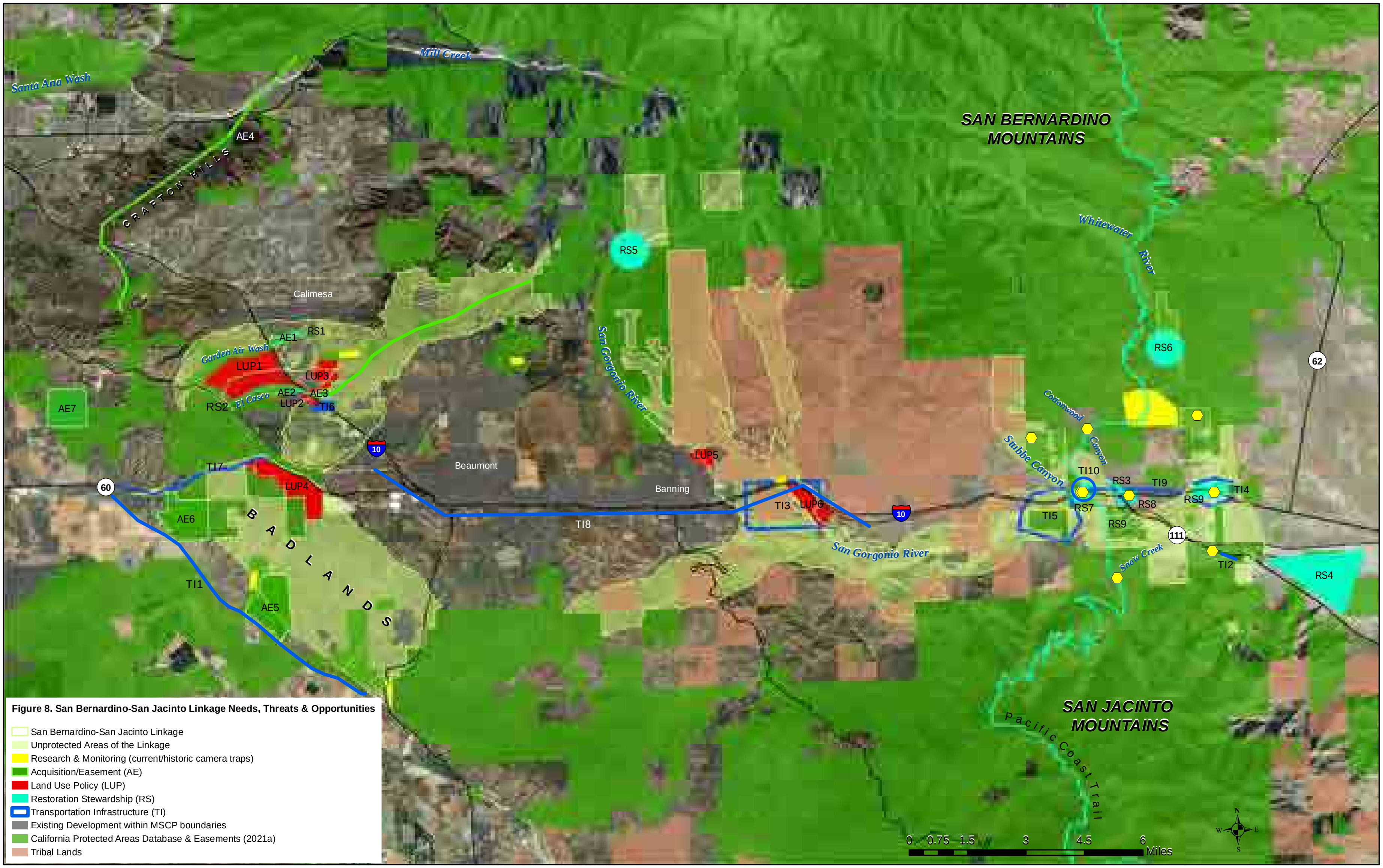

Figure 8. San Bernardino-San Jacinto Linkage Needs, Threats & Opportunities

- San Bernardino-San Jacinto Linkage
- Unprotected Areas of the Linkage
- Research & Monitoring (current/historic camera traps)
- Acquisition/Easement (AE)
- Land Use Policy (LUP)
- Restoration Stewardship (RS)
- Transportation Infrastructure (TI)
- Existing Development within MSCP boundaries
- California Protected Areas Database & Easements (2021a)
- Tribal Lands

P-13.7
(Cont.)

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San Bernardino to San Jacinto Mountains Linkage
Summary of Needs, Threats, and Opportunities

KEY	Type	Description/Summary	Recommended Action
AE1, RS-1	OPP	Constrained Linkage 23: Land protection/restoration of Garden Air Golf Course, and creation of I-10 Crossing Structure required to secure connectivity east of I-10 to the SB Mtns	1.Acquire GC and frontage property and restore habitat, 2. Once GC acquired, restore connectivity across I-10 with new crossing.
LUP-1 LUP-2 AE-2 RS-2	THREAT/OPP	El Casco Creek west of I-10 threatened by proposed Summerwind/Oak Valley developments, which will be made non-functional if development moves ahead as proposed.	Work with City of Calimesa and developers to increase or acquire additional set-backs for El Casco Creek; monitor proposed developments to ensure minimum viable linkage; restore El Casco Creek Riparian habitat
AE-3 LUP-3	OPP	El Casco Creek east of I-10 needs restoration of concrete ditch and land protection eastward to SB Mtns to secure a coastal sage scrub connection in the western branch of the linkage. Secure connectivity as part of land use planning.	Track proposed "Heights" development projects and work to secure 500-foot+ wide linkage from I-10 to SB Mtns thru development agreements and acquisition of other key properties
TI-6	OPP	City/Caltrans Cherry Valley Interchange Project provides potential opportunity to restore El Casco Creek and upgrade I-10 Crossing	Engage in environmental review process (Dec '21) to call for upgrades to El Casco Creek/I-10 culvert
TI-7 LUP-4	THREAT	Restored wildlife crossings for SR 60 threatened by development. Beaumont Point SP (BPSP) threatens 20x20 Wildlife Crossing and connectivity. Land protection needs to be secured on either side of new crossing structures	Engage in environmental review process for BPSP, urge agencies to require/seek protection of habitat lands on both sides of crossings
LUP-5 LUP-6	THREAT/ OPP	2 Robertsons Ready Mix (RRM) mine operations degrade habitat and wildlife connectivity in a key ecotonal area and need restoration. Timing and nature of future reclamation plans unknown.	Reach out to RRM to explore restoration and management opportunities; track mine expansion projects and provide public comments.
LUP-7	THREAT	Portion of western branch (CSS Linkage) lost since 2005 due to development	
TI-3	THREAT	Proposed I-10 ByPass Project threatens connectivity and sand flows in the San Gorgonio Pass area.	Convene a subcommittee to review the project and advise on appropriate connectivity designs/ mitigations
TI-8	THREAT	Railway Expansion Project proposes new commuter stations between Banning and Cabazon	Contact RCTC to get on distribution list for environmental documents and provide comments during review process.
TI-1	NEED	Gilman Springs road is a source of roadkill for wildlife, especially badgers, moving between the Badlands and SJWA	Design and implement Wildlife Crossing Infrastructure Plan for Gilman Springs Road
AE-4	NEED	Optional (constrained) linkage between Badlands and San Bernardino Mountains	Conduct field investigations and parcel analysis to assess opportunities for securing this linkage.
AE-5 AE-6	OPP	Two proposed acquisitions in the Badlands by RCA totaling 1600 acres	Rally public support for acquisition of these key core properties in the Badlands.
AE-7	OPP	Proposed acquisition of 560 acres by Two Canyons Conservancy in Reche Canyon	Rally public support for acquisition of this property
TI-2	OPP	Hwy 111 blocks sand transport processes along Whitewater River that feed dune system habitat	Work with CVAG/Caltrans to plan/implement bridge for Hwy 111 at Whitewater River to allow sand transport to move interrupted
TI-3	THREAT	Proposed I-10 ByPass Project could impact connectivity and sand transport	Form subcommittee to advise on JPR and wildlife connectivity mitigations
TI-4 TI-5	THREAT/ OPP	Wind farm infrastructure limits connectivity	Any proposed "RePowers" should require removal of fencing and conversion of lattice turbines to solid turbines.
TI-9	THREAT	Proposed Detention Facility and Widening of Tamarack Road could interrupt connectivity	Project has been withdrawn, but continue to monitor status in case it is proposed once again. Signage and reduced speed limit needed to reduce roadkill on Tamarack Road.
TI-10	THREAT/OPP	Stubbe Wash barricades to limit ORV trespass have been vandalized	Install chain and lock to replace bollards that were removed

P-13.7
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RS-3	NEED	Cottonwood Creek has been channelized at I-10, limiting its connectivity value	Work with CVCC, Morongo Tribe, water agencies and RCFCWCD to restore Cottonwood Creek.
RS-4	NEED/ THREAT	Whitewater Percolation Basins interrupt sand transport processes.	Meet with water agencies to discuss options to relocate percolation ponds to a location that will not interrupt natural processes
RS-5 RS-6	THREAT	Dewatering of drainages in SB Mountains degrades downstream riparian habitat and connectivity	Submit project nomination for to SGIRWMG to work with multiple agencies to develop groundwater management plan to recover riparian habitat
RS-7 RS-8 RS-9	THREAT	Wildlife undercrossings for Stubbe, Cottonwood, and Whitewater Rivers require actions to deter illegal trespass and human activity	Install educational signage and chains/locks to deter trespass. Work with jurisdictions and law enforcement to fund and implement regular patrols to deter illegal human activity.
RS-10	THREAT	Pacific Coast Trail recreational activity at Stubbe Canyon U/C may be deterring wildlife use.	Assess potential realignment of PCT to reduce impacts on connectivity.
AE = Acquisition Conservation Easement LUP = Land Use Policy RS = Restoration Stewardship TI = Transportation Infrastructure			

P-13.7
(Cont.)

reopen, lies east of the highway and the Inland Riverside County Resource Conservation District is working with the golf course owner on some improvement plans that may restore some portions of the site. In addition, the lands between the Garden Air Golf Course and Calimesa Road are zoned as Commercial, and there is currently no wildlife crossing structure for where Garden Air Wash intersects I-10. Moreover, planned and approved development in the City of Calimesa has blocked portions of this linkage east of the golf course. There are two potential chokepoints from the golf course through this planned development to open space to the east (image below), which lead to conserved open space to the east. The first is where there appears to be a culvert from the golf course to the canyon set aside that is about 180 feet wide between existing homes and roughly 300 feet between the canyon and the golf course. The second is south of the development, along a canyon, which ranges in width form 150-350 feet for roughly half a mile. All open space lands within the development are currently owned by the City of Calimesa. Lawsuits brought against the developer by the Center for Biological Diversity resulted in the current open space configuration and incorporation of wildlife crossing structures that link these lands to protected lands east of Singleton Road.

Garden Air Corridor along golf course showing two potential pathways through existing development.

P-13.7 (cont.)

THREAT/OPPORTUNITY: El Casco Creek (aka Cherry Valley Wildlife Corridor; AE-2 on Figure 8) is the stream to the south of Garden Air Wash, where there are still opportunities but there are entitled developments, and proposed developments are making their way through the environmental review process. Currently, there is a narrow band of planned conservation along El Casco Creek to the west side of Interstate 10 just north of the Cherry Valley Interchange, where several developments are either built or entitled. This wildlife corridor was identified and pushed by a city councilmember in the early 2000s. There is an existing structure for El Casco Creek on I-10, a double box culvert but far from ideal due to low visibility to the other side, concrete flooring and creek is channelized east of freeway, and there are plans for the Cherry Valley Interchange (see section 5.3). An onsite biologist with Helix Environmental indicated that they had recently recorded a mountain lion at the El Casco Creek undercrossing. East of the freeway is currently undeveloped but is zoned low density residential in the Calimesa General Plan and there are preliminary plans for some development, one called the Heights at Calimesa Specific Plan, which is described below. All of these potential projects are in the initial stages and have not yet gone through any formal planning processes or environmental review, so opportunities remain to conserve a wider more functional connection east of the freeway. *Recommended Action:* Monitor proposed developments within the City of Calimesa and engage in environmental review processes to ensure minimum viable corridor conserved.

THREAT/OPPORTUNITY: Oak Valley Town Center (LUP-1 on Figure 8, where LUP stands for Land Use/Policy) is an entitled commercial development with site plans (image below) for business parks and retail development along the north side of El Casco Creek. Grading has begun for four warehouses identified as business parks on the site plan. The rest of the development plans are not solidified at this time, except for a planned stormwater detention basin. It is currently planned for commercial development. There might be an opportunity to work with the developer to widen the setback next to the El Casco Creek, which is partially within the 100-year flood plain. There are plans to incorporate a box culvert for where El Casco Creek crosses Roberts Road but how large the culvert will be is unknown at this time. There is a small triangular area that has been identified to be set aside as open space, adding 2 acres next to the creek. *Recommended Actions:* Continue to work with developer to evaluate opportunities to increase setbacks along El Casco Creek, incorporate a wildlife crossing for I-10, and find out the dimensions for the Roberts Road box culvert planned for El Casco Creek. P-13.7 (cont.)

THREAT/OPPORTUNITY: Summerwind Commons (LUP-2 on Figure 8) is a 39-acre development, 11 acres are entitled with site plans (image below) for business uses off of Cherry Valley Boulevard and Roberts Road. Other site plans for Summerwind Commons are for small lot/small home development south of El Casco Creek, just east of the new alignment of Roberts Road. Currently, the plan includes a "2 acre" creek setback that is roughly 16 feet wide and would be composed of a 2:1 slope with armoring just outside the creek to keep all grading outside of ACOE jurisdiction. The development planned at the top of slope would likely have a sound wall for much of its length along the creek. A settling/detention basin where the creek intersects the new alignment of Roberts Road is also planned. *Recommended Actions:* This 39-acre property has recently been put up for sale, providing an opportunity to get more of a setback along El Casco Creek by working with the new owner and the city of Calimesa.

Possible opportunities to install a wildlife overcrossing from Summerwind Commons site to the other side of I-10 were discussed, but there does not appear to be adequate space to create such a crossing, unless it was installed at an angle. Fixing the existing undercrossing at El Casco Creek, or creating a new dedicated wildlife underpass for the creek, may be a better option than an overcrossing at this location and could be used as mitigation for the proposed Cherry Valley Interchange project discussed below in section 5.3.

P-13.7
(cont.)

Summerwind Commons Site Plan for entitled area

THREAT/OPPORTUNITY: The Heights at Calimesa Specific Plan (LUP-3 on Figure 8) is in the very early stages of planning for residential development and have submitted the first draft of the site plan to the City of Calimesa but has not yet begun the environmental review process. The site is 244 acres, with plans for 2,248 multi-family units, 21 acres of mixed-use development, 21 acres of parkland, 20 acres of open space, 124 acres of natural open space (image below). This property is contiguous with and would provide a direct connection to Bogart Park open space which was conserved under the Western Riverside County MSHCP, making it a critical piece of the puzzle for the El Casco Creek connection. Potential to discuss project design with applicant to help conserve wildlife movement on the south side of the project area, that also includes a portion of the Price Ranch discussed below. *Recommended Actions:* Work with the project applicant to incorporate wildlife movement corridor into project design, ideally before the project goes through permitting process. Engage in the environmental review process to advocate for set asides to ensure functional wildlife movement corridor through the property to conserved open space.

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The Heights at Calimesa Specific Plan boundary

OPPORTUNITY: Price Ranch (AE-3 on Figure 8) This 27.6-acre property is currently being pitched as a Prime Commercial Development Site and on the market for $7 million but the owner is open to acquisition

P-13.7 (cont.)

for conservation purposes. This site is immediately south and contiguous with The Heights at Calimesa Specific Plan discussed above. It is also continuous with the frontage property along Calimesa Road that is adjacent to the culverts under Interstate 10 for El Casco Creek. Recommended Action: Work with the owner and any potential buyers to set aside portions of the property that are key to maintaining and restoring habitat connectivity and wildlife movement.

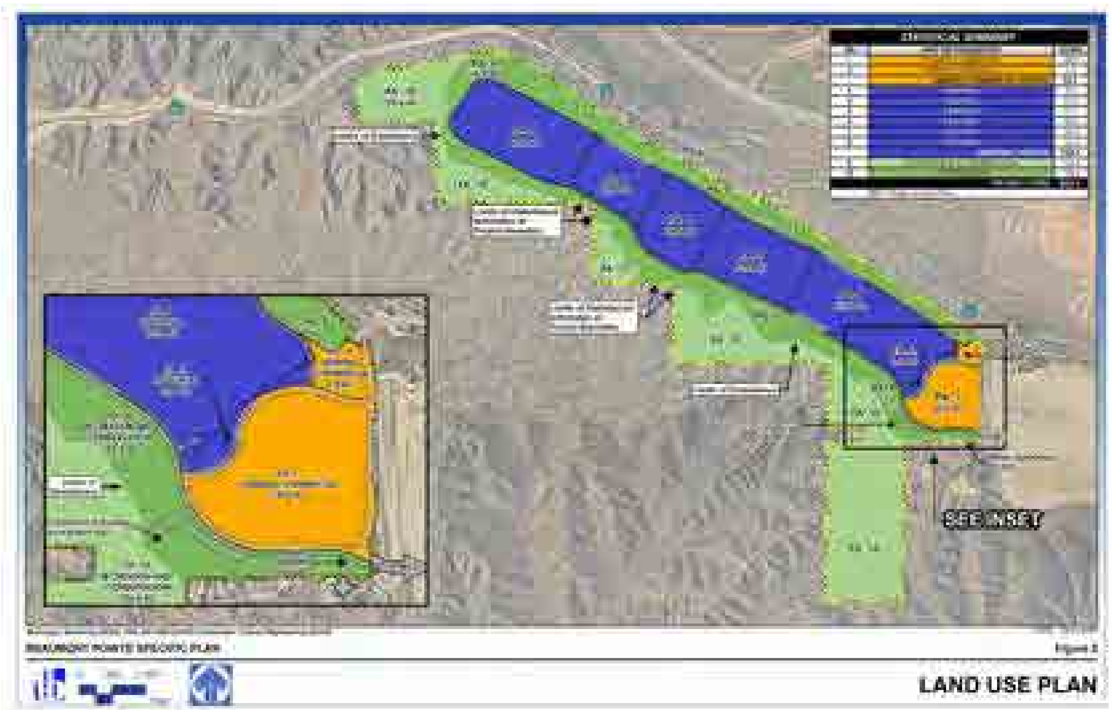
Price Ranch property boundary

OPPORUNITY: Potential addition to western branch of San Bernardino-San Jacinto Linkage (AE-4 on Figure 8) that would link San Timoteo and other conserved Western Riverside County MSHCP lands northward from Live Oak Canyon Open Space following habitat along the Oakmont Trail, which leads to the Hilltop Estates Bridal Trail, and the Gold Hill Grade all the way to the southside of I-10. For roughly a half mile, the pathway narrows to a choke-point along Hilltop Estates Bridal Trail and Gold Hill Grade, varying in width from approximately 350-500 feet. North of the freeway, this potential linkage through the Crafton Hills is fairly wide open and expands to widths between about half mile to nearly a mile across, all the way to Mill Creek which flows out of San Bernardino National Forest. Much of the land in the Crafton Hills area is owned by one major landowner, who purchased it to keep it as open space. The Redlands Land Use Plan currently does not support conservation. A crossing structure would need to be added to allow safe passage for wildlife under/over I-10. *Recommended Actions:* Investigate this potential route further in the field, evaluate parcel data and ownership, and determine long term status of Hilltop Estates Bridal Trail and Gold Hill Grade.

THREAT: Proposed Beaumont Point Specific Plan (LUP-4 on Figure 8) includes 622.5 acres within Western Riverside County MSHCP core habitat criteria cells in the Badlands that abuts State Route 60 (SR-60) to the north, Jack Rabbit Trail and the Hidden Canyon Industrial Park to the east, and undeveloped land to the south and west. Caltrans and the Riverside County Transportation Commission are in the process of widening SR-60, and have installed several wildlife crossings and directional fencing to support species

P-13.7
(cont.)

conservation under this MSHCP at great cost, including two 20x20 wildlife crossings, as well as, a number of medium and small sized crossings. A few of the crossings, including one of the large 20x20 wildlife crossings, are directly adjacent to this proposed development. The project is in unincorporated Riverside County and includes commercial and industrial development, including a 125-room hotel, and four main roadways for onsite circulation, as shown in the image below, and would require a General Plan Amendment, Pre-zoning, and annexation into the City of Beaumont. As part of the proposed Project, 196.6 acres are identified for conservation, as required by the MSHCP. The proposed development is currently going through the MSHCP process and a Joint Project Review by the agencies. CDFW representative said that the wildlife crossing improvements currently being implemented by Caltrans/RCTC were not described in the Western Riverside County MSHCP, and that CDFW are suggesting redesigns to maintain wildlife movement and protection of the wildlife crossing.



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Recommended Actions: The Notice of Preparation (NOP) for the Beaumont Point Specific Plan Draft Environmental Impact Report (DEIR) comment period was from September 7 to October 6, 2020. At this time, there is no anticipated release date for the DEIR. The CEQA Lead for the proposed project is Christina Taylor, Community Development Director, City of Beaumont and she has provided the applicants with contact information for SC Wildlands and TNC. The State of California has made significant capital outlay expenditures on SR60 improvements, including wildlife crossings and directional fencing to support species conservation under the WRMSHCP, where considerable conservation investments have also been made by the state. This proposed project is right by large wildlife crossings and would interfere with wildlife movement. More information at https://www.beaumontca.gov/DocumentCenter/View/36613/Beaumont-Pointe-NOP_Final. Contact Ms. Taylor at (951) 572-3212 or via email at ctaylor@beaumontca.gov to get on the distribution list for the DEIR and submit your comments into the record.

THREATS: Mining Operations in San Gorgonio River north and south of Interstate 10 (LUP-5 and LUP-6 on Figure 8) Both gravel mines are owned by Robertson's Ready Mix (rrmca.com) and were in operation at the time field work was conducted for the linkage back in 2004. Robertson's has facilities throughout southern California. The operation north of I-10 is Banning Rock Plant #66, while the operations south of I-10 include Cabazon Rock Plants #11 and #77. Neither totally preclude wildlife passage in their existing footprints but restoring them would improve the San Gorgonio River corridor for wildlife movement and sand transport. Several questions were raised at the workshop, including 1) What is the lifespan of these mining operations? 2) Can these mines expand or are they constrained in some way? 3) Are monitoring plans in place for noise, lighting, water quality, etc.? 4) Are reclamation plans in place?

Robertson's Ready Mix Banning Rock Plant #66 (LUP-5 on Figure 8), has been in continuous operation since the early 1900's, and the Banning City Council just approved an entitlement package in October 2020 that includes a general plan amendment, zone change, conditional use permit, reclamation plan amendment, street vacations, and a development agreement governing the expansion and rezoning of 208 acres. The agreement includes the construction and 24-hour operation of an onsite ready mix concrete batch plant and associated maintenance facility. Excavation and crushing are to be conducted primarily Monday through Friday, 5:00 AM to 10:00 PM and from 6:00 AM to 5:00 PM on Saturdays. The anticipated timeframe for final reclamation to be completed for the quarry isn't until 2040. After reclamation, Robertson's will dedicate about 17-20 acres to the city for public use. All that was required under CEQA was a Mitigated Negative Declaration. The project was also determined to be consistent with the MSHCP because it's located outside of criteria cells and mitigation was provided through payment of a fee to the Western Riverside County MSHCP. *Recommended Action:* Reach out to Robertson's Ready Mix to see if they're willing to work with the conservation community to install sound walls or berms between their operations and the river to reduce sound from excavation and crushing and reduce the penetration of nighttime lighting into the river to encourage wildlife movement. Proposition 68 funding may be a source for implementing this recommendation **P-13.7 (cont.)**

Robertson's Ready Mix Cabazon Rock Plants #11 and/or #77 (LUP-6 on Figure 8), is the mining operation along the San Gorgonio River south of I-10, which falls within the Coachella Valley Multiple Species Habitat Conservation Plan. At the workshop, participants from CDFW mentioned that the operation south of I-10 was planning on expanding to the west and potentially south of the river and weren't sure if any public review process was required. There was a Joint Project Review for the Coachella Valley MSHCP going on at the time of the workshop and it was mentioned that modeling of impacts to sand transport was being conducted as part of the project and that information on wildlife movement would be helpful. *Recommended Action:* If this proposed project expansion goes out for public review, comment on mitigation for wildlife movement and sand transport. *Other Recommendations Related to Mining:* Investigate the potential for installation of sound walls or berms between existing mining operations and the San Gorgonio River to reduce the impacts to wildlife movement from noise generated from excavation and crushing and reduce or eliminate illumination of night time lighting in the river due to near round the clock mining operations. There are also several other mining claims in the San Gorgonio River further east and along Whitewater River. The claims that fall within the CVMSHCP should be investigated for administrative withdrawals due to the importance of these areas as habitat for species and sand transport.

OPPORTUNITIES: **Land Acquisitions in the Badlands:** The Western Riverside County Regional Conservation Authority (RCA) is seeking federal funding to preserve land in two key areas in the San Bernardino-San Jacinto Linkage within the Badlands that would contribute assembling the interconnected system called for in the Western Riverside County MSHCP. As Tricia Campbell explained in her presentation, the plan requires that local, state, and federal governments all contribute to land acquisition. At this time, key parcels have been identified for acquisition using a combination of federal funds and local mitigation fees. These two targeted acquisitions, together encompass about 1600 acres, and both support a wealth of endangered species and would provide key wildlife movement corridors between other preserved lands. These acquisitions are described below.

Eden Hot Springs Property, Badlands (AE-5 on Figure 8): The Eden Hot Springs properties include 821 acres on Mount Eden in the Badlands area of unincorporated Riverside County, east of Mystic Lake and north of Gilman Springs Road, and are continuous with the San Jacinto Wildlife Area, which connects to the Wolfskill-Driscoll Reserve and BLM land in the Badlands, promoting connectivity between the Badlands and the San Jacinto Mountains in the San Bernardino National Forest. This linkage would provide habitat protection and movement for species covered by the Western Riverside County MSHCP including Bell's sage sparrow (*Amphispiza belli* ssp. *belli*), loggerhead shrike (*Lanius ludovicianus*), cactus wren (*Campylorhynchus brunneicapillus*), Stephens' kangaroo rat, Los Angeles Pocket Mouse, southern California rufous-crowned sparrow (*Aimophila ruficeps canescens*), and mountain lion, as well as, countless other native species associated with coastal sage scrub.

Kelvar and Wolfskill Properties, Badlands (AE-6 on Figure 8): The Kelvar and Wolfskill properties include 745 acres between Route 60 and the intersection of Gilman Springs Road and Alessandro Boulevard in the Badlands of unincorporated Riverside County. These lands are continuous with large BLM parcels to the north and east and connect to the Norton Younglove Reserve north of SR-60, making use of one of Caltrans' new large 20x20 wildlife crossings, promoting connectivity from conserved land in the Badlands to the San Jacinto Mountains in San Bernardino National Forest. This acquisition would also provide habitat protection and movement for the same target species identified for the Eden Hot Springs property above, which have key populations in the Badlands. **P-13.7 (cont.)**

Recommended Action: Congress must first appropriate the funds for these MSHCP acquisitions. Please use the form on this page to go on record in support of the RCA's funding request to Congress.

Reche Canyon Property, Badlands (AE-7 on Figure 8): This potential acquisition in the Badlands is located east of Redlands Boulevard and would link extensive already conserved conservation lands in the Western Riverside County MSHCP. The property is in the Reche Canyon area and encompasses the entirety of the following MSHCP criteria cells: #563, 564, 653, 654, which provide habitat protection and movement for several species covered by the plan. Two Canyons Conservancy has an option to purchase these 560 acres from a willing seller, which will expire in 2022.

5.3 Transportation and Infrastructure Needs, Opportunities, and Threats

THREAT: **Gilman Springs Road Impacts Connectivity between Badlands and San Jacinto WA (TI-1 on Figure 8, where TI stands for Transportation/Infrastructure):** Jackrabbit Trail camera data from the WRCMSHCP raises issues with connectivity across Gilman Springs Road, especially for badgers moving between the Badlands and the San Jacinto Wildlife Area. Road-killed badgers are frequently documented on Gilman Springs Road, necessitating construction of wildlife fencing and crossing structures to facilitate wildlife movement. *Recommended Action*: Develop wildlife crossing infrastructure improvement plan for Gilman Springs Road, including baseline wildlife movement monitoring. Seek funding for fencing and upgrades to crossing structures. Additionally, a second wildlife crossing for SR-60 currently only has conserved lands on one side/north of the highway, making that culvert also vulnerable.

OPPORTUNITY: Sand Transport Corridor (TI-2 on Figure 8) SR-111 blocks an important sand transport corridor that feeds dune system habitats crucial to the persistence of imperiled species. Sand often accumulates on the roadway, posing a potential vehicle hazard. Transportation agencies often are required to remove sand from the roadway, creating a long-term maintenance requirement. *Recommended Action:* Work with Riverside County Transportation Department (TCTD)/CVAG/Caltrans and local jurisdictions to push for the installation of a bridge where Hwy 111 intersects the Whitewater River to allow sand transport under the bridge and reduce long-term maintenance.

THREAT: Proposed I-10 Bypass Project between Banning and Cabazon (TI-3 on Figure 8) The Riverside County Transportation Department (County) proposes to construct a new road between the City of Banning and the unincorporated community of Cabazon which would serve to connect the two communities should there be a closure of the I-10. The project is located in close proximity to Morongo Indian Tribal Land, and would cross both Smith Creek and the San Gorgonio River (image below). The proposed Bypass would be up to four lanes constructed south of and parallel to I-10 in the San Gorgonio River area.

P-13.7 (cont.)

The project would be funded with federal, state and local funds and therefore will require both CEQA and NEPA. Under NEPA, Caltrans is the lead agency for compliance, whereas the County will be the lead agency for CEQA. A Draft Environmental Impact Report/Environmental Assessment EIR/EIS was released in 2017, and a recirculated EIR/EIS was released in August 2019, which is available at I-10 Bypass — Riverside County Projects (rcprojects.org).

In 2013, Riverside County released an NOP for I-10 Bypass Project to connect Banning to Cabazon along south side of I-10. Comments provided by Sierra Club related to impacts to connectivity and fluvial sand transport between the San Gorgonio River and CVMSHCP. San Gorgonio wash provides significant sand source for Snow Creek area and for Whitewater River floodplain reserve area.

2019 DEIR comments on the bypass project came from Center for Biological Diversity and Sierra Club, with comments centered around cumulative impacts from the bigger project that looks at transportation connectivity between Banning to Cabazon and Cabazon to Palm Springs.

Because the project straddles both the WRCMSHCP and CVMSHCP it will require a Joint Project Review by both plans. Participants asked a procedural question regarding the timing of the Joint Project Review by both NCCPs, and whether it would occur prior to CEQA. JPRs should take place, optimally, prior to CEQA so that it informs CEQA but currently it is proposed to occur after public comment period but before final EIR. The 2019 Recirculated EIR went into more detail on connectivity and sand transport, but the Center for Biological Diversity had an issue that standards for heights of crossings were not adequate.

Participants asked whether CVCC received a request for a JPR from the RCTD for this project. Katie Barrows/CVCC stated she worked on this project with the county, but not sure if for entire or part of project.

P-13.7 (cont.)

Tricia Campbell/RCA stated that this is one of the projects for which the RCA does not have a formal role; it is not required that a JPR occur before CEQA document, although it is always recommended. For portions of the project within western Riverside County, there will still be coordination going on between the RCTD and wildlife agencies, with a lot of discussion around sizing, fencing, lighting. In terms of piecemeal-ing of two separate projects, Tricia was not sure.

The CEQA document may be coming out soon, but the RCTD doesn't have construction funding for the project but is proceeding with environmental review. This is a Caltrans local assistance project but Caltrans staff are not directly involved, as the RCTD is the lead.

Recommended Action: A subcommittee should be formed to focus on the JPR update, appropriate design criteria for crossings, as well as lighting and fencing, and whether this project is part of larger bypass project. Determine what opportunity exists, if any, to engage connectivity experts in the design of the project.

THREAT/OPPORTUNITY: Wind Farm Infrastructure limits connectivity (TI-4 and TI-5 on Figure 8)
There are several wind farms in the Whitewater River area under conservation status, and participants asked if it is possible to require them to remove any fencing that precludes wildlife movement?

CDFW representatives indicated that collared bighorn sheep regularly use wind farms near Whitewater River north of I-10, and there is no fencing at that facility. There are also collared deer south of the highway using wind farms so, likely those wind farms may not be fenced.

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Additionally, SCML Report recommended that existing lattice turbines be converted to solid turbines to reduce wildlife movement conflict.

Several participants, including Katie Barrows, indicated that many wind farms are undergoing a retrofit (aka “re-powers”) and are removing lattice type turbines and reducing the of turbines but increasing size of individual turbines. Retrofits in the CVMSHCP go through a Joint Project Review which usually recommends that fencing be removed. Lattice turbines are going out of fashion and are now being replaced with solid turbines. CVMSHCP permits only apply to ground disturbance and not non-ground disturbing activities. Issue area circled on map (TI5) is going through a retrofit to reduce number of turbines and get rid of lattice turbines. There are a couple of retrofits going on in the area. USFWS has developed wildlife friendly wind farm design guidelines WEG_final.pdf (fws.gov).

While CVMSHCP permits only for ground disturbance, studies are ongoing to assess impacts to birds and bats and to alter designs in response. The turbines to the west of Whitewater at the Mesa Wind Facility are not fenced and used by desert tortoise.

OPPORTUNITY: Cherry Valley Interchange Project in Western CSS Linkage (TI-6 on Figure 8) Caltrans and Riverside County Transportation Department, in conjunction with the city of Calimesa, are processing environmental documents to improve the Cherry Valley Interchange on Interstate 10. The planned Cherry Valley Interchange Project would result in a realignment of on and off-ramps as well as partial realignment of Calimesa Boulevard. Two alternatives are being considered, a “Diverging Diamond” or “Partial Cloverleaf,” as depicted below. The project is currently processing an Environmental Assessment (EA), which should be completed by November 2022.

This project is in close vicinity to El Casco Creek, which is discussed above, under the land use and planning session, as a potential linkage in the western arm of the San Bernardino to San Jacinto Linkage. El Casco Creek has a history of flooding, most notably in 2010, when flooding in the vicinity of the I-10 culvert resulted in the shutting down of Interstate 10 at this location. The culvert was built in 1938 and is currently undersized for wildlife use (and flood flows, evidently). In order for El Casco Creek to function as a wildlife corridor in the linkage, many improvements to existing entitled or planned developments west and east of I-10 need to occur; mainly, existing planned setbacks from El Casco Creek need to be widened to accommodate wildlife use. In addition, the El Casco Creek undercrossing for both I-10 and Calimesa Boulevard needs to be both enlarged and straightened.

P-13.7 (cont.)

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It is estimated that the EA will be out for public review in December 2021 which might provide some opportunity to comment on the need for incorporating enhancements for El Casco Creek undercrossing for Calimesa Boulevard and I-10 to both prevent flooding and enhance its function for wildlife connectivity. The target date for the completion of the EA is June 2022, with final design commencing soon after; however, the project appears to be ahead of schedule. Project will require waters permitting, including ACOE 404 and LSA 1603 permitting. The project lead at Caltrans is Shawn Oriaz (shawn.oriaz@dot.ca.gov). ***Recommended Actions:*** Contact Caltrans to get on distribution list for EA distribution. Review and comment on public documents to advocate for larger or new crossing structure for I-10 and Calimesa Blvd to facilitate wildlife movement. **P-13.7 (cont.)**

THREAT/OPPORTUNITY: Upgrade of I-60 Culverts and Proximity to Planned Development (TI-7 on Figure 8) The Riverside County Transportation Commission, in partnership with Caltrans, is widening a 4.5-mile section of Route 60 from Gilman Springs Road to 1.4 miles west of Jack Rabbit Trail in the Badlands area between Moreno Valley and Beaumont. The project lies within mountainous terrain with a curving alignment. Connectivity improvements are being implemented as part of this project including installation of wildlife fencing, 7 culvert upgrades, and installation of 2 20x20 foot concrete box wildlife crossing structures. These two large crossing structures replace 2 previous concrete box structures that were previously monitored by the Western Riverside County MSHCP. Those crossings were not determined to be optimally sized for wildlife, so have been enlarged to 20x20 and lengthened to 200 feet. Construction will be complete in 2022.

A concern was raised by workshop participants that conserved lands are not present on either side of these crossings, and that future development could impede their use by wildlife. The proposed Beaumont Point Specific Plan Warehouse Project (LUP4 on Figure 8), described above in the land use section, was identified as a specific project that would interfere with at least one of the wildlife crossings.

The fact that Caltrans prioritized these locations for crossing structure improvement/creation through their CEQA process may provide a de-facto prioritization of this location as a linkage. The Beaumont Point Specific Plan applicant was made aware of the SR-60 culvert that has been upgraded to facilitate wildlife movement and the applicant has modified the project to ensure lands they own do not cut off the culvert. Additionally, a second wildlife crossing for SR 60 currently only has conserved lands on one side/north of the highway, making that culvert also vulnerable. ***Recommended Action:*** Need to prioritize land protection in vicinity of crossing structures.

THREAT: **Coachella Valley-San Gorgonio Pass Rail Corridor Service Program (TI-8 on Figure 8)** The proposed Coachella Valley-San Gorgonio Pass Rail Corridor (Coachella Valley Rail) extends approximately 144 miles between downtown Los Angeles and the Coachella Valley. The RCTC, in coordination with Caltrans and the Federal Railroad Administration (FRA), is working to bring passenger rail service as an alternate mode of travel across Southern California, connecting desert communities and attractions with Los Angeles, Orange County, and the Inland Empire, as depicted below.

Proposed Coachella Valley-San Gorgonio Pass Rail Corridor route

The project will evaluate the addition of up to 5 passenger rail stations between Loma Linda and Coachella. Additional tracks may be proposed at selected locations to enhance train travel speeds, minimize delays, and maintain safety. Locations for the addition of a passenger rail station include much of the linkage area in the San Gorgonio Pass area and could impact connectivity.

The project proposes operating two daily round-trips between Los Angeles Union Station and Indio or Coachella, with morning and evening departures from each end. Passenger service is expected to take about 3 hours and 15 minutes, which is comparable to trips made by cars on congested highways connecting these communities, such as I-5, Route 91, and I-10. The environmental analysis currently being conducted is a Tier 1/Program Environmental Impact Statement/Environmental Impact Report (EIS/EIR), in accordance with the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The Tier 1/Program Draft EIS/EIR was released for public review in May 2021 for 45 days. Future Tier 2/Project NEPA/CEQA documents will be prepared when funding is identified. RCTC is actively seeking funding opportunities to advance the program. ***Recommended Action:*** Contact RCTC to get on the distribution list for the Tier 2/Project NEPA/CEQA documents and comment during the environmental review process (e.g., NOP, DEIS/EIR).

THREAT: **San Gorgonio River connectivity: Proposed Detention Facility & Tamarack Rd widening (TI-9 on Figure 8)** In 2010, the County of Riverside released an EIR for a proposed new detention facility on the north side of I-10 and also proposed the widening of Tamarack Road north of freeway where it crosses Stubbe Canyon Wash. At that time, Sierra Club provided comments on how the widening of Tamarack would

P-13.7 (cont.)

impact wildlife movement and questioned whether it was tied to the proposed larger I-10 bypass project. One of the major concerns for this project is, that if a major incident closes the freeway, the bypass and widened Tamarack Road would be an alternative route. According to participants, the Detention facility proposal was withdrawn by the applicant. Tamarack Road is an alternative connection between Banning and Palm Springs that is already used when traffic gets heavy. *Recommended Action:* Be on the lookout in case this proposal resurfaces. Because wildlife must cross Tamarack Road to get to the Stubbe Canyon bridges at I-10, signage to alert drivers to watch out for wildlife and reducing speed limits near crossings could be beneficial for wildlife.

THREAT/OPPORTUNITY: **Stubbe Wash Barricades to Limit Unauthorized ORV trespass** (TI-10 on **Figure** 8) Stubbe Wash has had a history of unauthorized vehicle use, which could impair their use for wildlife. To address this issue, Caltrans installed bollards in both east and west Stubbe Wash to limit vehicle use of underpasses. A few of the bollards were removed in East Stubbe Wash, likely by utility companies making road accessible again. *Recommended Action:* It may be necessary to install a chain and lock across the entry in West Stubbe to limit vehicle access.

OPPORTUNITY: **Wildlife Data Collection to Inform Connectivity Needs for Multiple Species** Fraser Shilling of UC Davis Road Ecology Center shared a view of his desktop GIS application with several wildlife data layers he has compiled from various sources for the state. He showed a screenshot of data points from the Calimesa area, as depicted below. The data were compiled from scientists, CNDDB, CDFW, iNaturalist, etc. Pink dots on the map indicate unclassified species occurrences. These data do not include camera trap data but do include some track/sign data.

Fraser Shillings desktop GIS showing several wildlife layers

Fraser stressed that these data show much more than just roadkill and provide an indication of what species may need connectivity planning for a given area. He suggested that, for near term studies, to only use recent data, i.e., from 2010. This is the same repository of data that was used for SR 62 connectivity study presented at this workshop.

P-13.7
(cont.)

5.4 Research and Monitoring Needs and Opportunities

NEED/THREAT Science/Research and Land Protection in San Gorgonio Pass: There has been very little sand movement down San Gorgonio wash, and attendees wondered if it is because of gravel mines. Group agreed that we need to understand if some desert species will need to track cooler wetter conditions to the west, and what are the limitations from restoring dune habitat to the west? Research and modelling are needed to look at this potential issue. The I-10 Bypass project could add to the problem of interrupted sand transport, but if the bypass were elevated, it could allow those processes to take place. Robert Fisher with USGS identified that, for golden eagles, we should focus more on San Gorgonio to Whitewater portion of the San Bernardino to San Jacinto linkage. Also, based on Cam Barrow's work, there might be a westward expansion of Coachella Valley species into the pass area, so we need to focus research and land protection in that area. *Recommended Action*: Convene experts meeting with transportation and land use agencies working in the San Gorgonio Pass area to discuss and resolve threats to species and natural processes in this location.

NEED Science/Research Santa Ana River Watershed HCP: Robert Fisher identified that the Santa Ana River Wash HCP links with San Timoteo Wash. Heather Dyer is currently the head of the HCP. This HCP could be an important tool to use, i.e., whether they might be able to apply conservation in the Banning to Badlands area, which is part of the Santa Ana River Watershed. Lytle and Cajon Washes are also critical, and still connected to Santa Ana wash, and might provide an alternate route between San Gabriel and San Bernardino Mountains for some smaller wildlife. Some BLM lands in that area are transitioning to being part of the HCP rather than to mining uses. *Recommended Action:* Follow up to see if there are conservation opportunities to use the HCP in areas of the linkage within the Santa Ana Watershed. **P-13.7 (cont.)**

Figure 8 depicts several research and monitoring efforts described in workshop presentations that presenters added to the map. These include Jennifer Hoffman's camera traps in San Gorgonio Wash, Bogart Park, Singleton Road, Badlands, and Lamb Canyon described on page 20-21; Michelle Mariscal's camera traps in upper Stubbe Canyon, Stubbe Canyon Underpass East and West, upper Cottonwood Canyon, Cottonwood Underpass, Upper Whitewater River, Whitewater River Underpass, Highway 111 Underpass at juncture for San Gorgonio/Whitewater, and upper Snow Creek Canyon described on page 21-22; and the long-term monitoring site of Jeff Lovich's Mesa Wind Farm Desert tortoise population described on page 30.

5.5 Restoration and Stewardship Needs, Opportunities, and Threats

Virtually all of the identified restoration and stewardship needs in the San Bernardino-San Jacinto Linkage are associated with rivers and streams, including Garden Air Wash and El Casco Creek in the western branch of the linkage, and San Gorgonio River, Cottonwood Creek, Stubbe Canyon, and Whitewater River in the San Gorgonio Pass.

Garden Air Wash (RS-1 on Figure 8, where RS stands for Restoration/Stewardship) is conserved to the west of Interstate 10 as part of the Western Riverside County MSHCP), where it is dominated by willows with some cottonwoods. Garden Air Wash is heavily incised to the west of the freeway due to past land uses. Other than two MSHCP Criteria Cells (#326 and #411) that span the freeway, the rest of the Garden Air Wash to the east of the freeway is not included in the MSHCP. East of the freeway, the Garden Air Wash was long ago converted to the Garden Air Country Club golf course, which is largely dominated by ornamental grass with scattered native and non-native trees and small pockets of native coast sage scrub. As described above, the golf course is currently closed and is on the market, providing an opportunity for both acquisition and restoration.

Flood Risk Maps for California developed by FEMA show both 100-year and 500-year floodplains all along Garden Air Wash from just west of the Interstate, including the WRMSCP Criteria Cells, through the entire golf course to Freemont Street in the east, depicted in the image below. Generally, FEMA flood risk data is only generated for developed or developing areas. Thus, FEMA flood risk data is not yet depicted for open space areas to the west of the freeway. As described in the City of Calimesa's Local Hazard Mitigation Plan (Bennett 2012), the December 2010/January 2011 winter storm events caused major damage to the City's infrastructure, including roads.

California Flood Risk from FEMA for Garden Air Wash with bright blue showing 100-year flood plain and light blue showing 500-year floodplain in relation to protected areas in green and Western Riverside Multiple Species Habitat Conservation Plan Criteria Cells and the linkage design.

Recommended Actions: Habitat restoration can help reduce flood risks and improve habitat connectivity and wildlife movement. The Inland Empire Resource Conservation District has worked with the current golf course owner on some improvement plans to restore some portions of the site. If the golf course was purchased for conservation purposes, habitat restoration plans could be expanded to be much more thorough, and incorporate habitat elements for a diversity of target species (e.g., nesting habitat, nectar sources for butterflies). The culvert on the east side of the golf course that leads to a canyon that would facilitate movement to existing protected open space to the southeast, also needs habitat restoration to provide cover and funnel wildlife through this choke-point. The lack of a culvert system for Garden Air Wash at Interstate-10 limits opportunities for wildlife movement across I-10 at this location. Installing a large culvert or bridge at I-10 at this location, as discussed above in section 5.3, is a critical part of the solution for reducing

P-13.7
(cont.)

flood risk, restoring riparian function, supporting climate adaptation, and improving habitat connectivity and wildlife movement.

THREAT El Casco Creek (RS-2 on Figure 8) is also severely incised west of the freeway due to the 2009 wildfire debris flows, a 100-year flood event, an undersized culvert, and habitat conversion in the uplands. In addition to the severe erosion and invasion by non-native plants and trees (e.g., Tree of Heaven, tree tobacco), it has also been degraded with large amounts of large boulders, concrete, and other debris dumped directly in the creek just south of Roberts Road. As described above in section 5.2, there are entitled developments to the north (Oak Valley) and south (Summerwind Commons) of El Casco Creek, and a housing development has already been built along the creek to the west of Roberts Road. Habitat in the creek is also severely degraded east of Roberts Road all the way to the freeway, with haphazard fencing along both sides of the creek and vegetation cut and left in the creek bed. The terms of the settlement between the Oak Valley developer and the Center for Biological Diversity and San Bernardino Valley Audubon Society in 2002, included the protection of all high-quality wetlands on-site and an additional 30 acres of wetlands off-site (M. Bond, pers. comm. in Penrod et al. 2005a). Not all permits have yet been issued, such as the 1600 permit for Oak Valley that may provide an opportunity to discuss riparian improvements and restrictive covenants. The Oak Valley developer has also hired a geomorphologist and a riparian restoration specialist to work with Riverside Lands Conservancy to restore the creek from the freeway to the Western Riverside County MSHCP preserve area to the west, along roughly a 1-mile distance of El Casco Creek, as mitigation. Providing more of a setback along the creek can provide open space to reduce the flood risk to surrounding homes and development and it can provide a buffer to minimize edge effects from development on wildlife utilizing the creek for live-in or move-through habitat.

P-13.7 (cont.)

The culvert for El Casco Creek on Interstate-10 needs to be upgraded and upsized to improve wildlife movement, reduce risk of flood and debris flows, support climate adaptation, and increase safety as described above and in Penrod et al. (2005a). El Casco Creek also experienced extensive flooding in the 2010 winter storm events that flooded the freeway, which is reflected in the Flood Factor model developed in 2020 by First Street Foundation, depicted in image below. East of the freeway, El Casco Creek is currently channelized and requires restoration to function for wildlife. The Flood Factor model also clearly shows that the Price and The Heights properties described above in section 5.2 provide feasible opportunities to restore flows once the existing freeway culvert is upgraded. The Cherry Valley Interchange project described in section 5.3 provides a potential opportunity to upgrade this culvert to a bridge, and Proposition 1 funds could be used to restore the riparian corridor east of the freeway.

Flood Factor model developed in 2020 by First Street Foundation

Recommended Actions: P-13.7 (cont.)
Work with the City of Calimesa and Oak Valley and Summerwind Commons Developers to increase setbacks along El Casco Creek to maintain wildlife movement, reduce flood risk to transportation infrastructure and surrounding development, and support climate adaptation.

Work with the City of Calimesa to develop funding/permitting opportunities associated with the protection of El Casco Creek, such as a Mitigation Credit System.

Review and comment on Cherry Valley Interchange project during public review process for DEIR (expected late Fall 2021) to promote an upgrade for the I-10 culvert, restore the channelized portion of El Casco Creek east of the freeway to support wildlife movement, increase groundwater recharge, and reduce flood risk to transportation infrastructure and surrounding development.

At the policy level, work with the State Water Board, in coordination with the wildlife agencies and Caltrans, to promote the benefits of upsizing culverts as means to reduce flood risk, enhance climate adaptation, and improve wildlife movement. Work to ensure that Caltrans or local transportation agencies are not be penalized with additional impacts and mitigations for upsizing culverts and bridges when such projects incorporate considerations for wildlife movement and climate adaptation.

OPPORTUNITY: Engage Morongo Band of Mission Indians in Linkage Implementation Alliance: The San Bernardino-San Jacinto Linkage overlaps the Morongo Tribe's ancestral lands, including nearly 11,000 acres of the reservation. Staff with the Morongo Tribe were invited to this linkage implementation workshop. Kathleen Brundige from the Coachella Valley Conservation Commission shared that they work with the Morongo Tribe on wildlife surveys (e.g., burrowing owl, riparian birds) and restoration efforts, and coordinate on various monitoring activities but haven't really coordinated with them on land acquisitions. ***Recommended Actions:*** Create a relationship with the Tribe to listen and learn about their experiences in the area. Where and when they feel it is possible, explain the goals of the Linkage Implementation Alliance, and work together to identify shared goals and collaborative actions to meet those goals. Invite them to engage in the Linkage Alliance in whatever role they deem appropriate – leadership, partner, participant or other role.

THREAT San Gorgonio River has two gravel mines that encroach into the floodplain that will eventually be restored as part of required reclamation plans (LUP-4 and LUP-5). The operation north of the freeway is Robertson's Ready Mix Banning Rock Plant #66, where reclamation isn't scheduled until 2040, while the operation south of I-10 include Robertson's Ready Mix Cabazon Rock Plants #11 and #77, which are in the midst of a Joint Project Review by the Agencies. Just downstream of the I-10 bridges for the San Gorgonio River, a low concrete dike runs almost the full width of the river, deflecting flow to the south bank to protect a mining operation that occupies almost the whole river bottom. Mining operations in the river decrease its value as a travel corridor for wildlife. *Recommended Action:* Future expansions should be prohibited and restoration planned to benefit wildlife movement when these mines cease operations.

THREAT Cottonwood Creek (RS-3 on Figure 8) becomes channelized as it approaches Interstate 10 and it's the only crossing structure without natural substrate in the linkage from the San Gorgonio River to the Whitewater River. Great numbers of wildlife have been recorded in upper Cottonwood Canyon but not in the area where it's channelized (M. Mariscal, pers. Comm.). Restoring Cottonwood Creek would enhance wildlife movement and sand transport, reduce flood risk, and facilitate groundwater recharge. Workshop participants weren't sure which water agency has jurisdiction in Cottonwood Creek; could be Coachella Valley Water District. It was also noted that the structure at Cottonwood may be within the Morongo Tribe's jurisdiction and that County Flood Control should also be brought into conversation because of the undercrossings. *Recommended Action:* Create a relationship with the Morongo Band of Mission Indians to determine how they would like to be involved and work with them in that capacity. Work with CVMSHCP, Riverside County Flood Control, Water District, and others. Together, with these partners co-create, develop, fund, and implement a restoration plan for Cottonwood Creek. **P-13.7 (cont.)**

NEED/THREAT Whitewater Basins (RS-4 on Figure 8): The Whitewater Percolation Basins are not ideally situated to support essential ecosystem flows, such as sand transport. A question was raised regarding the possibility of relocating the Whitewater River percolation ponds to allow sand transport to flow uninterrupted. It was stated that golf courses in the area use so much water that they are depleting the aquifer, so percolation ponds are intended to keep the aquifer full. It has been proposed to move the percolation ponds to the south, as it would greatly benefit sand flows and habitat, but the Coachella Valley Water District has said it doesn't make economic sense. *Recommended Actions:* Meet with CVWD to discuss options to relocate the percolation ponds. Work with CVMSHCP, experts at University of California Riverside, and Coachella Valley Water District staff to develop and implement a plan to reorient the Whitewater basins at some time in the future to increase the rate of aeolian sand transport.

THREAT Dewatering of drainages in the San Bernardino Mountains, particularly San Gorgonio River (RS-5 on Figure 8) and Whitewater River (RS-6 on Figure 8): Dewatering has reduced vegetative cover and sand transport along rivers, streams, and washes in the linkage throughout the San Gorgonio Pass, making these drainages less able to support wildlife movement. There are an extraordinary number of water agencies with jurisdiction in the San Gorgonio Pass. The San Gorgonio Integrated Regional Water

Management Group (SGIRWMG) includes the City of Banning, Banning Heights Mutual Water Company, Cabazon Water District, High Valleys Water District, Riverside County Flood Control and Water Conservation District, and the San Gorgonio Pass Water Agency.

The San Gorgonio Integrated Regional Water Management Plan released in 2018 highlights the importance of biological corridors between the San Bernardino and San Jacinto Mountains and aeolian sand transport, and includes goals to conserve these ecosystem functions consistent with the Western Riverside Multiple Species Habitat Conservation Plan and the Coachella Valley Multiples Species Habitat Conservation Plan. It also describes in detail many water diversions. For example, the San Gorgonio River is diverted to the Banning Canyon Storage Unit, "When surface water flow is present in Banning Canyon, flows are diverted by Banning into off-stream recharge basins to facilitate groundwater recharge". Together the "Safe Yield" for these two storage units is 6,030 Acre-feet per year. In addition, "Banning recharges the Banning Canyon Storage Unit with water delivered from the Whitewater River via a flume system". As part of SG IRWM's Proposition 1 Planning Grant, the SGIRWMG accepts nominations for beneficial projects to be integrated into the IRWM Plan on an ongoing basis, providing an opportunity to restore vegetative cover and other ecosystem processes consistent with the IRWMP's goals to protect aquatic and riparian habitat and adaptation to climate change.

Recommended Actions: Submit Project Nomination Form to SGIRWMG (available at www.sgirwm.org) to work with the USFS, WRCMSHCP, CVMSHCP, and others to investigate the historic flow regime of the San Gorgonio and Whitewater Rivers and develop a surface and groundwater management program to restore vegetative cover and recover properly functioning aquatic/riparian conditions (e.g., sand transport).

THREAT Stewardship of Bridges (RS-7, 8, & 9 on Figure 8) Several of the bridges (Stubbe, Cottonwood, Whitewater) have off-road vehicle (ORV) issues and are also used as party places, causing wildlife to avoid using the structures and habitat degradation. Wildlife monitoring of the bridges on I-10 found wildlife use happens at different times of day, but use of the structures by ORV and partygoers is also deterring wildlife use and disturbing habitat (M. Mariscal, pers. comm.). Caltrans installed bollards in Stubbe Canyon Bridge to try to deter ORV and party use but it's been somewhat unsuccessful. *Recommended Actions:* Install educational signage under each bridge in the linkage to explain its use by wildlife, the importance of maintaining connectivity for healthy wildlife populations, and the impacts ORV use and human presence has on linkage function. Work with Caltrans to evaluate installing bollards or chain and lock systems under each bridge to reduce unauthorized ORV access and ensure other jurisdictional agencies that need access have keys and are apprised of the structure's importance to wildlife movement. Work with CVMSHCP, Caltrans, and local law enforcement agencies to monitor undercrossings to discourage OVR and party use of structures.

P-13.7 (cont.)

THREAT Pacific Coast Trail (RS-10 on Figure 8) In addition to facilitating wildlife movement across Interstate-10, the bridges for Stubbe Canyon also provide passage for hikers on the Pacific Crest Trail. Wildlife monitoring of these structures found it is readily used by wildlife and people (M. Mariscal, pers. Comm.). There was some discussion at the workshop, as to whether there is a more suitable route for the PCT that would have less impact on wildlife movement and habitat connectivity. The Sierra Club and MDLT walked a potential realignment from Stubbe to Whitewater about 7 years ago with PCT Association. It was noted that there are many sensitive species in the area of that potential realignment in the sand dune area, and the crossing structure beneath Highway 111 had fairly high bobcat use, so there would be a good number of potential negative impacts if that area experiences increased recreational use. *Recommended*

Actions: Explore other potential realignments of PCT to reduce impacts to wildlife movement. Install signage to inform hikers on PCT how to reduce impacts to habitat and wildlife.

6. San Bernardino-Little San Bernardino Linkage Needs, Opportunities, and Threats

6.1 Ecological Significance of the Linkage

The San Bernardino-Little San Bernardino Connection occurs in a rare ecological transition zone linking the South Coast to the Mojave Desert ecoregion. As such, the planning area encompasses a unique variety of both coastal and desert habitats, from mixed coniferous forest and montane chaparral at higher elevations in the San Bernardino Mountains, to pinyon-juniper woodland, Joshua tree woodlands, and mixed chaparral at mid elevations, and desert scrub, creosote bush scrub, and riparian oases at lower elevations that transition back into pinyon-juniper and Joshua tree woodland in the Little San Bernardino Mountains. Little, Big, and Dry Morongo canyons are distinct geological features of the linkage, cutting through the Little San Bernardino Mountains, with Little and Big Morongo canyons forming substantial wetlands where the creeks meet bedrock. In this land of predominantly dry vegetation, the desert oases provide essential resources that attract a diversity of terrestrial and aquatic species. The Big Morongo Canyon Preserve's desert oasis is known internationally for its bird diversity. A number of sensitive natural communities occur in the planning area, including desert fan palm oasis woodland, cottonwood willow riparian forest, and mesquite bosque (CNDDB 2021). These include some of the rarest vegetation communities in the United States. P-13.7 (cont.)

This variety of habitats support a diversity of organisms, including many species listed as endangered, threatened, or sensitive by government agencies (USFWS 1980, 1998, CDFW 2021ab). A number of rare species depend on the area's riparian oases, which provide breeding locations for many riparian birds and critical watering areas for desert bighorn sheep. Several riparian songbirds, such as summer tanager (*Piranga rubra*), yellow warbler, and the endangered least Bell's vireo, and yellow-billed cuckoo have the potential to occur in the linkage. Sensitive reptiles that prefer drier habitats and sparser vegetative cover, such as the threatened desert tortoise, red diamond rattlesnake (*Crotalus ruber*), coast horned lizard, and the endangered Coachella Valley fringe-toad lizard also have the potential to occur, as do a number of sensitive birds of prey, such as Cooper's hawk, golden eagle, and burrowing owl. The planning area also provides habitat for imperiled plant species, like the triple-ribbed milk-vetch (*Astragalus tricarinatus*) and Little San Bernardino Mountains linanthus (*Linanthus maculatus*). In addition to providing habitat for rare and endangered species, the linkage provides live-in and move-through habitat for countless other native species.

6.2 Land Use, Policy, and Protection Needs, Opportunities, and Threats

The San Bernardino-Little San Bernardino Linkage straddles both Riverside and San Bernardino Counties. While much of the linkage falls in unincorporated county lands, a portion of the northernmost branch of the linkage is within the City of Yucca Valley and a portion of the southernmost branch is within the City of Desert Hot Springs. The linkage overlaps several federal land conservation designations (Figure 9), including the Sand to Snow National Monument, California Desert National Conservation Lands, Big Morongo Canyon Preserve Area of Critical Environmental Concern (ACEC), and Pipes Canyon ACEC. In addition, virtually all of the linkage design within Riverside County is included in the Coachella Valley Multiple Species Habitat Conservation Plan (21,109 acres). **P-13.7 (cont.)**

Most branches of the Linkage Design include land designations that protect natural habitats from conversion to urban uses, including lands administered by BLM (e.g., Big Morongo Canyon ACEC), The Wildlands Conservancy (Mission Creek Preserve, Pipes Canyon Preserve), Coachella Valley Mountains Conservancy, Mojave Desert Land Trust, Friends of the Desert Mountains, Riverside County Regional Park and Open Space District, San Bernardino County, and State Lands Commission. At the time the SCML report for the San Bernardino-Little San Bernardino Linkage was released in 2005 (Penrod et al.), roughly 62% of the linkage (37,650 of 60,805 acres) was conserved. Since that time, an additional 7,800 acres have been acquired, such that 75% of the linkage is now conserved! There is a Conceptual Area Protection Plan for the Morongo Basin focused on connectivity that is basically preapproved for acquisitions or easements if there are willing sellers. Workshop participants identified a few potential land use, policy, and protection needs, and opportunities in the linkage; no development threats were identified in this linkage at the workshop.

OPPORTUNITY BLM California Desert Conservation and Connectivity Initiative (AE1 on Figure 10) is envisioned as an on-going, multi-phased, multiple year proposal to improve desert tortoise conservation lands and conserve wildlife connectivity within the California Desert Conservation Area depicted below, as identified in the Desert Renewable Energy Conservation Plan (DRECP). This program will focus on BLM acquisitions for maintaining connectivity and TES habitat on lands designated as California Desert National Conservation Lands or Areas of Critical Environmental Concern. Lands in the northern branch of the San Bernardino-Little San Bernardino, which is a high desert connection that takes in the ecotone between the

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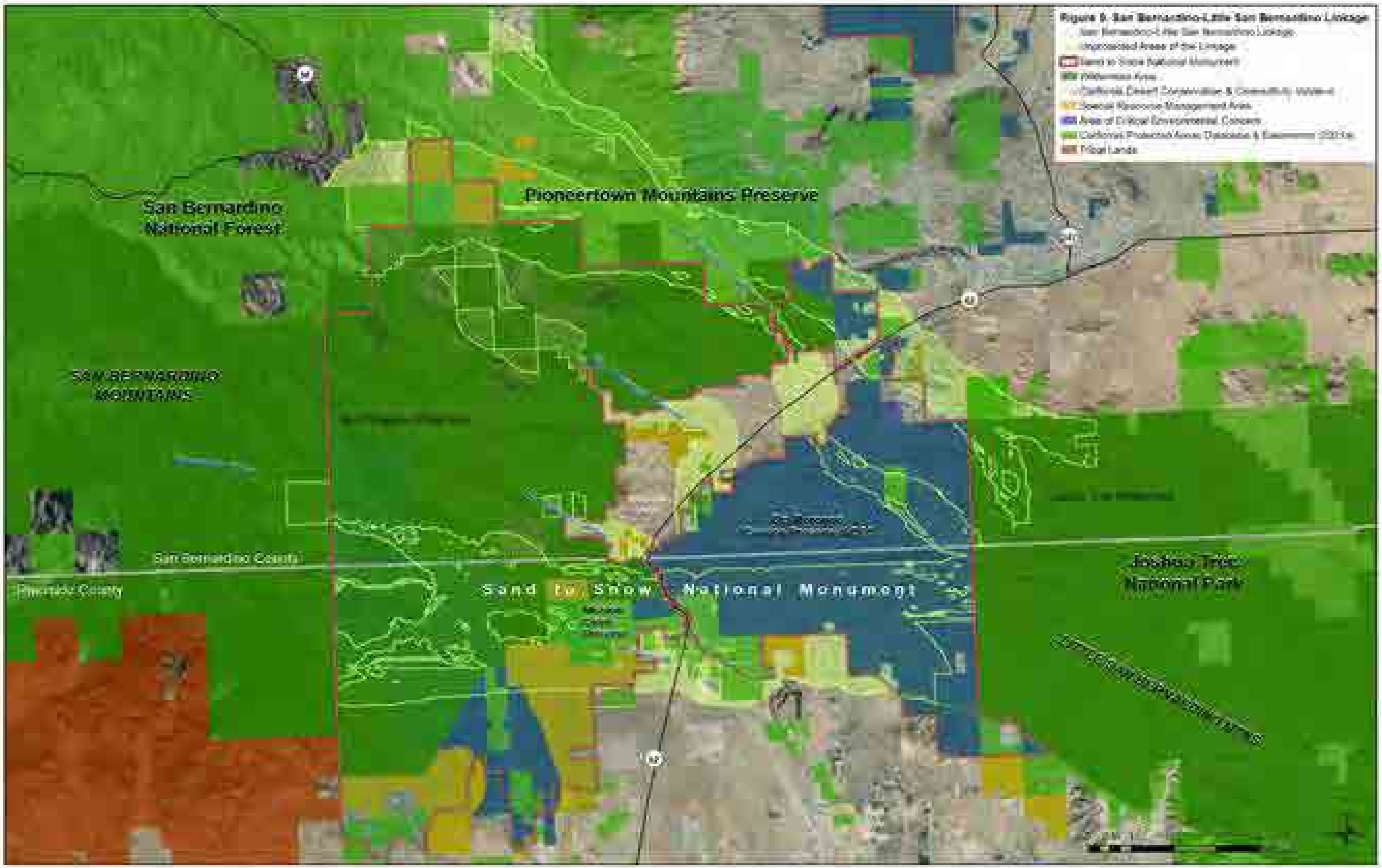

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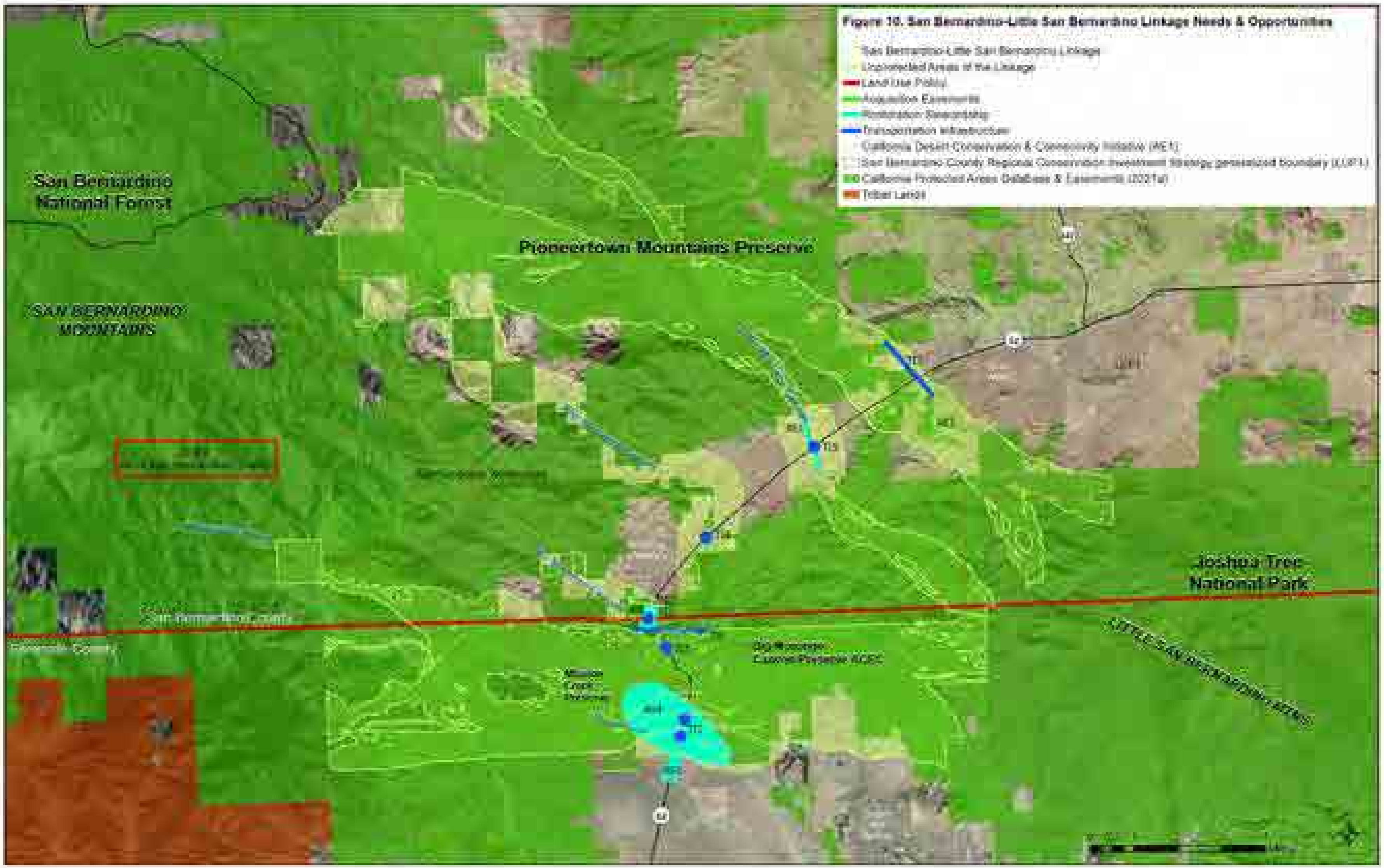

P-13.7 (Cont.)

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San Bernardino to Little San Bernardino Mountains Linkage
Summary of Needs, Threats, and Opportunities

Key	Type	Description/Summary	Recommended Action
AE1	OPP	BLM Desert Connectivity Initiative provides opportunities for land acquisition	Write letters requesting DOI to provide LWCF to support acquisitions associated with the Initiative
LUP1	OPP	San Bernadino County Regional Conservation Investment Strategy incorporates San Bernardino to Little San Bernardino Linkage and other desert linkages	Participate in public review process and advocate for connectivity conservation and long-term monitoring
LUP2	OPP	Updates to San Bernardino County Planning Documents	????
AE-2	OPP	Land protection and trespass management needed for 4 private property inholdings east of SR 62 at Dry Morongo Canyon.	Work with TWC, MDLT, and others
RS1	NEED	Little Morongo Wash has been degraded by past flood control activities	Work with RCFC, MDLT to conduct a restoration feasibility study for Little Morongo Creek
RS 2 RS 3 RS 4	THREAT	SR 62 Bridges for Dry Morongo and Mission Creek subject to chronic disturbance from human activities and sedimentation.	Install educational signage and chains/locks to deter trespass. Coordinate meeting with jurisdictions, CVCC, NGOs and law enforcement to fund and implement regular patrols, signage and other actions to deter illegal human activity.
RS 4	THREAT	Area south of Indian Canyon Road, on both sides of SR 62, subject to human disturbance caused by ORV use and other illegal activities.	Install educational signage and chains/locks to deter trespass. Work with jurisdictions, CVCC, NGOs and law enforcement to fund and implement regular patrols to deter illegal human activity.
TI-1 TI-2 TI-3 TI-4 TI-5	OPP	Existing SR 62 crossing structures identified for upgrades (noise/light mitigation, wildlife fencing): Mission Creek Bridges (T-1), Lower Morongo Bridge (TI-2), Dry Morongo Wash (TI-3), Big Morongo Wash Culvert (TI-4), and Little Morong Wash bridge (TI-5).	Support Caltrans by forming an Interagency Group to support planning, design, grants, funding, and implementation of crossing enhancements. Seek legislative support
T-6 T-7	OPP	Caltrans is in the early planning stages for two modular vegetated wildlife overcrossings for SR62 in locations previously identified by SCML (Morongo Grade (TI-6) and Yucca Grade (TI-7)	Support Caltrans by forming an Interagency Group to support planning, design, grants, funding and implementation of crossing enhancements. Seek legislative support
AE = Acquisition Conservation Easement LUP = Land Use Policy RS = Restoration Stewardship TI = Transportation Infrastructure			

P-13.7
(Cont.)

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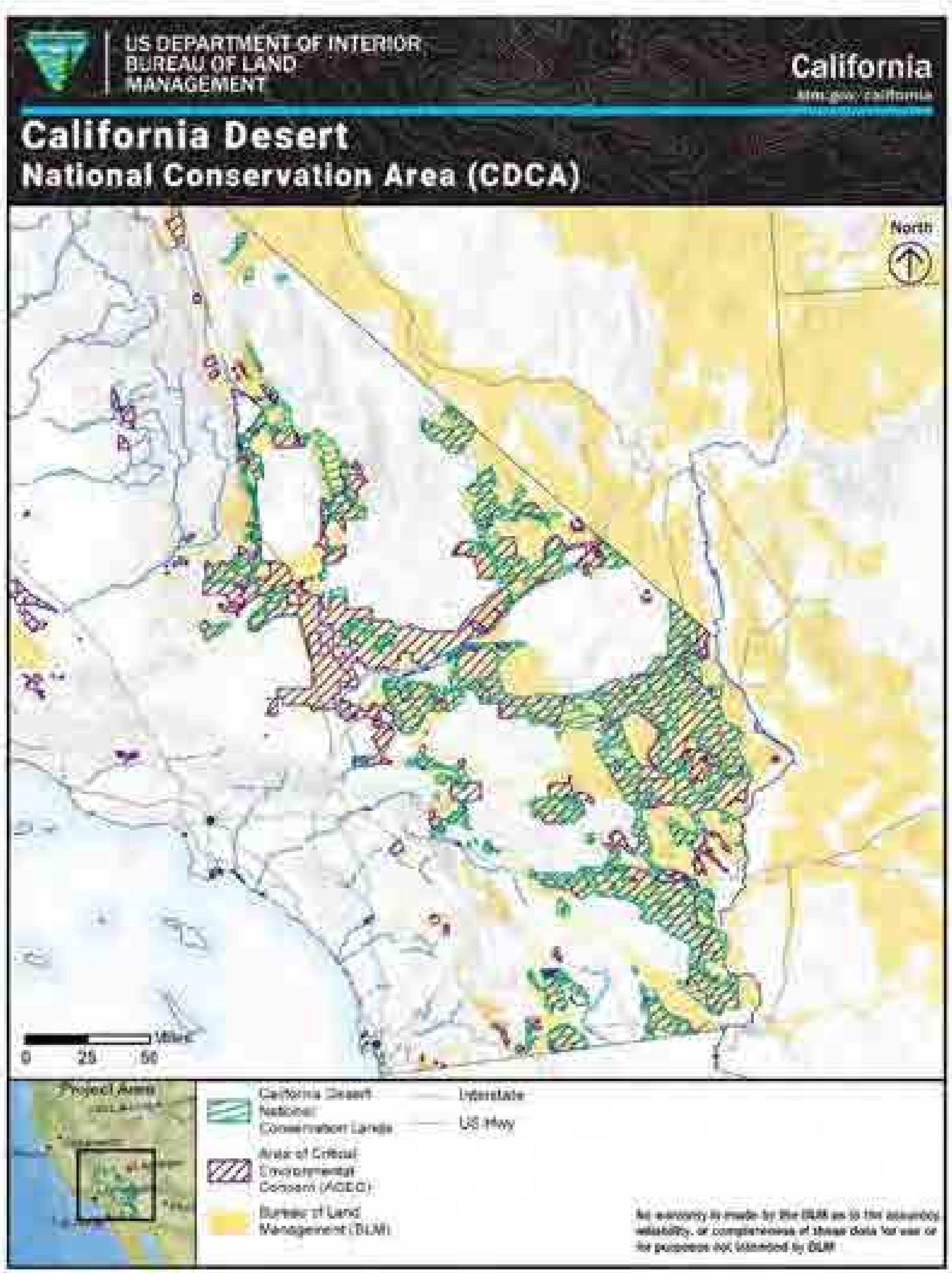
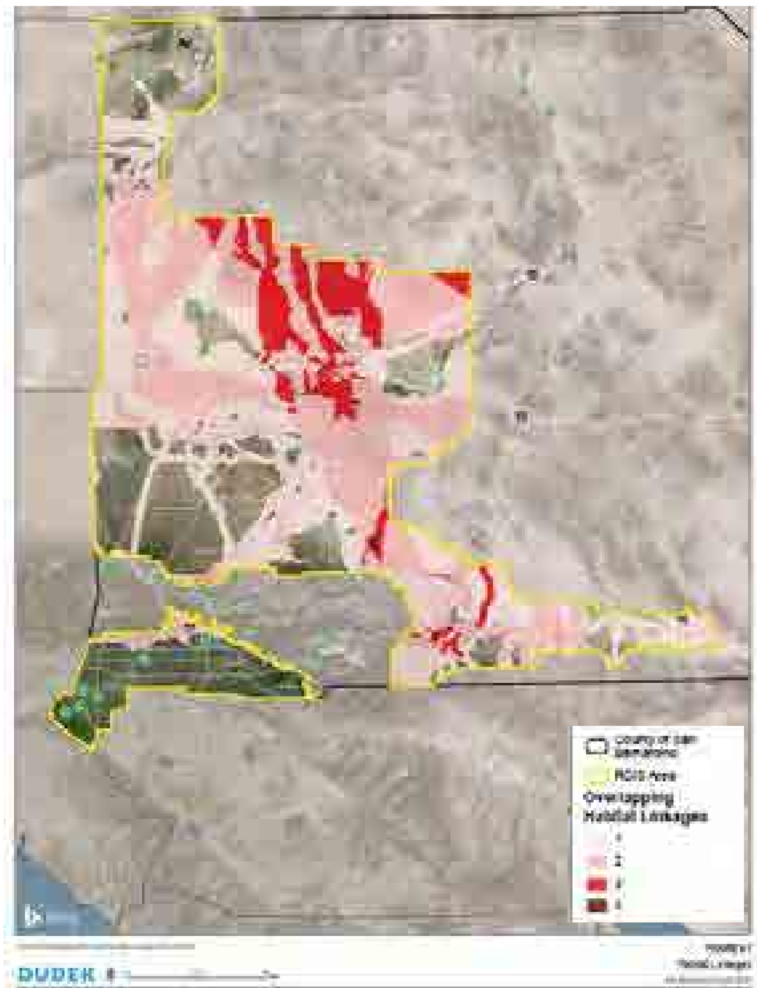
Sonoran and Mojave deserts, would be targeted by this initiative. Following the workshop, several participants met with BLM staff to discuss this initiative. ***Recommended Action:*** Send a letter of support to Secretary Deb Haaland for BLM's funding request through the Land and Water Conservation Fund for the California Desert Conservation and Connectivity Initiative that will help to conserve essential linkages and conservation areas in the Mojave and Sonoran deserts.



P-13.7 (cont.)

OPPORTUNITY San Bernardino County Regional Conservation Investment Strategy (LUP-1 on Figure 10) was initiated several years ago and a draft Regional Conservation Investment Strategy (RCIS) plan was completed and distributed in 2018 (Dudek). The San Bernardino County Transportation Authority (SBCTA) received a grant for a cooperative project with the San Bernardino Council of Governments to develop and complete a final draft of the San Bernardino County Regional Conservation Investment Strategy, covering two subareas, the Valley subarea and West Desert subarea and the Mountain region located in San Bernardino County. The Valley subarea is in the inland coastal plain south of the San Bernardino and San Gabriel Mountains. The West Desert subarea covers the western portion of the Mojave Desert ecoregion in the county and includes most of the San Bernardino-Little San Bernardino Linkage. Several connectivity studies are being integrated into the RCIS strategy, including California Essential Habitat Connectivity Project (Spencer et al. 2010), California Desert Linkage Network (Penrod et al. 2012), Joshua Tree Twenty-Nine Palms Linkage (Penrod et al. 2008), South Coast Missing Linkages (Beier et al. 2006, SC Wildlands 2008), Desert Tortoise Conservation Areas and Linkages (Averill-Murray et al. 2013), and Conservation Biology Institute's West Mojave connectivity modeling for Large and Small species (CBI 2017). The most recent funding for the project was initiated in 2019 and is estimated to be completed by March 2022. The image to the left depicts the overlapping habitat linkages being considered in the San Bernardino Resource Conservation Investment Strategy.



Once this Resource Conservation Investment Strategy is completed, it should provide additional justification for land conservation and habitat restoration in the San Bernardino-Little San Bernardino Linkage, and other critical linkages in the Mojave Ecoregion. *Recommended Action:* Participate in stakeholder engagement opportunities in this public planning process.

P-13.7
(cont.)

OPPORTUNITY Updates to the San Bernardino County Code, Title 8 Development Code (Code), including zoning maps (San Bernardino County 2021), in order to comply and be consistent with the recently adopted 2020 Countywide Plan, Policy Plan (LUP-2 on Figure 10) Although the majority of the Code standards and provisions will remain intact and carry over from the current code, the project proposes an ordinance that will repeal Title 8 in its entirety and adopt a new Title 8 as a replacement. The new Code will be reorganized, include a new zoning classification system, zone map, and include provisions to bring the code into compliance with new state laws and Policy Plan goals and policies (i.e., environmental justice, land use compatibility, hazards avoidance, environmental protection, etc.). This Countywide Hearing took place July 22, 2021 County of San Bernardino Land Use Services Department.

OPPORTUNITY Dry Morongo Canyon (AE-2 on Figure 10) The land in Dry Morongo Canyon immediately west of State Route 62 and the bridged undercrossing should be targeted for conservation easement, purchase, or other action to maintain its wild character. There appears to be four different properties off of Canyon House Road. This road also provides access to an unnamed dirt road that leads directly to the bridge on SR62, as shown in the image below, which is used for illegal off road vehicle use (see section 6.5 below). It is critical that this structure be maintained and that the lands near it are protected from habitat degradation, trespass, and further development.

P-13.7 (cont.)

6.3 Transportation and Infrastructure Needs, Opportunities, and Threats

Figure 10 depicts the locations of several recommendations to improve wildlife passage across SR-62 based on research and monitoring efforts from a recent Caltrans study focused on wildlife movement across this route that was described in Brock Ortega's presentation, which is summarized on pages 22-25. Caltrans commissioned this study as SR-62 is expected to be widened in the near future. These same locations were identified for wildlife crossing improvements in the San Bernardino-Little San Bernardino Linkage report (Penrod et al. 2005b). It's very exciting and gratifying to see recommendations to improve wildlife movement across SR-62 in the recent Caltrans study, which include opportunities for improvements to existing structures (e.g., noise and light mitigation, directional fencing), as well as, installation of two wildlife overpasses. Existing structures identified for improvements include: Mission Creek Bridges (TI-1 on Figure 10), Lower Morongo Wash Concrete Box (TI-2), Dry Morongo Wash (TI3), Big Morongo Wash Culvert (TI4), and Little Morongo Wash bridge (TI-5). Vegetated modular wildlife overcrossings were recommended at the Morongo Grade (TI-6) and at Yucca Grade (TI-7). Please see page 25 for a summary of these recommendations. ***Recommended Actions:*** Work with Caltrans District 8 to develop an SR-62 inter-agency working group to support funding, planning, design and implementation of the wildlife crossing improvements identified in the recent study.

6.4 Research and Monitoring Needs and Opportunities

Participants didn't identify any specific needs or opportunities for this linkage during the Research and Monitoring session.

The primary research and monitoring discussed at the workshop for the San Bernardino-Little San Bernardino Linkage was the Caltrans study for SR-62, which was presented by Brock Ortega at the Transportation and Infrastructure session. The presentation on this study is summarized on pages 22-25 and the recommendations are highlighted in the previous section.

CVMSHCP research and monitoring in the Mission Creek area was also mentioned, including surveys for two covered plant species, Little San Bernardino linanthus and Triple-ribbed milkvetch, and trapping for Palms springs pocket mouse.

P-13.7 (cont.)

6.5 Restoration and Stewardship Needs, Opportunities, and Threats

NEED Little Morongo Wash (RS-1 on Figure 10) was the only habitat restoration need specifically identified in this linkage at the workshop. Little Morongo Wash provides the most direct desert wash connection between the San Bernardino and Little San Bernardino Mountains. The lower part of Little Morongo Wash from just above SR-62 to the oasis at the base of the Little San Bernardino Mountains is within the 100-year floodplain. Little Morongo Wash has been channelized on the Morongo Valley floor for flood control but upper Little Morongo is dominated by white alder, cottonwoods, and sycamores and water still flows in the channel into summer in some years. Little Morongo Wash flows form a substantial oasis where the creek encounters bedrock at the base of the Little San Bernardino Mountains, which is definitely a draw to wildlife. Flood control activities have severely reduced abundance and species diversity of riparian vegetation along Little Morongo Wash where it's channelized but since the sides and bottom of the channel are natural substrate (i.e., no concrete) some level of habitat restoration is feasible. *Recommended Action:* Work with Riverside County Flood Control District, wildlife and land management agencies, and nonprofits such as Mojave Desert Land Trust to conduct a Cottonwood Creek Restoration (de-channelization) feasibility study to increase vegetative cover and plant diversity to support movements of a greater array of species, and to slow flows, reduce flood risk, and increase groundwater recharge.

Stewardship of Bridges (RS-2 & 3 on Figure 10) Bridges for Dry Morongo and Mission Creek have illegal ORV issues and are also used as party places, which impact soils and vegetation and inhibit species from using this crossing route, particularly at night. Dry Morongo Wash is especially important for seasonal movements of bighorn sheep, as there are springs in the upper canyon that draw animals into the drainage. However, the area is also popular with off-road vehicle enthusiasts, with heavy signs of use in Dry Morongo Wash where it runs under State Route 62 and for some distance above and below the bridge, and the area under the bridge is a party place. Access to the bridge appears to be from an unnamed dirt road off of Canyon House Road. BLM is working with law enforcement officials on encroachment into Joshua Tree National Park, especially in wilderness. Mission Creek crosses SR62 in two places and each area has two bridge structures for the north and south bound lanes. ORV use and human disturbance are evident under each bridge. Sedimentation of one of the bridges limits wildlife use of the structure. *Recommended Actions:* Coordinated outreach, protection, and monitoring is needed to prevent both ORV and human disturbance at undercrossings. Install educational signage under each bridge in the linkage to explain its use by wildlife, the importance of maintaining connectivity for healthy wildlife populations, and the impacts ORV use and partygoers have on linkage function. Illegal vehicle access to Dry Morongo Canyon may be prevented by installing fencing and signage at Canyon House Road. Evaluate the potential to install bollards under each of the four Mission Creek bridges to deter ORV use. Work with CVMSHCP, BLM, Caltrans, Water Districts, and local law enforcement agencies to monitor undercrossings to discourage OVR and party use of structures and to evaluate impacts of these activities on wildlife. **P-13.7 (cont.)**

THREAT Chronic Human Trespass (RS-4 on Figure 10) The area to the south of Indian Canyon Road both to the east and west of SR-62, is subject to unauthorized and illegal human activities. Cars stolen in Yucca Valley and the Morongo Basin have ended up in the Mission Creek area. One workshop participant's car was stolen and then recovered in Mission Wash. Other unauthorized activities are also known to occur near Worsely Road. These activities are also happening within the Sand to Snow National Monument to the west of SR62 around Mission Creek. A Resource Management Plan is currently being developed for this area that may address some of these issues. BLM is working with law enforcement officials in this area to deter illegal ORV use. Coachella Valley Conservation Commission (CVCC) is also trying to set up a contract with the Desert Hot Springs Police Department to monitor MSCP lands in this area to the west of SR-62. *Recommended Actions:* A participant from CVCC suggested a meeting among CVCC, BLM, Caltrans, and others to develop coordinated strategies to deal with these issues. Install signage visible from public roadways for all washes that both inform people about the importance of the desert washes to wildlife movement and spells out the applicable laws for deterring trespass, illegal ORV, and other unauthorized activities. San Diego County passed bond measures to help fund management and monitoring of MSCP lands, and included funding for local law enforcement agencies to monitor and issue citations for illegal use. Perhaps, a similar bond measure could be passed here to support implementation of the CVMSHCP.

7. Joshua Tree-Chocolate Mountains Linkage Needs, Opportunities, and Threats

7.1 Ecological Significance of the Linkage

The Joshua Tree-Chocolate Mountains Linkage occurs in a transition zone between the Mojave and Sonoran Desert Ecoregions, supporting a high diversity of plant communities and species. The Mojave and Sonoran Deserts differ primarily in elevation. The Mojave Desert is higher in elevation, and is therefore cooler, receiving more precipitation. This accounts for the differences in vegetation types; evergreen trees such as the Joshua tree (*Yucca brevifolia*) flourish in the Mojave but cannot persist in the Sonoran. At higher elevations in the Mojave Desert, juniper (*Juniperus spp*.) and pinyon pine (*Pinus quadrifolia*) are present with an understory of creosote bush (*Larrea tridentate*) and other shrubs and herbs. Characteristic habitats in the Sonoran Desert include creosote bush scrub, saltbush scrub, desert riparian, bajadas or desert washes, and sand dunes. The Coachella Valley Dunes support a diversity of endemic species, which require maintaining the sand sources that replenish these systems.

This variety of habitats supports a diversity of organisms, including many species listed as endangered, threatened, or sensitive by government agencies. The threatened desert tortoise is perhaps the best-known species of desert scrub communities, as bighorn sheep are of the rugged terrain. A number of rare species depend on desert riparian communities, which provide breeding habitat for species such as least Bell's vireo, southwestern willow flycatcher, and yellow-billed cuckoo. Sensitive reptiles that prefer drier habitats and sparser vegetative cover, such as the Mojave fringe-toed lizard (*U.* scoparia) also depend on habitats here. A statewide analysis of landscape integrity conducted for the California Essential Habitat Connectivity Project (Spencer et al. 2010) identified the Mojave and Sonoran Ecoregions along with the southern Sierra Nevada as the most ecologically intact areas in the state. There are multiple areas of ecological significance within the California deserts. **P-13.7 (cont.)**

7.2 Land Use, Policy, and Protection Needs, Opportunities, and Threats

The Joshua Tree-Chocolate Mountains Linkage (171,716 acres) lies entirely within Riverside County and much of the linkage is conserved and administered by the Bureau of Land Management. The linkage overlaps several federal land conservation designations (Figure 11), including California Desert National Conservation Lands; portions of the Chuckwalla, Orocopia Mountains, and Mecca Hills Wilderness Areas; and Chuckwalla Area of Critical Environmental Concern. In addition, about 57% of the linkage design is included in the Coachella Valley Multiple Species Habitat Conservation Plan (97,750 acres), as part of the Desert Tortoise and Linkage Conservation Area and Mecca Hills/Orocopia Mountains Conservation Area.

In addition to land conservation designations described above, the DRECP (2016) also identified Development Focus Areas for Renewable Energy throughout the California Deserts, including directly east of the Joshua Tree-Chocolate Mountains Linkage, in the Chocolate Mountains-Palen McCoy Mountains Linkage. Meeting renewable energy production goals is essential to help combat climate change but it is

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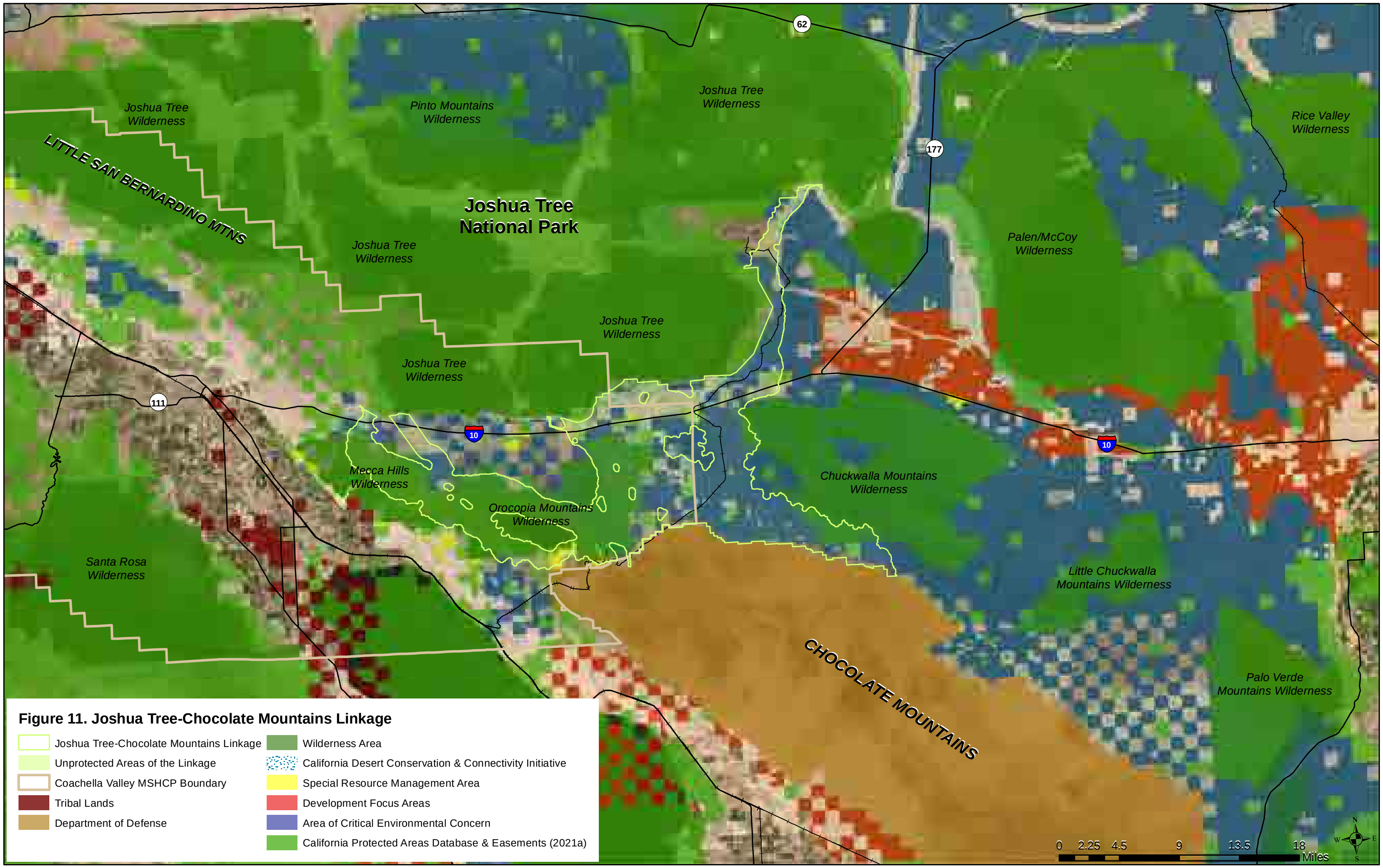

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equally important to maintain habitat connectivity, sustain essential ecosystem functions, and provide opportunities for species to shift their ranges in response to climate change.

Workshop participants identified a few potential land use, policy, and protection needs, and opportunities in in this linkage at the workshop.

THREAT/OPPORTUNITY Paradise Valley Specific Plan - Eastern Coachella Valley Area Plan Area Policy 2.3 (LUP-1 on Figure 12) Paradise Valley Specific Plan is a major proposed development in the Coachella Valley Multiple Species Habitat Conservation Plan Area that has been floating around for many years. Geographically, the project site is in Shavers Valley with Pinkam Wash flowing out of Joshua Tree National Park, down through this microphyll wash that flows under Interstate 10 to the Orocopia Hills area. The proposed Paradise Valley development includes 5,400 acres that spans both sides of Interstate 10. There was a significant opposition effort that included environmental and social justice groups opposed to the project. This area is already identified as a corridor in the Multiples Species Habitat Conservation Plan. A focused Connectivity Conservation Plan, as Dr. Paul Beier spoke about earlier, could elevate the importance of the conservation opportunity. There is funding available for this acquisition but the owner of the property site is currently not a willing seller. From a Land Use Policy perspective, the only reason that the Paradise Valley Project was considered is because of the Eastern Coachella Valley Area Plan within the General Plan that describes the potential for a new town to be located in this area. *Recommended Action:* Initiate a focused group discussion on deleting this particular policy from the County's GP, which would eliminate any new town in this area from further consideration. The County can amend the General Plan four times a year. The next General Plan update is expected in 2022.

THREAT Connectivity across I-10 threatened by Multiple Solar Projects on BLM Land (LUP-2 on Figure 12): The DRECP Development Focus Area east of Desert Center covers 158,000 acres, where Athos Solar has been approved (3,440 acres), and three other projects are proposed on BLM land including Oberon Solar (4,700 acres), Arica Solar (2,000 acres), and Victory Pass (2,000 acres); another solar project is proposed on private land in Chuckwalla Valley. **P-13.7 (cont.)**

Athos Solar Project Athos I & II is one of the largest renewable energy projects in California (image below), incorporating 1.48 million First Solar Series 6™ photovoltaic (PV) modules on a 3,440-acre* land parcel, located approximately 75 miles east of Palm Desert in a small town called Desert Center. It is currently in the construction phase within the DFA described above. When complete, it will cover nearly 5-square miles and will have the capacity to generate over 2,200 GWh per year of renewable energy, enough to power 179,000 homes and offset 1.7 million tons of carbon dioxide emissions annually.

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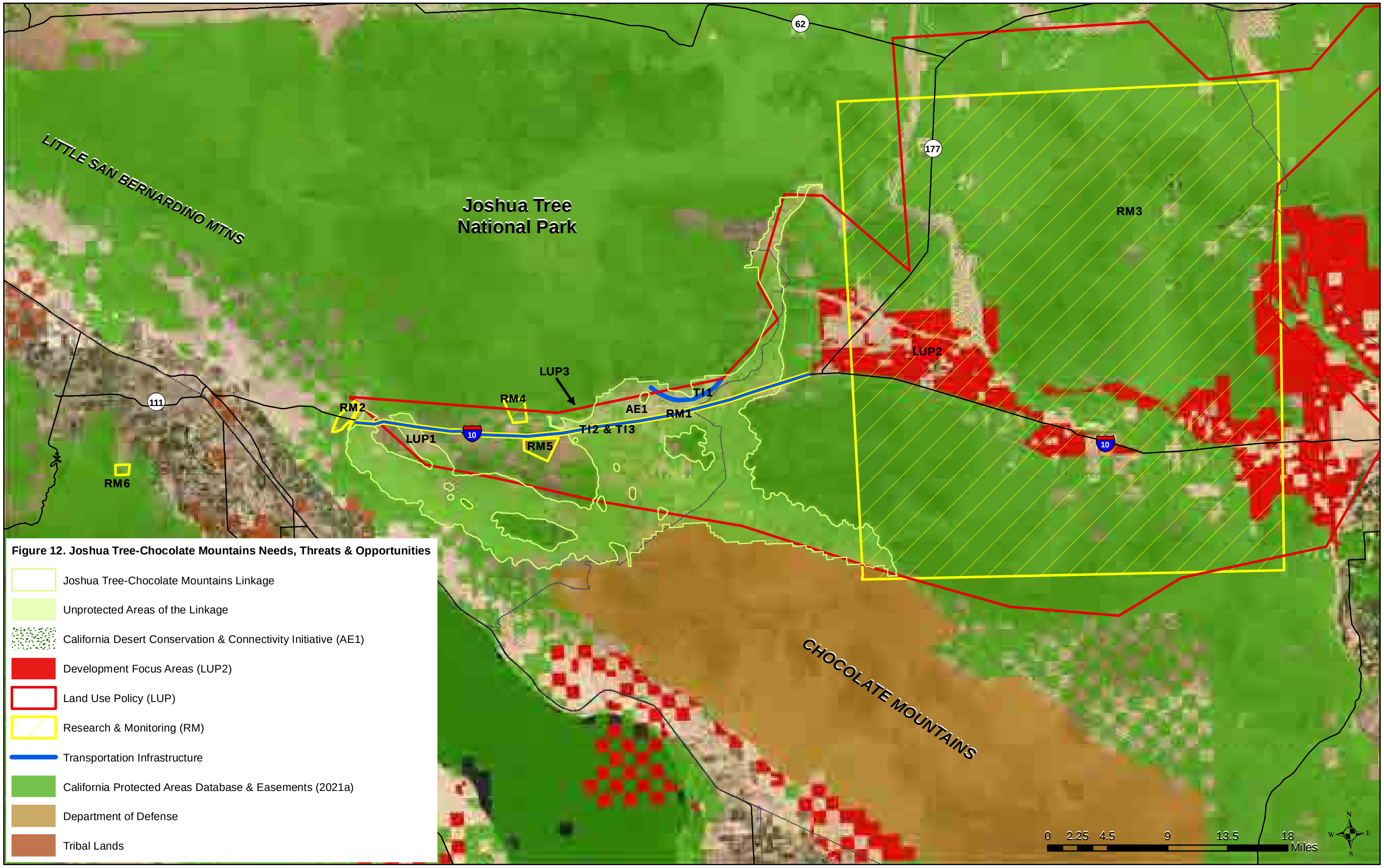

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Joshua Tree to Chocolate Mountains Linkage
Summary of Needs, Threats, and Opportunities

Key	Type	Description/Summary	Recommended Action
LUP-1	THREAT/ OPP	Proposed Paradise Valley Specific Plan threatens connectivity and habitat	Propose removal of proposed residential land use designation in the upcoming 2022 CVGP update. Acquire lands for conservation.
LUP-2	THREAT	Proposed Athos, Oberon and , Arica and Victory Pass Solar Developments will impact north south connectivity in the linkage	Create listserv to rally and organize community response to proposed projects during ER process for each project.
LUP-3	OPP	Chuckwalla Mountains National Monument Proposal	Write letters of support to Representatives when the bill is introduced to Congress.
AE-1	OPP	DRECP Connectivity Initiative; opportunities for BLM acquisitions to support connectivity	Write letters of support to DOI in support of the Initiative and specific acquisitions
TI-1	NEED	CA Aqueduct is a barrier to wildlife movement	Work with MWD to identify future opportunities for incorporating connectivity enhancements into the aqueduct infrastructure
TI-2	NEED/ OPP	Wildlife/directional fencing needed for I-10 to protect tortoises and other wildlife from vehicle mortalities. Ensure that fencing also installed in median openings at bridges	Urge Caltrans to incorporate fencing into planned projects for I-10, such as the proposed median project. Convince CDFW that new fence is appropriate mitigation for 2081/CESA.
TI-3	NEED	Rip rap at existing I-10 undercrossings impedes tortoise and other wildlife movement	Urge Caltrans to remove rip rap as part of future planned projects for I-10. Review alternatives in AZ & NV that will serve similar hydraulic function in CA.
RM-1 RM-2	NEED	Camera trap and tracking studies needed for existing I-10 undercrossings in the linkage is to understand issues, importance of selected crossings (ie, Thermal Canyon) and opportunities for enhancement	Urge Caltrans, USGS, or other entity to complete camera trap monitoring as part of future planned projects for I-10.
RM3	OPP	UNR Genetic Study for Desert Tortoise	
RM-4 RM-5 RM-6		USGS Desert Tortoise population monitoring locations: Cottonwood (RM-4), Orocopia (RM-5) and Deep Canyon (RM-6)	

AE = Acquisition Conservation Easement
LUP = Land Use Policy
RS = Restoration Stewardship
TI = Transportation Infrastructure

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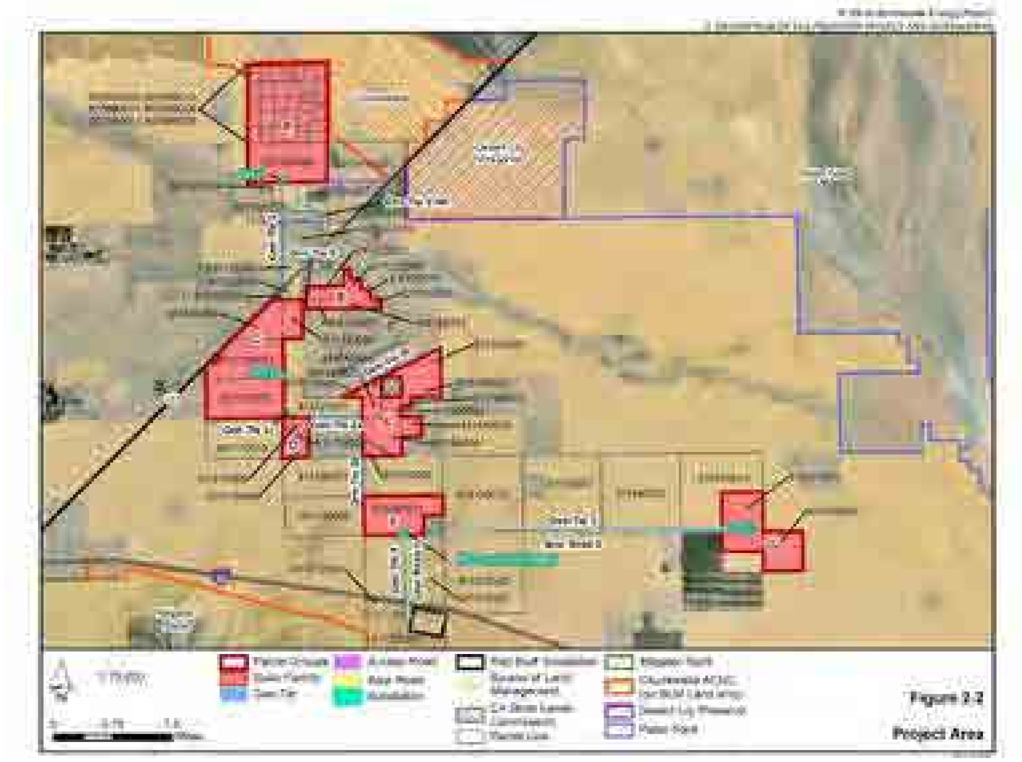
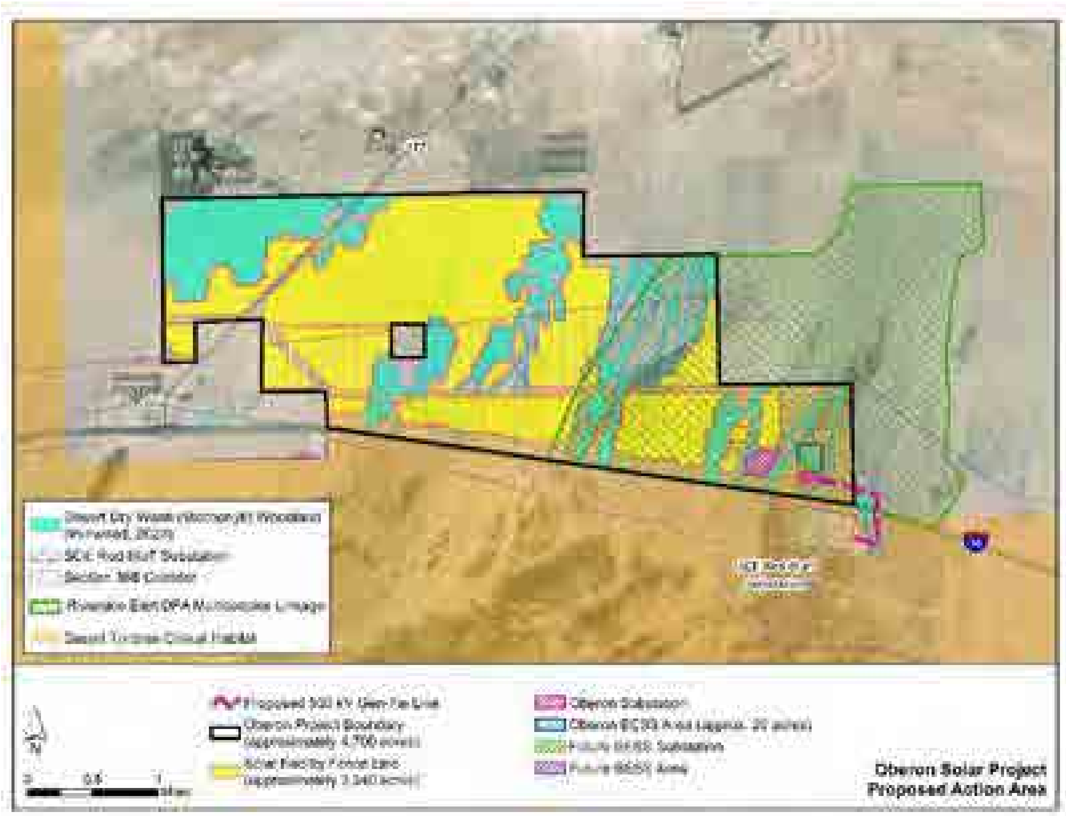
Comment P-13



Athos Renewable Energy Project shown in red

P-13.7 (cont.)

THREAT Proposed Oberon Solar Development Project (image below) is the first solar project to be processed under the DRECP Conservation Management Actions. IP Land Holdings, LLC, proposes to construct solar arrays, substation, battery storage and interconnecting power lines on 4,700-acres of BLM-managed public lands. Scoping comments on the Notice of Preparation of a Draft Environmental Impact Report were due April 19, 2021. Rather than be consistent with DRECP (2016), the project applicant is proposing to amend the California Desert Conservation Area Plan, which would set a very bad precedent. The project is evaluating potential impacts of occluding designated wildlife corridors in the DRECP where there are good culverts and bridges across I-10, and siting over microphyll woodlands. The Colorado River Basin Regional Water Quality Control Board is the CEQA lead for the EIR. Additional information about the proposed Oberon Solar project is available online at https://go.usa.gov/xfdH5. *Recommended Action:* Contact BLM at BLM_CA_PS_OberonSolar@blm.gov to get on the distribution list for the DEIR. USFWS working with BLM to ensure consistency with DRECP and maintain habitat linkages. For comments, questions, or to contribute biological information for consideration, please contact Vincent_james@fws.gov and Magdalena.Rodriguez@wildlife.ca.gov



P-13.7 (cont.)

THREAT Arica Solar and Victory Pass Solar Projects

The BLM is the lead federal agency for the National Environmental Policy Act (NEPA) review and is responsible for deciding whether to grant, grant with modifications or deny the right-of-way applications for Arica and Victory Pass Solar Projects. California Department of Fish and Wildlife separately intends to produce an Environmental Impact Report for the projects as the lead agency for the California Environmental Quality Act (CEQA) review. The BLM expects the environmental documents to be available for public review later this year. *Recommended Action:* Contact BLM at mliberat@blm.gov to get on the distribution list for the DEIR. USFWS working with BLM to ensure consistency with DRECP. For comments, questions, or to contribute biological information for consideration, please contact Vincent_james@fws.gov and Magdalena.Rodriguez@wildlife.ca.gov.

General Recommendations Solar Projects: Develop listserv to alert conservation community of proposed solar developments. Submit comments in force during scoping periods and when DEIR/EISs are released. Call out threats to habitat loss and fragmentation but also provide suggestions for actionable alternatives (e.g., rooftop solar, grey space solar within city matrix) to shift industrial solar away from converting natural habitats.

OPPORTUNITY Chuckwalla Mountains National Monument Proposal (LUP-3 on Figure 12) Several organizations that participated in the workshop (TWC, MDLT, California Wilderness Coalition), and several others groups are working to submit a National Monument Proposal for the greater Chuckwalla Mountains area to Representative Ruiz. Proponents are currently in the process of field checking the proposal and hope to get to Representative Ruiz, who is largely supportive, by late summer or early fall of 2021. The proposed monument boundaries were primarily drawn based on protecting habitat connectivity and critical wildlife movement corridors and would provide a higher level of protection for this big swath of land, that already includes National Conservation Lands, Wilderness Areas, and Areas of Critical Environmental Concern. *Recommended Action:* When this bill is introduced into Congress send a letter of support or call your Representative to inform them of the importance of this area to maintaining landscape connectivity, critical wildlife movement corridors, and the California desert's rich biodiversity, and urge them to support designation of the Chuckwalla Mountains National Monument.

Speaker Geary Hund from Mojave Desert Land Trust had this to say of the area proposed for a National Monument, "we keep learning how special it is. It has more species than any other part of the Colorado Desert -- 156 species. It also has the highest desert tortoise densities, a mule deer subspecies called the burro deer, and a key area for reintroduction of pronghorn. It also has incredible cultural sites, a very special area". Kerry Holcomb from US Fish and Wildlife Service commented "it's one of the best opportunities for a Yellowstone type ecosystem in southern California. May be dreaming big but if we can get constituent ungulates back, get ORV under control, full protection of areas, that area could be a crown jewel for southern California".

OPPORTUNITY BLM California Desert Conservation and Connectivity Initiative (AE-1 on Figure 12) has been put forward by the California Desert District of the BLM. This initiative is envisioned as an on-going, multi-phased, multiple year proposal to improve desert tortoise conservation lands and conserve wildlife connectivity within the California Desert Conservation Area as identified in the Desert Renewable Energy Conservation Plan (DRECP). This program will focus on BLM acquisitions for maintaining connectivity and TES habitat on lands designated as California Desert National Conservation Lands or Areas of Critical Environmental Concern. Virtually all of the unprotected land in the linkage lies within these designations, providing conservation opportunities. See map of California Desert Conservation and Connectivity Initiative focus areas in section 6.2 on page 67. Following workshop, several participants met with BLM staff to discuss this initiative. *Recommended Action:* Send a letter of support to Secretary Deb Haaland for BLM's funding request through the Land and Water Conservation Fund for the California Desert Conservation and Connectivity Initiative that will help to conserve essential linkages and conservation areas in the Mojave and Sonoran deserts. **P-13.7 (cont.)**

7.3 Transportation and Infrastructure Needs, Opportunities, and Threats

NEED California Aqueduct Barrier to Movement (TI-1 on Figure 12): There are excellent bridges along I-10 but a half mile north is the CA aqueduct, and it is a significant barrier except for where there are siphons that go underground, usually in locations where there are washes that it crosses. In addition, it is important to make sure that siphons are designed to prevent wildlife from getting stuck inside. *Recommended Actions:* Reach out to MWD to see if there might be future opportunities for incorporating connectivity enhancements as part of any planned future maintenance or upgrades.

NEED/OPPORTUNITY Wildlife Exclusion and Directional Fencing (TI-2 on Figure 12): Fencing for tortoises and other wildlife is needed for the I-10 in the Joshua Tree to Chocolate Mountains linkage. Kerry Holcomb at USFWS commented that this area is a priority for desert tortoise connectivity and the second highest ranked priority for the installation of protective highway fence that guides tortoises and other critters toward existing and improved underpasses. It is the only way to connect tortoise populations in the lower Colorado Desert with those in the Mojave. Jeff Lovich indicated that he has seen a dead mule deer on I-10 and wondered, in addition to fencing, if the existing undercrossings are tall enough for mule deer. Kristeen Penrod noted that they documented several large bridges and culverts likely large enough for mule deer along this section of I-10; just need fencing to funnel mule deer to these crossings. In addition, median openings at existing crossings need to be fenced as well. *Recommended Action*: Caltrans has a series of projects coming up on I-10 to flatten median to stop rollover accidents, so there may be an opportunity to integrate wildlife exclusion fencing into a future planned project. Could potentially also include vehicle barriers to prevent unauthorized ORV use. Caltrans, in coordination with CDFW, is evaluating installation of tortoise fencing in lieu of mitigation between Indio and the State line.

NEED Rip rap removal (TI-3 on Figure 12): Rip rap at existing under-crossings along I-10 in the Joshua Tree to Chocolate Mountains Linkage make it difficult for tortoise to use the crossings. *Recommended Action*: Caltrans could evaluate addressing this problem as part of a future I-10 SHOPP project to upgrade median, culverts, and bridges for I-10.

7.4 Research and Monitoring Needs and Opportunities

NEED Camera Trap Monitoring of I-10 Crossings (RM-1 on Figure 12): Camera trap monitoring needs to be completed for the I-10 crossings in the Joshua Tree-Chocolate Mountains linkage. Some monitoring of tortoise use is being conducted, but a comprehensive camera trap study is needed to document wildlife use of crossings. *Recommend Action:* Suggest camera trap monitoring be conducted as part of planning for I-10 median improvements.

NEED Monitor Thermal Canyon for Wildlife Movement (RM-2 on Figure 12): Bill Havert asked if anyone with science background ever looked at Thermal Canyon where it crosses I-10 and its utility for wildlife. Because Thermal Canyon is huge and has large open bridge structures, Bill was wondering if it could be a good corridor between Joshua Tree and Mecca Hills. Coachella Valley Conservancy did look at acquisitions in Thermal Canyon and opportunities to acquire lands but need data on wildlife use.

OPPORTUNITY Desert Tortoise Genetic Connectivity Study (RM-3 on Figure 12): Kirsten Ducher/Post Doc at UNR offered that she is conducting research/collection of tortoise genetic data in Desert Center area and just finished this year. Genetic material was collected from Joshua Tree, Desert Sunlight, Chocolate Mountains and Chuckwalla Bench. Looking at population genetic structure differentiation and diversity as a result of natural and anthropogenic features on the landscape.

Figure 12 also depicts a few research and monitoring locations described in Rob Lovich's presentation summarized on pages 28-30 that were added to the map, which include the Cottonwood tortoise population (RM-4), Orocopia tortoise population (RM-5), and Deep Canyon tortoise population (RM-6).

P-13.7 (cont.)

7.5 Restoration and Stewardship Needs and Opportunities

The restoration and stewardship discussion for the Joshua Tree-Chocolate Mountains Linkage mainly focused on implementation of the Desert Renewable Energy Conservation Program (DRECP) and engagement with Tribal Nations.

The vast scale of renewable energy developments proposed in the California deserts are likely to impact habitat connectivity, alter essential ecosystem functions, and eliminate opportunities for species to shift their ranges in response to climate change. The potential impacts of energy development on our existing public lands, specifically to wildlife and their ability to move across the landscape, are enormous.

NEED Conservation Summit for DRECP One of the key needs identified was to organize a presentation summit with BLM, conservation organizations, and wildlife, land management, and transportation agencies to discuss DRECP implementation and priorities for connectivity conservation. The BLM Desert District Manager is aware of the Monument proposal and its importance to connectivity. The new implementation lead for the DRECP is also putting a Land and Water Conservation Fund proposal together specifically for acquisitions in wildlife movement corridors (See BLM California Desert Conservation and Connectivity Initiative in section 6.2 above). The new Implementation Lead for DRECP also served on the Multidisciplinary Team as the BLM representative for the California Essential Habitat Connectivity Project, so she has a deep understanding of connectivity needs in the region. In addition, with the passage of the Great American Outdoors Act, it will be important to coordinate with BLM Desert District on funding opportunities that will be coming in for acquisitions. *Recommended Actions:* Organize an inter-agency DRECP Implementation Summit to identify critical connections threatened by Development Focus Areas and shared priorities for linkage conservation. Contact your Representatives and Senators in Congress to urge them to pass legislation that focuses renewable energy projects in already disturbed areas near population centers. **P-13.7 (cont.)**

OPPORTUNITY Engage Agua Caliente Tribe in Linkage Implementation Alliance. The Agua Caliente Tribe has their own MSCP. The Coachella Valley Conservation Commission works closely with the Tribe on some different monitoring efforts, such as Peninsular bighorn surveys and trail monitoring. The Tribe has a sophisticated GIS staff, and is super helpful when applying for grants. The Tribe is also very interested in land management issues. Culturally significant areas are included in the MSHCP areas too. CVCC has been discussing how they can better assist the Tribe with access to their ancestral lands, which may include areas of the Joshua Tree-Chocolate Mountains Linkage. *Recommended Actions:* Create a relationship with the Tribe to listen and learn about their experiences in the area. Where and when they feel it is possible, explain the goals of the Linkage Implementation Alliance, hear about their conservation priorities and related projects, identify shared goals and collaborative actions to meet those goals, and invite them to engage in the in the Alliance in whatever role they deem appropriate (e.g., leadership, partnership, participant)

A participant asked if the organizations working on the proposed National Monument had reached out to tribes. Geary Hund at MDLT said that the Native American Land Conservancy was working with them on the proposal.

8. Outreach & Education for All Linkages

Outreach and education are vital to success linkage conservation – both to change land use activities that threaten wildlife movement and to generate appreciation for the importance of the linkages and the wildland network they will sustain. Educating communities around each linkage will raise awareness, build support for linkage conservation, provide a base of volunteers who can work to implement specific projects in the linkages (e.g., erosion control or riparian planting), and develop the next generation of linkage stewards. We need to effectively engage the community to develop a public expectation of linkage protection. We need to organize new constituencies and empower old partners and utilize the unique abilities of each constituency to institutionalize support for these linkages. Participants shared several ideas focused on community engagement in conservation issues, which have been summarized here:

NEED Hold a meeting to begin connectivity outreach in this region and where: Include representatives from JTNP, USFS, BLM, RCA, CVCC, MDLT, TWC. Learn from JTNP on their media outreach and adapt/expand it to messaging on the need for connectivity. For example, JTNP has started a scientific journal for the park, and we could do a whole issue on connectivity between Joshua Tree and other protected lands (highlight studies for different species, Caltrans work on SR 62, etc.).

NEED Long term outreach: human interest stories regarding children engaged in learning and explaining connectivity. For example:

- Getting kids at local schools involved in the design of crossing structures for SR 62
- Desert Environmental Youth Experience (CVCC): student led projects
    - UCR/CCB, TWC, CREEK (Jen F), mission springs water district
    - SoCal Gas: Teaching the Teachers grant
    - Other funders: Wells Fargo, local businesses

P-13.7 (cont.)

OPPORTUNITY Caltrans District 8 has been very proactive with their connectivity efforts, and has several projects planned or underway that could be highlighted in the press to educate the public on the need for connectivity and the actions that are being taken on the ground, and the wildlife that these projects will benefit. For example, the Press Enterprise published a 3-page feature on the Liberty Canyon 101 wildlife crossing, and a similar feature could highlight efforts in this region. One such article was recently published in the Desert Sun, Mojave Desert Land Trust wants wildlife overpass on Highway 62 (desertsun.com).

NEED A big picture media focus on connectivity in southern California from the border to Death Valley to the southern Sierra Nevada is needed.

NEED Develop public outreach materials centered on habitat connectivity. SC Wildlands' traveling exhibit, Wildlands of the Santa Clara River Watershed, included a series of landscape photographs, species photos and maps to help tell the story. On opening night at each venue, a Living on the Edge program was held on how to be good land stewards at the urban wildlife interface. Wildlife ambassadors (e.g., bobcat, kingsnake, red-tailed hawk) were part of the program to get the community and especially kids excited. Companion stewardship brochures were also distributed on opening night, and then plenty were left for take away for the life of the exhibit at each location.

NEED Develop some kind of story map or online game of how wildlife interact with all of these barriers, e.g., how does a road look to a desert tortoise? Create materials that explain how connectivity is important to find mates, food, shelter to make the experience real for them. Could be a great tool for teachers too.

9. Funding for Conserving Connectivity & Wildlife Passage Improvements

The following funding programs and opportunities address various aspects of conserving habitat connectivity and improving fish and wildlife passage. This list is not exhaustive.

There are funding streams that come from federal gas tax dollars for wildlife crossing improvements and improvements to habitat connectivity, which are eligible under parts of the federal transportation bill (https://www.fhwa.dot.gov/fastact/factsheets/). Whereas, Caltrans has a lot more difficulty programming stand-alone terrestrial wildlife crossing projects because it's not currently an eligible project type under one of their asset classes.

Bureau of Land Management issues financial assistance through grants and cooperative agreement awards to institutions of higher education, non-profit organizations, state and local governments, foreign entities and Indian tribal governments for projects that meet the BLM mission and falls in line with the DOI's top priorities. Several programs are available https://www.blm.gov/services/financial-assistance-and-grants.

CDFW Big Game Grant Program funds are generated through the purchase of game tags that are used in programs and projects that benefit big game species (bighorn sheep, bear, deer, elk, pronghorn antelope, and wild pig). "Projects" refers to research and habitat restoration or enhancement activities that benefit big-game species. These projects may be conducted solely by CDFW staff or in partnership with outside entities (https://wildlife.ca.gov/Grants/Big-Game). **P-13.7 (cont.)**

California Forest Improvement Program encourages private and public investment in, and improved management of, California forest lands and resources. Cost-share assistance is provided to private and public ownerships containing 20 to 5,000 acres of forest land. Cost-shared activities include management planning, site preparation, tree purchase and planting, timber stand improvement, fish and wildlife habitat improvement, and land conservation practices (https://www.fire.ca.gov/grants/).

Caltrans Advance Mitigation Program authorizes Caltrans to plan and implement advance mitigation solutions for its future transportation projects to reduce delays by proactively obtaining environmental mitigation in advance of – rather than during – transportation projects. The primary goal of the Program is to address longer-term future environmental mitigation needs resulting in improved environmental, economic, and project delivery outcomes. By consolidating the forecasted mitigation needs of multiple future transportation projects, Caltrans can potentially provide strategically placed and environmentally sound replacement habitat and shorten project delivery timelines, resulting in both time and cost savings. Ultimately, the Program aims to help Caltrans meet conservation goals in addition to regulatory requirements (https://dot.ca.gov/programs/environmental-analysis/caltrans-biology/strategic-biological-planning-advance-mitigation-innovation/advancemitigation).

DOI S.O. 3362, Improving Habitat Quality in Western Big-Game Winter Range and Migration Corridors announced $3.2 million in grant funding on February 14, 2020, for 11 western states, bringing the DOI and other stakeholders' support of big game species habitat conservation and scientific research for migration corridors and winter ranges to more than $22 million since S.O. 3362 was issued. These grants are a part of DOI's ongoing efforts to implement S.O. 3362; $6.4 million has supported 36 research projects vital to scientifically identifying migration corridors and seasonal use areas (e.g., winter range). In addition to funding state-defined priority research projects, DOI has made available another $1.4 million over two years to assist state wildlife agencies with big game movement data analysis and corridor mapping, and almost $14.4 million has been matched in partnership-assisted grant funding for direct habitat conservation in support of the order.

Environmental Enhancement and Mitigation Program (EEMP) administered by the California Transportation Commission funds environmental enhancement and mitigation projects directly or indirectly related to transportation projects. EEMP projects must fall within one of three categories: highway landscape and urban forestry; resource lands; or roadside recreation. Projects funded under this program must provide environmental enhancement and mitigation over and above that otherwise called for under the California Environmental Quality Act (https://catc.ca.gov/programs/environmental-enhancement-mitigation).

Federal Lands Access Program (FLAP) was established in 23 U.S. Code 204 to improve transportation facilities that provide access to, are adjacent to, or are located within federal lands. FLAP supplements state and local resources for public roads, transit systems, and other transportation facilities, with an emphasis on high-use recreation sites and economic generators. The program is designed to provide flexibility for a wide range of transportation projects (https://flh.fhwa.dot.gov/programs/flap/).

Federal Lands Transportation Program was established in 23 US Code 203 to improve the transportation infrastructure owned and maintained by the following Federal Lands Management Agencies: National Park Service, Bureau of Land Management, U.S. Forest Service, USFWS, U.S. Bureau of Reclamation, U.S. Army Corps of Engineers, and independent federal agencies with land and natural resource management responsibilities (https://flh.fhwa.dot.gov/programs/fltp/). **P-13.7 (cont.)**

National Fish and Wildlife Foundation awards competitive grants through their programs to protect and conserve fish, wildlife, plants, and habitats. They have several relevant grant programs, such as Conservation Partners Program, Bring Back the Natives, and Acres for America (https://www.nfwf.org/programs).

Regional Conservation Partnership Program is a Natural Resources Conservation Service program that seeks to co-invest with partners to implement projects that address regional natural resource concerns. Partners must apply to either the Critical Conservation Area (CCA) or state/multi-state funding pool. Most of Caltrans District 2 is identified as a CCA. This program awards $300 million annually. It requires a 50% match, which can be in any combination of cash and in-kind (https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/rcpp//).

Resource Conservation Districts (RCD) work with state, federal, and local partners to create publications that help local residents make smart conservation and land management choices. These resources can benefit anyone from students to farmers to land managers, and are developed with the public interest in mind. RCD Regions that overlap the three focal linkages include Inland Empire RCD, San Jacinto Basin RCD, Mojave Desert RCD, and Coachella Valley RCD (https://carcd.org/rcds/find/).

Tribal Transportation Program is authorized under the Federal Lands Highway Program, and is jointly administered by the Bureau of Indian Affairs and Federal Highway Administration. Symposium participants said that Tribes can use this to do transportation improvements and projects of their own on the State Highway System or county roads. Relationships and future partnerships with tribes are important so that together we can co-create or support them in their project efforts as they lead. It is possible that tribes may not have the capacity to perform or implement project work so creating relationships and having more partners improves an entity's chances of obtaining grant funding and could help in building capacity where the tribes deem it is needed. A total of $505 million has been authorized for the program in fiscal year 2020 (https://www.fhwa.dot.gov/fastact/factsheets/tribaltransportationfs.cfm).

Wildlife Conservation Board's Wildlife Corridor and Fish Passage Program was allocated $30 million by Proposition 68 to fund planning and implementation projects that improve passage for fish and wildlife. Example projects for this program include the construction of wildlife crossings, restoration of habitat in wildlife corridors, removal of instream impediments to fish passage, etc., and planning projects that provide design and environmental review for wildlife corridor or fish passage restoration projects. Other programs that may contribute to conserving connectivity include Acquisitions and Conservation Easements, Forest Conservation, and Climate Adaptation. For more information, visit https://wcb.ca.gov/Grants.

U.S. Fish and Wildlife Service's Tribal Wildlife Grants Program provides technical and financial assistance to Tribes for the development and implementation of programs that benefit fish and wildlife resources and their habitat. Activities may include, but are not limited to: planning for wildlife and habitat conservation, fish and wildlife conservation and management actions, fish and wildlife related laboratory and field research, natural history studies, habitat mapping, field surveys and population monitoring, habitat preservation, and public education that is relevant to the project (Fish and Wildlife Service - Native American Liaison fws.gov). **P-13.7 (cont.)**

10. Summary of Recommendations, Next Steps, and Action Items

Land use and policies are important tools for maintaining and restoring connectivity and numerous supportive policies are already in place. As part of ongoing planning processes (e.g., general plan updates, transportation plans, Habitat Conservation Plans, watershed management plans), opportunities exist to insert and formalize strategies for conserving connectivity. Similarly, ongoing revisions to existing plans and policies present opportunities to revise language that is not consistent with linkage conservation (e.g., a choke point in a linkage that is zoned for high-density residential). Participation in public planning processes is key to enacting policies that can maintain, restore and enhance habitat connectivity.

Implementation should also include a system of monitors for tracking planning processes and local land use actions that may impact or even sever a linkage. If potentially disruptive actions are identified early enough in the planning process wildlife movement issues can be addressed. Each Linkage should have at least one monitor (e.g., organization, individual) who can rally the troops as necessary. Monitors should focus on specific jurisdictions and at-risk areas, be on information distribution lists for general plan amendments and, for specific areas of concern, proposals for zoning and other land use regulatory changes as well as specific development proposals.

The term stewardship speaks to the importance of long-term conservation, monitoring and adaptive management, which are essential to maintain and restore connectivity and the ecological processes on which biodiversity depends. Stewardship of public and private lands is essential for maintaining biological diversity and productivity over time. Consistent sources of funding are needed to implement long-term adaptive management plans to assess and improve management effectiveness. Ongoing monitoring is the only way to fully comprehend species and ecosystem responses to management actions and it is critical to ensuring that these linkages are used by the flora and fauna for which they were intended.

We must also convey the vision of a connected landscape to a much broader audience if it is to gain the social and political support necessary to make it a reality. We need to develop and implement communication strategies to inform the general public and decision makers as to the importance of protecting these linkages. We also need to establish processes to ensure that all entities that acquire, regulate or influence wildlife habitat protection in the region incorporate the linkages into their conservation planning efforts.

General overarching recommended actions include:

Land Use, Planning and Protection Identified Actions:

1. Support Acquisitions in the Badlands by Signing on to Support Letter https://www.surveymonkey.com/r/L53RM5V
2. Develop Conceptual Area Protection Plan (CAPP) or other protection plan for linkages not covered by NCCPs (San Bernardino to San Jacinto Mtns Linkage, Joshua Tree to Chocolate Mtns Linkage)
3. Investigate life span of surface mines and the possibility of administrative withdrawals for the other mining claims in the linkages. Monitor possible NOP for proposed gravel mine expansion in San Gorgonio River
4. Stay informed about/support California Wilderness Coalition's Future Wilderness Area designation proposal
5. Assemble a group of planners, govt agencies, wildlife biologists to assess connectivity opportunities in the western/CSS linkage in the Calimesa area of the San Bernardino to San Jacinto Linkage
6. Monitor status/comment on proposed development Beaumont Point south of I-60 adjacent to newly constructed I-60 wildlife crossings
7. Cherry Valley Interchange Project – potential to incorporate wildlife crossing enhancements for El Casco Creek

Transportation and Infrastructure Workshop Identified Actions:

8. Convene a subcommittee/group for I-10 Bypass Project composed of agencies, scientists, NGOs
9. Convene group of scientists, agencies, NGOs, for western CSS Link in Calimesa area
10. Get meetings with rail, water and power companies to discuss connectivity remediation actions
11. Thermal Canyon – collect data on wildlife use?
12. Get follow-up/input on how recommendations for connectivity structures are considered? Funding sources to draw on for the structures themselves

P-13.7
(cont.)

13. Send out updates on existing /proposed transportation bills
14. Compile data for wildlife for linkage areas. Most NGOs comment on projects during EIR process, but if we could get the data to the jurisdictions/decision makers so they can be informed prior to initiating a project/NOP.

Research and Monitoring Workshop Identified Actions:

15. Joshua Tree-Chocolate Mtns: monitoring of I-10 under-crossings needed
16. Effects of ground vibration at under-crossings use by small wildlife, and what can be done about it (I-90 Study)? Is there habitat type that vibrates less? Is it related to height of road?
17. Focus on SB-SJ connectivity needs between Cabazon and Whitewater – important transition zone. Possible that species might start moving west in response to climate change
18. If I-10 Bypass project moves forward, consider land acquisition in that area as part of mitigation
19. Consider elevated (modular construction) roadways in active wash areas to facilitate sand and water movement. Wind transport requires wide openings in the crossing structures/elevated roadways.
20. Focus on Opportunities to preserve open wash habitat where it still exists. Examine why sand transport is not happening in San Gorgonio wash – is it the gravel mine in San Gorgonio River?
21. Roadway edge hardening (ie, removal of vegetation) as a deterrent for wildlife to cross the road
22. Relocate percolation ponds south of I-10 to allow restoration and sand transport
23. Establish relationship with Morongo Band of Mission Indians, hear about their conservation priorities and related projects, identify shared goals and collaborative actions to meet those goals, and invite them to engage in the in the Linkage Implementation Alliance in whatever role they deem appropriate (e.g., leadership, partnership, participant). **P-13.7 (cont.)**

Stewardship, Restoration and Outreach Workshop Identified Actions:

24. Meeting of agencies and NGOs regarding connectivity needs and DRECP.
25. Hold a meeting to begin connectivity outreach in this region and where: Include representatives from JTNP, USFS, BLM, RCA, CVCC, MDLT, TWC. Learn from JTNP on their media outreach and adapt/expand it to messaging on the need for connectivity. For example, JTNP has started a scientific journal for the park, and we could do a whole issue on connectivity between Joshua Tree and other protected lands (highlight studies for different species, Caltrans work on SR 62, etc.).
26. Cottonwood Creek Restoration (de-channelization) feasibility study
27. Meeting to create a relationship with the Tribes: Morongo Band of Mission Indians
28. Long term outreach: human interest stories regarding children engaged in learning and explaining connectivity: examples
    a. Getting kids involved in the design of crossing structures for SR 62
    b. Desert Environmental Youth Experience (CVCC): student led projects
    a. UCR/CCB, TWC, CREEK (Jen F), mission springs water district
    b. SoCal Gas: Teaching the Teachers grant
    c. Other funders: Wells Fargo, local businesses
29. Highlight Caltrans D8 efforts to protect connectivity in the news
30. Press Enterprise: whole 3 pages “crossing for cougar town” (Liberty Canyon)- do the same but HERE!

31. SoCal perspective: need a big picture media focus on connectivity – from the border to Death Valley to southern Sierra Nevada

The Linkage Implementation Alliance (LIA) is envisioned as an ongoing forum and communication network that would meet regularly to promote coordination across jurisdictional boundaries and diverse disciplines with the primary goal of implementing these three linkages, which will also support implementation of the WRCMSHCP and the CVMSHCP. It is our hope that the LIA will focus disparate conservation efforts on coordinated regional actions and create and sustain the partnerships needed to conserve connectivity.

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Appendix A
Workshop Recordings

The workshop recordings will be available online until June 2022.

Topic: Greater I-10 Linkage Land Use, Planning and Protection Workshop, April 19, 2021

Meeting Recording:

https://tnc.zoom.us/rec/share/EdWfNnprs775LSdVSzUrN6JTazTlkdjT1PuHAWUD0U5xc_Y9sz8bXaoZa0ozXxK8.k_J9yyTE2tYcbv7P

Topic: Greater I-10 Linkage Transportation and Infrastructure Workshop, April 20, 2021

Meeting Recording:

https://tnc.zoom.us/rec/share/UAfC3MSC_MMnax0ptV2C4MvCS6QIA5ovPoxcqb8B2awc4IQbv2-QS7Lt6l7pyPNm.rZYE6st_U0HSY11l

Topic: Greater I-10 Linkage Research and Monitoring Workshop, April 27, 2021

Meeting Recording:

https://tnc.zoom.us/rec/share/eo-VSnem_ECJUx6RdCWqk7UYk2ddOFNAyYvnIqZeuoSKWSv8Iupj-g70PEaeUIvr.-lOkK_qEho9arSMe

Topic: Greater I-10 Linkage Stewardship and Outreach Workshop, April 28, 2021

Meeting Recording:

https://tnc.zoom.us/rec/share/KYvxKJVXzirM4EoA_xOqsEZlbzgoRzZB0ZEep6t9dp8UVExD8mPEw6uMha9LT10.svYvWuYo7ETX1KC5

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South Coast Missing Linkages Project:

A Linkage Design for the San Bernardino-San Jacinto Connection

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South Coast Missing Linkages Project:

A Linkage Design for the San Bernardino-San Jacinto Connection

SOUTH COAST WILDLANDS

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September 2005

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Executive Summary

Habitat loss and fragmentation are the leading threats to biodiversity, both globally and in southern California. Efforts to combat these threats must focus on conserving well-connected networks of large wildland areas where natural ecological and evolutionary processes can continue operating over large spatial and temporal scales—such as top-down regulation by large predators, and natural patterns of gene flow, pollination, dispersal, energy flow, nutrient cycling, inter-specific competition, and mutualism. Adequate landscape connections will thereby allow these ecosystems to respond appropriately to natural and unnatural environmental perturbations, such as fire, flood, climate change, and invasions by alien species.

The tension between fragmentation and conservation is particularly acute in California, because our state is one of the 25 most important hotspots of biological diversity on Earth. And nowhere is the threat to connectivity more severe than in southern California—our nation's largest urban area, and still one of its fastest urbanizing areas. But despite a half-century of rapid habitat conversion, southern California retains some large and valuable wildlands, and opportunities remain to conserve and restore a functional wildland network here.

Although embedded in one of the world's largest metropolitan areas, southern California's archipelago of conserved wildlands is fundamentally one interconnected ecological system, and the goal of South Coast Missing Linkages is to keep it so. South Coast Missing Linkages is a collaborative effort among a dozen governmental and non-governmental organizations. Our aim is to develop Linkage Designs for 15 major landscape linkages to ensure a functioning wildland network for the South Coast Ecoregion, along with connections to neighboring ecoregions. The San Bernardino-San Jacinto Connection is situated where the Transverse and Peninsular Ranges converge and in an ecological transition zone between the South Coast and Mohave ecoregions; it is a critical landscape connection to restore and protect. **P-13.7 (cont.)**

On August 7, 2002, 86 participants representing over 44 agencies, academic institutions, land managers, land planners, conservation organizations, and community groups met to establish biological foundations for planning landscape linkages in the San Bernardino-San Jacinto Connection. They identified 23 focal species that are sensitive to habitat loss and fragmentation here, including 3 plants, 4 insects, 1 amphibian, 3 reptiles, 4 birds and 8 mammals. These focal species cover a broad range of habitat and movement requirements: some are widespread but require huge tracts of land to support viable populations (e.g., mountain lion, badger); others are species with very limited spatial requirements (e.g., coast horned lizard). Many are habitat specialists (e.g., rock wren) and others require specific configurations of habitat elements (e.g., greenhairstreak butterfly that requires hilltopping habitat). Together, these species cover a wide array of habitats and movement needs in the region, so that planning adequate linkages for them is expected to cover connectivity needs for the ecosystems they represent.

To identify potential routes between existing protected areas we conducted landscape permeability analyses for 4 focal species for which appropriate data were available. Permeability analyses model the relative cost for a species to move between protected core habitat or population areas. We defined a least-cost corridor—or best potential route—for each species, and then combined these into a Least Cost Union covering all 4 species. We then analyzed the size and configuration of suitable habitat patches within this Least Cost Union for all focal species to verify that the final Linkage Design would suit the live-in or move-through habitat needs of all. Where the Least Cost Union omitted areas essential to the needs of a particular species, we expanded the Linkage Design to accommodate that species' particular requirements to produce a final Linkage Design (Figure ES-1). We also visited priority areas in the field to identify and evaluate barriers to movement for our focal species. In this plan we suggest restoration strategies to mitigate those barriers, with special emphasis on opportunities to reduce the adverse effects of

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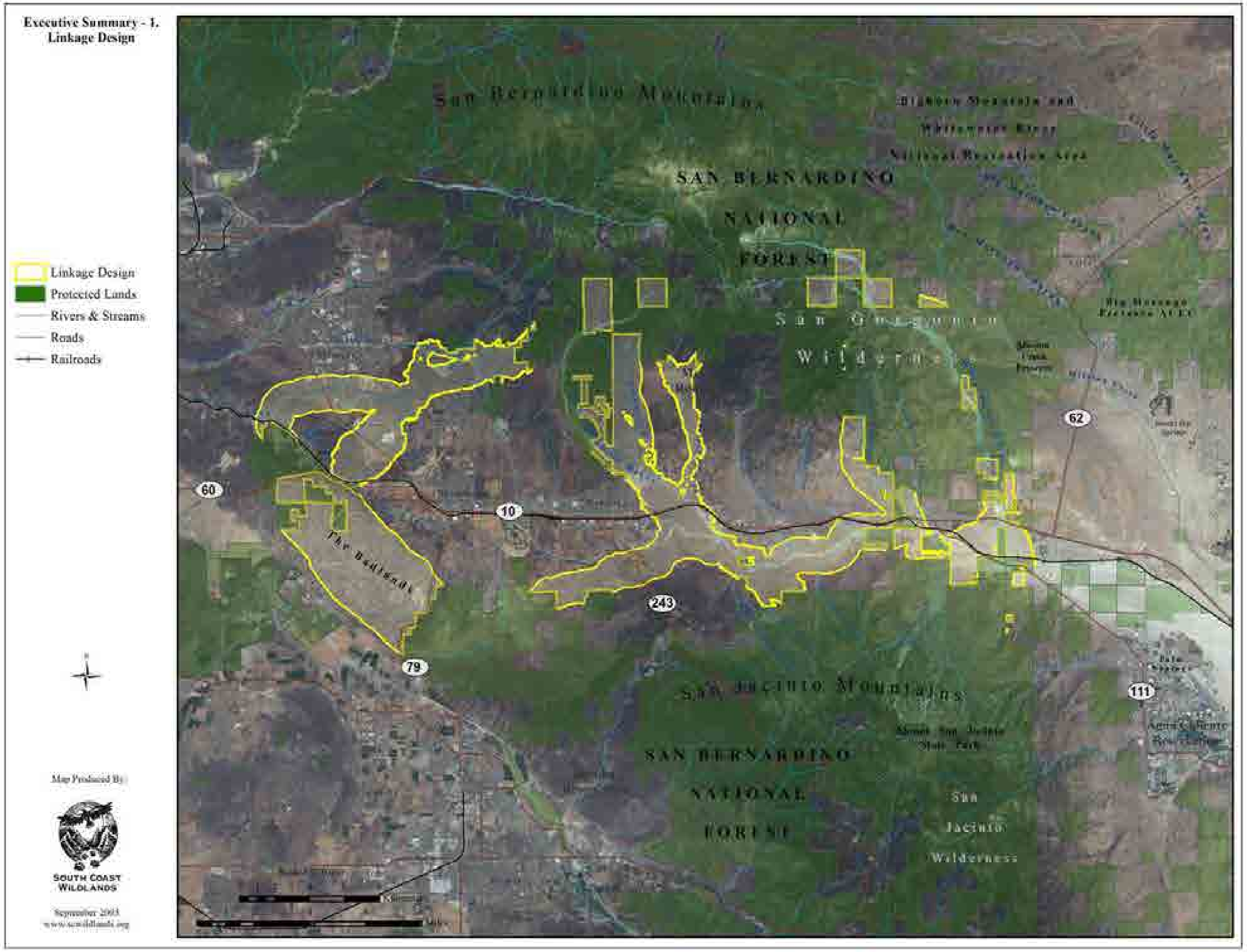

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Interstate 10

The ecological, educational, recreational, and spiritual values of protected wildlands in the South Coast Ecoregion are immense. Our Linkage Design for the San Bernardino-San Jacinto Connection represents an opportunity to protect a truly functional landscape-level connection. The cost of implementing this vision will be substantial—but the cost is small compared with the benefits. If implemented, our plan would permit movement of individuals and genes between desert and coastal regions and between the San Bernardino and San Jacinto Mountains and the Badlands. It will also conserve large-scale ecosystem processes that are essential to the continued integrity of existing conservation investments throughout the region. We hope that our biologically based and repeatable procedure will be applied in other parts of California and elsewhere to ensure continued ecosystem integrity in perpetuity.

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Nature Needs Room to Roam

Movement is essential to wildlife survival, whether it be the day-to-day movements of individuals seeking food, shelter, or mates, dispersal of offspring (e.g., seeds, pollen, fledglings) to new home areas, or migration of organisms to avoid seasonally unfavorable conditions (Forman 1995). Movements can lead to recolonization of unoccupied habitat after environmental disturbances, the healthy mixing of genes among populations, and the ability of organisms to respond or adapt to environmental stressors. Movements in natural environments lead to complex mosaics of ecological and genetic interactions at various spatial and temporal scales.

In environments fragmented by human development, disruption of movement patterns can alter essential ecosystem functions, such as top-down regulation by large predators, gene flow, pollination and seed-dispersal, competitive or mutualistic relationships among species, resistance to invasion by alien species, energy flow, and nutrient cycling. Without the ability to move among and within natural habitats, species become more susceptible to fire, flood, disease and other environmental disturbances and show greater rates of local extinction (Soulé and Terborgh 1999). The principles of island biogeography (MacArthur and Wilson 1967), models of demographic stochasticity (Shaffer 1981, Soulé 1987), inbreeding depression (Schonewald-Cox 1983, Mills and Smouse 1994), and metapopulation theory (Levins 1970, Taylor 1990, Hanski and Gilpin 1991) all predict that isolated populations are more susceptible to extinction than connected populations. Establishing connections among natural lands has therefore long been recognized as important for sustaining natural ecological processes and biological diversity (Noss 1987, Harris and Gallagher 1989, Noss 1991, Beier and Loe 1992, Noss 1992, Beier 1993, Forman 1995, Beier and Noss 1998, Hunter 1999, Crooks and Soulé 1999, Soulé and Terborgh 1999, Penrod et al. 2001, Crooks et al. 2001, Tewksbury et al. 2002, Forman et al. 2003). **P-13.7 (cont.)**

Patterns of Habitat Conversion

As a consequence of rapid habitat conversion to urban and agricultural uses, the South Coast Ecoregion of California (Figure 1) has become a hotspot for species at risk of extinction. California has the greatest number of threatened and endangered species in the continental U.S, representing nearly every taxonomic group, from plants and invertebrates to birds, mammals, fish, amphibians, and reptiles (Wilcove et al. 1998). In an analysis that identified "irreplaceable" places for preventing species extinctions (Stein et al. 2000), the South Coast Ecoregion stood out as one of the six most important areas in the United States (along with Hawaii, the San Francisco Bay Area, Southern Appalachians, Death Valley, and the Florida Panhandle). The ecoregion is part of the California Floristic Province, one of 25 global hotspots of biodiversity, and the only one in North America (Mittermeier et al. 1998, Mittermeier et al. 1999).

A major reason for regional declines in native species is the pattern of habitat loss. Species that once moved freely through a mosaic of natural vegetation types are now confronted with a man-made labyrinth of barriers, such as roads, homes, businesses, and agricultural fields that fragment formerly expansive natural landscapes. Movement patterns crucial to species survival are being permanently altered at unprecedented rates. Countering this threat requires a systematic approach for identifying, protecting, and restoring functional connections across the landscape to allow essential ecological processes to continue operating as they have for millennia.

A Statewide Vision

In November 2000, a coalition of conservation and research organizations (California State Parks, California Wilderness Coalition, The Nature Conservancy, Zoological Society of San Diego's Center for Reproduction of Endangered Species, and U.S. Geological Survey) launched a statewide interagency workshop at the San Diego Zoo entitled "Missing Linkages: Restoring Connectivity to the California Landscape". The workshop brought together over 200 land managers and conservation ecologists representing federal, state, and local agencies, academic institutions, and non-governmental organizations to delineate habitat linkages critical for preserving the State's biodiversity. Of the 232 linkages identified at the workshop, 69 are associated with the South Coast Ecoregion (Penrod et al. 2001).

Figure 1. South Coast Ecoregion encompasses roughly 8% of California and extends 300 km (190 mi) into Baja California.

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South Coast Missing Linkages: A Vision for the Ecoregion

Following the statewide Missing Linkages conference, South Coast Wildlands, a non-profit organization established to pursue habitat connectivity planning in the South Coast Ecoregion, brought together regional ecologists to conduct a formal evaluation of these 69 linkages. The evaluation was designed to assess the biological irreplaceability and vulnerability of each linkage (*sensu* Noss et al. 2002). Irreplaceability assessed the relative biological value of each linkage, including both terrestrial and aquatic criteria: 1) size of habitat blocks served by the linkage; 2) quality of existing habitat in the smaller habitat block; 3) quality and amount of existing habitat in the proposed linkage; 4) linkage to other ecoregions or key to movement through the ecoregion; 5) facilitation of seasonal movement and responses to climatic change; and 6) addition of value for aquatic ecosystems. Vulnerability was evaluated using recent high-resolution aerial

Figure 2. The South Coast Missing Linkages Project addresses habitat fragmentation at a landscape scale, and the needs of a variety of species. The San Bernardino-San Jacinto Connection is one of 15 landscape linkages identified as irreplaceable and imminently threatened.

P-13.7 (cont.)

photographs, local planning documents, and other data concerning threats of habitat loss or fragmentation in the linkage area. This process identified 15 linkages of crucial biological value that are likely to be irretrievably compromised by development projects over the next decade unless immediate conservation action occurs (Figure 2). The biological integrity of several thousand square miles of the very best southern California wildlands would be irreversibly jeopardized if these linkages were lost.

Identification of these 15 priority linkages launched the South Coast Missing Linkages Project. This project is a highly collaborative effort among federal and state agencies and non-governmental organizations to identify and conserve landscape-level habitat linkages to protect essential biological and ecological processes in the South Coast Ecoregion. Partners include but are not limited to: South Coast Wildlands, The Wildlands Conservancy, The Resources Agency California Legacy Project, California State Parks, California State Parks Foundation, United States Forest Service, National Park Service, Santa Monica Mountains Conservancy, Rivers and Mountains Conservancy, Conservation Biology Institute, San Diego State University Field Stations Program, The Nature Conservancy, Southern California Wetlands Recovery Project, Environment Now, Mountain Lion Foundation, and the Zoological Society of San Diego's

Conservation and Research for Endangered Species (now called Conservation and Research for Endangered Species). Cross-border alliances have also been formed with Pronatura, Universidad Autonoma de Baja California, and Conabio to further the South Coast Missing Linkages initiative in northern Baja. It is our hope that the South Coast Missing Linkages Project will serve as a catalyst for directing funds and attention toward the protection of ecological connectivity for the South Coast Ecoregion and beyond.

The 15 Priority Linkages

Santa Monica Mountains-Santa Susana Mountains
Santa Susana Mountains-Sierra Madre Mountains
Sierra Madre Mountains-Castaic Ranges
Sierra Madre Mountains-Sierra Nevada Mountains
San Gabriel Mountains-Castaic Ranges
San Bernardino Mountains-San Gabriel Mountains
San Bernardino Mountains-San Jacinto Mountains
San Bernardino Mountains-Little San Bernardino Mountains
San Bernardino Mountains-Granite Mountains
Santa Ana Mountains-Palomar Ranges
Palomar Ranges-San Jacinto/Santa Rosa Mountains
Peninsular Ranges-Anza Borrego
Laguna Mountains-Otay Mountain-Northern Baja
Campo Valley-Laguna Mountains
Jacumba Mountains-Sierra Juarez Mountains

To this end, South Coast Wildlands is coordinating and hosting regional workshops, providing resources to partnering organizations, conducting systematic GIS analyses for all 15 linkages, and helping to raise public awareness regarding habitat connectivity needs in the ecoregion. South Coast Wildlands has taken the lead in researching and planning for 8 of the 15 linkages; San Diego State University Field Station Programs, National Park Service, California State Parks, U. S. Forest Service, Santa Monica Mountains Conservancy, Conservation Biology Institute, and The Nature Conservancy have taken the lead on the other 7 linkages. The San Bernardino-San Jacinto Connection is one of these 15 linkages, whose protection is crucial to maintaining ecological and evolutionary processes among large blocks of protected habitat within the South Coast Ecoregion. **P-13.7 (cont.)**

Ecological Significance of the San Bernardino-San Jacinto Connection

The San Bernardino-San Jacinto Connection links the Transverse and Peninsular Mountain Ranges of the South Coast Ecoregion. The San Bernardino Mountains are part of the east-west trending Transverse Ranges and feature the highest peak in southern California, Mount San Gorgonio, while the San Jacinto Mountains are the highest and northernmost of the Peninsular Ranges. The Badlands are contiguous with the San Jacinto Mountains, forming a peninsula of coastal foothill habitats extending roughly 30 km (19 mi) toward the northwest.

These mountain ranges provide a rich assemblage of vegetative communities and a classic display of elevational life zones (Figure 3). The lower elevation coastal foothills are a mosaic of grassland, coastal sage, chaparral, oak savannas and woodlands, and riparian forests. At mid elevations there is a shift to montane chaparral interspersed with conifer hardwood forests dominated by Jeffrey pine (*Pinus jeffreyi*), ponderosa pine (*P. ponderosa*) and sugar pine (*P. lambertiana*) and mixed with patches of canyon live oak (*Quercus chrysolepis*) or black oak (*Q. kelloggii*). Montane riparian forests are tucked into deep canyons and montane meadows occur where the terrain is gentle and the substrate fairly impervious. At the highest elevations there is a transition to subalpine habitats, with white fir (*Abies concolor*), lodgepole pine (*P. contorta*), and limber pine (*P. flexilis*) being the most prominent species. Descending down the desert side of the

Comment P-13

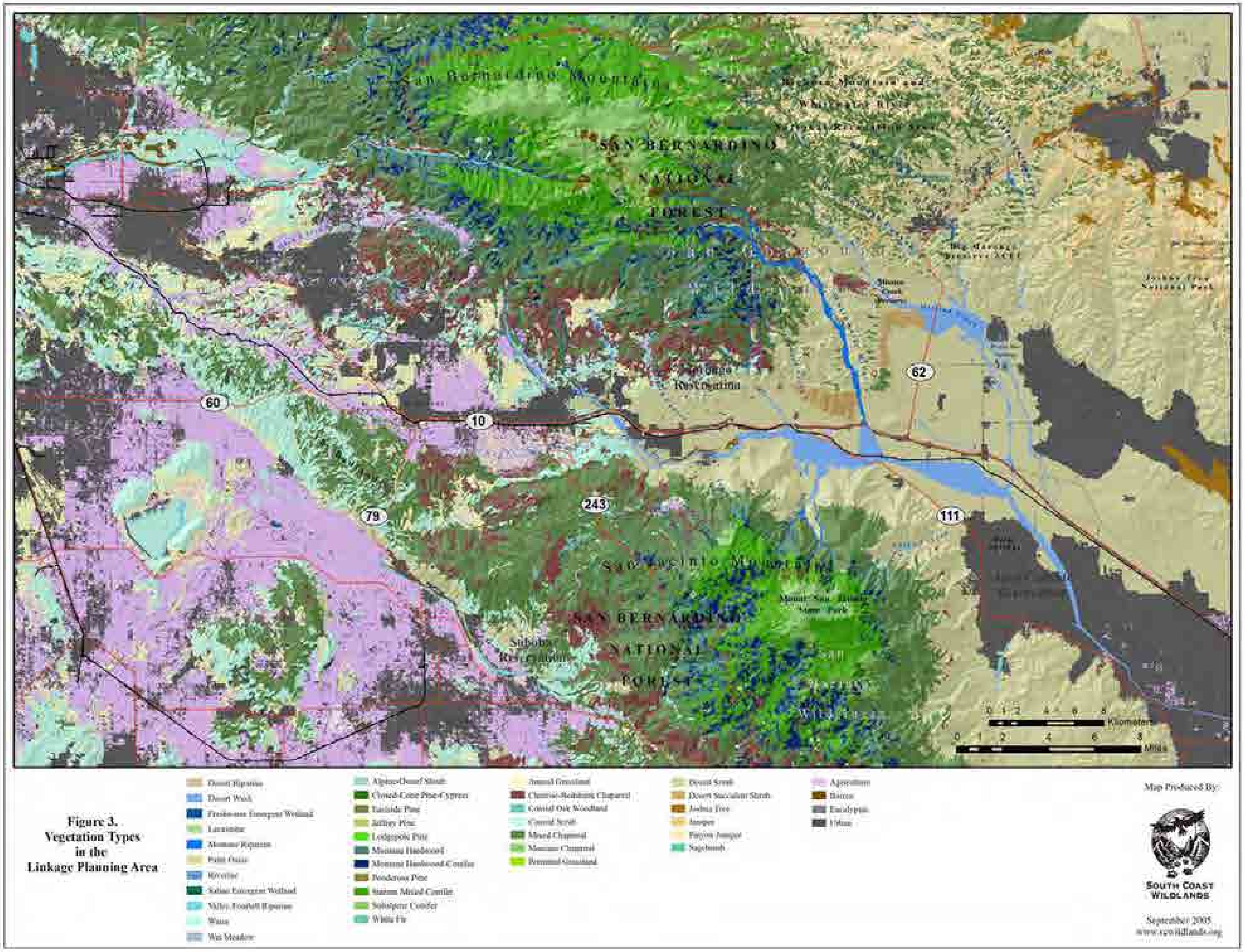


Figure 3.
Vegetation Types
in the
Linkage Planning Area

P-13.7
(Cont.)

mountains, one passes through pinyon-juniper woodland, redshank chaparral, and desert scrub.

Both coastal and desert habitats occur in the lowlands between these mountain masses, with the San Gorgonio River marking the transition between these major vegetative zones. Coastal habitats dominate the pass to the west of the San Gorgonio River, where Noble, Little San Gorgonio, El Casco, and Wildwood creeks flow westward into San Timoteo Canyon. Desert habitats dominate to the east, with numerous alluvial plains fanning out from the canyons on the floor of the San Gorgonio Pass. The San Gorgonio and Whitewater rivers emanate from the San Bernardino Mountains to form extensive alluvial fans in concert with tributaries from the north and east sides of the San Jacinto Mountains. These rivers and streams transport and deposit sands eroded from the mountains to the desert lowlands. These sands are essential to sustaining rare dune ecosystems in the Coachella Valley. A number of sensitive natural communities occur in the planning area, including desert fan palm oasis, cottonwood willow riparian forest, and southern coast live oak riparian forest (CDFG 2005a). These include some of the rarest vegetation communities in the United States.

This variety of habitats support a diversity of organisms, including many species listed as endangered, threatened, or sensitive by government agencies (USFWS 1980, 1987, 1998, Stephenson and Calcarone 1999, USFWS 2001, Coachella Valley Association of Governments [CVAG] 2004, CDFG 2005a, 2005b). These include riparian songbirds, such as yellow warbler (*Dendroica petechia*), yellow-breasted chat (*Icteria virens*), and the endangered least Bell's vireo (*Vireo bellii pusillus*) and southwestern willow flycatcher (*Empidonax traillii traillii*). Sensitive reptiles that prefer drier habitats and sparser vegetative cover, such as the rosy boa (*Lichanura trivirgata*), coast horned lizard (*Phrynosoma coronatum blainvillei*), and the endangered Coachella Valley fringe-toad lizard (*Uma inornata*), also have the potential to occur in the linkage planning area. The threatened arroyo toad (*Bufo californicus*) occurs in the lower reaches of the Whitewater River. A number of sensitive birds of prey have been recorded in the linkage, including Cooper's hawk (*Accipiter cooperi*), golden eagle (*Aquila chrysaetos*), long-eared owl (*Asio otus*), and burrowing owl (*Athene cunicularia*). The planning area also provides habitat for a number of imperiled plant species, including slender-horned spineflower (*Dodecahema leptoceras*), Parry's spineflower (*Chorizanthe parryi* var. *parryi*), Coachella Valley milk-vetch (*Astragalus lentiginosus* var. *coachellae*), and Little San Bernardino Mountains linanthus (*Linanthus maculatus*). **P-13.7 (cont.)**

In addition, because this regionally important linkage is situated where the Transverse and Peninsular Ranges converge, and in an ecological transition zone between the South Coast and Mojave ecoregions, it is considered a contact zone for many subspecies. This interchange of genetic material is most prevalent among mammals and reptiles, such as the desert woodrat (*Neotoma lepida lepida, N.l. gilva and N.l. intermedia*) (Grinnell and Swarth 1913), little pocket mouse (*Perognathus longimembris brevinasus and P.l. bangsi*) (Williams 1986), western banded gecko (*Coleonyx variegatus variegatus and C.v. abbotti*), western whiptail (*Cnemidophorus tigris tigris and C.t. multiscutatus*), rosy boa (*Lichanura trivirgata roseofusca and L.t. gracia*), and western patch-nosed snake (*Salvadora hexalepis hexalepis and S.h. virgultea*) (Stewart and Hogan 1980). The San Gorgonio Pass is situated at a unique evolutionary crossroads where genetic interactions occur at multiple temporal and spatial scales.

Finally, in addition to providing habitat for rare and endangered species and a contact zone where species intergrade along a genetic continuum, the linkage provides live-in and move-through habitat for numerous other native species that require extensive wildlands to thrive, such as American badger (*Taxidea taxus*), mule deer (*Odocoileus hemionus*), and mountain lion (*Puma concolor*).

Existing Conservation Investments

Significant conservation investments already exist in the region (Figure 4), but the resource values they support could be irreparably harmed by loss of connections between them. This linkage serves to connect expansive core areas that are largely conserved within the San Bernardino and San Jacinto mountains and in the Badlands. The majority of land in the San Bernardino Mountains is protected as part of the San Bernardino National Forest and the Bighorn Mountains and Whitewater River National Recreation Area, which is administered by the Bureau of Land Management (BLM). Other significant areas protected for their conservation values include the Mission Creek Preserve, owned and stewarded by The Wildlands Conservancy, and Wildwood Canyon State Park, administered by California State Parks. In the San Jacinto Mountains, the majority of land is protected as part of the San Bernardino National Forest, Mount San Jacinto State Park, and the recently established Santa Rosa and San Jacinto Mountains National Monument. In the Badlands, land managers and conservationists have established the new San Timoteo Canyon unclassified state park unit. Wilderness Areas (WA) occur just inside the boundaries of protected areas on either side of the linkage. The Forest Service manages the San Gorgonio WA in the San Bernardino Mountains. The California Wild Heritage Campaign (www.californiawild.org) has proposed an addition to the San Gorgonio WA, and the Bighorn Mountain Wilderness additions are proposed just north of there. The San Jacinto Wilderness Area is separated into two units, one just inside the boundary of the Forest and one on the south side of Mount San Jacinto State Park. The California Wild Heritage Campaign has proposed an additional Wilderness Area along the South Fork of the San Jacinto River.

P-13.7 (cont.)

A number of key parcels in the linkage have already been protected though successful conservation planning efforts undertaken by USFS, BLM, California State Parks, The Wildlands Conservancy (TWC), Coachella Valley Mountains Conservancy, Friends of the Desert Mountains, Resources Legacy Fund Foundation (RLFF), and California Department of Fish and Game. However, significant gaps in protection remain. The Draft Environmental Impact Report and Statement for the Western Riverside Multiple Species Habitat Conservation Plan (WRMSHCP) reinforced the importance of this connection, identifying important linkage areas between the San Bernardino Mountains and the Badlands, and between the San Bernardino and San Jacinto mountains (County of Riverside 2002). Another Habitat Conservation Plan deals with the easternmost part of the linkage, the pending Coachella Valley Multiple Species Habitat Conservation Plan (CVMSHCP), which addresses Stubbe Canyon and the Whitewater River (CVAG 2004). The value of already protected land in the region for biodiversity conservation, environmental education, outdoor recreation, and scenic beauty is immense.

Another critical landowner in the linkage area is the Morongo Band of Mission Indians. The Morongo Tribe recently acquired property in Millard Canyon, “simply so that its 1,000 tribal members can traverse it with their kin and their memories.” This acquisition is part of an ambitious effort to consolidate the reservation and realize a dream of

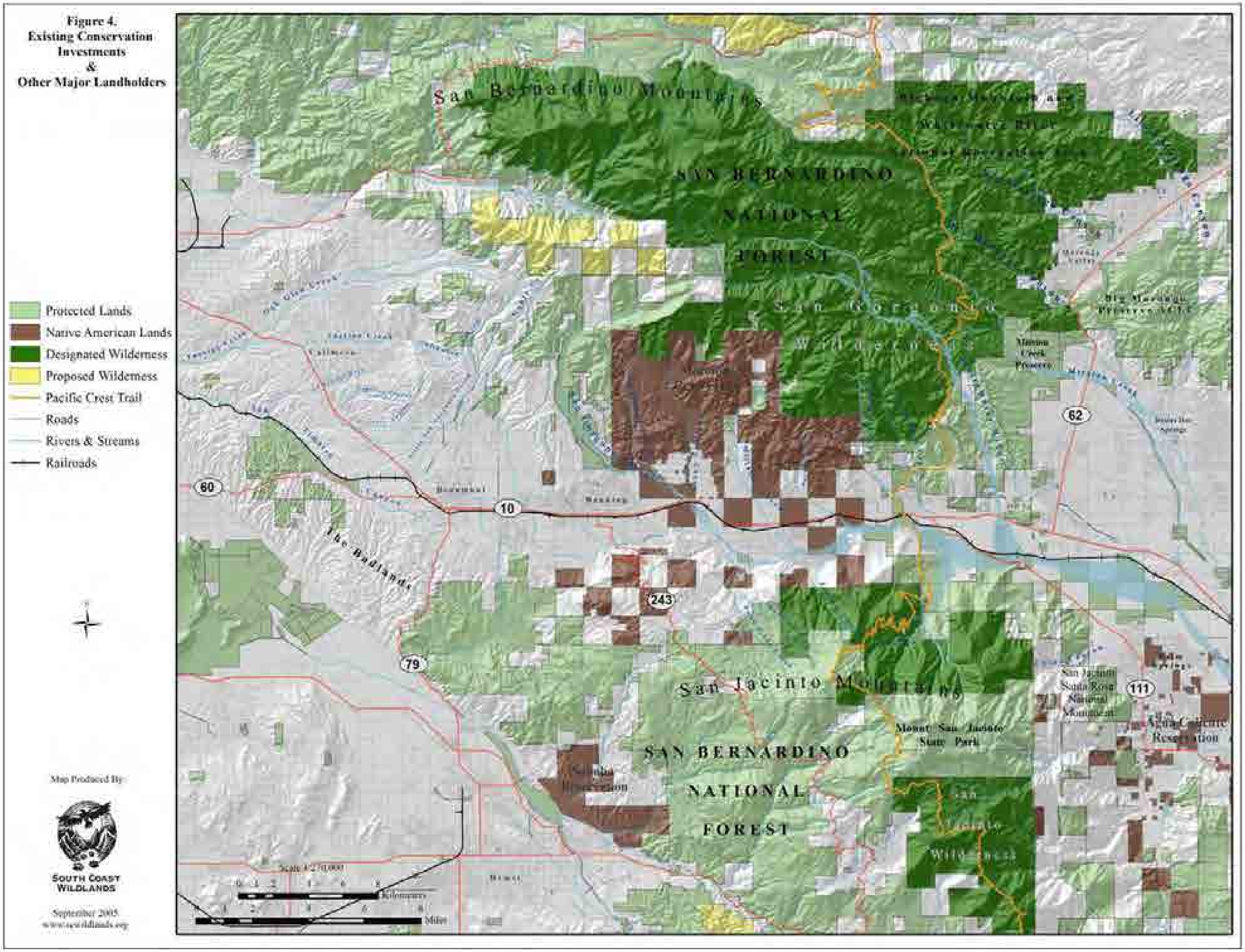


Figure 4.
Existing Conservation Investments
&
Other Major Landholders
Protected Lands
Native American Lands
Designated Wilderness
Proposed Wilderness
Pacific Crest Trail
Roads
Rivers & Streams
Railroads
San Bernardino Mountains
SAN BERNARDINO NATIONAL FOREST
San Gorgonio Wilderness
San Jacinto Mountains
SAN BERNARDINO NATIONAL FOREST
Mount San Jacinto State Park
San Jacinto Wilderness
The Badlands
Agua Caliente Reservation
60
10
62
243
79
111
Map Produced By:
SOUTH COAST WILDLANDS
September 2005

P-13.7
(Cont.)

reclaiming their ancestral lands (Sahagun 2003). Any meaningful plan for securing this regionally important landscape linkage must also recognize the cultural significance of protecting these areas.

Southern California's remaining wildlands form an archipelago of natural open space thrust into one of the world's largest metropolitan areas within a global hotspot of biological diversity. These wild areas are naturally interconnected; indeed, they historically functioned as one ecological system. However, recent intensive and unsustainable activities threaten to sever natural connections, forever altering the functional integrity of this remarkable natural system. The ecological, educational, recreational, and spiritual impacts of such a severance would be substantial. Certainly, maintaining and restoring functional habitat connectivity to this regionally important landscape linkage is a wise investment.

P-13.7
(cont.)

P-13.7
(cont.)

Conservation Planning Approach

The goal of linkage conservation planning is to identify specific lands that must be conserved to maintain or restore functional connections for all species or ecological processes of interest, generally between two or more protected core habitat areas. We adopted a spatially hierarchical approach, gradually working from landscape-level processes down to the needs of individual species on the ground. The planning area encompasses habitats in the San Bernardino and San Jacinto Mountains and the Badlands extending northwest from the San Jacinto Mountains. We conducted various landscape analyses to identify those areas necessary to accommodate continued movement of selected focal species through this landscape. Our approach can be summarized as follows:

1) *Focal Species Selection:* Select focal species from diverse taxonomic groups to represent a diversity of habitat requirements and movement needs.

2) *Landscape Permeability Analysis:* Conduct landscape permeability analyses to identify a zone of habitat that addresses the needs of multiple species potentially traveling through or residing in the linkage.

3) *Patch Size & Configuration Analysis:* Use patch size and configuration analyses to identify the priority areas needed to maintain linkage function.

4) *Field Investigations:* Conduct fieldwork to ground-truth results of prioritization analyses, identify barriers, and document conservation management needs. **P-13.7 (cont.)**

5) *Linkage Design:* Compile results of analyses and fieldwork into a comprehensive report detailing what is required to conserve and improve linkage function.

Our approach has been highly collaborative and interdisciplinary (Beier et al. 2005). We followed Baxter (2001) in recognizing that successful conservation planning is based on the participation of experts in biology, conservation design, and implementation in a reiterative process (Figure 5). To engage regional biologists and planners early in the process, we held a habitat connectivity workshop on August 7, 2002. The workshop gathered indispensable information on conservation needs and opportunities for the linkage. The workshop engaged 86 participants representing over 44 different agencies, academic

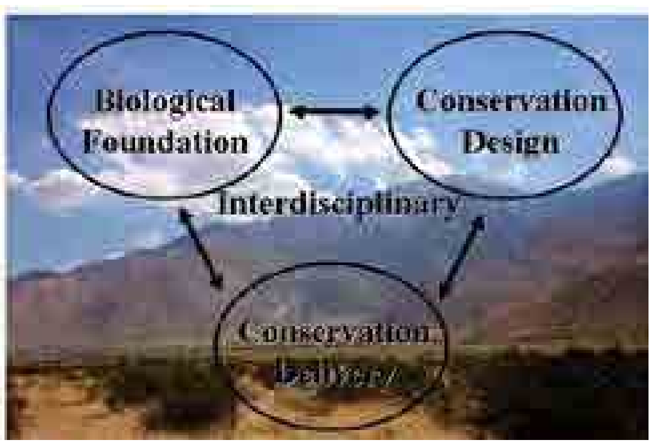


Figure 5. Successful conservation planning requires an interdisciplinary and reiterative approach among biologists, planners and activists (Baxter 2001).

institutions, conservation organizations, and community groups (Appendix A).

Focal Species Selection

Workshop participants identified a taxonomically diverse group of focal species (Table 1) that are sensitive to habitat loss and fragmentation and that represent the diversity of ecological interactions that can be sustained by successful linkage design. The focal species approach (Beier and Loe 1992) recognizes that species move through and utilize habitat in a wide variety of ways. Workshop participants divided into taxonomic working groups; each group identified life history characteristics of species that were either particularly sensitive to habitat fragmentation or otherwise meaningful to linkage design. Participants then summarized information on species occurrence, movement characteristics, and habitat preferences and delineated suitable habitat and potential movement routes through the linkage region. (For more on the workshop see Appendix B.)

Table 1. Regional ecologists selected 23 focal species for the San Bernardino-San Jacinto Connection

PLANTS
Dodecahema leptoceras (slender-horned spineflower)
Artemisia californica (California sagebrush)
Alnus rhombifolia (white alder)
INVERTEBRATES
Eleodes armata (desert skunk beetle)**
Apodemia mormo (metalmark butterfly)
Callophrys perplexa (green hairstreak butterfly)
Pepsis spp. (tarantula hawk)
AMPHIBIANS & REPTILES
Hyla cadaverina (California treefrog)
Phrynosoma coronatum (coast horned lizard)
Masticophis lateralis (California whipsnake)
Crotalus mitchellii (speckled rattlesnake)
BIRDS
Salpinctes obsoletus (rock wren)
Chamaea fasciata (wrentit)
Sitta pygmaea (pygmy nuthatch)
Strix occidentalis (California spotted owl)
MAMMALS
Perognathus longimembris (little pocket mouse)
Dipodomys agilis (Pacific kangaroo rat)
Dipodomys merriami (Merriam's kangaroo rat)
Neotoma macrotis (large-eared woodrat)
Ammospermophilus leucurus (Antelope ground squirrel)
Odocoileus hemionus (mule deer)
Taxidea taxus (American badger)
Puma concolor (mountain lion)

** *Indicates insufficient data to model species.*

The 23 focal species identified at the workshop capture a diversity of movement needs and ecological requirements, from species that require large tracts of land (e.g., mountain lion, badger, mule deer) to those with very limited spatial requirements (e.g., coast horned lizard). They include habitat specialists (e.g., California treefrog in riparian habitats) and those requiring a specific configuration of habitat types and elements (e.g., tarantula hawks that require hilltopping habitat). Dispersal distance capability of focal species ranges from 30 m to 274 km; and modes of dispersal include flying, swimming, climbing, walking, and slithering.

Landscape Permeability Analysis

Landscape permeability analysis is a GIS technique that models the relative cost for a species to move between core areas based on how each species is affected by habitat characteristics, such as slope, elevation, vegetation composition, and road density. This

P-13.7
(cont.)

analysis identifies a least-cost corridor, or the best potential route for each species between protected core areas (Walker and Craighead 1997, Craighead et al. 2001, Singleton et al. 2002). Species used in landscape permeability analysis must be carefully chosen, and were included in this analysis only if:

- We know enough about the movement of the species to reasonably estimate the cost-weighted distance using the data layers available to our analysis.
- The data layers in the analysis reflect the species' ability to move.
- The species occurs in both cores (or historically did so and could be restored) and can potentially move between cores, at least over multiple generations.
- The time scale of gene flow between core areas is shorter than, or not much longer than, the time scale at which currently mapped vegetation is likely to change due to disturbance events and environmental variation (e.g. climatic changes).

Four species were found to meet these criteria and were used in permeability analyses to identify the least-cost corridor between protected core areas: mountain lion, badger, mule deer, and Pacific kangaroo rat. Ranks and weightings adopted for each species are shown in Table 2.

The relative cost of travel was assigned for each of these 4 focal species based upon its ease of movement through a suite of landscape characteristics (land cover, road density, and topographic features). The following spatial data layers were assembled at 30-m resolution: vegetation, roads, elevation, and topographic features (Figure 6). We derived 4 topographic classes from elevation and slope models: canyon bottoms, ridgelines, flats, or slopes. Road density was measured as kilometers of paved road per square kilometer. Within each data layer, we ranked all categories between 1 (preferred) and 10 (avoided) based on focal species preferences as determined from available literature and expert opinion regarding how movement is facilitated or hindered by natural and urban landscape characteristics. Each input category was ranked and weighted, such that: (Vegetation * w%) + (Road Density * x%) + (Topography * y%) + (Elevation * z%) = Cost to Movement, where w + x + y + z = 100%. **P-13.7 (cont.)**

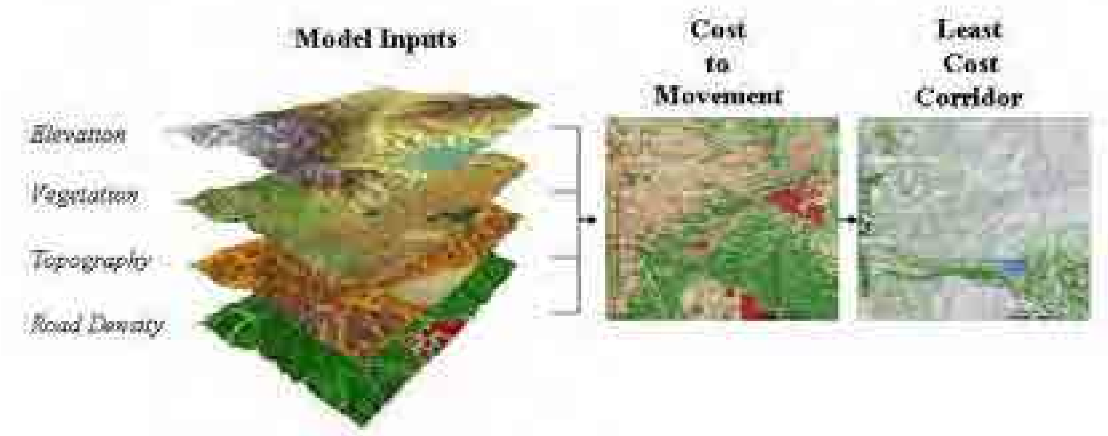


Figure 6. Permeability Model Inputs: elevation, vegetation, topography, and road density. Landscape permeability analysis models the relative cost for a species to move between core areas based on how each species is affected by various habitat characteristics.

Table 2. Model Parameters for Landscape Permeability Analyses

MODEL VARIABLES	*Dipodomys agilis* (Pacific kangaroo rat)	*Odocoileus hemionus* (mule deer)	*Taxidea taxus* (badger)	*Puma concolor* (mountain lion)
VEGETATION				
Alpine-Dwarf Shrub	10	9	4	4
Agriculture	10	9	7	10
Annual Grassland	4	9	1	7
Alkali Desert Scrub	9	10	2	7
Barren	7	10	9	10
Bitterbrush	10	3	3	2
Blue Oak-Foothill Pine	7	1	5	3
Blue Oak Woodland	7	1	5	2
Coastal Oak Woodland	7	1	5	2
Closed-Cone Pine-Cypress	10	3	6	5
Chamise-Redshank Chaparral	5	6	4	5
Coastal Scrub	2	3	4	2
Desert Riparian	7	4	3	1
Desert Scrub	6	9	2	7
Desert Succulent Shrub	6	8	2	7
Desert Wash	9	5	3	2
Eastside Pine	10	1	5	5
Estuarine	10	10	10	5
Freshwater Emergent Wetland	10	9	9	2
Jeffrey Pine	9	2	5	5
Joshua Tree	3	8	2	4
Juniper	7	5	3	3
Lacustrine	10	10	9	10
Lodgepole Pine	10	5	6	5
Mixed Chaparral	5	6	4	5
Montane Chaparral	5	5	4	5
Montane Hardwood-Conifer	9	1	6	3
Montane Hardwood	9	1	6	3
Montane Riparian	10	2	6	1
Perennial Grassland	4	7	1	6
Pinyon-Juniper	7	4	3	3
Palm Oasis	10	7	6	3
Ponderosa Pine	9	2	5	5
Riverine	10	9	9	1
Red Fir	10	4	6	5
Subalpine Conifer	10	6	6	5
Saline Emergent Wetland	10	10	10	6
Sagebrush	10	5	3	7
Sierran Mixed Conifer	10	2	6	5
Urban	10	10	10	10

P-13.7
(cont.)

Table 2. Continued	*Dipodomys agilis* (Pacific kangaroo rat)	*Odocoileus hemionus* (mule deer)	*Taxidea taxus* (badger)	*Puma concolor* (mountain lion)
MODEL VARIABLES				
Valley Oak Woodland	7	1	4	2
Valley Foothill Riparian	7	1	4	2
Water	10	10	10	9
White Fir	10	2	6	5
Wet Meadow	10	5	4	6
Unknown Shrub Type	10	5	5	5
Unknown Conifer Type	10	4	5	5
Eucalyptus	8	8	6	6
ROAD DENSITY				
0-0.5 km/sq. km	1	1	1	1
0.5-1 km/sq. km	1	1	1	3
1-2 km/sq. km	2	2	2	4
2-4 km/sq. km	3	5	2	6
4-6 km/sq.km	3	7	4	9
6-8 km/sq. km	9	10	7	10
8-10 km/sq.km	10	10	10	10
10 or more km/sq. km	10	10	10	10
TOPOGRAPHY				
Canyon bottoms	3	5	2	1
Ridgetops	3	2	7	7
Flats	1	8	1	3
Slopes	7	1	9	5
ELEVATION (feet)				
-260-0	4	6	1	N/A
0-500	1	4	1	
500-750	1	3	1	
750-1000	1	3	1	
1000-3000	1	3	2	
3000-5000	1	3	3	
5000-7000	3	3	3	
7000-8000	6	5	5	
8000-9000	9	5	5	
9000-11500	9	5	5	
>11500	10	8	8	
WEIGHTS				
Land Cover	0.70	0.65	0.55	0.40
Road Density	0.10	0.15	0.15	0.30
Topography	0.10	0.20	0.20	0.30
Elevation	0.10	0.00	0.10	0.00

P-13.7 (cont.)

Weighting allowed the model to capture variation in the influence of each input (vegetation, road density, topography, elevation) on focal species movements. A unique cost surface was thus developed for each species. A corridor function was then performed in GIS to generate a data layer showing the relative degree of permeability between core areas.

Running the permeability analysis required identifying the endpoints to be connected. Typically, targeted endpoints are selected as medium to highly suitable habitat within protected core habitat areas (e.g., National Forests, State Parks) that needed to be connected through currently unprotected lands. For this analysis, we identified areas supporting medium to highly suitable habitat for each species in the San Bernardino National Forest, Bighorn Mountain and Whitewater River National Recreation Area, Santa Rosa and San Jacinto Mountains National Monument, and protected lands in the Badlands in order to give the model broad latitude in interpreting functional corridors across the entire study area. For each focal species, the most permeable area of the study window was designated as the least-cost corridor.

The least-cost corridor output for all 4 species was then combined to generate a Least Cost Union. The biological significance of this Union can best be described as the zone within which all 4 modeled species would encounter the least energy expenditure (i.e., preferred travel route) and the most favorable habitat as they move between targeted protected areas. The output does not identify barriers (which were later identified through fieldwork), mortality risks, dispersal limitations or other biologically significant processes that could prevent a species from successfully reaching a core area. Rather, it identifies the best zone available for focal species movement based on the data layers used in the analyses.

P-13.7 (cont.)

Patch Size & Configuration Analysis

Although the Least-Cost Union identifies the best zone available for movement based on the data layers used in the analyses, it does not address whether suitable habitat in the Union occurs in large enough patches to support viable populations and whether these patches are close enough together to allow for inter-patch dispersal. We therefore conducted patch size and configuration analyses for all focal species (Table 1) and adjusted the boundaries of the Least-Cost Union where necessary to enhance the likelihood of movement. Patch size and configuration analyses are particularly important for species that require multiple generations to traverse the linkage. Many species exhibit metapopulation dynamics, whereby the long-term persistence of a local population requires connection to other populations (Hanski and Gilpin 1991). For relatively sedentary species like coast horned lizard and terrestrial insects, gene flow will occur over decades through a metapopulation. Thus, the linkage must be able to accommodate metapopulation dynamics to support ecological and evolutionary processes in the long term.

A habitat suitability model formed the basis of the patch size and configuration analyses. Habitat suitability models were developed for each focal species using the literature and expert opinion. Spatial data layers used in the analysis varied by species and included: vegetation, elevation, topographic features, slope, aspect, hydrography, and soils. Using scoring and weighting schemes similar to those described in the previous section, we generated a spectrum of suitability scores that were divided into 5 classes using natural breaks: low, low to medium, medium, medium to high, or high. Suitable habitat was identified as all land that scored medium, medium to high, or high.

To identify areas of suitable habitat that were large enough to provide a significant resource for individuals in the linkage, we conducted a patch size analysis. The sizes of all suitable habitat patches in the planning area were identified as potential core areas, patches, or less than a patch. *Potential core areas* were defined as the amount of contiguous suitable habitat necessary to sustain at least 50 individuals. A *patch* was defined as the area of contiguous suitable habitat needed to support at least one male and one female, but less than the potential core area. Potential cores are probably capable of supporting the species for several generations (although with erosion of genetic material if isolated). Patches can support at least one breeding pair of animals (perhaps more if home ranges overlap greatly) and are probably useful to the species if the patch can be linked via dispersal to other patches and core areas (Figure 7).

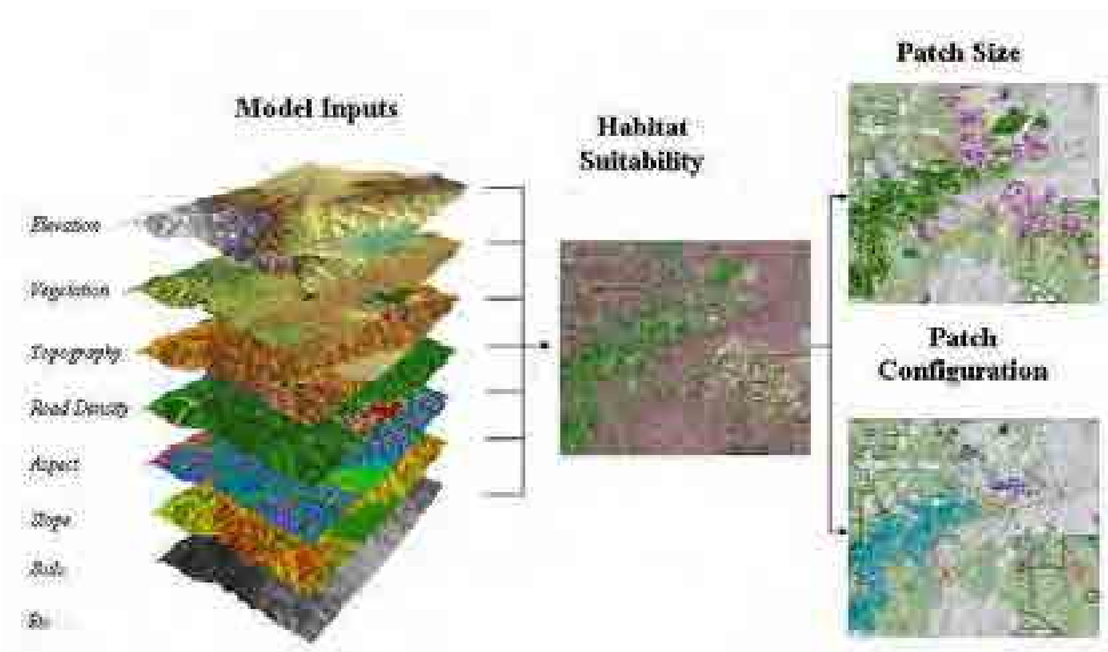


Figure 7. Model Inputs to Patch Size and Configuration Analyses vary by species. Patch size delineates cores, patches, and stepping-stones of potential habitat. Patch configuration evaluates whether suitable habitat patches and cores are within each species dispersal distance.

To determine whether the distribution of suitable habitat in the linkage supports meta-population processes and allows species to disperse among patches and core areas, we conducted a configuration analysis to identify which patches and core areas were functionally isolated by distances too great for the focal species to traverse. Because the majority of methods used to document dispersal distance underestimate the true value (LaHaye et al. 2001), we assumed each species could disperse twice as far as the longest documented dispersal distance. This assumption is conservative in the sense that it retains habitat patches as potentially important to dispersal for a species even if it

P-13.7 (cont.)

may appear to be isolated based on known dispersal distances. Groupings of core areas and patches that were greater than the adopted dispersal distance from other suitable habitat were identified using a unique color.

For each species we compared the configuration and extent of potential cores and patches, relative to the species dispersal ability, to evaluate whether the Least Cost Union was likely to serve the species. If necessary, we added additional habitat to help ensure that the linkage provides sufficient live-in or "move-through" habitat for the species' needs.

Minimum Linkage Width

While the size and distance among habitats (addressed by patch size and configuration analyses) must be adequate to support species movement, the shape of those habitats also plays a key role. In particular, constriction points—areas where habitats have been narrowed by surrounding development—can prevent organisms from moving through the Least Cost Union. To ensure that functional processes are protected, we imposed a minimum width of 2 km (1.2 mi) for all portions of the final Linkage Design.

For a variety of species, including those we did not formally model, a wide linkage helps ensure availability of appropriate habitat, host plants (e.g., for butterflies), pollinators, and areas with low predation risk. In addition, fires and floods are part of the natural disturbance regime and a wide linkage allows for a semblance of these natural disturbances to operate with minimal constraints from adjacent urban areas. A wide linkage also enhances the ability of the biota to respond to climate change, and buffers against edge effects.

P-13.7 (cont.)

Field Investigations

We conducted field surveys to ground-truth existing habitat conditions, document existing barriers and potential passageways, and describe restoration opportunities. All location data were recorded using a mobile GIS/GPS with ESRI's ArcPad. Because paved roads often present the most formidable barriers, biologists drove or walked each accessible section of road that transected the linkage. All types of potential crossing structures (e.g., bridge, underpass, overpass, or culvert) were photo documented and measured. Data taken for each crossing included: shape; height, width, and length of the passageway; stream type, if applicable (perennial or intermittent); floor type (metal, dirt, concrete, or natural); passageway construction (concrete, metal, or other); visibility to other side; light level; fencing; and vegetative community within and/or adjacent to the passageway. Existing highways and crossing structures are not considered permanent landscape features. In particular, crossing structures can be added or improved during projects to widen and realign highways and interchanges. Therefore, we also identified areas where crossing structures could be improved or installed, and opportunities to restore vegetation to improve road crossings and minimize roadkills.

Identify Conservation Opportunities

The Linkage Design serves as the target area for linkage conservation opportunities. We provided biological and land use summaries, and identified implementation opportunities for agencies, organizations, and individuals interested in helping conserve the San Bernardino-San Jacinto Connection. Biological and land use summaries include descriptions and maps of vegetation, land cover, land use, roads, road crossings, and restoration opportunities. We also identified existing planning efforts addressing the conservation and use of natural resources in the planning area. Finally, we developed a flyover animation using aerial imagery, satellite imagery, and digital elevations models, which provides a visualization of the linkage from a landscape perspective (Appendix C).

P-13.7 (cont.)

P-13.7
(cont.)

Landscape Permeability Analyses

We conducted landscape permeability analyses for 4 focal species (mountain lion, American badger, mule deer, and Pacific kangaroo rat). The least cost corridors for these 4 species were quite distinct due to their diverse ecological and movement requirements (see following species accounts in this section and Table 2 in the previous section). However, there was some overlap in the western part of the linkage, with Pacific kangaroo rat following a similar, but narrower pathway as mule deer in the western part of the linkage (Figure 8).

The Least Cost Union (i.e., the union of all the least-cost corridors for each of the 4 species) stretches approximately 12 to 14 km (7.4-8.7 mi) between conserved habitats in the San Bernardino Mountains and the San Jacinto Mountains and the Badlands. It encompasses a diversity of vegetation types to account for the needs of the focal species, including coastal sage scrub, oak woodland and grassland in the western part of the Union transitioning to desert scrub communities to the east of the San Gorgonio River (Figure 9).

The several branches of the Least Cost Union indicate the distribution of the preferred habitats for these target species, encompassing a diversity of vegetation communities and topographic features. Coastal sage scrub, grassland, and mixed chaparral habitats dominate the western branch of the Union, which ranges in width from about 2 to 6 km (1.2-3.7 mi), providing a connection of coastal habitats between the San Bernardino Mountains and the Badlands. The central branch takes in portions of the San Gorgonio River, and Mias, Hathaway, and Potrero canyons north of Interstate 10 and follows the San Gorgonio River south of the freeway to enter Brown Creek Canyon in the San Jacinto Mountains. The central branch of the Union ranges in width from approximately 1 to 3 km (0.6-1.9 mi), and encompasses both coastal and desert influenced habitats. To the east, a narrow branch about 1 to 1.5 km (0.6 to 0.9 mi) wide includes Stubbe Canyon, which merges with the San Gorgonio River immediately south of Interstate 10 to enter Snow Creek Canyon in the San Jacinto Mountains. The easternmost branch of the Union follows the Whitewater River, dominated by a gallery forest of montane and valley foothill riparian habitats for much of its length, with desert wash habitat in areas of the river that are cleared by public agencies, and desert scrub and creosote scrub habitats in the uplands. This branch of the Union ranges in width from about 2 to 6 km (1.2-3.7 mi).

The next several pages summarize the permeability analyses for each of the 4-modeled species. For convenience, the narratives describe the most permeable paths from north to south, although our analyses gave equal weight to movements in both directions. The following section (Patch Size and Configuration Analyses) describes how well the Least Cost Union would likely serve the needs of all focal species, including those for which we could not conduct permeability analysis. The latter analysis expanded the Least Cost Union to provide for critical live-in and/or move-through habitat for particular focal species.

P-13.7
(cont.)

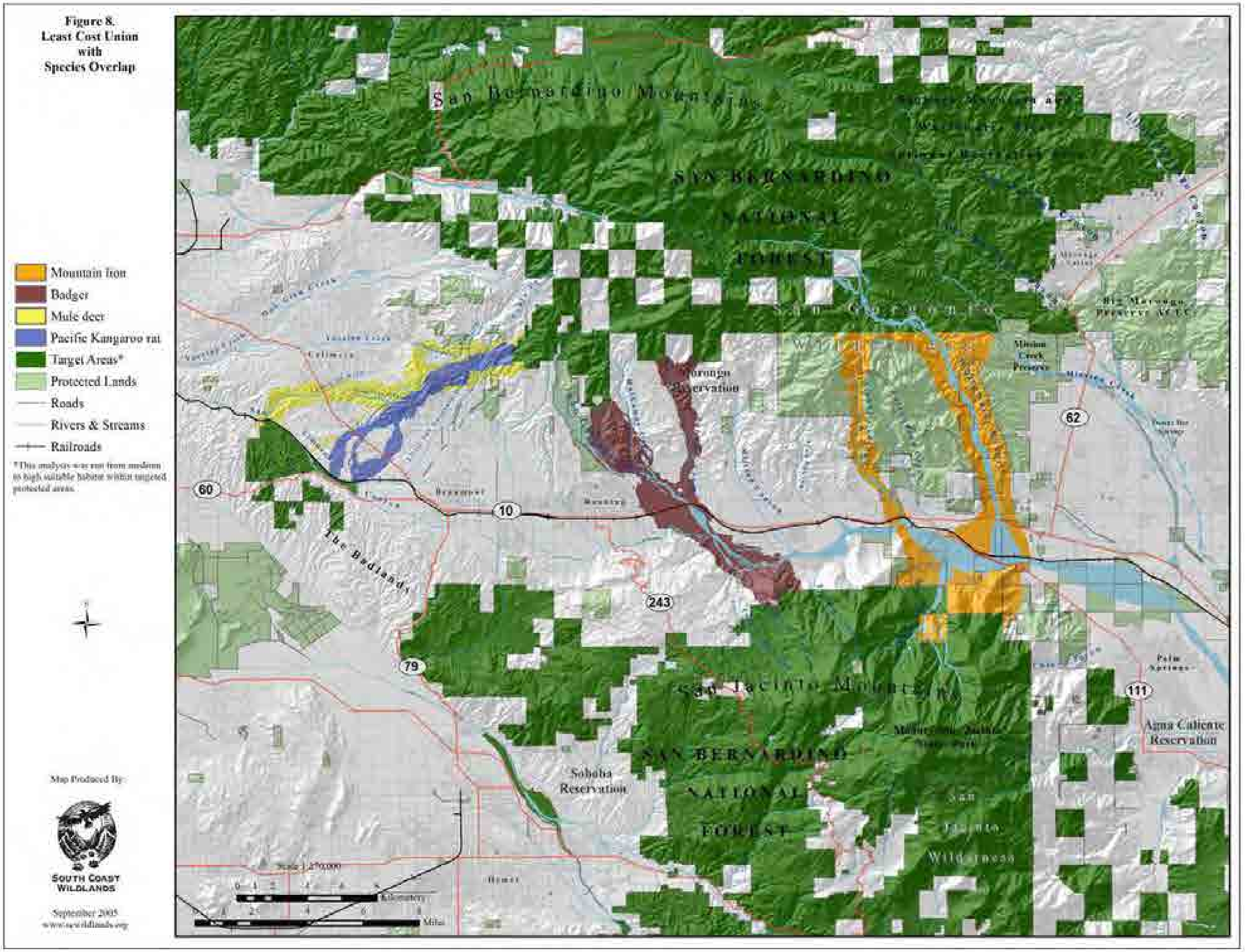
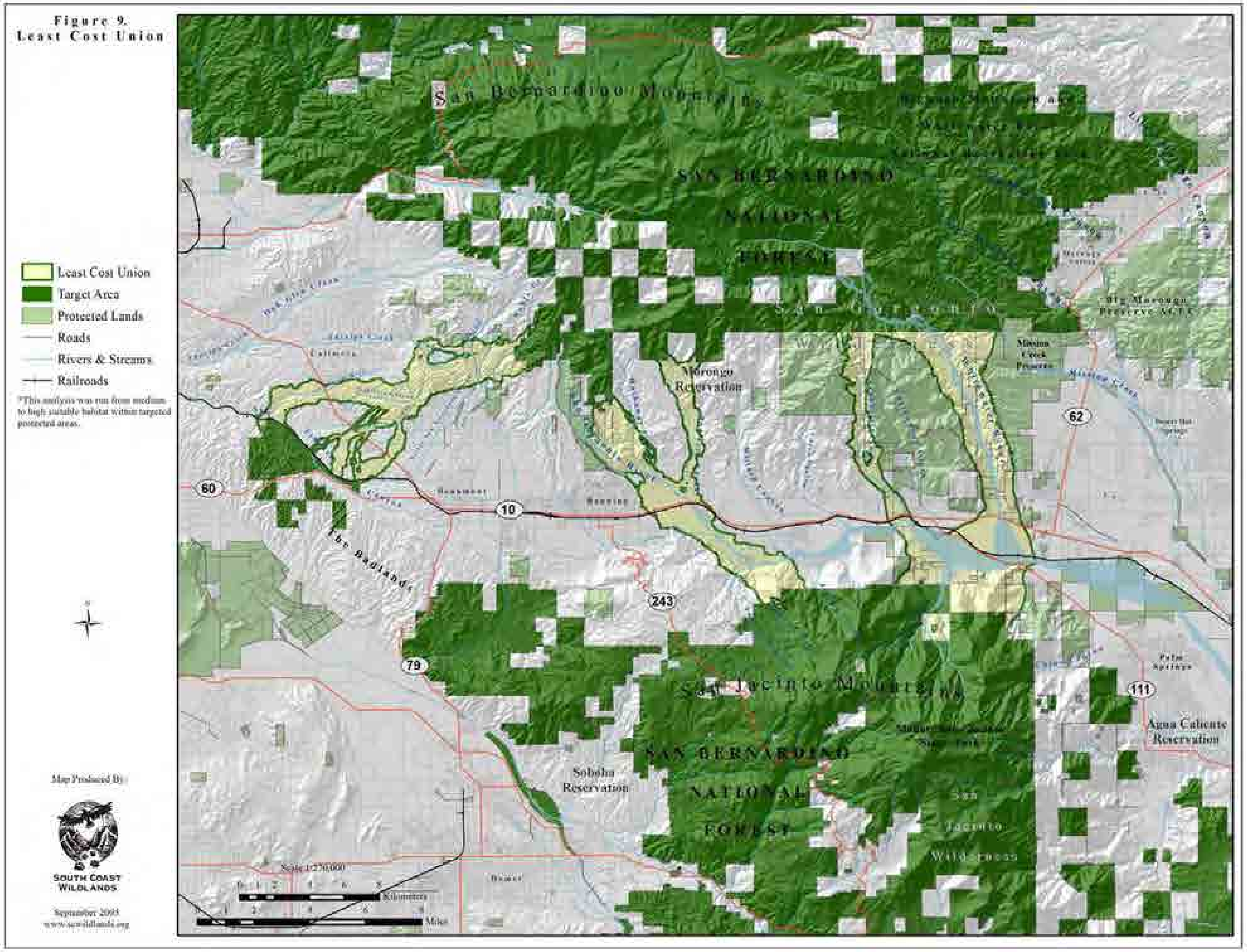


Figure 8.
Least Cost Union
with
Species Overlap

P-13.7
(Cont.)

Comment P-13



P-13.7
(Cont.)

Mountain lion (*Puma concolor*)

Justification for Selection: This area-sensitive species is an appropriate focal species because its naturally low densities render mountain lions highly sensitive to habitat fragmentation (Noss 1991, Noss and Cooperrider 1994), and loss of large carnivores can have adverse ripple effects through the entire ecosystem (Soulé and Terborgh 1999). Mountain lions have already lost a number of dispersal corridors in southern California, making them susceptible to extirpation from existing protected areas (Beier 1993). Habitat fragmentation caused by urbanization and the extensive road network has had detrimental effects on mountain lions by restricting movement, escalating mortality, and increasing contact with humans.

Conceptual Basis for Model Development: Mountain lions use brushy stages of a variety of habitat types with good cover (Spowart and Samson 1986, Ahlborn 1988). Preferred travel routes are along stream courses and gentle terrain, but all habitats with cover are used (Beier and Barrett 1993, Dickson et al. 2004). In southern California, grasslands, agricultural areas, and human-altered landscapes are avoided (Dickson et al. 2004). Dirt roads do not impede movement, but highways, residential roads, and 2-lane paved roads do (Beier and Barrett 1993, Beier 1995, Dickson et al. 2004). Juvenile dispersal distances average 32 km (20 mi) for females, with a range of 9-140 km (6-87 mi), and 85 km (53 mi) for males, with a range of 23-274 km (14-170 mi; Anderson et al. 1992, Sweanor et al. 2000). The somewhat shorter dispersal distances reported in southern California (Beier 1995) reflect the fragmented nature of Beier's study area. Please see Table 2 for model variable scorings for this species. Cost to movement for mountain lion was defined by weighting the inputs as follows: **P-13.7 (cont.)**

(Vegetation * 40%) + (Road Density * 30%) + (Topography * 30%)

Results & Discussion: The least cost corridor for mountain lion movement between the San Bernardino Mountains and the San Jacinto Mountains is shown in Figure 10. The most permeable path emanates from the San Bernardino Mountains and follows the Whitewater River until reaching Highway 111, where the corridor widens to encompass habitats at the confluence of the San Gorgonio and Whitewater rivers, before ascending into the San Jacinto Mountains via Snow Creek Canyon and Windy Point. This route varies in width from 2 to 6 km (1.2-3.7 mi). Another much narrower route follows Stubbe Canyon and merges with the San Gorgonio River immediately south of Interstate 10 before entering Snow Creek Canyon in the San Jacinto Mountains. This corridor varies in width from about 1 to 1.5 km (0.6 to 0.9 mi). Although not identified as the most permeable path by this analysis, the San Gorgonio River provides a secondary connection for this species.

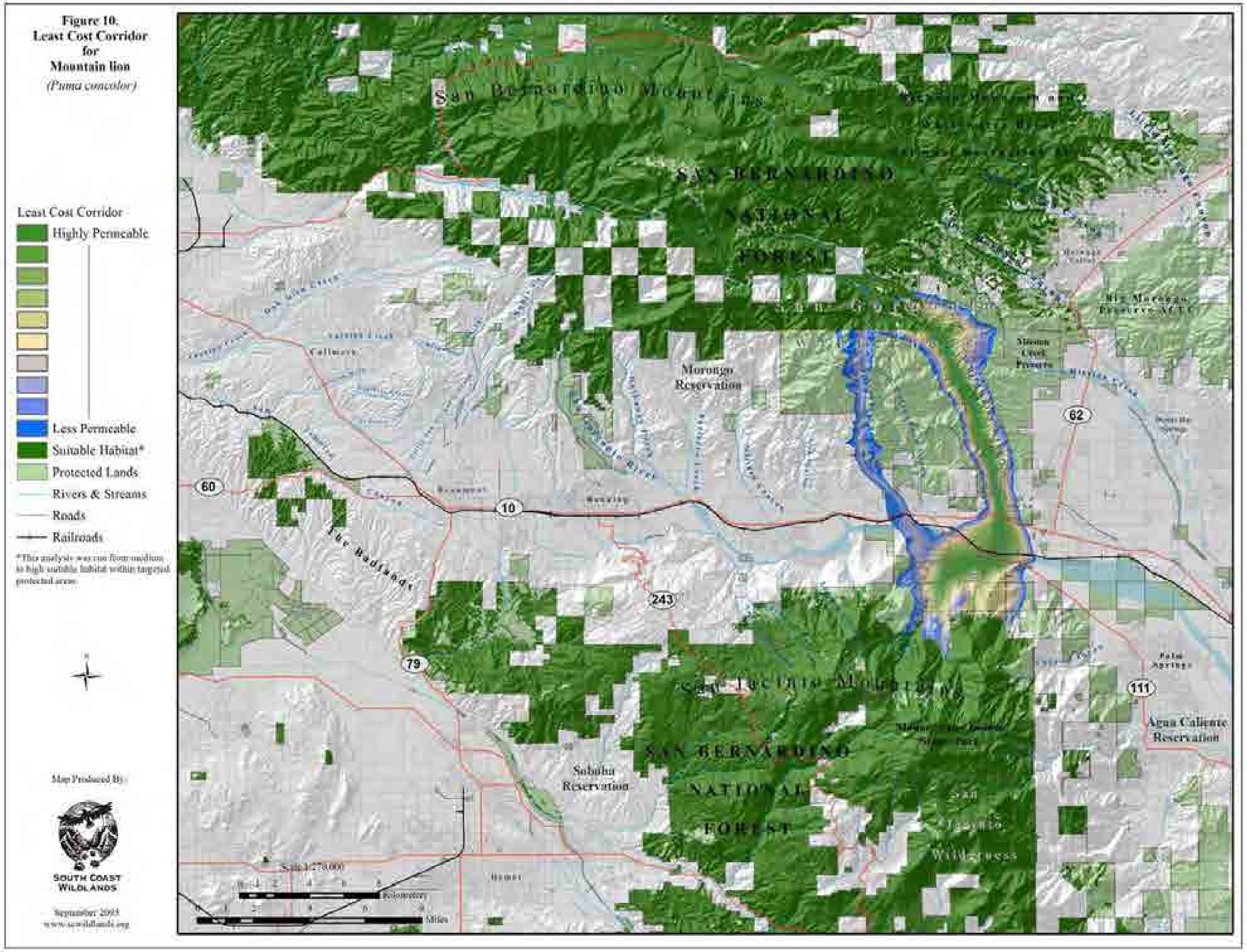


Figure 10.
Least Cost Corridor
for
Mountain lion
(Puma concolor)
Least Cost Corridor
Highly Permeable
Less Permeable
Suitable Habitat*
Protected Lands
Rivers & Streams
Roads
Railroads
*This analysis was run from medium to high suitable habitat within targeted protected areas.
Map Produced By:
SOUTH COAST WILDLANDS
San Bernardino Mountains
SAN BERNARDINO NATIONAL FOREST
Morongo Reservation
Big Morongo Preserve ACEC
The Badlands
60
10
62
79
243
111
San Jacinto Mountains
Soboba Reservation
Agua Caliente Reservation
San Jacinto Wilderness
Miles

P-13.7 (Cont.)

American badger (*Taxidea taxus*)

Justification for Selection: The Badger is a highly specialized species that requires open habitats with suitable soils for excavating large burrows (de Vos 1969, Banfield 1974, Sullivan 1996). Badgers require expansive wildlands to survive and are highly sensitive to habitat fragmentation. In fact, roadkill is a primary cause of mortality (Long 1973, Zeiner et al. 1990, Sullivan 1996).

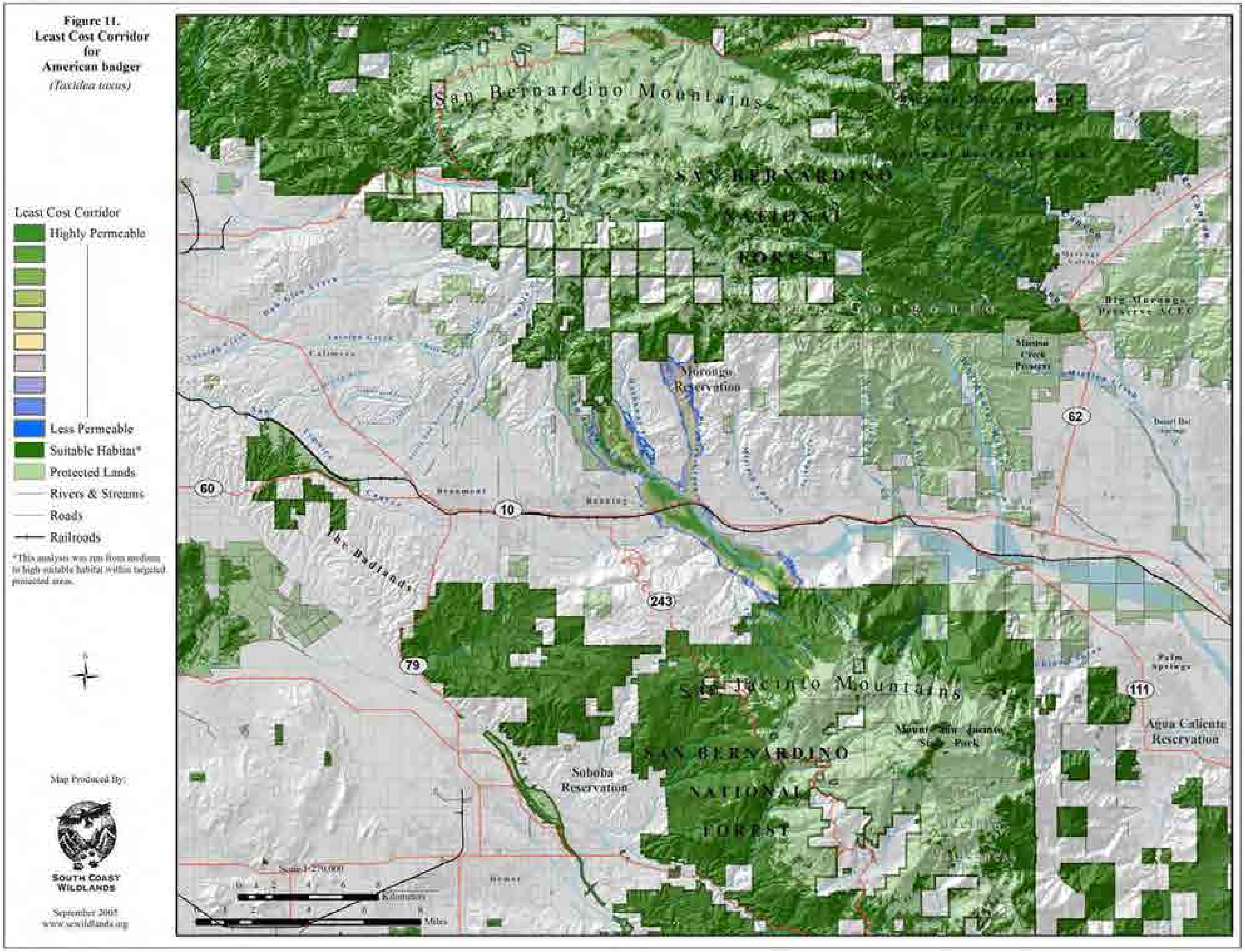
Conceptual Basis for Model Development: Badgers are associated with grasslands, prairies, and other open habitats that support abundant burrowing rodents (de Vos 1969, Banfield 1974, Sullivan 1996) but they may also be found in drier open stages of shrub and forest communities (Zeiner et al. 1990). They are known to inhabit forest and mountain meadows, marshes, riparian habitats, and desert communities including creosote bush, juniper, and sagebrush habitats (Long and Killingley 1983, Zeiner et al. 1990). The species is typically found at lower elevations (Zeiner et al. 1990) in flat, rolling or steep terrain but it has been recorded at elevations up to 3,600 m (12,000 ft) (Minta 1993).

Badgers can disperse up to 110 km (68 mi; Lindzey 1978), and preferentially move through open scrub habitats, fields, and pastures, and open upland and riparian woodland habitats. Denser scrub and woodland habitats and orchards are less preferred. They avoid urban and intense agricultural areas. Roads are difficult to navigate safely. Please see Table 2 for model variable scorings for this species. Cost to movement for badger was defined by weighting these inputs as follows: **P-13.7 (cont.)**

(Vegetation * 0.55) + (Elevation * 0.10) + (Topography * 0.20) + (Road Density *0.15)

Results & Discussion: The least cost corridor for badger moving between targeted protected areas varies in width from 1 to 3 km (0.6-1.9 mi), and has two major branches that merge north of Interstate 10 (Figure 11). The most permeable path encompasses portions of the San Gorgonio River, and Mias and Hathaway canyons, which both flow into the San Gorgonio River north of the freeway to enter Brown Creek Canyon in the San Jacinto Mountains near Hurley Flat. The other branch extends from Burro Flats in the San Bernardino Mountains and follows Potrero Creek to the San Gorgonio River. The least cost corridor for badger basically takes in the remaining suitable habitat along Interstate 10 between the cities of Banning and Cabazon. Both movement routes contain medium to highly suitable habitat (e.g., desert scrub, desert wash, grassland, and coastal sage scrub) and the gently sloping terrain preferred by badgers. Although both movement routes encounter gravel mines in the floodplain of the San Gorgonio River, sufficient habitat is included within the linkage to facilitate movement of badgers in this area.

Comment P-13



P-13.7
(Cont.)

Mule deer (*Odocoileus hemionus*)

Justification for Selection: Mule deer were chosen as a focal species in part to help support viable populations of large carnivores, which rely on deer as their primary prey. Deer herds can decline in response to fragmentation, degradation or destruction of habitat from urban expansion, incompatible land uses and other human activities (Ingles 1965, Hall 1981, CDFG 1983). Mule deer are particularly vulnerable to habitat fragmentation by roads; in fact, nationally vehicles kill several hundred thousand deer each year (Romin and Bissonette 1996, Conover 1997, Forman et al. 2003).

Conceptual Basis for Model Development: Mule deer use forest, woodland, brush, and meadow habitats, and reach their highest densities in oak woodlands, riparian areas, and along edges of meadows and grasslands. However, they also occur in open scrub, young chaparral, and low elevation coniferous forests (Bowyer 1986, USFS 2002). Access to a perennial water source is critical in summer. The San Bernardino Mountains population has both migratory and resident components (Nicholson et al. 1997).

Dispersal distances of up to 217 km (135 mi) have been recorded for mule deer (Anderson and Wallmo 1984). They preferentially move through habitats that provide good escape cover, preferring ridgetops and riparian routes as major travel corridors. Varying slopes and topographic relief are important for providing shade or exposure to the sun. They avoid open habitats, agricultural and urban land cover, and centers of high human activity, even in suitable habitat. Please see Table 2 for model variable scorings for this species. Cost to movement for mule deer was defined by weighting these inputs as follows: **P-13.7 (cont.)**

(Vegetation * 65%) + (Topography * 20%) + (Road Density * 15%)

Results & Discussion: The least cost corridor for mule deer traveling between targeted protected areas extends from the proposed San Gorgonio Wilderness addition in the San Bernardino Mountains follows Noble Creek for approximately 4 km (2.5 mi), crosses over Little San Gorgonio Creek to enter Singleton Canyon before crossing Interstate 10 using Garden Air Wash towards San Timoteo Canyon and the Badlands (Figure 12). The most permeable path takes in a broad band of medium to highly suitable habitat for mule deer, ranging in width from 1 to 3 km (0.6-1.9 mi), with other branches narrowing to less than 0.5 km (0.3 mi) wide. The least cost corridor encompasses most of the remaining natural habitats between the city of Calimesa and the community of Cherry Valley. Coastal scrub, grassland, and mixed chaparral are the dominant plant communities, with some riparian and oak woodlands interspersed.

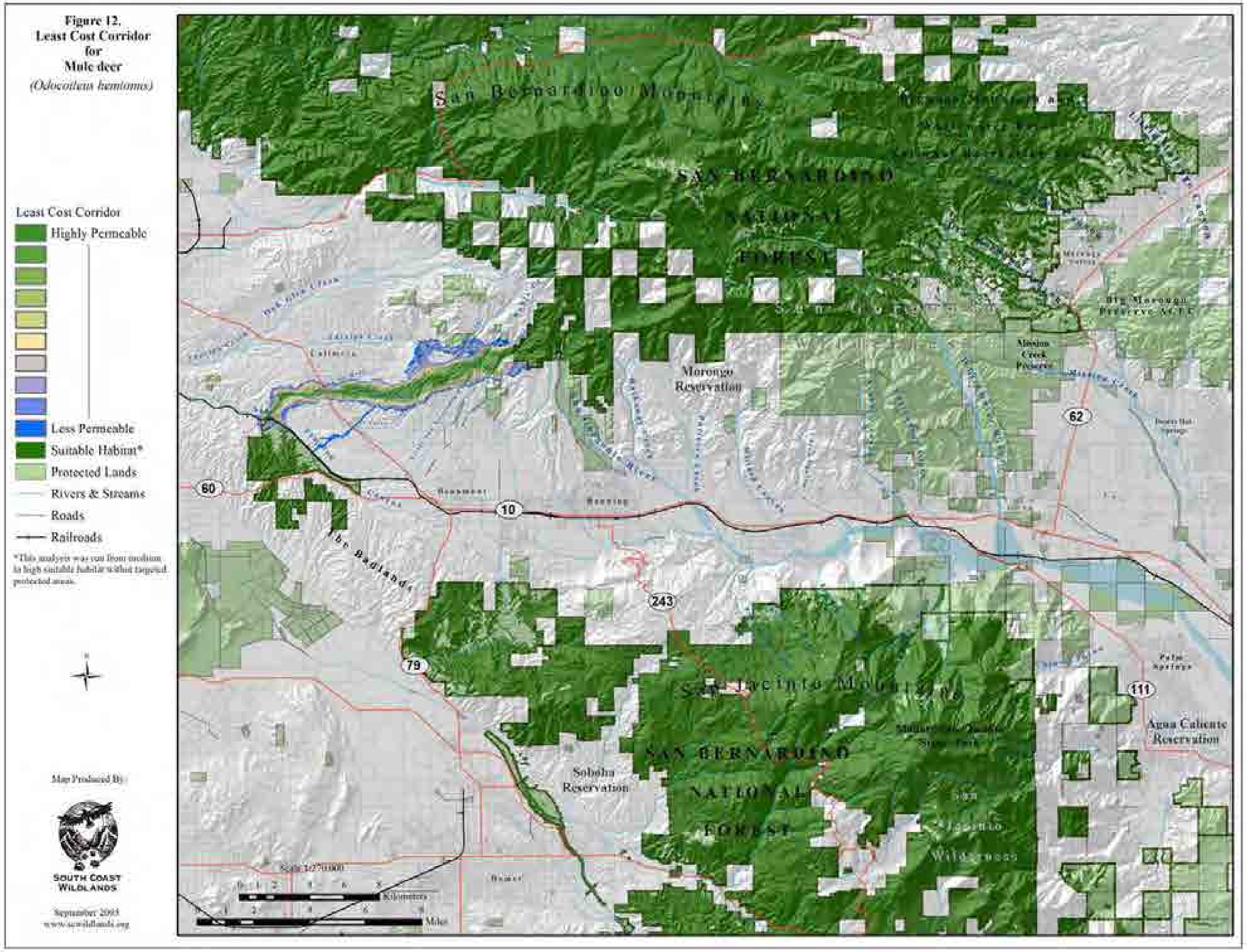


Figure 12.
Least Cost Corridor
for
Mule deer
(Odocoileus hemionus)
Least Cost Corridor
Highly Permeable
Less Permeable
Suitable Habitat*
Protected Lands
Rivers & Streams
Roads
Railroads
*This analysis was run from medium to high suitable habitat within targeted protected areas.
Map Produced By:
SOUTH COAST WILDLANDS
September 2005
www.scwildlands.org
San Bernardino Mountains
SAN BERNARDINO
NATIONAL
FOREST
Morongo
Reservation
Mission
Creek
Preserve
Big Morongo
Preserve ACEC
The Badlands
60
10
62
243
79
111
San Jacinto Mountains
SAN BERNARDINO
NATIONAL
FOREST
Soboba
Reservation
Agua Caliente
Reservation
San
Jacinto
Wilderness
Kilometers
Miles

P-13.7
(Cont.)

Pacific kangaroo rat (*Dipodomys agilis*)


USGS, Biological Resource Division

Justification for Selection: The Pacific kangaroo rat is sensitive to habitat loss and fragmentation. Kangaroo rats may cross some roads but have difficulty navigating wide roads and other barriers (e.g., freeways, agricultural fields and urban areas) and are highly susceptible to roadkill. Kangaroo rats may avoid areas with artificial night lighting due to elevated predation risks. This species is generally more tolerant of tree or shrub cover, and probably better able to navigate through denser vegetation than some other kangaroo rat species (W. Spencer, pers. comm.).

Conceptual Basis for Model Development: The Pacific kangaroo rat is associated with a variety of habitats, including open stages of coastal sage scrub, chaparral, oak woodland, pinyon-juniper woodland, desert scrub, and annual grassland (Bleich and Price 1995, W. Spencer pers. comm.). They've also been recorded in alluvial fan sage scrub (Price et al. 1991) and montane coniferous forests (Sullivan and Best 1997). This species prefers more open areas and is particularly abundant in ecotonal habitats (M'Closkey 1976, Price and Kramer 1984, Keeley and Keeley 1988, Price et al. 1991, Goldingay and Price 1997). **P-13.7 (cont.)**

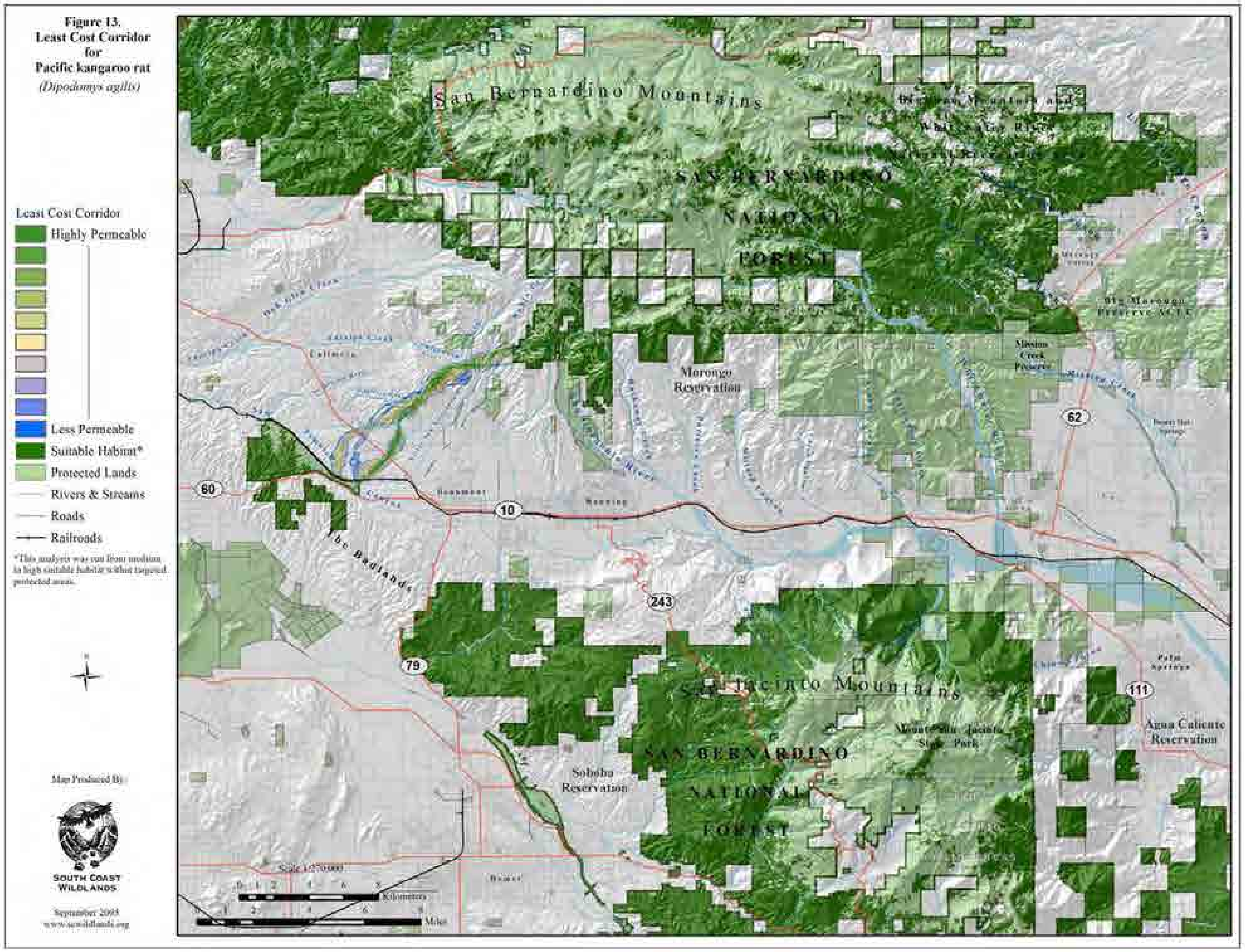
This kangaroo rat tends to be more mobile than most rodents of its size, and more so than other kangaroo rats. Most information on movements and ecology are very similar to Merriam's kangaroo rat, although with less supporting literature (W. Spencer pers. comm.). Merriam's kangaroo rat typically remains within 1-2 territories (100 m [330 ft] or so) of their birthplace, but the species is capable of longer dispersal. Zeng and Brown (1987) recorded long-distance (= dispersal) movements in adult Merriam's kangaroo rats, concluding that they are opportunistic in moving into newly available territory areas.

The Pacific kangaroo rat preferentially moves through open habitat in early successional communities. They avoid roads, densely vegetated communities, and urban areas. Please see Table 2 for model variable scorings for this species. Cost to movement for Pacific kangaroo rat was defined by weighting these inputs as follows:

(Vegetation * 70%) + (Road Density * 10%) + (Topography * 10%) + (Elevation * 10%)

Results & Discussion: The most permeable path for Pacific kangaroo rat closely resembles the output for mule deer (Figure 13). The least cost corridor follows the same pathway as mule deer for approximately 6 km (3.7 mi), but then branches to include El Casco Canyon and upland habitats between El Casco and Little San Gorgonio Creek before entering San Timoteo Canyon and the Badlands.

Comment P-13



P-13.7
(Cont.)

P-13.7
(cont.)

Patch Size & Configuration Analyses

Although, the permeability models and Least Cost Union delineate swatches of habitat that based on model assumptions and available GIS data are best suited to facilitate species movement between core habitat areas, it does not address whether suitable habitat in the Union occurs in large enough patches to support viable populations or whether patches are close enough together to allow for inter-patch dispersal; and they are based on only 4 of the 22 focal species. We therefore perform habitat suitability, patch size and configuration analyses to evaluate the configuration and extent of potentially suitable habitat in the Least Cost Union for all 22 focal species. This helps determine whether there is sufficient habitat within the Union to support each species, and whether that habitat is distributed in a pattern that allows the species to move between patches.

Specifically, the patch size and configuration analyses for all 22 focal species addresses, (1) whether the Least Cost Union provides sufficient live-in or move-through habitat to support individuals or populations of the species; (2) whether these habitat patches are within the species' dispersal distance; (3) whether any clearly unsuitable and non-restorable habitat (e.g., developed land) should be deleted from the Union; and (4) for any species not adequately served by the Least Cost Union, whether expanding the Union to incorporate more habitat would meet the species needs. The patch size and configuration analyses do not address existing barriers to movement (such as freeways) or land use practices that may prevent species from moving through the linkage. These issues are addressed in the next section.

The Least Cost Union contains suitable habitat to support either inter- or intra-generational movements between the targeted core areas for 9 of the 22 modeled focal species: mountain lion, mule deer, badger, Pacific kangaroo rat, rock wren, speckled rattlesnake, tarantula hawk, metalmark butterfly, and green hairstreak butterfly. Model outputs suggest that the Union contains sufficient potential habitat to support populations of some species, or that patches are spaced close enough together to allow stepping-stone movement between core areas for others. The Union has little or no suitable habitat for California spotted owl and pygmy nuthatch, which are associated with montane hardwood and conifer habitats. However, these species may occasionally cross the linkage between mountain ranges. The patch configuration analyses suggest that some inter-patch distances may be too great for 4 of the focal species: large-eared woodrat, pygmy nuthatch, wrentit, and coast horned lizard. However, over many generations weather events can increase the likelihood of colonization from distant patches. Eleven focal species were determined to require habitat outside of the Least Cost Union, though there was significant overlap in the additional habitats required to meet their needs (Figure 14). **P-13.7 (cont.)**

Species that require habitat outside of the Least Cost Union to protect the long term viability of populations include antelope ground squirrel, large-eared woodrat, Merriam's kangaroo rat, little pocket mouse, wrentit, chaparral whipsnake, coast horned lizard, California treefrog, California sagebrush, white alder, and the slender-horned spineflower. Habitat was added to the Union in 6 general areas to ensure that the Linkage Design accommodates each focal species (Figure 14):

San Gorgonio River & Hathaway Canyon: This habitat addition protects a key movement corridor and natural hydrological and fluvial processes, as well as preserving live-in habitat for several species. The landscape permeability analysis for badger utilized portions of the San Gorgonio River and Hathaway Canyon to move between ranges. Riparian and upland habitats were added to the Union in upper Hathaway Canyon and along the River to its confluence with the Whitewater River to meet the habitat and movement requirements of the antelope ground squirrel, little pocket mouse, Merriam's kangaroo rat, coast horned lizard, California treefrog, California sagebrush, and the endangered slender-horned spineflower. The minimum width of 2 km was imposed here to ensure that the functional processes of the linkage are protected. While this habitat addition provides an essential east-west connection for several focal species, it also helps maintain evolutionary pathways for several unique subspecies. This addition will also help to maintain the fluvial processes necessary for sustaining habitats in the linkage, which will benefit numerous species, including those not specifically addressed by our analyses, such as the endangered Coachella Valley fringe-toed lizard and the Coachella Valley milk-vetch.

Foothills of the San Jacinto Mountains: This addition was particularly important for 6 focal species associated with coastally influenced habitats: slender-horned spineflower, California sagebrush, chaparral whipsnake, coast horned lizard, large-eared woodrat, and wrentit. Many other species that utilize coastal scrub habitats (e.g., mountain lion, mule deer, rock wren, tarantula hawk, green hairstreak butterfly) will also benefit from this addition. The minimum width of 2 km makes the linkage more robust to edge effects and provides adequate configuration of suitable habitat for these species.

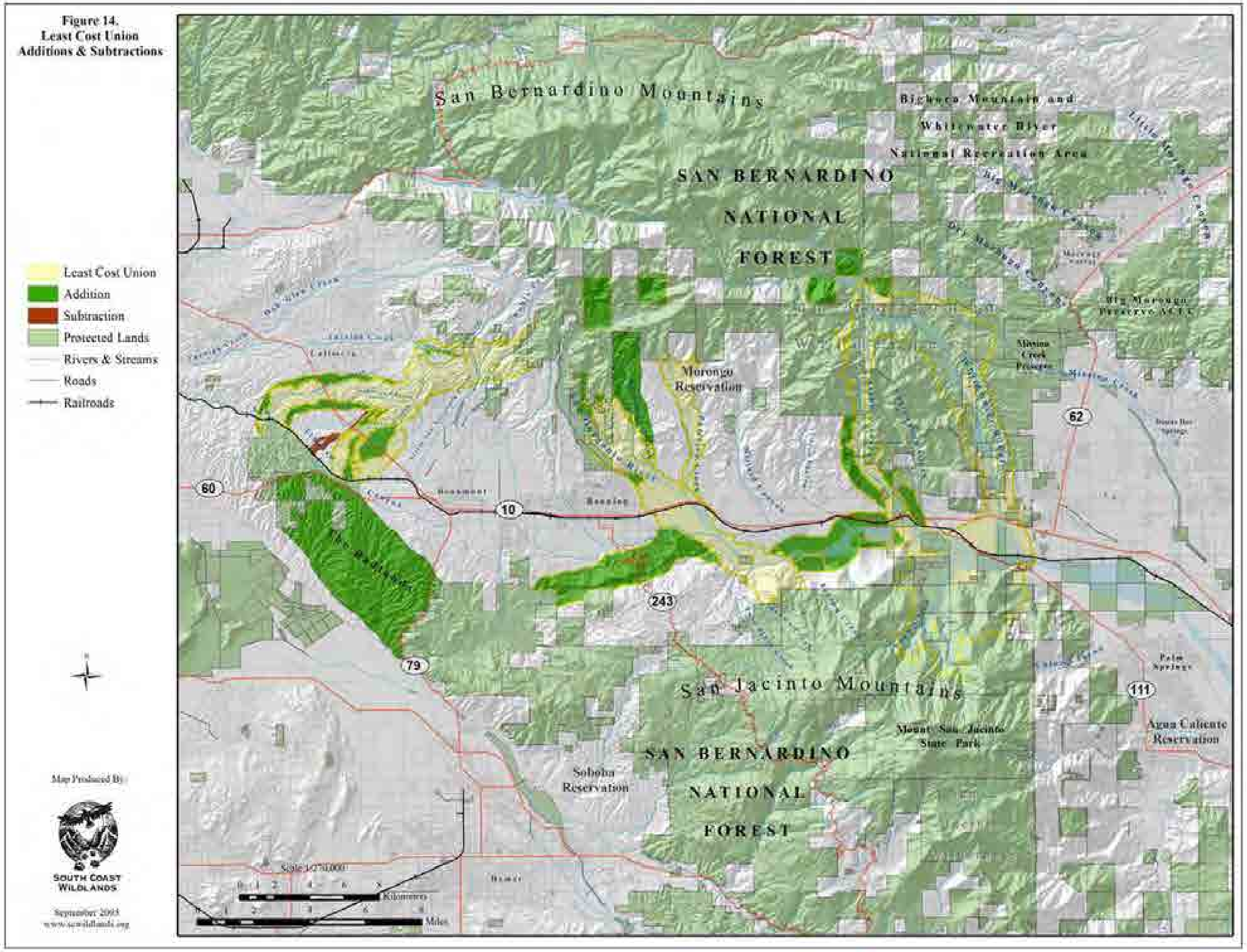
Stubbe Canyon: The Union was also modified to include upland habitats along Stubbe Canyon to meet the minimum corridor width of 2 km and to accommodate orthogonal species (i.e., species with little habitat in targeted core areas but living within the linkage), such as little pocket mouse, Merriam's kangaroo rat, and antelope ground squirrel. This addition was also necessary for 2 species with riparian movement needs (California treefrog and white alder), as it provides a secondary riparian connection between ranges in addition to the Whitewater River. This addition to the Union also provides the only suitable habitat in the linkage for California spotted owl and pygmy nuthatch. Numerous other focal species will also benefit from this addition. **P-13.7 (cont.)**

Garden Air Wash & El Casco Canyon: Though most of the land outside of the western branch of the Union has largely been converted, the minimum width of 2 km was imposed here to ensure that the functional processes of the linkage are protected.

Badlands: We added a 4 km wide and 8 km long swath of natural habitats linking existing protected lands in the Badlands. This addition will benefit virtually all focal species and provides significant core areas for multiple species reliant on coastal sage scrub habitats.

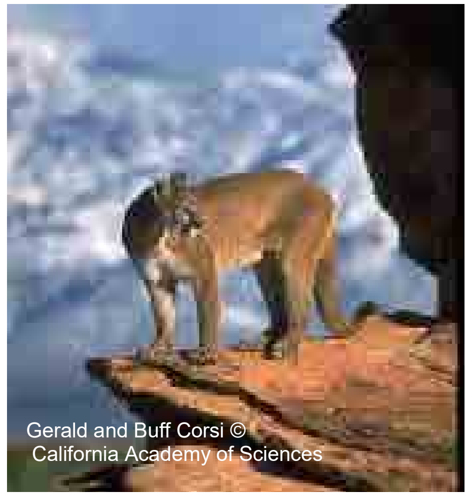
Forest Service Inholdings: The Union was modified to include riparian and upland habitats in the upper watersheds of the San Gorgonio and Whitewater rivers to ensure the integrity of the targeted core habitat in the San Bernardino Mountains is protected. Several focal species will benefit from this addition including mountain lion, badger, mule deer, Pacific kangaroo rat, large-eared woodrat, spotted owl, pygmy nuthatch, and wrentit.

Comment P-13



P-13.7
(Cont.)

Mountain lion (*Puma concolor*)



Distribution & Status: Mountain lions (also known as puma or cougar) are widely distributed throughout the western hemisphere (Chapman and Feldhamer 1982, Currier 1983, Maehr 1992, Tesky 1995). The subspecies *P. c. californica* occurs in southern Oregon, California, and Nevada (Hall 1981), typically between 590-1,780 m (1,980 and 5,940 ft) in elevation (Zeiner et al. 1990). In 1990, the mountain lion population in California was estimated to be between 2,500-5,000 individuals (Zeiner et al.). That same year, Proposition 117 was passed which prohibited hunting and granted puma the status of a California Specially Protected species, though depredation permits are still issued (Torres 2000).

Habitat Associations: The mountain lion is a habitat generalist, utilizing many brushy or forested habitats providing good cover (Spowart and Samson 1986, Zeiner et al. 1990). They use rocky cliffs, ledges, and vegetated ridgetops that provide cover when hunting prey (Chapman and Feldhamer 1982, Spowart and Samson 1986), especially mule deer, *Odocoileus hemionus* (Lindzey 1987). Den sites may be located on cliffs, rocky outcrops, caves, in dense thickets, or under fallen logs (Ingles 1965, Chapman and Feldhamer 1982). In southern California, most cubs are reared in thick brush (Beier et al. 1995). They prefer vegetated ridgetops and stream courses as travel corridors and hunting routes (Spowart and Samson 1986, Beier and Barrett 1993). **P-13.7 (cont.)**

Spatial Patterns: Home range size varies by sex, age, and the distribution of prey. A recent study in the Sierra Nevada documented annual home range sizes between 250 and 817 km^2 (315 mi^2; Pierce et al. 1999). Home ranges in southern California averaged 93 km^2 (36 mi^2) for 12 adult females and 363 km^2 (140 mi^2) for 2 adult males (Dickson et al. 2004). Male home ranges appear to reflect the density and distribution of females (Maehr 1992). Males occupy distinct areas and are tolerant of transients of both sexes, while the home range of females may overlap completely (Zeiner et al. 1990, Beier and Barrett 1993). Regional population counts have not been conducted but in the Santa Ana Mountain Range, Beier (1993) estimated about 1.05-1.2 adults per 100 km^2 (39 mi^2).

Mountain lions are capable of long-distance movements, and often move in response to changing prey densities (Pierce et al. 1999). Beier et al. (1995) found mountain lions moved 6 km (3.7 mi) per night and dispersed up to 65 km (40 mi). Dispersal plays a crucial role in cougar population dynamics, because recruitment into a local population occurs mainly by immigration of juveniles from adjacent populations, while the population's own offspring emigrate to other areas (Beier 1995, Sweanor et al. 2000). Juvenile dispersal distances average 32 km (20 mi) for females and 85 km (53 mi) for males, with one male dispersing 274 km (170 mi; Anderson et al. 1992). Dispersing lions may cross large expanses of nonhabitat, though they prefer not to do so (Logan and Sweanor 2001). To allow for dispersal of juveniles and the immigration of transients, lion management should be done on a regional basis (Sweanor et al. 2000).

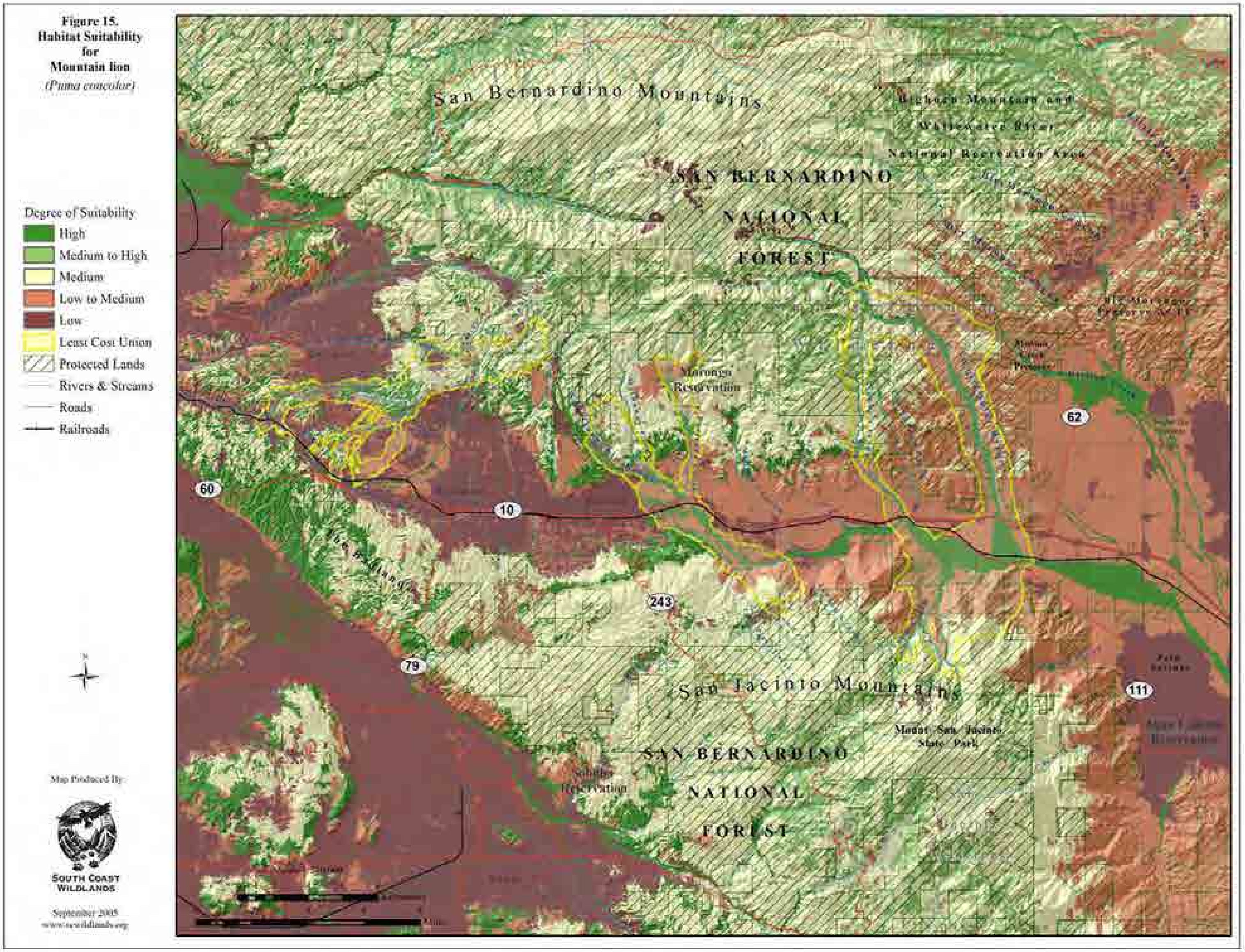
Conceptual Basis for Model Development: Puma will use most habitats above 590 m (1,936 ft) elevation provided they have cover (Spowart and Samson 1986, Zeiner et al. 1990). Road density is also a significant factor in habitat suitability for mountain lions. Core areas potentially supporting 50 or more individuals were modeled using patches $\geq$ 10,000 km^2 (3,861 mi^2). Patch size was classified as $\geq$ 200 km^2 (77 mi^2) but < 10,000 km^2. Dispersal distance for puma was defined as 548 km (340 mi), or twice the maximum reported dispersal distance of 274 km (170 mi).

Results & Discussion*:* Extensive habitat exists for mountain lion in the San Bernardino and San Jacinto mountains and the Badlands (Figure 15). The easternmost branch of the Least Cost Union contains the most highly suitable contiguous habitat for mountain lion between protected core areas, though the western and central branches of the Union may also provide secondary connections. The least cost corridor (Figure 10) follows the Whitewater River and Stubbe Canyon, which was expected given their preference for using stream courses as travel corridors (Spowart and Samson 1986, Beier and Barrett 1993). The patch size analysis (Figure 16) emphasizes the importance of maintaining connectivity between these ranges, as neither the San Bernardino nor San Jacinto Mountains are large enough (> 10,000 km^2) to support a core population. All potential cores and patches of suitable habitat are within puma's dispersal distance (figure not shown). We conclude that the Union is likely to serve puma if habitat is added to the Union to meet the minimum corridor width of 2 km and habitat restoration efforts are undertaken in the Whitewater River.

This species requires expansive roadless areas to survive and functional connectivity between subpopulations. Maintaining connections between large blocks of protected habitat may be the most effective way to ensure population viability (Beier 1993, 1995, Gaona et al. 1998, Riley et al. 2003). To maintain and protect habitat connections for mountain lion between the targeted protected areas, we recommend that: **P-13.7 (cont.)**

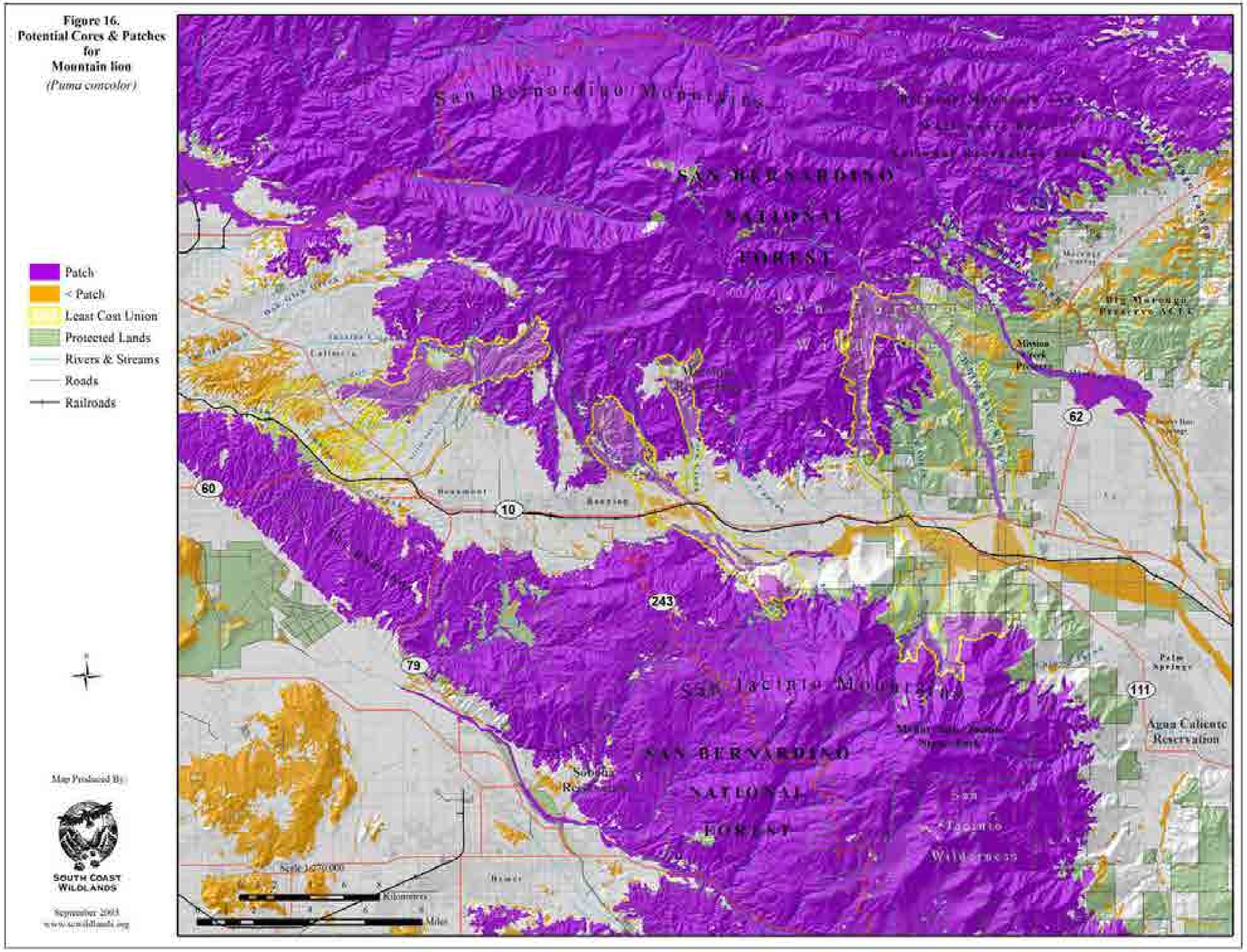
- Habitat restoration is initiated in Whitewater River to re-establish a gallery forest along the length of the river to its confluence with the San Gorgonio River.
- Existing road density be maintained or reduced in the Linkage Design.
- Lighting is directed away from the linkage and crossing structures. Species sensitive to human disturbance, like puma, avoid areas that are artificially lit (Beier 1995).
- Local residents are informed about: the value of carnivores to the system; the use of predator safe enclosures for domestic livestock and pets; and the habits of being thoughtful and safe stewards of the land.

Comment P-13



P-13.7
(Cont.)

Comment P-13



P-13.7
(Cont.)

American badger (*Taxidea taxus*)

Distribution & Status: Once a fairly widespread resident in open habitats of California, the badger is now uncommon throughout the state and is a California Species of Special Concern (Zeiner et al. 1990, CDFG 1995).

Habitat Associations: Badgers are habitat specialists, associated with grasslands, prairies, and other open habitats (de Vos 1969, Banfield 1974, Sullivan 1996) but they may also be found in drier open stages of shrub and forest communities (Zeiner et al. 1990). They are known to inhabit forest and mountain meadows, marshes, riparian habitats, and desert communities including creosote bush, juniper, and sagebrush habitats (Long and Killingley 1983, Zeiner et al. 1990). They are occasionally found in open chaparral (< 50% cover) but haven't been documented in mature stands of chaparral (Quinn 1990, Zeiner et al. 1990). Badgers prefer friable soils for excavating burrows and require abundant rodent populations (de Vos 1969, Banfield 1974, Sullivan 1996). The species is typically found at lower elevations (Zeiner et al. 1990) in flat, rolling, or steep terrain but it has been recorded at elevations up to 3,600 m (12,000 ft; Minta 1993).

Spatial Patterns: Home range sizes for this species vary both geographically and seasonally. Depending on location, male home ranges have been estimated to vary from 240-850 ha (593-2,100 ac) while female home ranges are from 137-725 ha (339-1,792 ac; Long 1973, Lindzey 1978, Messick and Hornocker 1981, Zeiner et al. 1990). In northwestern Wyoming, home ranges up to 2,100 ha (5,189 ac) have been reported (Minta 1993). In Idaho, home ranges of adult females and males averaged 160 ha (395 ac) and 240 ha (593 ac) respectively (Messick and Hornocker 1981). In Minnesota, Sargeant and Warner (1972) radio-collared a female badger, whose overall home range encompassed 850 ha (2,100 ac). However, her home range was restricted to 725 ha (1,792 ac) in summer, 53 ha (131 ac) in autumn and to a mere 2 ha (5 ac) in winter. In Utah, Lindzey (1978) found fall and winter home ranges of females varied from 137-304 ha (339-751 ac), while males varied from 537-627 ha (1,327-1,549 ac). Males may double movement rates and expand their home ranges during the breeding season to maximize encounters with females (Minta 1993). Lindzey (1978) documented natal dispersal distance for one male at 110 km (68 mi) and one female at 51 km (32 mi). **P-13.7 (cont.)**

Conceptual Basis for Model Development: Badgers prefer grasslands, meadows, open scrub, desert washes, and open woodland communities. Terrain may be flat, rolling or steep, but below 3,600 m (12,000 ft) elevation. Core areas capable of supporting 50 badgers are equal to or greater than 16,000 ha (39,500 ac). Patch size is $\geq$ 400 ha (990 ac) but < 16,000 ha. Dispersal distance for badgers was defined as 220 km (136 mi), twice the longest recorded dispersal distance (Lindzey 1978).

Results & Discussion: The model identified vast amounts of suitable badger habitat in the Least Cost Union, with the most highly suitable contiguous habitat captured in the central and eastern branches of the Union, which are dominated by desert scrub and desert wash habitats (Figure 17). The least cost corridor for badger (Figure 11) delineated the central branch of the Union. The majority of suitable habitat within the planning area is contiguous, and thus was identified as core habitat for this species (Figure 18). All potential suitable habitat patches are within badger's dispersal distance (figure not shown), although barriers to movement may exist between suitable habitat patches. The linkage is likely to serve the movement needs of this wide-ranging species; although habitats added for other focal species will also benefit badger.

Road kill is a primary cause of death for badgers. To restore and protect habitat connections for badger, we recommend that:

- Existing road density be maintained or reduced in the Linkage Design.
- Fencing be installed along freeways to guide badgers to passageways.
- Lighting is directed away from the linkage and crossing structures.

P-13.7
(cont.)

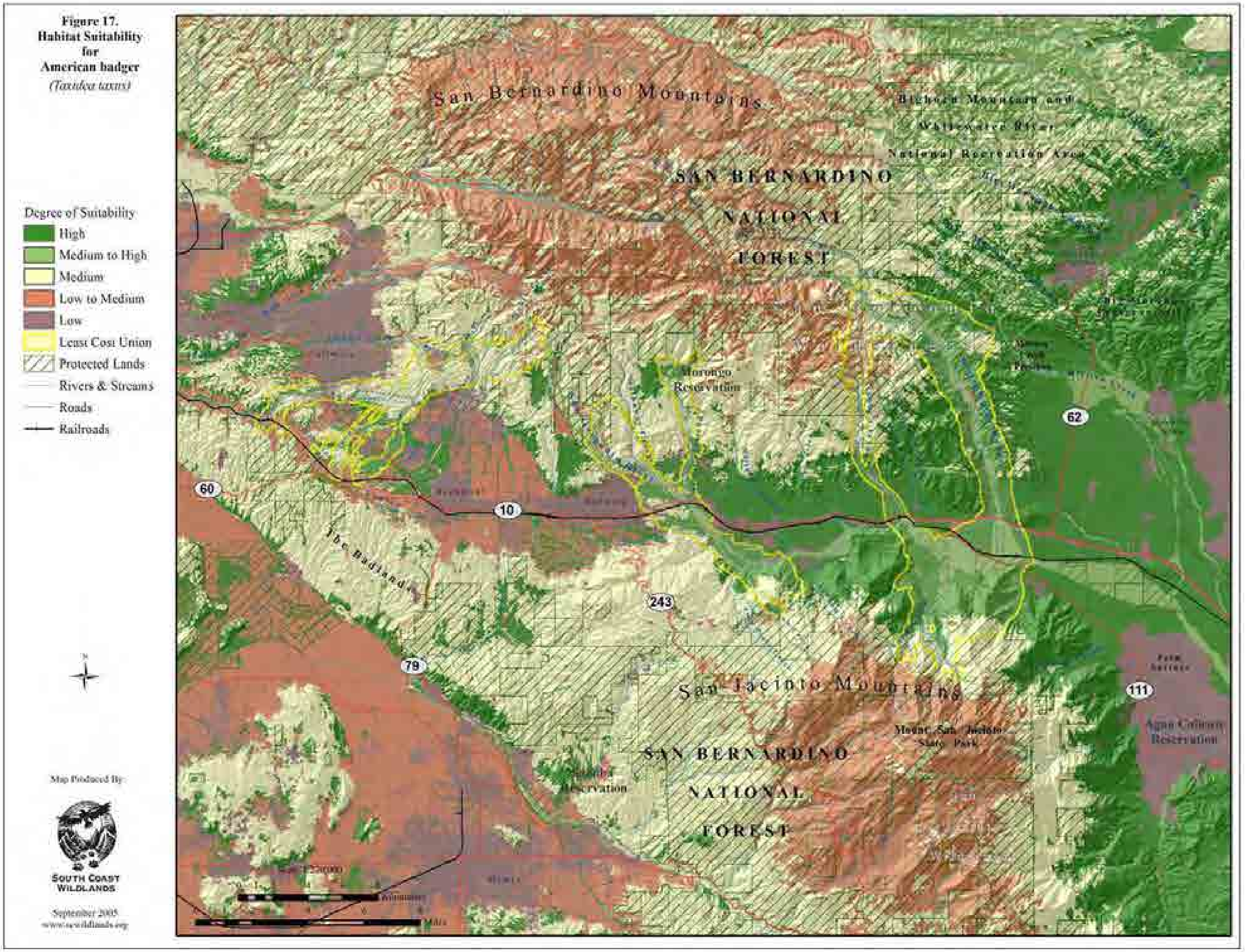
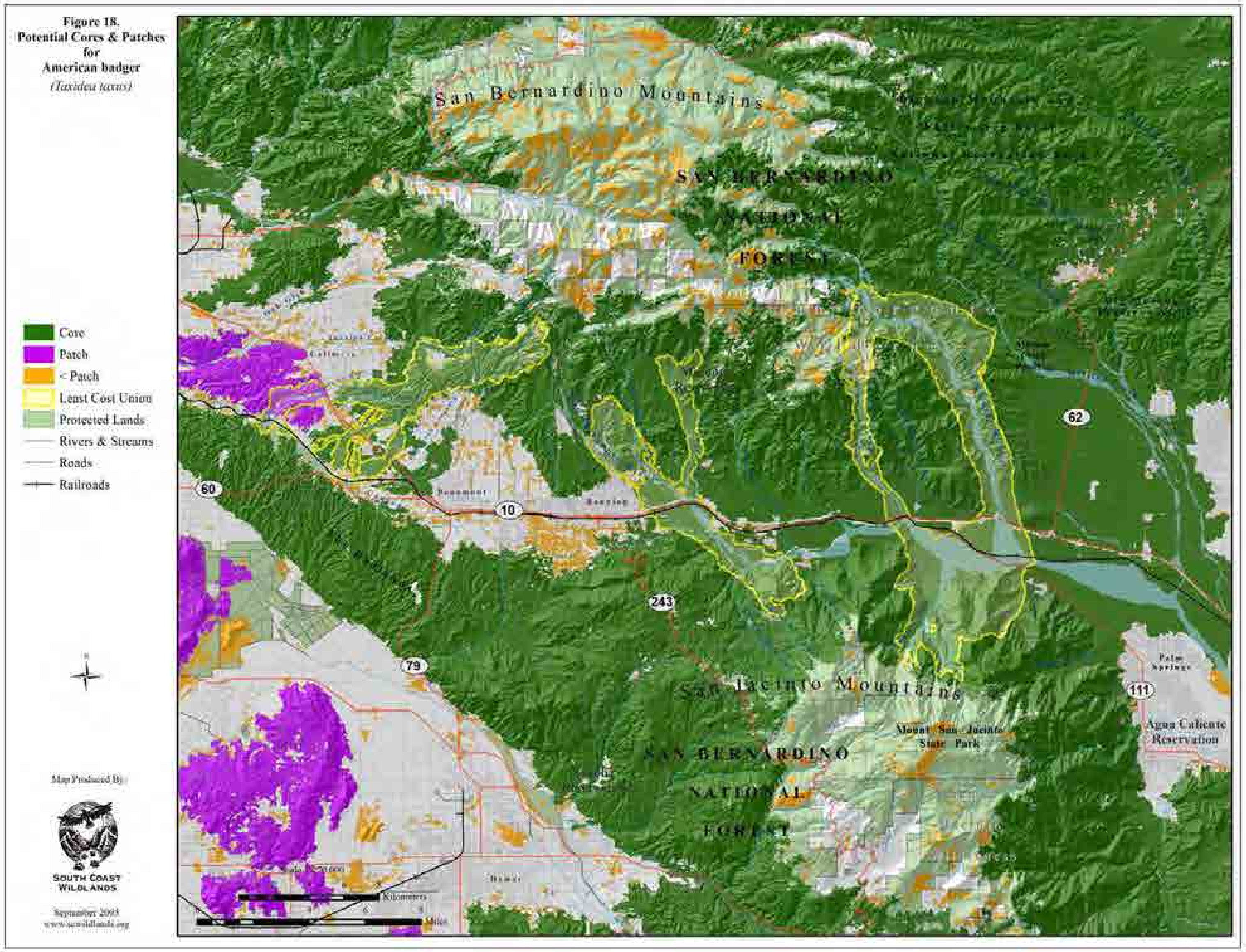


Figure 17.
Habitat Suitability
for
American badger
(Taxidea taxus)

P-13.7
(Cont.)

Comment P-13



P-13.7
(Cont.)

Mule deer (*Odocoileus hemionus*)

Distribution & Status: Mule deer are widespread in California and are common to abundant in appropriate habitat. They are absent from areas with no cover (Longhurst et al. 1952, Ingles 1965, Zeiner et al. 1990). Mule deer are classified by CDFG as a big game animal.

Habitat Associations: This species requires a mosaic of habitat types of different age classes to meet its life history requirements (CDFG 1983). They use forest, woodland, brush, and meadow habitats, reaching their highest densities in oak woodlands, riparian areas, and along edges of meadows and grasslands (Bowyer 1986, USFS 2002). They also occur in open scrub, young chaparral and low elevation coniferous forests (Bowyer 1981, 1986, USFS 2002). A variety of brush cover and tree thickets interspersed with meadows and shrubby areas are important for food and cover. Thick cover can provide escape from predators, shade in the summer, or shelter from wind, rain and snow. Varying slopes and topographic relief are important for providing shade or exposure to the sun. Fawning occurs in moderately dense chaparral, forests, riparian areas, and meadow edges (CDFG 1983). Meadows are particularly important as fawning habitat (Bowyer 1986, USFS 2002).

P-13.7
(cont.)

Spatial Patterns: Home ranges typically comprise a mosaic of habitat types that provide deer with various life history requirements. Home range estimates vary from 39 ha (96 ac; Miller 1970) to 3,379 ha (8,350 ac; Severson and Carter 1978, Anderson and Wallmo 1984, Nicholson et al. 1997). Harestad and Bunnell (1979) calculated mean home range from several studies as 285 ha (705 ac). Doe and fawn groups have smaller home ranges, averaging 100-300 ha (247-741 ac), but can vary from 50 to 500 ha (124-1,236 ac; Taber and Dasmann 1958, CDFG 1983). Bucks usually have larger home ranges and are known to wander greater distances (Brown 1961, Zeiner et al. 1990). A recent study of 5 different sites throughout California recorded home range sizes from 49 to 1,138 ha (121-2,812 ac; Kie et al. 2002).

Where deer are seasonally nomadic, winter and summer home ranges tend to largely overlap in consecutive years (Anderson and Wallmo 1984). Elevational migrations are observed in mountainous regions in response to extreme weather events in winter, or to seek shade and perennial water during the summer (Loft et al. 1998, CDFG 1983, Nicholson et al.1997, USFS 2002). Distances traveled between winter and summer ranges vary from 8.6 to 29.8 km (5.3-19 mi; Gruell and Papez 1963, Bertram and Rempel 1977, Anderson and Wallmo 1984, Nicholson et al. 1997). Robinette (1966) observed natal dispersal distances ranging from 97 to 217 km (60-135 mi).

Conceptual Basis for Model Development: Mule deer utilize a broad range of habitats, reaching their highest densities in oak woodlands. They require access to perennial water. Core areas potentially supporting 50 or more deer are equal to or greater than 16,000 ha (39,537 ac). Patch size was classified as ≥ 100 ha (247 ac) but < 16,000 ha. Dispersal distance was defined as 434 km (270 mi), or twice the maximum distance recorded.

Results & Discussion: The western branch of the Least Cost Union contains the most suitable habitat for mule deer and also provides the most direct connection between their preferred habitats in the targeted protected areas (Figure 19). Extensive suitable core habitat was identified for mule deer in the San Bernardino and San Jacinto mountains and in the Badlands (Figure 20), with the most highly suitable habitat at mid elevations (Figure 19). All core areas and patches of suitable habitat are within the dispersal distance of this species (figure not shown), although barriers to movement may exist between suitable habitat patches. We conclude that the western branch of the linkage will likely serve the needs of mule deer traveling through the linkage, while the central branch of the Union may provide a secondary connection for this species.

Estimates of the number of deer killed annually on U.S. roads ranges from 720,000 to 1.5 million (Romin and Bissonette 1996, Conover 1997, Forman et al. 2003). Collisions with deer also result in the loss of human lives (Reed et al. 1975). To restore and protect habitat connections for mule deer, we recommend that:

- Road barriers be modified to accommodate mule deer movement. Though ungulates much prefer overpasses to underpasses (Gloyne and Clevenger 2001), they will utilize bridged undercrossings if they can see clearly to the other side. Gloyne and Clevenger (2001) suggest underpasses for ungulates be at least 4 m high and 8 m wide, with an openness ratio of 0.9 (where the openness ratio = height x width/length). Crossing structures for mule deer should have natural flooring and no artificial lighting (Reed et al. 1975).

- Fencing (up to 4m [12 feet] high) be installed to reduce roadkill and guide deer to crossing structures; in conjunction with escape ramps being installed in case deer get caught in the roadway (Forman et al. 2003).

- Existing road density be maintained or reduced in the Linkage Design.

P-13.7
(cont.)

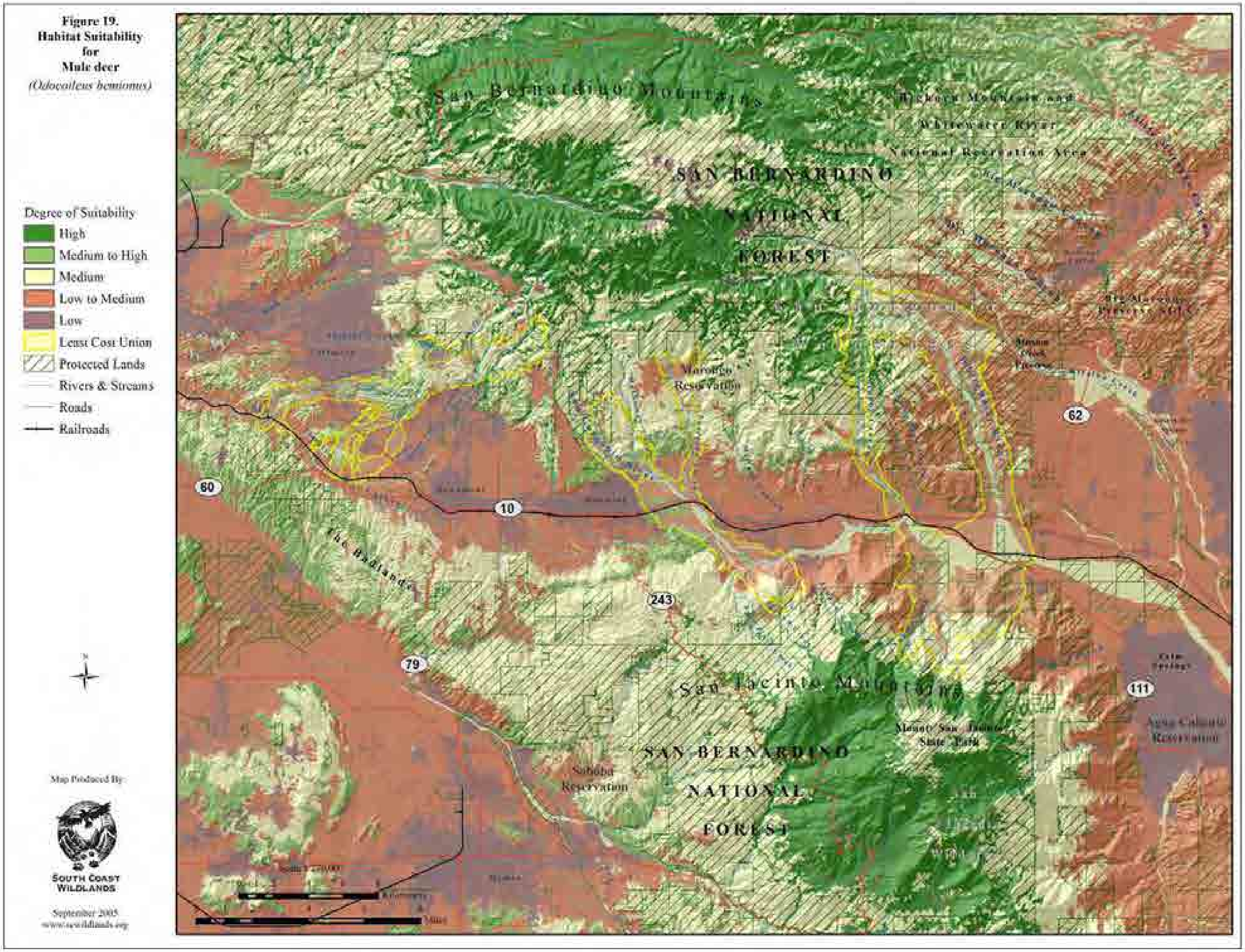
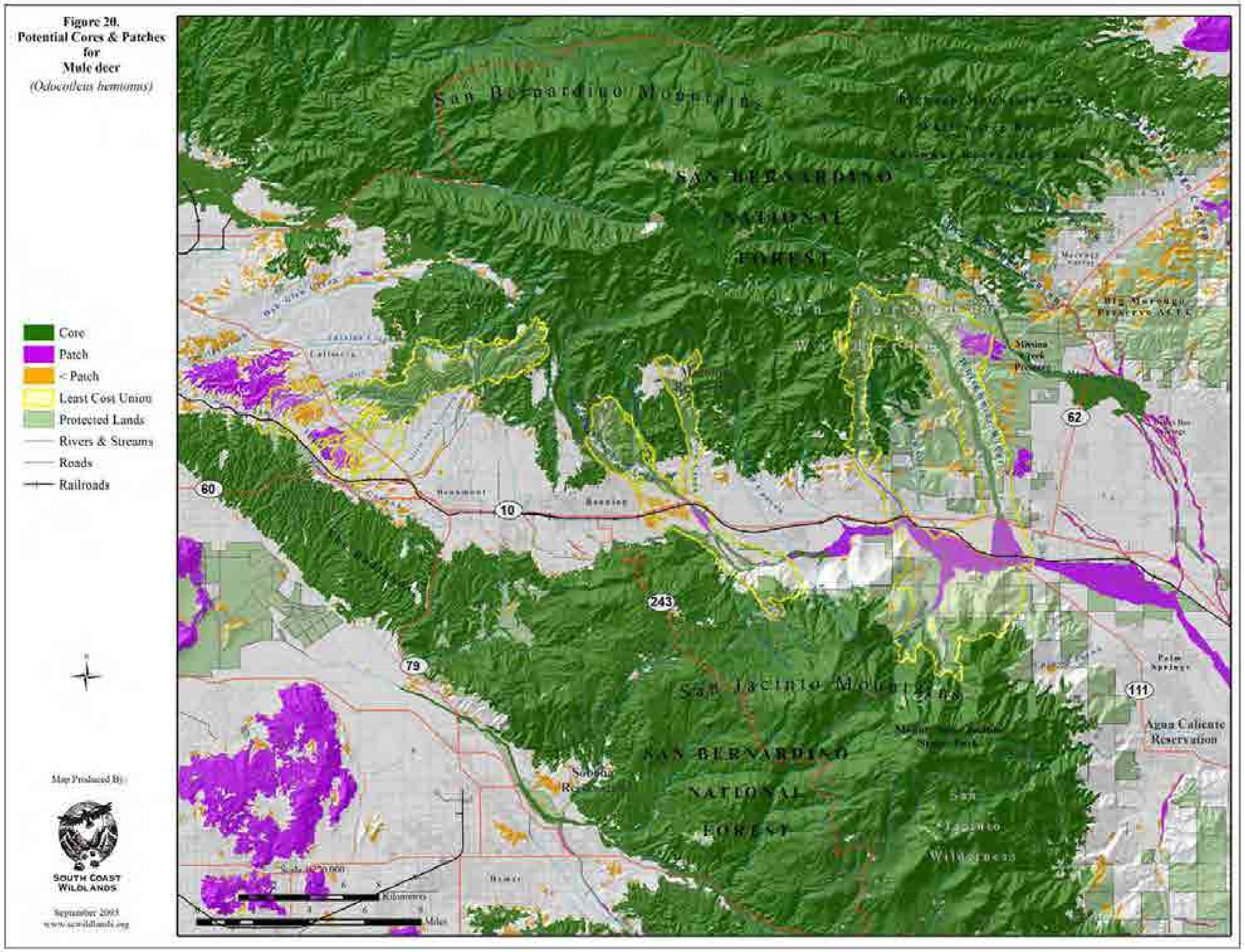


Figure 19.
Habitat Suitability
for
Mule deer
(Odocoileus hemionus)
Degree of Suitability
High
Medium to High
Medium
Low to Medium
Low
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
Map Produced By:
SOUTH COAST WILDLANDS
September 2005
San Bernardino Mountains
SAN BERNARDINO
NATIONAL
FOREST
Morongo Reservation
The Badlands
San Jacinto Mountains
Mount San Jacinto State Park
Soboba Reservation
Agua Caliente Reservation
60
10
62
243
79
111

P-13.7
(Cont.)

Comment P-13



P-13.7
(Cont.)

Antelope ground squirrel (*Ammospermophilus leucurus*)

Justification for Selection: The antelope ground squirrel may be a keystone species because its burrows are used by a wide variety of wildlife, including reptiles, insects, and other rodents.

Distribution & Status: Members of the genus *Ammospermophilus* are found in the xeric desert habitats of the southwestern United States and northern Mexico (USFWS 1998, USFS 2002). The antelope ground squirrel is one of five species in the genus (Best et al. 1990, USFS 2002). It is common to abundant in the Great Basin, Mojave, and Colorado deserts of California south to the Mexican border (Miller and Stebbins 1964, Ingles 1965, Bradley and Mauer 1973, Honeycutt et al. 1981, Jameson and Peeters 1988, Zeiner et al. 1990).

Habitat Associations: The most favorable habitats for the antelope ground squirrel are desert scrubs, sagebrush, bitterbrush, and Joshua tree and pinyon-juniper woodlands. They may also be found in desert riparian and desert wash habitats and to a lesser extent in mixed chaparral and annual grassland (Miller and Stebbins 1964, Ingles 1965, Bradley and Mauer 1973, Honeycutt et al. 1981, Zeiner et al. 1990). This species has lower water and energy requirements than non-desert mammals of similar size. Their ability to obtain succulent plant or animal foods throughout the year appears to be their primary survival tool (Nagy 1994). Friable soil for burrowing is a habitat requisite, as burrows are used to escape predators and severe temperatures in the desert environment (Grinnell and Dixon 1919, Bartholomew and Hudson 1961, Bradley 1967, Zeiner et al. 1990). Individuals may utilize numerous burrows within their home range.

P-13.7 (cont.)

Spatial Patterns: In Nevada, home range sizes varied from 1.4-9.4 ha (3.0-20.6 ac) (Allred and Beck 1963, Bradley 1967, Zeiner et al. 1990), with an average of 6.7 ha (14.8 ac; Allred and Beck 1963, Zeiner et al. 1990). Evidently, the antelope ground squirrel is non-territorial (Fisler 1976, 1977, Zeiner et al. 1990), although they occur widely scattered and not clustered in colonies (Jameson and Peeters 1988). No dispersal estimates were found for this species in the literature, though they can home from distances up to 1.6 km (1 mi; Bradley 1968, Zeiner et al. 1990).

Conceptual Basis for Model Development: Movement in the linkage is assumed to be multigenerational. The antelope ground squirrel is restricted to arid desert habitats. Potential core areas were identified as greater than or equal to 168 ha (415 ac). Patch size was classified as $\geq$ 3 ha (7.4 ac) but less than 168 ha. Dispersal distance was defined as 3.2 km (1.9 mi).

Results & Discussion: Extensive suitable habitat was identified for this species in the San Gorgonio Pass and on the desert facing slopes of the San Bernardino and San Jacinto Mountains, with very little suitable habitat in the targeted protected areas. As such, ensuring the persistence of the antelope ground squirrel in the linkage will help maintain the ecological integrity of the linkage over time. Only the western branch of the Least Cost Union contains no potentially suitable habitat for this species, while the easternmost branch contains the most extensive contiguous highly suitable habitat (Figure 21). The majority of suitable habitat was identified as potential core areas for this species, with the Whitewater River providing a connection to extensive core habitat on the desert facing slopes of both the San Bernardino Mountains and San Jacinto Mountains (Figure 22). All potential cores and patches of suitable habitat in the eastern part of the planning area are within the presumed dispersal distance for this species (figure not shown), although barriers to movement may exist between suitable habitat patches. The linkage will likely serve the needs of antelope ground squirrels traveling through or residing in the linkage if habitat is added to the Union in Stubbe Canyon and along the San Gorgonio River.

To protect and restore habitat for antelope ground squirrel, we recommend that road barriers be modified, where necessary, to allow the antelope ground squirrel safe passage across Interstate 10 and Highway 111.

P-13.7
(cont.)

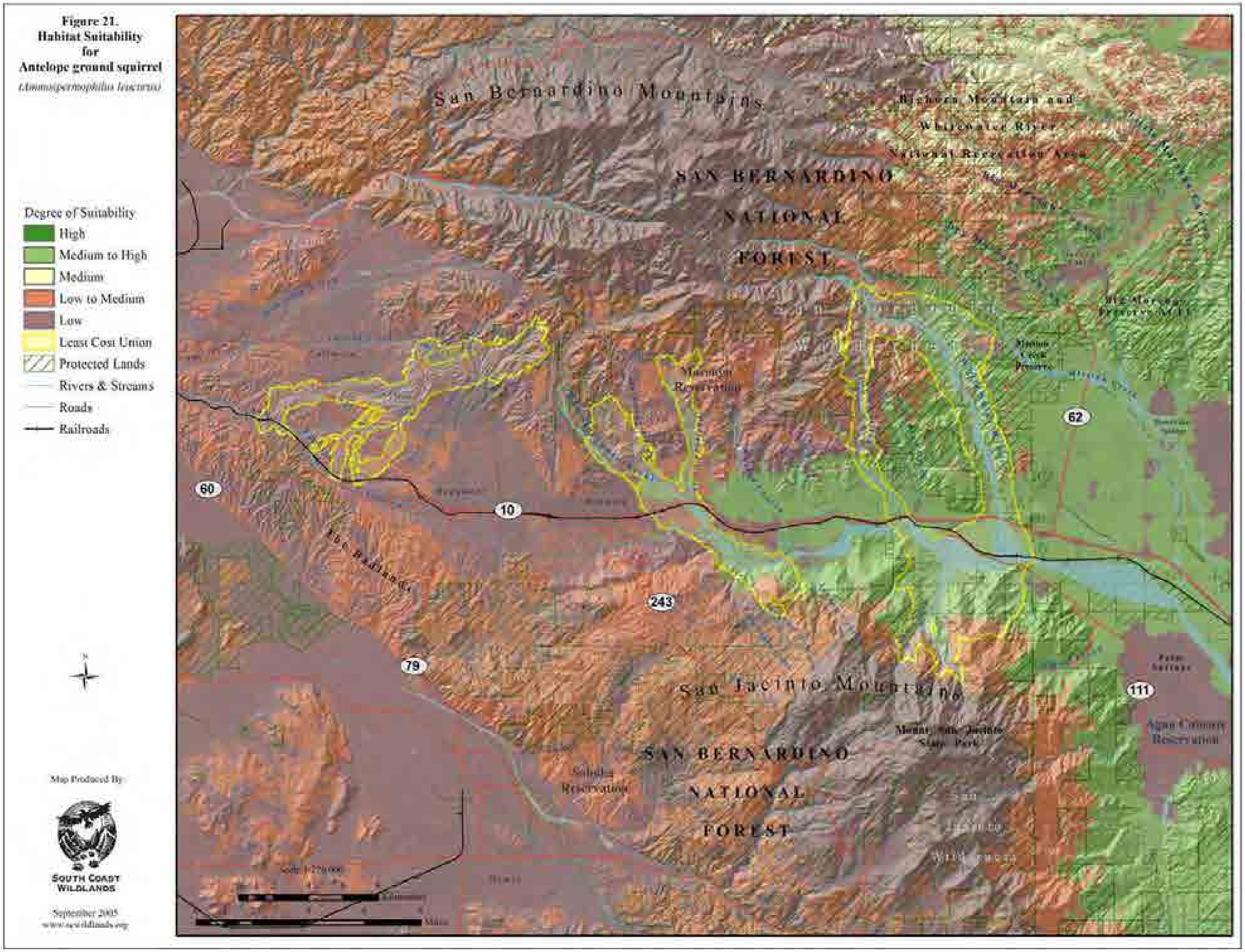
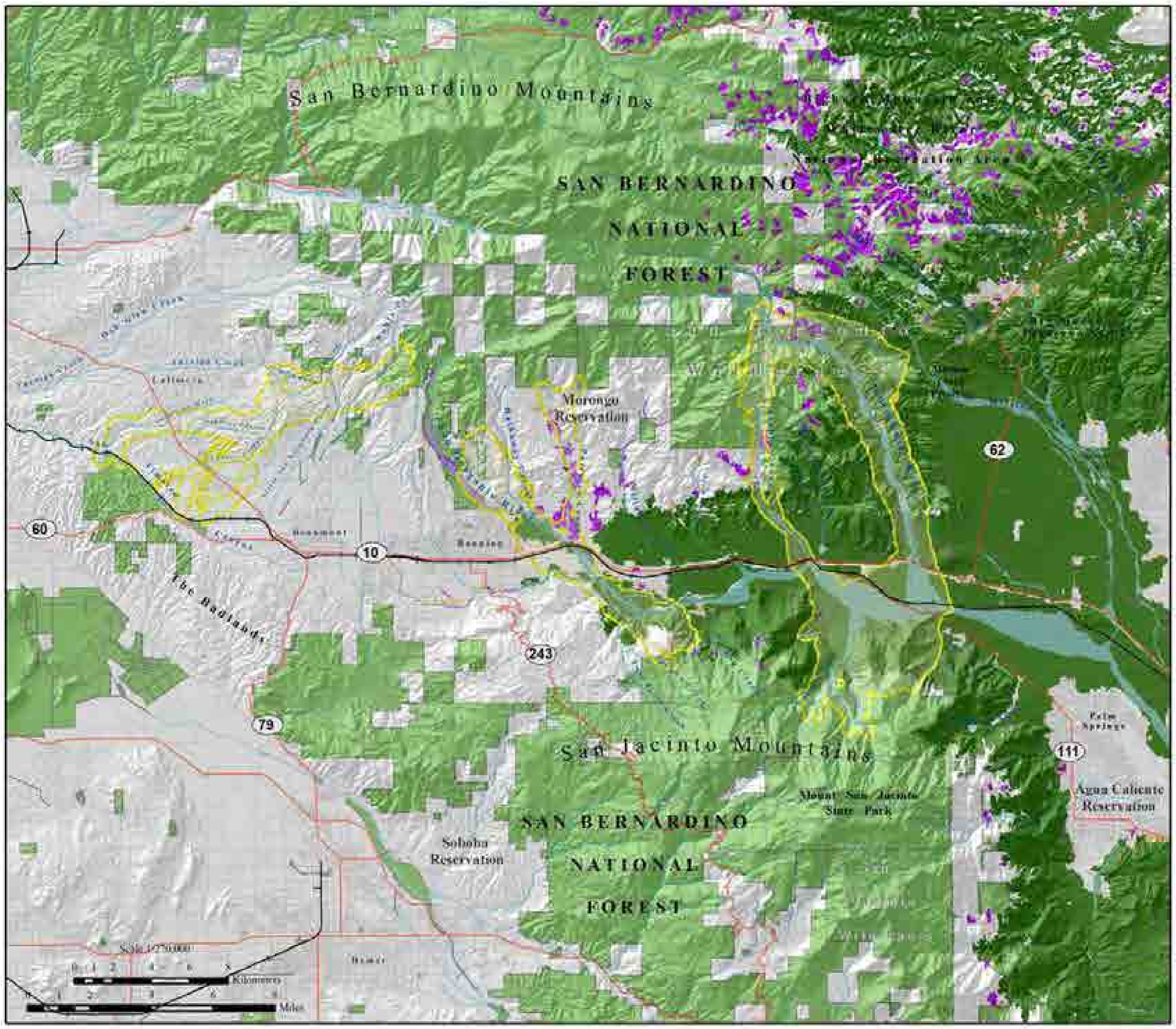


Figure 21.
Habitat Suitability
for
Antelope ground squirrel
(Ammospermophilus leucurus)
Degree of Suitability
High
Medium to High
Medium
Low to Medium
Low
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
San Bernardino Mountains
Bighorn Mountain and
Whitewater River
National Recreation Area
SAN BERNARDINO
NATIONAL
FOREST
Morongo
Reservation
62
60
10
The Badlands
243
79
San Jacinto Mountains
111
Mount San Jacinto
State Park
Agua Caliente
Reservation
Soboba
Reservation
SAN BERNARDINO
NATIONAL
FOREST
Map Produced By:
SOUTH COAST
WILDLANDS
September 2005

P-13.7
(Cont.)

Figure 22.
Potential Cores & Patches
for
Antelope ground squirrel
(Ammospermophilus leucurus)



P-13.7
(Cont.)

Large-eared woodrat (*Neotoma macrotis*)

Justification for Selection: Presence of the large-eared woodrat may be correlated with high species richness (Chase et al. 2000). This species is sensitive to habitat fragmentation.

Distribution & Status: This species of large-eared woodrat (*Neotoma macrotis*), which was recently elevated to full species status from a subspecies of *Neotoma fuscipes*; Matocq 2002a) is distributed in the southern Sierra Nevada and in the coastal mountains south from about Santa Cruz, into northern Baja California (Jameson and Peeters 1988, Matocq 2002b). They are typically associated with elevations below 2,150 m (7,000 ft; Brylski 1990).

Habitat Associations: The large-eared woodrat is a nocturnal, arboreal herbivore (Lindsale and Tevis 1951, Jameson and Peeters 1988, Sakai and Noon 1993) that inhabits chaparral, oak, and riparian woodlands, and mixed coniferous forests with a well-developed understory (Murray and Barnes 1969, Jameson and Peeters 1988, Stephenson and Calcarone 1999, Matocq 2002b). Woodrats are known for their large, multichambered dwellings built of branches, which they depend upon for shelter, storing food items, and refuge from predators (Carraway and Verts 1991, Matocq 2002a). Dens are often inherited between generations (Kelly 1989, Gerber et al. 2003). **P-13.7 (cont.)**

Spatial Patterns: Populations may be limited by the availability of nest-building materials (Linsdale and Tevis 1951, Brylski 1990). Population density may vary radically among sites, from greater than 80 individuals per hectare (2.5 ac) to 1.5 per hectare (Ward 1990, Sakai and Noon 1993). In Sonoma County, home range size of *Neotoma fuscipes* averaged 0.23 ha (0.58 ac) for males, and 0.19 ha (0.48 ac) for females (Brylski 1990). Cranford (1977) estimated male home range size at 2,289 m^2 (0.57 ac; Gerber et al. 2003). Sakai and Noon (1993) estimated female home range at 2,632 m^2 (0.65 ac), males at 5,338 m^2 (1.32 ac), with an average of 3,200 m^2 (0.79 ac). The largest home range recorded was 18.8 ha (46.2 ac) from Monterey (Bleich 1973, Brylski 1990). There is some overlap in home ranges during the breeding season (Jameson and Peeters 1988). Dispersal distance has been recorded at 217 m (712 ft; Sakai and Noon 1993).

Conceptual Basis for Model Development: Movement in the linkage is assumed to be multigenerational. Large-eared woodrats inhabit dense chaparral, and woodland communities, typically below 2,150 m elevation. Core areas were defined as $\geq$ 19.75 ha (49 ac). Patch size was defined as $\geq$ 0.38 ha (0.94 ac) and < 19.75 ha. Dispersal distance was defined as 434 m (1,424 ft).

Results & Discussion: Potential habitat for the large-eared woodrat largely follows the distribution of chaparral, coastal sage scrub, and oak woodland and riparian habitats in the planning area, with limited potential habitat in the San Gorgonio Pass (Figure 23).

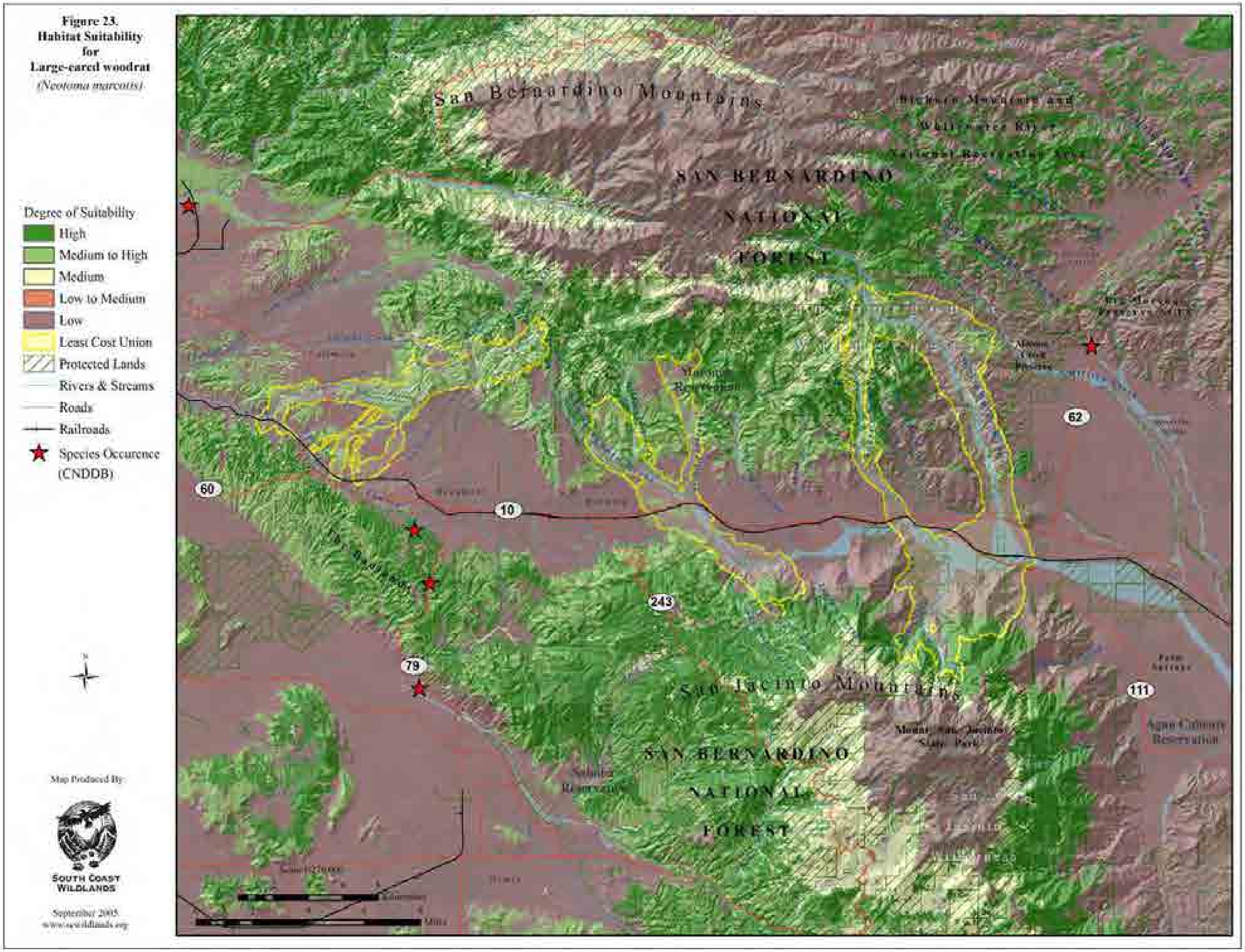
The majority of suitable habitat was delineated as potential core areas, with most occurring in the mid to lower elevations in each of the targeted ranges (Figure 24). The western branch of the Least Cost Union provides the most contiguous habitat connection for this species, as it is the most direct route linking coastal habitats, though the central branch of the Union may offer a secondary connection for this species (Figures 23, 24). The majority of potentially suitable habitat identified for the woodrat is within the defined dispersal distance of this species, though barriers to movement may exist between suitable habitat patches (Figure 25). We conclude that the linkage is likely to serve the needs of this species for movement among populations over multiple generations if habitat is added to the Union in the foothills of the San Jacinto Mountains.

To protect and restore habitat connectivity for this species, we recommend that:

- Habitat restoration is initiated in Whitewater River to re-establish a gallery forest along the length of the river to its confluence with the San Gorgonio River.
- Road barriers be modified, where necessary, to allow woodrats to move along riparian corridors.
- Crossing structures for small mammals be placed fairly frequently to facilitate movement across major transportation routes and reduce travel distance (Jackson and Griffin 2000, McDonald and St. Clair 2004).
- Natural hydrological processes are maintained or restored.
- Lighting is directed away from the linkage and crossing structures.
- Local residents are informed about the proper use of rodenticides and pesticides to reduce the likelihood of ingestion of these lethal substances on small mammals indigenous to the area.

P-13.7
(cont.)

Comment P-13



P-13.7
(Cont.)

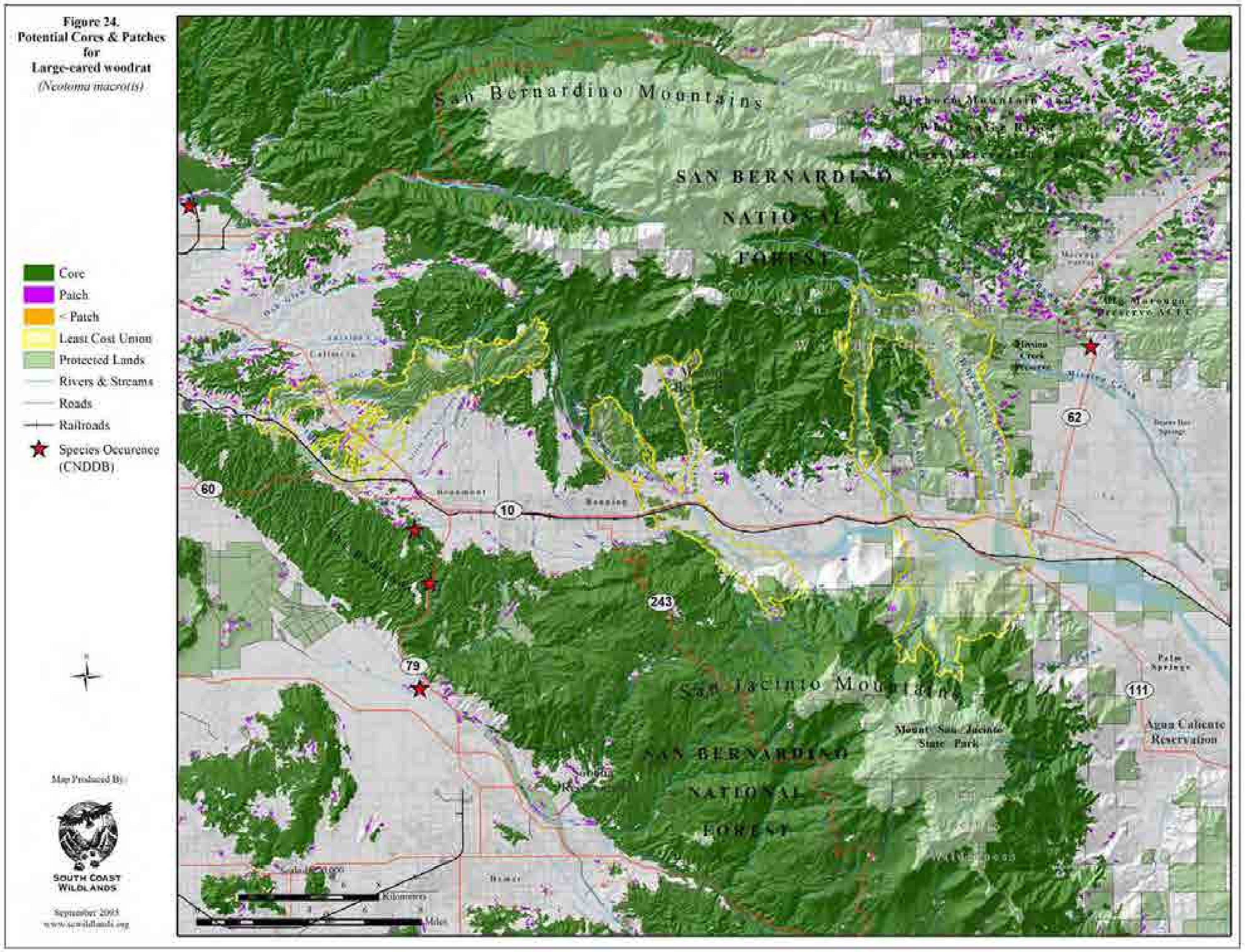
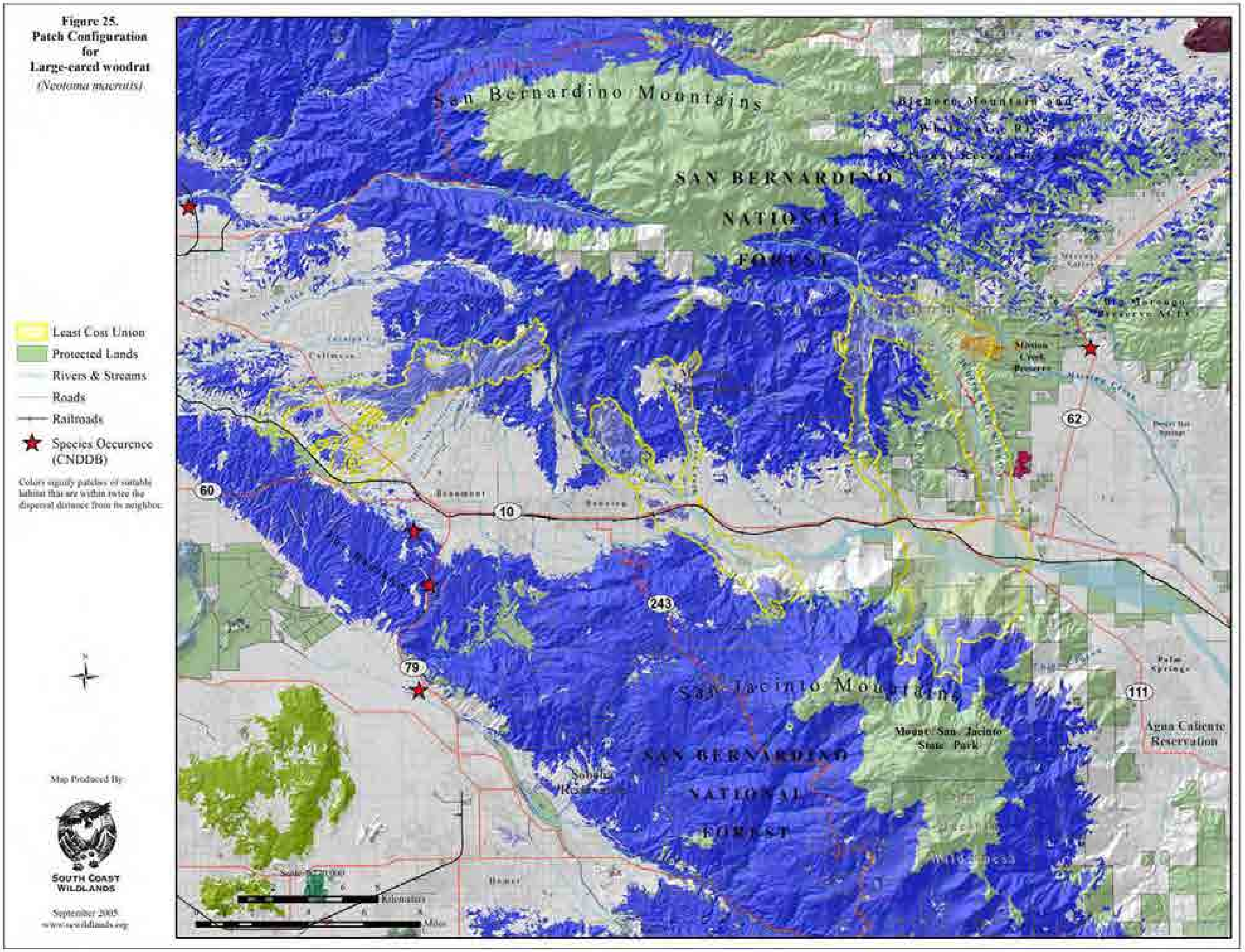


Figure 24.
Potential Cores & Patches
for
Large-eared woodrat
(Neotoma macrotis)
Core
Patch
< Patch
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
Species Occurence (CNDDB)
San Bernardino Mountains
SAN BERNARDINO NATIONAL FOREST
San Jacinto Mountains
Mount San Jacinto State Park
Agua Caliente Reservation
60
10
62
243
79
111
Map Produced By:
SOUTH COAST WILDLANDS
September 2005

P-13.7 (Cont.)

Comment P-13



P-13.7
(Cont.)

Merriam's kangaroo rat (*Dipodomys merriami merriami*)

Justification for Selection: Merriam's kangaroo rat is sensitive to barriers, artificial light pollution, and dense stands of non-native annual grasses.

Distribution & Status: Merriam's kangaroo rat is a widespread species throughout arid regions of the western United States and northwestern Mexico (Hall and Kelson 1959, Williams et al. 1993, USFWS 1998). Three subspecies occur in southern California: *D. merriami merriami*, *D. m. collinus*, and *D. m. parvus*. *D. merriami merriami* occurs in the planning area; it is the most widespread kangaroo rat in California.

Merriam's kangaroo rat is not a special status species, but a subspecies not in this study area, *D. m. parvus* (San Bernardino kangaroo rat), was listed as endangered in 1998 (USFWS 1998).

Habitat Associations: Merriam's kangaroo rat occupies desert scrub habitats, sagebrush, Joshua tree, and pinyon-juniper habitats (Zeiner et al. 1990). They dwell in relatively flat or gently sloping areas with sparse to moderate vegetative cover (Zeiner et al. 1990). Merriam's kangaroo rat prefers sandy soils but they will also utilize rocky flats if they can excavate a burrow (Jameson and Peeters 1988, Zeiner et al. 1990).

P-13.7 (cont.)

Spatial Patterns: In the Palm Springs area, Merriam's kangaroo rat home range size averaged 0.33 ha (0.8 ac) for males and 0.3 ha (0.8 ac) for females (Behrends et al. 1986). Much larger home range sizes were documented for this species in New Mexico (Blair 1943), where home range size averaged 1.7 ha (4.1 ac) for males and 1.6 ha (3.8 ac) for females (USFWS 1998). Adults are territorial, defending areas surrounding their burrows (Jones 1993). Male and female home ranges overlap extensively but female home ranges rarely overlap (Jones 1989, USFWS 1998).

Merriam's kangaroo rat typically remains within 1-2 territories (approximately 100 m [328 ft]) of their birthplace, but the species is capable of longer dispersal (Jones 1989). Behrends et al. 1986 found movements of about 10 to 29 m (33-95 ft) between successive hourly radio fixes, but kangaroo rats are capable of moving much greater distances. For example, Daly et al. (1992) observed individuals moving as much as 100 m in a few minutes to obtain and cache experimentally offered seeds. Dispersal distances of up to 384 m (1,260 ft) have been recorded in Arizona (Zeng and Brown 1987).

Conceptual Basis for Model Development: Movement in the linkage is assumed to be multigenerational. Merriam's kangaroo rat prefers desert scrub, alkali desert scrub, sagebrush, creosote scrub, Joshua tree, and pinyon-juniper habitats. Within these habitats, they occupy flat and gently sloping terrain. Core areas were defined as $\geq$ 43 ha

(106 ac). Patch size was defined as ≥ 0.6 ha (1.5 ac) and < 43 ha. Dispersal distance was defined as 768 m (2,520 ft), twice the recorded distance.

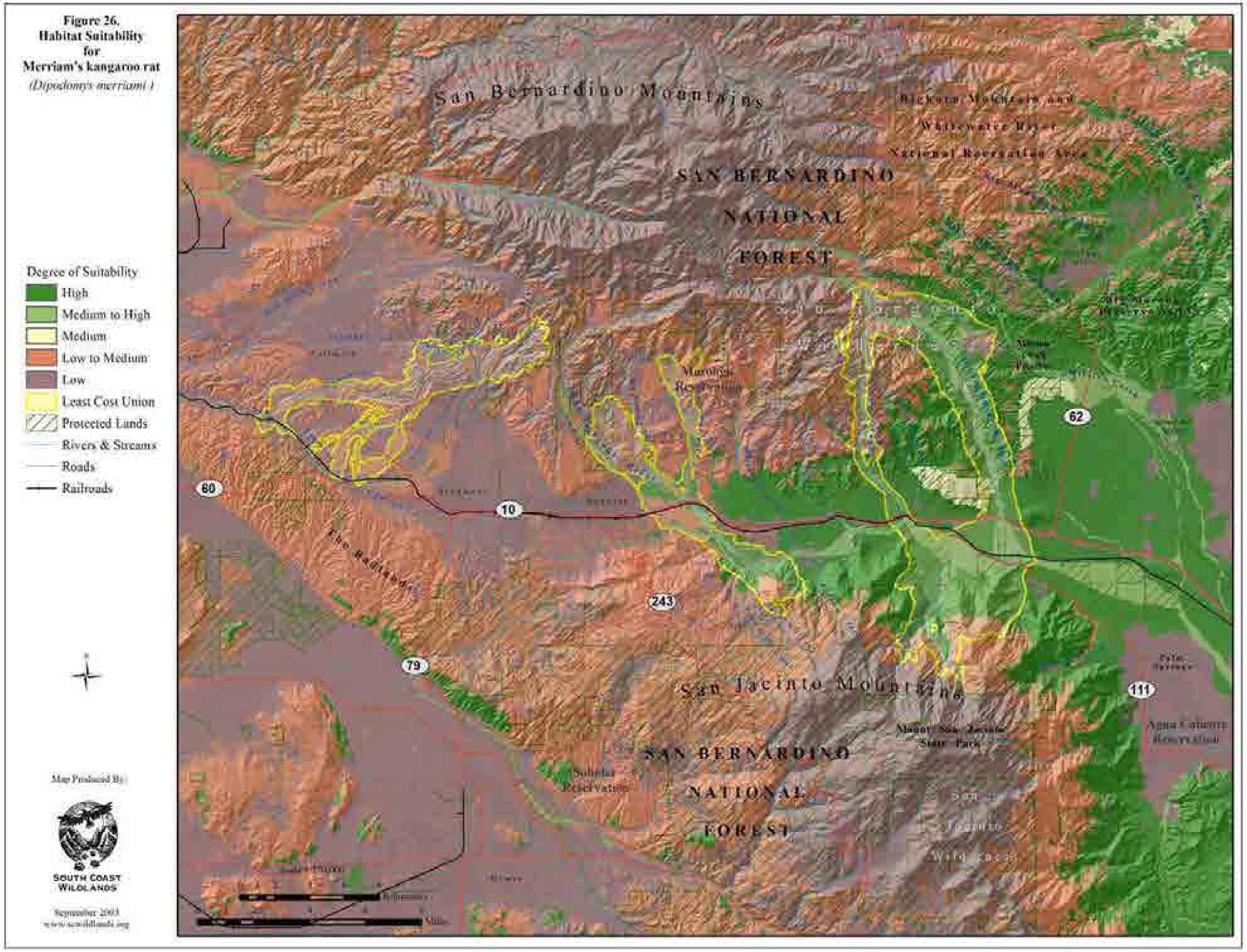
Results & Discussion: Merriam's kangaroo rat is limited to xeric desert habitats. As such, the most suitable habitat for this species in the planning area was identified in the San Gorgonio Pass and Coachella Valley and on the desert-facing slopes of the San Bernardino and San Jacinto Mountains (Figure 26). Highly suitable habitat for this species was identified in the central and eastern branches of the Least Cost Union, with the most contiguous highly suitable habitat identified in the easternmost branch along the Whitewater River, which encompasses the gentle terrain preferred by this species (Figure 26). The majority of suitable habitat was identified as potential core areas for this species (Figure 27). Distances among all core areas and patches in the eastern part of the planning area are within the defined dispersal distance of this species (Figure 28), although barriers to movement may exist between suitable habitat patches. We conclude that the linkage is likely to serve the habitat and movement needs of this species if habitat is added to the Union in Stubbe Canyon and along the San Gorgonio River.

Many small mammals are reluctant to cross roads or are highly susceptible to roadkill (Merriam et al. 1989, Diffendorfer et al. 1995, Brehme 2003). To restore and protect connectivity for Merriam's kangaroo rat, we recommend that:

- Crossing structures for small mammals are placed fairly frequently to facilitate movement across major transportation routes and reduce travel distance (Jackson and Griffin 2000, McDonald and St. Clair 2004).
- Short retaining walls are installed in conjunction with crossing structures along paved roads in the Linkage Design to deter small mammals, amphibians, and reptiles from accessing roadways (Jackson and Griffin 2000).
- Existing road density be maintained or reduced in the Linkage Design.
- Lighting is directed away from the linkage and crossing structures.
- Local residents are informed about the proper use of rodenticides and pesticides to reduce the likelihood of ingestion of these lethal substances on small mammals indigenous to the area.

P-13.7
(cont.)

Comment P-13



P-13.7
(Cont.)

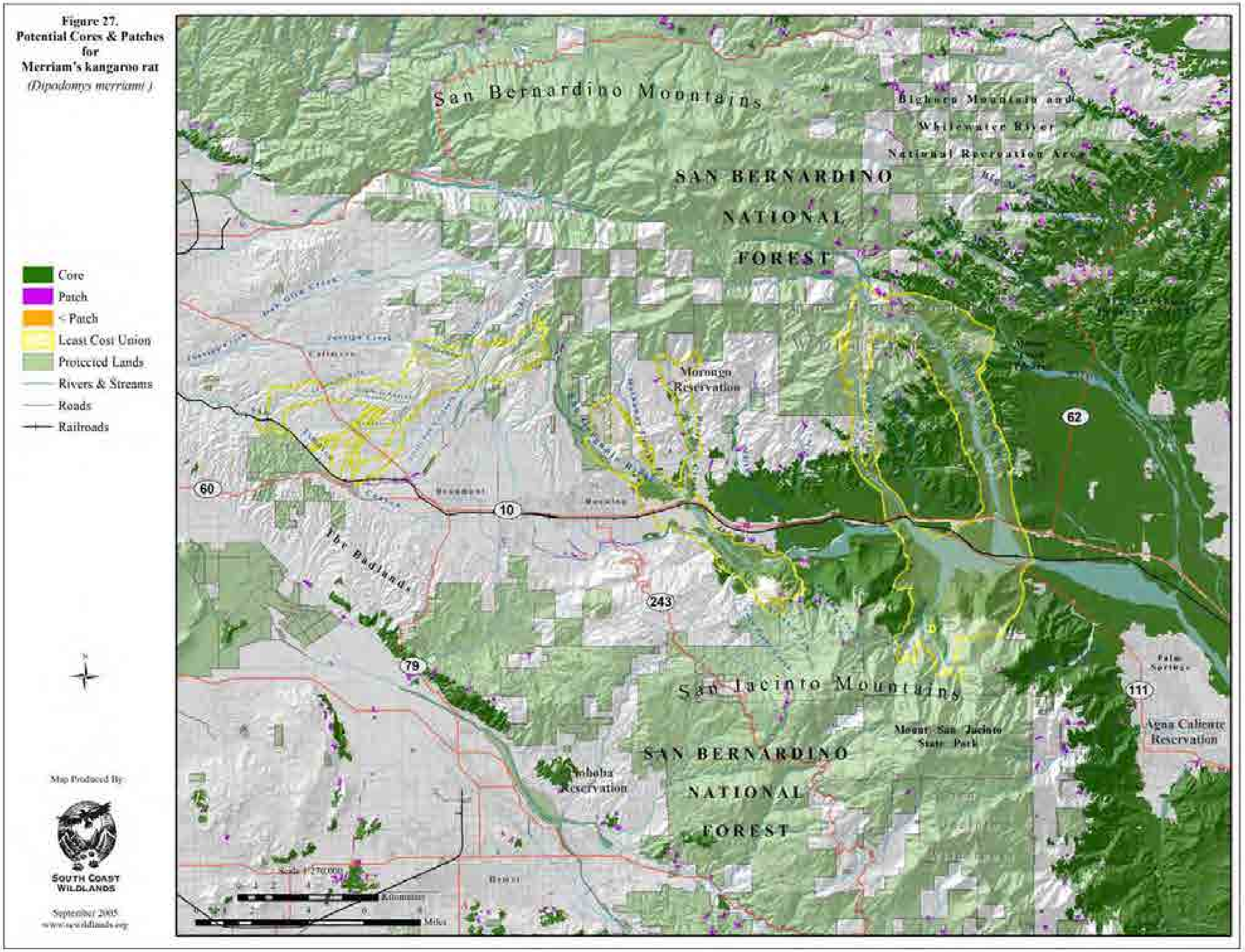
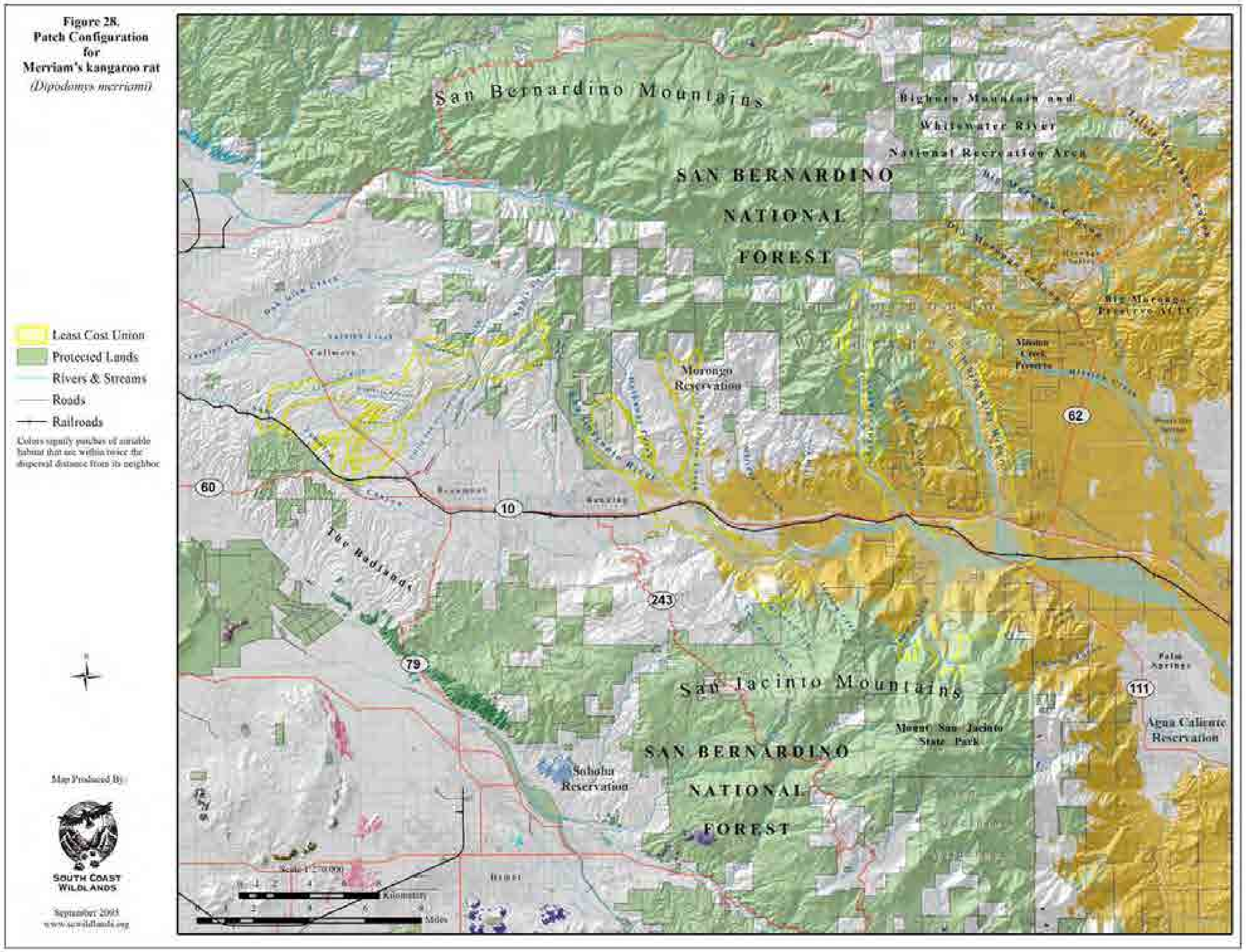


Figure 27.
Potential Cores & Patches for Merriam's kangaroo rat
(Dipodomys merriami)
Core
Patch
< Patch
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
Map Produced By:
South Coast Wildlands
September 2005
San Bernardino Mountains
SAN BERNARDINO NATIONAL FOREST
Morongo Reservation
San Jacinto Mountains
Mount San Jacinto State Park
Agua Caliente Reservation
The Badlands
60
10
243
79
62
111

P-13.7
(Cont.)

Comment P-13



P-13.7
(Cont.)

Pacific kangaroo rat (*Dipodomys agilis*)

Distribution & Status: The Pacific kangaroo rat was recently split into 2 species, *D. agilis* and *D. simulans* (Dulzura kangaroo rat); *D. agilis* occurs in the planning area. The distribution of these species extends from the coastal mountains of Baja California and southern California to the Santa Barbara-San Luis Obispo county line and inland to the Tehachapi and Piute Mountains, as far north as the South Fork of the Kern River (Best 1983, Sullivan and Best 1997, Zeiner et al. 1990). They occur at elevations up to about 2,133 m (7,000 feet) in scrub and chaparral habitats (W. Spencer pers. comm.) but have been found as high as 2,250 m (7,400 ft) (Zeiner et al. 1990). The Pacific kangaroo rat is not a special status species.

Habitat Association: The Pacific kangaroo rat is a habitat generalist, occurring in a variety of open habitats with scattered vegetation including chaparral, oak woodland, pinyon-juniper woodland, desert scrub, and annual grassland (Bleich and Price 1995, W. Spencer pers. comm.). They have also been recorded in montane coniferous forests (Sullivan and Best 1997). They require friable soils in which to burrow (Zeiner et al. 1990). Goldingay and Price (1997) found them to be particularly abundant in ecotonal habitats. They increase in abundance following fires that create openings in dense vegetation (Price and Waser 1984, Price et al. 1991, W. Spencer pers. comm.). Quinn (1990) believes *D. agilis* to be most abundant in early succession communities that occur 2 to 5 years after fire, but smaller numbers of individuals can be found scattered in more limited openings in chaparral. Thus, fire may be an important factor in maintaining long-term occupancy in chaparral habitats in the linkage (W. Spencer pers. comm.). **P-13.7 (cont.)**

Spatial Patterns: MacMillen (1964) estimated home range size of Pacific kangaroo rat from 0.1 to 0.6 ha (0.4 to 1.5 ac) with a mean of 0.3 ha (0.8 ac). Although fairly widespread and common, they seem to occur at somewhat lower densities than other kangaroo rats, perhaps due to the more patchy nature of their habitat (sparse or open areas within scrub and chaparral, versus more homogeneous desert or grassland habitats), which may be the result of chaparral and scrub habitats providing less food (seeds from annual forbs and grasses) than grasslands and deserts (W. Spencer pers. comm.). Christopher (1973) measured population densities of the Pacific kangaroo rat that ranged from 0.9 to 10.8 per ha (2.2-26.7 ac).

Kangaroo rat tends to be more mobile than most rodents of their size. Little specific information is available on movements of Pacific kangaroo rat, but they are probably similar to Merriam's kangaroo rat, which is better studied. Zeng and Brown (1987) recorded long-distance movements up to 384 m (1,260 ft) in adult Merriam's kangaroo rats, concluding that they are opportunistic in moving into newly available habitat. However, unlike Merriam's kangaroo rat, the Pacific kangaroo rat may disperse between adjacent mountain ranges via linkages, at least over multiple generations (W. Spencer pers. comm.).

Conceptual Basis for Model Development: Movement between protected core areas in the linkage is multigenerational. This species prefers open vegetative communities including young (post-fire) chaparral, desert scrub, annual grassland, oak woodland, pinyon-juniper woodland, and montane coniferous forests. They are primarily found between 800 and 2,250 m (2,625 to 7,382 ft) elevation (Sullivan and Best 1997). Core areas were defined as $\geq$ 8 ha (20 ac). Patch size was defined as $\geq$ 0.5 ha (1.2 ac) and < 8 ha. Dispersal distance for this species hasn't been measured, so we used twice the dispersal distance for Merriam's kangaroo rat (768 m; 2,520 ft).

Results & Discussion: Extensive suitable habitat was identified for the Pacific kangaroo rat within the analysis extent, with the most highly suitable habitat occurring in the western part of the planning area (Figure 29). All branches of the Least Cost Union contain core habitat for this species with the most contiguous highly suitable habitat identified in the western and central branches of the Union (Figure 30). The majority of cores and patches of suitable habitat are within the dispersal distance defined for this species (figure not shown), although numerous barriers to movement may exist between suitable habitat patches. We conclude that the linkage is likely to meet the needs of this species, although habitat added to the Union to support other focal species will also benefit Pacific kangaroo rat.

Many small mammals are reluctant to cross roads or are subject to roadkill (Merriam et al. 1989, Diffendorfer et al. 1995, Brehme 2003). To restore and protect connectivity for the Pacific kangaroo rat, we recommend that:

- Crossing structures for small mammals are placed fairly frequently to facilitate movement across major transportation routes and reduce travel distance (Jackson and Griffin 2000, McDonald and St. Clair 2004).

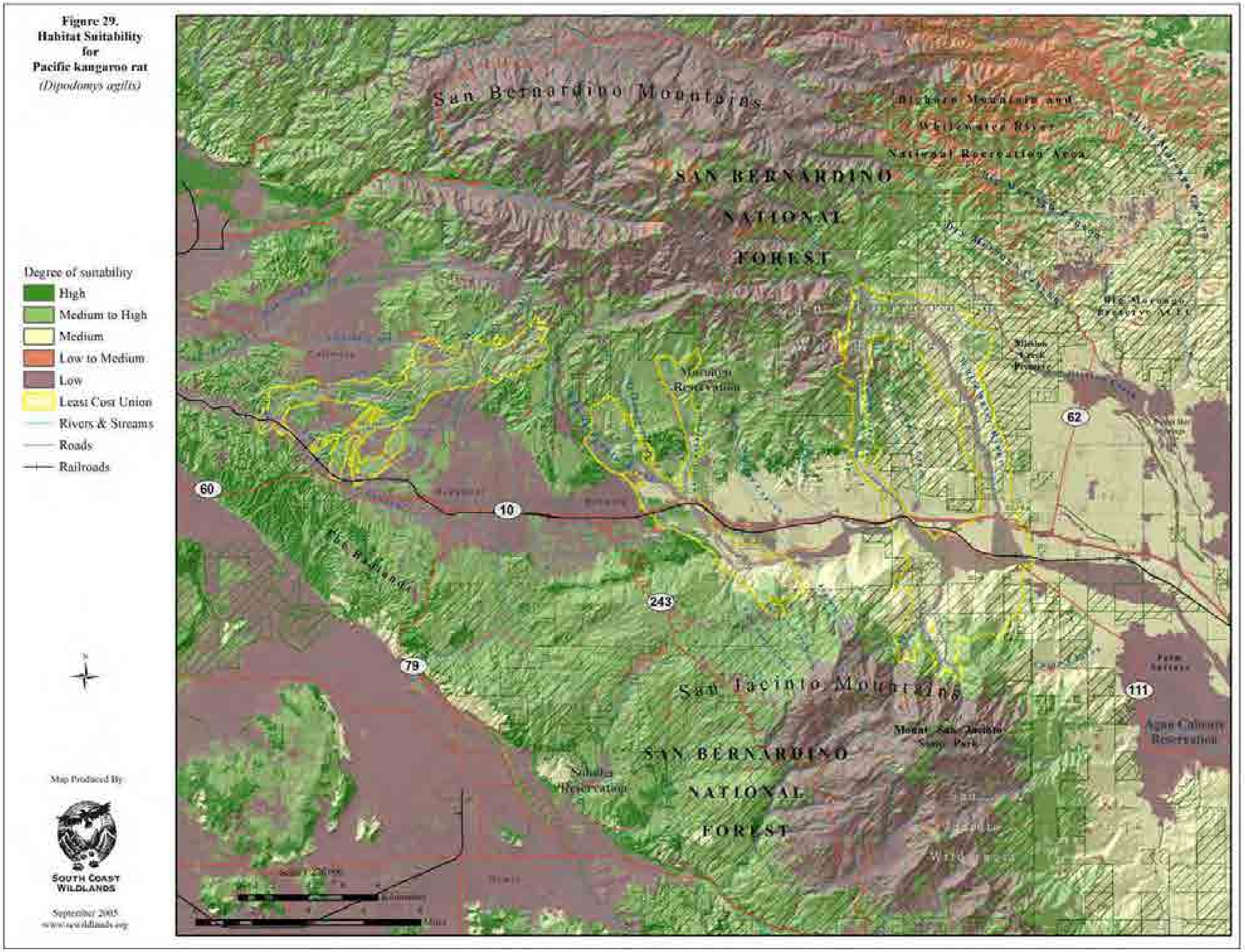
- Short retaining walls are installed in conjunction with crossing structures along paved roads in the Linkage Design to deter small mammals, amphibians, and reptiles from accessing roadways (Jackson and Griffin 2000).

- Lighting is directed away from the linkage and crossing structures.

- Local residents are informed about the proper use of rodenticides and pesticides to reduce the likelihood of ingestion of these lethal substances by small mammals indigenous to the area.

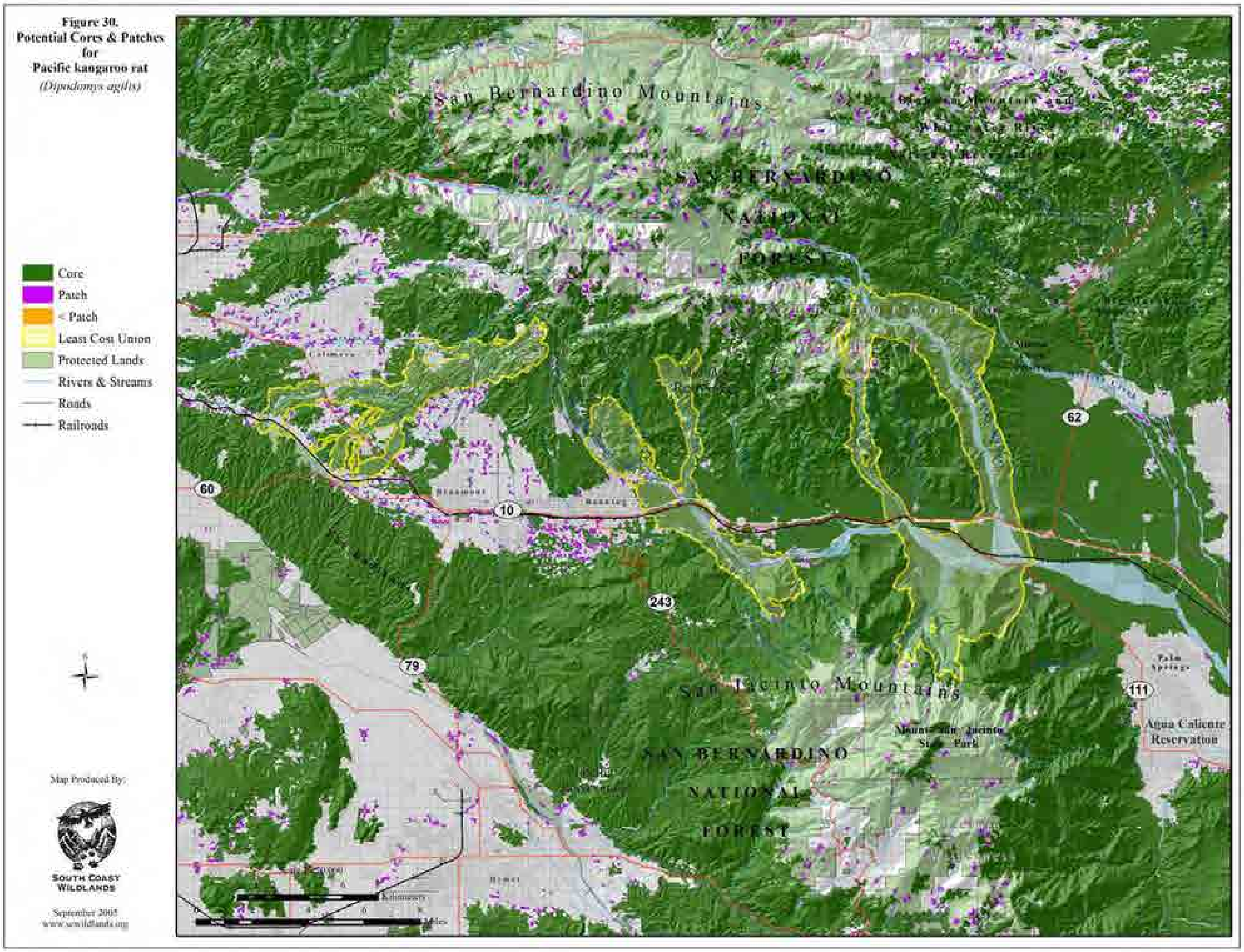
P-13.7 (cont.)

Comment P-13



P-13.7
(Cont.)

Comment P-13



P-13.7
(Cont.)

Little pocket mouse (*Perognathus longimembris*)

Justification for Selection: The little pocket mouse uses fine sandy soils in bajadas and river floodplains. Thus, maintaining the functionality of the sand source and transport systems is crucial to sustaining viable populations of this species (W. Spencer and T. Metcalf pers. comm., CVAG 2004).

Distribution & Status: In southern California, this species is distributed throughout the Los Angeles Basin and Mojave Desert south to Mexico, at elevations ranging from sea level to 1,700 m (5,600 ft; Zeiner et al. 1990). Five subspecies of *P. longimembris* are recognized within this region: *P. l. longimembris* (little pocket mouse), *P. l. bangsi* (Palm Springs pocket mouse), *P. l. brevinasus* (Los Angeles pocket mouse), *P. l. internationalis* (international pocket mouse), and *P. l. pacificus* (Pacific pocket mouse) (Williams et al. 1993, Swei et al. 2003). The little pocket mouse is known to hybridize with the Palm Springs pocket mouse and both are known to occur in the planning area. The Palm Springs pocket mouse has been recorded in the State Route 62/Mission Creek area (Dodd 1999, CVAG 2004) and in the extensive sandy bajada at the mouth of Snow Creek Canyon (Spencer et al. 2000ab, 2001). The two subspecies occurring in the study area are both CDFG Species of Special Concern.

Both the Palm Springs pocket mouse and the Los Angeles pocket mouse have experienced considerable population declines due to habitat loss and fragmentation (Swei et al. 2003). Threats include agricultural and urban development, transportation infrastructure, off-road vehicle use, illegal trash dumping, and domestic animal predators (CVAG 2004). **P-13.7 (cont.)**

Habitat Associations: The species inhabits desert scrub, desert riparian, desert wash, sagebrush, and sparse sage scrub habitats in fine, sandy soils, which are preferred for burrowing (Hall 1946, Zeiner et al. 1990, Swei et al. 2003). They may also be encountered on gravel washes and on stony soils (Beatley 1976, Miller and Stebbins 1964, Zeiner et al. 1990). Their habitat typically consists of level to gently sloping topography (CVAG 2004).

Spatial Patterns: In Joshua Tree National Park, Chew and Butterworth (1964) found home range sizes ranged from 0.12 to 0.56 ha (0.30 to 1.4 ac; Zeiner et al. 1990). Much larger home ranges were found in Nevada, with males averaging 0.29 to 1.88 ha (0.7 to 4.7 ac) and females averaging 0.48 to 3.09 ha (1.2 to 7.6 ac; Maza et al. 1973, Zeiner et al. 1990). O'Farrell (1978) found seasonal differences in home range size, from 0.28 ha (0.69 ac) in spring to 0.80 ha (1.9 ac) in fall. Density estimates vary widely. Chew and Butterworth (1964) found maximum densities of 1.7/ha (0.7/ac) in creosote scrub (Zeiner et al. 1990). More recent studies of Palm Springs pocket mouse found much higher densities, reaching 60 to 200 individuals per hectare in creosote scrub habitat (Spencer et al. 2001, Swei et al. 2003). Movement and dispersal estimates are lacking for the local subspecies, but the Pacific pocket mouse has been observed to move up to 87 m (285 ft; Spencer et al. 2000b).

Conceptual Basis for Model Development: Movement in the linkage is multigenerational. This species prefers sparsely vegetated communities on flat to gently sloping terrain at elevations ranging from sea level to 1,700 m (5,600 ft). Potential core areas were defined as $\geq$ 8 ha (20 ac). Patch size was classified as $\geq$ 0.3 ha (0.7 ac) but less than 8 ha. Dispersal distance was defined as 174 m (571 ft), twice the recorded distance of Pacific pocket mice.

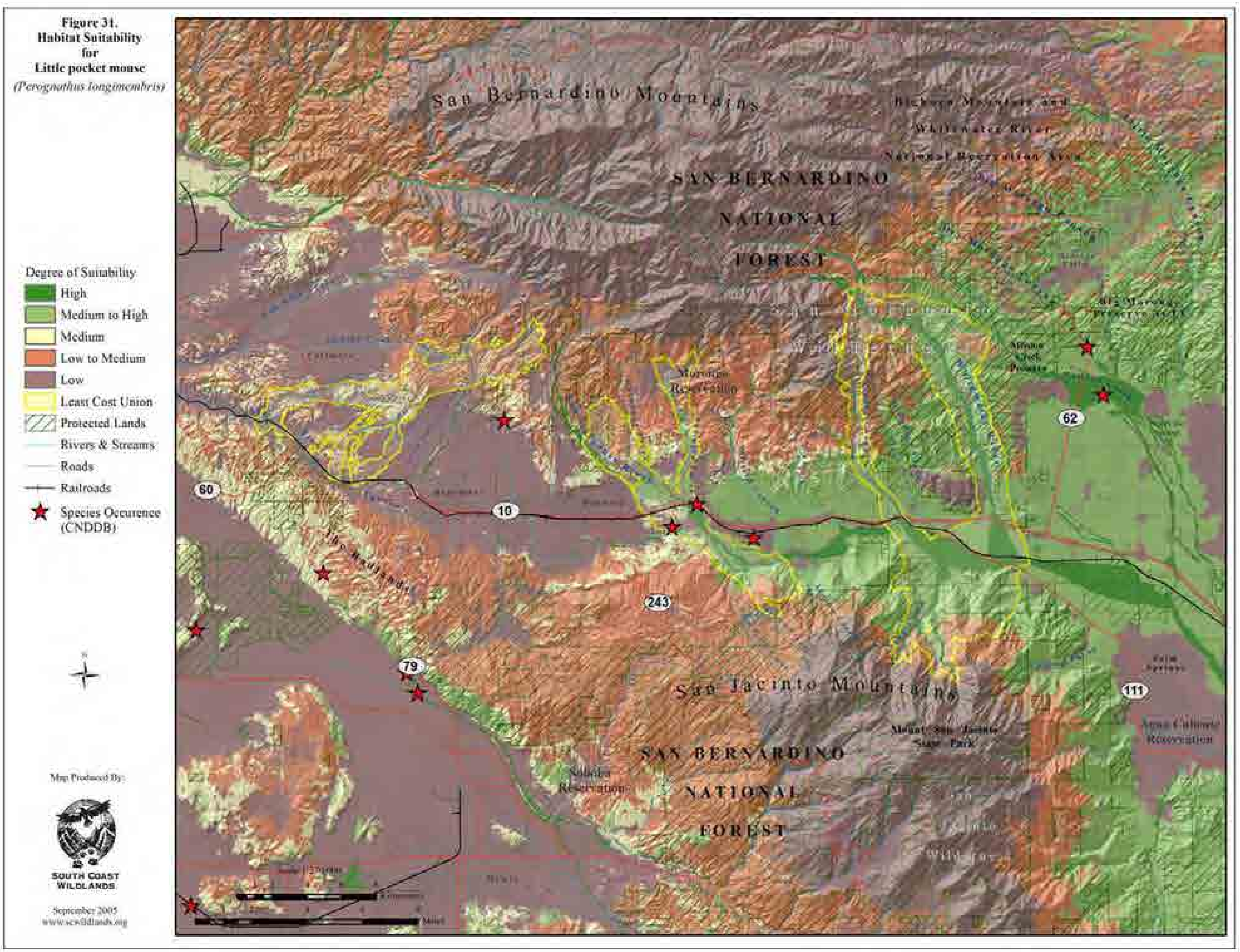
Results & Discussion: The most highly suitable habitat for the little pocket mouse is in the eastern part of the planning area (Figure 31). As such, the easternmost branch of the Least Cost Union (i.e., Whitewater River) provides the most extensive and most contiguous core habitat for this species, although core habitat was also identified in all other branches of the Union (Figure 32) and the little pocket mouse has been recorded in the central branch of the Union (Figures 31, 32). Distances among potential cores and patches of suitable habitat in the eastern part of the planning area are within the dispersal distance of this species, while potential habitat identified in the western part of the planning area and Badlands are isolated by distances too great for the species to traverse (Figure 33). We conclude that the linkage is likely to serve the habitat and movement needs of this species if habitat is added to the Union in Stubbe Canyon and along the San Gorgonio River.

Many small mammals are reluctant to cross roads (Merriam et al. 1989, Diffendorfer et al. 1995, Brehme 2003). To restore and protect connectivity for the pocket mouse, we recommend that:

P-13.7 (cont.)

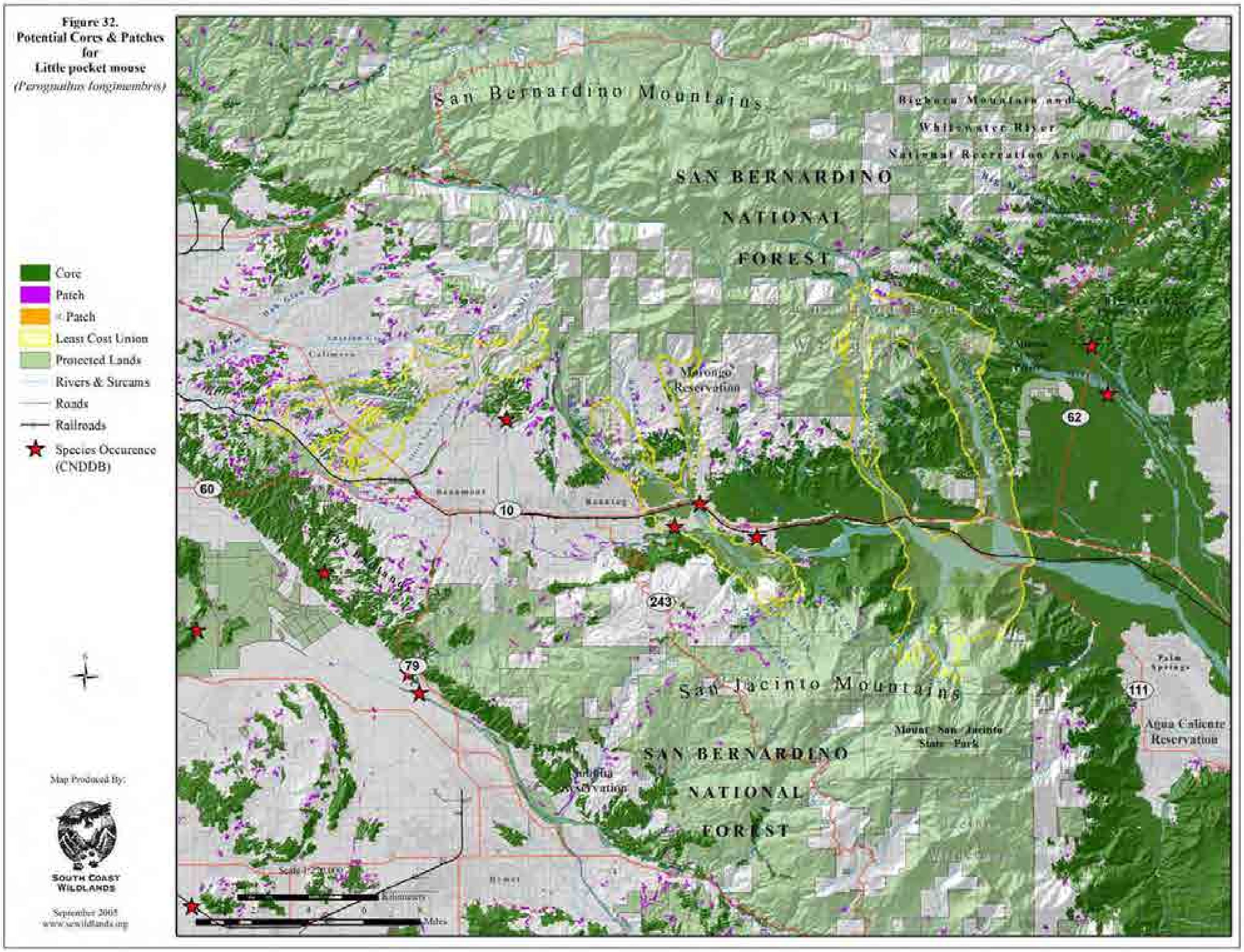
- Crossing structures for small mammals are placed fairly frequently to facilitate movement across major transportation routes and reduce travel distance (Jackson and Griffin 2000, McDonald and St. Clair 2004).
- Short retaining walls are installed in conjunction with crossing structures along paved roads in the Linkage Design to deter small mammals, amphibians, and reptiles from accessing roadways (Jackson and Griffin 2000).
- Lighting is directed away from the linkage and crossing structures.
- Local residents are informed about the proper use of rodenticides and pesticides to reduce the likelihood of ingestion of these lethal substances on small mammals indigenous to the area.

Comment P-13



P-13.7
(Cont.)

Comment P-13



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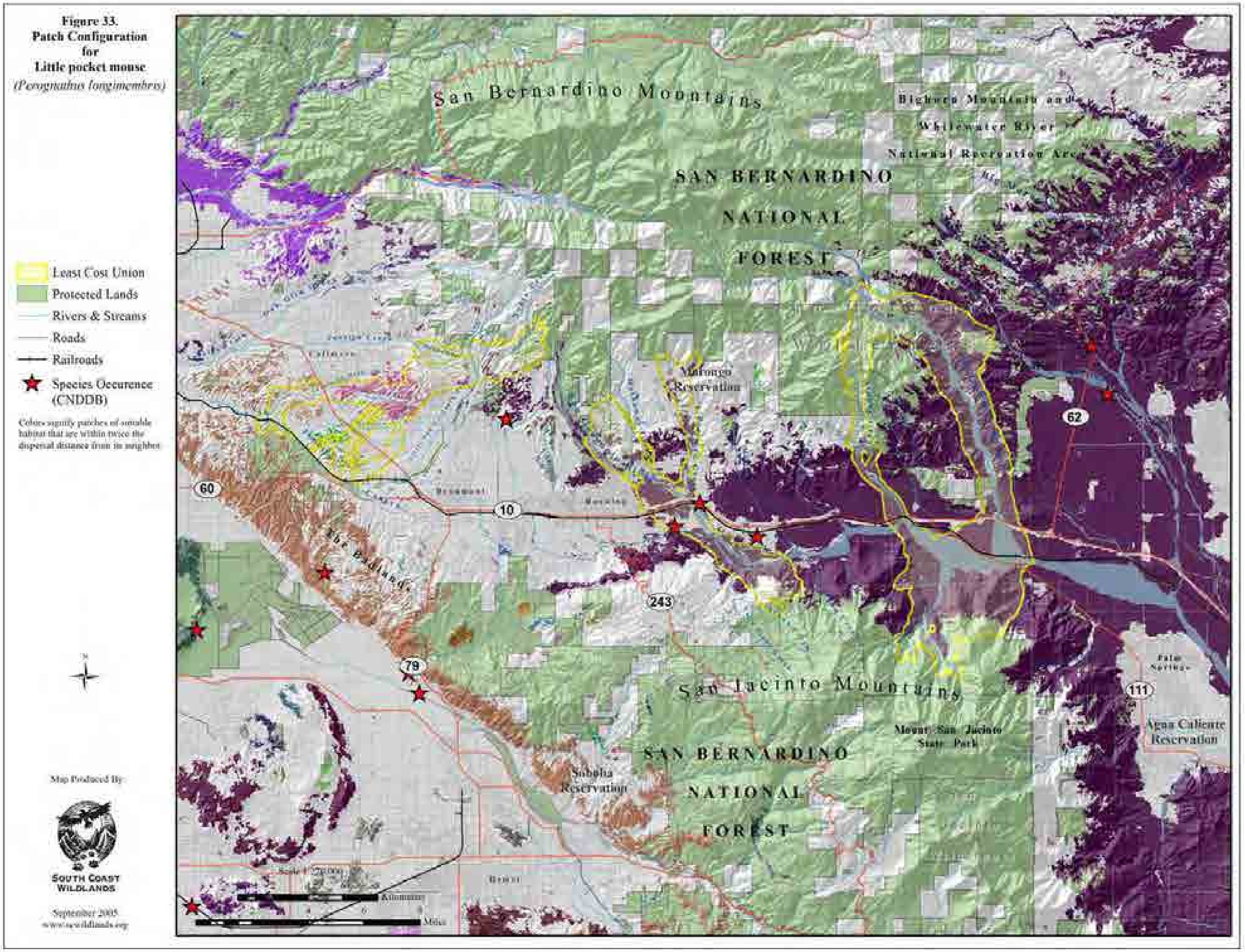


Figure 33. Patch Configuration for Little pocket mouse *(Perognathus longimembris)*

P-13.7 (Cont.)

California spotted owl (*Strix occidentalis occidentalis*)

Justification for Selection: The California spotted owl depends on extensive blocks of mature and old growth forests. Owl demography is strongly affected by forest fragmentation because successful juvenile dispersal depends on the proportion of the landscape that is forested (Harrison et al. 1993). Habitat fragmentation by roads has been shown to cause physiological stress in the northern subspecies (Wasser et al. 1997).

Distribution & Status: The California spotted owl is one of three subspecies of spotted owl in California. It inhabits the Sierra Nevada and the Coastal, Transverse, and Peninsular ranges (Remsen 1978, LaHaye et al. 1997). Their elevational range extends from lower than 305 m (1,000 ft) to as high as 2,591 m (8,500 ft). Southern California populations are believed to function as a metapopulation, connected by infrequent but persistent interchange of individual owls among populations (LaHaye et al. 1994, Stephenson and Calcarone 1999). The largest subpopulation is the 200 plus territories in the San Bernardino and San Gabriel Mountains. Although the San Gorgonio Pass separates the San Bernardino and San Jacinto mountains, only 16 km (10 mi) separates the southernmost San Bernardino territory from the northernmost San Jacinto territory. The California spotted owl is designated as a Federal and State Species of Special Concern (CDFG 2001). **P-13.7 (cont.)**

Habitat Associations: This species is associated with structurally complex mature or old growth hardwood, riparian-hardwood, hardwood-conifer, mixed and pure conifer habitats with substantial canopy cover (>70%) and majestic long-standing trees and snags (Verner et al. 1992, Gutiérrez et al. 1992, LaHaye et al. 1994, Moen and Gutiérrez 1997). Nest trees are typically the largest in the stand (Gutiérrez et al. 1992), which usually contains an accumulation of woody debris and well-developed soils (Verner et al. 1992). This subspecies is more variable in its selection of foraging habitats than its northern relatives, which are restricted to dense forests. Unlike them, the California spotted owl is sometimes found foraging in chaparral (Gutierrez et al. 1992).

Spatial Patterns: This subspecies incorporates large tracts of mature and old growth forests into its home range (LaHaye et al. 1997), requiring extensive blocks [40-240 ha (100-600 ac)] that contain suitable nesting and roosting habitat, as well as available water (Forsman et al. 1976, Zeiner et al. 1990). In the mature Douglas-fir/hemlock forests of Oregon, Forsman et al. (1977) found home range to vary between 120-240 ha (300-600 ac), and similar home range sizes have been recorded in the Sierra Nevada (Gould 1974, Zeiner et al. 1990). The distribution of prey has been found to strongly influence the size of an owl's home range (Carey et al. 1992, Zabel et al. 1995, Smith et al. 1999), and habitat use patterns (Carey et al. 1992, Carey and Peeler 1995, Zabel et al. 1995, Ward et al. 1998, Smith et al. 1999). Lower elevation habitats may be more productive due to higher prey densities in surrounding vegetative communities.

Occupied habitat at lower elevations is typically dense, mature forest on north-facing slopes and deep canyons (Stephenson and Calcarone 1999).

Home ranges are generally spaced 1.6 to 3.2 km (1-2 mi) apart in appropriate habitat (Marshall 1942, Gould 1974, Zeiner et al. 1990). Owl densities are greater in areas with a higher density of old trees in dense groves (Gutierrez et al. 1992). Smith (1996) estimated owl density for the San Bernardino population to be 0.43 per km^2 (0.4 mi^2) for oak/big-cone fir, 0.20 per km^2 for conifer/hardwood, and 0.11 owls per km^2 for mixed coniferous forests. Owl densities in Sequoia Kings Canyon National Parks have been recorded at 12.8 pairs per 100 km^2 (39 mi^2), while densities of 10.0 pairs per 100 km^2 have been estimated for the Sierra National Forest (North et al. 2000). LaHaye et al. (1997) suggested higher densities might reflect smaller territory sizes, which could result from increased prey densities.

Metapopulation analyses have estimated dispersal distances of 7-60 km (4.3-37.2 mi; LaHaye et al. 1994). However, shorter dispersal distances have been recorded. In the San Bernardino Mountain population, 67 males and 62 females dispersed 2.3-36.4 km (1.4-22.6 mi) and 0.4–35.7 km (0.3-22.2 mi) respectively (LaHaye et al. 2001). Dispersal distances for spotted owls in other populations range from 5.8 km (3.6 mi; Ganey et al. 1998) to 56 km (35 mi; Gutiérrez et al. 1996). Several radio telemetry studies have recorded even greater distances, up to 72.1 km (44 mi; Miller et al. 1997, Ganey et al. 1998, Willey and van Riper 2000, LaHaye et al. 2001).

Conceptual Basis for Model Development: This species prefers mature and old growth forests below 2,591 m (8,500 ft). Core areas potentially supporting 50 or more individuals were defined as $\geq$ 4,000 ha (10,000 ac). Patch size was classified as $\geq$ 80 ha (200 ac) but < 4,000 ha. Dispersal distance was defined as 144 km (90 mi).

P-13.7 (cont.)

Results & Discussion: The results of the habitat suitability analysis correspond well with recorded spotted owl territories in montane hardwood and conifer habitats in both the San Bernardino and San Jacinto ranges (Figure 34). Two major core areas were identified by the patch size analysis (Figure 35). Although very little suitable habitat occurs within the Least Cost Union, the linkage is likely to accommodate infrequent spotted owl movement between these ranges if lighting is directed away from the linkage. All suitable habitat patches are well within the maximum dispersal distance of 72.1 km. We conclude that the linkage can sustain movement needs among populations of owls, serving a critical function of preserving this top predator.

Research shows that northern spotted owls (*S. o. caurina*) living in close proximity to roads experienced higher levels of physiological stress than owls living in areas without roads (Wasser et a. 1997). To maintain and protect landscape level connectivity for California spotted owl, we recommend that:

- Lighting is directed away from the linkage to provide a dark zone for nocturnally active species. Species sensitive to human disturbance avoid areas that are artificially lit (Beier 1995, Beier et al. in press).

- Local residents are informed about the proper use of rodenticides and pesticides to reduce the likelihood of ingestion of these lethal substances by the natural predators of rodent species.

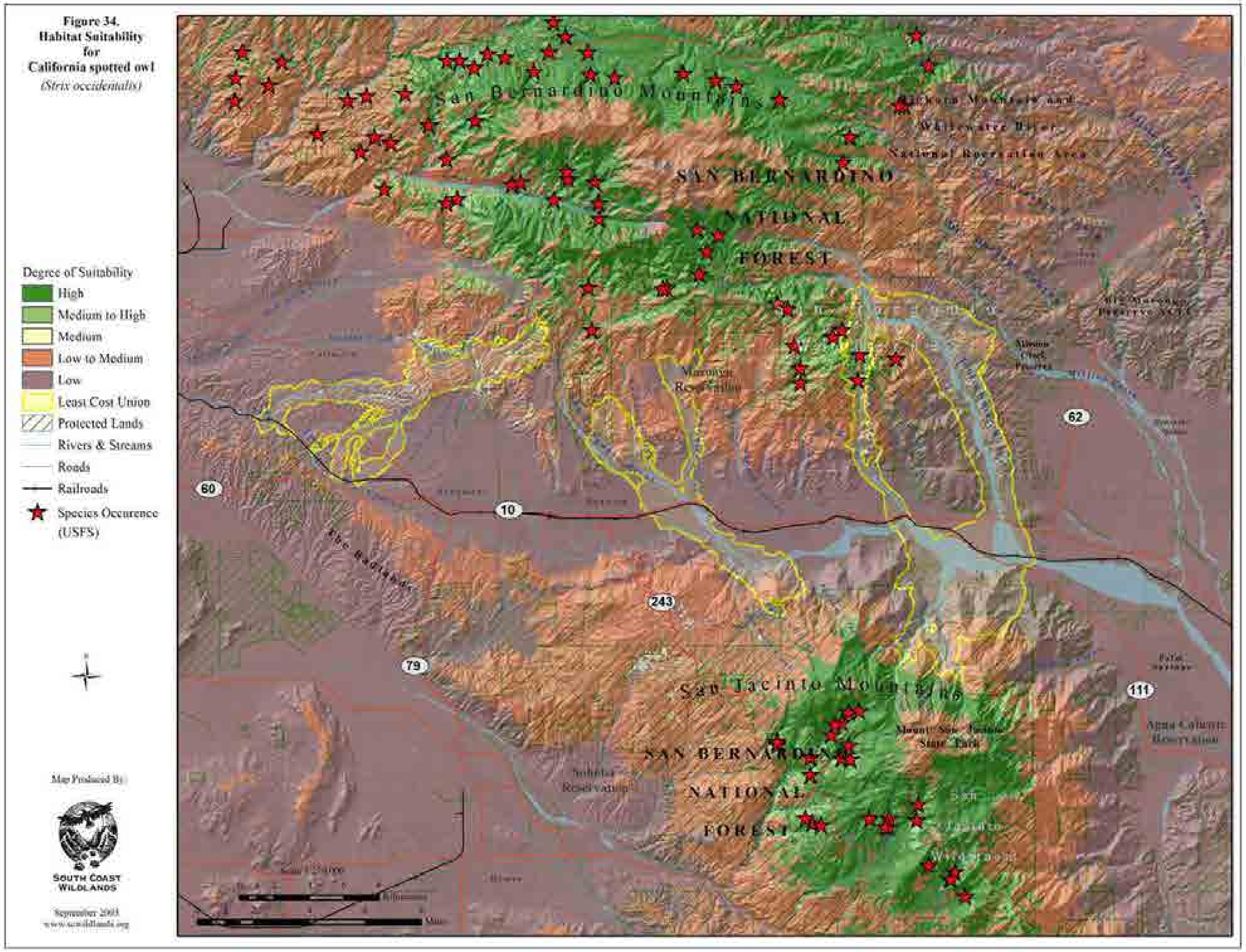
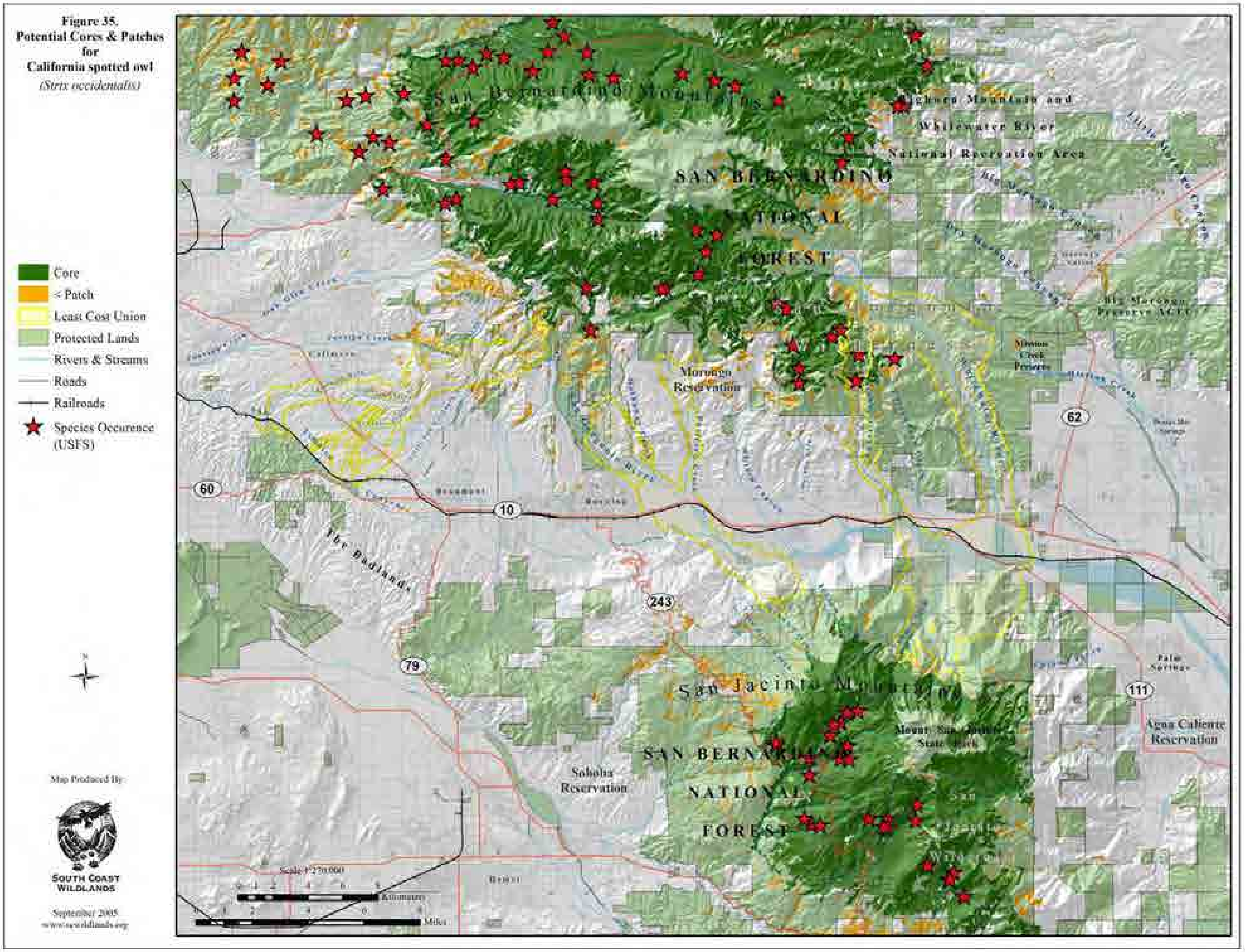


Figure 34.
Habitat Suitability
for
California spotted owl
(Strix occidentalis)
Degree of Suitability
High
Medium to High
Medium
Low to Medium
Low
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
Species Occurence
(USFS)
Map Produced By:
SOUTH COAST WILDLANDS
San Bernardino Mountains
SAN BERNARDINO
NATIONAL
FOREST
San Jacinto Mountains
SAN BERNARDINO
NATIONAL
FOREST
Mount San Jacinto State Park
Agua Caliente Reservation
Soboba Reservation
Morongo Reservation
60
10
243
79
62
111

P-13.7
(Cont.)

Comment P-13



P-13.7
(Cont.)

- Eliminate feral cattle in Stubbe Canyon to stop overgrazing which could lead to the loss of gallery cottonwood forest.

- Attempt to expand gallery forest in Stubbe Canyon and Whitewater River.

P-13.7
(cont.)

Pygmy nuthatch (*Sitta pygmaea melanotis*)

Justification for Selection: As a cavity nester dependent on large snags, the pygmy nuthatch serves as an indicator species for mature ponderosa pine forests (Ghalambor 2003). Pygmy nuthatches have limited dispersal abilities and therefore need greater connectivity between suitable habitat patches to promote genetic exchange among subpopulations (Ghalambor 2003).

Distribution & Status: *S. p. melanotis* is one of six recognized subspecies. *S. p. melanotis* has the largest and most discontinuous range of all the subspecies, occurring from southern British Columbia east to the Black Hills of South Dakota, to southern California and northern Mexico (Ghalambor 2003), up to elevations of 3,050 m (10,000 ft; Shuford and Metropulos 1996, Ghalambor 2003). Their distribution largely follows the scattered distribution of ponderosa and other yellow pines. They are found throughout the mountain ranges of southern California, including the San Jacinto and San Bernardino Mountains (Garret and Dunn 1981, Ghalambor 2003). The pygmy nuthatch has no special conservation status.

P-13.7 (cont.)

Habitat Associations: Pygmy nuthatches are residents of western yellow pine forests, preferring those dominated by ponderosa pine (*Pinus ponderosa*). In California, they favor mature stands of ponderosa and Jeffrey pines (*P. jeffreyi*), but may also be found in mixed conifer, eastside pine, and pinyon-juniper habitats (Gaines 1988, Zeiner et al. 1990, Ghalambor 2003). They've also been recorded in open stands of large lodgepole pine (*P. murrayana*) in the White Mountains (Shuford and Metropulos 1996, Ghalambor 2003). They forage on and cache pine seeds within these habitats, but also prey upon insects and spiders during the breeding season (Bent 1948).

Pygmy nuthatches are highly communal, sociable species that breed cooperatively, which is unusual for North American songbirds (Norris 1958, Ghalambor 2003). They excavate cavities in snags for nesting and roosting, relying on cavities throughout the year. The locations of communal roost cavities are largely determined by the weather, with groups changing cavities seasonally for protection from outside temperatures (Hay 1983, Ghalambor 2003).

Spatial Patterns: With such a dependence on snags, it's not surprising that pygmy nuthatches reach their highest densities in mature pine forests with plenty of snags (Ghalambor 2003). Norris (1958) evaluated 7 studies from California, Colorado and Mexico and found an average density of 19.5 males per 40 ha (100 ac), with a range between 5.3 and 33 males per 40 ha. Territory size may fluctuate depending on the density of pines, cavity availability, and the presence or absence of helpers (Norris 1958, Ghalambor 2003). Estimates of territory size vary by habitat type, ranging from 0.5 to 8.2 ha (1.3-20.1 ac; Norris 1958, Balda 1967, Storer 1977, Ghalambor 2003). In Marin County, territory size ranged from 0.8 to 1.3 ha (1.9–3.3 ac), with an average of 1.1 ha (2.7 ac; Norris 1958). Each pair occupies a foraging territory year-round. Territories may overlap, but are defended during the breeding season (Bock 1969, Ghalambor 2003).

Norris (1958) evaluated natal dispersal in pygmy nuthatches and found one male established a territory 165 m from his place of birth. Natal dispersal in females wasn't evaluated but it is expected to be further than males. First year birds established breeding sites over 4 times further from their birthplaces than the typical distance adults travel between breeding territories, with young birds moving an average of 286.5 m (940 ft) with a range of 0.6-533 m (2-1,749 ft) (Norris 1958, Ghalambor 2003).

However, more significant movements can occur during post-breeding dispersal and winter wandering, when individuals may be observed in atypical habitats (Bent 1948, Garrett and Dunn 1981, Ghalambor 2003). Pygmy nuthatches have been recorded in coastal Santa Barbara County (Lehman 1994, Ghalambor 2003), and San Diego County (Unitt 1984).

Conceptual Basis for Model Development: This species prefers high elevation mature yellow pine forests, dominated by Ponderosa or Jeffrey pines, but will also utilize mixed conifer habitats. Core areas were defined as $\geq$ 28 ha. Patch size was classified as $\geq$ 2 ha, but less than 28 ha. Dispersal distance was defined as 1,066 m (3,498 ft), twice the longest recorded movement.

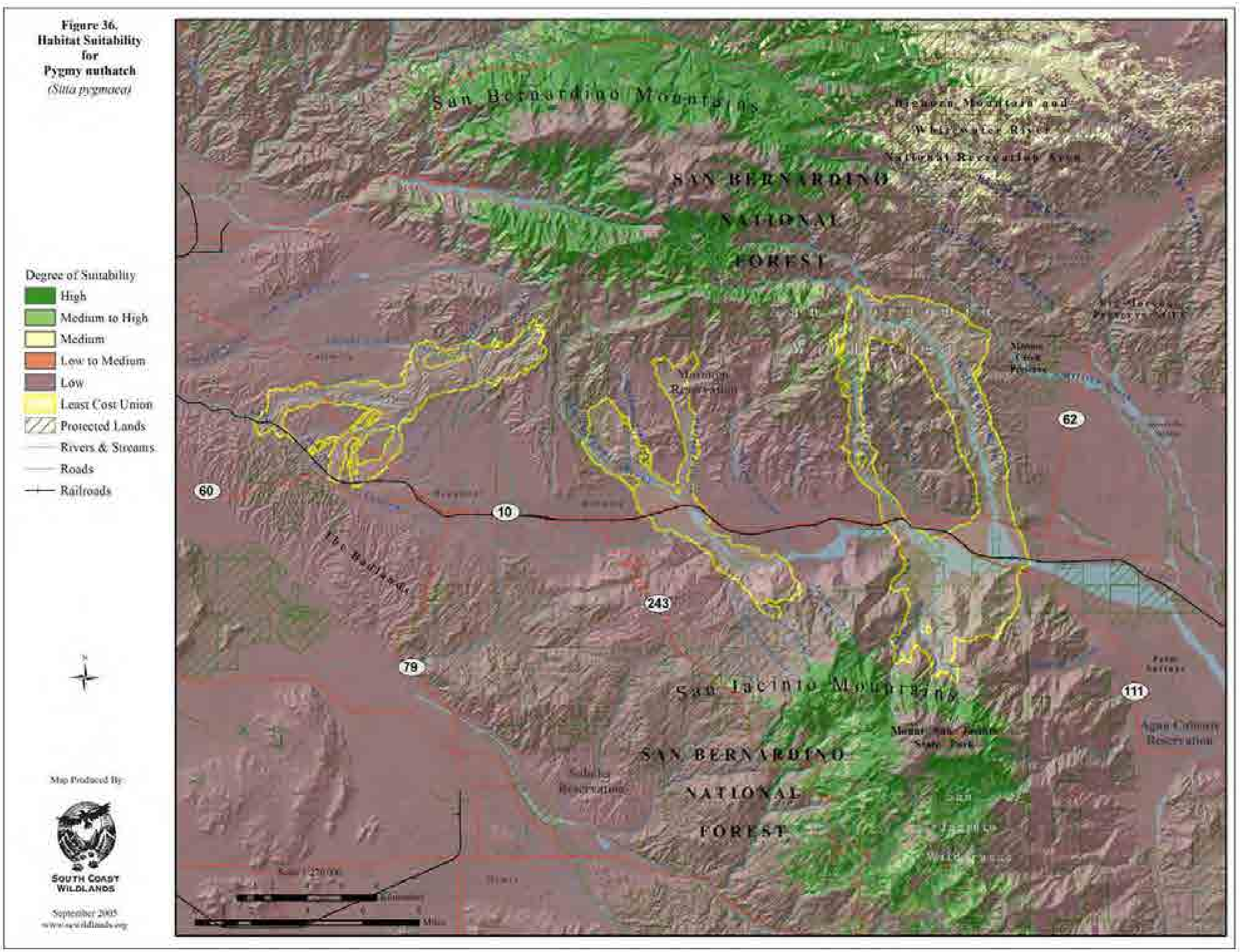
P-13.7 (cont.)

Results & Discussion: The most highly suitable habitat for pygmy nuthatch was identified in the high elevation coniferous habitats in the San Bernardino and San Jacinto Mountains (Figure 36). Large core areas were identified in both ranges (Figure 37), with very little habitat identified in the Least Cost Union. The patch configuration analysis suggests that populations in the San Bernardino and San Jacinto Mountains may be functionally isolated from one another, separated by distances too great for this species to traverse (Figure 38). This species has very limited dispersal capabilities, limiting opportunities for genetic exchange among populations (Ghalambor 2003). However, since pygmy nuthatches have been recorded away from coniferous mountain habitats, movement through the linkage may still be possible (Unitt 1984, Lehman 1994, Ghalambor 2003). Where timber harvesting has reduced the number of snags, the number of breeding pairs declines (McEllin 1979, Brawn 1987, Brawn and Balda 1988, Bock and Fleck 1995, Ghalambor 2003). To protect and restore habitat for pygmy nuthatch, we recommend that:

- Snags are retained, at a range of between 5 to 12 per hectare (Balda 1975, Scott 1979, Diem and Zeveloff 1980, Clark et al. 1989, Ghalambor 2003). Clark et al. (1989) proposed snags should be relatively large in diameter.

- The natural fire regime is restored or mimicked to benefit this species (Covington and Moore 1994, Arno et al. 1995, Fule and Covington 1995, Ghalambor 2003).

Comment P-13



P-13.7
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Comment P-13

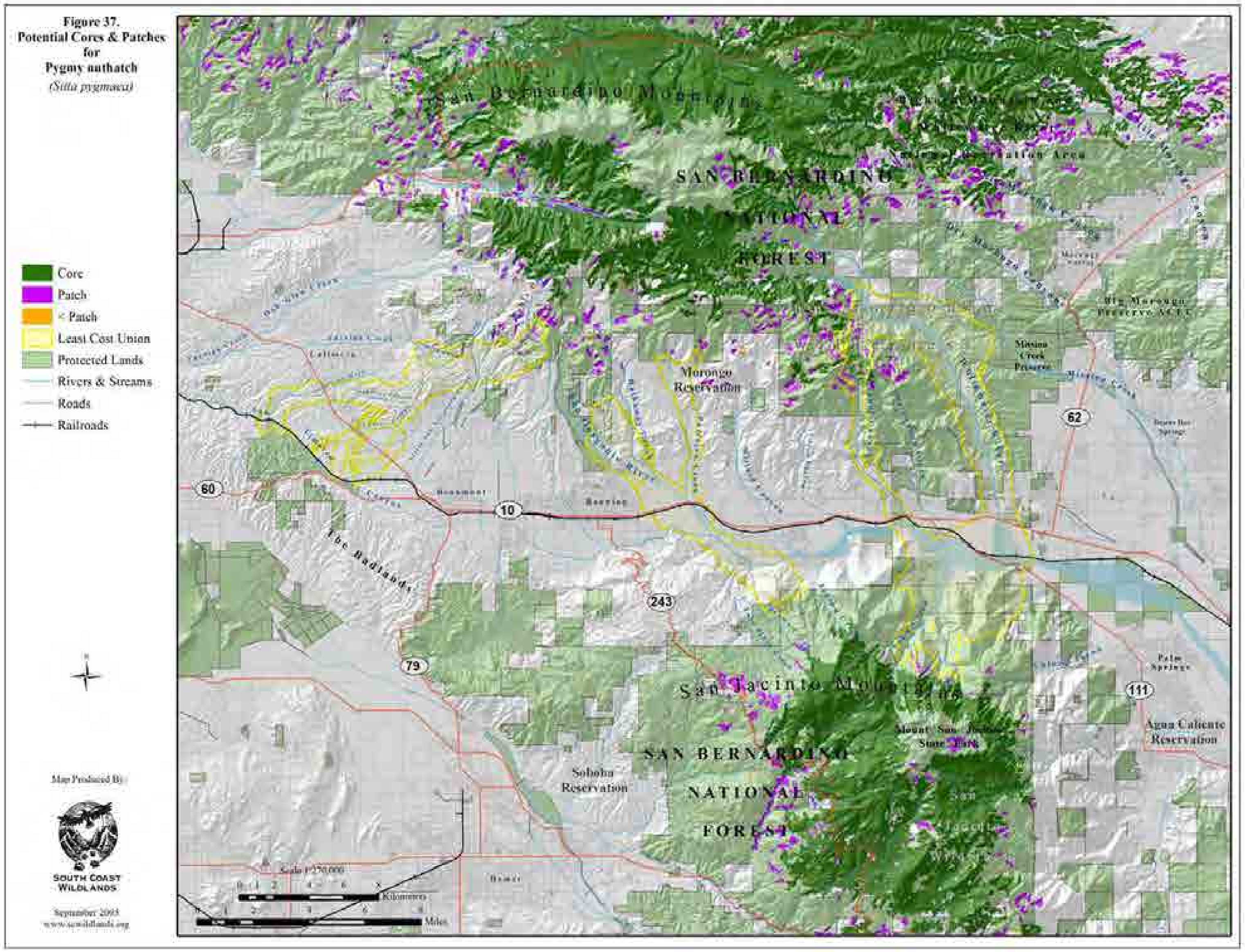
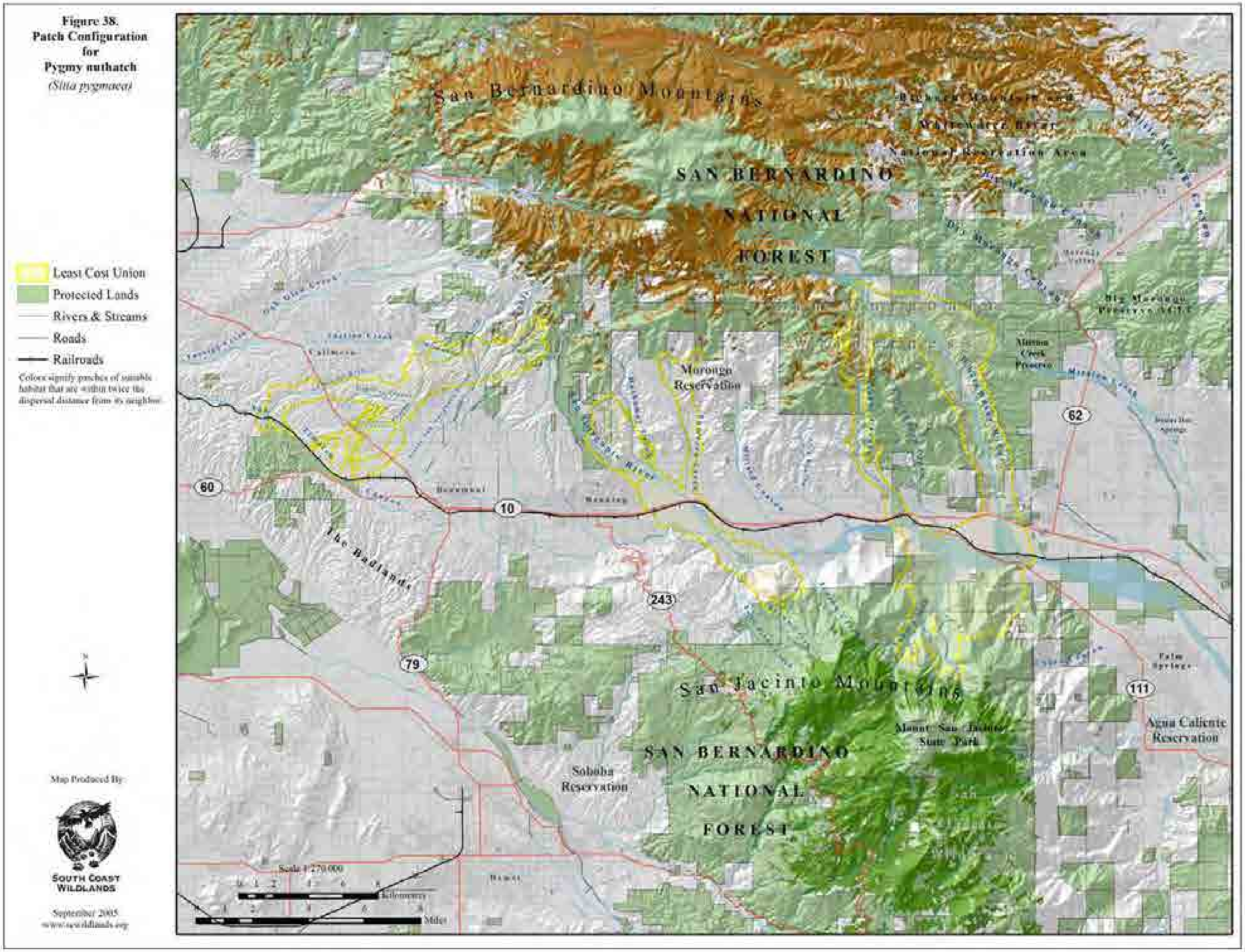


Figure 37.
Potential Cores & Patches for Pygmy nuthatch (*Sitta pygmaea*)

P-13.7 (Cont.)

Comment P-13



P-13.7
(Cont.)

Rock wren (Salpinctes obsoletus)

Justification for Selection: The rock wren is considered a habitat specialist because of its reliance upon environments that are very patchily distributed in the landscape.

Distribution & Status: Rock wrens have a vast geographic distribution, ranging from British Columbia to Central America and from the Pacific Coast eastward to the Great Plains (American Ornithologist Union 1998, Oppenheimer and Morton 2000). In southern California, they occur from northern San Luis Obispo County south to San Diego County (Small 1994). Rock wrens have one of the broadest altitudinal ranges of any North American bird (Small 1994); nests have been discovered at 75 m (246 ft) below sea level in Death Valley and as high as 4,267 m (14,000 ft) in the Sierra Nevada and White Mountains (Grinnell and Miller 1944, Small 1994, Oppenheimer and Morton 2000). The rock wren has no special conservation status.

Habitat Associations: Although their range encompasses a huge area, they occupy a very specialized niche (Small 1994, Oppenheimer and Morton 2000). Rock wrens may be found in a variety of open vegetation communities, including Great Basin scrub, desert scrub, chaparral, deep-cut arroyos, dry gravelly washes, and perennial grassland (Grinnell and Miller 1944, Bent 1948, DeSante and Ainley 1980, Small 1994, Zeiner et al. 1990), as well as pinyon-juniper woodland and the Bristlecone-Limber Pine Zone (Morrison et al. 1993). However, within these communities, they are restricted to rocky outcrops, talus slopes, cliffs, and earthen banks, which provide refuge, foraging and breeding sites (Grinnell and Miller 1944, Bent 1948, DeSante and Ainley 1980, Zeiner et al. 1990, Oppenheimer and Morton 2000). They may also utilize small mammal burrows (Small 1994).

P-13.7 (cont.)

Spatial Patterns: No information on home range or territory size was available in the literature, though several density estimates exist (Zeiner et al. 1990). In eastern Oregon, Anderson et al. (1972) found 25 breeding males per 40 ha (100 ac) in juniper-sage habitat. In Montana, Walcheck (1970) recorded 5 pairs per 40 ha (100 ac) in pine-juniper woodland. In Arizona, Hensley (1954) observed 5-8 pairs of rock wrens per 40 ha (100 ac) in the Sonoran Desert.

Research on the movement ecology of this species is lacking. Populations at higher elevations may move downslope in winter, while populations further north may migrate southward (Grinnell and Miller 1944, DeSante and Ainley 1980, Zeiner et al. 1990).

Conceptual Basis for Model Development: Rock wren movement in the linkage is likely multigenerational. They may utilize a variety of open habitats, including Great Basin scrub, desert scrub, pinyon-juniper woodland, deep-cut arroyos, dry gravelly washes, perennial grassland, as well as rocky outcrops and barren areas within chaparral, montane hardwood conifer and mixed coniferous forests. Core areas were defined as ≥ 290 ha (716 ac). Patch size was classified as ≥ 3.2 ha (7.9 ac) but less than 290 ha. Dispersal distance was not estimated for this species.

Results & Discussion: The habitat suitability analysis identified vast amounts of suitable habitat for rock wren, though the rocky outcrops and barren areas preferred by this species are patchily distributed in a number of vegetation communities in the planning area (Figure 39). The easternmost branch of the Union contains the most contiguous potential core habitat for this species, though all branches of the Union contain potential habitat (Figure 40). We conclude that the linkage will likely serve this species.

To protect and maintain habitat for rock wren, we recommend that inholdings that could fragment habitat and introduce non-native predators (e.g., dogs, cats; Winter 2003) be conserved through conservation easements, fee title agreements, acquisition, or other means.

P-13.7
(cont.)

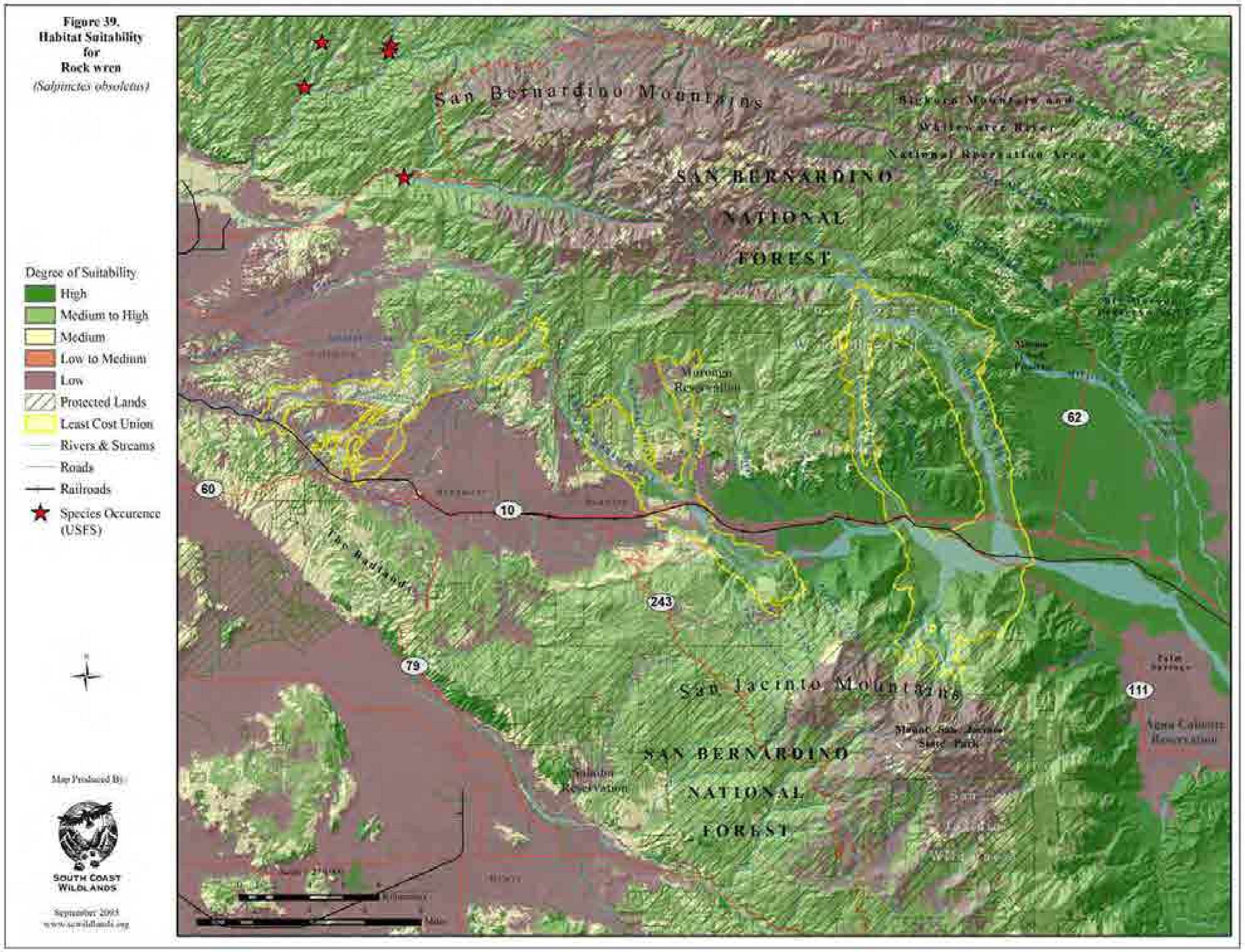


Figure 39.
Habitat Suitability
for
Rock wren
(Salpinctes obsoletus)
Degree of Suitability
High
Medium to High
Medium
Low to Medium
Low
Protected Lands
Least Cost Union
Rivers & Streams
Roads
Railroads
Species Occurence (USFS)
San Bernardino Mountains
SAN BERNARDINO NATIONAL FOREST
Morongo Reservation
62
60
10
243
79
111
The Badlands
San Jacinto Mountains
Mount San Jacinto State Park
Agua Caliente Reservation
Soboba Reservation
SAN BERNARDINO NATIONAL FOREST
Map Produced By:
SOUTH COAST WILDLANDS
September 2005
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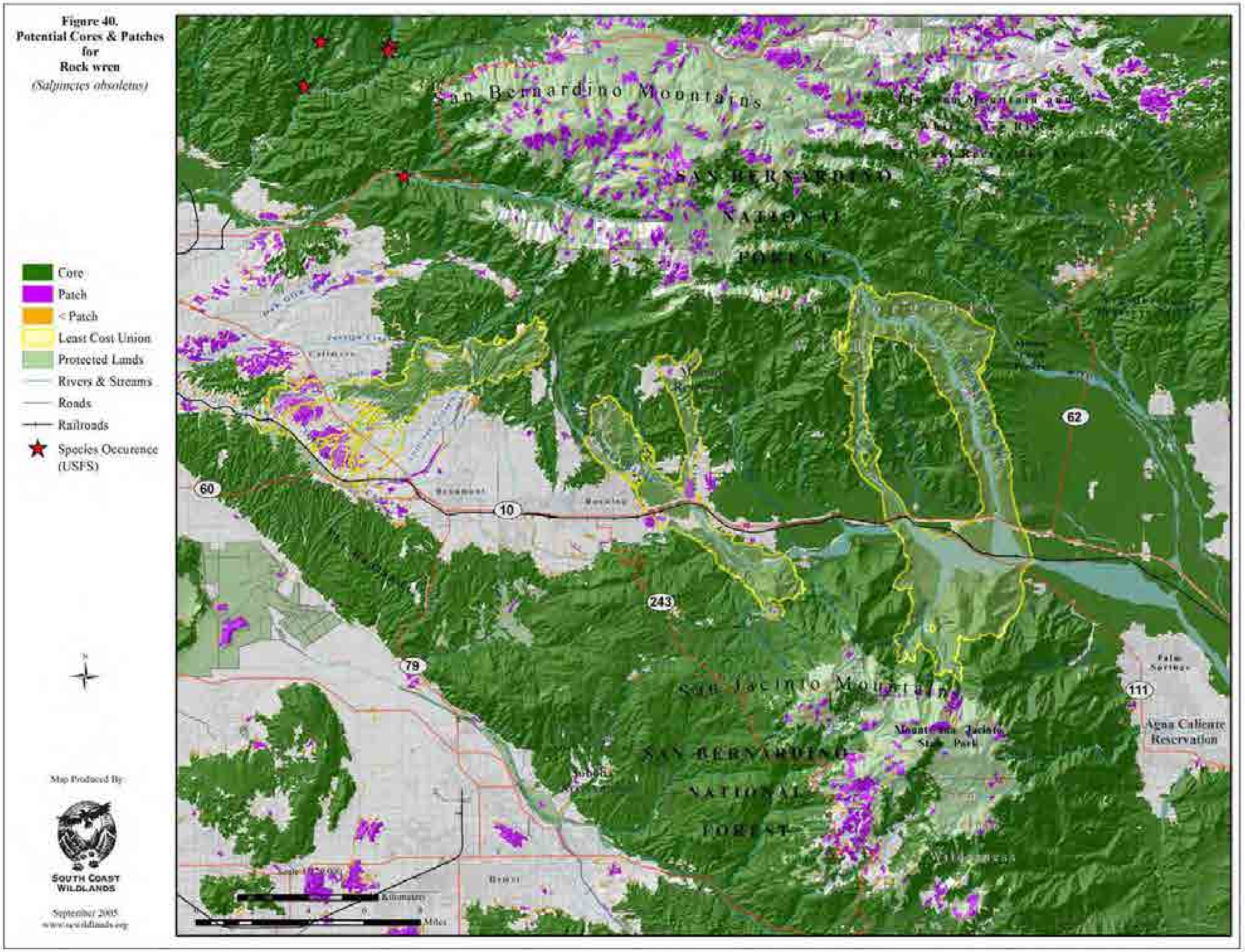
P-13.7 (Cont.)

Comment P-13



P-13.7
(Cont.)

Wrentit (Chamaea fasciata)

Justification for Selection: The wrentit has been identified as an indicator species for Mediterranean scrub habitats, which are extremely threatened in southern California (Soulé et al. 1988, Chase et al. 2000, Crooks et al. 2001). Wrentits are highly sensitive to habitat fragmentation and are reluctant to cross roads, trails and firebreaks since they rarely venture far from cover (Small 1994). They require core habitat to persist (Crooks et al. 2001, Crooks et al. 2004).

Distribution & Status: The wrentit is virtually a California endemic, although it occurs from near the Oregon state line to the Mexican border. They are generally distributed west of the Cascades, the Sierra Nevada crest and the desert (Small 1994, Barhoum and Burns 2002). The planning area is on the eastern edge of its distribution. Wrentits typically breed from sea level to near 2,300 m (7,546 ft; Geupel et al. 2002), but have been found up to 2,500 m (8,200 feet) in the San Jacinto Mountains (Garrett and Dunn 1981, Small 1994). The wrentit is not a special status species.

Habitat Associations: Wrentits are strongly associated with chaparral and other shrubby habitats. They inhabit lowland hard and montane chaparral, coastal sage scrub, northern coastal scrub, or other habitats with a dense, structurally complex understory (Grinnell and Miller 1944, Zeiner et al. 1990, Small 1994, Geupel et al. 2002). They may also be encountered in well-developed riparian habitats that contain oaks (*Quercus* sp.), willow (*Salix* sp.) scrub, Coyote bush (*Baccharis* sp.), poison oak (*Toxicodendron* sp.), and blackberry (*Rubus* sp.) thickets (Small 1994, Geupel et al. 2002). They may also utilize shrubby understories in some conifer habitats (Grinnell and Miller 1944, Geupel et al. 2002). **P-13.7 (cont.)**

Spatial Patterns: Home range size is believed to be the same as territory size (Zeiner et al. 1990). Territories are typically smaller in denser scrub communities (Erickson 1938, Geupel et al. 2002). A recent study in coastal California (Geupel et al. 2002) evaluated territories of 105 pairs that averaged 0.6 ha (1.5 ac), with a range of 0.2 to 2.2 ha (0.6 to 5.3 ac). Cogswell (1962) evaluated 361 pairs and reported smaller territories in Los Angeles County that averaged 0.5 ha (1.3 ac), with a range of 0.2 to 1.2 ha (0.5 to 3 ac). Other studies in Los Angeles County reported similar results (Mans 1961, Kingery 1962). Wrentits are likely to be extirpated from habitat fragments smaller than 10 ha (24.7 ac) in size (Soulé et al 1988, Crooks et al. 2001, Crooks et al. 2004).

Natal dispersal distances of wrentits average less than 400 m (1,312 ft) (Baker et al. 1995, Geupel et al. 2002). They typically stay within their territories, although outside of the breeding season off-territory movements of up to 500 m (1,640 ft) may occur (Geupel et al. 2002). In mountainous regions, juveniles may move upslope after the breeding season (Garrett and Dunn 1981, Small 1994).

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Conceptual Basis for Model Development: Movement in the linkage is likely multigenerational. The wrentit requires dense habitats with plenty of cover. They prefer chaparral and coastal sage scrub, but may also be found in other habitats with dense cover. Core areas were defined as ≥14 ha (34.5 ac), while patch size was classified as ≥ 1 ha (2.47) but <14 ha. Dispersal distance was defined as 1 km (0.62 mi).

Results & Discussion: Extensive highly suitable habitat was identified for wrentit in the mid to lower elevations of the San Bernardino and San Jacinto Mountains and in the Badlands (Figure 41). The great majority of suitable habitat was delineated as potential core areas for this species (Figure 42). The western branch of the Least Cost Union provides the most direct connection between core areas and patches of suitable habitat for this chaparral specialist, while the central branch may provide a secondary connection (Figure 41, 42). The majority of cores and patches of suitable habitat are within the dispersal distance defined for this species (Figure 43), although numerous barriers to movement may exist between suitable habitat patches. We conclude that the linkage is likely to serve the needs of this species for movement among populations if habitat is added to the Union in the foothills of the San Jacinto Mountains.

Habitat loss and fragmentation is an issue for this species throughout much of their range. They are largely absent from smaller habitat patches (Soulé et al 1988, Crooks et al. 2001). To protect and restore habitat connectivity for wrentits, we recommend that:

- Inholdings that could fragment habitat and introduce non-native predators (e.g., dogs, cats; Winter 2003) be conserved through conservation easements, fee title agreements, or other means.

- Fire frequency is controlled to prevent type conversion of chaparral and scrub habitats to nonnative annual grassland (Winter 2003).

P-13.7 (cont.)

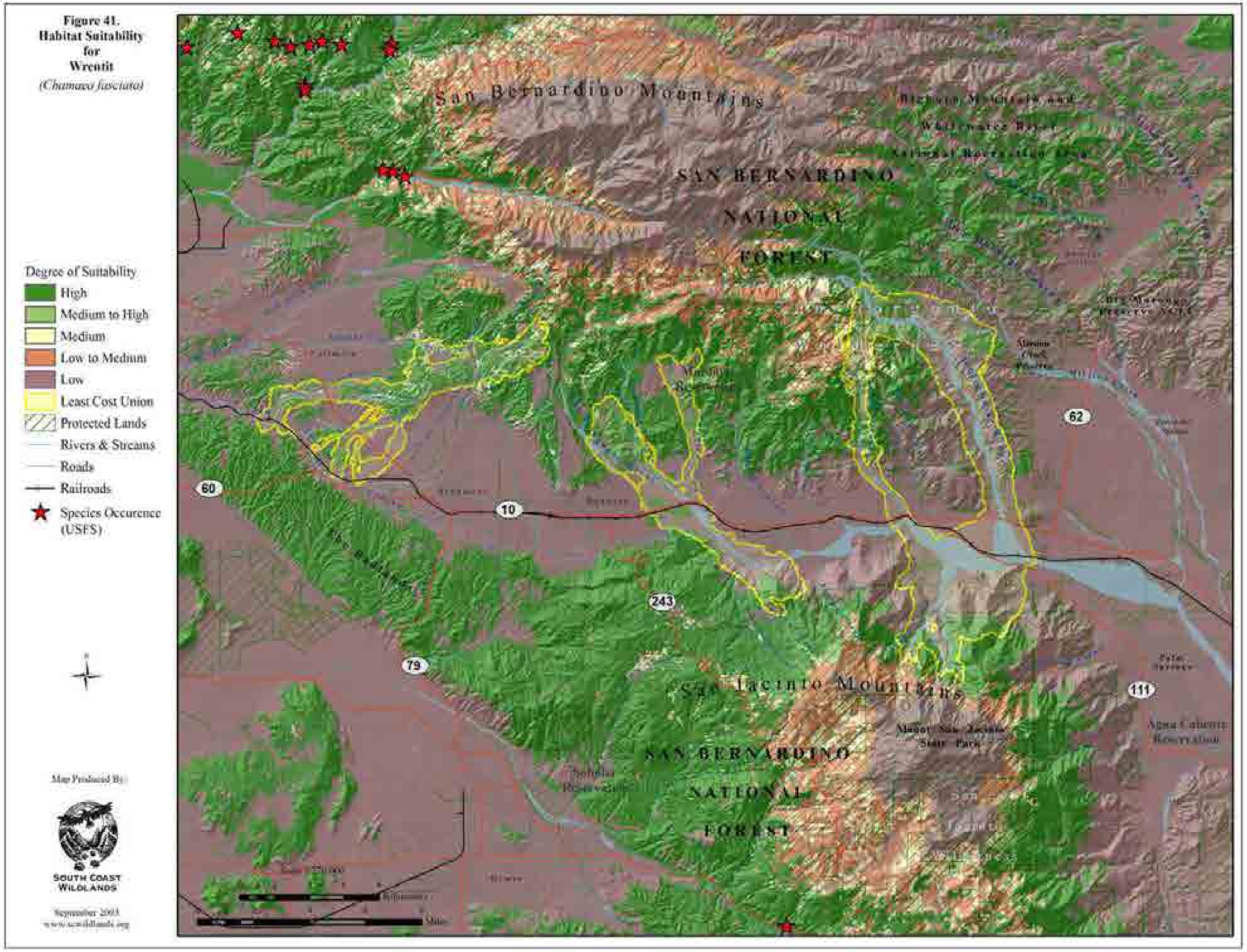
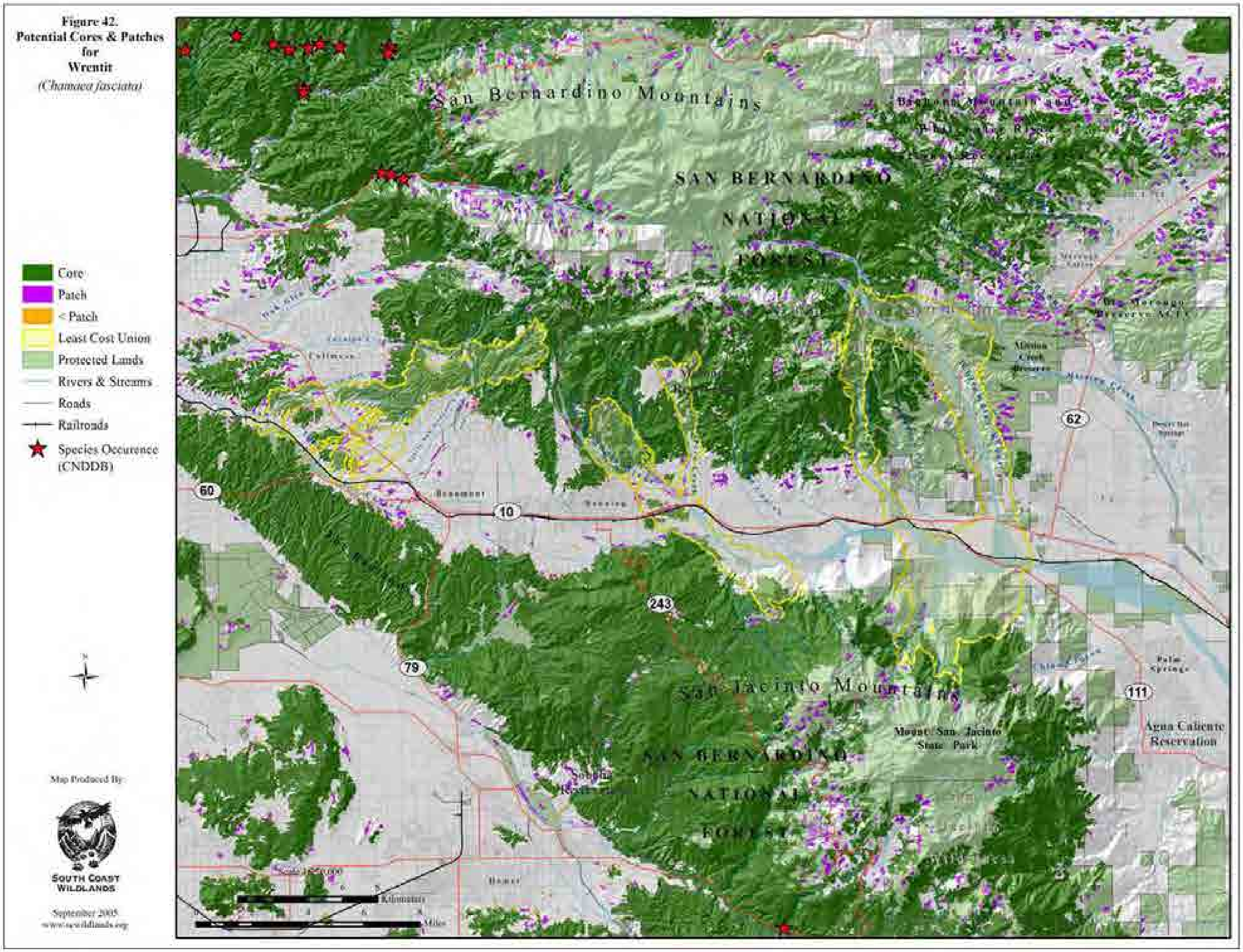


Figure 41.
Habitat Suitability
for
Wrentit
(Chamaea fasciata)
Degree of Suitability
High
Medium to High
Medium
Low to Medium
Low
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
Species Occurence
(USFS)
Map Produced By:
South Coast
Wildlands
San Bernardino Mountains
SAN BERNARDINO
NATIONAL
FOREST
San Jacinto Mountains
SAN BERNARDINO
NATIONAL
FOREST
Mount San Jacinto
State Park
Agua Caliente
Reservation
10
60
62
79
111
243

P-13.7
(Cont.)

Comment P-13



P-13.7
(Cont.)

Comment P-13

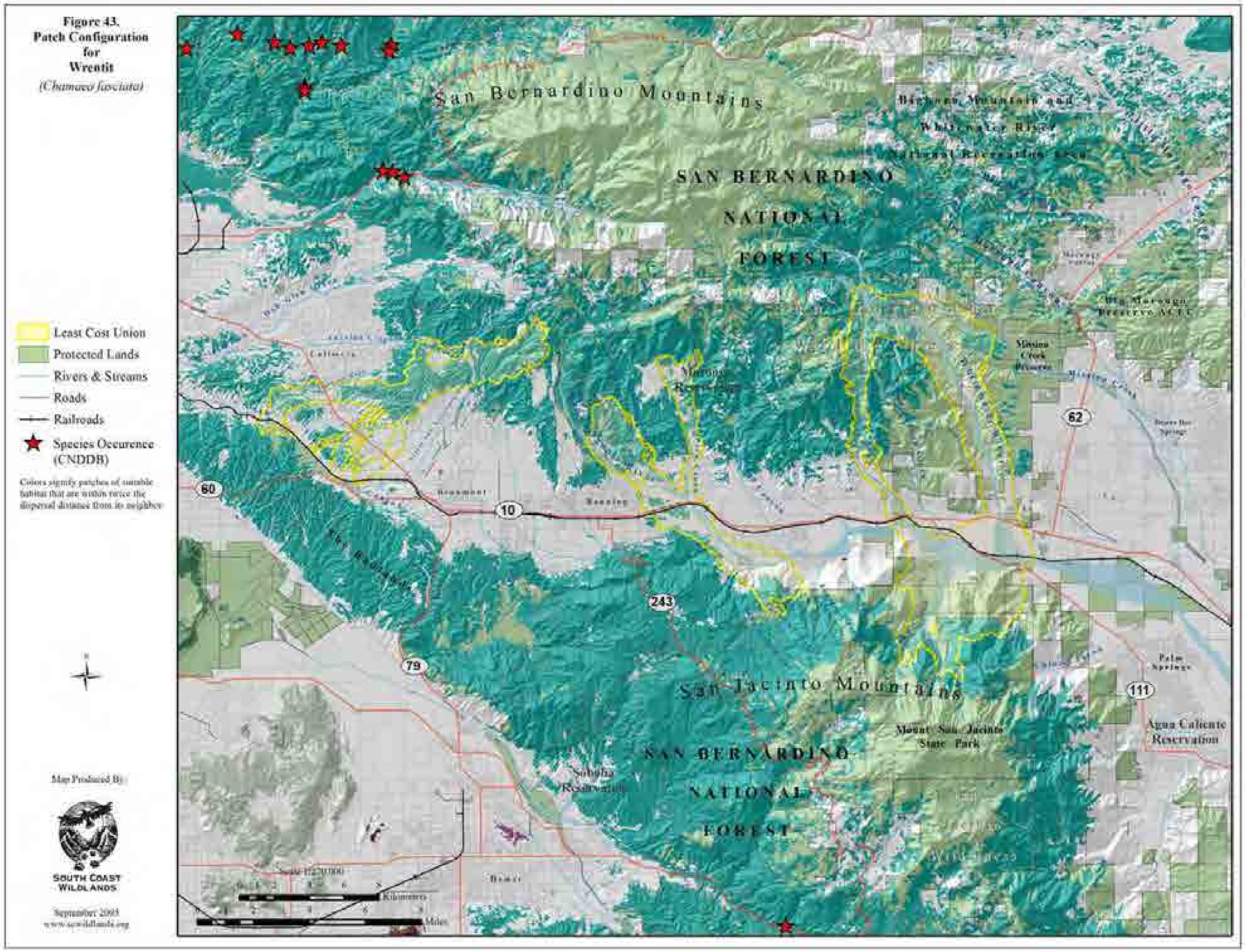


Figure 43.
Patch Configuration for Wrentit
(Chamaea fasciata)

P-13.7
(Cont.)

California treefrog (*Hyla cadaverina*)

Justification for Selection: California treefrogs are habitat specialists with low capacity to leave moist streamside environments.

Distribution: California treefrogs are patchily distributed from central San Luis Obispo County south to the Mexican border (Zeiner et al. 1988) and can occur at elevations up to 1,690 m (5,500 ft; Stebbins 1985).

Habitat Associations: Adults occur in deeply cut canyons with stream boulders and large, slow pools (Kay 1989). They summer under rocks, or in rock cracks at the water's edge, and spend late fall and winter inactive in deep moist crevices (Harris 1975). They breed in quiet waters of rivers and creeks, and tadpoles require standing water up to 2.5 months (Stebbins 1954).

Spatial Patterns: Frogs in Los Angeles County living along an ephemeral stream made daily movements up to 200 m (656 ft), although 83% of all movements measured were less than 25 m (82 ft; Kay 1989). Home ranges of individuals overlap.

Long-distance movements are restricted to streamside areas and vary between 34 and 506 m (112-1,660 ft; Kay 1989). Two of 9 frogs displaced 300 m (980 ft) from the point of capture were recaptured at their capture location (Kay 1989). Frogs rarely move from the streamside with winter observations occurring up to 12 m (39 ft) from streams (Harris 1975). **P-13.7 (cont.)**

Conceptual Basis for Model Development: Treefrog movement in the linkage is likely multigenerational. Suitable habitat was identified as riparian vegetation. Because habitat quantity is a poor predictor of population density in treefrogs, we did not designate a minimum patch size, and included all suitable habitats as potential core habitat for this species.

Results and Discussion: The treefrog is restricted to riparian areas, which are fairly widespread in the targeted core areas but more limited in the vicinity of the connection (Figure 44). Potential habitat for the treefrog was identified in the Least Cost Union in the Whitewater River and in upper Stubbe Canyon. A potential riparian connection between targeted core areas is along the Whitewater River (Figure 44), especially if habitat restoration efforts are undertaken. We suggest adding habitat to the Union in Stubbe Canyon and along the San Gorgonio River. To restore and protect habitat connections for treefrogs between the San Bernardino and San Jacinto Mountains, we recommend that:

- Habitat restoration is initiated in Whitewater River to re-establish a gallery forest along the length of the river to its confluence with the San Gorgonio River.

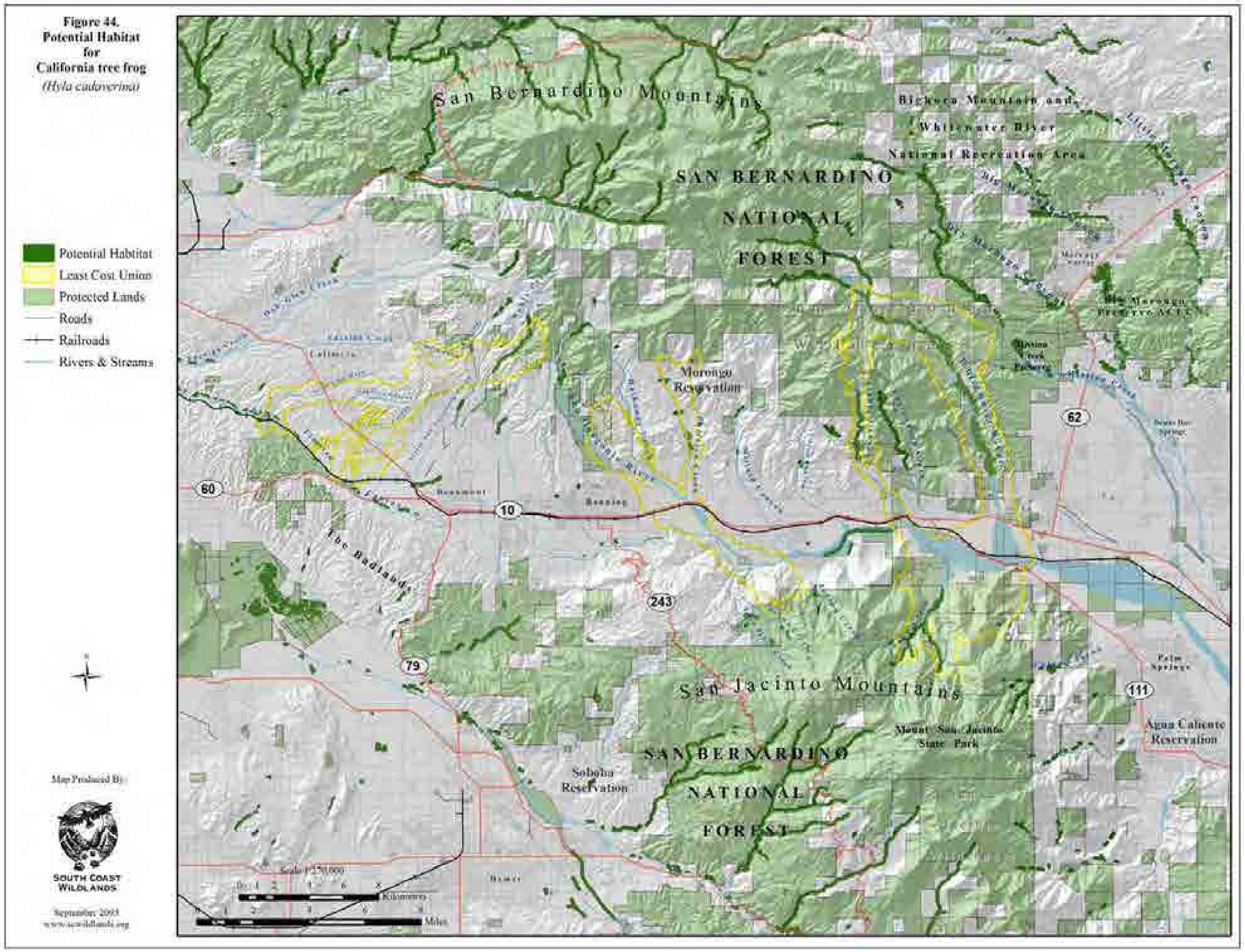


Figure 44.
Potential Habitat
for
California tree frog
(Hyla cadaverina)
Potential Habitat
Least Cost Union
Protected Lands
Roads
Railroads
Rivers & Streams
Map Produced By:
SOUTH COAST WILDLANDS
September 2005
www.scwildlands.org
San Bernardino Mountains
SAN BERNARDINO
NATIONAL
FOREST
Bighorn Mountain and
Whitewater River
National Recreation Area
Morongo
Reservation
Big Morongo
Preserve
60
10
62
243
79
111
Beaumont
Banning
The Badlands
San Jacinto Mountains
Mount San Jacinto
State Park
Agua Caliente
Reservation
Palm
Springs
Soboba
Reservation
SAN BERNARDINO
NATIONAL
FOREST
Scale 1:250,000
Kilometers
Miles

P-13.7
(Cont.)

- Riparian habitats needed for breeding and movement are restored.
- Invasive species be eradicated that destroy treefrog habitat (e.g., giant reed, tamarisk) and prey on tadpoles (e.g., bullfrogs and non-native fish).
- Road barriers be modified, where necessary, to allow amphibians to move along riparian corridors.
- Water quality that is compromised by runoff be restored.
- Eliminate feral cattle in Stubbe Canyon to stop overgrazing which could lead to the loss of gallery cottonwood forest.
- Attempt to expand gallery forest in Stubbe Canyon and Whitewater River.

P-13.7
(cont.)

Coast horned lizard (*Phrynosoma coronatum blainvillii*)

Justification for Selection: The coast horned lizard is highly sensitive to habitat loss and fragmentation. This species needs expansive roadless wildlands to persist.

Distribution & Status: This California endemic has 2 subspecies (*P. c. blainvillii* and *P. c. frontale*) whose ranges overlap. *P. c. blainvillii* occurs in the planning area (Stephenson and Calcarone 1999). The known elevational range for this species is from near sea level to 1,980 m (6,496 ft; Jennings and Hayes 1994).

The horned lizard has been extirpated from nearly 45% of its former range (Jennings and Hayes 1994). Agriculture, flood control, and urbanization are cited as the main reasons for its decline (Jennings and Hayes 1994). These activities promote biological invasions by Argentine ants that eliminate native ant colonies, which the horned lizard is highly dependent upon for sustenance (Pianka and Parker 1975, Montanucci 1989, Suarez et al. 2000, Suarez and Case 2002, Fisher et al. 2002). Domestic cats can also penetrate considerable distances into otherwise suitable habitat, eliminating horned lizards within a several km radius (Jennings and Hayes 1994). This species is identified as Sensitive by the federal government and is considered a California Species of Special Concern.

P-13.7 (cont.)

Habitat Associations: The horned lizard frequents several vegetative communities, including inland dunes, alluvial fans, open coastal scrub and chaparral, annual grassland with scattered perennial seepweed or saltbush, clearings in coniferous forests, broadleaf woodlands, riparian woodlands, and pine-cypress forests. However, they prefer the gravelly-sandy substrate of alluvial fans and flats dominated by alkali plants (Stebbins 1985, Zeiner et al. 1988, Jennings and Hayes 1994). Essential habitat characteristics are loose, fine sandy soils, an abundance of native ants or other invertebrates, open areas for basking, and scattered low shrubs for cover and refuge (Stebbins 1985, Fisher et al. 2002). This species may utilize small mammal burrows, or tunnel into loose soils during periods of inactivity or hibernation (Jennings and Hayes 1994).

Spatial Patterns: Little is known about home range size (Zeiner et al. 1988) or dispersal distance for this species. Fisher et al. (2002), estimated home range size of about 0.1 km^2 (10 ha or 25 ac). In a related species, *P. Solare*, males moved maximum distances of 30 m (98 ft) while females moved maximum distances of 15 m (49 ft; Zeiner et al. 1988).

Conceptual Basis for Model Development: Movement in the linkage is multigenerational. Horned lizards may use alluvial fans, alkali flats, alkali desert scrub, dunes, open coastal scrub and chaparral, annual grassland, and clearings in coniferous forests, broadleaf woodlands, and riparian woodlands. They avoid urban and agricultural developments and areas of high road density. Core areas potentially supporting 25 pairs were defined as ≥ 250 ha (618 ac). Patch size was classified as ≥ 20 ha (50 ac) but less than 250 ha. Dispersal distance was defined as 60 m (200 ft), using twice the longest recorded distance.

Results & Discussion: The most highly suitable habitat for horned lizard is in open areas within chaparral and coastal sage habitats (Figure 45). Extensive potential core areas were identified on the western slopes and foothills of the San Bernardino and San Jacinto mountains, with the largest potential core area in the planning area encompassing a contiguous block of highly suitable habitat that extends from the San Jacintos to the Badlands (Figure 46). The western branch of the Least Cost Union provides the most direct connection between core areas and patches of suitable habitat for the horned lizard, while the central and easternmost branches of the Union may provide secondary connections for this species, as the horned lizard has been recorded in each of these areas (CDFG 2005). The patch configuration analysis suggests that the majority of cores and patches of suitable habitat are within the dispersal distance defined for this species (Figure 47), although numerous barriers to movement may exist between suitable habitat patches. We conclude that the linkage is likely to serve the needs of this species if habitat is added to the Union along the San Gorgonio River and in the foothills of the San Jacinto Mountains.

Research indicates this species is more likely to persist in larger habitat patches because of its dependence on native ants, which only occur in undisturbed habitats (Suarez and Case 2002, Fisher et al. 2002). They need large patches of suitable habitat that are in close proximity to one another (Fisher et al. 2002). To protect and restore habitat connectivity for horned lizard, we recommend that:

- Crossing structures be placed fairly frequently to facilitate movement across major transportation routes and reduce travel distance (Jackson and Griffin 2000, McDonald and St. Clair 2004). **P-13.7 (cont.)**

- Short retaining walls are installed in conjunction with crossing structures along paved roads in the Linkage Design to deter horned lizards from accessing roadways (Jackson and Griffin 2000).

- Fire frequency is controlled to prevent type conversion of chaparral and scrub habitats to nonnative annual grassland.

- Inholdings that could fragment habitat and introduce non-native ants be conserved through conservation easements, fee title agreements, acquisition, or other means.

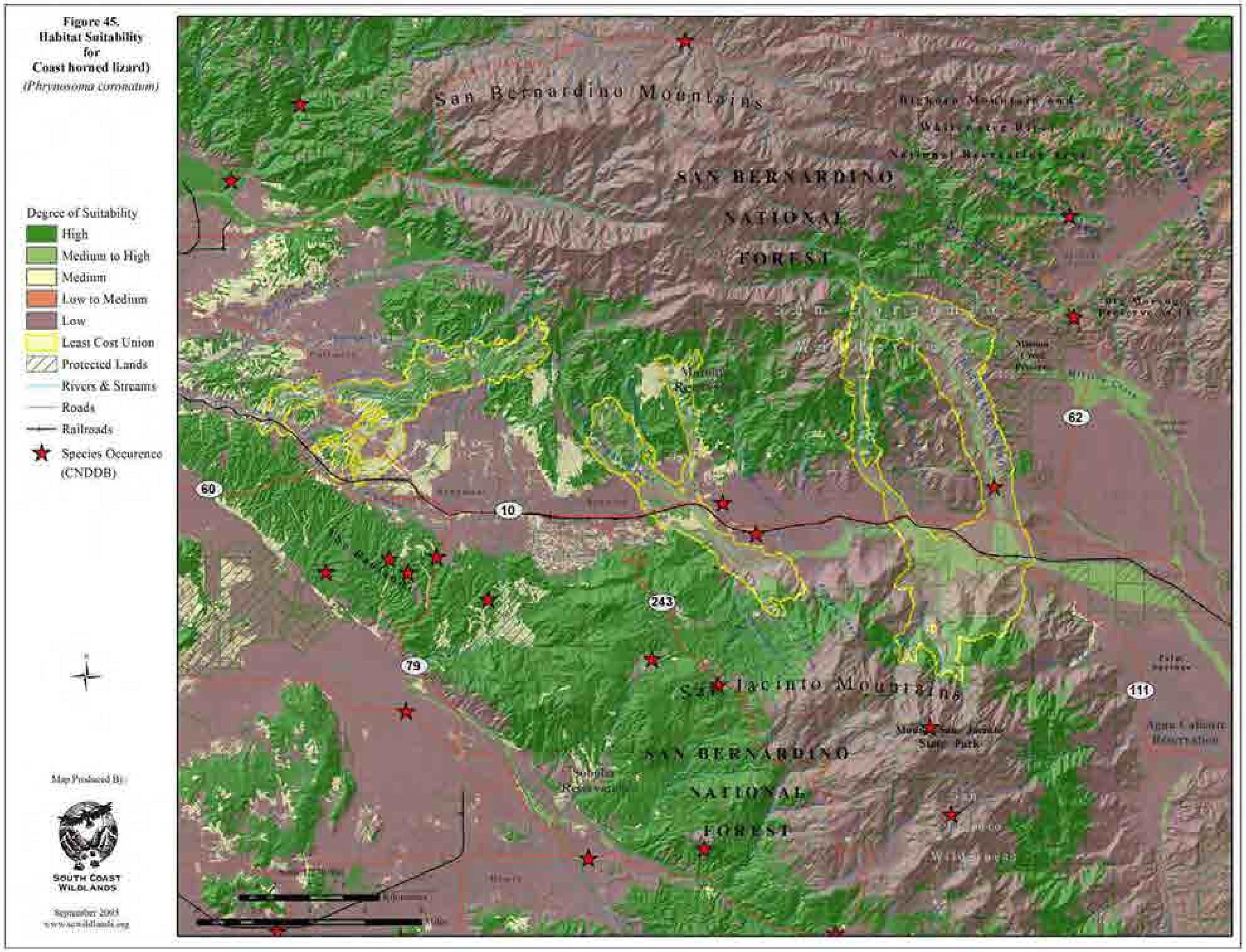


Figure 45.
Habitat Suitability
for
Coast horned lizard)
(Phrynosoma coronatum)
Degree of Suitability
High
Medium to High
Medium
Low to Medium
Low
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
Species Occurence (CNDDB)
Map Produced By:
South Coast Wildlands
September 2005
San Bernardino Mountains
SAN BERNARDINO NATIONAL FOREST
San Jacinto Mountains
SAN BERNARDINO NATIONAL FOREST
60
10
62
243
79
111

P-13.7
(Cont.)

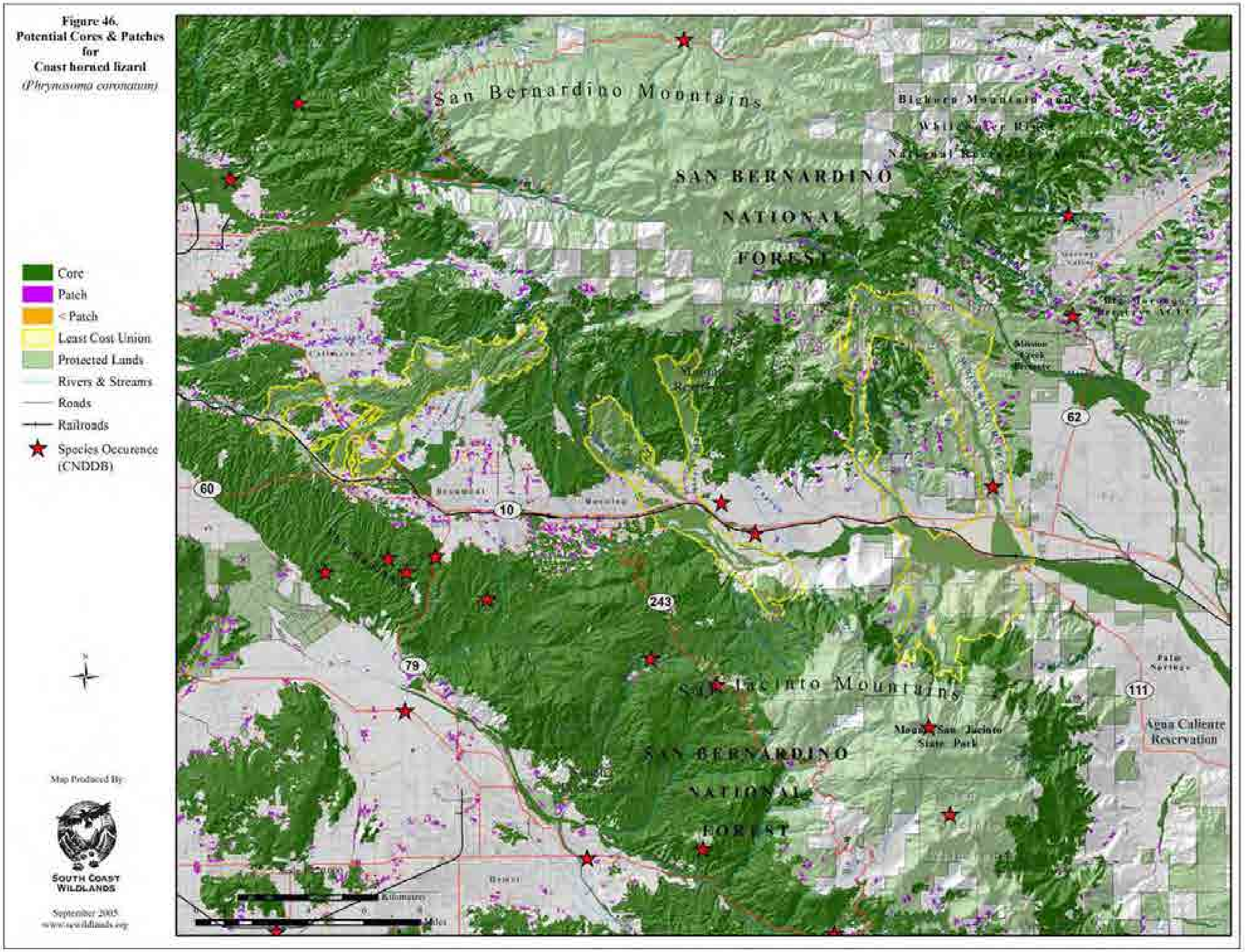
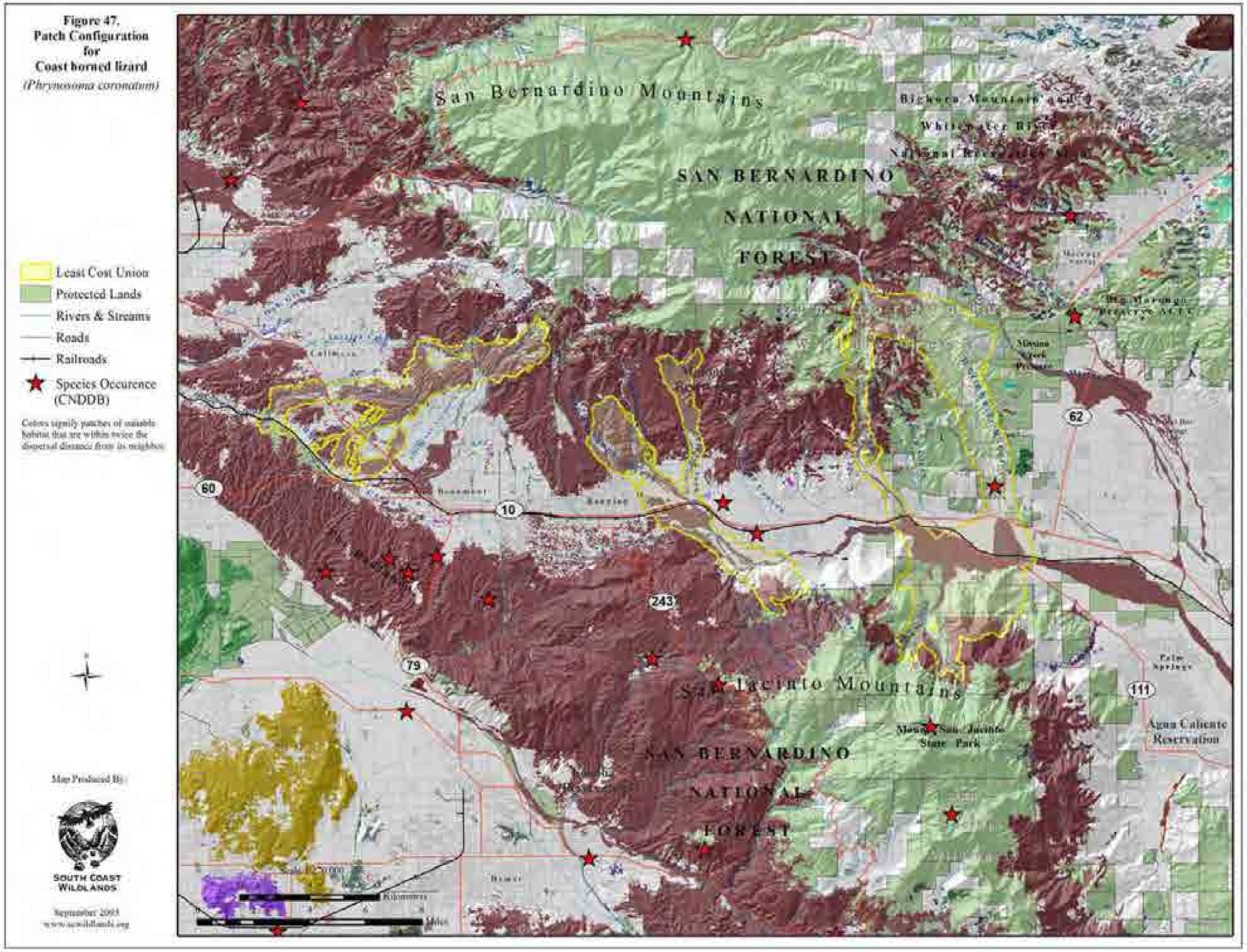


Figure 46.
Potential Cores & Patches
for
Coast horned lizard
(Phrynosoma coronatum)
Core
Patch
< Patch
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
Species Occurence
(CNDDB)
San Bernardino Mountains
SAN BERNARDINO
NATIONAL
FOREST
San Jacinto Mountains
SAN BERNARDINO
NATIONAL
FOREST
Agua Caliente
Reservation
60
10
62
243
79
111
Map Produced By:
SOUTH COAST
WILDLANDS
September 2005

P-13.7
(Cont.)

Comment P-13



P-13.7
(Cont.)

Chaparral whipsnake (Masticophis lateralis lateralis)

Justification for Selection: The chaparral whipsnake is particularly sensitive to habitat fragmentation. Patten and Bolger (2003) found this species to be most common in large core areas and largely absent from smaller habitat fragments, with the probability of occurrence declining steadily with fragmentation across a fragmentation gradient (Patten and Bolger 2003).

Distribution & Status: The chaparral whipsnake is one of two subspecies of the California whipsnake (*Masticophis lateralis*); the other is the endangered Alameda whipsnake (*M. l. euryxanthus*). The range of the chaparral whipsnake extends from northern California, west of the Sierran crest and desert, to central Baja California, largely coinciding with the distribution of chaparral habitats (Hammerson 1979, Jennings 1983, Stebbins 1985, USFWS 2000). The planning area is on the eastern edge of this species' distribution. The species may be found from sea level to 1,835 m (6,020 ft) in elevation (Zeiner et al. 1988).

Habitat loss and fragmentation of terrestrial and aquatic habitats are cited as the primary threats to the whipsnake (USFWS 2000, Patten and Bolger 2003). Habitat conversion and alteration, including water diversions and groundwater pumping, are likely barriers to dispersal (USFWS 2000). The chaparral whipsnake isn't considered a special status species. **P-13.7 (cont.)**

Habitat Associations: The chaparral whipsnake, as its name implies, prefers mixed chaparral and chamise-redshank chaparral habitats (Zeiner et al. 1988, Swaim 1994, USFWS 2000). This species may also be encountered in valley foothill riparian, valley foothill hardwood, hardwood conifer, and various coniferous forests (Zeiner et al. 1988), as well as coastal sage scrub and coyote bush scrub habitats (Swaim 1994, USFWS 2000). Radio-telemetry studies indicate that whipsnakes regularly journey into grassland, oak savanna, and occasionally oak-bay woodland habitats (Swaim 1994, USFWS 2000). Grassland habitats may be particularly important to females for egg-laying sites (Swaim 1994, USFWS 2000).

Rock outcrops are an essential habitat component because they provide refuge and support lizard populations, the whipsnake's primary prey (Stebbins 1985, Swaim 1994, USFWS 2000). The species is known to bask in the sun prior to morning activities but avoids the direct sun at midday by retreating to cover under large rocks or fallen logs or in crevices of rock outcrops (Hammerson 1979, Zeiner et al. 1988).

Spatial Patterns: Although the home range size of the chaparral whipsnake is unknown, it is considered to be extensive for this energetic species (Zeiner et al. 1988). Male home ranges of the Alameda whipsnake, a related subspecies, have been recorded to range from 1.9 to 8.7 ha (4.7-21.5 ac), with 5.5 ha (13.6 ac) noted as the average size (Swaim 1994, USFWS 2000). Research indicates that shrub communities are the focal point of home ranges, though whipsnakes make frequent excursions into adjacent habitats (Swaim 1994, USFWS 2000). Radio-telemetry data suggest most whipsnakes are within 50 m (170 ft) of scrub habitat, though distances greater than 150 m (500 ft) have been recorded (Swaim 1994, USFWS 2000).

The whipsnake is a swift moving snake (Hammerson 1979). The striped whipsnake (*M. t. taeniatus*), an allied species, moved 3.6 km (2.2 mi) after emerging from its hibernaculum (Hirth et al. 1969), and it is likely that the chaparral whipsnake is capable of similar long distance movements (USFWS 2000).

Conceptual Basis for Model Development: The chaparral whipsnake preferentially moves through mixed chaparral and chamise-redshank chaparral habitats, but it may also be encountered in other riparian, woodland, scrub, and grassland habitats below 1,835 m (6,020 ft).

Core areas were identified as ≥137.5 ha (340 ac). Patch size was defined as ≥ 3.8 ha (9.4 ac), but less than 137.5 ha. Dispersal distance was estimated at 7.2 km (4.5 mi), or twice the longest distance recorded for an associated species.

Results & Discussion: Highly suitable habitat for the chaparral whipsnake largely follows the distribution of chaparral habitats in the planning area (Figure 48). The spatial configuration of suitable habitat is fairly extensive, with potential core areas identified in all targeted ranges (Figure 49). The western branch of the Least Cost Union provides the most direct connection between core areas and patches of suitable habitat for the whipsnake, while the central branch of the Union may provide a secondary connection for this species (Figures 48, 49). We recommend adding habitat to the Union in the foothills of the San Jacinto Mountains to serve the needs of this species. All core areas and patches of suitable habitat are within the dispersal distance of this species (figure not shown), though barriers to movement may exist between suitable habitat patches. We conclude that the linkage is likely to serve the needs of this species for movement among populations if habitat is added to the central branch of the Union in the foothills of the San Jacinto Mountains. **P-13.7 (cont.)**

To protect and maintain habitat connectivity between these ranges for the whipsnake, we recommend that:

- Crossing structures be placed fairly frequently to facilitate movement across major transportation routes and reduce travel distance (Jackson and Griffin 2000, McDonald and St. Clair 2004).
- Fire frequency is controlled to prevent type conversion of chaparral and scrub habitats to nonnative annual grassland.

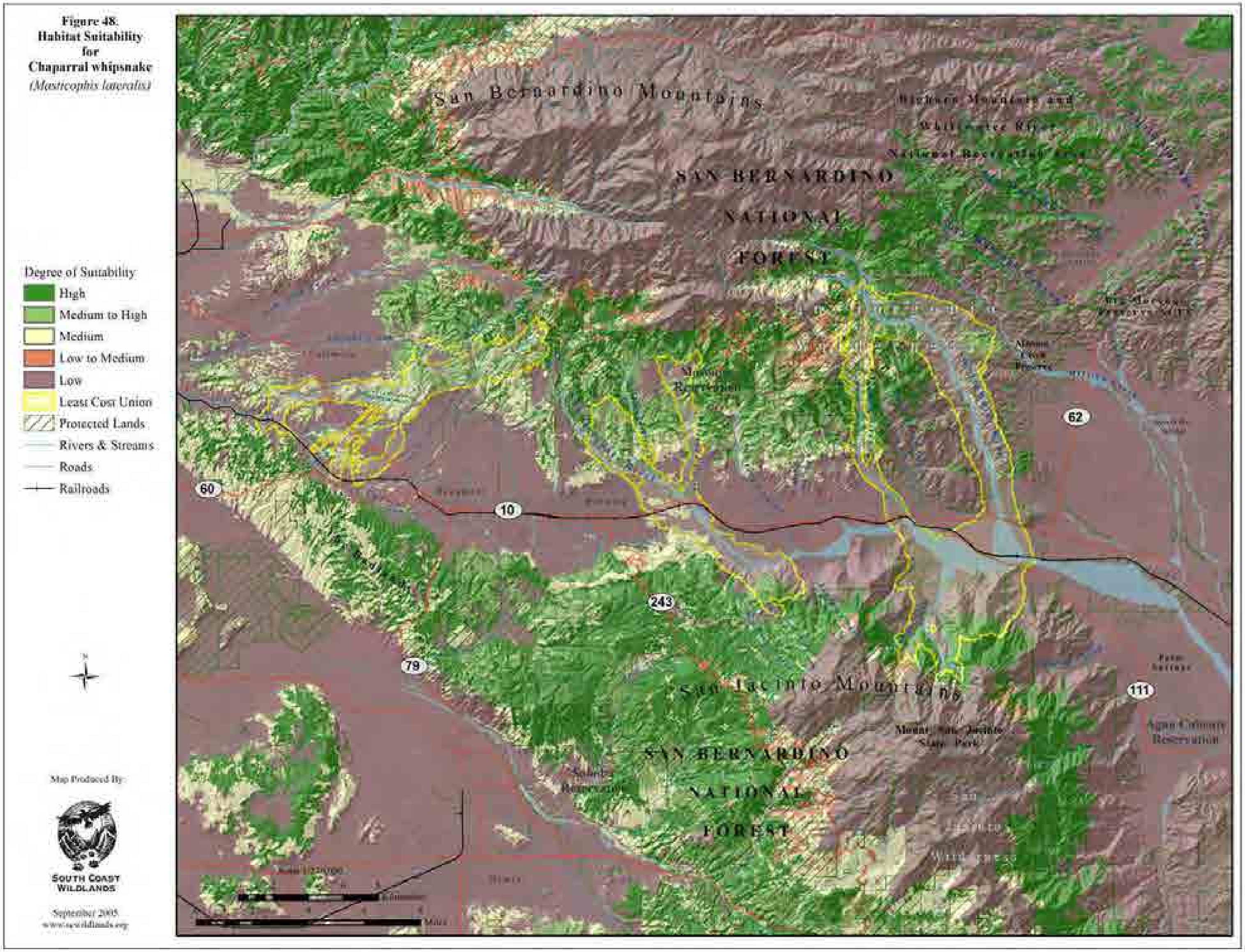


Figure 48.
Habitat Suitability
for
Chaparral whipsnake
(Masticophis lateralis)
Degree of Suitability
High
Medium to High
Medium
Low to Medium
Low
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
San Bernardino Mountains
SAN BERNARDINO
NATIONAL
FOREST
62
60
10
243
79
111
San Jacinto Mountains
Mount San Jacinto
State Park
SAN BERNARDINO
NATIONAL
FOREST
Map Produced By:
SOUTH COAST
WILDLANDS
September 2005

P-13.7
(Cont.)

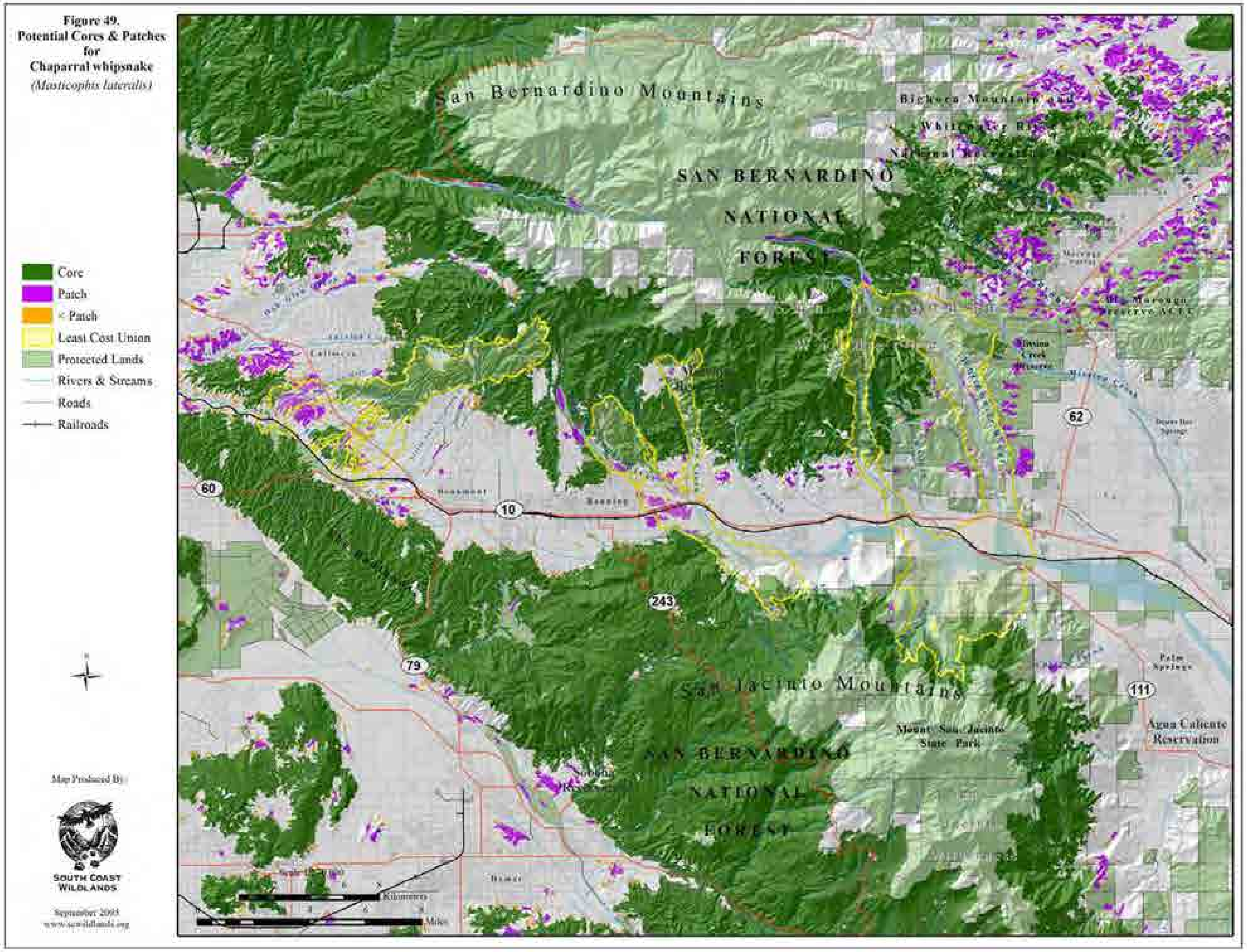


Figure 49.
Potential Cores & Patches for Chaparral whipsnake
(Masticophis lateralis)
Core
Patch
< Patch
Least Cost Union
Protected Lands
Rivers & Streams
Roads
Railroads
San Bernardino Mountains
SAN BERNARDINO NATIONAL FOREST
San Jacinto Mountains
Mount San Jacinto State Park
Agua Caliente Reservation
Palm Springs
Banning
Beaumont
60
10
62
79
111
243
Map Produced By:
SOUTH COAST WILDLANDS
Kilometers
Miles

P-13.7
(Cont.)

Speckled rattlesnake (*Crotalus mitchellii*)

Justification for Selection: This reptile depends on a variety of desert and chaparral habitats. Rattlesnakes are often destroyed when encountered by humans, and are also killed while crossing roads.

Distribution & Status: The distribution of the speckled rattlesnake largely coincides with the Mojave and Sonoran Deserts, but the species may also be encountered on the southern fringes of the Great Basin Desert and in the mountains and coastal facing canyons of San Diego, Riverside, and Orange counties. It occurs from 300-2,200 m (1,000-7,300 ft) elevation (Klauber 1936, 1972, Stebbins 1954, Zeiner et al. 1988, Melli 2000).

The speckled rattlesnake is not listed as sensitive by any government entities, though more snakes are vulnerable to extinction than is currently recognized (Melli 2000).

Habitat Associations: The speckled rattlesnake inhabits a wide range of desert and chaparral habitats but may also utilize pinyon-juniper, valley foothill woodland, and conifer habitats (Klauber 1936, 1972, Stebbins 1954, Zeiner et al. 1988), as well as alluvial deposits in the desert (Melli 2000). They strongly prefer rocky habitats and may be found on steep hillsides, in deep canyons, or in other areas with adequate rocky substrate and dense vegetation. Rock formations, vegetation, and mammal burrows provide shelter (Klauber 1936, 1972, Stebbins 1954, Zeiner et al. 1988). **P-13.7 (cont.)**

Spatial Patterns: No data are available on home range or dispersal for the speckled rattlesnake (Zeiner et al. 1988). However, high-elevation populations of this species are known to move considerable distances to winter hibernacula (Klauber 1972, Zeiner et al. 1988). A closely related species, the red diamond rattlesnake (*C. ruber ruber*) has been more thoroughly researched. In the red diamond rattlesnake, home range sizes of males are larger than those of females and range between 0.5 and 5 ha (1.2-12.4 ac; Tracey 2000). Home ranges of males and females can overlap (T. Brown pers. comm.).

The only reported movement distances for the red diamond rattlesnake are for adults on their home ranges: Males can move 400-700 m (1,312-2,297 ft) from den sites (Tracey 2000). Fitch and Shirer (1971) measured average daily movements for adults at 45 m (147 ft) and found that 10% percent of moves were greater than 150 m (492 ft). Juveniles are more likely to disperse long distances, but no movement data are available for this life stage (Tracey 2000).

Conceptual Basis for Model Development: Suitable habitats for speckled rattlesnakes are chaparral, desert scrub, desert wash, pinyon-juniper, Joshua tree, valley foothill woodland, and conifer habitats types between 300-2,200 m elevation. Core areas were defined as greater than or equal to 2.5 km^2 (1 mi^2). Patch size was classified as ≥ 0.10 km^2 (0.04 mi^2) but < 2.5 km^2. Dispersal distance is 1,400 m (4,600 ft), or twice the maximum recorded movement for an adult red diamond rattlesnake.

Results & Discussion: The most highly suitable habitat identified for the speckled rattlesnake was mixed chaparral, redshank chaparral, riparian and desert wash habitats, while coastal sage and desert scrub habitats also ranked well (Figure 50). Almost all suitable habitat identified for this species in the planning area was designated as potential core areas, with fairly contiguous core habitat identified in all branches of the Least Cost Union (Figure 51). Despite the relatively short dispersal distance adopted for the model, rattlesnakes are able to move among habitat patches due to the relatively high levels of habitat continuity (figure not shown), though barriers to movement may exist between suitable habitat patches. We conclude the linkage is likely to serve this species, though habitats added to the Union to support the needs of other focal species will also benefit the speckled rattlesnake. To protect and restore habitat connectivity for the speckled rattlesnake, we recommend that:

- Crossing structures be placed fairly frequently to facilitate movement across major transportation routes and reduce travel distance (Jackson and Griffin 2000, McDonald and St. Clair 2004).

- Fire frequency is controlled to prevent type conversion of chaparral and scrub habitats to nonnative annual grassland.

P-13.7 (cont.)

Comment P-13

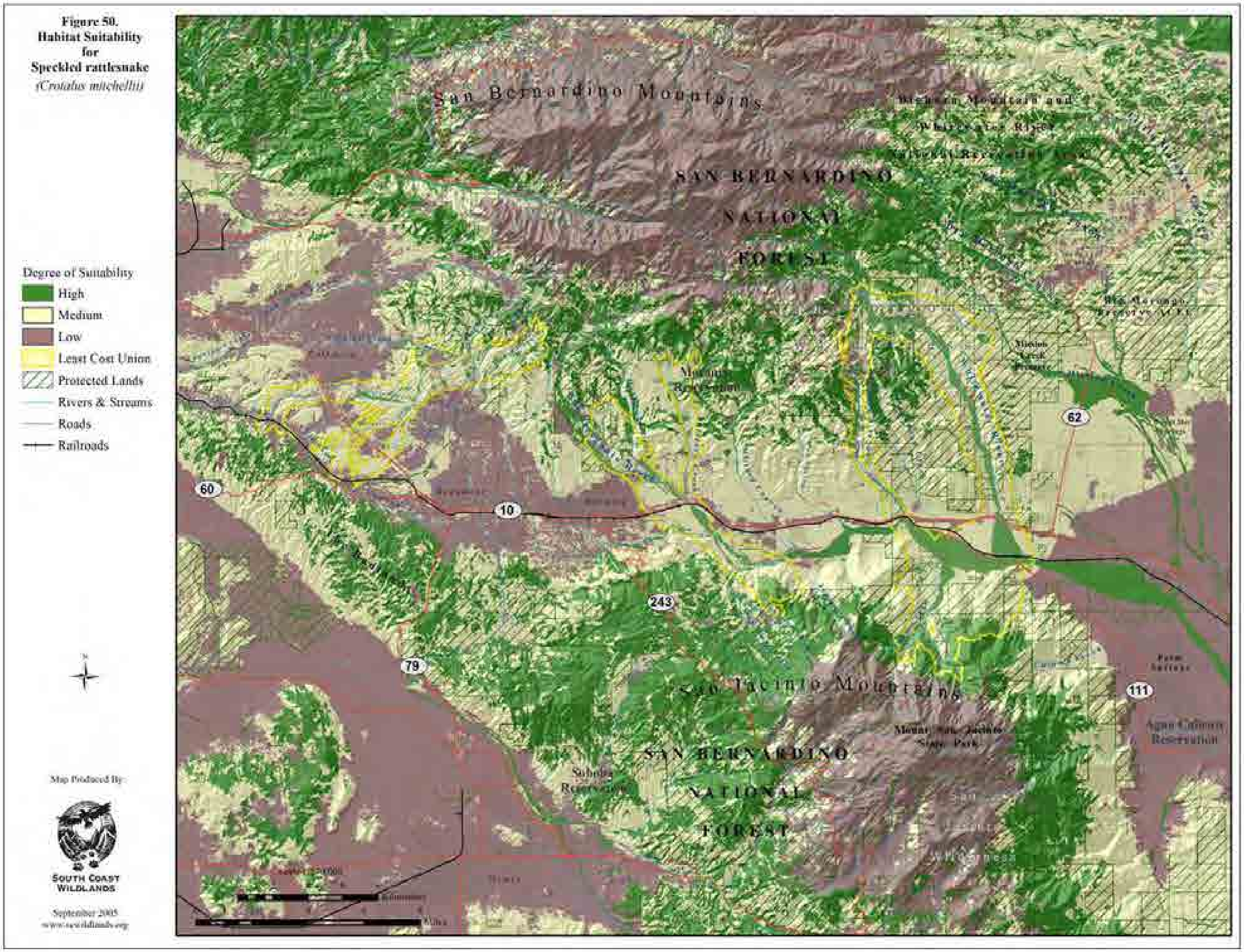


Figure 50. Habitat Suitability for Speckled rattlesnake (*Crotalus mitchellii*)

P-13.7
(Cont.)

Comment P-13

P-13.7
(Cont.)

Tarantula hawk (*Pepsis* spp.)

Justification for Selection: Tarantula hawks are sensitive to changes in habitat and highways may be impediments to their movement (Pratt and Ballmer, pers. comm.).

Distribution & Status: *Pepsis* is a New World genus with 15 species in the United States. *Pepsis formosa* and *P. thisbe* are the most common species in the southwest (Williams undated material). Tarantula hawk distributions are strongly related to the availability of their primary prey, tarantulas (*Aphonopelma* spp.; Hogue 1974, Williams undated material, Pratt and Ballmer, pers. comm.). They may be found at elevations up to 2,286 m (7,500 ft), but are typically encountered at lower elevations (Pratt and Ballmer, pers. comm.)

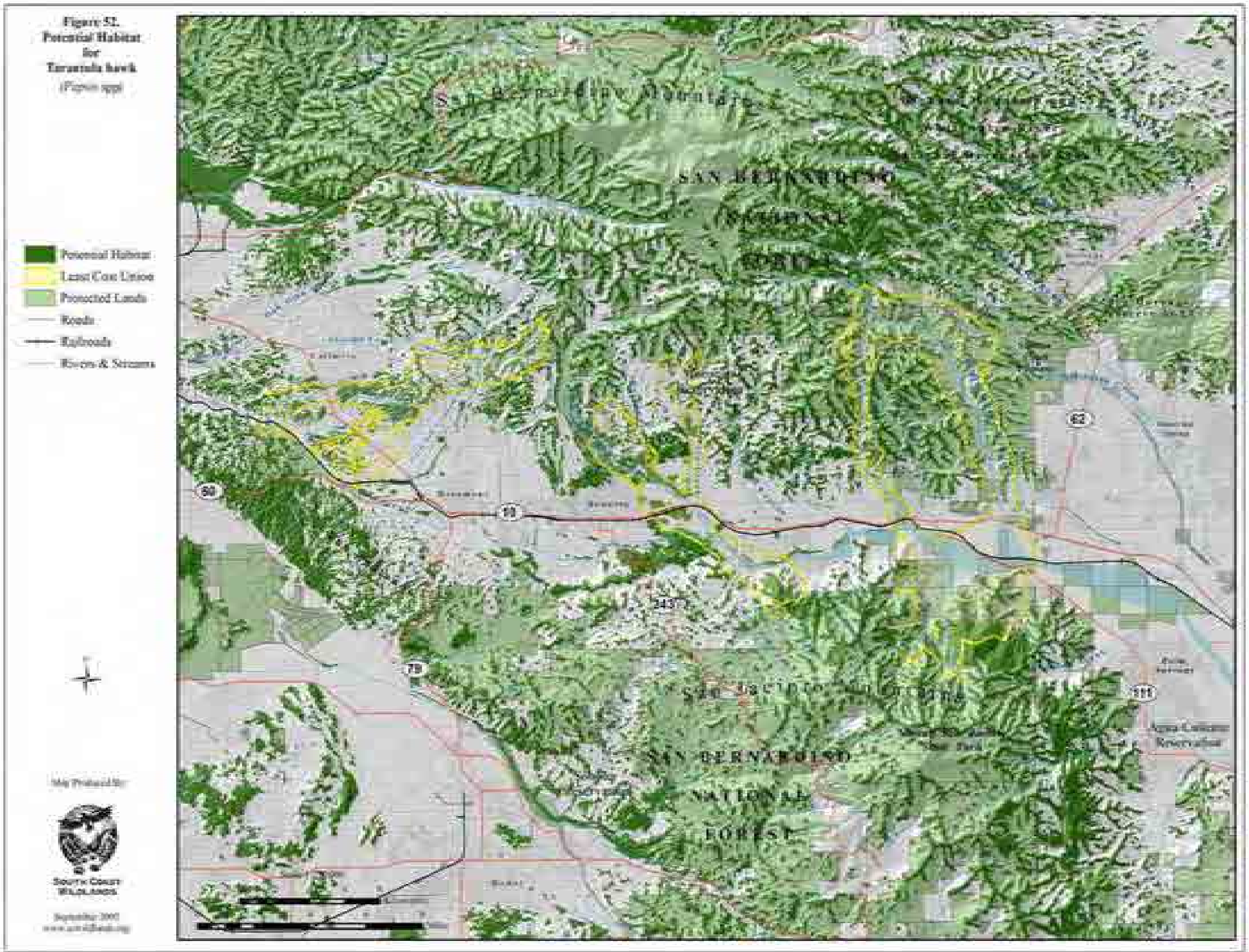
Habitat Associations: Tarantula hawks are associated with communities where milkweed and other nectar sources are available for adults, and host tarantulas are present (Vincent 2000, Pratt and Ballmer, pers. comm.). They may be encountered in coastal sage scrub, alluvial fan scrub, montane chaparral and high desert scrub habitats. Adults are vegetarian, using nectar from a variety of flowers, while the larvae are carnivores and feed on tarantulas (Vincent 2000). Male tarantula hawks engage in a behavior known as hilltopping, in which they stake out territories to find mates (Alcock and Bailey 1997, Williams undated material). **P-13.7 (cont.)**

Spatial Patterns: Tarantula hawks have a fairly lengthy flight season (Alcock 1981, Alcock and Carey 1988, Alcock and Bailey 1997). Males are territorial, defending tall shrubs or small trees growing along ridges and hilltops (Alcock and Bailey 1997). Territorial defense is exhibited during the mating season. Typically there is only one resident per plant and sites are well spaced (Alcock 1981). Home range has been estimated at 3.8 km^2 (1.5 mi^2; Pratt and Ballmer, pers. comm.). No movement or dispersal estimates were available for tarantula hawks.

Conceptual Basis for Model Development: Tarantula hawks may be found in many habitats that offer nectar sources. The following vegetation communities were considered suitable: coastal sage scrub, sagebrush, mixed chaparral, montane chaparral, and chamise-redshank chaparral, below 2,286 m. Access to hilltopping habitat is critically important for population persistence, thus we identified all ridges within 2.4 km (1.5 mi) of appropriate vegetation communities to include them as potential habitat.

Results & Discussion: Extensive suitable habitat was identified for the tarantula hawk in all targeted core areas (Figure 52). The most contiguous suitable habitat for this species in the linkage was identified in the western and central branches of the Least Cost Union. Maintaining habitat quality and access to hilltopping habitat in the linkage is

Comment P-13



P-13.7
(Cont.)

critical to maintain populations of this species. We conclude that the linkage will likely serve the needs of this species, though habitat added to the Union to support other focal species will also benefit the tarantula hawk.

To restore and protect habitat connectivity for this species, we recommend that:

- Nectar sources and habitat quality are maintained in the linkage.
- Fire frequency is controlled to prevent type conversion of chaparral and scrub habitats to nonnative annual grassland.
- Access to hilltopping habitat in the linkage and core areas is maintained.

P-13.7
(cont.)

Metalmark butterfly (*Apodemia mormo*)

Justification for Selection: The metalmark butterfly was selected due to its limited dispersal capabilities and vulnerability to roadkill. Roads are significant barriers for this species (Pratt and Ballmer pers.com).

Distribution & Status: There are 9 species in the genus *Apodemia* (Powell 1975). Although the species *A. mormo* is distributed throughout the western United States and south into Baja California Mexico (Orsak 1977, Scott 1986, Struttman and Opler 2000), the subspecies *A. m. virgulti* occurs only in southern California and south into neighboring Mexico (Orsak 1977). The metalmark butterfly may occur from sea level up to 1,254 m (5,000 ft) elevation (Orsak 1977, Pratt and Ballmer pers.com).

Habitat Associations: This butterfly inhabits arid habitats, such as dry, rocky slopes in desert scrub or xeric chaparral-covered hills, but may also be found in grassland, open woodland, and dune habitats (Scott 1986, Prchal and Brock 1999, Struttman and Opler 2000), as well as coastal sage scrub (Pratt and Ballmer pers.com). Larval host plants include Wright's buckwheat (*Eriogonum wrightii*), Heerman's buckwheat (*E. heermannii;* Pratt and Ballmer 1991, Prchal and Brock 1999), and California buckwheat (*E. fasciculatum;* Orsak 1977). Young caterpillars feed on leaves, while older caterpillars consume both leaves and stems (Scott 1986, Struttman and Opler 2000). Each caterpillar undergoes five stages of growth (instars) prior to transforming into a butterfly (Ballmer and Pratt 1988). Adult nectar sources include many species of buckwheat, as well as other plants, such as Ragwort (*Senecio* sp.) and Rabbitbrush (*Chrysothamnus* sp.; Struttman and Opler 2000). **P-13.7 (cont.)**

Spatial Patterns: The metalmark's flight season is from March to October (Scott 1986, Struttman and Opler 2000), with a peak in late March (Orsak 1977). They live for a little over a week, with an average lifespan of 9 days and 11 days for males and females, respectively (Scott 1986). During this time, they must feed and mate, and females have to locate a host buckwheat plant on which to deposit their eggs before they perish (Essig Museum, undated material). Most of their activities take place in the open; they prefer full sun (Scott 1986). Although density estimates are lacking, metalmarks can be quite abundant in inland areas, particularly in undisturbed foothill habitats (Orsak 1977).

Typically, metalmarks make very limited movements during their life spans, averaging 49 m (161 ft) for males and 64 m (210 ft) for females. The longest recorded movement was 617 m (2,024 ft; Scott 1986).

Conceptual Basis for Model Development: Movement in the linkage is multigenerational. The metalmark butterfly prefers dry, rocky slopes in desert scrub or chaparral, but may also be found in coastal sage scrub, grassland, open woodland, and dune habitats. Within these communities, they may be found from sea level up to 1254 m (5,000 ft) in elevation. Dispersal distance was defined as 1,234 m (4,048 ft).

Results & Discussion: Suitable habitat for the metalmark butterfly is fairly widespread in the planning area, largely following the distribution of desert scrub, coastal sage and chaparral habitats. Potentially suitable habitat was captured in all branches of the Least Cost Union (Figure 53). The most solid connection for this species is through upland habitats along the Whitewater River in the easternmost branch of the Union (Figure 53). All suitable habitat patches are within the dispersal distance of this species (figure not shown), though barriers to movement may exist between suitable habitat patches. We conclude that the linkage will likely serve the needs of this species, though habitats added to support the needs of other focal species would also benefit this species.

To protect and restore habitat and connectivity for the metalmark butterfly, we recommend that:

- Host plants and nectar sources, such as rabbitbrush, ragwort, and various species of buckwheat are maintained in the linkage.
- Fire frequency is controlled to prevent type conversion of chaparral and scrub habitats to nonnative annual grassland.

P-13.7 (cont.)

Comment P-13

P-13.7
(Cont.)

Green hairstreak butterfly (*Callophrys affinis perplexa*)

Justification for Selection: The green hairstreak butterfly was chosen as a habitat quality indicator. It is a good species for monitoring habitat health in the linkage (Pratt and Ballmer pers.com).

Distribution & Status: There are 4 recognized subspecies. *C. a. perplexa* occurs from lowland California to western Oregon, Carson Range of Nevada, and Puget Sound in Washington (Scott 1986). This butterfly is typically found below 1,254 m (5,000 ft) in elevation (Pratt and Ballmer pers.com).

Habitat Associations: The green hairstreak butterfly prefers open habitats such as coastal sage and desert scrub. It is considered an indicator species for coastal sage scrub (Pratt and Ballmer pers.com). It may also be found in woodland, chaparral, and sagebrush habitats if the canopy is sparse (Scott 1986). Larval host plants may include several buckwheat species (*Eriogonum* spp.), deerweed (*Lotus scoparius*) and other species of *Lotus*, as well as wild lilacs (*Ceanothus* spp.; Orsak 1977, Scott 1986, Heath 2004). Adults primarily use buckwheat plants as nectar sources (Heath 2004).

The larvae of this species have a symbiotic relationship with ants. Ants protect butterfly larvae and pupae from predators, even carrying them to ant nests for shelter, where they may pupate (Downey 1961, Orsak 1977). In return, the larvae exude a honey like fluid that is consumed by the tending ants (Downey 1961, Orsak 1977).

P-13.7 (cont.)

Spatial Patterns: The flight season for the green hairstreak butterfly is in spring, usually from late February to April, although populations at higher elevations may have a later season (Scott 1986, Pratt and Ballmer pers.com). Individuals may live up to 19 days in nature (Scott 1986). The hairstreak is territorial, with an average home range size of 100 m^2 (1,076 ft^2; Pratt and Ballmer pers.com).

This species is not considered a good disperser, but individuals will fly to high points where they engage in a behavior known as hilltopping to search for mates (Scott 1986, Pratt and Ballmer pers.com). They may travel along ridgetops and dry streams (Santa Barbara Museum of Natural History, undated mat.). Orsack (1977) typically encountered them along foothill ridges. Males may be found perching on overhanging branches along washes and openings in chaparral (Emmel and Emmel 1973).

Conceptual Basis for Model Development: Movement in the linkage is multigenerational. This species is an indicator for coastal sage scrub but may also be encountered in desert scrub, sagebrush, and open woodland and chaparral habitats below 1,254 m in elevation. Access to hilltopping habitat is critically important for population persistence, thus we identified all ridges within 100 m (328 ft) of appropriate vegetation communities to include them in potential habitat.

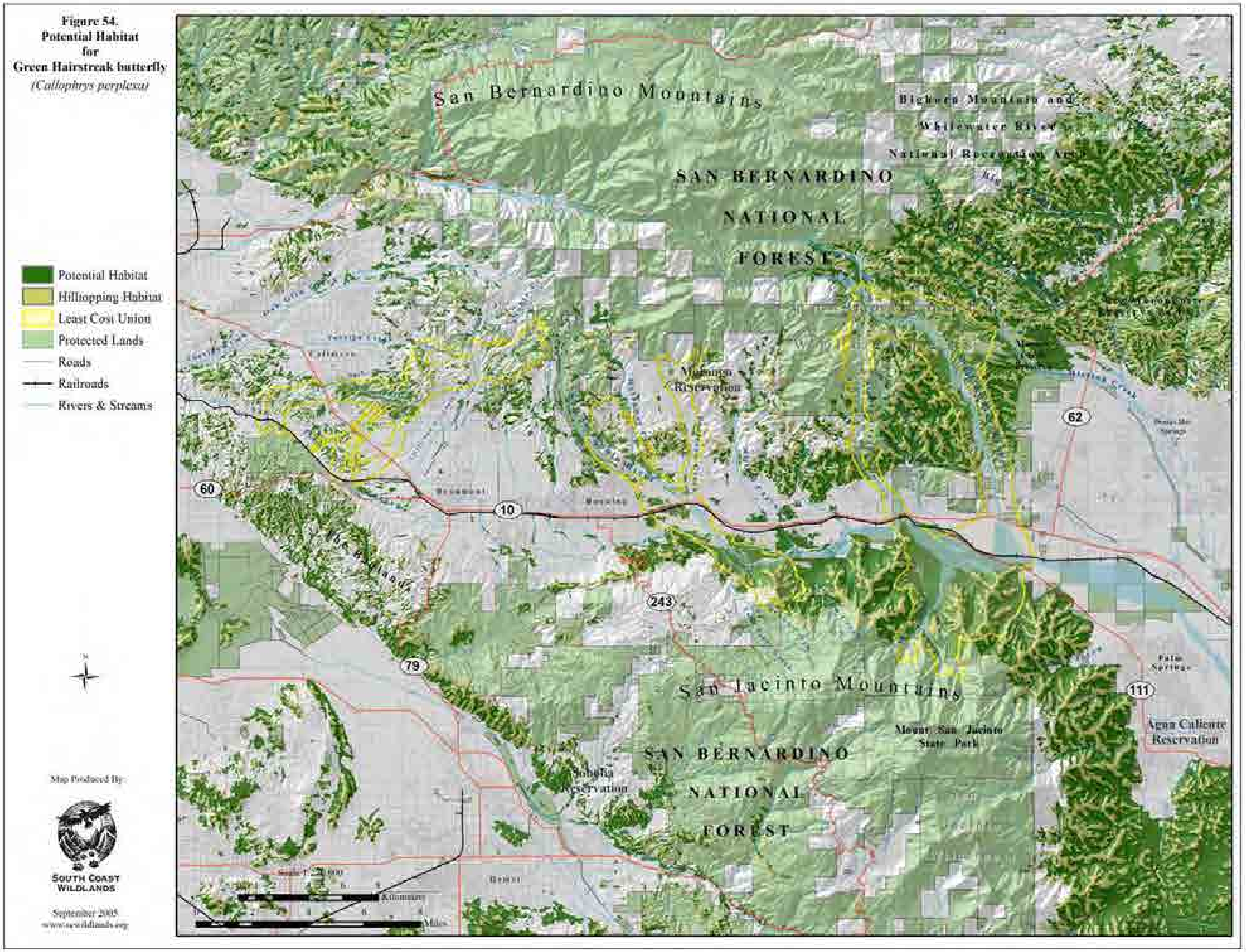
Results & Discussion: The majority of potential habitat identified for the green hairstreak butterfly is in the desert scrub communities in the eastern part of the planning area (Figure 54). Though the hairstreak is an indicator species of coastal sage scrub, this habitat type is limited to the western foothills of the San Bernardino and San Jacinto ranges and the Badlands. All branches of the Least Cost Union provide either potentially suitable habitat or hilltopping habitat for this species, with the western and central branches of the Union providing the most direct connections among suitable habitat patches (Figure 54). We conclude that the linkage will likely serve the needs of the green hairstreak butterfly, though habitat added to the Union to support other focal species will also benefit the green hairstreak.

To protect habitat connectivity for the green hairstreak butterfly, we recommend that:

- Larval host plants and nectar sources (deerweed, ceanothus, and various species of buckwheat) are maintained in the linkage.
- Fire frequency is controlled to prevent type conversion of chaparral and scrub habitats to nonnative annual grassland.
- Access to hilltopping habitat is maintained in the linkage and core areas.
- Native ant populations are maintained in the linkage and core areas.

P-13.7
(cont.)

Comment P-13



P-13.7
(Cont.)

Slender-horned spineflower (*Dodecahema leptoceras*)

Justification for Selection: The slender-horned spineflower was chosen to represent alluvial fan scrub habitats. This species is reliant upon natural hydrologic regimes to sustain their habitat (USFWS 2001, T. Krantz, pers. comm.).

Distribution & Status: The spineflower is an endemic species restricted to alluvial fans on the coastal side of the Transverse and Peninsular Ranges in Los Angeles, Riverside and San Bernardino counties.

The slender-horned spineflower has the distinction of being the most critically endangered plant species in southern California (Croft 1989). The species is threatened by development encroaching into the floodplain, sand and gravel mining, domestic livestock grazing, and invasion of exotic plants (USFWS 1987), as well as, flood control projects, trash dumping, trampling, and off-road vehicles (Krantz 1984, USFWS 1987, Croft 1989, Hickman 1993, Stephenson and Calcarone 1999, California Native Plant Society 2001, USFWS 2001, USFS 2002). It is believed to be vulnerable to extirpation throughout its range (California Native Plant Society 2001, USFS 2002). Even on public land, such as the San Bernardino National Forest, populations are declining (Stephenson and Calcarone 1999, USFS 2002). The spineflower was listed as a federally endangered species in 1987, and is also state listed as endangered (USFWS 1987, Croft 1989, CDFG 2003).

P-13.7
(cont.)

Habitat Associations: This species prefers alluvial fan scrub vegetation on mature sandy benches or floodplain terraces with sandy to gravelly soils surrounded by chaparral, cismontane woodland, and coastal sage scrub at elevations between 200-760 m (650-2,500 ft; Munz 1974, Croft 1989, Hickman 1993, California Native Plant Society 2001, USFS 2002). Nearly all occurrences for this species are associated with well-established alluvial scrub habitats, usually dominated by scrub oak (*Quercus berberidifolia*), coast live oak (*Q. agrifolia*), chamise (*Adenostoma fasciculatum*), and buckwheat (*Eriogonum fasciculatum*; Croft 1989, Gordon-Reedy 1997, USFS 2002). It has also been found in association with mountain mahogany (*Cercocarpus betuloides*) and yerba santa (*Eriodictyon trichocalyx*), in addition to juniper (Reveal and Krantz 1979, Krantz 1984, USFWS 1987) and in remnant riparian forests with sycamore (*Platanus racemosa*) and cottonwood (*Populus fremontii*; Croft 1989). Neel and Brown (1987) recorded this species in chaparral dominated by juniper (*Juniperus californica*), white sage (*Salvia apiana*), and Croton (*Croton californicus*; Croft 1989). Within all of these community associations, the spineflower is restricted to sparsely vegetated areas lacking canopy cover (Croft 1989), typically with undisturbed cryptogamic crusts (Reveal and Krantz 1979, Krantz 1984, USFWS 1987). The spineflower hasn't been documented on recently deposited alluvial or disturbed soil, nor is it found in areas with dense exotic annual grasses (Croft 1989, USFWS 2001, USFS 2002, T. Krantz, pers. comm.).

Spatial Patterns: The slender-horned spineflower is an annual herb that blooms from April to June (Munz 1974, Hickman 1993, California Native Plant Society 2001). As such, annual variation in the amount and timing of precipitation can greatly affect population abundance (USFWS 2001, USFS 2002). Whether seeds can be dormant for extended periods of time and still remain viable is unknown, though some believe the seed bank to be long lived (Reveal pers. com. *in* Croft1989). Dispersal mechanisms are also a mystery (Croft 1989), though it has been hypothesized that hairy mammals (e.g., coyote) may be dispersal agents or major floods may transport seeds over unknown distances (T. Krantz, pers. comm.).

Conceptual Basis for Model Development: Vegetation communities (i.e., alluvial fan sage scrub, coastal sage scrub, and barren) were queried in the GIS and then patches falling between 200-760 m elevation were delineated as potentially suitable habitat.

Results & Discussion: Although very little potentially suitable habitat was identified in the Least Cost Union, the results of the habitat suitability model correspond fairly well with recorded occurrences for this species (Figure 55). It is believed that potential habitat may exist on the Banning Bench and on the alluvial fan at the northern base of the San Jacinto Mountains (T. Krantz, pers. comm.). The central branch of the Union captured potentially suitable habitat on the alluvial fan of the San Gorgonio River (Figure 55). The linkage may serve the needs of this species if additional habitat is added to the Union at the base of the San Jacinto Mountains and along the San Gorgonio River. To protect and restore habitat for the slender-horned spineflower, we recommend that:

- Natural hydrological and fluvial geomorphological processes be protected and restored (USFS 2002) throughout entire drainages with occupied or suitable habitat (Croft 1989).

- Research is conducted to determine dispersal mechanisms and habitat requirements for germination and establishment (Croft 1989).

- Historical, existing, and potential habitat is protected through conservation easements and acquisitions with willing landowners to protect existing populations and sites for reintroduction (Croft 1989). The federal Endangered Species Act as amended (16 U.S.C. 1534) authorizes USFWS to acquire land for the conservation of endangered plants with Land and Water Fund Act appropriations.

- Receptive landowners work with US Fish and Wildlife Service Partners for Fish & Wildlife Program to acquire funds and technical assistance to restore and enhance alluvial fan sage habitat on their land to benefit the slender-horned spineflower and other wildlife.

P-13.7
(cont.)

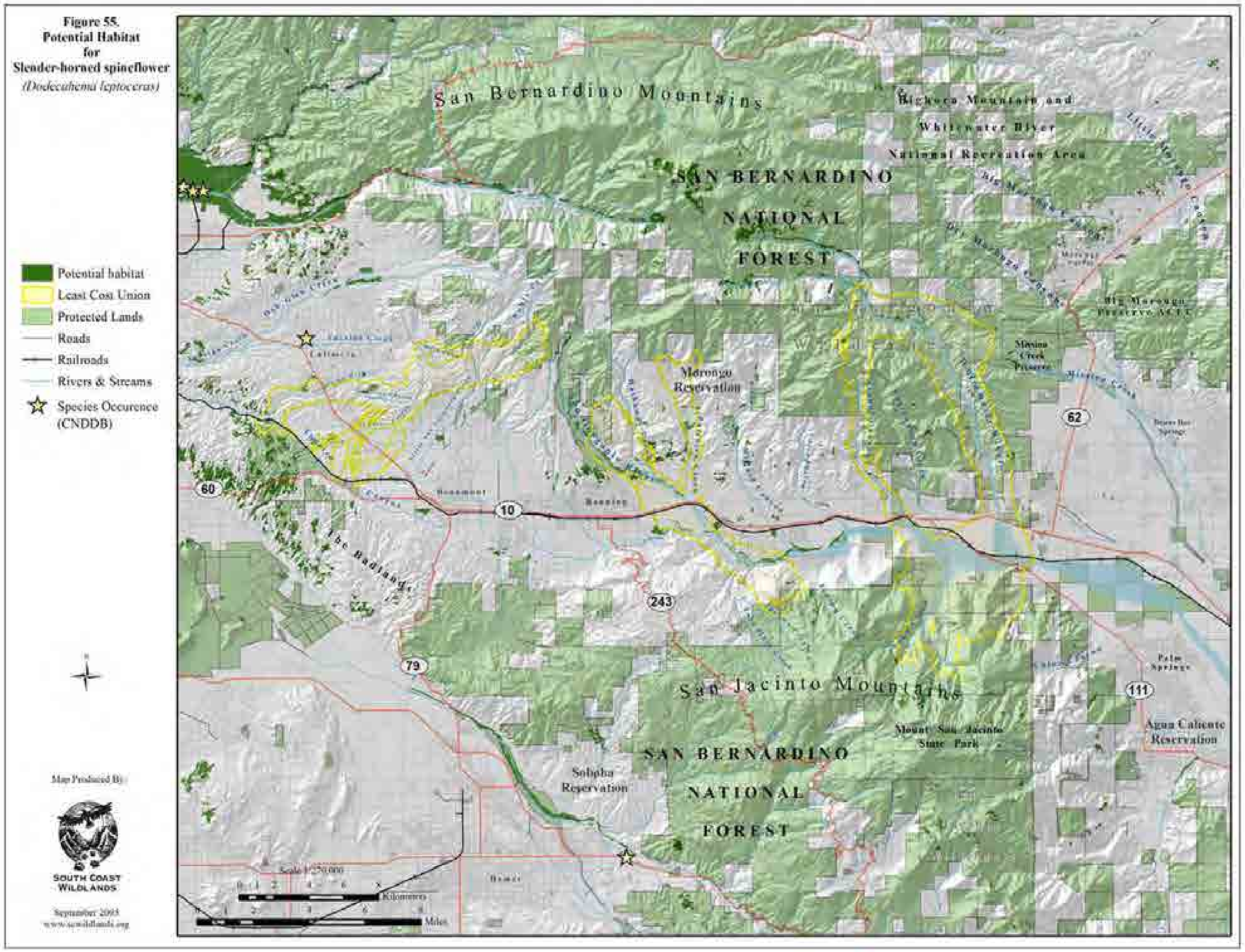


Figure 55.
Potential Habitat
for
Slender-horned spineflower
(Dodecahema leptoceras)
Potential habitat
Least Cost Union
Protected Lands
Roads
Railroads
Rivers & Streams
Species Occurence
(CNDDB)
Map Produced By:
SOUTH COAST WILDLANDS
September 2005
www.scwildlands.org
San Bernardino Mountains
SAN BERNARDINO
NATIONAL
FOREST
Bighorn Mountain and
Whitewater River
National Recreation Area
Morongo
Reservation
Big Morongo
Preserve ACEC
Mission
Creek
Preserve
Beaumont
Banning
The Badlands
San Jacinto Mountains
Mount San Jacinto
State Park
Agua Caliente
Reservation
Palm
Springs
Soboba
Reservation
SAN BERNARDINO
NATIONAL
FOREST
Hemet
60
10
62
243
79
111
Kilometers
Miles

P-13.7
(Cont.)

California sagebrush (*Artemisia californica*)

Justification for Selection: California sagebrush is declining rapidly throughout its range and was chosen as a keystone species to represent sage scrub habitat connections between the San Bernardino and San Jacinto mountains and the Badlands (T. Krantz, pers. comm.). Habitat fragmentation and loss of sagebrush (*Artemisia* spp.) habitats have imperiled these native habitats and species that depend upon them, including the coastal California gnatcatcher (Knick et al. 2003).

Distribution & Status: California sagebrush is distributed from the South Coast Ranges to cismontane southern California and Baja California Norte (Munz 1963, Hickman 1993), extending as far inland as the Cajon and San Gorgonio passes (Holland 1986). Sagebrush occurs in a fairly contiguous narrow band along the coastal base of the San Bernardino and San Jacinto foothills with a more widespread distribution in the Badlands. It is primarily found below 762 m (2,500 ft) in elevation (Munz 1963).

Historically, sagebrush habitats covered nearly 63 million ha in the west (Knick et al. 2003). Urbanization, agriculture, mining, oil and gas development, and the road network have fragmented and eliminated expansive areas once dominated by sagebrush (Schmida and Barbour 1982, Howard 1993, Noss et al. 1995, Hann et al. 1997, Knick et al. 2003). Sagebrush habitats are one of the most imperiled ecosystems in North America (Noss and Peters 1995, Mac et al. 1998, Knick et al. 2003). *Artemisia californica* is the dominant plant in several designated sensitive plant communities (Holland 1986, CDFG 2003). **P-13.7 (cont.)**

Habitat Associations: California sagebrush is a dominant plant in coastal sage scrub, and is often found in association with brittlebush (*Encelia farinosa*), white sage (*Salvia apiana*), black sage (*S. mellifera*), California buckwheat (*Eriogonum fasciculatum*), deerweed (*Lotus scoparius*), and Our Lord's candle (*Yucca whipplei*) (Munz 1963, Hickman 1986). It prefers dry steep slopes and alluvial fans and is typically found on dry rocky or gravelly slopes below the chaparral (Munz 1963), though it intergrades with chaparral at slightly higher elevations (Holland 1986, Hickman 1993).

Spatial Patterns: Sweet smelling California sagebrush blooms from August to December on steep xeric slopes (Munz 1963, Holland 1986). The seeds are lightweight and believed to be wind dispersed and capable of long distance movements (Minnich 1980). During fire-free intervals, seed germination is moderate to high; crown sprouting occurs following fires (Zedler 1981).

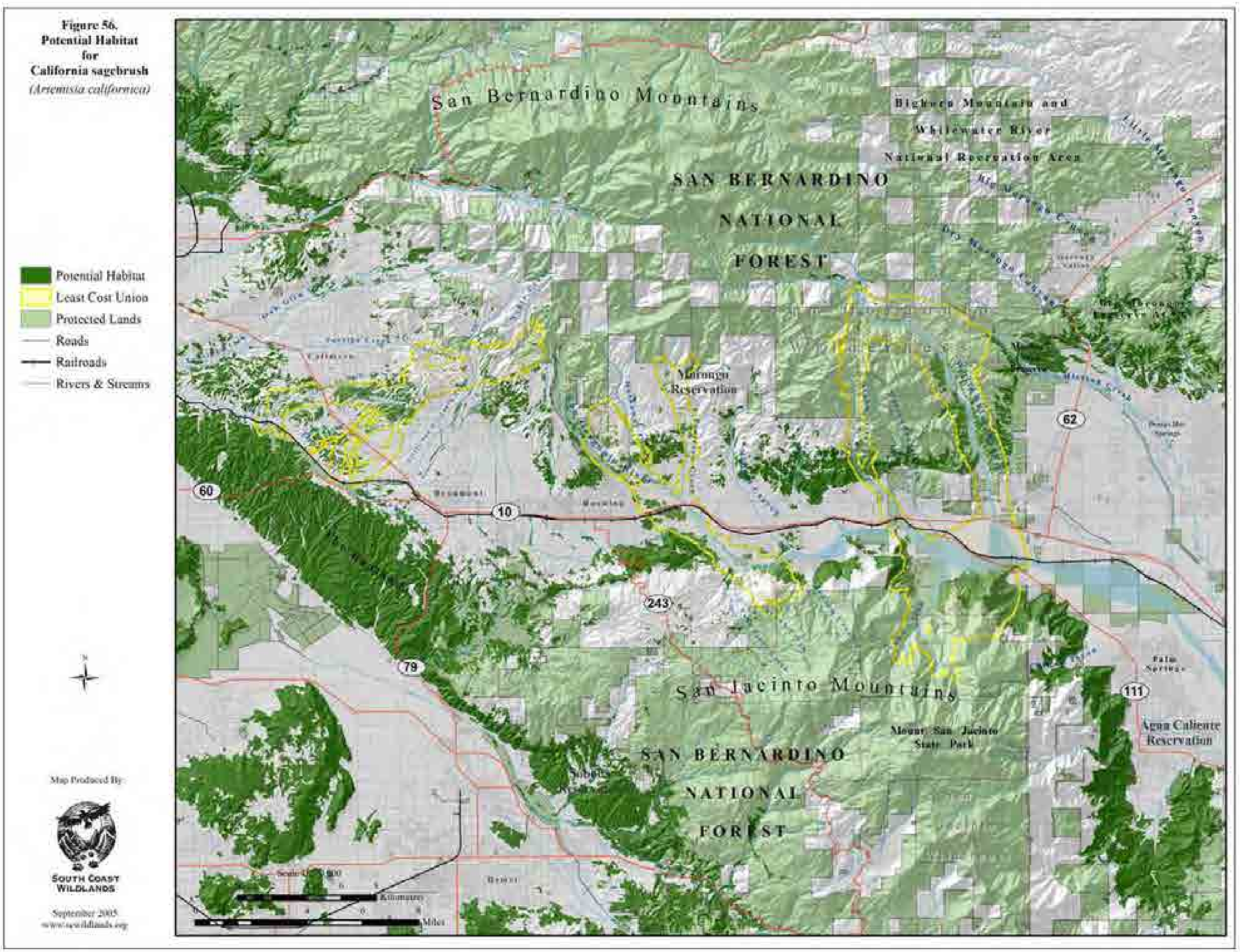
Conceptual Basis for Model Development: Vegetation communities (i.e., California sagebrush, ceanothus mixed chaparral, lower montane mixed chaparral, scrub oak, encelia, buckwheat, sumac, and mixed soft scrub chaparral) were queried in the GIS and then patches falling below 762 m elevation were delineated as potentially suitable habitat.

Results & Discussion: Potentially suitable habitat for sagebrush was identified in the Badlands and along the base of the San Bernardino and San Jacinto mountains (Figure 56). The model likely underestimated the amount of suitable habitat, as this species intergrades with chaparral at slightly higher elevations. The western and central branches of the Least Cost Union are likely to accommodate this species if habitat is added to the Union in the foothills of the San Jacinto Mountains.

Sagebrush habitats have been severely fragmented, altering vegetation dynamics, disturbance regimes, and facilitating the spread of nonnative invasive species (Braun 1998, Brooks and Pyke 2001, Gelbard and Belnap 2003, Knick et al. 2003). To protect and restore habitat for this species, we recommend that fire frequency is controlled to prevent type conversion of sagebrush habitats to nonnative annual grassland.

P-13.7
(cont.)

Comment P-13



P-13.7
(Cont.)

White alder (*Alnus rhombifolia*)

Justification for Selection: White alder was selected as a focal species to link riparian habitats between the San Bernardino and San Jacinto Mountains. White alder contributes to structural diversity in riparian woodlands and is an important habitat component for many bird species that breed in riparian systems (Sands 1979, Gaines 1980, Gray and Greaves 1984, Uchytil 1989).

Distribution & Status: White alder is distributed from the Pacific coast of Baja California, north to southern British Columbia, reaching its eastern limits in Idaho (Johnson 1968, Uchytil 1989). In California, it is found in the Coast, Transverse, and Peninsular Ranges (Holland 1986), from sea level to over 2,438 m (8,000 ft) in elevation (Griffin and Critchfield 1972).

Riparian woodlands in California are being lost at a staggering rate, due to urbanization, stream channelization and flood control projects (Wheeler and Fancher 1984, Uchytil 1989). Many riparian communities, including those dominated by white alder, are designated as sensitive natural communities (Holland 1986, CDFG 2003).

P-13.7 (cont.)

Habitat Associations: White alder is restricted to riparian woodlands along perennial streams (Arno and Hammerly 1977, Conard et al. 1980, McBride and Strahan 1984, Holstein 1984, Shanfield 1984, Brothers 1985, Uchytil 1989), but may also extend along major streams into other habitats (Johnson 1968, Uchytil 1989). It is associated with Fremont cottonwood (*Populus fremontii*), California sycamore (*Platanus racemosa*), willows (*Salix* spp.), ash (*Fraxinus* spp.), California live oak (*Quercus agrifolia*), valley oak (*Q. lobata*), and Douglas-fir (*Pseudotsuga menziesii*; Vogl 1976, Roberts et al. 1980, Roberts 1984, Barbour 1987, Uchytil 1989). White alder is often a dominant species in deciduous riparian forests (Holstein 1984, Roberts et al. 1980, Uchytil 1989).

Spatial Patterns: White alders are wind pollinated. Female catkins develop into woody cones containing numerous seeds (Schopmeyer 1974, Uchytil 1989), the majority of which are viable (Schopmeyer 1974, Uchytil 1989). The seeds are transported both up and downstream by wind and water to suitably moist germination sites (Brothers 1985, Uchytil 1989, D. Woodward, pers. com.). Seeds are important for colonization of new sites but established alders also regenerate from root or trunk sprouting (Sampson and Jespersen 1963, Shanfield 1984, Uchytil 1989). Alder seeds are also consumed by birds, which may act as dispersal agents (USFS 1937, Uchytil 1989, D. Woodward, pers. com.).

Conceptual Basis for Model Development: Riparian vegetation communities along perennial streams were identified in the GIS and patches falling below 2,438 m (8,000 ft) were delineated as potentially suitable habitat.

Results & Discussion: Scattered patches of potential habitat were identified for white alder in the Least Cost Union, with suitable habitat more widespread in the targeted core areas (Figure 57). Potential habitat for white alder was identified in the Union in the Whitewater River and in upper Stubbe Canyon. The best riparian connection between targeted core areas is along the Whitewater River (Figure 57), especially if habitat restoration efforts are undertaken. We conclude that the linkage is likely to serve this species if habitat is added to the Union in Stubbe Canyon and along the San Gorgonio River to benefit white alder. Riparian communities are being lost at an alarming rate in the South Coast Ecoregion.

To protect and restore habitat for white alder, we recommend that:

- Habitat restoration is initiated in Whitewater River to re-establish a gallery forest along the length of the river to its confluence with the San Gorgonio River.

- Natural flood dynamics are protected, maintained, and restored.

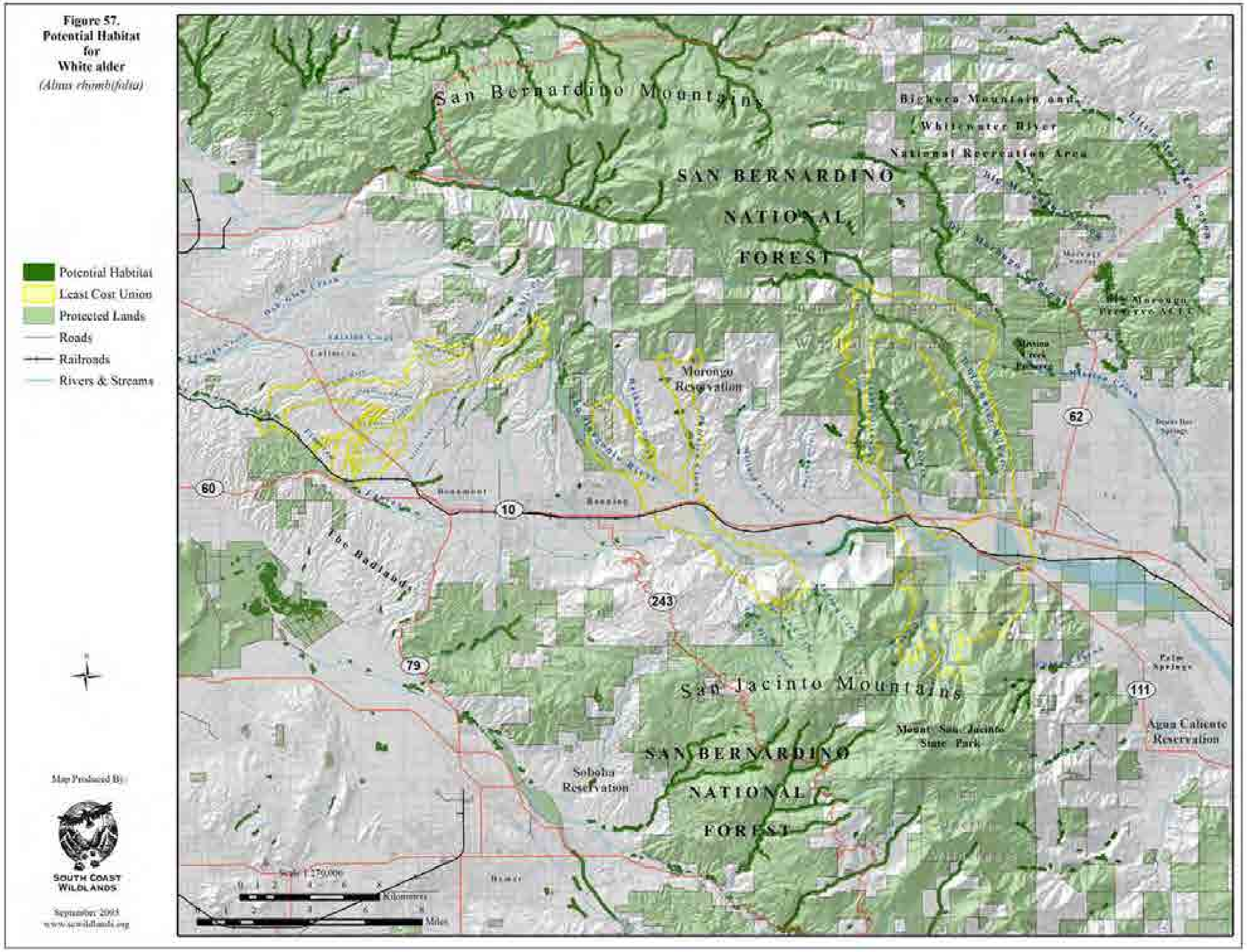
- Receptive landowners work with US Fish and Wildlife Service Partners for Fish & Wildlife Program to acquire funds and technical assistance to restore and enhance riparian habitat on their land to benefit the many species dependent on riparian systems.

- Eliminate feral cattle in Stubbe Canyon to stop overgrazing which could lead to the loss of gallery cottonwood forest.

- Attempt to expand gallery forest in Stubbe Canyon and Whitewater River.

P-13.7
(cont.)

Comment P-13



P-13.7
(Cont.)

P-13.7
(cont.)

Linkage Design

This chapter is the heart of the report. It summarizes the goals of the Linkage Design and presents a map (Figure 58) and description of the land within it. However, assessing and maintaining linkage function requires us to also identify barriers to movement within the area, including land uses that may hinder or prevent species from moving through the linkage. Much of this chapter therefore describes existing barriers within the linkage and prescribes actions to improve linkage function.

Goals of the Linkage Design

To accommodate the full range of target species and ecosystem functions, the Linkage Design should (1) provide live-in and move-through habitat for multiple species, (2) support metapopulations of smaller species, (3) ensure availability of key resources, (4) buffer against edge effects, (5) reduce contaminants in streams, (6) allow natural processes to operate, and (7) allow species and natural communities to respond to climatic changes. We elaborate on these goals below.

The Linkage Design must be wide enough to provide live-in habitat for species with dispersal distances shorter than the linkage. Harrison (1992) proposed a minimum corridor width for a species living in a linkage as the width of one individual's territory (assuming territory width is half its length). Thus, our minimum corridor width of 2 km should accommodate species with home ranges of up to about 8 km^2 (3 mi^2). This would accommodate all focal species except the largest, such as mountain lion. Fortunately, this species does not need live-in habitat throughout the Linkage, and should be able to move through the linkage. **P-13.7 (cont.)**

The Linkage Design must support metapopulations of less vagile species. Many small animals, such as horned lizards, woodrats, treefrogs, and many invertebrates, require dozens of generations to move between core areas. These species need a linkage wide enough to support a constellation of populations, with movements among populations occurring over decades. We believe 2 km is adequate to accommodate most target species living as metapopulations within the linkage area.

The Linkage Design was planned to provide resources for all target species, such as host plants for butterflies and pollinators for plants. For example, many species commonly found in riparian areas depend on upland habitats during some portion of their life cycle, such as some butterflies that use larval host plants in upland areas and drink from riparian water sources as adults.

The Linkage was also designed to buffer against "edge effects" even if adjacent land becomes developed. Edge effects are adverse ecological changes that enter open space from nearby developed areas, such as weed invasion, artificial night lighting, predation by house pets, increases in opportunistic species like raccoons, elevated soil moisture from irrigation, pesticides and pollutants, noise, trampling, and domesticated animals that attract native predators. Edge effects have been best-studied at the edge between forests and adjacent agricultural landscapes, where negative effects extend 300 m (980 ft) or more into the forest (Debinski and Holt 2000, Murcia 1995) depending on forest type, years since the edge was created, and other factors (Norton 2002). The best available data on edge effects for southern California habitats include reduction in leaf-litter and declines in populations of some species of birds and mammals up to 250 m (800 ft) in coastal scrub (Kristan et al. 2003), collapse of native plant and animals communities due to the invasion of argentine ants up to 200 m (650 ft) from irrigated areas (Suarez et al. 1998), and predation by house cats which reduce small vertebrate populations 100 m (300 ft) from the edge (K. Crooks, unpublished data). Domestic cats may affect wildlife up to 300 m (980 ft) from the edge based on home range sizes reported by Hall et al. (2000).

Upland buffers are needed adjacent to riparian vegetation or other wetlands to prevent aquatic habitat degradation. Contaminants, sediments, and nutrients can reach streams from distances greater than 1 km (0.6 mi) (Naicker et al. 2001, Maret and MacCoy 2002, Scott 2002), and fish, amphibians, and aquatic invertebrates often are more sensitive to land use at watershed scales than at the scale of narrow riparian buffers (Goforth 2000, Fitzpatrick et al. 2001, Stewart et al. 2001, Wang et al. 2001, Scott 2002, Willson and Dorcas 2003).

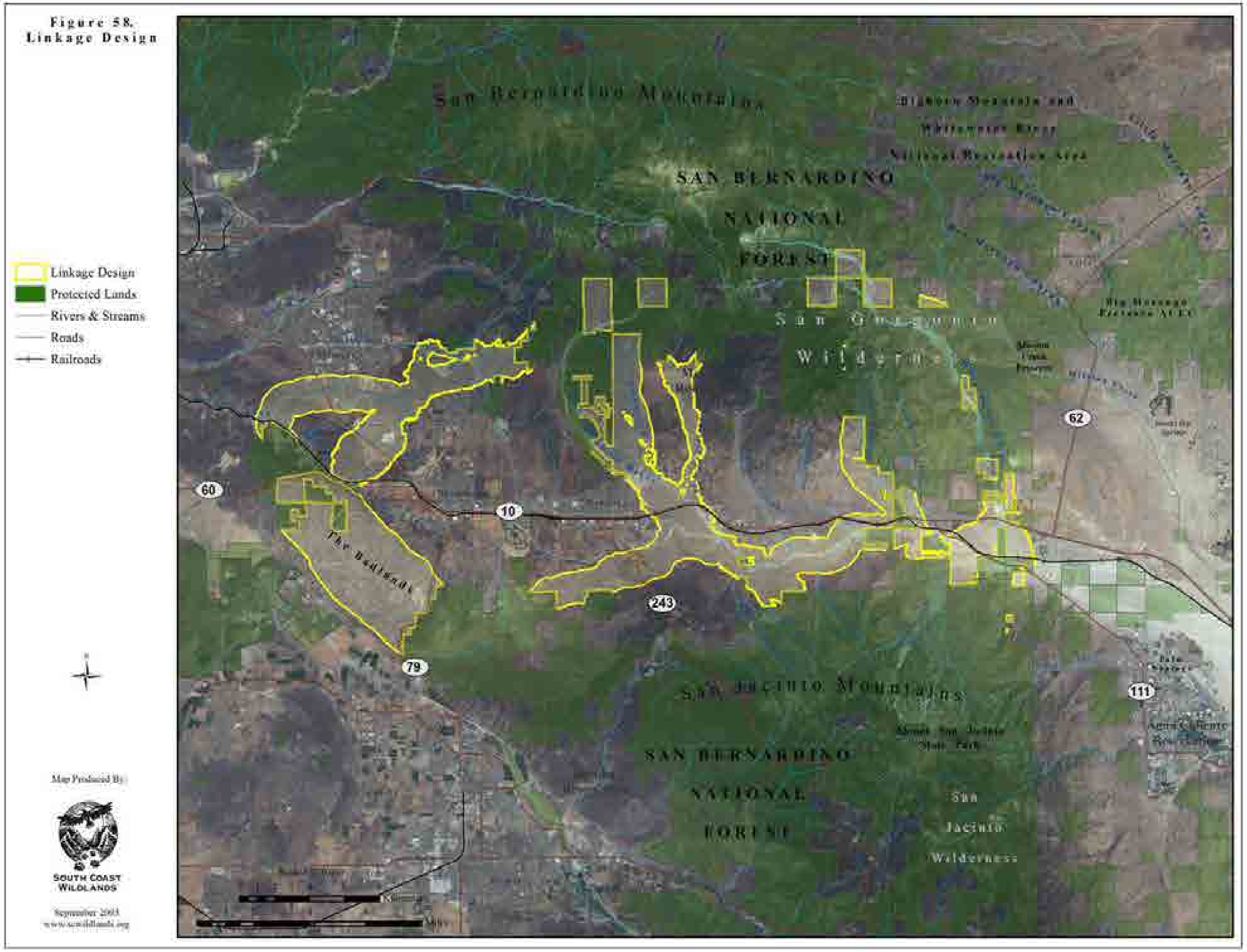
The Linkage Design must also allow natural processes of disturbance and recruitment to operate with minimal constraints from adjacent urban areas. The Linkage should be wide enough that temporary habitat impacts due to fires, floods, and other natural processes do not affect the entire linkage simultaneously. Wider linkages with broader natural communities may be more robust to changes in disturbance frequencies by human actions. Before human occupation, naturally occurring fires (due to lightning strikes) were rare in southern California (Radtke 1983). As human populations in the region soared, fire frequency has also increased dramatically (Keeley and Fotheringham 2003). Although fire can reduce the occurrence of exotic species in native grasslands (Teresa and Pace 1998), it can have the opposite effect in some shrubland habitats (Giessow and Zedler 1996), encouraging the invasion of non-native plants, especially when fires are too frequent. While effects of altered fire regimes in this region are somewhat unpredictable, wider linkages with broader natural communities should be more robust to these disturbances than narrow linkages. **P-13.7 (cont.)**

The Linkage Design must also allow species to respond to climate change. Plant and animal distributions are predicted to shift (generally northwards or upwards in elevation in California) due to global warming (Field et al. 1999). The linkage must therefore accommodate at least elevational shifts by being broad enough to cover an elevational range as well as a diversity of microhabitats that allow species to colonize new areas.

Description of the Linkage Design

The Linkage Design has five routes to accommodate the diverse species and ecosystem functions it is intended to serve (Figure 58). The western branch of the Linkage Design links the San Bernardino Mountains with the Badlands via vegetation communities influenced by a more coastal climate, whereas more easterly branches cross desert vegetation (Figure 59). Dominant habitat types in the western branch include grassland, coastal sage scrub, and chaparral with oak woodland and riparian forests interspersed. This route serves such species as mule deer, large-eared woodrat, Pacific kangaroo rat, speckled rattlesnake, and coast horned lizard. It extends from Noble Creek in the San Bernardino Mountains, taking in the wide swath of natural habitats remaining between the communities of Calimesa and Cherry Valley, and entering San Timoteo Canyon in

Comment P-13



P-13.7
(Cont.)

the Badlands. Land in the linkage and in the Badlands has been protected through successful conservation planning efforts undertaken by California State Parks, San Timoteo Canyonlands Coalition, San Bernardino Valley Audubon, and the Center for Biological Diversity (CBD). This may be the most tenuous connection in the Linkage Design due to a few approved development projects near Calimesa, but it nevertheless is worthy of conservation. Audubon and CBD have been working with the City of Calimesa and various developers to maintain connectivity here. In addition, portions of this branch of the Linkage Design (i.e., Singleton Canyon and Garden Air Wash) are identified as lands that could be acquired as part of the Western Riverside Multiple Species Conservation Plan (County of Riverside 2002).

Figure 59. The western branch of the Linkage Design connects the San Bernardino Mountains to the Badlands. There are 2 feasible routes about 2 miles apart: Garden Air Wash and El Casco Canyon.

The next branch of the Linkage Design encompasses the San Gorgonio River, which forms a substantial alluvial fan through the pass to its confluence with the Whitewater River (Figure 60). The minimum corridor width of 2 km was imposed along the river south of the freeway to ensure that the functional processes of the linkage are protected. This branch of the linkage is intended to serve badger, Pacific kangaroo rat, large-eared woodrat, Merriam's kangaroo rat, and coast horned lizard. The San Gorgonio River is especially important for a number of rare endemic species associated with alluvial fans (County of Riverside 2002, CVAG 2004) that were not specifically addressed by our

P-13.7 (cont.)

analyses. Black bear (introduced into the San Bernardinos in the 1920's or 1930's) have been intermittently sighted in the San Jacintos within the last 10-20 years, apparently by crossing along either the San Gorgonio or Whitewater rivers, or both. Puma have been reliably sighted in Banning, doubtless from the San Gorgonio River (S. Loe, USFS, pers. com.). Hathaway Creek is a major tributary of the San Gorgonio that joins the river north of the freeway in the Linkage Design. The creek bottom was full of small mammal tracks, a few deer tracks, and at least 2 possible puma tracks during our field visits (P. Beier personal observation 2002). Except for the close proximity of housing, Hathaway Creek looks very amenable to wildlife passage. The River also flows through the Morongo Reservation, including the main part of the river north of Interstate 10 and several half sections on the south side of the freeway, which we designated as stewardship zones in the Linkage Design.

Figure 60. The San Gorgonio River flows from the San Bernardino Mountains and crosses I-10 in two places, joining Smith Creek in the foothills of the San Jacinto Mountains, and the Whitewater River further downstream.

A branch encompassing primarily coastal sage habitat was added to the linkage in the foothills of the San Jacinto Mountains to accommodate slender-horned spineflower, California sagebrush, chaparral whipsnake, coast horned lizard, large-eared woodrat, and wrentit (Figure 60). This branch includes riparian and upland habitats at the confluence of Smith Creek and the San Gorgonio River and although the entire length of Smith Creek is not included in the Linkage Design, it ought to be conserved through

P-13.7 (cont.)

restrictions on floodplain development. Many other species that utilize coastal habitats (e.g., mountain lion, mule deer, rock wren, tarantula hawk, green hairstreak butterfly) will also benefit from this connection.

The branch of the Linkage Design that includes Stubbe Canyon Wash (Figure 61) was delineated by the landscape permeability analysis for mountain lion but is also expected to serve the habitat and movement requirements of such species as badger, antelope ground squirrel, Merriam's kangaroo rat, and little pocket mouse. Numerous other species will also benefit from this addition. This connection includes a 2 km (1.2 mi) buffer (1 km to either side of the wash) to support species habitat requirements and protect water quality within the linkage and downstream. The majority of this lowland linkage is already protected, and the pending Coachella Valley MSHCP covers most of the land that has not yet been secured. The Coachella Valley Mountains Conservancy and Friends of the Desert Mountains recently secured approximately 800 acres in Stubbe Canyon that straddles the freeway. In addition to facilitating movements for several focal species, this branch of the Linkage Design provides habitat for several listed species, including the threatened desert tortoise (CVAG 2004).

Figure 61. Stubbe Canyon Wash emanates from the San Bernardino Mountains into a broad alluvial fan. It crosses Interstate 10 in two places and joins the San Gorgonio River immediately south of the freeway. There are about 12 rows of wind turbines in the floodplain of the San Gorgonio River between Lion and Stubbe Canyons.

The Whitewater River flows out of the San Bernardino Mountains through a spectacular gallery forest dominated by cottonwood and willows before emptying into a broad bajada in the San Gorgonio Pass at the base of the San Jacinto Mountains (Figure 62). This branch of the Linkage Design was delineated by the landscape permeability analysis for puma and includes both riparian and upland habitats. It would serve the habitat and

P-13.7
(cont.)

movement needs of both riparian and terrestrial species (represented by California treefrog, white alder, little pocket mouse, antelope ground squirrel, and horned lizard).

Figure 62. The Whitewater River flows through the San Gorgonio Wilderness Area and empties into an expansive alluvial fan in the pass. There is a row of wind turbines on the western bank of the river and groundwater recharge basins just downstream.

The upper watershed of the Whitewater River is one of the most remote, roadless watersheds in southern California, and is eligible for Wild and Scenic River status. The pristine habitat in the upper watershed is critical for bighorn sheep, mule deer, golden eagles, and prairie falcon, and an arroyo toad population occurs in the lower elevations near the base of the mountains (Stephenson and Calcarone 1999). Other species of concern along the river include desert tortoise, willow flycatcher, and least Bell's vireo (CVAG 2004). The broad alluvial fan is also part of a dynamic sand source and sand transport area that provides habitat for sand-preferring organisms covered under the MSHCP, such as the Coachella Valley Jerusalem cricket (*Stenopelmatus cahuilaensis*), Coachella Giant Sand-treader cricket (*Macrobaenetes valgum*), and Palm Springs pocket mouse (CVAG 2004). This area offers a refugium during major flood events that could affect the adjacent Snow Creek and San Gorgonio Wash area (Noss et al. 2001, CVAG 2004).

The Whitewater River originates in the San Bernardino National Forest, flowing through the Whitewater Canyon National Recreation Area, which is administered by BLM. Most of the higher elevation habitat in the San Bernardino Mountains is within the San

P-13.7
(cont.)

Gorgonio Wilderness Area. Many wildlife agencies and conservation organizations have taken great strides in securing a linkage along the Whitewater River. The Wildlands Conservancy acquired over 1,200 acres that includes land in Whitewater Canyon, the confluence of the San Gorgonio and Whitewater Rivers, and some other key parcels south of the freeway. The Coachella Valley Mountains Conservancy, Coachella Valley Association of Governments, Friends of the Desert Mountains, and BLM are also actively purchasing land in this region that is included in the pending Coachella Valley MSHCP (CVAG 2004).

Most branches of the Linkage Design include some public ownerships that protect natural habitats from conversion to urban uses. The final Linkage Design encompasses a total of 30,114 ha (74,414 ac), of which approximately 29% (8,589 ha or 21,223 ac) currently enjoys some level of conservation protection, mostly in land owned by the Bureau of Land Management, The Wildlands Conservancy, Coachella Valley Mountains Conservancy, California State Parks, and State Lands Commission. The majority of unprotected land in the Linkage Design could be acquired through the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) and the pending Coachella Valley MSHCP (County of Riverside 2002, CVAG 2004). We delineated a stewardship zone (areas where land stewardship should be encouraged) that covers 4,695 ha (11,602 ac) of the Linkage Design that includes land owned by the Morongo Band of Mission Indians (3,195 ha or 7,895 ac) and lands already converted to urban uses (1,556 ha or 3,844 ac) that fall within the minimum corridor width of 2 km (1.2 mi).

As expected, given the geographical position of the linkage at the juncture of the Transverse and Peninsular ranges and in the transition zone between the South Coast and Desert ecoregions, the Linkage Design encompasses a diversity of natural communities that grade from Mediterranean habitats in the South Coast Ecoregion into more xeric communities within the Desert Ecoregion. The San Gorgonio River marks the transition zone where vegetation from both ecoregions intermingles. The Linkage Design includes 21 different major vegetation types (Table 3). Vegetation in the linkage is similar to that found in the two core areas, with desert scrub, mixed chaparral, and coastal sage scrub having the most widespread cover. Desert scrub is by far the most common vegetation community, covering much of the pass east of the San Gorgonio River, and extending up the steep rugged slopes on the eastern side of both the San Bernardino and San Jacinto Mountains. Coastal sage scrub makes up 13% of the total area of the Linkage Design, yet only 0.03% of the 4,006 ha (9,900 ac) included in the linkage is currently protected. Although natural vegetation comprises most of the Linkage Design, urban and agricultural lands cover roughly 7% of its area, which have been designated as stewardship zones.

P-13.7 (cont.)

A diversity of riparian habitat types occur throughout the linkage and core areas, including riparian forests, woodlands, and scrubs, oases, alluvial fans, desert washes, springs, and seeps. The Whitewater River provides the most direct connection between mountain ranges for riparian dependent species (e.g., California treefrog, white alder). Other significant riparian habitat in the Linkage Design occurs in the San Gorgonio River, Hathaway Creek, Garden Air Wash, San Timoteo Canyon, and Stubbe Canyon Wash. Despite the relatively low abundance of riparian vegetation (about 10%), riparian habitats support a disproportionately large number of species and are key movement areas for many aquatic and terrestrial organisms.

Table 3. Approximate Vegetation and Land Cover in the Linkage Design

Vegetation Type	**Total Area Linkage Design**		**Area Protected Linkage Design**		**% Protected**	**% of Total Area**
	Acres	***Hectares***	***Acres***	***Hectares***		
Mixed Chaparral	14,950.46	6,050.24	3,560.19	1,440.76	0.24	0.2009
Coastal Scrub	9,900.38	4,006.54	258.34	104.55	0.03	0.1330
Desert Scrub	20,343.85	8,232.87	10,798.80	4,370.12	0.53	0.2734
Chamise-Redshank Chaparral	6,848.02	2,771.29	1,229.72	497.65	0.18	0.0920
Annual Grassland	4,495.84	1,819.40	28.82	11.66	0.01	0.0604
Urban	3,843.90	1,555.57	54.41	22.02	0.01	0.0517
Desert Wash	5,176.40	2,094.81	2,119.53	857.74	0.41	0.0696
Agriculture	1,936.12	783.52	54.83	22.19	0.03	0.0260
Montane Hardwood	1,434.42	580.49	615.12	248.93	0.43	0.0193
Montane Riparian	2,108.12	853.13	1,424.60	576.51	0.68	0.0283
Montane Hardwood-Conifer	1,140.71	461.63	598.23	242.09	0.52	0.0153
Coastal Oak Woodland	552.11	223.43	14.58	5.90	0.03	0.0070
Barren	754.30	305.25	246.19	99.63	0.33	0.0101
Valley Foothill Riparian	342.09	138.44	40.92	16.56	0.12	0.0040
Sierran Mixed Conifer	209.57	84.81	28.03	11.34	0.13	0.0020
Desert Succulent Shrub	229.96	93.06	130.88	52.97	0.57	0.0030
Eastside Pine	62.27	25.20	0.00	0.00	0.00	0.0008
Desert Riparian	50.13	20.29	16.23	6.57	0.32	0.0007
Water	10.45	4.23	0.00	0.00	0.00	0.0001
White Fir	13.81	5.59	4.06	1.64	0.29	0.0002
Wet Meadow	5.34	2.16	0.00	0.00	0.00	0.00007
Eucalyptus	5.12	2.07	0.00	0.00	0.00	0.00007
Freshwater Emergent Wetland	0.63	0.25	0.00	0.00	0.00	0.000008
Sagebrush	0.43	0.17	0.00	0.00	0.00	0.000006
Total	**74,414.41**	**30,114.44**	**21,223.48**	**8,588.84**	**29%**	**100%**

P-13.7
(cont.)

Removing and Mitigating Barriers to Movement

Seven types of features impede species movements through the linkage: roads, railroads, and impediments to stream flow, mining operations, wind energy developments, residential development, and recreational activities. This section describes these impediments and suggests where and how their effects may be minimized to improve linkage function.

This discussion focuses on structures to facilitate movement of terrestrial species over or under road barriers, and on structures to facilitate stream flow under roads. Although some documents refer to such structures as “corridors” or even “linkages,” we use these terms in their original sense to describe the entire area required to link the landscape and facilitate movement between large protected core areas. Crossing structures represent only small portions, or choke points, within an overall habitat linkage or movement corridor. Properly designed crossing structures are a means of overcoming impediments or barriers to movement in the linkage. However, investing in specific crossing structures may be meaningless if other essential components of the linkage are left unprotected. Thus it is essential to keep the larger landscape context in mind when discussing existing or proposed structures to cross movement barriers, such as Interstate 10. This broader context also allows awareness of a wider variety of restoration options for maintaining functional linkages. Despite the necessary emphasis on crossing structures in this section, we urge the reader keep sight of the primary goal of conserving landscape linkages to promote movement between core areas over broad spatial and temporal scales.

Roads as Barriers to Upland Movement: Wildland fragmentation by roads is increasingly recognized as one of the greatest threats to biodiversity (Noss 1983, Harris 1984, Wilcox and Murphy 1985, Wilcove et al. 1986, Noss 1987, Reijnen et al. 1997, Trombulak and Frissell 2000, Forman and Deblinger 2000, Jones et al. 2000, Forman et al. 2003). Roads kill animals in vehicle collisions, create discontinuities in natural vegetation (the road itself and induced urbanization), alter animal behavior (due to noise, artificial light, human activity), promote invasion of exotic species, and pollute the environment (Lyon 1983, Noss and Cooperrider 1994, Forman and Alexander 1998). Roads also fragment populations by acting as semi-permeable to impermeable barriers for non-flying animals (e.g., insects, fish, amphibians, reptiles, and mammals) and even some flying species (e.g., butterflies and low-flying birds). Roads may even present barriers for large mammals such as bighorn sheep (Rubin et al. 1998). The resulting demographic and genetic isolation increases extinction risks for populations (Gilpin and Soulé 1986). For example Ernest et al. (2003) has documented little flow of mountain lion genes between the Santa Ana and Palomar ranges (where I-15 is the most obvious barrier), and between the Sierra Madre and Sierra Nevada (where I-5, and urbanization along SR-58, are the most obvious barriers). Fragmentation also results in smaller populations, which are more susceptible to extinction due to demographic and environmental stochasticity.

P-13.7 (cont.)

The impact of a road on animal movement varies with species, context (vegetation and topography near the road), road type and level of traffic (Clevenger et al. 2001). For example, a road on a stream terrace can cause significant population declines in amphibians that move between uplands and breeding ponds (Stephenson and Calcarone 1999), but a similar road on a ridgeline may have negligible impact. Most

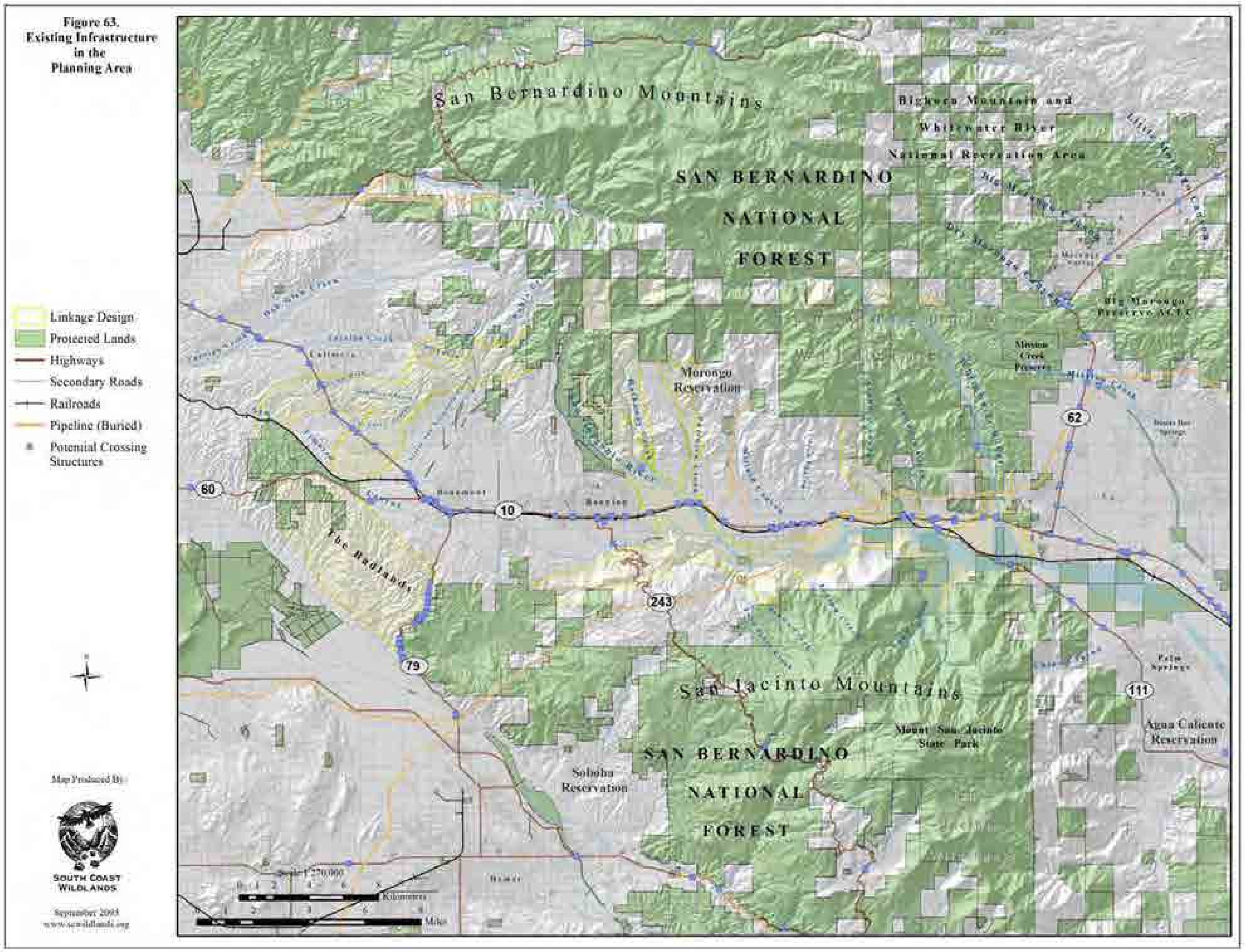


Figure 63.
Existing Infrastructure
in the
Planning Area
Linkage Design
Protected Lands
Highways
Secondary Roads
Railroads
Pipeline (Buried)
Potential Crossing
Structures
Map Produced By:
SOUTH COAST
WILDLANDS
San Bernardino Mountains
SAN BERNARDINO
NATIONAL
FOREST
Morongo
Reservation
Mission
Creek
Preserve
62
60
10
243
79
111
The Badlands
San Jacinto Mountains
Mount San Jacinto
State Park
Agua Caliente
Reservation
Soboba
Reservation
SAN BERNARDINO
NATIONAL
FOREST
Kilometers
Miles

P-13.7
(Cont.)

documented impacts on animal movement concern paved roads. Dirt roads may actually facilitate movement of some species, such as mountain lions (Dickson et al. 2004), while adversely impacting other species, such as snakes that sun on them and may be crushed even by infrequent traffic.

Roads in the Linkage Design: At the time of this report, there is approximately 190 km (119 mi) of paved roads in the Linkage Design area (Table 4), most of which occur within areas designated as stewardship zones. Interstate 10, Highway 111 and Highway 79 are the major transportation routes posing the most substantial barriers to movement, while Highway 243, a 2-lane scenic route, is relatively permeable (Figure 63). A survey of these roads found a variety of existing structures (i.e., bridges, pipes, and culverts) that might be useful for implementing road-crossing mitigation projects (Figure 63).

Table 4. Major transportation routes in the Linkage Design.

Road Name	Length (km)	Length (mi)
Interstate 10	17	11
Highway 111	5	3
Highway 243	6	4
Highway 79	8	6
Other Paved Roads	154	95
Total Length of Paved Roads	**190**	**119**

Types of Mitigation for Roads: Forman et al. (2003) suggest several ways to minimize the impact of roads on linkages by creating wildlife crossing structures and reducing traffic noise and light, especially at entrances to crossing structures. Wildlife crossing structures have been successful both in the United States and in other countries, and include underpasses, culverts, bridges, and bridged overcrossings. Most structures were initially built to accommodate streamflow, but research and monitoring have also confirmed the value of these structures in facilitating wildlife movement. The main types of structures, from most to least effective, are vegetated land-bridges, bridges, underpasses, and culverts. **P-13.7 (cont.)**

There are about 50 vegetated wildlife overpasses (Figure 64) in Europe, Canada, and the U.S. (Evink 2002, Forman et al. 2003). They range from 50 m (164 ft) to more than 200 m (656 ft) in width (Forman et al. 2003). Soil depths on overpasses range from 0.5 to 2 m, allowing growth of herbaceous, shrub, and tree cover (Jackson and Griffin 2000). Overpasses maintain ambient conditions of rainfall, temperature, light, vegetation, and cover, and are quieter than underpasses (Jackson and Griffin 2000). In Banff National Park, Canada, large

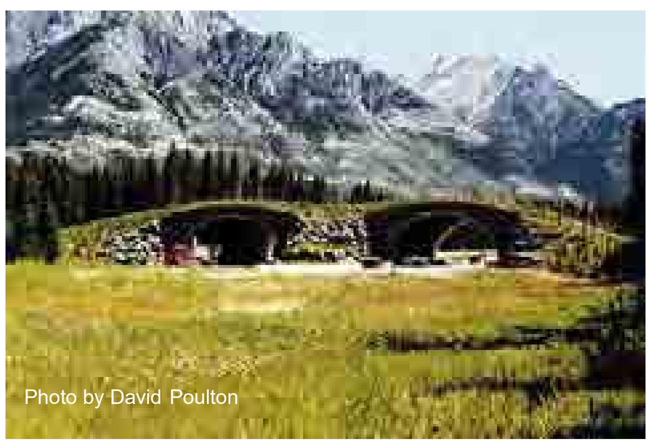


Figure 64. An example of a vegetated land bridge built to enhance movement of wildlife populations.

mammals preferred overpasses to other crossing structures (Forman et al. 2003). Similarly, woodland birds used overpasses significantly more than they did open areas without an overpass. Other research indicates overpasses may encourage birds and butterflies to cross roads (Forman et al. 2003). Overpass value can be increased for small, ground-dwelling animals by supplementing vegetative cover with branches, logs, and other cover (Forman et al. 2003).

Bridges over waterways are also effective crossing structures, especially if wide enough to permit growth of both riparian and upland vegetation along both stream banks (Jackson and Griffin 2000, Evink 2002, Forman et al. 2003). Bridges with greater openness ratios are generally more successful than low bridges and culverts (Veenbaas and Brandjes 1999, Jackson and Griffin 2000). The best bridges, termed *viaducts* (Figure 65), are elevated roadways that span entire wetlands, valleys, or gorges, but are cost-effective only where topographic relief is sufficient to accommodate the structure (Evink 2002).

Figure 65. A viaduct in Slovenia built to accommodate wildlife, hydrology, and human connectivity.

Although inferior to bridges, culverts can be effective crossing structures for some species (Jackson and Griffin 2000). Only very large culverts are effective for carnivores and other large mammals (Figure 66). Gloyne and Clevenger (2001) suggest that underpasses for ungulates should be at least 4.27 m high and 8 m wide, with an openness ratio of 0.9 (where the openness ratio = height x width/length). Earthen flooring is preferable to concrete or metal (Evink 2002).

Figure 66. Culvert on German highway, with rail for amphibians and fence for larger animals.

For rodents, pipe culverts (Figure 67), about 1 ft in diameter without standing water are superior to large, hard-bottomed culverts, apparently because the overhead cover makes small mammals feel secure against predators (Clevenger et al. 2001, Forman et al. 2003). In places where a bridged, vegetated undercrossing or overcrossing is not feasible, placing pipe culverts alongside box culverts can help serve movement needs of both small and large animals. Special crossing structures that allow light and water to enter have been designed to accommodate amphibians (Figure 68). Retaining walls should be installed, where necessary, along paved roads to deter small mammals, amphibians, and reptiles from accessing roadways (Jackson and Griffin 2000).

P-13.7
(cont.)

Concrete retaining walls are relatively maintenance free, and better than wire mesh, which must be buried and regularly maintained.

Figure 67. Pipe culvert designed to accommodate small mammals.

Figure 68. Amphibian tunnels allow light and moisture into the structure.

Noise, artificial night lighting, and other human activity can deter animal use of a crossing structure (Yanes et al. 1995, Pfister et al. 1997, Clevenger and Waltho 1999, Forman et al. 2003), and noise can deter animal passage (Forman et al. 2003). Shrub or tree cover should occur near the entrance to the structure (Evink 2002). Existing structures can be substantially improved with little investment by installing wildlife fencing, earthen berms, and vegetation to direct animals to passageways (Forman et al. 2003). Regardless of crossing type, wildlife fencing is necessary to funnel animals towards road crossing structures and keep them off the road surface (Falk et al. 1978, Ludwig and Bremicker 1983, Feldhammer et al. 1986, Forman et al. 2003). Earthen one-way ramps can allow animals that wander into the right of way to escape over the fence (Bekker et al. 1995, Rosell Papes and Velasco Rivas 1999, Forman et al. 2003). **P-13.7 (cont.)**

Recommended Crossing Structures on Interstate 10: Interstate 10 is the most substantial impediment to movement, bisecting the linkage for a distance of roughly 17 km (11 mi). Following standard practice (Clevenger and Wierzchowski 2005) where a road bisects a major wildland, we recommend crossing structures for large mammals at intervals of 1.5 to 2 km (0.9 to 1.25 miles), or at least one major structure per branch of the Linkage Design. Thus, we propose a total of 8 crossing structures (either bridged undercrossings or wildlife overpasses) along the 17 km of Interstate 10 through the Linkage Design. Several crossing structures adequate to accommodate wildlife movement currently exist, while others need to be improved.

The precise timing and location for constructing new or improved crossing structures may not be critical, and can consider cost, feasibility, and other factors. For cost efficiency, crossing improvements need not be made immediately, but can be incorporated into future road upgrade projects, such as lane additions or ramp remodeling in the vicinity of the Linkage Design. Open bridges (supplemented by culverts for smaller species) should be sited along natural travel routes and spaced less than 2 km (1.25 mi) apart on average, with a maximum spacing between adjacent structures not to exceed 2.8 km (1.75 mi). Excellent examples of roads retrofitted with large crossing structures at similar intervals include State Route 260 between Payson and Forest Lakes, Arizona; the Trans-Canada Highway in Banff National Park, Canada;

Interstate 75 through the Everglades in Florida; and Interstate 4 near Daytona Beach, Florida. It is also important that the entire road be fenced to funnel animals toward crossing structures.

Currently several structures along Interstate 10 accommodate various levels of animal movement (Figure 63). We recommend maintaining these structures, protecting adjacent land from development, and ensuring that future road projects do not degrade these crossing structures. These existing structures should be supplemented with major bridges or overpasses at appropriate locations and spacing, as described above.

There are two existing crossing structures under Interstate 10 in the western branch of the linkage, but neither is ideal. The existing culvert for Garden Air Wash (Figure 69) was not accessible during field visits, but is perhaps 2 m (6 ft) high and wide and about 20 m (65 ft) long. Bears were documented using this culvert in 1995 and 1998 (A. Kelley, pers. com.), and puma were killed on the road here in 1986 and 1997 (R. Fischer, CDFG, pers. com.). Caltrans is scheduled to rebuild the dangerous ramp here and is expected to make the culvert more amenable to wildlife. Development is slated to occur on the flat land above the canyon creating a choke-point for the last half-mile southwest of Interstate 10. We strongly recommend working with the developer to widen this section of the linkage to maintain the functionality of this connection over time. Wildlife movement would also be enhanced by either restoring the golf course north of the freeway to natural vegetation or adding strategic landscape vegetation.

Figure 69. Cottonwoods and willows dominate Garden Air Wash south of Interstate 10.

P-13.7
(cont.)

The culvert for El Casco Canyon (Figure 70) has 2 chambers, each about 1.5 m (4.5 ft) high and wide, and around 20 m (65 ft) long. A puma was shot near here in 1986 (R. Fischer, CDFG, pers. com.). The creek has been channelized for a stretch leading to the culvert north of the freeway, which should be restored. Though some species may currently utilize this structure, it is far from ideal due to low visibility to the other side and concrete flooring. We recommend replacing this concrete culvert with

Figure 70. The culvert for El Casco Creek looking toward the Badlands.

a bridge at the time of the next transportation improvement project in this stretch of highway. The area south of the freeway is aptly labeled "Tract between San Jacinto and San Gorgonio." Although this branch of the linkage will be restricted to mere choke-points in some areas, maintaining connectivity here will benefit multiple species.

Figure 71. First-rate bridge spanning the San Gorgonio River.

Figure 72. San Gorgonio River flowing under the road between the freeway and the railroad.

The least cost corridor for badger crosses Interstate 10 along the San Gorgonio River, and suitable habitat occurs for a number of other focal species. There are a series of crossing structures where the River flows under Interstate 10, including separate bridges for both the west and eastbound lanes (Figure 71), and for the service road between the freeway and the railroad tracks (Figure 72). Each bridge has 10 chambers, with each section measuring roughly 6 m (20 ft) wide, 3 to 5 m (10 to 15 ft) high depending on soil deposition, and roughly 20 m (65 ft) long. The 2 outer sections are shorter, about 0.9 to 1.5 m (3 to 5 ft) high. During field visits we observed an abundance of animal sign throughout this area, including deer tracks and several carnivore scats. Animals that follow washes can enter several canyons in the San Jacinto Mountains. Myers et al. (1996) recorded coyote, rabbit, mice, woodrat, and ground squirrel during tracking surveys. Just downstream, however, a low concrete dike runs almost the full width of the river, deflecting flow to the south bank to protect a mining operation that occupies almost the whole river bottom. Mining operations in the river decrease its value as a travel corridor and closing and restoring these operations would benefit this connection. P-13.7 (cont.)

The least cost corridor for mountain lion crosses Interstate 10 using Stubbe Canyon, which has suitable habitat for several other focal species, including badger, antelope ground squirrel, little pocket mouse, and Merriam's kangaroo rat. There are a series of bridged under-crossings to accommodate Stubbe Wash, which crosses the freeway and service road in 2 places (Figures 73 and 74), roughly 30 m (90 ft) apart. Each bridge is roughly 4 to 5 m (12 to 15 ft) high, 8 to 10 m (25 to 30 ft) wide, and about 20 m (65 ft) long. Stubbe Wash joins the San Gorgonio River just south of the freeway. Coyote, rabbit, mice, woodrat, and ground squirrel were also recorded using this crossing structure (Myers et al. 1996), and many tracks were detected during recent field surveys. In addition to facilitating wildlife movement across transportation barriers, these bridges also provide passage for hikers on the Pacific Crest Trail. There is some native vegetation at the approach of these structures in both directions, but there is virtually no vegetative cover through the entire length of the actual structures themselves. We suggest planting native shrubbery in between each bridge where sunlight reaches. Signs of vehicles were also visible beneath these bridges and efforts should be made to prevent off-road vehicle use here. There are also some scattered homes on the north side of the freeway just east of the wash. We recommend maintaining the rural character of the landscape, with appropriate measures to confine light and noise pollution to home sites. Roughly 800 acres were recently purchased in Stubbe Canyon on both sides of the freeway to maintain this connection for wildlife movement and provide habitat for listed species covered by the Coachella Valley MSHCP (B. Havert and K. Barrows, pers. com.). The land in upper Stubbe Canyon should be targeted for conservation easement, purchase, or other action to maintain its wild character.

Figure 73. Looking toward the San Jacintos at the westernmost bridges over Stubbe Canyon.

Figure 74. Looking through the easternmost bridges under the freeway and service road.

P-13.7 (cont.)

The most permeable path for mountain lion crosses Interstate 10 along the Whitewater River. This area also provides habitat and connectivity for badger, Merriam's kangaroo rat, little pocket mouse, rock wren, speckled rattlesnake, and coast horned lizard. The Whitewater River provides the most direct riparian connection between targeted protected areas, and most of the canyon is already protected. There are a series of excellent bridges, 2 for the east and westbound lanes of the freeway (Figure 75), and one for the service road (Figure 76). The freeway bridges each have 8 chambers, each measuring roughly 9 m (30 ft) high, 16 m (55 ft) wide, and 20 m (65 ft) long. The bridge for the service road has roughly the same measurements as the freeway bridges except the passageways are much shorter, at about 6 m (20 ft). The Whitewater River Bridge was found to have the highest frequency of bobcat use in the study area; and coyote, rabbit, and roadrunners were also documented using this structure (Myers et al. 1996). There is a spectacular gallery forest dominated by cottonwood and willows about 1 km north of the freeway. Public agencies bulldoze a stretch of the river just below the gallery forest to increase percolation for groundwater recharge basins. We strongly recommend initiating a riparian restoration project to improve habitat conditions (See Stream Barriers Section). Numerous species that utilize riparian or desert scrub habitats (e.g., antelope ground squirrel, Pacific kangaroo rat, large-eared woodrat, treefrog, and white alder) will benefit from re-establishing native riparian vegetation here. In addition, there is one row of windmills in the river bottom south of the freeway and many more downstream. Some of the wind farms are surrounded by chain-link fence topped with barbed wire, which should be removed to allow animals to roam the floodplain and access side canyons more easily.

Recommended Crossing Structures on Highway 111: There are two suitable bridged crossings where Highway 111 crosses the confluence of the San Gorgonio and Whitewater Rivers, one for traffic in each direction (Figure 77). Each bridge has 8 chambers, each measuring roughly 3 m (10 ft) high, 4.5 m (15 ft) wide, and roughly 9 m (30 ft) long. We investigated further downstream to look for opportunities for animals to leave the river bottom and enter the San Jacinto Mountains. There is no shortage of steep slopes to ascend, but relatively few canyon

Figure 75. Looking south toward the San Jacinto Mountains through the freeway bridge over the Whitewater River.

Figure 76. Looking up Whitewater River through the bridge built to accommodate the 2-lane service road.

Figure 77. Highway 111 bridge at the confluence of the San Gorgonio and Whitewater Rivers.

P-13.7
(cont.)

bottoms, of which Snow Canyon is by far the best (Figure 78). The small village of Snow Canyon is almost a half mile from the main wash of Snow Creek, with a broad bajada at its mouth. There is also a substantial canyon just west of the village of Snow Canyon that offers access to the San Jacintos. This small canyon has a spring about 183 m (600 ft) above the river floor. Downstream, Blaisdell Canyon looks like superb habitat, but there is some housing in the bajada at its mouth that likely impedes passage by some animals. There is a small steep canyon a bit downstream (NE of Desert Angel peak) but no underpass under Highway 111 at this point, plus chain link fencing.

Figure 78. Whitewater River flowing towards the San Jacinto Mountains with Snow Creek Canyon in the center of the photo.

We strongly recommend conservation measures to maintain the rural character in this area and attention to wildlife connectivity during any upgrading of Highway 111. There has already been significant investment in conserving the Whitewater River connection. We advise purchase or conservation easements of any large parcels in the broad alluvial fan of the river and in Snow Creek Canyon.

The area is also popular with off-road vehicle enthusiasts with heavy signs of use in the river bottom and up several side canyons. These illegal activities impact soils and vegetation and may inhibit species movement and habitat use patterns. We highly recommend preventing off-road vehicle use and enforcing closures.

Recommended Crossing Structures on Highway 79: Highway 79 or Lamb Canyon Road bisects the linkage through the Badlands. Coastal sage scrub is the dominant vegetation in the Badlands, providing habitat for a majority of the selected focal species.

P-13.7
(cont.)

There are a number of concrete pipe culverts in this stretch of the highway, sited every 300 to 500 m (0.2-0.3 mi), with average dimensions of 1.5 m (5 ft) in diameter, comparable to the one depicted in Figure 79. There is also a concrete box culvert with 2 chambers (Figure 80), each measuring about 1 m (3 ft) high and 4 m (12 ft) wide. Visibility is poor or absent through most of these structures.

Figure 79. Concrete pipe culvert under Highway 79, which is representative of most culverts along this highway.

None of the structures on Highway 79 is ideal for facilitating wildlife movement due to the size of the structures, limited or no visibility to the other side, and concrete flooring, and many of the structures are badly in need of maintenance. A number of the structures are clogged with weedy plant species (Figure 81), and the concrete box culvert shown in Figure 80 is practically filled with dirt. We recommend upgrading these structures to expansive bridges at least 4 m high and 8 m wide during the next transportation improvement project along this highway. We also suggest acquisition or conservation easements of any large parcels, and restoration of natural habitats that have been degraded. The Badlands provide the largest expanse of coastal sage scrub in the linkage planning area, providing habitat not only for numerous focal species but also for a number of rare and endangered species not specifically addressed by our analyses, such as the coastal California gnatcatcher. Coastal sage scrub is designated as a sensitive natural community by the state, and is underrepresented in existing protected areas.

Figure 80. Concrete box culvert under Highway 79, which is in need of maintenance.

Figure 81. Many structures along Highway 79 are clogged with weeds, limiting their utility for wildlife.

P-13.7
(cont.)

Other Recommendations Regarding Paved Roads within the Linkage Design:

- Transportation agencies should use each road improvement project as an opportunity to replace culverts with bridges (expansive enough to allow vegetation to grow) and use earthen substrate flooring. In locations where a bridge is not feasible and only a culvert can be provided, install a pipe culvert (designed to remain free of water) parallel to the box culvert to provide for passage of small mammals, amphibians, and reptiles.

- Encourage woody vegetation leading up to both sides of crossing structures to provide cover for wildlife and to direct their movement toward the crossing structure. Work with the USFS, BLM, California Native Plant Society, local Resource Conservation District or other non-profit organizations active in restoration efforts in the area to restore riparian communities and vegetative cover at passageways.

- Install appropriate wildlife fencing along the freeway to guide animals to crossing structures and keep them off the highway. Install escape structures, such as earthen ramps, to allow animals to escape if they get trapped on the freeway.

- Use retaining walls or fine mesh fencing to guide amphibians and reptiles to crossing structures.

- On freeways and other paved roads, minimize artificial night lighting, and direct the light onto the roadway and away from adjacent wildland.

- Move any lighted billboards that are adjacent to crossing structures at least 200 m (656 ft) away from the crossing to minimize artificial night lighting. **P-13.7 (cont.)**

Roads as Ephemeral Barriers: Structures designed for wildlife movement are increasingly common. In southern California, 26 wildlife crossing structures were installed along 22-miles of State Route 58 in the Mojave Desert specifically for desert tortoise movement (Evink 2002). In the South Coast Ecoregion, the Coal Canyon interchange on State Route 91 has been converted, through a partnership with CalTrans, California State Parks, and Hills for Everyone, from a vehicle interchange into a wildlife underpass to facilitate movement between the Chino Hills and the Santa Ana Mountains. About 8 wildlife underpass bridges and viaducts were installed along State Route 241 in Orange County, although urbanization near this toll road has compromised their utility (Evink 2002). Elsewhere, several crossing structures, including 3 vegetated overpasses, have been built to accommodate movement across the Trans-Canada Highway in Banff National Park (Clevenger et al. 2001). In south Florida, 24 underpasses specifically designed for wildlife were constructed along 64km (38 mi) of Interstate 75 in south Florida. The structures are readily used by endangered Florida panthers and bears, and have reduced panther and bear roadkill to zero on that route (Lotz et al. 1996, Land et al. 2001). Almost all of these structures were retrofitted to existing highways rather than part of the original road design. This demonstrates that barrier or filter effects of existing roads are at least partially reversible with well-designed improvements.

Representatives from CalTrans have attended each of the four workshops of the South Coast Missing Linkages effort, and the agency is incorporating wildlife crossing improvements into its projects with a focus in important linkage areas. For example, CalTrans recently proposed building a wildlife overpass over SR-118, and in February 2003 CalTrans started removing pavement from the Coal Canyon interchange in Orange County and transferred the property to California State Parks expressly to allow wildlife movement between Cleveland National Forest and Chino Hills State Park.

Rail Line Barriers to Movement

Like highways, railroads can also impede plant and animal movement (Messenger 1968, Niemi 1969, Klein 1971, Stapleton and Kiviat 1979, Muehlenbach 1979, Lienenbecker and Raabe 1981, Forman 1995), though there are some differences. Railroads tend to follow straighter lines than roads, trigger more and larger fires, and scatter deleterious particles widely over the land bordering the rail line (Forman and Boerner 1981, Forman et al. 2003). Roadkill rates are likely a great deal lower per train than per vehicle on roads, though trains have been derailed from collisions with large mammals. Grain spilled from trains can attract deer and bears to feed on the rail line; such events have caused significant mortality to grizzly bears in Montana (Federal Register Feb 11 2004. 69: 6683-6685; C. Servheen, University of Montana, personal communication). Freight trains transporting cargo also disperse non-native seeds, insects, and perhaps small mammals along railroad networks (Thomson 1940, Stapleton and Kiviat 1979, Forman et al. 2003).

Existing Rail Lines in the Linkage Design Area: The Union Pacific Railroad bisects the entire length of the linkage. The railroad is currently used for freight, industrial, and passenger service (County of Riverside 2003). In the western part of the linkage, the rail line runs along San Timoteo Canyon between Interstate 10 and State Route 60. Just west of Beaumont, the tracks begin to parallel Interstate 10 running just south of the freeway through much of the pass, between Little San Gorgonio and Cottonwood creeks. In the central part of the linkage area, from approximately the San Gorgonio River to Stubbe Canyon, the rail line, the freeway, and various service roads form a band of parallel impediments to animal movement between the San Bernardino and San Jacinto Mountains. Just past Stubbe Canyon and before the Interstate 10 and Highway 111 interchange in the eastern part of the linkage, the rail line begins to head southeast, crossing under Highway 111 and then running alongside the highway for roughly 4 km before heading due east to cross over the Whitewater River. For much of its length, the rail lines lie on a bed of gently-sloping gravel. For some small mammals, amphibians, and reptiles, the rails and expanse of gravel probably are moderate impediments to movement but there are multiple crossing points under the railroad tracks.

P-13.7 (cont.)

There are 3 railroad crossing structures over the San Gorgonio River. Two are box culverts (Figure 82), while the main channel is bridged (Figure 83). The box culverts each measure roughly 2 m (6.5 ft) high, 6 m (20 ft) wide, and 6 m long. The bridge over the river has 14 chambers with each section measuring about 4 m (13 ft) high, 3 m (10 ft) wide, and 6 m (20 ft) in length. There was an excellent railroad bridge over Stubbe Canyon Wash when we did field reconnaissance in spring of 2003 (Figure 84), but soon thereafter it was downgraded to a bridge with a much reduced openness ratio (Figure 85). While the new structure will still likely accommodate wildlife movement, the reconstruction effort eliminated vegetative cover in addition to reducing the size of the bridge, which now measures roughly 3 m (10 ft) high, 18 m (60 ft) wide, and 6 m (20 ft) long. The 3 railroad bridges over the Whitewater River are about a half a kilometer north of Highway 111, and 150 m (500 ft) apart. The 2 bridges to the east are about 3 m (10 ft) high, 9 m (30 ft) wide, and about 6 mi (20 ft) in length (Figure 86). The western most bridge has 4 chambers, each about 1.2 m (4 ft) high, 6 m (20 ft) wide, and roughly 6 m (20 ft) long (Figure 87).

Recommendations to Mitigate the Effects of Rail Lines in the Linkage Design: We believe that the existing rail line may present an impediment to movement of small mammals, reptiles, and amphibians. Although the railroad is probably not a complete barrier, in concert with nearby Interstate 10 and Highway 111, the railroad contributes to reduced connectivity in the linkage area.

The County of Riverside (2003) has suggested measures to reduce impacts on residents in proximity to railroads, such as installing sound walls and other noise absorbing surfaces, and eliminating at-grade crossings, which would also benefit wildlife. We recommend a policy of using any railroad realignment as an opportunity not simply to mitigate loss of wildland connectivity, but to improve it. Ameliorating the adverse affects of railroads is similar to that for roads, providing viaducts, bridged underpasses, and tunnels (Reed and Schwarzmeier 1978, Borowske and Heitlinger 1981, Forman 1995). We recommend that crossing structures should be (a) sited at least every 1.5 to 2 km, (b) aligned with crossing structures on Interstate 10 and Highway 111, (c) integrated with sound walls to reduce noise pollution, and (d) integrated with fences where beneficial to guide animals toward crossing structures. Fencing can be permeable to humans and larger animals, and would not be needed where steep cut and fill slopes already divert animals toward structures.

Implementing these recommendations will take cooperation among the rail line operators and transportation agencies. We urge them to work together to develop a long-term coordinated plan to ensure that wildlife-crossing structures are aligned in a way that maximizes their utility to animals. A coordinated plan will ensure that, for instance, a planned crossing structure on Interstate 10 does not abut an impermeable section of the railroad for which no crossing structure is planned. **P-13.7 (cont.)**

Impediments to Streams

Organisms moving through rugged landscapes often use riparian areas as travel routes. For example, many butterflies and frogs preferentially move along stream corridors (Orsack 1977, Kay 1989, USGS 2002). Even large, mobile vertebrates, such as mountain lions, have shown preferences for moving along riparian corridors (Beier 1995, Dickson et al. 2004).

For plants and animals associated with streams or riparian areas, impediments are presented by water diversions and extractions, road crossings, exotic species, water recharge basins, farming in streambeds, gravel mining, and concrete structures that stabilize stream banks and streambeds. Increased runoff can convert ephemeral streams to perennial streams that support aggressive invasive species, such as bullfrogs and exotic fish that prey on native aquatic species, and giant reed (*Arundo* donax) that supplants native plant communities (Fisher and Crooks 2001).

Figure 82. Box culvert built to accommodate overflow of the San Gorgonio River, just west of the bridge to the right. Another similar structure occurs to the east of the bridge.

Figure 83. Looking south toward the San Jacinto Mountains at the railroad bridge over the main channel of the San Gorgonio River.

Figure 84. Old railroad bridge over Stubbe Canyon Wash looking toward the San Jacinto Mountains.

Figure 85. Same view as Figure 81 showing the new bridge over Stubbe Canyon Wash.

P-13.7 (cont.)

Figure 86. A railroad bridge for the Whitewater River built in 2004. ORV use is evident but there were plenty of animal tracks as well.

Figure 87. Western most railroad bridge over the Whitewater River, also built in 2004.

Impediments to Streams in the Linkage Design: The Whitewater River provides the most direct connection between targeted ranges. The San Gorgonio River emanates from the San Bernardino Mountains creating an extensive alluvial fan that provides an east west movement route through the pass, with several tributary creeks providing links to the San Jacinto Mountains. In times of high surface flows, these rivers and their tributaries may provide avenues along which riparian species journey between the San Bernardino and San Jacinto Mountains and the Badlands. Today, riparian habitats are significantly reduced in some places due to a combination of factors, including flood control, water diversions, ground and surface water extraction, the effects of which are exacerbated by drought.

The Whitewater River has a lush riparian forest until about 1.5 miles above Interstate 10 (Figure 88), and restoration would improve habitat for many species. This part of the river needs revegetation and restoration of the channel to something closer to natural form. Colorado River water is pumped into the ground just above I-10 for underground storage and transport to towns a few miles downstream. The water management agency regularly bulldozes the riparian vegetation in the river bottom with the apparent goal of increasing percolation by eliminating riparian vegetation that uses Colorado River water destined for the recharge galleries downstream (Noss et al. 2001). This practice eliminates cover that might otherwise provide meaningful habitat connectivity for both riparian and terrestrial species. Further upstream, the Whitewater Trout Farm diverts water from inside BLM Wilderness, taking 100% of the flow out of the River for several miles. Although they do return water to the river (in the floodplain, but not the main channel) below their hatchery ponds and resort, this diversion significantly impacts the gallery forest. In addition, there is also a gravel pit ½ mile above the freeway, and below that some diking to protect the Interstate 10 bridges and embankments.

P-13.7
(cont.)

Figure 88. The gallery forest in upper Whitewater River, seen along the base of the mountains, is a critical resource for wildlife in this otherwise arid landscape. Riparian restoration downstream is crucial to restore functional connectivity and should not impact groundwater recharge objectives.

The San Gorgonio River is also apparently dewatered far upstream, and would otherwise support a more substantial riparian forest. A water facility, either under construction or renovation, occurs at the northern end of Bluff Road north of Banning. Apparently this is a pump station removing water from upstream. There are also two large-scale mining operations in the floodplain of the San Gorgonio River, which likely deter wildlife movement and alter habitat use patterns (See Mining Operations section).

Surface and groundwater issues are quite complex in the linkage area and involve multiple agencies, including but not limited to the Metropolitan Water District of Southern California (MWD), Coachella Valley Municipal Water District, Desert Water Agency, City of Banning Water District, San Gorgonio Pass Water Agency, and the Beaumont-Cherry Valley Water District. In this arid landscape, it is not surprising that there has been an "imbalance between consumption and all sources of groundwater recharge" (City of Rancho Mirage 2003). Groundwater recharge is accomplished by natural percolation from perennial and intermittent surface flows that infiltrate alluvial fans and imported water. The San Gorgonio and Whitewater River subbasins are recharged by inflows from the San Gorgonio Pass area, with the San Timoteo Formation being the major water-bearing deposit in the pass (Bloyd 1971, DWR 2004). MWD's Colorado River Aqueduct cuts southwest across the Pass, and since 1973 has also been recharging the Whitewater River subbasin (County of Riverside 2003, City of Rancho Mirage 2003). With an average annual rainfall of 15 to 18 inches (Bloyd 1971, DPW 2004), and increases in the demand for limited groundwater supplies, water extraction is a concern for the long-term viability of riparian and aquatic habitats in the Linkage Design.

In addition to loss of surface and groundwater, water quality is also a concern. Many rural areas in the pass have been developed with septic tanks and leachfield systems causing an increase in nitrates (City of Palm Desert 2004). Water quality has also been affected by importation of Colorado River Water, which is about 3 times higher in total dissolved solids than natural upper Whitewater River groundwater. However, no drainages in the linkage have been listed as impaired under Section 303(d) of the Clean Water Act (USEPA 2003, http://endeavor.des.ucdavis.edu/geowbs/asp/wbregion.asp). Should any drainage be listed as impaired in the future, these riparian stretches would be eligible for the development of intensive management plans called Total Maximum Daily Load (TMDL) plans. TMDL plans are enacted by the Regional Water Quality Control Board to determine the cause of water quality deterioration, after which an implementation plan is developed to return water quality to targeted values.

P-13.7
(cont.)

Invasive species are also an issue that needs to be addressed in the Linkage Design. Although the San Gorgonio and Whitewater rivers and other drainages in the linkage are dominated by native species, tamarisk or saltcedar (*Tamarix ramosissima*) has invaded some of these systems (e.g., Whitewater and San Gorgonio rivers). This introduced species has escaped cultivation and invaded stream courses in the arid southwest, out competing native plant species and forming monocultures that provide little value to wildlife. Tamarisk can transpire at least 200 gallons of water per plant each day and will often dry up ponds and streams (Whitson et al. 2000, Baldwin et al. 2002). Drying up of the streams, springs, and seeps in this arid landscape would be detrimental to native flora and fauna.

Riparian areas are crucial for sustaining populations of water-dependent species (e.g., California treefrog) in the Linkage Design area, and may function as steppingstones that allow movement by semi-aquatic species. They can also provide travel routes for terrestrial organisms, such as mountain lion, which are known to move along riparian corridors (Spowart and Samson 1986, Beier and Barrett 1993, Dickson et al. 2004). In addition to facilitating wildlife movement, portions of both the San Gorgonio and Whitewater rivers also provide habitat for several listed species covered by the Multiple Species Habitat Conservation Plans (Noss et al. 2001, County of Riverside 2002, CVAG 2004).

Examples of Mitigation for Stream Barriers: Few restoration projects have focused on restoring the natural dynamics of riparian systems (Bell 1997), where annual floods are a major component of ecosystem function. Many riparian plants are pioneer species that establish quickly following soil disturbance by floods (Ohmart 1994), as long as threats like invasive species are controlled and physical processes restored (e.g., by removing dams and diversions or by mimicking natural flow regimes).

Continuity between upland and riparian vegetation is also important to maintaining healthy riparian communities. Many species commonly found in riparian areas depend on upland habitats during some portion of their lifecycle. Examples include butterflies that use larval host plants in upland habitat and drink water as adults and toads that summer in upland burrows. While the width of upland habitats needed beyond the stream's edge is unknown for many species, information on the western pond turtle suggests that a 1-km (0.6-mi) upland buffer (i.e., 0.5 km to either side of the stream) (Holland 1991) is needed to sustain populations of this species.

Measures to minimize development impacts on aquatic habitats typically focus on establishing riparian buffer zones (Barton et al. 1985, Allan 1995, Willson and Dorcas 2003). However, although these buffers are intended to prevent erosion and filter runoff of contaminants (U.S. Environmental Protection Agency), research suggests that current regulations are inadequate to protect populations of semiaquatic reptiles and amphibians (Willson and Dorcas 2003). Buffers must contain enough upland habitat to maintain water-quality and habitat characteristics essential to the survival of many aquatic and semiaquatic organisms (Brosofske et al.1997, Willson and Dorcas 2003). However, maintaining riparian buffers will not suffice for some species. For example, to preserve salamander populations in headwater streams, land use must be considered at the watershed level (Willson and Dorcas 2003). **P-13.7 (cont.)**

Recommendations to Mitigate the Effects of Streams Barriers in the Linkage Design: Since 80% of terrestrial vertebrate species depend on riparian systems (Kreuper 1992), it is critical to maintain these communities. To enhance species use of riparian habitat through the Linkage Design area, we recommend:

- Restore riparian vegetation in all drainages and upland vegetation within 1 km (0.6 mi) of streams and rivers, where feasible. This may encourage plant and animal movement and increase water quality. Non-point sources of pollution should be identified and minimized.

- Work with Coachella Valley Municipal Water District, Army Corps of Engineers (ACOE), CDFG, USFS, BLM and other relevant agencies and organizations to restore riparian vegetation in the Whitewater River.

- Work with water district staff to reorient the Whitewater basins at some time in the future to increase the rate of aeolian sand transport (Noss et al. 2001).

- Work with the USFS, CDFG, Department of Public Works, Water Districts, watershed groups and others to investigate the historic flow regime of the San Gorgonio and Whitewater Rivers and develop a surface and groundwater management program to restore and recover properly functioning aquatic/riparian conditions.

- Work with the City of Calimesa, Public Works, community residents, and others to restore riparian vegetation in Garden Air Wash and El Casco Canyon north of the freeway.

- Minimize the effects of road crossings in riparian zones. Coordinate with Caltrans, USFS, BLM, and CDFG to further evaluate existing stream crossings and upgrade structures that impede wildlife movement. Use several strategies, including information on preferred crossings, designing new culverts, retrofitting or replacing culverts, post construction evaluation, maintenance, and long-term assessment (Carey and Wagner 1996, NMFS 1996, Evink 2002).

- Remove exotic plants (e.g., tamarisk) and animals (e.g., bullfrogs, African clawed frogs) from washes, streams and rivers. Work with the Biological Resources Division at USGS, USFS, BLM, CDFG, and other relevant agencies and organizations to survey streams and drainages for invasive species and develop a comprehensive removal strategy.

- Enforce existing regulations protecting streams and stream vegetation from illegal diversion, alteration, manure dumping, and vegetation removal. Agencies and regulations with applicable jurisdiction include CDFG, Streambed Alteration Agreements, ACOE, Clean Water Act, and Native Plant Protection Act.

- Prevent off-road vehicles from driving in the creek bottom and enforce closures. Review existing regulations relative to linkage goals and develop additional restrictions or recommend closures in sensitive areas.

- Aggressively enforce regulations restricting farming, gravel mining, suction dredging, and building in streams and floodplains.

- Increase and maintain high water quality standards. Work with the Resource Conservation District to help establish use of Best Management Practices for rural communities in the Linkage Design and surrounding communities.

- Support efficient water use and education programs that promote water conservation.

- Discourage any additional development in flood prone areas and prevent the construction of concrete-banked streams and other channelization projects.

P-13.7
(cont.)

- Support the protection of riparian and adjacent upland habitats on private lands. Pursue cooperative programs with landowners to improve conditions in riparian and upland habitats on private land in the Linkage Design.

Other Land Uses that Impede Utility of the Linkage

Land management policies in the protected areas and the linkage can have substantial impact on habitat and movements of species through the Linkage Design. It is essential that land-management and planning entities (e.g., USFS, BLM, Coachella Valley Association of Governments, Riverside County, and cities) integrate the linkage plan into their policies and regulations.

Mining Operations

Mining harms native species, habitats, and ecological systems through impacts to vegetation, water and air quality, creation of roads, pipelines, power lines and other infrastructure, non-native species invasions, release of pollutants, and increased motorized access (Penrod et al. 2002). All types of mining activity, from simple prospecting to the use of sluice boxes and suction dredges, can harm aquatic species. Mining alters habitat in a way that promotes the presence of harmful non-native species. For example, suction dredging creates deeper pools, which provide habitat for nonnative predatory species such as sunfish and bullfrogs. Surface and groundwater quality can be degraded, and water quantity diminished through the direct use of water in the mining process. Mining impairs air quality through the generation of fugitive dust from blasting and crushing activities, roads, pipeline corridors, and other infrastructure disturbances. Both riparian and terrestrial habitats can be heavily impacted by mining activities (USFWS 2001).

P-13.7 (cont.)

Mining in the Linkage Design Area: There are 3 mines in the Linkage Design: Two large-scale mining operations in the floodplain of the San Gorgonio River and one small rock quarry near the Whitewater River. The two mining operations on the San Gorgonio River are about 3.5 km apart, one in northeast Banning about 1.5 km upstream from Interstate 10 (Figure 89) and the other just downstream of the freeway crossing. Here, a low concrete dike runs almost the full width of the river, deflecting flow to the south bank to protect the mining operation that occupies almost the whole river bottom.

Restoring land occupied by the mining operations in the San Gorgonio River would benefit numerous species, including badger, mule deer, little pocket mouse, Merriam's kangaroo rat, large-eared woodrat, rock wren, wrentit, chaparral whipsnake, coast horned lizard, California sagebrush, and the critically endangered slender-horned spineflower. Closing and restoring the mining operations in the San Gorgonio River would greatly enhance the conservation value of this connection.

Examples of Mitigation for Mining Operations: Mining operations can be modified with actions that reduce the affects of these industrial activities. Preventing any further mining operations in key areas of the Linkage Design through administrative withdrawals will have the greatest effect on preserving linkage function. Existing mining operations can be targeted for regulatory actions that reduce the effects of these industrial activities. These include, limiting noise from blasting, minimizing night lighting, reducing traffic in sensitive areas or constriction points, monitoring water quality and quantity, minimizing the use of harmful chemicals, and increasing enforcement of existing regulations.

Figure 89. Mining operation in the San Gorgonio River in northeast Banning, with Hathaway Creek flowing into the river just below this operation.

Recommendations to Mitigate the Effects of Mining in the Linkage Design Area: Agencies with regulatory oversight of mining operations include U.S. Fish and Wildlife Service, California Department of Fish and Game, Army Corps of Engineers, Regional Water Quality Control Board, U.S. Forest Service, Bureau of Land Management and Riverside County. The California Surface Mining and Reclamation Act (1975) requires that land used in mining operations be restored once operations have ceased. We provide the following initial recommendations regarding mining activities in the Linkage Design area:

P-13.7 (cont.)

- Implement best management practices to minimize blasting noise, night lighting, and traffic in biologically sensitive areas or corridor constriction points.
- Prohibit new mining operations in key areas of the Linkage Design. Apply for administrative withdrawals to promote recovery of listed and sensitive species and their habitats.
- Mining operations should avoid disturbance of natural waterways, rare or imperiled habitat or species, wildlife movement corridors, and other biological resources.
- Prohibit placement of mine tailings, soil and overburden, and industrial waste in riparian zones.

- Monitor facilities and mining residue in or adjacent to riparian zones to ensure that discharges are not causing detrimental effects to listed or sensitive species or their habitat.

- Monitor mining operations for the presence of non-native aquatic species and implement eradication programs.

- Monitor compliance with all regulations, approved plans of operations, Habitat Conservation Plans, and with state and federal laws.

- Monitor the off-site effects of mining activities on key physical and biological resources and downstream conditions.

- When existing mining operations are completed, urge reclamation under guidelines set forth by the 1975 California Surface Mining and Reclamation Act.

Wind Turbines

Although wind-generated energy does not produce air-polluting and climate-modifying emissions, wind turbines can impact wildlife and wildlife habitats. Adverse effects can include habitat fragmentation from access roads, tower pads, above-ground power lines, and trenching for underground power lines. Birds, particularly raptors, are often killed from striking moving blades or power lines. Power lines associated with wind turbines can also be a source of mortality through electrocution if raptor-safe technology is not used. Noise generated by wind turbines may also interfere with communications in birds. An assessment of 15,000 wind turbines in the United States, estimated bird mortality in the range of 10,000 to 40,000 (mean = 33,000), with an average of 2.19 avian fatalities per turbine per year (Erickson et al. 2000, NMDFG 2004). Research has also shown that bats are highly susceptible to mortality from collisions with wind turbines (Adams 2003, NMDFG 2004).

P-13.7 (cont.)

Wind Turbines in the Linkage Design Area: The San Gorgonio Pass has the third largest concentration of wind turbines in California, with more than 3,500 located in the pass. The majority of these turbines were installed during the height of California's great *wind rush* in the early 1980s. The older wind turbines were installed much closer together, are less reliable, and operate less frequently than contemporary designs. Some of the older turbines have been replaced with tubular supported turbines, which are more bird friendly, but the majority of turbines in the Linkage Design are still lattice-supported

Figure 90. Lattice-support wind turbines downstream on the river; some are fenced limiting wildlife movement in this area.

turbines (Figure 90). There is one row of wind farms in the bottom of the Whitewater River below I-10, and about 12 rows of turbines in the floodplain of the San Gorgonio River between Stubbe Canyon and Lion Canyon. Some of the wind farms are surrounded by chain-link fence topped with barbed wire, restricting wildlife movement in the floodplain and access to side canyons.

McCrary et al. (1983, 1984, NWCC 2001) estimated that 69 million birds fly through the pass annually during migration, with 32 million in the spring and 37 million in the fall. They predicted that 6,800 birds were killed annually at the San Gorgonio wind facility based on 38 carcasses found while monitoring nocturnal migrants. A recent study in 2000 at San Gorgonio documented 42 fatalities during quarterly searches of approximately 360 turbines (Erickson et al. 2000, NWCC 2001). Additional wind energy projects have been proposed in the pass, which could increase collisions and further limit wildlife movement.

Recommendations to Mitigate the Effects of Wind Turbines in the Linkage Design Area: Considerable efforts have been made to standardize methods for siting wind plants to minimize biological impacts (NWCC 1999, NWCC 2001) and monitoring avian impacts (Anderson et al. 1999, Erickson et al. 2000, NWCC 2001). Many new wind-generating facilities have implemented site evaluation and monitoring programs that are useful for evaluating the impacts of wind plants on birds (Johnson et al. 2000, Erickson et al. 2000, Kerlinger and Curry 2000, Johnson et al. 2001, NWCC 2001). Research has shown that the smaller, faster moving, Kenetech-built, lattice-supported turbines have caused most of the bird fatalities, many of which are now being replaced with slower moving, tubular-supported turbines (Berg 1996, NMDFG 2004).

Nearly all of the following recommendations were developed by U.S. Fish and Wildlife Service and published as "Interim Guidance on Avoiding and Minimizing Wildlife Impacts from Wind Turbines" (Federal Register: July 10, 2003. Vol. 68, No. 132): **P-13.7 (cont.)**

- Remove fences surrounding wind turbines in the Linkage Design to allow animals to roam the floodplain and access side canyons more easily.
- Avoid locating turbines in known migration pathways or in areas where birds are highly concentrated, such as wetlands, rookeries, roosts, and riparian areas. Avoid known daily movement flyways (e.g., between roosting and feeding areas) and areas with a high incidence of fog, mist, low cloud ceilings, and low visibility.
- Avoid placing turbines near known bat hibernation, breeding, and maternity/nursery colonies, in migration corridors, or in flight paths between colonies and feeding areas.
- Configure turbine arrays to avoid landscape features known to attract raptors, such as cliffs.
- Avoid fragmenting large, contiguous tracts of wildlife habitat by minimizing roads, fences, and other infrastructure to maintain contiguous habitat for area-sensitive species. Turbines should be sited on lands already degraded or cultivated, and away from areas of intact native habitats.

- Where feasible, place electric power lines underground (see trenching guidelines) or on the surface as insulated, shielded wire to avoid electrocution of birds. Use recommendations of the Avian Power Lines Interaction Committee (1994, 1996) for any required above-ground lines, transformers, or conductors.

- Use tubular supports with pointed tops rather than lattice supports to minimize bird perching and nesting opportunities. Avoid placing external ladders and platforms on tubular towers to minimize perching and nesting. Avoid use of guy wires for turbine or meteorological tower support. All existing guy wires should be marked with recommended bird deterrent devices (Avian Power Line Interaction Committee 1994).

- If taller turbines (top of the rotor-swept area >199 feet above ground level) require lights for aviation safety, use the minimum acceptable pilot warning and obstruction avoidance lighting specified by the Federal Aviation Administration (FAA 2000). Only white strobe lights should be used at night, and these should be the minimum number, minimum intensity, and minimum number of flashes per minute allowable by the FAA. Solid red or pulsating red incandescent lights should not be used, as they appear to attract night-migrating birds and bats at a much higher rate than white strobe lights.

- Monitor bird movements (e.g., using acoustic, radar, infrared, or observational techniques) to determine peak use dates and times for specific sites. Where feasible, turbines should be shut down during peak bird-use periods.

- Monitor wildlife mortalities at turbine sites to detect and hopefully remedy problems via upgrading, retrofitting, or relocating of turbines.

- Develop habitat restoration plans for proposed wind-farm sites.

P-13.7
(cont.)

Urban Barriers to Movement

Urban development, unlike roads or aqueducts, creates barriers that cannot be corrected by building crossing structures. Urban and suburban areas make particularly inappropriate landscapes for movements of most plants and animals (Marzluff and Ewing 2001). In addition to direct habitat removal, urban development creates edge effects that reach well beyond the development footprint. Most terrestrial mammals that move at night will avoid areas with artificial night lighting (Beier, in press). Pet cats can significantly depress populations of small vertebrates near housing (Churcher and Lawton 1987, Crooks 1999, Hall et al. 2000). Irrigation of landscapes surrounding homes encourages the spread of argentine ant populations into natural areas, where they cause a halo of local extinctions of native ant populations extending 200 m (656 ft) into native vegetation (Suarez et al. 1998, Bolger et al. 2000). Similar affects have been documented for amphibians (Demaynadier and Hunter 1998). Habitat disturbance caused by intense human activity (e.g., off-road vehicle use, dumping, camping, and gathering sites) also tends to rise in areas surrounding urban developments. Areas disturbed by human use show decreases in bird and small mammal populations (Crooks and Soulé 1999, Bolger et al. 2000, Crooks et al. 2004, Sauvajot unpubl.).

Urban Barriers in the Linkage Design Area: Urban and agricultural areas cover 8.8% of the Linkage Design and are designated as stewardship zones. The small town of

Calimesa and the rural community of Cherry Valley border the western branch of the linkage. The growing city of Banning and the town of Cabazon are on the edge of the central branch of the linkage along the San Gorgonio River. In the eastern branch of the linkage, there is some rural development near Stubbe Canyon, the village of Bonnie Bell in Whitewater Canyon, and the small community of Snow Creek at the mouth of Snow Creek Canyon. The Riverside County General Plan asserts that a considerable amount of open space within the San Gorgonio Pass would be preserved through the Rural Mountainous and Open Space Conservation land use designations, with little development outside of existing city boundaries, except the Oak Valley Specific Plan and the Cherry Valley Gateway Community (County of Riverside 2003). These two developments are adjacent to Calimesa near the western branch of the Linkage Design. The Center for Biological Diversity and the San Bernardino Valley Audubon Society took legal action against the Oak Valley project in September 2001, and settled the case in February 2002. The terms of settlement included the protection of all high-quality wetlands on-site and an additional 30 acres of wetlands off-site, a reduction in residential density, the potential for the preservation of habitat on 4,000 neighboring acres, and the protection of the Garden Air Wash, which is included in the Linkage Design (M. Bond, pers. com.). This type of cooperation is essential to the functionality of the linkage, to limit impacts of lighting, roads, domestic livestock, pets, and traffic on wildlife movement in the Linkage Design.

Steep slopes, limited water supplies, and other constraints limit opportunities for significant population growth in the Pass. In addition, land managers, planners, regulatory agencies, and stakeholders have taken great strides toward influencing the future of the Pass by engaging in the Western Riverside Multiple Species Habitat Conservation Plan (MSHCP) (County of Riverside 2002) and the pending Coachella Valley MSHCP (CVAG 2004). Since increased urbanization of currently undeveloped areas of the Linkage Design could seriously compromise wildland connectivity, we are delighted to see that these plans identify several important areas of the linkage as land that could be acquired for conservation purposes. **P-13.7 (cont.)**

Recommendations for Mitigating the Effects of Urban Barriers in the Linkage Design Area: Urban developments, unlike roads, create movement barriers that cannot be readily removed, restored, or mitigated. Preventing urban developments in key areas through acquisition or conservation easements is therefore the strongest option. Mitigation for existing urban developments focuses on designing and managing buffers to reduce penetration of undesirable effects into natural areas (Marzluff and Ewing 2001). Management in buffers can include fencing in pets, reducing human traffic in sensitive areas or constriction points, limiting noise and lighting, reducing traffic speeds, minimizing use of irrigation, maximizing outdoor water use efficient measures, encouraging the planting of locally native vegetation, minimizing the use of pesticides, poisons and other harmful chemicals, and increasing enforcement of existing regulations.

We recommend the following mitigation actions regarding urban, suburban, and rural developments in the Linkage Design area:

- Encourage land acquisition and conservation easements with willing private land owners in the Linkage Design.

- Encourage homes abutting the linkage area to have minimal outdoor lighting, always directed toward the home and yard rather than into the linkage. Homeowners should use fences to keep dogs and domestic livestock from roaming into the linkage area. In the case of existing homes, this can best be arranged as a voluntary agreement among landowners. Residents should be encouraged to keep cats indoors at all times.

- Develop a public education campaign, such as the On The Edge program developed by the Mountain Lion Foundation (www.mountainlion.org), which encourages residents at the urban wildland interface to become active stewards of the land by reducing penetration of undesirable effects into natural areas. Topics addressed include, but are not limited to, living with wildlife, predator-safe enclosures for livestock and pets, landscaping, water conservation, noise and light pollution.

- Work with cites and counties to discourage new residential or urban developments in key areas of the Linkage Design.

- Encourage use of drought-tolerant landscaping to reduce water demand (City of Palm Desert 2004), and the corresponding appropriate efficient irrigation technology.

- Provide educational programs for landowners to increase their appreciation of natural communities, and to convey the importance of habitat protection and the need for connecting wild areas.

Recreation

P-13.7 (cont.)

Recreational use is not inherently incompatible with wildlife movement, although, intense recreational activities have been shown to cause significant impacts to wildlife and plants (Knight and Cole 1995). Areas with high levels of off-road vehicle use are more readily invaded by invasive plant species (Davidson and Fox 1974), accelerate erosion and reduce soil infiltration (Iverson 1980), and alter habitat use by vertebrates (Brattstrom and Bondello 1983, Nicolai and Lovich 2000). Even such relatively low-impact activities as wildlife viewing, hiking, and horse back riding have been shown to displace wildlife from nutritionally important feeding areas and prime nesting sites (Anderson 1995, Knight and Cole 1995). The increased time and energy spent avoiding humans can decrease reproductive success and make species more susceptible to disease (Knight and Cole 1995). In addition, humans, horses, and pets can carry seeds of invasive species into natural areas (Benninger 1989, Benninger-Traux et al. 1992)

Recreation in the Linkage Design Area: Areas currently available for recreation in the vicinity of the Linkage Design include San Bernardino National Forest, Mount San Jacinto State Park, Bighorn Mountain and Whitewater River National Recreation Area, San Jacinto/Santa Rosa National Monument, Lake Perris State Recreation Area, Wildwood Canyon State Park, and The Wildlands Conservancy's Mission Creek Preserve. These lands provide a wide range of recreational opportunities, from nature-based dispersed recreational activities (e.g., hiking, bird watching) to high-density recreation in developed sites. The majority of recreational use is concentrated in developed facilities with road access. Recreational activities in the linkage itself are primarily limited to hiking and birding along the Pacific Crest Trail, which follows Stubbe Canyon, and water play activities along Whitewater River in the National Recreation Area. Illegal recreational dams have been created in some areas that obstruct downstream flows. There is also a shooting range at the mouth of Mia Canyon on the bank of the San Gorgonio River. There are no designated off-road vehicle routes in the Linkage Design (BLM 2003, J. Sullivan, CVAG pers. com.). However, unauthorized road and trail creation (i.e., hill climbs and secondary trails up several side canyons) is an issue in areas of the Linkage Design, such as in the San Gorgonio and Whitewater rivers and near Windy Point in the foothills of the San Jacinto Mountains just east of Snow Creek. Poachers are also a serious concern, with collection for the illegal reptile trade threatening snakes, tortoise, and lizard populations (Associated Press 2005).

Recommendations to Mitigate the Effects of Recreation in the Linkage Design Area: If recreational activities are effectively planned, developed, managed, and monitored, most negative impacts can be avoided or minimized by limiting types of use, directing recreational activities away from particular locations, sometimes only for particular seasons, and with reasonable precautions.

We provide the following initial recommendations to prevent or mitigate negative effects of recreation in the Linkage Design area:

- Monitor trail development and recreational use to provide a baseline for decisions regarding levels, types, and timing of recreational use.

- Work with regional monitoring programs, such as the State's Resource Assessment Program, to collect information on special status species, species movements, and vegetation disturbance in areas of high recreational activity. **P-13.7 (cont.)**

- Enforce existing regulations on recreational uses currently established.

- Work with the USFS, BLM, and non-governmental organizations to develop and conduct on-the-ground, multi-lingual outreach programs to recreational users on how to lessen impacts in sensitive riparian areas.

- Close, obliterate, and restore to natural habitat any unauthorized off-road vehicle routes and enforce closures.

- Enforce leash laws so that dogs are under restraint at all times.

Land Protection & Stewardship Opportunities

A variety of conservation planning efforts is currently underway in the Linkage Design area. The South Coast Missing Linkages Project supports these efforts by providing information on linkages critical to achieving their conservation goals at a landscape scale. This section provides information on planning efforts, agencies, and organizations that may represent opportunities for conserving the San Bernardino – San Jacinto Linkage. This list is not exhaustive, but provides a starting point for persons interested in becoming involved in preserving and restoring linkage function.

Bureau of Land Management: BLM sustains the health, diversity and productivity of the public lands for the use and enjoyment of present and future generations. BLM administers the Whitewater River National Recreation Area in the San Bernardino Mountains and has conserved a number of key parcels in the Linkage Design. Representatives from BLM have attended each of the South Coast Missing Linkages workshops. For more information on lands administered by the BLM, visit http://www.ca.blm.gov.

California Department of Fish and Game: CDFG manages California's diverse fish, wildlife, and plant resources, and the habitats upon which they depend, for their ecological values and for their use and enjoyment by the public. Acquisition dollars for CDFG projects are authorized through the Wildlife Conservation Board as part of their Concept Area Protection Plan (CAPP) process. For more information on the Department, visit their website at http://www.dfg.ca.gov.

California Department of Transportation: CalTrans strives to achieve the best safety record in the nation, reduce traveler delays due to roadwork and incidents, deliver record levels of transportation system improvements, make transit a more practical travel option, and improve the efficiency of the transportation system. CalTrans representatives have attended each of the South Coast Missing Linkages workshops and have shown leadership and a willingness to improve linkage function in most important linkage areas. CalTrans recently proposed building a wildlife overpass over SR-118. In February 2003, CalTrans started removing pavement from the Coal Canyon interchange on SR 91 in Orange County and transferred the property to California State Parks expressly to allow wildlife movement between the Santa Ana Mountains of the Cleveland National Forest and Chino Hills State Park. To find out more about the innovative plans being developed by Caltrans, visit their website at http://www.dot.ca.gov. **P-13.7 (cont.)**

California State Parks: California State Parks (CSP) provides for the health, inspiration and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation, such as those available at Mount San Jacinto State Park. The Department is actively engaged in the preservation of the State's rich biological diversity through their acquisition and restoration programs. Ensuring connections between State Park System wildlands and other protected areas is one of their highest priorities. CSP is involved in the Coal Canyon habitat connection restoration project to preserve mountain lion movement under SR 91 at the north end of the Santa Ana Mountains. CSP co-sponsored the statewide Missing Linkages conference and is a key partner in the South Coast Missing Linkages effort. CSP recently acquired land in Wildwood Canyon and the new San Timoteo Canyon unclassified state park unit in the linkage area. For more information, visit their website at http://www.parks.ca.gov.

California State Parks Foundation: The California State Parks Foundation (CSPF) is the only statewide nongovernmental organization dedicated to preserving, advocating and protecting the legacy of California's State Parks. The Foundation supports environmental education, wildlife and habitat preservation, volunteerism, and sound park policy. Since its inception, the Foundation has provided over $110 million for projects and educational programs while building a statewide network of park supporters. These initiatives have helped the parks acquire more land, create more trails, restore wildlife habitat, build visitor centers, construct interpretive displays, and support family camping for underserved youth. CSPF is a partner in the South Coast Missing Linkages. For more on their exciting programs, visit www.calparks.org.

California Wilderness Coalition: The California Wilderness Coalition (CWC) builds support for threatened wild places on a statewide level by coordinating efforts with community leaders, businesspeople, decision-makers, local organizations, policy-makers, and activists. CWC was also a co-sponsor of the statewide Missing Linkages effort. For more information, visit them at http://www.calwild.org.

California Wild Heritage Campaign: The mission of the California Wild Heritage Campaign is to ensure the permanent protection of California's remaining wild public lands and rivers. Congresswoman Hilda Solis has introduced the Southern California Wild Heritage Act. The bill would significantly expand the National Wild and Scenic Rivers System and the National Wilderness Preservation System on federally managed public lands in Southern and Central California. A total of 13 new Wild and Scenic Rivers are included in the bill, totaling more than 312 miles, and 47 new Wilderness Areas and Wilderness Additions totaling 1,686,393 acres. The Campaign builds support for wilderness and wild and scenic river protection by compiling a detailed citizen's inventory of California's remaining wild places; organizing local communities in support of those places; building a diverse, broad-based coalition; and educating the general public, government officials and the media about the importance of protecting California's wild heritage. For more information on the status of the Act, visit http://www.californiawild.org.

City of Calimesa: The City of Calimesa is a very progressive small town that is committed to protecting wildlife by establishing wildlife corridors between the San Bernardino Mountains and the Badlands. They've made significant progress towards this goal through the public planning process and by working with developers and the conservation community. For more information, go to http://www.cityofcalimesa.net. **P-13.7 (cont.)**

Coachella Valley Multiple Species Habitat Conservation Plan: The mission of the CVMSHCP is to conserve adequate habitat in an unfragmented manner to provide for the protection and security of long-term viable populations of the species that are either currently listed as threatened or endangered, are proposed for listing, or are believed by the Scientific Advisory Committee, USFWS and CDFG, to have a high probability of being proposed for listing in the future if not protected by the Plan. The Plan is intended to proactively address requirements of the state and federal endangered species acts while avoiding disruption of economic development activities. The easternmost branch of the Linkage Design falls within the CVMSHCP area. For more information on the plan, go to http://www.cvmshcp.org.

Coachella Valley Mountain Conservancy: The Conservancy was established by the California Legislature in 1990 to protect the mountains surrounding the Coachella Valley, from Palm Springs to the Salton Sea. The Conservancy grew out of a community-based conservation group that believed that a partnership among the local, state, and federal governments, and the public, would be the most effective vehicle to protect the Coachella Valley's splendid natural and cultural resources. The Conservancy completed the CVMSHCP in 2004 and once approved will work to implement the plan. To learn more, go to http://www.cvmc.ca.gov.

Coachella Valley Municipal Water District: The district is involved in six water-related fields of service: irrigation water, domestic water, stormwater protection, agricultural drainage, wastewater reclamation, and water conservation. Recreation and generation of energy have become by-products of some of these services. It will be critical to work with the district to restore riparian vegetation in the Whitewater River. For more information on CVMWD, go to http://www.cvwd.org.

Desert Protective Council: The Desert Protective Council's mission is the protection, appreciation, and enjoyment of some of nature's most marvelous bounty: our deserts. The Council has spearheaded many hard-won successes that have resulted in the preservation of wildlife habitats and natural resources of the four great deserts of the southwest. For more information, go to http://www.dpcinc.org.

Desert Tortoise Council: The Council is a private, nonprofit organization that promotes conservation of the desert tortoise in the wild in a variety of ways. They hold an annual symposium to bring together scientists, managers, and concerned people to share the latest information available on the desert tortoise and its management. For more information, go to http://www.deserttortoise.org.

Endangered Habitats League: The Endangered Habitats League is dedicated to ecosystem protection and sustainable land use. EHL participates in regional planning to curtail sprawl and preserve intact rural and agricultural landscapes. It actively supports the revitalization of urban areas and the development of vibrant community centers, effective mobility, and affordable housing choices. EHL is engaged in several Natural Community Conservation Planning efforts in the region. For more information, visit them at http://www.ehleague.org.

P-13.7 (cont.)

Environment Now: Environment Now is an active leader in creating measurably effective environmental programs to protect and restore California's environment. Since its inception, the organization has focused on the preservation of California's coasts and forests, and reduction of air pollution and urban sprawl. Environment Now uses an intelligent combination of enforcement of existing laws and application of technology and process improvements to eliminate unsustainable practices. To find out more about their programs, visit their website at http://www.environmentnow.org

Friends of the Desert Mountains: The Friends are working to provide conservation resources for landowners and to acquire land. They recently helped acquire 800 acres of land in Stubbe Canyon in the Linkage Design. For more information visit http://www.privatelandownernetwork.org.

Morongo Band of Mission Indians: The Morongo Band of Mission Indians is a sovereign nation that owns a substantial amount of land designated as stewardship zones in the Linkage Design. We look forward to working with the Morongo Community and Tribal Council to protect part of their cultural heritage by maintaining habitat connectivity between the San Bernardino and San Jacinto Mountains. For more information, visit their website at lhttp://www.morongonation.org.

Mountain Lion Foundation: The Mountain Lion Foundation works to ensure naturally sustaining populations of mountain lions. Using research, education, advocacy, legislation, and litigation, MLF works across the American West to stop unnecessary killing of mountain lions and to protect the ecosystems upon which they depend. MLF partners with groups whose mission directly impacts mountain lions and is proud to be a founding board member of South Coast Wildlands. MLF's Southern California office focuses on "Living with Lions" to reduce conflicts between people, pets and lions. MLF helps livestock owners build predator-safe enclosures, helps those suburban residents "On the Edge" understand how their personal choices may affect wildlife for miles around, as well as helps those working and playing "In the Wild" feel safer. For more information on the MLF's programs, visit their website at http://www.mountainlion.org.

National Park Service: The purpose of the National Park Service (NPS) is "...to promote and regulate the use of the...national parks...which purpose is to conserve the scenery and the natural and historic objects and the wildlife therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." NPS is a key partner in the South Coast Missing Linkages Project. For more on the National Park Service, see http://www.nps.gov.

Pacific Crest Trail Association: The mission of the Association is to protect, preserve and promote the Pacific Crest National Scenic Trail so as to reflect its world-class significance for the enjoyment, education, and adventure of hikers and equestrians. The Association works to promote the Pacific Crest National Scenic Trail as a unique educational and recreation treasure, provide a communications link among users and land management agencies, and assist the U.S. Forest Service and other agencies in the maintenance and restoration of the Pacific Crest National Scenic Trail. The Pacific Crest Trail crosses through portions of the Linkage Design and may be helpful in directing federal funds to secure land in the linkage. To find our more about the Association, visit them at http://www.pcta.org.

P-13.7
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Regional Water Quality Control Board: The State WQCB strives to preserve, enhance and restore the quality of California's water resources, and ensure their proper allocation and efficient use for the benefit of present and future generations. The RWQCB oversees water quality in the Linkage Design area. For more information, visit their website at http://www.swrcb.ca.gov.

Resource Conservation District: This non-profit agency supports conservation of natural ecosystems through programs that reduce the effects of on-going land-use practices on the environment. They advise residents on the management of soil, water, soil amendments and other resources used for agriculture and home gardening. RCDs are supported by state and local grants. They provide leadership in partnership efforts to help people conserve, maintain, and improve our natural resources and environment. Programs include Emergency Watershed Protection, Environmental Quality Incentives, Resource Conservation and Development, Soil Survey Programs, Soil and Water Conservation Assistance, Watershed Protection, River Basin, and Flood Operations, Wetlands Reserve and Wildlife Habitat Incentives. They do not enforce regulations but instead serve the interests of local residents and businesses. The federal district has 1 office with responsibilities in this area, the Inland Empire West RCD. To find out more about their programs, go to http://www.carcd.org.

San Bernardino Mountains Land Trust: SBMLT grew out of heightened conservation concerns in the early 1990s, when the San Bernardino National Forest faced multiple threats to its ecological integrity. This group has been involved in several successful land acquisition efforts for conservation. SBMLT has an advisory committee that assists in several areas of expertise, including legal, real estate, forestry, biology, journalism, and publications. Land trusts are critical to implementing the Linkage Design, and the SBMLT is working diligently to keep the forest intact. For more information, see http://www.lta.org/findlandtrust/CA.htm.

San Bernardino Valley Audubon: Audubon members are dedicated to protecting birds, wildlife, and our shared environment. They work with policymakers in Washington, D.C., state legislatures, and local governments across the country to restore and protect our natural legacy, secure funds for vital conservation programs, and preserve key natural areas. The San Bernardino Valley Audubon Chapter has over 1600 members in San Bernardino and Riverside Counties and is actively engaged in conservation activities in the Linkage Design and surrounding areas. For more information, go to www.sbvas.org.

Santa Monica Mountains Conservancy: This state agency was created by the Legislature in 1979 and is charged with acquiring land with statewide and regional significance. Through direct action, alliances, partnerships, and joint powers authorities, the Conservancy's mission is to strategically preserve, protect, restore, and enhance treasured pieces of Southern California's natural heritage to form an interlinking system of parks, open space, trails, and wildlife habitats that are easily accessible to the general public. The SMMC is a partner in the South Coast Missing Linkages effort. For more information on SMMC, visit them at http://www.smmc.ca.gov.

San Timoteo Canyonlands Coalition: The Coalition is dedicated to preserving the natural, cultural, historic and recreational resources of the San Timoteo Canyon and Badlands area. Their current focus is to support the creation of the new State Park in San Timoteo Canyon. In the initial phase, land is being acquired for the park from private land donations and land purchases from willing sellers. Existing public lands such as the Norton Younglove Reserve will be incorporated into the park, and future plans include the creation of a network of hiking trails and wildlife corridors linking other conserved areas. For more information, go to http://www.santimcan.org.

P-13.7 (cont.)

Save our Forest Association, Inc.: The Save Our Forest Association, Inc. (SOFA) was formed to stop inappropriate land exchanges within the San Bernardino National Forest, though now they work on a variety of other critical conservation issues. SOFA monitors and comments on any large development projects that affect the long term health and vitality of the forest ecosystem in the San Bernardino Mountains, including large subdivisions, water extraction, etc. They also closely monitor commercial logging, cattle grazing, and off-road vehicle use. To find out more about the association, visit their website at www.saveourforestassoc.org.

Sierra Club's Southern California Forests Campaign: Sierra Club volunteers and staff have created the Southern California Forests Campaign to encourage public involvement in the 4 southern California Forest's Resource Management Plan revision process. The goals of the campaign are to reduce the threats to our forests and to enjoy, protect and restore them. For more information on the Sierra Club's campaigns, go to http://www.sierraclub.org.

South Coast Wildlands: South Coast Wildlands is a non-profit group established to create a protected network of wildlands throughout the South Coast Ecoregion and is the key administrator and coordinator of the South Coast Missing Linkages Project. For all 15 priority linkages in the Ecoregion, South Coast Wildlands supports and enhances existing efforts by providing information on regional linkages critical to achieving the conservation goals of each planning effort. For more information on SCW, visit their website at http://www.scwildlands.org.

South Coast Missing Linkages Project: SCML is a coalition of agencies, organizations and universities committed to conserving high-priority landscape linkages in the South Coast Ecoregion. The project is administered and coordinated by South Coast Wildlands. Partners in the South Coast Missing Linkages Project include but are not limited to The Wildlands Conservancy, The Resources Agency California Legacy Project, California State Parks, California State Parks Foundation, United States Forest Service, National Park Service, Santa Monica Mountains Conservancy, Conservation Biology Institute, San Diego State University Field Station Programs, The Nature Conservancy, Environment Now, and the Zoological Society of San Diego's Conservation and Research for Endangered Species. For more information on this ambitious regional effort, go to http://www.scwildlands.org.

The Nature Conservancy: TNC preserves the plants, animals and natural communities that represent the diversity of life on Earth by protecting the lands and waters they need to survive. TNC is a partner in the South Coast Missing Linkage Project. For more information on their activities, go to http://www.tnc.org.

The Wildlands Conservancy: The Wildlands Conservancy is a non-profit, member-supported organization dedicated to land and river preservation, trail development and environmental stewardship through education. Their Save the Saints Program brings together multiple land trusts and conservancies to identify key lands for acquisition within National Forest boundaries and lands contiguous with the Forests in the Santa Ana, San Gabriel, San Jacinto, and San Bernardino Mountains. TWC has acquired thousands of acres in the Linkage Design and owns and manages Pipes Canyon and Mission Creek Preserves. TWC is a vital partner in the South Coast Missing Linkages project. For more information, please visit their website at http://www.wildlandsconservancy.org.

P-13.7 (cont.)

US Army Corps of Engineers: The mission of the ACOE is to provide quality, responsive engineering services for planning, designing, building and operating water resources and other civil works projects (Navigation, Flood Control, Environmental Protection, Disaster Response, etc.). They also are engaged in watershed planning efforts that may provide opportunities for restoration of natural water flow and riparian vegetation in the linkage. For more information, go to http://www.usace.army.mil.

US Fish and Wildlife Service: The U.S. Fish and Wildlife Service works to conserve, protect and enhance fish, wildlife, and plants and their habitats for the continuing benefit of the American people. The agency can provide support for prosecuting violations to the Endangered Species Act, law enforcement, permits, and funding for research on threatened and endangered species. The federal Endangered Species Act as amended (16 U.S.C. 1534) authorizes USFWS to acquire lands and waters for the conservation of fish, wildlife, or plants with the Land and Water Fund Act appropriations. The added protection provided by the Endangered Species Act may also be helpful for protecting habitat in the linkage from federal projects. For more information, visit their website at http://www.fws.gov.

US Fish and Wildlife Service Partners for Fish and Wildlife Program: This program supplies funds and technical assistance to landowners who want to restore and enhance wetlands, native grasslands, and other declining habitats, to benefit threatened and endangered species, migratory birds, and other wildlife. This program may be helpful in restoring habitat on private lands in the Linkage Design. For more information on this program, please go to http://partners.fws.gov.

US Forest Service: The mission of the USDA Forest Service is to sustain the health, diversity, and productivity of the Nation's forests and grasslands to meet the needs of present and future generations. The four southern California Forests (Los Padres, Angeles, San Bernardino, and Cleveland) have recently finalized their Resource Management Plans. The Final Environmental Impact Statement and Forest Plans have identified connecting the four forests to the existing network of protected lands in the region as one of the key conservation strategies for protecting biodiversity on the forests. The USFS is allocated Land and Water Conservation Funds annually, which are designed to protect recreational open space, watershed integrity, and wildlife habitat and may be a source of funds for protecting land in the planning area. The Forest Service is taking a proactive role in habitat connectivity planning in the region as a key partner in the South Coast Missing Linkages Project. For more information, go to http://www.fs.fed.us/r5/scfpr.

US Geological Survey, Biological Resources Division: The Biological Resource Division (BRD) works with others to provide the scientific understanding and technologies needed to support the sound management and conservation of our Nation's biological resources. BRD develops scientific and statistically reliable methods and protocols to assess the status and trends of the Nation's biological resources. BRD utilizes tools from the biological, physical, and social sciences to understand the causes of biological and ecological trends and to predict the ecological consequences of management practices. BRD enters into partnerships with scientific collaborators to produce high-quality scientific information and partnerships with the users of scientific information to ensure this information's relevance and application to real problems. For more information, go to http://www.biology.usgs.gov.

P-13.7 (cont.)

Western Riverside Multiple Species Habitat Conservation Plan: The County of Riverside is involved in regional planning in the Linkage Design area for its Riverside County Integrated Plan (RCIP). The plan incorporates NCCP conservation planning efforts and establishes zoning and transportation goals to the year 2020. The preferred alternative of the Administrative Draft of the Western Riverside MSHCP recognized the value of connecting natural areas within the planning area and the NCCP process will make these lands available for purchase from willing sellers using mitigation dollars from regional developments.

Wildlife Conservation Board: The Wildlife Conservation Board administers capital outlay for wildlife conservation and related public recreation for the State of California. The Wildlife Conservation Board, while a part of the California Department of Fish and Game, is a separate and independent Board with authority and funding to carry out an acquisition and development program for wildlife conservation. For more information on WCB, go to http://www.dfg.ca.gov/wcb.

Zoological Society of San Diego: The Applied Conservation Division of the Society's research department (Conservation and Research for Endangered Species) is working to conserve natural habitats and species in southern California, as well as other parts of the world. For example, the Applied Conservation Division supports conservation of southern California ecosystems through seed banking of endangered plant species, and ongoing studies of local birds, reptiles, and mammals and their habitats. For more information on ZSSD, go to http://www.sandiegozoo.org.

P-13.7
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A Scientifically Sound Plan for Conservation Action

Humans are significant agents of biogeographic change in southern California by converting native habitats to urban and agricultural uses and altering the movements of organisms, nutrients, and water through the ecosystem. The resulting fragmentation of natural landscapes threatens to impede the natural processes that support one of the world's greatest warehouses of species diversity.

This interaction between human development and biodiversity is one of the great and potentially tragic experiments of our time. It creates a unique challenge for land managers and conservation planning efforts – to mitigate massive changes to once intact ecosystems. The conservation plan for the San Bernardino-San Jacinto Connection addresses these challenges by seeking to influence regional patterns of development in a manner that best preserves natural landscape-level processes in the region.

The prioritization of this linkage for conservation, and the demarcation of lands requiring protection within the linkage, are based on the best available conservation techniques and the expertise of biologists working in the region. This project provides a strong biological foundation and a quantifiable, repeatable, conservation design approach that can inform successful conservation action.

Next Steps

The San Bernardino to San Jacinto Mountains Linkage Design is a scientifically sound starting point for conservation implementation and evaluation. This plan can be used as a resource by regional land managers to assist them in their critical role in sustaining biodiversity and ecosystem processes. Existing conservation investments in the region are already extensive, including lands managed by the US Forest Service, Bureau of Land Management, California State Parks, California Department of Fish and Game, and the State Lands Commission. Each public property within existing protected core areas as well as the linkage itself serves a unique role in preserving some aspect of the connection. Incorporating relevant aspects of this plan into individual land management plans provides an opportunity to jointly implement a regional conservation strategy.

P-13.7 (cont.)

Additional conservation action will also be needed to address transportation barriers. Recommended tools include road renovation, construction of wildlife crossings, watershed planning, habitat restoration, conservation easements, zoning, acquisition, and others. These recommendations are not exhaustive, but are meant to serve as a starting point for agencies, organizations, and individuals interested in preserving and restoring linkage function. We urge the reader to keep sight of the primary goal of conserving landscape linkages -- to promote movement between targeted core areas over broad spatial and temporal scales -- and to work within this framework to develop a wide variety of restoration options for maintaining and improving linkage function. To this end, we provided a list of organizations, agencies, and regional projects that provide opportunities for collaborative implementation.

Public education and outreach is vital to the success of this effort – both to change land-use activities that threaten species existence and movement in the linkage and to generate support for the conservation effort. Public education can encourage recreational users and residents at the urban-wildland interface to become active stewards of the land and to generate a sense of place and ownership for local habitats and processes. Such voluntary cooperation is essential to preserving linkage function. The biological information, figures, and tables in this plan are ready materials for interpretive programs. We have also prepared a 3D animation (Appendix C on the enclosed CD) that provides a landscape perspective of the linkage.

Successful conservation efforts are reiterative, incorporating and encouraging the collection of new biological information that can increase understanding of linkage function. We strongly support the development of a monitoring and research program to address the habitat needs of species in the Linkage Design area and their movements (of individuals and genes). The suite of predictions generated by the GIS analyses conducted in this planning effort represent hypotheses to be tested and refined by long-term monitoring programs.

The remaining wildlands in southern California form a patchwork of natural open space within one of the world's largest metropolitan areas. Without further action, our existing protected lands will become isolated in a matrix of urban and industrial development. Ultimately the fate of the plants and animals living on these lands will be determined by the size and distribution of protected lands and surrounding development and human activities. With this linkage conservation plan, the outcome of land use changes can be altered to ensure the greatest protection for our precious natural areas at the least cost to our human endeavors. We envision a future interconnected system of natural space where our native biodiversity can thrive.

P-13.7
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Appendices

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South Coast Missing Linkages Project: Habitat Connectivity Workshop August 7, 2002

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Appendix B: Workshop Summary

South Coast Missing Linkages Workshop
Wednesday August 7, 2002 at the University of Redlands

8:30	*Welcome Address* Geary Hund, California State Parks
8:40	*Where Linkage Planning and MSCPs Meet* Tom Scott, University of California Riverside
9:00	*Connectivity Planning for Plants* Tim Krantz, University of Redlands
9:20	*The Role of Arthropods in Wildlife Linkages* Greg Ballmer, Tri-County Conservation League
9:40	*Reptiles and Amphibians in the Transition and Foothill Regions of the San Bernardino Mountains* Chris Brown, U.S. Geological Survey Biological Resources Division
10:00	Break
10:15	*Ornithological Considerations for Habitat Connectivity Planning* Chet McGaugh & John Green, AMEC
10:35	*Distribution, Biology, Dispersal, and Habitat Connectivity Issues Affecting the Spotted Owl in Southern California* William S. La Haye, Department of Fisheries, Wildlife, and Conservation Biology, University of Minnesota, St. Paul
10:55	*Considering Small Mammals in Linkage Planning for the South Coast Ecoregion* Wayne Spencer, Conservation Biology Institute
11:15	*Cougars, Corridors, and Conservation* Paul Beier, Northern Arizona University
11:45	*Considerations for Connectivity & Overview of Working Groups* Claudia Luke, San Diego State University Field Station Programs
12:10	Lunch – *Vouchers will be issued to all participants for use in the Commons*
1:00	Working Group Session

Taxonomic Group Leaders

Plants:	Tim Krantz
Invertebrates:	Gordon Pratt
Herps/Fish:	Chris Brown & Claudia Luke
Birds:	Bill La Haye
Mammals:	Paul Beier

P-13.7 (cont.)

4:45 *Closing Remarks* by Kristeen Penrod, South Coast Wildlands Project

5:00 Adjourn; Please join us for a Beer & Wine Social

Workshop Summary

Geary Hund, California State Parks – *Welcome*

- Missing Linkages initiative identified 232 statewide linkages; 69 are associated with the South Coast Ecoregion; 15 most crucial are focus of collaborative planning effort coordinated by South Coast Wildlands Project; this workshop will lay the biological foundation for corridor planning between the San Bernardino Mountains and surrounding ranges (San Gabriel, Granite, Little San Bernardino, and San Jacinto Mountains)
- Preservation of biodiversity in southern California will require connectivity
- Linkage between Santa Ana Mountains and Chino Hills was established across 91 freeway at Coal Canyon, where mountain lion established home range on both sides of freeway as documented by Paul Beier; private properties purchased and protected, and CalTrans will close the exit, remove pavement, and restore the underpass
- California Floristic Province is one of 25 global biodiversity hotspots; South Coast Ecoregion is considered a "hotspot within a hotspot" deserving special attention
- Scientific investigation combined with environmental advocacy can achieve landscape-level connectivity needed for nature to adapt to changes over time

Tom Scott, University of California, Riverside - *Where Linkage Planning and MSCPs Meet*

Summary: The focus of my current research is examining biologically diverse hot spots within the Riverside and Coachella Valley Multiple Species Conservation Plans (MSCPs). Some of the linkage areas we will be considering today are located within these MSCPs. My discussion will highlight some of the diverse species that occur in these linkage areas, and some considerations for habitat corridor planning in areas with high biological diversity. **P-13.7 (cont.)**

Biography: Dr. Scott is an Adjunct Associate Professor in the Department of Earth Sciences at the University of California, Riverside. He received his PhD at the University of California in 1987. His research focuses on wildlife conservation in fragmented and altered landscapes, including studies of wildlife movement, habitat use, and population biology in oak woodland, sage scrub, and riparian habitats; behavioral changes and adjustments in habitat use of woodland bird species in response to human activities; the conservation and management of island bird species through captive propagation, predator control, and habitat restoration.

- Political mentality against southern California exists due to intense level of development and high representation in Congress; this is land of geologic, climatic, and human superlatives; regional single family housing is worth up to $27 billion per year
- Landscape disturbance began in 1940s with water availability; urban sprawl/suburbia expansion occurring in developed areas around the world; educated, politically active individuals living in Wildland-Urban Interface (WUI); can achieve conservation with local support (residents dislike rapid landscape change); about 38-48% of landscape will be converted; 100 km WUI edge in San Diego County, 2300 km in Riverside County

- One acre of natural habitat in southern California more valuable for global biodiversity preservation than acre of lowland tropical rainforest; tropics are diverse, but southern California's high level of endemism reveals unique suite of species at each location
- California contains 30% of entire country's endemic taxa, and has semitropical influence; endemics have narrow distributions due to range contraction or isolation
- Multiple edges of distributions (species margins) meet in southern California, which has resulted in abundance of endemic species
- High level of endemism at Baldwin Lake/ Pebble Plains, Otay Mesa, Del Mar, Vail Lake, Sierra Madre/Occidental; geologic calliope ranges from "brand new" to 9 million years old, with mountains still rising (11,000 feet but less than 2 million years old) as Pacific and North American Plates slide past each other; San Jacinto Peak is greatest vertical climb in North America (800 to 3200 m over less than seven km); incredible spatial diversity, but landscape variation is a challenge for functional linkage planning
- Multiple Species Conservation Plans (MSCPs) direct land use and resource management planning; Riverside County and Western Mojave plans are being developed, and include habitat linkages between preserves; important for biologists to get involved in MSCP process, the political solution to Endangered Species Act issues; even with plans, landscape will suffer from air pollution, recreational use, and urban drool (excess runoff often supporting harmful exotic species, such as bullfrogs)
- Linkages must be functional, with stated goals and measurable benefits

Tim Krantz, University of Redlands – *Connecting Rare Plant Communities*

Summary: People don't think of plants as migrating, but they certainly do—not as individuals, but over the span of generations. Montane plant communities migrate up and down in elevation over time between glacial and interglacial episodes, while valley species move through passes and along flood plains. Most of Southern California's rare plant communities are characterized by restricted suitable habitats and/or limited dispersal capability. Compounding those natural limitations, habitat fragmentation, flood control measures, invasive exotic species and other developments constrain the remaining opportunities to provide connections between rare plant populations and communities.

P-13.7 (cont.)

Biography: Dr. Krantz is an Assistant Professor of Environmental Studies at the University of Redlands; and is Director of the Salton Sea Database Program. He is a recognized authority on the flora of the San Bernardino, San Gabriel and San Jacinto Mountains and has worked extensively on endemic plants and plant communities of the region. He has worked for many years, first as an employee and later as a consultant to the Southern California National Forests, mapping endemic plant distributions; and served for six years on the San Bernardino County Planning Commission.

- Rare plant communities move over long-term (hundreds to thousands of years) between glacial and interglacial episodes (fossil evidence of conifer species found in Santa Ana and San Jacinto washes); usually restricted to specific ecological conditions; poor dispersal abilities, as movement away from favorable habitat would be disadvantageous
- Linkages contain montane communities (San Bernardino, San Gabriel, San Jacinto) separated by barriers/corridors (Cajon Wash, Banning Pass and Santa Ana River)
- Big Bear region has extremely diverse endemic flora; plant communities include pebble plains (relic from ice age) as "islands in a sea of conifers" restricted to dense clay soils; mapped using indicator species (Bear Valley sandwort and Kennedy's

buckwheat, an alpine plant found at 7000 ft – nearest relatives located at nearby 11,500 ft summit)

- Sub-alpine meadow: clay soil with more water; associated with several endangered plants (Big Bear checkerbloom, slender-petal mustard, California dandelion)
- Mapped extant locations of plant communities, forming network of preserves to protect best remnants of these unique communities; corridors over long-term provide genetic resources for plant communities to make necessary connections
- Another community restricted to carbonate resources/limestone soils (includes cushion berry buckwheat and Parish's daisy); nearest relatives in desert communities; concentrations of endemic species threatened by limestone mining, but less than 30% of mineral resource actually valuable for mining – great opportunity for conservation
- Linkage areas also contain southern rubber boa, spotted owl, bald eagle, unarmored three-spine stickleback, Andrew's marble butterfly; plant communities are animal communities, and so habitat connectivity will benefit both flora and fauna
- Lowland passes/washes may act as barriers for montane species
- San Jacinto slender-horned spineflower and Santa Ana River woolly star are restricted to alluvial fan sage scrub, found between mountain ranges
- Seven Oaks Dam on upper Santa Ana River currently prevents natural flood scour events that maintain dynamic ecosystem; sand/gravel mining, flood control and development are fragmenting community
- Shortest route not necessarily best route; easier for most species to cross fewer life zones between mountain ranges (San Timoteo Canyon, Wildwood Canyon, and Crafton Hills may link San Jacinto and San Bernardino Mountains better than Banning Pass)

Greg Ballmer, Tri-County Conservation League - *The Role of Arthropods in Wildlife Linkages* **P-13.7 (cont.)**

Summary: Arthropods are ubiquitous in all habitats and are largely responsible for maintaining habitat quality and productivity. For arthropods, habitat fragmentation frequently leads to speciation rather than extinction. Most arthropods, by virtue of their small size, ecological specialization, high reproductive rate, and small home ranges, do not benefit directly from habitat linkages. Exceptions include arthropod species having a metapopulation structure. Also, arthropod communities benefit indirectly from habitat linkages when those linkages help to maintain populations of vertebrates, whose presence is critical to maintaining overall community structure.

Biography: Greg Ballmer earned a B.S. degree in Entomology at UCR in 1967, he then spent three years in Thailand as a Peace Corps Volunteer entomologist in the Thai National Malaria Eradication Project. Greg returned to UCR in 1971, where he completed his M.S. degree in Entomology in 1973. Currently, Greg lives in Riverside and works as a Staff Research Associate in the Entomology Department at University of California, Riverside. Although his professional experience is primarily with agricultural pest control, Greg's private interests include butterfly biology and systematics, arthropod habitat conservation, and overall preservation of native California habitats and biotic communities. In 1989 Greg Ballmer petitioned the US Fish and Wildlife Service to list *Rhaphiomidas terminatus abdominalis* (Delhi Sands Flower-loving Fly) as an Endangered Species; it received that status in 1993.

- Invertebrates are primary intermediate between plant and animal biomass, and provide vital ecosystem services (food for invertebrates and small vertebrates, breakdown of organic wastes/nutrient recycling, soil aeration, pollination, vector for seed dispersal)
- Habitat is combination of biotic and abiotic factors with which an organism interacts to support its growth and reproduction; organism is integral part of its habitat
- Linkages allow long-term gene flow which increases functional genetic diversity of population; this helps overcome stochastic events and long-term environmental changes
- Linkages allow short-term movement to escape catastrophic events, use accessory habitat and re-colonize after disturbance; arthropods occupy diversity of habitats and community types at different points in life cycles, and therefore need connectivity
- Arthropods maintain habitat quality within linkage areas; habitat loss or conversion can form serious barrier to insect movement; must link small invertebrate populations to maintain gene pool and metapopulation structure
- Certain arthropods may not need linkages (those that have high reproductive rate, occupy restricted or widely spaced geographic areas, are highly migratory or wind dispersed); rapid evolution/speciation can occur when populations are isolated
- Vernal blue butterfly subspecies – in southern California only occurs on somewhat barren ridgetop in San Bernardino Mountains with specific buckwheat host plant – linkages will not benefit such Pleistocene relics with spotty distribution – not found in nearby appropriate locations that contain the host plant
- Migratory painted lady butterfly has ephemeral populations and does not need linkages
- Delhi Sands flower-loving fly, an endemic arthropod threatened by habitat fragmentation, inhabits scattered sand patches; endemic Jerusalem cricket also utilizes sandy habitat; both are capable of re-colonizing habitat from source population after disturbance

P-13.7 (cont.)

Chris Brown, USGS Biological Resources Division - *Reptiles and Amphibians in the Transition and Foothill Regions of the San Bernardino Mountains*

Summary: The transition and foothill regions of the San Bernardino Mountains are biological hotspots in San Bernardino County, having a unique mixture of coastal, mountain and desert herpetofauna. These areas are also important connections between the Transverse Ranges. Although much of this habitat still exists, development is encroaching on the San Bernardino Mountains, weakening these linkages, and several barriers already exist in a setting that was historically wide open. We have been studying the herpetofauna of the transverse ranges since 1995 in order to better understand the distribution and needs of the sensitive reptiles and amphibians throughout this region. Successful management of the diverse herpetofauna within these historical corridors of the Transverse Ranges must take into consideration the heterogeneous and expansive nature of the transition zones and foothills that connect the San Bernardino Mountains with outlying ranges.

Biography: Chris Brown is a biologist for the US Geological Survey, Western Ecological Research Center. Since 1995, he has been studying the herpetofauna of southern California to support research needs of UC San Diego, San Diego State University, National Biological Survey and the USGS. His interests in herpetology have focused on distribution, status and natural history of the mountain and coastal herpetofauna of southern and Baja California.

- Linkage area contains wide range of habitats; linkages from San Bernardino Mountains to surrounding ranges include coastal and desert influences, transitional belt of habitat around mountains, and montane habitats, resulting in phenomenal diversity; working group must select multiple species to represent the four different linkages - horned lizard, speckled rattlesnake, and western spadefoot toad recommended as focal species
- 1 turtle, 13 lizards, 19 snakes, 4 salamanders, and 7 frogs and toads inhabit planning area; (SB = San Bernardino Mountains, SG = San Gabriel Mountains, SJ = San Jacinto Mountains, LSB = Little San Bernardino Mountains, GM = Granite Mountains)
- Salamanders demonstrate limited connectivity between these mountain ranges; garden slender salamander (south-facing coastal slopes; SB – SG, SJ); San Gabriel Mountain slender salamander (SB – SG); large blotch salamander (SB – SJ); Monterrey ensantina best example for species movement (gene flow) between all these ranges
- Frogs and toads: western toad (SB – SG, LSB); arroyo toad (SB – SG, SJ); red spotted toad (desert slopes); spadefoot toad (little known about distribution, but recently found in foothill transition zones around SB – SG, SJ); California treefrog (fairly common in all ranges); mountain yellow-legged frog (most historical habitat lost in Santa Ana wash)
- Desert tortoise on desert slopes (SB – GM, SJ); tortoises reside within linkage areas
- Fish: speckled dace (SB – SG), found in Cajon wash and Lytle Creek, but rather isolated
- Lizards: zebra-tailed lizard (SB - SJ); coast horned lizard (SB – SJ, SG, LSB); long-nosed leopard lizard (desert transition zone; SB – SJ, SG, LSB); Gilbert skink (possibly SB – GM); western whiptail (all ranges; species variety may be result of isolation)
- Snakes: glossy snake (resides within linkage areas; SB – GM, recommended focal species); ringneck snake (SB – SG); distribution largely unknown for: red racer, patch-nosed snake, lyre snake, and rosy boa (which does not like to cross even dirt roads); southwestern speckled rattlesnake (easily detectable, found throughout linkage areas, recommended as focal species, good barometer for snake movement)
- Amphibian visual encounter surveys; targeted species for San Bernardino area include arroyo toad, western toad, California treefrog, Pacific treefrog, spadefoot toad; field biologists noting movement barriers (roads and dams), impacts of recreation (ATV use and illegal dumping), development impacts (light pollution, habitat and connectivity loss) **P-13.7 (cont.)**
- Herpetofauna biodiversity data (starting in 1999): pitfall trap arrays at 51 study sites throughout southern California; over 630 arrays (4400 buckets, 1800 snake traps, 28 km fencing); captured 46 species in 18 families; study sites have between 9-33 species
- Historical perspective must consider natural history of desert and coastal species, as different forms intergrade (ex – gopher snakes at Silverwood Lake); natural gene flow should be conserved; 5 different forms of red racer in California

Chet McGaugh & John Green, AMEC – *Ornithological Considerations for Habitat Connectivity*

Summary: The power of flight, and the amazing dispersal and migratory abilities of birds enable them to traverse huge expanses of unsuitable habitat. Habitat connectivity at the landscape level is not an issue for most birds. Birds resident within the linkages, or living in similar habitats adjacent to the linkages, would benefit most from the connectivity of large habitat patches. Sensitive species and ecological specialists would benefit more from conservation measures within their various habitats than from an attempt to establish linkages.

Biography: Chet McGaugh is a wildlife biologist specializing in ornithological studies. As a consultant (currently with AMEC Earth and Environmental in Riverside) and as an avid birdwatcher, he has studied the distribution and ecology of birds in this ecoregion for 25 years. He participated in the U.S. Fish and Wildlife Service's life history study of the California Gnatcatcher, and has conducted hundreds of surveys for sensitive bird species, including the Least Bell's Vireo, Southwestern Willow Flycatcher, and the California Gnatcatcher. He is the compiler of the Salton Sea – North Christmas Bird Count.

Biography: John Green is a wildlife biologist specializing in ornithological studies. As a consultant with AMEC Earth and Environmental, John specializes in the monitoring of sensitive bird populations such as the Least Bell's Vireo. John's many contributions to the ornithological community in this ecoregion include his acclaimed Southeastern California Rare Bird Alert, which is the Internet clearing-house for bird sightings in the region, and his participation in a valley-wide survey of Mountain Plovers in the Imperial Valley in 2002.

- Many bird species are capable of easily dispersing between suitable habitats
- Flightless birds and those that can only fly limited distances need connectivity; California gnatcatcher is weak flyer with poor dispersal over unsuitable habitat, and therefore is susceptible to impacts from habitat fragmentation
- Diversity in flying ability and movement patterns between species
- No need to consider water birds or migratory species for connectivity planning
- Sedentary birds and birds unlikely or unwilling to disperse over large areas of unsuitable habitat will benefit from linkages; ex – cactus wren, rock wren, scrub jay, California thrasher, wrentit, Bewick's wren, bushtit; gene flow occurs if populations are not isolated; many birds would utilize habitat available within linkage areas, but montane species have characteristics and habitat needs distinct from birds inhabiting most of the lower elevation linkage areas; unknown whether many mountain species cross washes and desert habitat to move between the ranges
- Acorn woodpecker shows seasonal movements to hospitable resource areas
- Band-tailed pigeon probably crosses between ranges, which allows gene flow
- Sensitive species that would utilize linkages include Le Conte's thrasher, sage sparrow, rufous-crowned sparrow, burrowing owl, and loggerhead shrike

P-13.7 (cont.)

Bill LaHaye, University of Minnesota, St. Paul – *Distribution, Biology, Dispersal, and habitat connectivity issues affecting the Spotted Owl in southern California.*

Summary: The Spotted Owl is a large avian predator that primarily inhabits older forests in western North America. This owl is an interior forest species whose flight adaptations have been driven by the need for maneuverability in densely wooded environments. Thus in spite of having a wingspan exceeding one meter, the Spotted Owl is a weak flyer in open terrain. This may restrict the dispersal of this owl in regions lacking contiguous forest. Here I present the pertinent results of a 12-year demographic study on this species in the San Bernardino Mountains. Information will be presented on general biology, current and historic distribution, dispersal, and metapopulation aspects of the Spotted Owl in southern California.

Biography: Bill LaHaye received a Master of Science degree from Humboldt State University in 1989 and has been studying the Spotted Owl for 20 years. While he has worked on various projects studying this species in California, Arizona and New Mexico, the majority of Bill's efforts have been in southern California. The topics of Bill's published works include natural history, diet, demography, dispersal, and metapopulation dynamics.

- Spotted owl demography research conducted in San Bernardino Mountains; owls inhabit interior forests with dense canopy and ambush prey; live in continuous forest at higher elevations, with distribution more patchy and linear at lower elevations; may have historically utilized oak woodlands; current distribution in southern California includes islands of mountaintop habitat with metapopulation becoming fragmented
- Owls studied for 12 years in San Bernardino Mountains and 6 years in San Jacinto Mountains; over 95% of encountered owls were banded; no movement between mountain ranges has been documented during this study
- About 850 owls banded in San Bernardino Mountains (over 300 adults and over 500 juveniles); researchers were surprised that no juvenile dispersal was observed

Wayne Spencer, Conservation Biology Institute - *Considering Small Mammals in Linkage Planning for the South Coast Ecoregion*

Summary: For good reasons, linkage planning between major mountain ranges tends to focus on large, wide-ranging mammals. Smaller mammals should not be ignored in these efforts, however, because they can play numerous important roles in maintaining or monitoring linkage functionality. For example, small mammals are essential prey for larger carnivores within landscape linkages, may represent ecological "keystone species," and may be useful indicators for monitoring effects of fragmentation. Small mammals could be classified by their irreplaceability and vulnerability in assessing which may be useful indicators of linkage function, or they could be classified by their major habitat associations or ecological functions. Although a few small mammals may use inter-montane linkages to disperse from one mountain range to another, those species living completely within linkages at lower elevations may be even more important for assessing inter-montane linkages. Linkage planning should therefore consider "orthogonal linkages," or those that follow elevational bands or drainages crossed by inter-montane linkages. For example, such rare rodents as the San Bernardino Kangaroo Rat and Palm Springs Pocket Mouse inhabit desert washes and alluvial fans that lie between adjoining montane habitats. Landscape linkages should therefore be planned to capture essential habitat for these species across their breadth while connecting between mountains on either side. Other general guidelines concerning small mammals in linkage planning include: (1) provide live-in habitat for prey species; (2) provide for natural processes like fire and erosional-depositional forces that replenish habitats; (3) provide for the full range of ecological gradients across the linkage, such as the full range of geologically sorted substrates in alluvial fans; (4) provide for upslope ecological migration in response to climate change; and (5) consider the limited dispersal tendencies of small mammals relative to dispersal barriers, such as roads and canals, and avoid creating death traps for them when designing crossings for larger species. Linkage planning should also consider ways to provide niches for habitat specialists, such as creating bat roosts in bridges or overpasses designed to accommodate wildlife movement.

P-13.7 (cont.)

Biography: Dr. Spencer is a wildlife conservation biologist who specializes in applying sound ecological science to conservation planning efforts. He has conducted numerous field studies on sensitive wildlife species, with a primary focus on rare mammals of the western U.S. Dr. Spencer has studied martens, fishers, and other carnivores in forest and taiga ecosystems, as well as rare rodent species and communities in the southwestern U.S. In the South Coast Ecoregion he has served as principal investigator for research designed to help recover the critically endangered Pacific Pocket Mouse and has worked intensively on efforts to conserve endangered Stephens' Kangaroo Rats, among other species. Dr. Spencer is currently serving as Editor in Chief for a book on mammals of San Diego County. He also serves as a scientific advisor on a variety of large-scale conservation planning efforts in California, including the San Diego MSCP/MHCP, and the eastern Merced County NCCP/HCP. He is increasingly being asked by state and federal wildlife agencies to help facilitate scientific input in conservation planning efforts, and to help train others in science-based conservation planning.

- Most linkages designed for large mammals that must move between large habitat areas to survive and reproduce; many smaller species will not use inter-montane linkages for movement, but rather will benefit from the protected habitat
- Small mammals (especially rodents and lagomorphs) are prey for larger mammals; small mammals are more dispersal limited and habitat specialized than larger mammals
- Keystone species include burrowing rodents (pocket gophers, ground squirrels and kangaroo rats) that modify soil, impact plant distribution, create habitat for other species
- Micro-habitat specialists; pocket mouse subspecies adapted to slices of vegetation community or geological substrate; genetic differentiation due to geographic isolation
- Conservation planning recognizes irreplaceability and vulnerability (incorporating and connecting habitat for rare endemic species with limited distributions)
- For most taxa (including small mammals), linkages are not designed to move individuals of various species from one mountain range to another (many have not moved between ranges for tens of thousands of years), but rather to provide for long-term genetic exchange and adaptation; species will benefit from preserved habitat in linkages
- Orthogonal linkage concept: for small mammals distributed in elevational bands in particular vegetation communities or soil strata, breadth of linkage is important; habitat located at right angle to general linkage arrows; connect both across and along linkages
- Inhabitants of pinyon juniper, oak woodland, chaparral, and other lower elevation areas of linkages may be planned for (western gray squirrel, dusky-footed woodrat, chipmunk) **P-13.7 (cont.)**
- Different suite of species needed for each linkage; species that should be considered for planning: round-tailed ground squirrel, Mojave ground squirrel, western gray squirrel, chipmunk, San Bernardino kangaroo rat, little pocket mouse, long-tailed weasel, spotted skunk, ringtail, badger (fragmentation-affected grassland species), kit fox, dusky-footed woodrat, pinyon mouse, pocket gopher (keystone burrowing species, dispersal limited)
- Plans for bat roosting structures can be incorporated into bridge and overpass structures
- Linkages for large mammals must provide habitat for prey base (unless function is simply to move species across and away from roads); also, consider location of rare and endemic species to compliment linkage design
- With climate change, expect upslope migration resulting from global warming; linkages should be broad enough to accommodate natural processes (flood scour and deposition, fire); capture whole environmental gradients to protect multiple specialized species

Paul Beier, Northern Arizona University – *Cougars, Corridors, and Conservation*

Summary: Because the puma or cougar lives at low density and requires large habitat areas, it is an appropriate umbrella species for landscape connectivity in the South Coast Ecoregion. A crucial issue, however, is whether connectivity is provided by narrow corridors through urban areas (an artificial substitute for natural landscape connectivity). In particular, corridors decrease extinction risk only if they facilitate dispersal of juveniles between mountain ranges. To address this issue, we conducted fieldwork on pumas in the Santa Ana Mountain Range, a landscape containing 3 corridors (1.5, 6, and 8 km long). Each of the 3 corridors was used by 2 or more dispersing juvenile puma. Five of 9 radio-tagged dispersers successfully found and used a corridor. The corridors in this landscape were relict strips of habitat, not designed to facilitate animal movement. Puma doubtless would be even more likely to use well-designed linkages. Puma will use corridors that lie along natural travel routes, have < 1 dwelling unit per 50 acres, have ample woody cover, lack artificial outdoor lighting, and include an overpass or underpass integrated with roadside fencing at high-speed road crossings. “If we build it, they will come.”

Biography: Paul Beier is Professor of Conservation Biology and Wildlife Ecology at Northern Arizona University. He has worked on how landscape pattern affects puma, northern goshawk, Mexican spotted owls, white-tailed deer, and passerine birds (the latter in both West Africa and northern Arizona). He serves on the Board of Governors for the Society for Conservation Biology. A full description of his activities is available at http://www.for.nau.edu/~pb1.

- Pumas exist at low density; functional connectivity needed for movement and dispersal
- Santa Ana Mountains study: 9 radio-collared juvenile dispersers tracked; three corridors/habitat constrictions present, but not designed for habitat connectivity:
  1. Coal Canyon (short freeway undercrossing near railroad tracks, stables, and golf course); 3 lions attempted to cross (2 successful); M6 was premier user of corridor, crossing under freeway more than 22 times in 18 months; home range included habitat on both sides of freeway; after completion of study, surrounding properties were preserved, and CalTrans agreed to close underpass to traffic, remove asphalt, and turn over to California State Parks for restoration and use as wildlife linkage
  2. Santa Ana – Palomar (longer, I15 is major impediment, patchwork of land ownership); 2 lions attempted to cross (1 successful); one lion crossed Santa Ana – Palomar linkage by walking across I15 rather than finding a safer route underneath; point of crossing was just north of border patrol/INS checkpoint; several lions were killed crossing at this same site – multiple lions are demonstrating preferred crossing site, which should be focus of planning for vegetated freeway overpass
  3. Arroyo Trabuco (protected from urban areas by tall bluffs, contains dense riparian vegetation, resident deer population, darkness, water); 3 lions attempted to cross (3 successful); comfortable corridor – lions spent 2-7 days traveling through corridor
- 5 of 9 study animals found and successfully used one of the three corridors; sites were not designed for animal movement, which explains unsuccessful attempts
- Photographic overview of potential linkage areas from field reconnaissance to demonstrate habitat opportunities; USGS map used to show the location for each photo:
  1. SB-GM linkage area: one-mile-wide band with virtually no housing – great opportunity; Grapevine Canyon has perennial water; Joshua tree woodland and creosote scrub
  2. SB-SG linkage area: Cajon Wash; I15 impediment; National Forest property on both sides; potential riparian and upland connections; old route 66, railroad tracks; bridged and culvert undercrossings for I15 at four main drainages (best bridge is at Cleghorn Creek with perennial water and direct route into Lone Pine Canyon); vegetation scorched by recent wildfire; SG-Baldy Mesa secondary linkage important
  3. SB-SJ linkage area: low elevation connection across San Gorgonio Pass; possible upland connection through badlands and San Timoteo Canyon; I10 and SR111 are impediments; Morongo Reservation includes upper San Gorgonio River; massive sand and gravel mining operation; development along I10 increasing impediment; many drainages/canyons in lower San Jacinto Mountains; The Wildlands Conservancy recently protected portion of Whitewater River; windfarms near I10

P-13.7 (cont.)

4. SB-LSB linkage area: SR62 main impediment; several drainages cut through Morongo Valley; Mission Creek – good bridges for movement – The Wildlands Conservancy owns portion; desert wash connectivity possible across freeway; possible need for crossing over highway; large band of undeveloped land; natural wetlands in Big and Little Morongo Wash

Claudia Luke, San Diego State University Field Station Programs – *Considerations for Connectivity & Overview of Working Group Session*

Summary: This presentation describes the Santa Ana – Palomar Mountains linkage to allow workshop participants to understand purposes of focal species groups, identification of critical biological issues regarding connectivity, and qualities of species that may be particularly vulnerable to losses in connectivity.

Biography: Claudia Luke received her Ph.D. in Zoology from University of California, Berkeley in 1989. She is a Reserve Director of the Santa Margarita Ecological Reserve, an SDSU Field Station, and Adjunct Professor at San Diego State University. She is on the Board of Directors for the South Coast Wildlands Project and has been the lead over the last two years in conservation planning for the Santa Ana – Palomar Mountain linkage.

- At the November 2000 Missing Linkages conference, participants determined which areas within California needed to be connected to allow species movement
- South Coast Ecoregion workgroup selected criteria to prioritize linkages and connect largest protected lands; planning efforts have progressed for the Santa Ana – Palomar Mountains linkage area - workshops have been held to select focal species
- Global linkage role: preservation of biodiversity hotspot with concentration of endemic species (formed by gradients in elevation, lack of past glaciers, soil diversity) **P-13.7 (cont.)**
- Regional linkage role: maintenance of habitat connectivity to prevent extirpations, and considerations for climate change (warmer wetter winters and drier summers may cause extreme floods and wildfires, drier vegetation types may expand to higher elevations)
- Local linkage role: connect protected parcels, considering dispersal methods of focal species, and impacts to habitat specialists, endemics, edge effects, and gene flow
- Focal species approach to functional linkage planning based on Beier and Loe 1992 corridor design (choose appropriate species, evaluate movement needs, draw corridor on map, monitor); focal species are units of movement used to evaluate effectiveness of linkages; wide diversity of species necessary to maintain ecological fabric; collaborative planning effort based on biological foundation and conservation design/delivery
- Choose species sensitive to fragmentation to represent linkage areas; Crooks and Soule 1999 showed that in San Diego as fragment size decreases, mid-sized carnivores increase (mesopredator release), and multiple bird species are lost; must consider associated species in planning, including keystone species important for survival of other species (ex - *Yucca whipplei* pollinated by specific invertebrates)
- Each taxonomic working group will choose a few species, delineate movement needs, record information on natural history, distribution, habitat suitability, current land conditions, key areas for preservation and restoration; consider metapopulation dynamics so that if a species disappears due to disturbance, habitat can be re-colonized
- Focal species data will be displayed on conservation design map and used to guide planning efforts; regional approach to linkages will help project to gain visibility and leverage to work with multiple agencies and organizations

Appendix C: 3D Visualization

The South Coast Wildlands is in the process of producing several flyovers or 3D visualizations of the San Bernardino-San Jacinto Connection and other linkages throughout the South Coast Ecoregion as part of the South Coast Missing Linkages Project.

The 3D Visualization provides a virtual landscape perspective of the local geography and land use in the planning area. 2002 USGS LANDSAT Thematic Mapper data was used to build a natural color composite image of this study area.

INSTRUCTIONS ON VIEWING FLYOVER

The flyover provided on this CD is an .mpg file (media file) which can be viewed using most popular/default movie viewing applications on your computer (e.g. Windows Media Player, Quick Time, Real One Player, etc).

Simply download the .avi file "3D_Visualization.mpg" from the CD onto your computer's hardrive. Putting the file on your computer before viewing, rather than playing it directly from the CD, will provide you with a better viewing experience since it is a large file.

Double click on the file and your default movie viewing software will automatically play the flyover.

If you cannot view the file, your computer may not have any movie viewing software installed. You can easily visit a number of vendors (e.g. Real One Player, Window Media Player, etc.) that provide quick and easy downloads from their websites. **P-13.7 (cont.)**

Please direct any comments or problems to:

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RESEARCH REPORT

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Vulnerability of California Roadways to Post-Wildfire Debris Flows

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July 2020

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Vulnerability of California Roadways to Post-Wildfire Debris Flows

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Executive Summary

Vulnerability of California Roadways to Post-Wildfire Debris Flows

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Executive Summary

Wildfires represent a major challenge for ensuring the reliability or transportation services into the future. While many infrastructure are vulnerable to wildfires, roadways in particular are perhaps the most pervasive assets in wildfire prone regions. As such, there is a rich history in California and across the US West of roadway disruptions to wildfires. Climate change represents a potential exacerbating force, threatening to change wildfire dynamics. Yet there remains little work examining how wildfires make roadways vulnerable, and how vulnerability could change into the future. This insight is critical to long-term planning, strategic investment, and creation of resilience strategies.

Post-wildfire debris flows represent a major challenge for roadways in California and the West. While wildfires themselves disrupt traffic and create evacuation challenges, precipitation events that occur after wildfires have the capacity to overwhelm roadways and their stormwater infrastructure, in extreme circumstances causing total failure of the asset. This dynamic has recently occurred following Thomas Fire (Kean et al., 2019), San Bernardino Fire, and Camp Fire (Kean et al., 2011). Wildfires change soil chemistry making the soil prone to less absorption and more runoff, producing debris, and denuding the landscape (De Graff et al., 2015; Elliott et al., 2004; Moody et al., 2013). A subsequent rain event can have orders of magnitude greater runoff than pre-wildfire conditions (Cannon et al., 2008, 2011; Elliott et al., 2004; Kean et al., 2011). Yet our understanding of the vulnerability of roadways to wildfires still largely focuses on spatial overlays of where fires are or will occur, and which assets are there (Wolshon et al., 2007). This approach is useful but aligns more with hazard analysis than vulnerability analysis. What is needed are new approaches for characterizing roadway vulnerability to post-wildfire debris flows that capture fire risk (including vegetation, precipitation, soil, and geologic conditions) and roadway criticality. This work addresses this challenge for California assessing both current and future conditions.

A post-wildfire debris flow roadway vulnerability assessment is developed for the entire state of California for both current and future conditions. The vulnerability assessment considers soil conditions, vegetative conditions, geologic conditions, precipitation (current and future), and fire risk (current and future), in addition to roadway criticality. Post-fire debris flow models developed by Canon et al. (2010) and Staley et al. (2017) are used to characterize post-fire debris flow risk by watershed. The model is forced with precipitation and environmental variables from state sources including CalFire and Cal-Adapt. The watershed risk is joined with a network topological analysis of roadway criticality. Some roadways may be in regions that are high risk to post-fire flows, but may not be critical in people driving from origins to destinations. We define criticality based on betweenness centrality, a measure of the number of routes that would use a particular link to traverse the network. We do not consider traffic flows as i) many roadway links in the broader network are in remote regions without traffic counts, and ii) even if a road has a high traffic volume, that traffic may be easily shifted to a nearby route. We consider arterials and highways in our assessment. It is methodologically possible to consider lower functional classifications (such as local and collector roads) but is computationally prohibitive. **P-13.7 (cont.)**

The results present the current and future watershed risk, roadway risk, and roadway vulnerabilities. Under current conditions, watershed post-fire debris flow likelihood and number of vulnerable roadways are likely to increase with long recurrence design storm events. Under a 10-year recurrence design storm, 0.06% of roadways are vulnerable to post-fire debris flow, and that increases to 0.16% to 0.47% under 50 or 100-year recurrence design storms. The percentage of watersheds under risk is greater than roadways. Many problematical basins are in the wildland where no roadways currently pass through. Climate change, which drives the regional precipitation intensity and large fire burn area to an extreme, will push more watersheds and roadways under the extremely high (more than 80% likelihood) post-fire debris flow risk category. Simulations under different climate change models (HadGEM and CanESM in this study) provide reasonable bounding cases for future conditions. Under a 100-year design storm event, in the worst-case emission scenario (RCP 8.5), 1.16% to 1.46% of roadways are highly vulnerable while in the stabilization scenario (RCP 4.5), 0.52% to 0.73% of roadways are highly vulnerable.

The results from this study provide guidance for roadway mangers to identify the potential high post-fire debris flow watersheds, roadways under extremely high post-fire debris flow threat, and the changing profile of vulnerable roadways under both current long recurrence design storm events and future climate scenarios. Currently, under a 100-year design storm, most vulnerable roadways are located in Caltrans 2, 7, and 11 districts, while extremely high post-fire debris risk watersheds appear in Caltrans districts 2, 6, and 7. It is common to see increased roadway vulnerability in regions where fires are currently occurring, indicating more frequent and intense future fires and precipitation impacting a broader portion of the transportation network. In the future climate change scenarios, districts 1 and 8 can expect an increase in their vulnerability ranking.

The vast roadway network, exacerbating conditions driven by climate change, and large expense of rehabilitating assets should give California incentive to consider a broad suite of resilience strategies. Engineered infrastructure design in the face of hazards currently emphasizes control and pushback, with robustness (armoring, strengthening, and hardening) as the predominant approach. Robustness, i.e., the upgrading of assets to be able to withstand more intense post-fire debris flows, is necessary, but given the uncertainty inherent in climate change, and the vast roadway system that has to be upgraded, other strategies should also be considered. Graceful Extensibility (extending transportation services via, e.g., virtual connectivity or mode shifting) and Sustained Adaptability (i.e., a commitment to reassessing conditions, technologies, designs, and operations for a future defined by uncertainty) may provide alternative strategies at a systemic level for reducing impacts (Woods, 2015). Furthermore, safe-to-fail, i.e., the incorporation of failure analysis into the design process to broaden the suite of strategies to reduce the negative outcomes and costs of failure, should be considered beyond current fail-safe focused approaches. It may be the case that failure is inevitable, and California should have structured approaches for infrastructure design that acknowledge this failure.

Project data are available at wildfires.resilientinfrastructure.org.

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Introduction

Characterizing the vulnerability of infrastructure to climate change represents an important new frontier for theory, research, and practice. Infrastructure -- the human engineered systems that deliver basic and critical services, such as transportation, power, and water -- are caught between design processes that largely emphasize historical weather and future climate uncertainty (Chester et al., 2020). As infrastructure managers are increasingly required to confront climate change to ensure the reliability of services into the future, new methods are needed for understanding risks and vulnerabilities, and adaptation options.

Wildfires represent a particularly challenging problem for infrastructure. Their direct damaging of roadways is unlikely (MacArthur et al., 2012). Wildfires tend to present as a concurrent hazard; they manifest with heat and drought, and they tend to produce powerful post-fire debris flows. These debris flows represent significant hazards for infrastructure in general, but in particular roadways, where landslides, debris movement, and exacerbated water flows often cut across roadways. It typically takes about 5 years for a watershed to return to its pre-fire conditions (Ice et al., 2004) and common precipitation events (defined as return periods of up to 10 years) are capable of producing 1000 year floods after an intense fire (Gartner et al., 2008). Yet few rigorous methods exist for unpacking the relationships between climate change, wildfires, post-fire debris flows, and transportation infrastructure. With climate forecasts generally showing significant and relatively fast changes in extreme events, there is cause for immediate examination of how our critical services (as supported by generally long lifetime infrastructure) are vulnerable and what can be done to protect them.

When it comes to transportation and wildfires, work tends to focus on evacuation strategies and hazard mapping, and there are few efforts to understand post-fire flows risk and how that translates to roadway vulnerability. The evacuation literature is rich and has been pursued for decades. This includes evacuation order strategies (Cohn et al., 2006; Cova et al., 2013; Wolshon et al., 2007), and logistics (Camp et al., 2013; Dijst et al., 2013; Evans et al., 2009; MacArthur et al., 2012; Morton et al., 2003; Peterson et al., 2010; Walker et al., 2011; Wu, 2001). Several studies establish precedent for more rigorous vulnerability assessments. Several researchers have noted the potential for increased landslides and loss of control systems (De Graff et al., 2015; MacArthur et al., 2012; Macdonald et al., 2008; Wu, 2001). Only one existing study (by the authors) has been identified that systematically assesses the relationships between fires, precipitation, geological and vegetative conditions, hydrology, and roadway infrastructure. Fraser et al. 2020 developed a model using Arizona's forested region to assess post-fire debris flow risk to roadways. The study combined soil, topography, precipitation, and current wildfire potential, watersheds, and hydrologic analysis, with roadway infrastructure, also considering the importance of various links in the network (betweenness centrality). The study's findings were confirmed as they showed high risk assets where recent fires and subsequent post-fire debris flows and roadway washouts had occurred. However, the work did not consider future climate change (and its fire and precipitation uncertainty). Also, it was conducted for a relatively small region, raising questions around how state or regional variations in geological, vegetative, hydrological, climate, and infrastructure affect a large infrastructure system and an agency's prioritization for mediating risk.

We develop a roadway vulnerability assessment for the state of California considering climate change (and its uncertainty). In doing so, several important methodological advancements are made over the approaches developed by Fraser et al. 2020. First, the inclusion of climate forecasts (for wildfires and precipitation) requires assessment of current and future risk using consistent methods. We develop these methods. Second, statewide assessment at the scale of California presents several major computational challenges in terms of commensurate

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data inputs (data are sometimes regionalized and inconsistent) and scalability of computation. Third, the relationship between post-fire flows and roadways is complicated. Flows are expected to impact roads following stream paths. We develop new hydrologic methods to characterize how individual roadway links (as they intersect stream paths) are vulnerable. The methods embrace the uncertainty inherent in the work, in terms of climate change scenarios, wildfires, precipitation, and post-fire debris flows.

Following, we describe our data processing, methodological assessments, and results. We conclude with a discussion focused on the significance of the work for decisionmakers, with an emphasis placed on helping infrastructure managers prioritize limited resources towards high risk areas. We make the code available with documentation to the general public through our project website (wildfires.resilientinfrastructure.org).

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Methodology

This study analyzes roadway vulnerability to post-fire debris flow hazards, which associates roadway debris flow risk with network topography. The work by Fraser et al. (2020) introduced a framework of vulnerability analysis using empirical post-fire debris flow models (Cannon et al., 2010) with network criticality assessment for roadways in Arizona. Opportunities exist for improving this framework with climate change scenarios to include future uncertainties, scaling the methods to the entire California state, and updating the debris flow model given emerging methods. This work advances the assessment of roadway vulnerability to post-fire debris flows by building upon the work of Fraser et al. (2020) to incorporate these opportunities. An updated vulnerability assessment framework included the roadway post-fire debris flow estimation with a state-of-the-art debris flow assessment (Staley et al., 2017) and burned area simulation (Staley et al., 2018), with downscaled future precipitation and fire projections (Pierce et al., 2018a; Westerling, 2018a).

Major steps of the analysis involved: 1) defining the hydrological system and principles to identify the risk profile of infrastructure, 2) quantifying the post-fire debris flow likelihood in watersheds and at roadways for current and future climate conditions, 3) analyzing the post-fire debris flow risk and 4) analyzing the roadway network's vulnerability and identifying the most vulnerable roadways. The model components are shown in Figure 1 and discussed in detail in the subsequent sections.

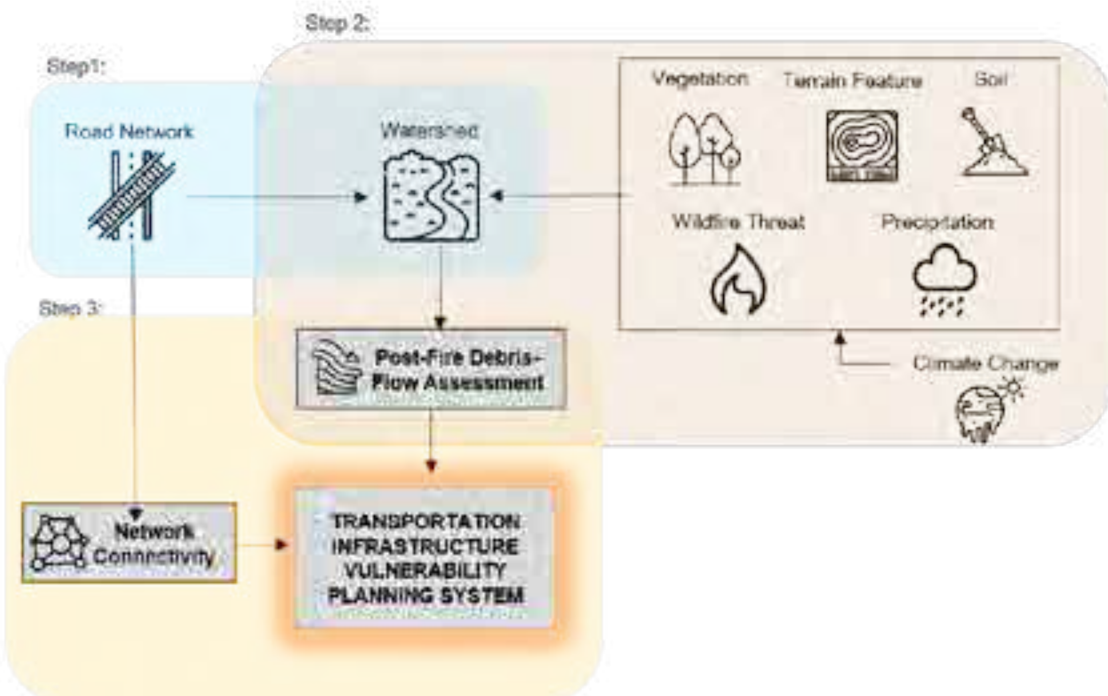

Figure 1. Methodology Overview

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Hydrological System Definition

The post-fire debris flow assessment calculates the potential of debris flow based on soil, precipitation intensity, fire burned area, vegetation type, and geological characteristics in watersheds. The size, shape, and correct delineation of watersheds significantly influences the estimation result. In Fraser et al. (2020)'s model, the watershed boundary is delineated from 10-meters digital elevation models in Arizona (DEM). Calculating the boundary of watersheds for the whole of California is both computationally intensive and error-prone. As such, watersheds from the NHDPlus High Resolution (NHDPlus HR) dataset (Viger et al., 2016) are used in the calculation. The NHDPlus HR datasets are built with the ⅓ arc-second 3D Elevation data, which consists of small size catchments (area ranges from 10^{-2} to 10^{2} km^2), and a stream network at a refined scale to inform the post-fire debris flow estimation. The NHDPlus HR datasets, which were sourcing with the HUC 4 indexes, were obtained from the USGS National Geospatial Program. In total, 1.7 million watersheds in California were used in the estimation, and Figure 2.a shows the coverage in HUC 4 unit. HUC 1807 and 1810 are defined as the Southern California region while the rest are considered as the Northern California region. The Caltrans district map (Figure 2.b) was introduced to describe the analysis results.

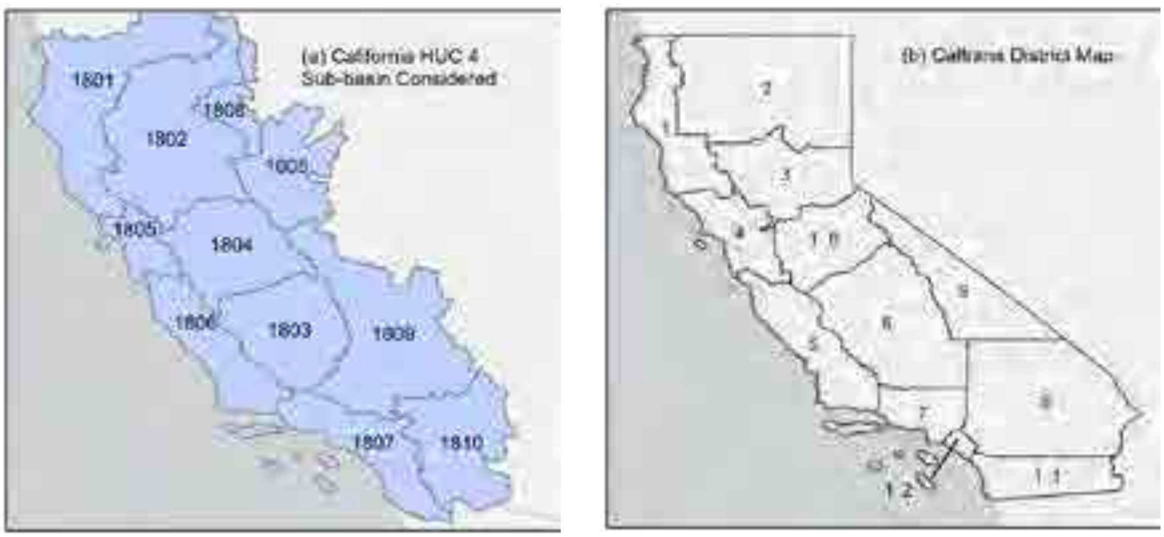

Figure 2. Watershed (NHDPlus HR) and Caltrans Districts Overlays.

Roadway Network Definition

Roadway post-fire debris flow risk is calculated from watershed characteristics where roadways pass through. Mapping of the watershed debris flow risk in the roadway network is done by assigning the value of the watershed debris flow to the roadway and stream interactions in the watershed (Figure 3.a). The streamflow is obtained from NHDPlus HR data. In doing so, it is assumed: 1) roadway sections with no streamflow interactions would not have debris flow occurring, and 2) roadways would have the same degree of risk as the catchment at the roadway and

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streamflow intersections. The roadway network is retrieved from OpenStreetMap ("Researcher Information - OpenStreetMap Wiki," 2017). Functional classifications of Interstates, Highways, and Arterials are considered. While the methodology is applicable to lower classification roads (such as Local links), the computational requirements are significant and therefore excluded. In total, 95,173 roadway and streamflow intersections were identified with the majority located in the Great Valley and West Coast (Figure 3.b). The datasets used in the hydrological system and roadway network definition are listed in Table 1.

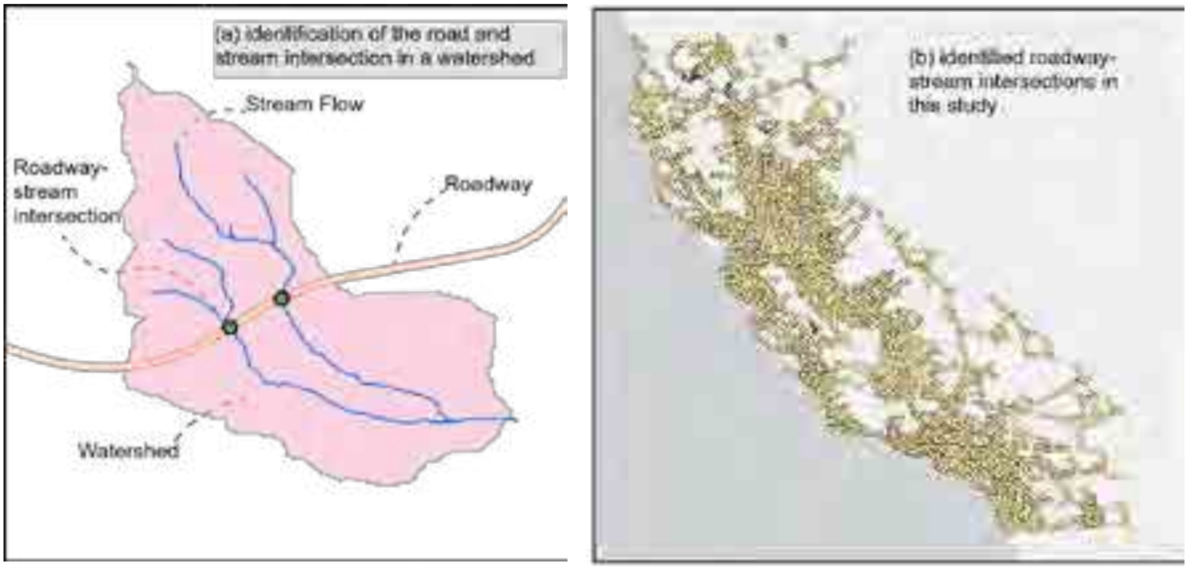

Figure 3. Roadway and Streamflow Intersections.

Table 1. Watershed and Roadway Network Data Description

Variables	Description	Source
Watersheds, streamflow network	The watershed used to carry out the debris-flow likelihood calculation	NHDPlus HR Hydrology Model (https://viewer.nationalmap.gov/basic/)
Roadways network	The roadway network used in this study, which includes restricted access to major divided highways, arterials, and partial of the non-major routes.	OpenStreetMap (OSM, 2019)

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Current Post-fire Debris Flow Risk

Post-fire debris flow risk has been studied for decades using empirical models to estimate flow volume, predict the likelihood of debris flow, and evaluate the rainfall threshold for debris flow in fire burned areas (Cannon et al., 2010; Gartner et al., 2014). These models consider watershed terrain features, wildfire burn area, vegetation burn severity, soil characteristics, and rainfall intensity. For California, models developed by Cannon et al.(2010) and Staley et al. (2017) were used to analyze the post-fire debris flow risk. While the work by Staley et al. (2017) represents the state-of-the-art for post-fire debris flows analysis, one important variable, simulated Difference Normalized Burn Ratio (dNBR), used in the model is only regressed for Southern California (Staley et al., 2018). To complete the analysis for all of California, models from Cannon et al.(2010) are used which don't consider vegetation conditions for Northern California in the risk analysis. The post-fire debris flow likelihood(*P*) is calculated using Equation 1:

$$P = e^x/(1 + e^x) \quad \text{Equation 1}$$

The likelihood of post-fire debris flow is a fraction between 0% to 100%, and classifying it by severity bins helps to discuss risk level. The debris flow risk is characterized by five bins: very low, low, medium, high, and extreme high. Each rank represents the corresponding 20% bin for debris flow likelihood. The model and the classification are used for both the current and future post-fire debris flow risk assessments.

In Southern California, x is calculated as Equation 2:

$$x = -3.63 + (0.41 \times x_{1R} \times i_{15}) + (0.67 \times x_{2R} \times i_{15}) + (0.7 \times x_{3R} \times i_{15}) \quad \text{Equation 2}$$

x_{1R} is the area of the basin where medium to high level burn occurs on steep slopes (gradients over 23 degrees). x_{2R} is the average Difference Normalized Burn Ratio (dNBR) in the upslope area. dNBR is an index used to value the degree of disruption on the vegetation system in a burned area. x_{3R} is the average KF-factor of the upslope area, where the KF-factor indicates the potential for erosion and the rate of runoff. i_{15} is the 15 minute rainfall intensity under different recurrence intervals.

in Northern California, x is calculated as Equation 3:

$$x = -07 + 0.33 \times slp_{pct} - 1.6 \times rugged + 0.2 \times CC_{pct} - 0.4 \times LL_{pct} + 0.07 \times i_{60} + 0.06 \times HM_{pct} \quad \text{Equation 3}$$

slp_{pct} is the percentage of watershed area with gradients larger than 30%. $rugged$ is the average basin ruggedness. CC_{pct} and LL_{pct} are the average basin clay content and liquid limit percentage in the upstream basin. i_{60} is the 60 minutes rainfall accumulation under different rainfall recurrence intervals. HM_{pct} is the percentage of basin area burned at *moderate* and *high* severity.

The current post-fire debris flow assessment is carried out with the present soil, geological, and precipitation conditions, as well as estimations of the most recent fire threat and vegetation types. The current soil, geological, and precipitation data are retrieved from the datasets shown in Table 2. Most of the post-fire debris flows are associated with long-recurrence precipitation events (Cannon et al., 2010). As such, it's necessary to estimate the debris flow risk under short, medium and long recurrence rainfall events, to identify the risky locations under both more frequent precipitation (shorter recurrence) and more intensive rainfall (longer recurrence) events. Rainfall events with 10, 50, and 100-year recurrence intervals are used to simulate the short, medium, and long-recurrence events.

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Table 2. Variables Used in Predicting Post-fire Debris Flow

Variables	Description	Source
Watersheds	The watershed used to carry out the debri-flow likelihood calculation	NHDPlus HR Hydrology Model (Viger et al., 2016)
Land Gradient	The proportion of upslope area burned at high or moderate severity and with gradients in excess of 23 degrees.	30-meters Digital Elevation Model (USGS, 2017)
slope	The proportion of upslope area burned at high or moderate severity and with gradients in excess of 30 degrees.	
K-Factors, CC, and LL	Soil erodibility factor which represents both susceptibility of soil to erosion and the rate of runoff, as measured under the standard unit plot condition.	Digital General Soil Map of the United States (STATSGO) (Schwartz et al., 1995)
MCPc	The percentage of a watershed area that is burned medium to high level in a wildfire event.	Fire Threat Map (FRAP, 2017)
Rainfall Intensity	Rate of precipitation associated with specific storm lengths and occurrence intervals.	NOAA Atlas 14 (Peterson et al., 2010)
Vegetation	The existing vegetation type (EVT) which used to simulate dNBR prior to wildfire.	2016 EVT map (LANDFIRE, 2016)

Basin burn severity and vegetation dNBR was estimated from recent fire threat and existing vegetation type data. In this study, the area of a basin with medium to high level burn severity is derived from the Cal Fire 2014 threat map (FRAP, 2017). The map classifies fire risk in five levels: very low, low, medium, high, and very high, based on vegetation, soil, and meteorology data. It is assumed that regions with high to extreme fire risk are going to be burned with medium to high severity. Staley (2018) proposed a simulation method to estimate the dNBR prior to future fires occurring. The simulation function, as shown in Equation 4, is based on the vegetation type and the historical dNBR records in the burnt area.

$$dNBR_{sim} = \lambda[-ln(1 - P_{dsim})]^{1/k} \times 2000 - 1000$$ *Equation 4*

Here, *k* and λ are the shape and scale parameters of the historical dNBR fitting Weibull CDF for each Existing Vegetation Type (EVT). P_{dsim}, which is the cumulative percentile of the Weibull CDF, simulates the frequency of fire severity. For instance, P_{dsim} = 0.50 represents a moderately frequency fire burn severity. This study simulates a very high severity wildfire, where P_{dsim} equals 95%, to cover 95% of the possible fire burnt scenarios.

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Future Post-fire Debris Flow Risk

Climate change has the potential to shift regional precipitation and wildfire patterns. Post-fire debris flow is a combined hazard from both fire and rainfall, and evaluating post-fire debris flows under climate change scenarios would help stakeholders to identify the changing future hotspots that may be overlooked by a present-day analysis. Localized Constructed Analogues (LOCA) downscaled climate change prediction offers regional fire burn area and precipitation volume which is used in estimating the future post-fire debris flow risk.

Future scenarios considered in this study were defined by two greenhouse Representative Concentration Pathways, RCP 4.5 and RCP 8.5, and two climate models. RCP 4.5 represents a scenario where greenhouse gas (GHG) emissions are stabilized and begin to decline in the middle of the 21st century. RCP 8.5 describes a scenario where GHG emissions increase rapidly until the end of the century. Many climate models and scenarios exist and the California Energy Commission (CEC) provides guidance on selecting representative cases (Pierce et al., 2018a). Following CEC guidance, the CanESM2 and HadGEM2-ES models are chosen and corresponding data from Cal-Adapt are used (Pierce et al., 2018a; Westerling, 2018a). CanESM2 is identified by the CEC as an average future while HadGEM2 is characterized as a warmer and drier future. The combination of two models and two RCPs results in four future scenarios.

The climate scenarios, as well as their influence on wildfire and precipitation, are considered in the future post-fire debris flow risk estimation. Variables including vegetation, soil, and terrain in the post-fire debris flow model are assumed to be constant given that there are no fine scale data indicating change. Figure 4 shows the critical variables considered and the corresponding climate scenarios they are applied to.

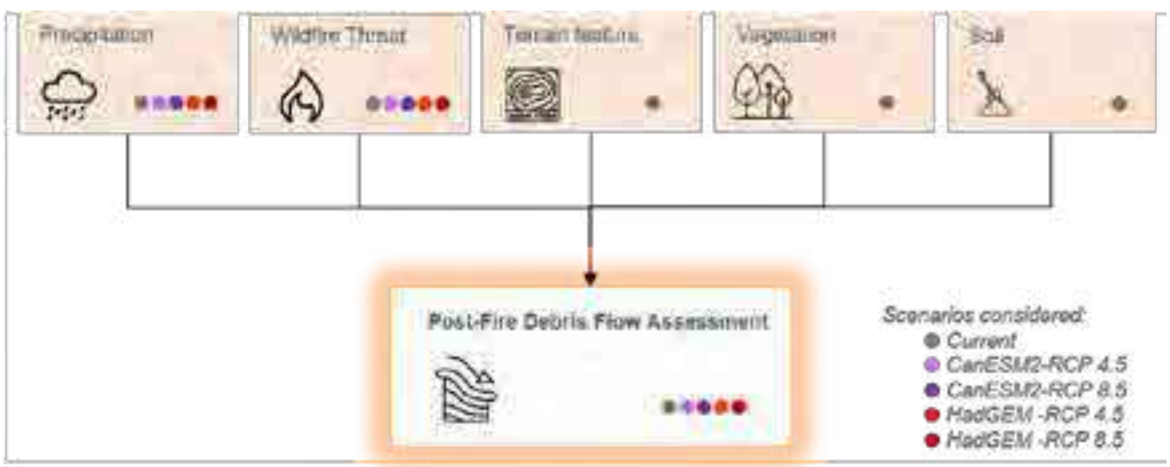

Figure 4. Key Factors Considered Across Current and Future Climate.

Future extreme precipitation is based on LOCA downscaled 6×6 km^2 resolution recurrence precipitation projections available from Cal-Adapt, described in Table 3 (Pierce et al., 2018a). The LOCA downscaled predictions give the daily 24-hour duration precipitation from 2006-2100. To use the downscaled precipitation data in the post-fire debris flow assessment model, the 24 hour rainfall intensity must be converted to shorter duration 15 minute design storms. The conversion assumes that the precipitation under different events would change at the same scale. The precipitation event is estimated as: 1) climate prediction records for every 6×6 km^2 area in

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California are retrieved, 2) a Peaks-Over-Threshold (POT) approach (Wilks, 2011) is used to estimate the intensity of 10, 50, and 100-year recurrence design storm from the LOCA estimated rainfall data. 3) Employing φ_{rain} to represent the rainfall changing ratio between the future and current 24 hour duration design storm intensity at different recurrence intervals, the current 15-minute or 60-minute duration design storms is scaled with φ_{rain} to estimate intensity of future short duration design storms. The first and second steps were performed with the Cal-adapt API (Cal-Adapt, 2017), and the third and fourth steps are completed in Python following:

$$\varphi_{rain} = (i_{24pre} - i_{24cur})/i_{24cur}$$ *Equation 5*

$$i_{15pre} = (\varphi_{rain} + 1) \times i_{15cur}$$ *Equation 6*

where $\varphi_{rain}$is the rainfall change ratio. $i_{24pre}$and i_{24cur} represent the predicted and current 24-hour rainfall intensity. $i_{15pre}$and $i_{15cur}$are the predicted and current 15-minute intervals of rainfall intensity.

Table 3. Variables Used in Predicting Future Post-fire Debris Flow

Variables	Description	Source
burned severity (future)	The percentage of a watershed area that is burned medium to high level if a wildfire event happens in the future scenario.	6×6 km^2 Resolution Future Burnt Area Map (Westerling, 2018b)
Rainfall Intensity (future)	Rate of precipitation associated with specific storm lengths and occurrence intervals in the future scenarios.	6×6 km^2 Resolution Future Extreme Rainfall Event (Pierce et al., 2018b)

Like the future precipitation data, the wildfire projection needs to be compiled before inputting into the post-fire debris flow calculation. As the future wildfire burned area is presented as an area burned annually in a given 6×6 km^2 size pixel (Westerling, 2018a), which could be interpreted as the burnt ratio for every pixel, the data are converted into the area expected to burn at medium to high severity. The conversion process started by calculating the total burned area changing ratio in one 6×6 km^2 pixel between the projected (2010 to 2099) and recovered (1953 to 2009) time period. This changing ratio is then applied to the current fire threat map (FRAP, 2017) to generate a new fire threat map. From the new fire threat map, retrieving regions with the fire threat larger than high level as the future burned area.

Roadway Vulnerability Assessment

The vulnerability of roadways to post-fire debris flow captures both the likelihood of debris flows and the criticality of each roadway in the broader network. The criticality of roadways can be measured as the link capacity (Li et al., 2012), the traffic delay when disruption occurs (Dowds et al., 2017), or the topological connectivity of a network. Traffic, while a useful measure of how intensely used a roadway is, does not capture dynamics related to how important a link is in the overall network, and is often unavailable for rural areas (Dowds et al., 2017; Fraser et al., 2020; Yang et al., 2018). If a high traffic link is disabled and the traffic can be accommodated on nearby links at minimal to no cost, then the link should not necessarily be considered critical. Transportation resilience

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studies often rely on measures of betweenness centrality -- a measure of how important each link is to being able to traverse the network -- to describe network criticality (Kermanshah et al., 2016; Zhang et al., 2015). The betweenness centrality is quantified for each link in the roadway network, as:

$$g(v) = \Sigma_{s \neq v \neq t} \frac{\delta_{st}(v)}{\delta_{st}}$$ *Equation 7*

where the $\delta_{st}(v)$ is the count of paths form not 's' to 't' which go through 'v', and δ_{st} is the number of all paths that connect 's' and 't'. The calculations are performed with NetworkX (Hagberg et al., 2020) and network data from OpenStreetMap (OSM, 2019). While the whole California roadway network is too large for NetworkX to handle, we separated the whole system by county and carried out betweenness centrality analysis in NetworkX.

The vulnerability of roadways is obtained by combining the betweenness centrality and the post-fire debris flow risk for each roadway link. Each roadway link has 15 different debris flow risk values which correspond to the five distinct climate scenarios and three different rainfall recurrence intervals for each scenario. Correspondingly, the roadway can be described through 15 vulnerability values matching with the debris flow risks. The most vulnerable roadways under different climate and rainfall recurrence scenarios were identified as the critical links in the network (high betweenness centrality) with extremely high post-fire debris flow risk (post-fire debris flow risk larger than 80%).

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Results

Current Post-fire Debris Flow Risk

The current post-fire debris flow risk – a function of soil, vegetation, geology, and precipitation – was estimated for both the watershed and the roadways passing through based on the intensity of extreme precipitation events. In doing so problematic watersheds and roadways are identified under different storm intensities. Increasing the precipitation recurrence interval results in more watersheds and roadways with *extremely high* post-fire debris flow risk. From 10-year to 100-year recurrence design storm events, the percentage of watersheds under *extremely high* post-fire debris flow risk is anticipated to increase from 0.28% to 10.11% (Figure 5-a), an increase of 35 times. This aligns with the previous study findings that the post-fire debris flow is highly related to the extreme precipitation events (Cannon et al., 2010). The majority of the *extremely high* debris flow likelihood watersheds aligns with the current *high* to the *extremely high* fire-threat area defined by CalFire (Appendix A). However, the debris flow risk are low in the *extreme high* fire threatened northeastern California, where highway 395 and state route 139 pass between Altura and Susanville. This area has an *extremely high* fire threat but is geologically flat and with little precipitation, which when combined produces a low likelihood of debris flow.

(a) Watersheds post-fire debris flow likelihood CDF (b) Roadway post-fire debris flow likelihood CDF

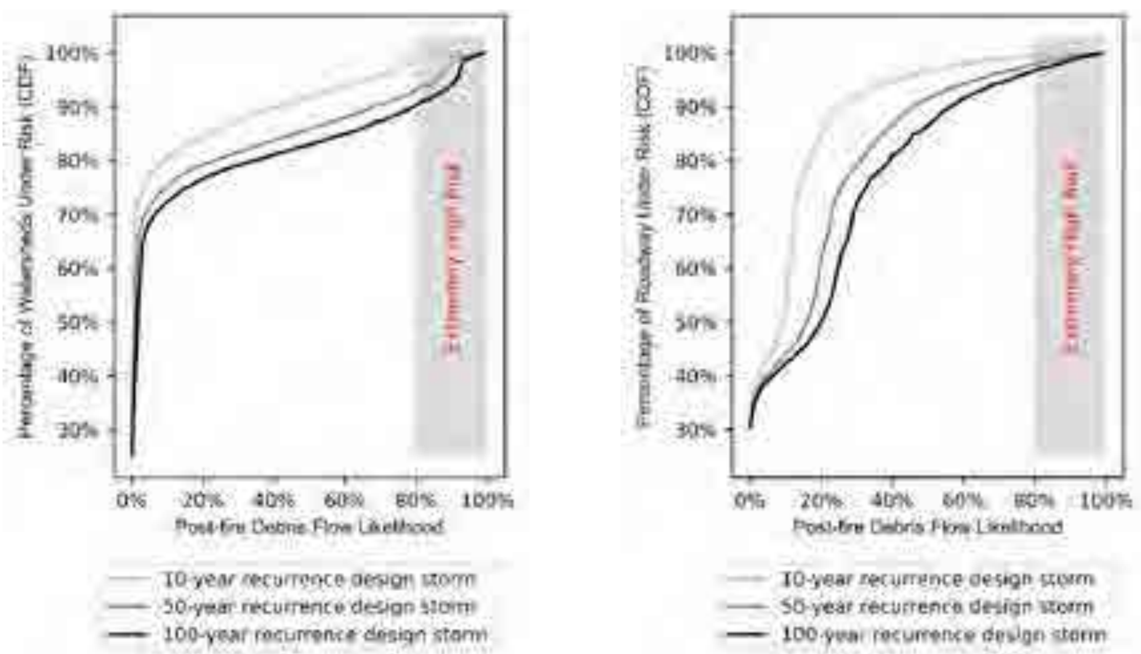

Figure 5. Watershed Debris Flow Risk by Design Storm.

Under a 10-year recurrence design storm, 0.14% of roadways are classified with an *extremely high* debris flow risk. Meanwhile, 0.5%, and 4% of the roadways have *extremely high* debris flow risk under 50 and 100-year

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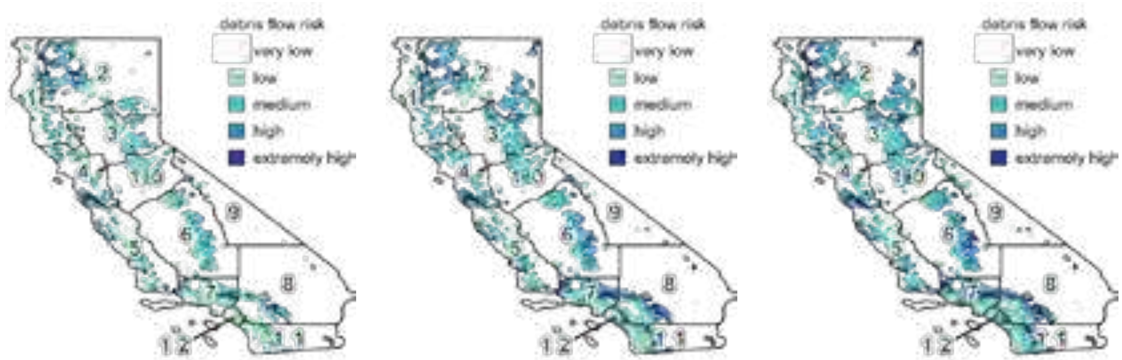
design storms (Figure 5.b). The ratio of problematic roadways is lower than the *high* risk watersheds. The identified *extremely high* risk roadways tend to cluster near the northeast part of district 1, west district 2, southeast district 6, south of district 5, district 7, and 12 (Figure 6). The ratio of roadways under *extremely high* post-fire debris flow risk increases as the rainfall recurrence interval increases, because of the concentration of roadways near metropolitan regions in the Central Valley region where debris flows risk is low. This finding aligns with the previous post-fire debris-flow record. The 2017-2018 Thomas Fire debris flow hit Santa Barbara and Ventura county, where a 50-year recurrence storm triggered the event. The debris flow contributed to an inundation zone more extensive than the 100-year floodplain in Montecito and created a 500-m wide flow path across Highway 101 (Kean et al., 2019)



(a) 10-year recurrence (b) 50-year recurrence (c) 100-year recurrence

Figure 6. Roadways Post-fire Debris Flow Risk Under 10, 50, and 100-year Recurrence Design Storm

The current result shows that the *extremely high* debris-flow events are related to rainfall events with more than 50-year recurrence intervals. While most of the *extremely high* post-fire debris flow threatened areas align with the wildfire threat map, some regions with *high* fire threat show post-fire debris flow risk could still be low because of the flat terrain, low precipitation, and other factors that mitigate the debris-flow risk. The roadways with *extremely high* post-fire debris flow tend to be clustered.

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Future Post-fire Debris Flow Risk

Changes in wildfire risk and precipitation vary across the state and climate change scenario. Under the HadGEM2-RCP 8.5 scenario, in Caltrans district 6, climate change could remarkably increase the fire burn area size to up to 45 times (4500%). Meanwhile, current low risk regions in the California Desert (Caltrans district 8) is projected to have much less fire activity with some likelihoods disappearing altogether (Figure 7.a). In the downscaled climate model, wildfire is anticipated to increase in the current high fire threat region, but not cities. Climate change affects extreme precipitation event in different patterns. Compared with the current 100-year design storm, most parts of California are going to experience an increase in rainfall intensity under the HadGEM2-RCP 8.5 scenario, as shown in Figure 7.b. Under the HadGEM2-RCP 8.5 scenario, the current sensitive areas are projected to see an increase in wildfire risk.

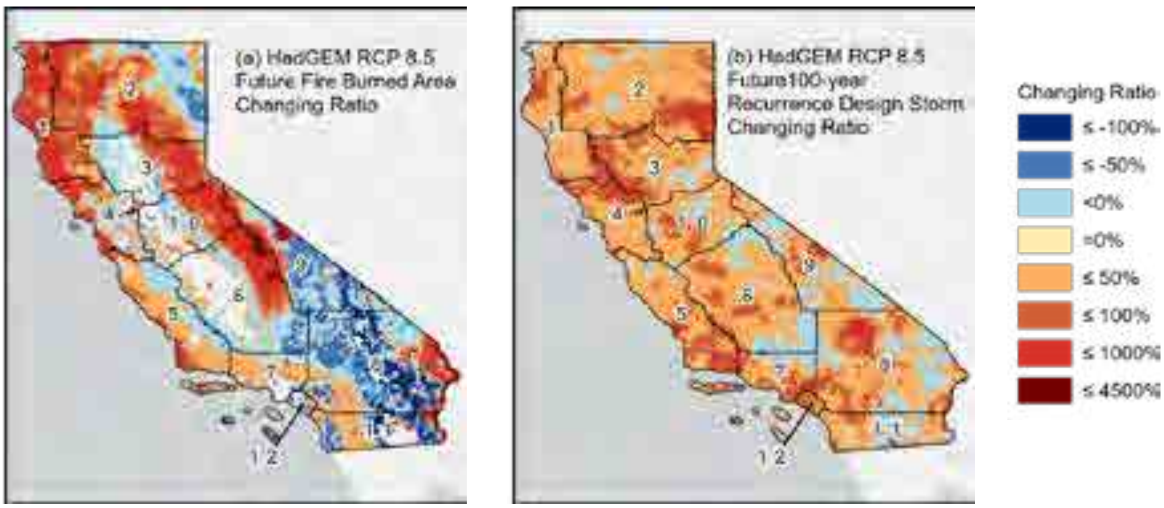

Figure 7. Change in Fire Burn Area and Precipitation for the HadGEM RCP 8.5 Scenario.

The future fire burned area and future precipitation converge in affecting roadway post-fire debris flow under different climate scenarios. When both the fire and precipitation extreme increase, the regional risk also increases, and vice versa. For example, in Caltrans district 1, both rainfall intensity (Figure 7.b) and fire burn size (Figure 7.a) are expected to increase. The two converge in increasing watershed and roadway post-fire debris flow risk in the future scenario (Figure 9). Theoretically, districts with both rainfall and fire decreasing in the future tend to have reducing post-fire debris flow risk. But in most cases, fire and precipitation would have either one or both increasing. When one region has either the fire burned area or precipitation intensity increase, regional debris-flow risk will react based also on the soil, terrain, and vegetation conditions in the region.

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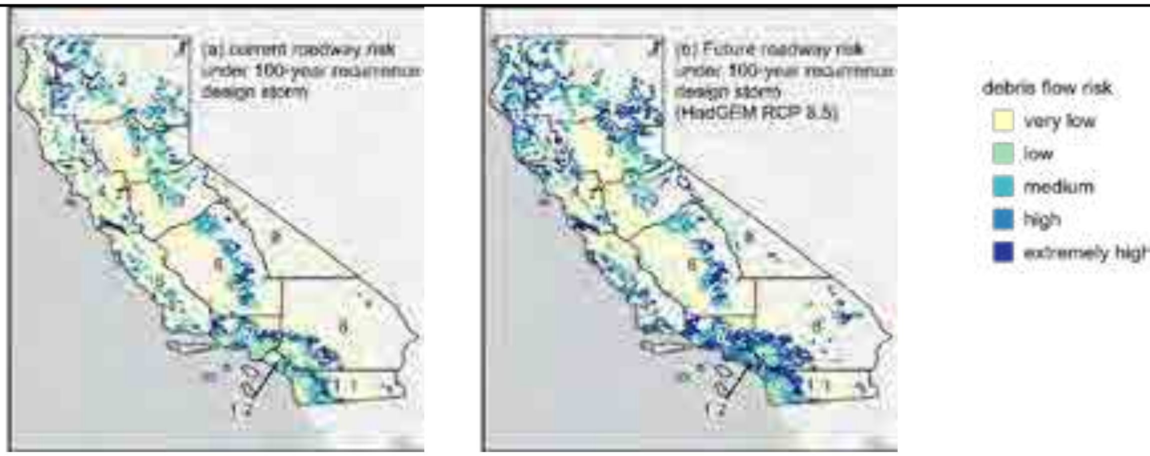

Figure 8. Current and Future Roadway Risk.

In general, the four climate change scenarios estimate an increasing number of watersheds with *extreme high* debris-flow risk (Figure 9). Currently under a 100-year rainfall event, 10% of the watersheds are exposed to *extreme high* debris flow risk. In the future, the number of watersheds under *extreme high* debris flow risk would increase by at least 14% (Can-ESM2 RCP 4.5) and at most 28% (HadGEM RCP 8.5 scenario shown in Figure 9.a). The spatial pattern of watershed post-fire debris flow risk is shown in Appendix B.

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(a) watershed post-fire debris flow likelihood CDF under 100-year recurrence design storm.

(b) roadway post-fire debris flow likelihood CDF under 100-year recurrence design storm

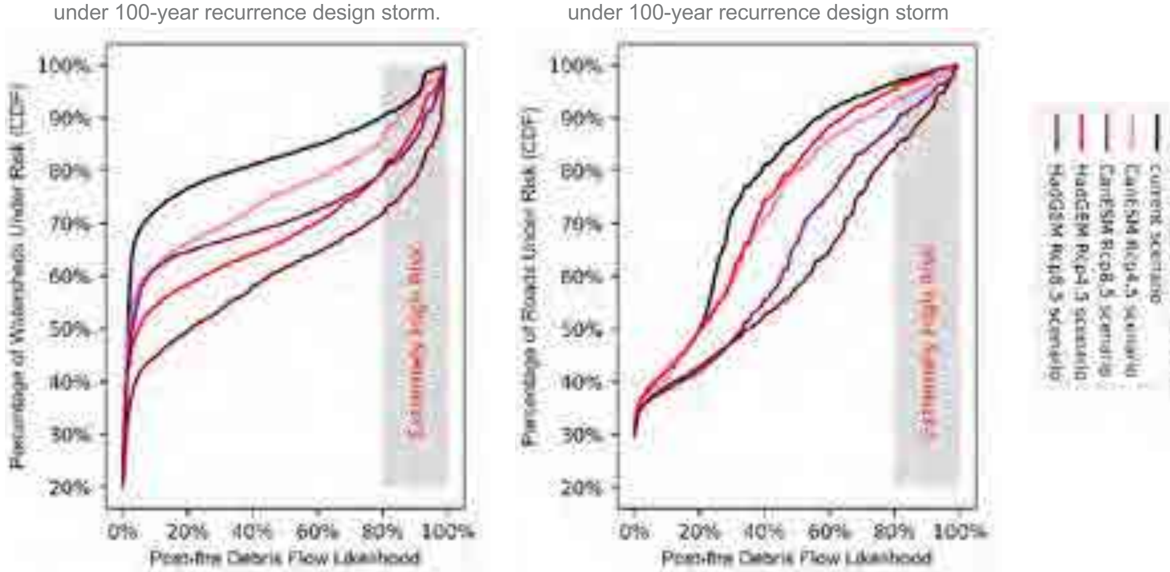

Figure 9. Watershed and Roadway Post-fire Debris Flow Likelihood.

The shifting of debris flow risk at watersheds will influence roadway debris flow risk. That is to say, more roadways in the sensitive region would be exposed to *extreme high* post-fire debris flow risk. Currently under a

100-year rainfall event, 4% of roadways are exposed to *extreme high* debris flow risk. Under the same level rainfall event, 5% (HadGEM RCP 4.5) to 15% (HadGEM RCP 8.5) of roadways would be exposed to *extreme high* debris flow risk (Figure 9.b). Under the HadGEM RCP 8.5 scenario, which creates more *extreme high* post-fire debris flow roadways than the other climate scenarios, the number of roadways under *high* to *extreme high* debris flow risk is expected to increase around Caltrans district 1, 2, and Southern California (**Error! Reference source not found.**.b). The roadway network was assumed constant into the future but very well may grow, thereby increasing the potential for new problematic roadways.

The increase in projected burned area in current *high* fire threat territories, together with the statewide increase in precipitation intensity, worsen the post-fire debris flow risk in sensitive zones. Regional climate change patterns affect post-fire debris flow likelihood in different ways, but in general increase the risk of post-fire debris flows in sensitive areas.

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Roadway Vulnerability

The vulnerability of roadways to post-fire debris flow is characterized as the co-occurrence of debris flow probability and betweenness centrality, effectively capturing roadways that have high likelihood of experiencing flows and are important for facilitating connectivity. Roadways with high betweenness centrality and high debris flow risk are the most vulnerable hotspots that deserve the attention. Currently, the most vulnerable roadways are identified as those with betweenness centrality larger than 0.4, and post-fire debris flow likelihood greater than 80%, which is shown in the red square in Figure 10. As such, the identified amenable roadways in the red box are not only spatially critical to a network with lots of nodes in the system dependent on them, but also vulnerable to *extreme high* post-fire debris flows.

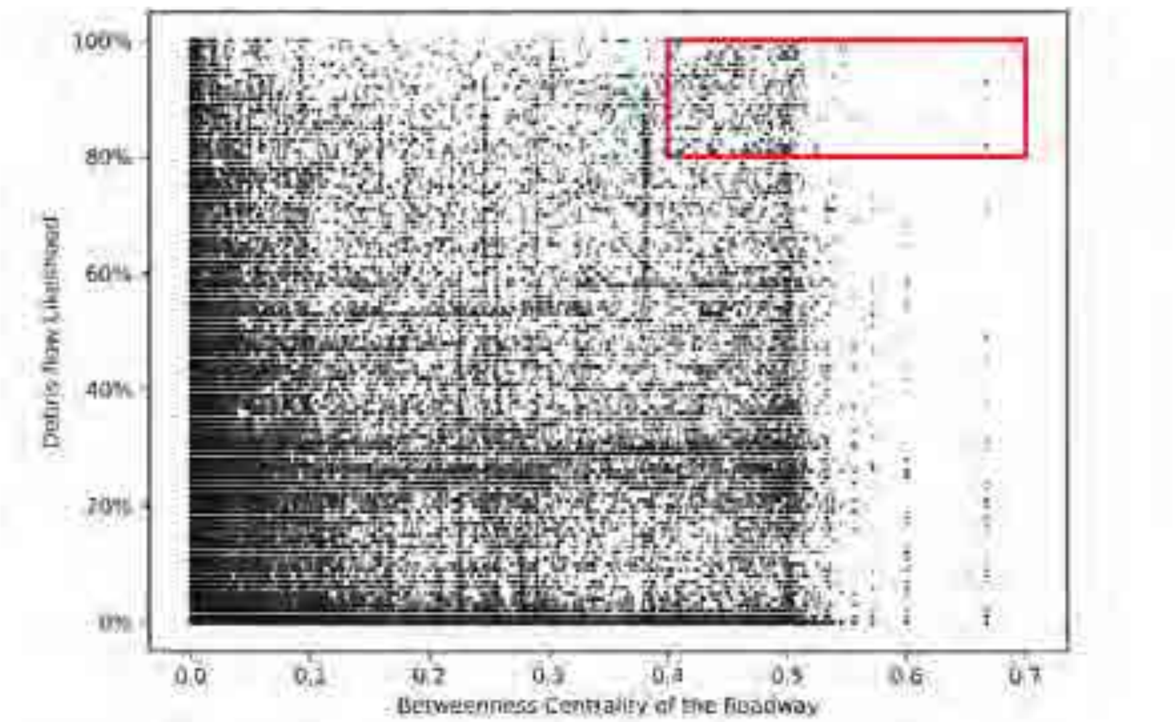

Figure 10.Roadway Vulnerability Considering Betweenness Centrality and Debris Flow Likelihood

Since the roadway network is assumed to be constant into the future, the profile of vulnerable hotspots shifts with climate change thereby affecting debris flow risk. Table 4 shows the number of vulnerable hotspots under each climate scenario and different rainfall recurrence intervals. Currently, 0.47% of the total roadways have *extreme high* post-fire debris flow risk and are critical in the roadway network. Under mild climate change scenarios (i.e., RCP 4.5), an increasing number of critical roadways are expected to face *extreme high* debris risk. In a moderate future climate model (CanESM2), 0.73% of the roadways are going to be highly vulnerable. The number of highly vulnerable roadways could rise 55% compared to current conditions. The number of hotspots is anticipated to be greatly increased in RCP 8.5 scenarios which produce larger burned areas and more intense extreme precipitation. Under the hot and dry climate model (HadGEM), 1.46% of roadways are estimated to be vulnerable,

P-13.7 (cont.)

which is 210% more than the current situation. A significant number of vulnerable roads increased in RCP 8.5 versus 4.5.

Table 4. Roadway Vulnerability by Climate Scenario

Climate Scenarios	Rainfall Recurrence Intervals		
	10-year	50-year	100-year
current	60 (0.06%)	151 (0.16%)	444 (0.47%)
CanESM2- RCP 4.5	105 (0.11%)	443 (0.47%)	698 (0.73%)
HadGEM- RCP 4.5	63 (0.07%)	366 (0.38%)	492 (0.52%)
CanESM2- RCP 8.5	254 (0.27%)	729 (0.77%)	1104 (1.16%)
HadGEM- RCP 4.5	211 (0.22%)	887 (0.93%)	1391 (1.46%)

The spatial distribution of the vulnerable hotspots changes from current to future conditions (Figure 11). Currently, nearly all Caltrans districts have vulnerable roadways which are both critical in the network and are exposed to *extreme high* post-fire debris flow. It's especially problematic in district 2 and 7 which have a large concentration of hotspots. It's worth noting that in future scenarios, more vulnerable roadway hotspots are anticipated to appear in southern California and Caltrans districts along the west coast. This could signal a shift in the distribution of roadway impacts from post-fire flows, warranting consideration of how resources are invested.

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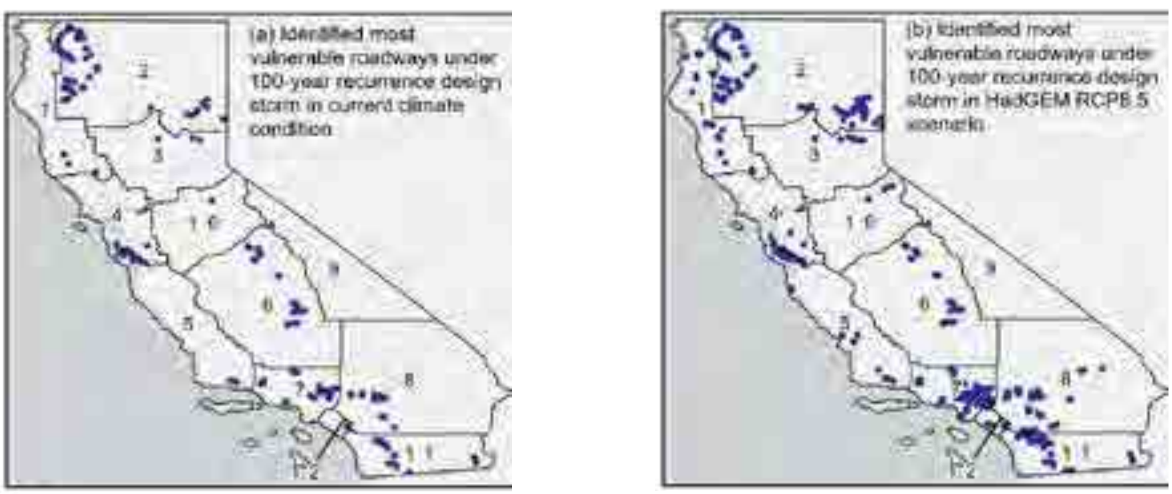

Figure 11. Most Vulnerable Roadways Under Current and Future (HadGEM RCP 8.5) Scenarios.

As climate change effects the future fire burn area and precipitation heterogeneously, the vulnerability profile of Caltrans districts changes. For comparison, Table 5 shows the ranking of the vulnerability of Caltrans districts based on the number of hotspots in each region. Across Caltrans regions, district 3 and 9 are ranked as the least vulnerable, while district 7 is expected to have the most perturbations in both current and future scenarios. Most of the districts have vulnerability profile shifts between different climate scenarios. District 8 is anticipated to have an increase in its vulnerability ranking. Relatively speaking, the risk ranking of district 2, 4, and 6 is expected to decrease. It is not that roads would become safer in these districts but that the roads in other districts would become riskier.

Table 5. Post-fire Debris Flow Vulnerability Ranking by Caltrans District

Vulnerability Ranking	Climate Scenarios				
	Current	CanESM - RCP 4.5	CanESM - RCP 8.5	HadGEM - RCP 4.5	HadGEM - RCP 8.5
1	District 7	District 7	District 7	District 7	District 7
2	District 2	District 2	District 11	District 2	District 8
3	District 11	District 11	District 2	District 8	District 11
4	District 6	District 6	District 8	District 11	District 2
5	District 8	District 8	District 6	District 12	District 6
6	District 12	District 1	District 5	District 6	District 5
7	District 4,5	District 4	District 10	District 1	District 12
8		District 5, 10	District 12	District 5	District 1
9	District 10		District 4	District 4	District 4
10	District 1	District 3	District 1	District 10	District 10
11	District 3,9	District 9	District 3	District 3,9	District 3
12		District 12	District 9		District 9

P-13.7 (cont.)

Discussion

Policy Implications

Post-fire debris flows can produce massive damages to infrastructures and paralyze post-disaster rescue. The results can assist stakeholders in identifying watersheds where post-fire debris flow is likely to occur, and roadways which are vulnerable to post-fire debris flow risk under both present and future climate change scenarios.

The result shows that more roadways would have *high* post-fire debris-flow risk under 50 to 100-year recurrence interval precipitation events. For instance, in the current climate situation, 0.14% of roads are characterized as *extreme high* post-fire debris flow threat when the burned area experiences a short recurrence interval design storm (10-year). Meanwhile, under a 100-year recurrence design storm, 4% of the roadways currently have *extreme high* debris-flow potential. In the future, 5% (HadGEM RCP 4.5) to 15% (HadGEM RCP 8.5) of roads would be exposed to *extremely high* debris-flow likelihood. The trend that post-fire debris flow is more related to longer recurrence precipitation events corresponds with the finding by Cannon et al. (2010).

Under current climate conditions, the result shows that roadways with *extremely high* post-fire debris flow likelihood are concentrated near high fire-threat areas, particularly in Caltrans districts 1, 2, 7, 6, and 11. Some of the identified *extremely high* risk roadways are consistent with recent events, such as debris flows in and near burned scars of the Thomas (Kean et al., 2019) San Bernardino, and Camp (Kean et al., 2011) fires.

The results characterize both roadway debris flow likelihood and roadway vulnerability. The number of most vulnerable roads is less than the number of *extremely high* risk roads. This is because both the roadway's post-fire debris flow risk as well as its network criticality are used when evaluating the roadway vulnerability. Corridors with high post-fire debris flow risk but low network centrality are deemed less vulnerable. Considering the network centrality of infrastructure in risk assessment could help stakeholders to prioritize their resources.

P-13.7 (cont.)

More vulnerable roadways, especially in current problematic regions, can be expected to also be vulnerable in the future. This is largely due to future regional precipitation intensity and wildfire burn area size. Specifically, within the two emission scenarios, more roadways would have *extremely high* post-fire debris flow potential in the high emission scenario (RCP 8.5) than the mild emission scenario (RCP 4.5). Meanwhile, results from the climate models indicate the potential range of hazardous roadways under each emission scenario. In RCP 4.5 scenario, 0.52% to 0.73% of the roadways are *highly* vulnerable, while in the RCP 8.5 scenario, 1.16% to 1.46% of the roadways are *highly* vulnerable. Comparing to the current climate situation, a 75% to 213% increase in the number of vulnerable roadways is simulated into the future.

In each Caltrans district, roadway post-fire debris flow vulnerability profiles change over time. Under current climate conditions, it is estimated that Caltrans districts 7, 2, and 11 rank as the top three regions with most of the vulnerable roads. Under the future climate scenario, district 8 is expected to have more vulnerable roads.

Limitations

The limitations of this study come from the model assumptions and the fact that some key datasets are unavailable. This study assumes that roadway post-fire debris flow happens at the intersection of the corridor and streamflow, and the likelihood of roadway debris flow equals the watershed's debris flow potential. While this assumption compensates for the computational challenges of using fine scale watersheds, as in Fraser et al.'s (2020) method, it overlooks roadways located in low risk watersheds, but with upstream basins that have high post-fire debris flow potentials. Introducing the debris flow volume (Gartner et al., 2014) into the post-fire debris flow risk assessment could address this problem. Another model limitation is that two empirical models from different researchers were used in the post-fire debris flow calculation. The reason for doing so was the lack of historical vegetation burned severity data to simulate the dNBR prior to wildfires, in Northern California. This problem could be solved by carrying out the statistical analysis of the dNBR distribution for each vegetation type in Northern California (Staley et al., 2018).

The data limitations include the simplification of infrastructure datasets, and the lack of climate change projects for other parameters. Only divided highways, arterials, and parts of non-major routes are considered in this study. For the future climate scenarios, only fire burned area and precipitations are expected to be affected by climate change, while vegetation type, and roadway networks, are assumed to remain the same.

Resilience Strategies

The findings have broad implications for how California approaches resilience of roadways to post-wildfire debris flows. As California and other communities develop strategies for preparing infrastructure for climate change, they must confront a concurrent set of challenges that affect their ability to deploy solutions (Chester et al., 2019a). This includes limited (and possibly insufficient) funding, large uncertainty about where and how climate impacts will manifest, and limited insights into the radically changing landscape for how we demand transportation services. These forces are emerging and appear to contradict state-of-the-art design and operation principles of infrastructure which remain rooted in certainty and intentionally long design lifetimes. In an uncertain future, rigidity of systems and an emphasis on predictability, are potentially problematic (Chester et al., 2019b) .Reconciling future conditions with current with an emphasis on how infrastructure is designed and operated is paramount to resilience for adaptation (Chester et al., 2020).

Resilience in transportation has often emphasized approaches rooted in armoring, strengthening, and armoring, and these may be sufficient at some scale but likely fall short as systemic solutions (Markolf et al., 2018). Traditional approaches for protecting infrastructure from hazards focus on controlling or holding back the hazard. Stormwater systems channelize or pipe away intruding flows up to a particular intensity, and retaining walls push back intruding land. Much of our engineered infrastructure is designed to control or push back the environment (Chester et al., 2019c), and the uncertainty inherent in climate change raises serious questions about the efficacy of this approach into the future. To what future intensity event should roadways be able to withstand given the uncertainty in climate futures? Can California afford to upgrade roadway assets to be able to withstand a chosen intensity? Would upgrading assets result in infrastructure that is unacceptably intrusive to communities (e.g., a massive open culvert that bisects a neighborhood)? Given that infrastructure design may scale non-linearly with changes in the hazard, these questions raise serious barriers to the implementation of present day state-of-the-art thinking. As such, California should deploy a multi-tiered strategy to addressing post-fire debris flow roadway adaptation. Hardening assets (through armoring or strengthening) has its place, most likely at the asset level, but

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systemic strategies are also needed that consider failure as inevitable and alternative means for satisfying function (Markolf et al., 2018) . First, California should consider how mobility and accessibility can be extended in the face of surprise. Instead of simply focusing on hardening the roadway system in anticipation of a particular intensity event, California should also create conditions for mobility and accessibility needs to be met when the system is overwhelmed. Put simply, California should view the transportation network through a lens of it being capable to adapt to handle surprise. This might include shifting from physical to virtual connectivity through investments in high bandwidth cybertechnologies, or rapid and large-scale mode shifting as particular assets go offline. Given the long lifetimes of the infrastructure and organizations that manage them, California should also begin to consider the conditions necessary for sustained adaptation, i.e., the expected rapid change in how we demand and supply services, into the future (Chester et al., 2019b). The coming century is expected to be characterized by change at rates and scales that California, or anywhere else, has never experienced (Steffen et al., 2015). To assume that the technologies and processes that supply transportation services, and the ways in which we demand transportation services will remain similar to today, or even predictable, is problematic. Instead, California must recognize that the transportation system, the technologies that define it, and what we ask of it, is going to change more and more rapidly into the future, and combined with the uncertainty of climate hazards, warrants approaches committed to sustained adaptability. Sustained adaptability is the commitment to perpetual change, the perpetual reassessment of the conditions, hazards, needs, and technologies that form the foundation for how we design our systems (Woods, 2015). California should recognize that the changing conditions in environment (climate and otherwise) represent a fundamental challenge to rigid design approaches. Instead, they should embrace agility and flexibility in how they design, operate, and govern their transportation systems (Chester et al., 2019b) . They should establish processes and governance models that commit to reassessment of the conditions and needs that surround infrastructure, and a willingness to change systems rapidly as the environment changes. This is many ways is counter to the models of infrastructure design today (Chester et al., 2019a).

Focusing back on climate change, its critical to recognize that that there is inherent complexity in the confluence of several uncertainties in infrastructure design. Upgrading roadway infrastructure writ-large across California to be able to better manage future post-fire debris flows is a very long undertaking and a massive financial commitment. Any strategy that can prioritize limited resource investments will be critical. Infrastructure exist at the confluence of past and future uncertainty (Chester et al., 2020) The majority of California's infrastructure was built in the past century. Environmental sensor networks that detect, e.g., precipitation events, were deployed beginning in middle of the twentieth century. When infrastructures were built in the middle of the twentieth century their designs were informed by relatively limited data streams as sensor networks were in their infancy. As such there may have been significant uncertainty around the frequency and intensity of local events. Guidelines that specified return periods by which to design infrastructure assets (e.g., a 50-year event) may have over- or under-estimated these critical events, leading to assets that were over- and under-designed. While under-designed assets likely experienced problems that were corrected over the past decades, this may not have been universally true, and over-designed assets also exist. Today, climate change represents an additional layer of uncertainty, where conditions in some regions worsen and other regions get better. The confluence of these uncertainties can be characterized by four domains that can aid decisionmakers to surgically invest limited resources (Figure 12) (Chester et al., 2020). In the Severe Domain, infrastructure have experienced conditions that surpass their design, and climate change is expected to worsen the severity. Here, a roadway was designed to withstand a low intensity post-fire flow, flows turned out to be more intense, and climate change is expected to make those flows worse. Roadways in the Severe Domain should be the top priority. At the other end of the spectrum is the Guarded Domain where roadways were overdesigned for what they were actually experience and climate change is expected to lessen the hazard. These are the lowest priority assets. The most difficult, and troubling assets are

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found in the Elevated Domains, where either the asset is experiencing conditions i) *less severe* than what they were designed for and climate change is *worsening* the hazard, or ii) *more severe* than what they were designed for and climate change is *weakening* the hazard. These domains are problematic because they do not provide a clear picture of robustness of the asset to future climate. Assets in these domains require new knowledge and insights to be able to make decisions for their future. As California looks to prepare their roadways against post-fire debris flows, taking stock of past design conditions relative to future climate becomes critically important for how to prioritize investments.

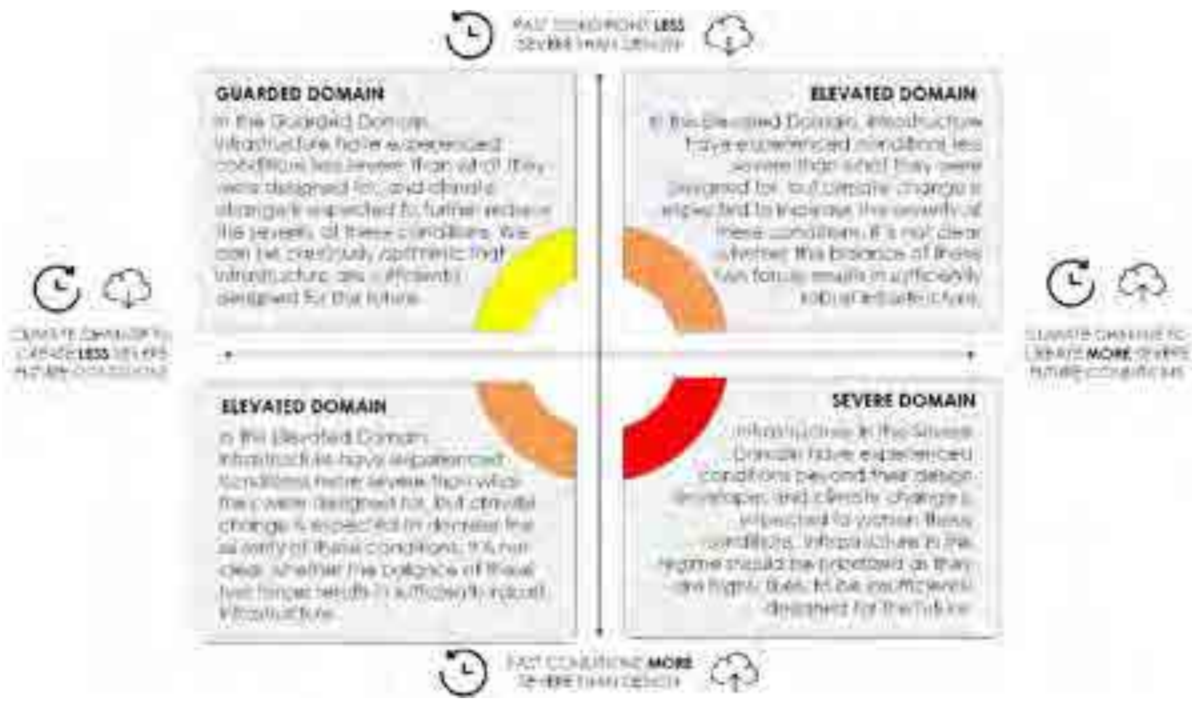

Figure 12: Domains of Past and Future Climate Uncertainty in Infrastructure Design. *[Reprinted from Chester et al. 2020]*

Given the uncertainties with future climate, the massive investments required to adapt infrastructure, and the long lifetimes of assets, California should consider safe-to-fail strategies. Infrastructure have and continue to be designed as fail-safe, i.e, they are designed to withstand a particular intensity shock, and when failure happens generally the impacts are externalized. Safe-to-fail is a resilience framework that calls for the internalizing of the impacts of failure into the design process, towards minimizing and better managing failure consequences (Kim et al., 2017). Infrastructure failure under climate change may be inevitable, and as such planning for its eventuality is prudent. In planning for failure California will rethink how failures occur and will likely identify novel ways of avoiding or compensating for that failure. For example, given the remoteness and low use of some post-fire flow vulnerable roads, the state may choose to allow for those roads to fail instead of investing in keeping them functional when impacted. However, when examining what it means for those roads to fail – certain services being inaccessible – California may identify alternatives to those services (i.e., graceful extensibility) that may be cheaper than traditional robustness-centric approaches (Kim et al., 2017; Woods, 2015). Safe-to-fail is not about

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uncontrolled failure, but more so the acceptance that failure is inevitable and should always be planned for in design.

Adapting California roadways to future post-fire debris flows will likely requiring extensive planning and novel investment strategies for the diverse conditions and needs of the state. A one size fits all approach may not be prudent; what works in the Mojave desert may be fundamentally different than the forested High Sierra. Adaptation strategies should embrace agility and flexibility, that diverse and rapidly changing conditions are not conducive to rigid and single vision strategies (Chester et al., 2019b). Preparing roadways for future post-fire debris flows will require new outlooks, financing, and possibly governance models that embrace agility and flexibility.

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Appendix A

Burn severity map derived from the fire threat map.

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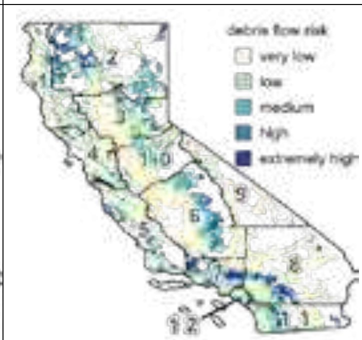
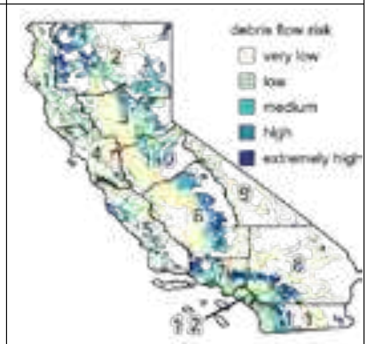
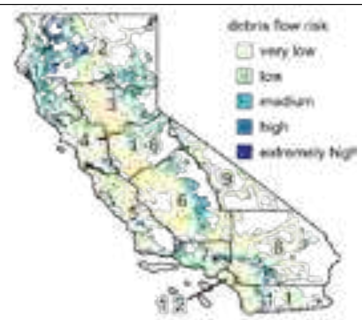
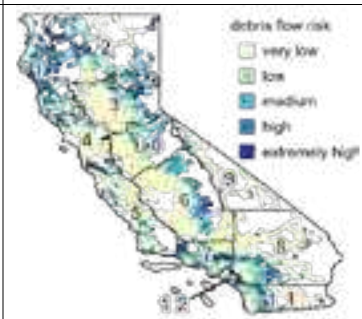
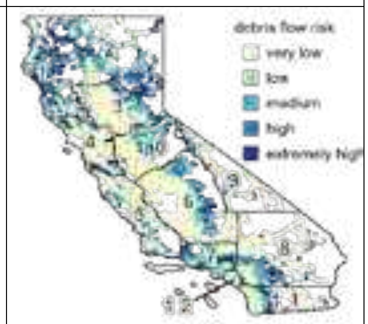
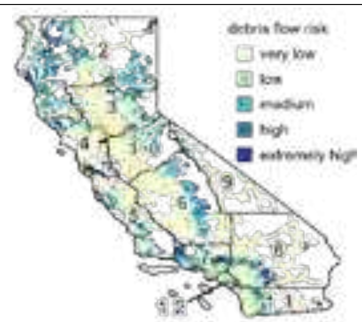
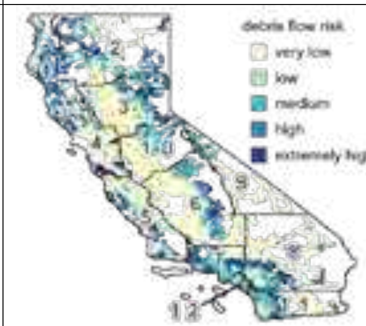
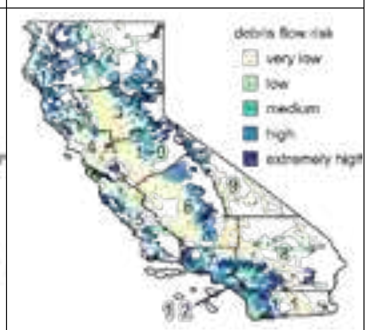
Appendix B

Watershed post-fire debris flow risk.

	10-year recurrence	50-year recurrence	100-year recurrence
Current			
CanESM-RCP 4.5			
CanESM-RCP 8.5			

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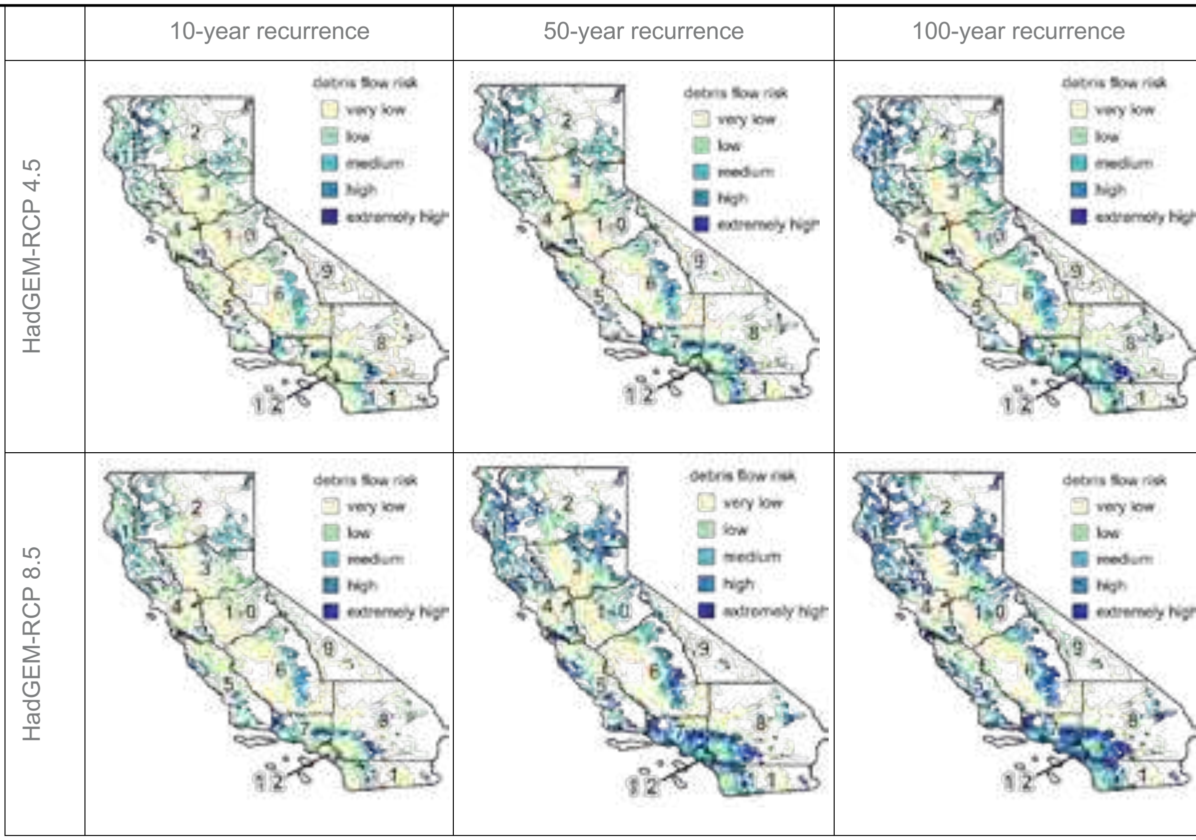

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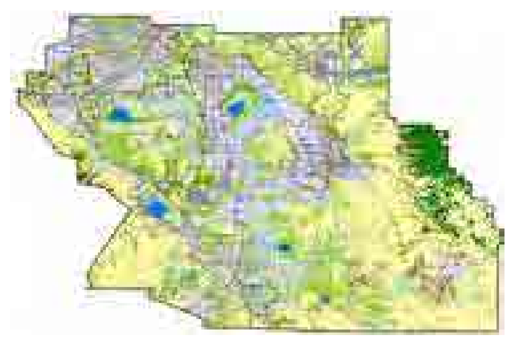
Western Riverside County
Multiple Species Habitat Conservation Plan

Permittee Implementation Guidance Manual



August 2007

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LIST OF ACRONYMS

APN	Assessor's Parcel Number
BMPs	Best management practices
CASSA	Criteria Area Species Survey Area
CDFG	California Department of Fish and Game
DBESP	Determination of Biologically Equivalent or Superior Preservation
ERP	Expedited Review Provision
GIS	Geographic information system
GPS	Global positioning system
HANS	Habitat Acquisition and Negotiation Strategy
IA	Implementing Agreement
JPA	Joint Powers Authority
MBTA	Migratory Bird Treaty Act
MSHCP	Multiple Species Habitat Conservation Plan
NCCP	Natural Community Conservation Planning Act
NEPSSA	Narrow Endemic Plant Species Survey Area
OHV	Off-highway vehicle
PQP	Public/Quasi-Public
RCA	Regional Conservation Authority
RCHCA	Riverside County Habitat Conservation Agency
RMOC	Reserve Management Oversight Committee
USFWS	United States Fish and Wildlife Service

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SECTION 1

INTRODUCTION

1.1 PREAMBLE

This manual is intended to be used by Western Riverside County Multiple Species Habitat Conservation Plan (MSHCP) Permittees to better understand the requirements for Plan implementation. Permittee planning staff should use this manual to properly apply MSHCP requirements throughout the planning process.

1.2 THE MSHCP

The County of Riverside Board of Supervisors approved the Draft Western Riverside County MSHCP on June 23, 2003. Each of the 14 cities within western Riverside County subsequently approved this document over the following several months. The U.S. Fish and Wildlife Service (USFWS) and the California Department of Fish and Game (CDFG) issued "take" permits to the County, 14 cities, and other agencies (the "Permittees") in June 2004, per the federal Endangered Species Act (16 U.S.C. 1531 et seq.) Section 10(a)(1)(b) and California Natural Community Conservation Planning Act (NCCP) (California Fish and Game Code, Section 2800 et seq.), respectively. The granting of take permits in effect "transferred" the obligation of endangered species land use and conservation planning from federal and state agencies to local authorities. The MSHCP serves as the guiding document for implementation of the conservation goals and objectives and of associated land use planning parameters now required of local Permittees.

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The Western Riverside County Regional Conservation Authority (RCA) is a Joint Powers Authority (JPA) that was established to oversee implementation of the MSHCP. One of the RCA's obligations under the MSHCP is to assist the Permittees with MSHCP implementation. Therefore, the RCA has prepared this Implementation Guidance Manual to assist with interpretation and clarification of key components and concepts of the MSHCP related to public facility project and local land use planning.

1.3 MANUAL DEVELOPMENT/UPDATE PROCESS

As MSHCP implementation occurs, issues, questions, and clarifications will arise, and general agency information, policies, and procedures will be modified over time. This manual is, therefore, a living document. The RCA is the author of the manual and will remain the clearinghouse for updates and revisions. An MSHCP contact person has been designated for each Permittee. On a periodic basis, each Permittee's contact will be sent an update packet, complete with slip pages and manual modification instructions. Please see Appendix A for the RCA's current Implementation and Guidance Manual contact.

SECTION 2

IMPLEMENTATION ROLES

2.1 INTRODUCTION

Successful implementation of the MSHCP requires both a local administrative structure and effective coordination with state and federal partners. Implementation will include executing, monitoring, and reporting coordinated MSHCP Reserve Assembly activities; accumulating and distributing funds; managing and monitoring MSHCP Conservation Area lands; and ensuring Permittee compliance with the MSHCP. Toward that end, the MSHCP sets forth a “Cooperative Organizational Structure” that aims to facilitate cooperation among the Permittees and the Wildlife Agencies and ensures that MSHCP conservation area management and monitoring will be consistent across jurisdictional boundaries. The Cooperative Organizational Structure also creates roles and responsibilities for elected officials. It should be noted that this Cooperative Organizational Structure does not supersede, limit, or otherwise negate the responsibilities assumed by the parties as set forth in the MSHCP and associated Implementing Agreement (IA).

2.2 REGIONAL CONSERVATION AUTHORITY

The Western Riverside County RCA is a JPA that was established to oversee implementation of the MSHCP. The RCA’s responsibilities are spelled out in detail in Section 6.6.2 of the MSHCP. Duties of the RCA include:

P-13.7 (cont.)

- Land acquisition/donation/fee title or conservation easement dedication management and administration
- Land management
- Biological resource monitoring in the MSHCP preserve
- MSHCP mitigation fee collection and management.

The RCA will also:

- Administer the agency budget and funding strategies
- Review the development of covered activity projects within the MSHCP criteria cells
- Assume duties and responsibilities of the Riverside County Habitat Conservation Agency (RCHCA) pursuant to the Long-Term Stephens’ Kangaroo Rat Habitat Conservation Plan, as appropriate
- Convey take authority to entities, utilizing the Participating Special Entity provision in the Plan
- Administer the operation of boards and committees set up by the MSHCP
- Serve as custodian of records related to MSHCP implementation
- Oversee and monitor MSHCP clerical changes, amendments, and criteria refinements
- Assist with resolving implementation questions, concerns, or disputes.

A complete list of RCA staff members and their associated roles is included in Appendix A.

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2.3 PERMITTEES

The Permittees include the County of Riverside, the 14 cities within the Plan Area (Beaumont, Banning, Calimesa, Corona, Canyon Lake, Hemet, Lake Elsinore, Moreno Valley, Murrieta, Norco, Perris, Riverside, San Jacinto, and Temecula), the Riverside County Flood Control and Water Conservation District, the Riverside County Parks and Open Space District, Riverside County Waste Management, the Riverside County Transportation Commission, California State Parks, Caltrans, and the RCA. Specific obligations of each Permittee (as spelled out in the MSHCP and the IA) are described below.

COUNTY OF RIVERSIDE AND CITIES. As described in Section 13.2 of the IA, the County and Cities are obligated to be active participants in the MSHCP implementation process. A summary of the obligations specific to local implementation includes:

- Adopt and maintain an ordinance or resolution and amend their General Plans as appropriate to implement the requirements of the MSHCP for public and private development projects
- Participate in MSHCP governance, including providing representation on the RCA Board of Directors and Reserve Management Oversight Committee
- Collect the Local Development Mitigation Fee or other relevant fees
- Comply with the Habitat Acquisition and Negotiation Strategy (HANS) process as described in the MSHCP to ensure that local obligations are met for the Reserve Assembly
- Comply with "Other Plan Requirements," including Section 6.1.2 (Riparian/Riverine and Fairy Shrimp Habitat), Section 6.1.3 (Narrow Endemic Plants), Section 6.3.2 (Criteria Area Survey Species), and Section 6.1.4 (Urban/Wildlands Interface Guidelines) **P-13.7 (cont.)**
- Comply with Section 7.0 (siting and design guidance and Best Management Practices (BMPs) for covered activities)
- Transmit project information to the RCA for JPR of all projects within criteria cells and comply with the JPR process (Meet and Confer/Elected Official's Ad Hoc Committee processes, as appropriate)
- Take necessary and appropriate actions, following applicable land use permit enforcement procedures and practices, to enforce the terms of project approvals for public and private projects, including compliance with the MSHCP, the MSHCP Permits, and the IA.

A complete list of Permittee staff member contacts is included in Appendix A.

RIVERSIDE COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT. As described in Section 13.4 of the IA, the Riverside County Flood Control and Water Conservation District is obligated to be an active participant in the MSHCP implementation process. A summary of the obligations specific to implementation includes:

- Adopt and maintain resolutions as necessary to implement the requirements and to fulfill the purposes of the Permits, the MSHCP, and the IA for covered activities. Such requirements include compliance with: (1) the policies for the protection of species associated with riparian/riverine areas and vernal pools as set forth in Section 6.1.2 of the MSHCP, (2) the policies for the protection of narrow endemic plant species as set forth in Section 6.1.3 of the

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MSHCP, (3) the requirements of Section 7.3.7 of the MSHCP, (4) the urban/wildlands interface guidelines as set forth in Section 6.1.4 of the MSHCP, and (5) the BMPs and the siting and design criteria as set forth in Section 7.0 and Appendix C of the MSHCP. The requirements also include conducting surveys as set forth in Section 6.3.2 of the MSHCP.

- Contribute mitigation through payment of 3% of total capital costs for a covered activity. Such payment may be offset through acquisition of replacement habitat or creation of new habitat for the benefit of covered species, as appropriate. Such mitigation shall be implemented prior to impacts to covered species and their habitats.
- Manage land owned or leased within the MSHCP Conservation Area that has been set aside for conservation purposes pursuant to a management agreement to be executed between Riverside County Flood Control and CDFG.
- Participate as a member of the Reserve Management Oversight Committee (RMOC).
- Carry out all other requirements of the MSHCP, the MSHCP permits, and the IA.

RIVERSIDE COUNTY PARKS AND OPEN SPACE DISTRICT. As described in Section 13.5 of the IA, the Riverside County Parks and Open Space District is obligated to be an active participant in the MSHCP implementation process. A summary of the obligations specific to implementation includes:

- Adopt and maintain resolutions as necessary to implement the requirements and fulfill the purposes of the Permits, the MSHCP, and the IA for covered activities. Such requirements include compliance with: (1) the policies for the protection of species associated with riparian/riverine areas and vernal pools as set forth in Section 6.1.2 of the MSHCP, (2) the policies for the protection of narrow endemic plant species as set forth in Section 6.1.3 of the MSHCP, (3) the urban/wildlands interface guidelines as set forth in Section 6.1.4 of the MSHCP, and (4) the BMPs and all other requirements of Section 7.0 and Appendix C of the MSHCP. The requirements also include conducting surveys as set forth in Section 6.3.2 of the MSHCP.
- Contribute to Plan implementation and the Reserve Assembly as determined by County Parks for covered activities, including one or both of the following: (1) acquisition of replacement habitat at a 1:1 ratio that is biologically equivalent or superior to the property being disturbed or (2) payment of Local Development Mitigation Fees as established by the County for commercial and industrial development. Such contribution shall occur prior to impacts to covered species and their habitats.
- Manage and monitor land owned or leased within the MSHCP conservation area that has been set aside for conservation purposes pursuant to Section 5.0 of the MSHCP; funding for such management and monitoring shall be provided pursuant to Section 8.0 of the MSHCP.
- Carry out all other requirements of the MSHCP, the MSHCP permits, and the IA.
- Participate as a member of the RMOC.

P-13.7 (cont.)

RIVERSIDE COUNTY WASTE MANAGEMENT. As indicated in Section 13.6 of the IA, Riverside County Waste Management must:

- Adopt and maintain resolutions as necessary to implement the requirements and fulfill the purposes of the Permits, the MSHCP, and the IA for covered activities. Such requirements

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include: (1) contribution of landfill tipping fees as set forth in Section 8.5 of the MSHCP, (2) compliance with the policies for the protection of species associated with riparian/riverine areas and vernal pools as set forth in Section 6.1.2 of the MSHCP, (3) compliance with the policies for the protection of narrow endemic plant species as set forth in Section 6.1.3 of the MSHCP, (4) conducting surveys as set forth in Section 6.3.2 of the MSHCP, (5) compliance with the urban/wildlands interface guidelines as set forth in Section 6.1.4 of the MSHCP, and (6) compliance with the BMPs and all other requirements of Section 7.0 and Appendix C of the MSHCP.

- Manage land owned within the MSHCP conservation area that has been set aside for conservation purposes pursuant to Section 5.0 of the MSHCP; funding for such management shall be provided pursuant to Section 8.0 of the MSHCP.
- Carry out all other requirements of the MSHCP, the MSHCP Permits, and the IA.

RIVERSIDE COUNTY TRANSPORTATION COMMISSION. As indicated in Section 13.7 of the IA, the Riverside County Transportation Commission is obligated to:

- Adopt and maintain ordinances or resolutions as necessary to implement the requirements and fulfill the purposes of the Permits, the MSHCP, and the IA for covered activities. Such requirements include compliance with: (1) the policies for the protection of species associated with riparian/riverine areas and vernal pools as set forth in Section 6.1.2 of the MSHCP, (2) the policies for the protection of narrow endemic plant species as set forth in Section 6.1.3 of the MSHCP, (3) the urban/wildlands interface guidelines as set forth in Section 6.1.4 of the MSHCP, and (4) the BMPs and the siting and design criteria as set forth in Section 7.0 and Appendix C of the MSHCP. The requirements also include conducting surveys as set forth in Section 6.3.2 of the MSHCP. **P-13.7 (cont.)**
- Contribute mitigation in the amount of $153 million from Measure "A" funds for covered activities as described in Section 8.5.1 of the MSHCP. Such contribution shall occur proportionately prior to impacts to covered species or their habitats.
- Carry out all other requirements of the MSHCP, the MSHCP permits, and the IA.

CALTRANS. As indicated in Section 13.8 of the IA, Caltrans' obligation under the MSHCP is to:

- Implement the necessary requirements to fulfill the purposes of the Permits, the MSHCP, and the IA for covered activities. Such requirements include compliance with: (1) the policies for the protection of species associated with riparian/riverine areas and vernal pools as set forth in Section 6.1.2 of the MSHCP, (2) the policies for the protection of narrow endemic plant species as set forth in Section 6.1.3 of the MSHCP, (3) the urban/wildlands interface guidelines as set forth in Section 6.1.4 of the MSHCP, and (4) the BMPs and the siting and design criteria as set forth in Section 7.0 and Appendix C of the MSHCP. The requirements also include conducting surveys as set forth in Section 6.3.2 of the MSHCP.
- Contribute to the assembly of the Additional Reserve Lands through acquisition of two Conservation Land Areas pursuant to Section 8.4.4 of the MSHCP within the first 8 years of the Permits: one area of approximately 2,000 acres in the eastern portion of the Criteria Area, and one of approximately 1,000 acres in the western portion of the Criteria Area. These areas shall, if at

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all feasible, be acquired in close proximity to new highway projects, improvement projects for existing highways, or wildlife movement corridors. The precise locations of the Conservation Land shall be determined in consultation with the Wildlife Agencies. The funds utilized by Caltrans for the acquisition of the Conservation Land will be funded by the State Transportation Improvement Program.

- Transfer and fund three positions within CDFG for the management and monitoring of Additional Reserve Lands. Two positions would be assigned primarily to management and one position to biological monitoring. Caltrans would be required to enter into an interagency agreement with CDFG within 180 days of Permit issuance and prior to any take associated with Caltrans covered activities. As an alternative, Caltrans may establish an endowment account pursuant to Section 8.4.4 of the MSHCP.
- Enter into a conservation banking agreement with the Wildlife Agencies within 12 months of issuance of the Permits. Such an agreement will provide appropriate assurances to Caltrans regarding any unused mitigation credits for covered activities in the event that the Permits are terminated, revoked, or suspended.
- Carry out all other requirements of the MSHCP, the MSHCP permits, and the IA.

CALIFORNIA STATE PARKS. As outlined in Section 13.9 of the IA, State Parks must do the following per the MSHCP:

- For Non-Off-Highway Vehicle (OHV) activities, implement the necessary requirements to fulfill the purposes of the Permits, the MSHCP, and the IA for covered activities. Such requirements include compliance with: (1) the policies for the protection of species associated with riparian/riverine areas and vernal pools as set forth in Section 6.1.2 of the MSHCP, (2) the policies for the protection of narrow endemic plant species as set forth in Section 6.1.3 of the MSHCP, (3) the urban/wildlands interface guidelines as set forth in Section 6.1.4 of the MSHCP, and (4) the BMPs and the siting and design criteria as set forth in Section 7.0 and Appendix C of the MSHCP. The requirements also include conducting surveys as set forth in Section 6.3.2 of the MSHCP. **P-13.7 (cont.)**
- For OHV activities, and prior to construction of the OHV park, contribute 3,000 acres of Additional Reserve Lands in the Badlands within the criteria area as mitigation for impacts associated with up to 600 acres of active riding areas resulting from the establishment of a State Vehicular Recreational Area in the Badlands. As discussed in Section 7.3.6 of the MSHCP, the actual disturbed active riding area could expand by 100 acres for each additional 500 acres of habitat conserved within the criteria area in the vicinity of the State Vehicular Recreation Area.
- For Non-OHV activities, as set forth in Section 8.4.4 of the MSHCP, State Parks' take authorization for covered activities is contingent on the preparation of unit management plans, which will reflect the scope of work and State Parks' obligation to manage and monitor land within the MSHCP conservation area, pursuant to Section 5.0 of the MSHCP. The unit management plans must be reviewed and approved by the Wildlife Agencies.
- As provided in Sections 5.0 and 8.4.4 of the MSHCP, provide for the management and monitoring of the 3,000 acres of Additional Reserve Lands and any additional mitigation lands as described above. State Parks will perform management and monitoring by: (1) establishing an

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endowment with CDFG to fund two positions for management and monitoring, (2) transferring and funding two positions within CDFG, or (3) dedicating and funding two State Parks positions for management and monitoring. One position will be assigned primarily to management and the other position to the MSHCP biological monitoring team. The estimated annual funding in current dollars for the two positions (salary and benefits for two staff environmental scientists, plus support funds) is $250,000.

- Participate as a member of the RMOC.
- Carry out all other requirements of the MSHCP, the MSHCP Permits, and the IA (including Section 7.3.6 of the MSHCP).

2.4 WILDLIFE AGENCIES

U.S. FISH AND WILDLIFE SERVICE (USFWS). Section 14 of the IA outlines the obligations of the USFWS. Several obligations are unrelated to local MSHCP implementation and are, therefore, excluded from this manual. The USFWS has the following obligations for MSHCP implementation:

- ***Implementation Assistance.*** The USFWS shall provide staff to serve on appropriate committees and shall ensure, to the extent possible, staff participation in discussions and meetings with the other parties to make certain that the implementation of the IA is consistent with findings upon which the Section 10(a) Permit is based. The USFWS shall cooperate with the Permittees in obtaining additional funding from sources, including existing and future state and federal grant programs and existing and future bond issues. **P-13.7 (cont.)**
- ***Section 7 Consultations.*** The USFWS shall process Section 7 consultations in an expedited manner for projects that have been deemed consistent with the Plan following completion of the local MSHCP consistency process.
- ***Migratory Bird Treaty Act.*** The MSHCP take permit constitutes a Special Purpose Permit per the Migratory Bird Treaty Act of 1918 (MBTA) (16 U.S.C. 703 et seq.). The MSHCP requires periodic renewal of the Special Purpose Permit (i.e., renewal depends on full compliance with the MSHCP take permit). If a project is consistent with all provisions of the MSHCP, lawful take of MSHCP covered species or their habitat protected by the MTBA will not result in violation of the MBTA.

CALIFORNIA DEPARTMENT OF FISH AND GAME (CDFG). Section 15 of the IA outlines the obligations of the CDFG. Several obligations are unrelated to local MSHCP implementation and therefore are excluded from this manual. The CDFG has the following obligations for MSHCP implementation:

- ***Implementation Assistance.*** CDFG shall provide staff to serve on appropriate committees and shall ensure that staff are available for informal discussions and meetings with the other Parties to make certain that the implementation of the IA is consistent with, and will not render invalid, any findings upon which the NCCP Permit is based. To the extent consistent with its legal authorities, CDFG shall cooperate with the Permittees in obtaining additional funding from sources including existing and future state and federal grant programs and existing and future bond issues.

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- ***Regulatory Consultations.*** Except as otherwise required by law, CDFG shall not recommend or seek to impose through consultation with other public agencies any mitigation, compensation, or habitat enhancement requirements regarding impacts to covered species that exceed the requirements prescribed in and pursuant to the MSHCP and the IA, including, without limitation, comments offered by CDFG in the context of any California Environmental Quality Act (CEQA) process associated with approvals for covered activities.

2.5 STAKEHOLDER AND ADVISORY BOARDS

The MSHCP's Cooperative Organizational Structure outlined several boards and committees responsible for assisting and/or overseeing the RCA and MSHCP implementation in general. The following sections include a summary of each committee's function, membership, and other general information. Appendix A includes a current list of each committee's membership.

2.5.1 RCA Board of Directors

ROLE. The RCA Board of Directors (RCA Board) is the body of elected officials charged with overseeing operation of the RCA. The RCA Board shall provide the primary policy direction for the implementation of the MSHCP and shall provide opportunities for public participation in the decision-making process.

MEMBERSHIP COMPOSITION. Designated members of the Riverside County Board of Supervisors and an elected official from each of the 14 cities shall comprise the RCA Board. Please see Appendix A for a current list of RCA Board members and associated roles. **P-13.7 (cont.)**

MEMBERSHIP TERM. The MSHCP indicates that RCA Board members may be appointed for a multiple-year term or for multiple terms, as appropriate, given the complexities of the MSHCP.

KEY GUIDELINES. Each member of the RCA Board shall have one vote at meetings. The MSHCP allows the RCA Board to conduct voting based upon a weighted system (similar to that allowed pursuant to Section 130053.7 of the California Public Utilities Code). The MSHCP allows the RCA Board to establish a procedure for the Directors to appoint an alternate member to the Board to represent a regular member of the Board who is absent.

ADMINISTRATION. Meetings of the RCA Board are open to the public. See Appendix A for standing meeting dates, agenda item submittal deadlines, agenda and meeting minute posting guidelines, and RCA staff administrative contact(s).

2.5.2 RCA Executive Committee

ROLE. The Executive Committee shall oversee RCA administrative functions and staff functions; recommend staff positions, job descriptions, and salaries; and consider such other matters as are delegated to it by the RCA Board. It should be noted that this committee was formed by the RCA Board by resolution; its roles, membership composition, and function are, therefore, not outlined in the MSHCP. NOTE: The Executive Committee was formerly titled the Administrative Committee.

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MEMBERSHIP COMPOSITION. The Executive Committee shall be appointed by the Chairperson and ratified by the RCA Board. The Committee shall be composed of seven members, either two or three of whom will represent the County. The Commission's Board Chairperson, Vice Chairperson, and past Chairperson, if any, shall be members of the Committee. Please see Appendix A for a list of current RCA Executive Committee members.

ADMINISTRATION. Meetings of the RCA Executive Committee are open to the public. See Appendix A for standing meeting dates, agenda item submittal deadlines, agenda and meeting minute posting guidelines, and RCA staff administrative contact(s).

2.5.3 Funding Coordination Committee

ROLE. The Funding Coordination Committee shall provide recommendations to the Board on funding priorities and strategies for MSHCP conservation area acquisitions. Additionally, the Committee shall provide a forum to discuss land acquisition priorities of the USFWS and CDFG and acquisitions by other entities using non-local sources of revenue.

MEMBERSHIP COMPOSITION. The Funding Coordination Committee shall be appointed by the RCA Executive Committee members and will consist of representatives from the USFWS, CDFG, and the RCA. The Planning Directors, or designated representatives, shall participate in the Funding Coordination Committee as appropriate. Appendix A provides a current list of Funding Coordination Committee Members.

P-13.7 (cont.)

ADMINISTRATION. Meetings of the Funding Coordination Committee are open to the public. See Appendix A for standing meeting dates, agenda item submittal deadlines, and agenda and meeting minute posting information.

2.5.4 Reserve Management Oversight Committee

ROLE. As outlined in Section 6.6.4 of the MSHCP, the Reserve Management Oversight Committee shall serve as the intermediary between the Reserve Managers and the decision-making function of the RCA.

MEMBERSHIP COMPOSITION. As indicated in Section 6.6.4, the RCA Executive Director shall serve as the chair of the Reserve Management Oversight Committee. The Committee shall consist of at least nine members, including: USFWS, CDFG, the Riverside County Regional Parks and Open Space District, the Bureau of Land Management, the U.S. Forest Service, the California Department of Parks and Recreation, the Riverside County Flood Control and Water Conservation District, the RCA, the County of Riverside, Cities (if applicable), and up to five additional private or public agencies or entities that own or manage land within the MSHCP conservation area appointed by the RCA. Appendix A provides a current list of the Reserve Management Oversight Committee members.

ADMINISTRATION. Meetings of the Reserve Management Oversight Committee are open to the public. See Appendix A for standing meeting dates, agenda item submittal deadlines, and agenda and meeting minute posting guidelines.

2.5.5 Independent Science Advisors

ROLE. As outlined in MSHCP Section 6.6.7, the Independent Science Advisors shall serve at the request of the RCA Executive Director and assist in the MSHCP implementation process, provide recommendations based on the best available scientific information concerning scientific aspects of the Plan, and coordinate with Reserve Managers.

MEMBERSHIP COMPOSITION. Section 6.6.7 indicates that the Independent Science Advisors be appointed by the RCA Executive Director, along with input from the Reserve Management Oversight Committee. The Independent Science Advisors may be independent, associated with educational institutions or public agencies, members of a non-profit organization, or employees of biological science firms. Appendix A provides a current list of the Independent Science Advisors.

ADMINISTRATION. The RCA shall sponsor an annual workshop for the Independent Science Advisors. See Appendix A for standing workshop dates, purpose of the workshop, and RCA staff administrative contact(s).

2.5.6 Stakeholders' Committee

ROLE. This committee shall review implementation plans from a stakeholder perspective and perform such other duties as directed by the RCA Board of Directors. NOTE: The Stakeholders' Committee is referred to as the Implementation and Guidance Committee in the MSHCP.

P-13.7 (cont.)

MEMBERSHIP COMPOSITION. Undefined.

ADMINISTRATION. Meetings of the Stakeholders' Committee are open to the public. See Appendix A for standing meeting dates, agenda item submittal deadlines, and agenda and meeting minute posting guidelines.

2.5.7 Elected Officials' Ad Hoc Committee

ROLE. As outlined in Section 6.6.2E of the MSHCP, the Ad Hoc Committee is responsible for resolving outstanding issues regarding the project's compliance with the MSHCP that the RCA staff and Permittee representatives fail to resolve at the MSHCP Compliance Meet and Confer.

MEMBERSHIP COMPOSITION. The Ad Hoc Committee is made up of elected officials representing the RCA and Permittee. Appendix A provides an outline for selection of the Ad Hoc Committee.

ADMINISTRATION. See Appendix A for committee operation information.

SECTION 3

MSHCP CONSISTENCY DETERMINATION PROCESS

3.1 PERMITTEE IMPLEMENTATION REQUIREMENTS

Successful implementation of the MSHCP requires that Permittees adhere to the guidelines and requirements outlined in the MSHCP and the Implementing Agreement (IA). The following documents or ordinances apply to key implementation components of the MSHCP and are outlined for Permittees' reference.

3.1.1 MSHCP Adoption

Each City adopted an ordinance that officially adopted the MSHCP as a local planning tool/program.

3.1.2 Local Development Mitigation Fee

In order to finance the MSHCP program, each local Permittee (Cities and County) approved an ordinance imposing the Local Development Mitigation Fee. It should be noted that the Local Development Mitigation Fee will be increased on an annual basis in order to keep pace with inflation. Non-local Permittees (such as the Riverside County Transportation Commission, Caltrans, State Parks, the Riverside County Waste Management, and the Riverside County Flood Control and Water Conservation District) and local Permittees' public infrastructure projects are not subject to the Local Development Mitigation Fee, but rather to monetary contributions as described in Section 13 of the IA.

P-13.7 (cont.)

3.1.3 Implementing Agreement/MSHCP Commitment Obligation

Section 13 of the IA indicates that each Permittee is obligated to follow the implementation directives described in the MSHCP. Specific implementation directives include:

HANS PROCESS OBLIGATION. Section 6.1.1 of the MSHCP and Section 13 of the IA state that each local Permittee will utilize the Habitat Acquisition Negotiation Strategy (HANS) process or a similar method to ensure compliance with Reserve Assembly (cell criteria) and "Other Plan Requirements."

3.2 MSHCP CONSISTENCY DETERMINATION PROCESS

The Permittees are obligated to review each private development or discretionary project application and public infrastructure project to determine consistency with the MSHCP, regardless of whether it is located in a criteria cell. Several processes have been outlined in the MSHCP and are further clarified below.

3.2.1 Public Facilities

The development of new public facilities or modifications to existing public facilities (i.e., circulation element roadways) are contemplated as "Covered Activities" in the MSHCP and are described in MSHCP Sections 7.3.4–9. Covered activities receive take authorization through the MSHCP, provided that certain

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specifications, siting and design criteria, and general avoidance guidelines are followed, as outlined in Section 7.0 of the MSHCP. Covered activities contemplated by local Permittees (all Permittees except for State Parks and Caltrans) that are within the criteria area must be reviewed by the Permittee and the RCA through the Joint Project Review process (see outline of JPR process in Section 3.2.3.1). Public facilities would likely fall into one of the four categories listed below. The process appropriate for each category is outlined below.

3.2.1.1 Within Existing Public/Quasi-Public Lands

In the event that a Permittee elects to use property currently depicted as Public/Quasi-Public (PQP) Lands on the MSHCP Plan Map (see Figure 3-1 of the MSHCP) in a way that alters the land use such that it would not contribute to Reserve Assembly (see Section 4.1 of this Implementation Guidance Manual), that Permittee will locate and acquire or otherwise encumber replacement acreage at a minimum ratio of 1:1. The Permittee must make findings that the replacement acreage is biologically equivalent or superior to the existing property, as set forth in Section 6.5 of the MSHCP. This "PQP Trade-Out" process must be approved by the RCA and, once agreed upon by the Permittee and RCA, sent to the Wildlife Agencies for final concurrence. Once all parties agree that the trade-out land is biologically equivalent or superior, the RCA-managed PQP database will be modified to reflect the trade-out and replacement lands. **P-13.7 (cont.)**

3.2.1.2 Within Criteria Area

The MSHCP designates approximately 300,000 acres where the 153,000-acre habitat preserve can be assembled. The MSHCP depicts this 300,000-acre area through "Criteria Cells" (roughly based on U.S. Geological Survey quarter sections). The ultimate MSHCP reserve will be assembled in the "Criteria Area," which is the sum total area of all criteria cells. Because the criteria area is the location of the ultimate MSHCP reserve, additional project review requirements apply (see additional discussion of criteria area requirements in Section 4 of this Implementation Guidance Manual).

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Section 6.6.2E of the MSHCP indicates that in order to assist the local Permittees in meeting the conservation goals of the Plan, local Permittees proposing infrastructure projects that have the potential to affect connectivity of habitat within the criteria area will consult with the RCA at the pre-design stage regarding the size, location, and configuration of wildlife crossings pursuant to the guidelines in Section 7.5.2 of the MSHCP. This will ensure that project designs proceed in concert with MSHCP requirements before extensive financial resources have been spent.

3.2.1.3 Outside Criteria Area

A covered activity that is outside of the criteria area has take authorization for covered species and their associated habitat per the MSHCP. These projects must comply with "Other Plan Requirements" (see Sections 3.2.3.1 and 4 of this Manual), as set forth in the MSHCP. These projects are not required to go through the JPR process. These projects pay a portion of the total capital improvement budget as a Local Mitigation Fee per MSHCP requirements.

3.2.1.4 Non-Permittee Public Projects (Participating Special Entity)

As outlined in Section 11.8 of the IA, any public facility provider (such as a utility company or a public district, including, but not limited to, a school, water, or irrigation district) that operates facilities and/or owns land within the Plan Area (and is therefore referred to as a "Participating Special Entity") may request take authorization for its activities. Such activities must comply with the terms and requirements of the permits, the MSHCP, and the IA in order to take advantage of the Participating Special Entity provision of the MSHCP.

P-13.7 (cont.)

The Participating Special Entity will submit a complete application for the proposed activity to the RCA; the application will contain a detailed description of the proposed activity, a map indicating the location of the proposed activity, an analysis of the project's relationship to the MSHCP in terms of the Reserve Assembly, and the results of survey and mapping as required pursuant to Section 6.3 of the MSHCP (see Section 4 of this Manual for further discussion of the Reserve Assembly and "Other Plan Requirements").

RCA and Wildlife Agency staff will review the application within 30 days of receipt of the complete application. If RCA staff, with the concurrence of the Wildlife Agencies, finds that the proposed activity complies with all terms and

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requirements of the MSHCP, the permits, and the IA, the RCA shall issue a Certificate of Inclusion upon completion or fulfillment of all appropriate requirements, and the proposed activity shall be deemed a covered activity.

In the event the proposed activity crosses the MSHCP Conservation Area, RCA staff must make a finding prior to issuance of a Certificate of Inclusion and supported by adequate evidence that the activity will result in a biologically equivalent or superior alternative to the MSHCP Conservation Area. The Certificate of Inclusion shall depict on an attached map the lands by parcel number, acreage, and owner to which the proposed Take Authorization(s) would apply. In the event that the proposed activity does not comply with the terms and requirements of the permits, the MSHCP, and the IA, and/or compromises the viability of the MSHCP Conservation Area, RCA and Wildlife Agency staff shall meet with Participating Special Entity representatives to attempt to reach a mutually agreeable solution.

Participating Special Entities will also contribute to Plan implementation through payment of a fee based upon the type of proposed activity, which shall be applicable to activities in the Plan Area. For regional utility projects that will be constructed to serve private development, such as major trunk lines, Participating Special Entities will pay a fee in the amount of 5% of total capital costs or take such other actions as may be agreed to by the RCA and the Wildlife Agencies. For such activities that will result in only temporary impacts and disturbance, Participating Special Entities will pay a fee in the amount of 3% of total capital costs or other appropriate measures as may be agreed to by the RCA and the Wildlife Agencies. Public district or agency projects that will be constructed to serve public development, such as new schools and treatment plants, will be designed and implemented pursuant to the criteria as described in Section 3.3 of the MSHCP and all other requirements of the MSHCP, including payment of a fee equivalent to the Local Development Mitigation Fees (utilizing commercial and/or industrial development fee rates). Obligations of this Participating Special Entity provision must be complied with prior to disturbance of any covered species and/or their habitat. **P-13.7 (cont.)**

3.2.2 Single-Family Homes

MSHCP Section 7.3.2 states that development of an individual single-family home or mobile home on an existing legal parcel is a covered activity within the criteria area, in accordance with existing land use regulations. This special provision is referred to as "Expedited Review Provision" (ERP). Specific siting and design measures may apply if the existing lot has sensitive biological resources on site. Siting on an existing lot is determined by factors such as access, topography/terrain, zoning development standards including setbacks, soil types, presence of earthquake fault lines, leach fields, presence of oak trees, and location of lot within a high fire hazard area.

An application for the issuance of (1) a grading permit for an individual single-family home on an existing lot or (2) a site preparation permit for a mobile home on an existing lot within the criteria area is subject to review against the MSHCP conservation criteria, solely in order to determine the location of a building footprint area and any necessary access road(s) on the least sensitive portion of the lot. The Permittee may require that a habitat assessment be prepared to assist in determining the most appropriate location for the area of disturbance and any necessary access road(s). A habitat assessment, for purposes of this single-family home provision, shall include mapping of the vegetation at sufficient detail to identify sensitive areas. Upon completion of the review, the Permittee shall determine the location of the area of disturbance and the location of necessary road(s). Necessary firebreaks must be included within the area of disturbance. The area of disturbance and area of conservation should be mapped either through the Permittee's GIS system or via a hard-copy map that is attached to the grading or site preparation permit. Figure 3-1 represents a sample map delineating the development and no impact areas on an existing lot. The RCA utilizes these maps during preparation of the MSHCP Annual Report.

Figure 3-1: Sample ERP Map

P-13.7
(cont.)

If during the review period it is determined that all or some of the property may benefit assembly of the MSHCP Conservation Area, the Permittee (with assistance from the RCA, as necessary) may negotiate with the property owner to acquire the lot, or a portion thereof, or determine which incentives may apply in order to establish a conservation easement over the property. If upon completion of the project review the Permittee is unable to reach agreement with the property owner concerning the acquisition of the entire lot or a conservation easement over a portion of the lot, the property owner may proceed with the processing of the grading or site preparation permit application in accordance with the Permittee's determination of the least sensitive portion of the lot.

3.2.3 Development Projects

Development projects (i.e., privately sponsored projects seeking approval from a Permittee) can be divided into two categories based on their location within the Plan Area: within the MSHCP Criteria Area and outside of the Criteria Area. The MSHCP consistency process for each scenario is outlined below.

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3.2.3.1 Within Criteria Area

Determining consistency with the MSHCP for projects that are located within the criteria area (i.e., within a criteria cell) consists of analyses relating to two main topics: Reserve Assembly and "Other Plan Requirements."

STEP 1: Project Consistency Analysis of Reserve Assembly

This analysis includes review of the project's relationship on three geographic levels, beginning with the largest and ending with the smallest Reserve design feature. All projects within the criteria area must be reviewed for consistency with the following three reserve units: (1) cores and linkages, (2) Area Plans and subunits, and (3) criteria cells. Assistance with determination of consistency with these three Reserve units is further discussed in Section 4.0 of this Implementation Manual.

The HANS process outlines a methodology for Permittees to utilize in order to negotiate for set-aside or purchase of areas needed for conservation (Reserve Assembly). Permittees may utilize incentives such as density bonuses or waivers of other local impact fees in return for conservation of a portion of a project site deemed important for MSHCP Reserve Assembly.

STEP 2: Project Consistency Analysis of "Other Plan Requirements"

P-13.7 (cont.)

In addition, the project's relationship with Reserve design (cores and linkages, Area Plans and subunits, and criteria cells), must be reviewed to determine consistency with the following MSHCP provisions:

- Section 6.1.2, Riparian/Riverine Requirements
- Section 6.1.3, Narrow Endemic Plant Species Requirements
- Section 6.3.2, Additional Survey Needs and Procedures
- Section 6.1.4, Urban/Wildland Interface Guidelines.

Section 4.0 of this Implementation Manual provides direction and helpful hints for determining consistency with these requirements.

STEP 3: Joint Project Review Process

Once the Permittee has independently reviewed the proposed project and made a determination of consistency/inconsistency with the MSHCP, the project is reviewed by the RCA through the JPR process. The JPR process is described in Section 6.6.2E of the MSHCP. To ensure that the requirements of the

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MSHCP permits, the MSHCP, and the IA are properly adhered to by all Permittees, projects within criteria cells (general area where MSHCP Reserve is to be assembled), shall be reviewed by the RCA (acting as an oversight authority) through the JPR process.

The JPR process is illustrated in Flow Chart 3-1.

JPR PROCESS NOTES/CLARIFICATIONS

JPR Application Materials. A complete JPR package includes the following materials:

- Complete RCA JPR application form (see Appendix C for RCA JPR Application Forms).
- Project description.
- Complete list of APNs.
- Project site plan (including a clear delineation of areas intended for development and conservation, as applicable). A project site plan can include a plot plan or a tentative tract map if the map *clearly* delineates where development and conservation (for purposes of MSHCP Reserve) will be located.
- All biological resource technical reports, studies, or notes that assisted the Permittee with preparing the MSHCP Findings of Consistency/Inconsistency (note that because the RCA does not visit a project site, clear documentation of all biological resources, including maps and associated written analysis of conclusion, is imperative).
- Permittee's MSHCP Consistency/Inconsistency Findings. **P-13.7 (cont.)**

Without the above items, the RCA does not have sufficient information to review the project. If insufficient information is submitted by the Permittee, the project will be placed "on hold", as outlined in Flow Chart 3-1, Step A, until sufficient information is submitted to the RCA.

Determination of Biologically Equivalent or Superior Preservation (DBESP) Review Timeframe. If a project requires a DBESP, the DBESP must be submitted with the JPR application materials for the RCA's review. Although the MSHCP states that the Wildlife Agencies have up to 60 days to review the DBESP, the RCA will complete review of the DBESP within the 14-day JPR review period as outlined in Flow Chart 3-1.

NOTE

See Section 4.1 of this Manual for further discussion of DBESPs.

Project Modifications Post-JPR Finalization. If a project is revised and the revision would have an impact on the conservation assumed in the JPR, the RCA must re-review the project and modify the JPR. For filing and administrative purposes, a new JPR number will be issued to the revised project. The RCA Reviewer will inform the RCA GIS Analyst that the new JPR number supersedes the old JPR in terms of development/conservation land. The RCA Reviewer will indicate that a prior JPR was completed on the project in the JPR log. When projects are revised, the most recent JPR number will always supersede previous JPR numbers in the RCA's database systems. A revised project would receive the same 14-day JPR review period as previously afforded. The process outlined in Flow Chart 3-1 will be followed for revised projects.

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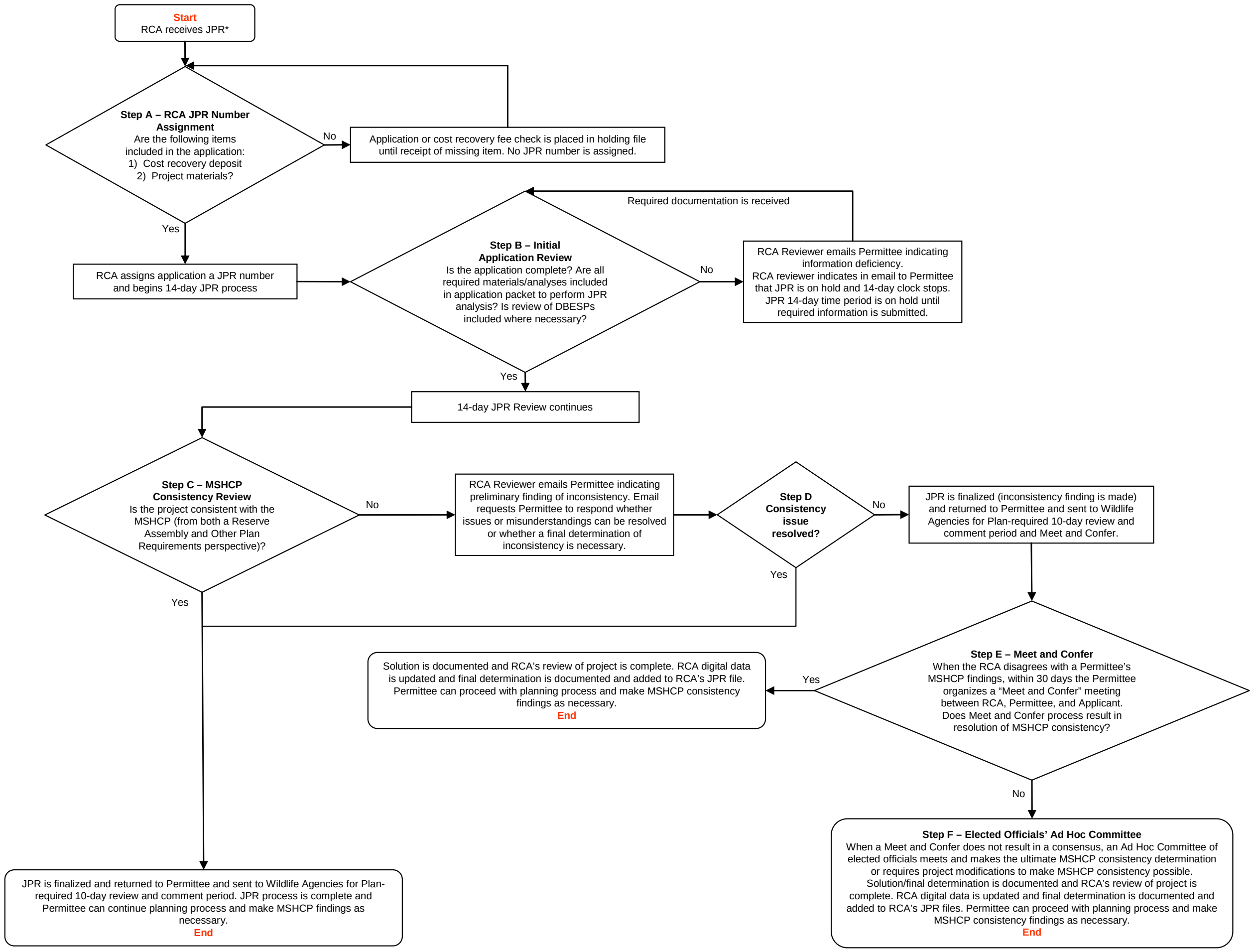
Flow Chart 3-1: JPR Process



* A JPR is required or requested (as outlined in Policy 4.4.1, above) for the project.

P-13.7
(Cont.)

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RCA Correspondence. All Permittee correspondence shall be conducted via written methods as much as possible (i.e., letters or email). A correspondence log shall be included in each JPR file to document all correspondence with the Permittee and others as necessary. If meetings or phone conversations related to the project occur, a summary shall be included in the correspondence log.

RCA Coordination/Correspondence with Applicant/Applicant's Representative. Out of respect for the Permittee's local land use authority, the RCA's interaction with the Applicant or Applicant's Representatives will be limited to Cost Recovery Deposit collection or refund activity. Once the JPR process has officially commenced, coordination and discussion with the Applicant or Applicant's Representative shall be strictly prohibited. If the Applicant or Applicant's representative inquires about a project's JPR status, the RCA Reviewer will send written correspondence indicating status to the Permittee and electronically carbon copy the Applicant or Applicant's Representative.

Meet and Confer Process (Step E in Flow Chart 3-1). If the RCA disagrees with the Permittee's Preliminary MSHCP Findings, a "Meet and Confer" meeting shall be called between the RCA, Permittees, and Applicant no more than 30 days after the RCA returns its MSHCP Consistency Comments. This meeting is a setting for all parties (i.e., RCA, Permittee, and Applicant/Applicant's Representative) to meet and attempt to reach a consensus for MSHCP consistency. Once a consensus is reached, the RCA will prepare MSHCP Comments and return them to the Permittee. If all parties agree that the project is consistent, the Permittee shall proceed with preparing MSHCP Findings for use in the entitlement/approval process.

P-13.7 (cont.)

Elected Officials' Ad Hoc Committee Process (Step F in Flow Chart 3-1). If disagreement regarding a project's consistency with the MSHCP remains after the Meet and Confer Process (outlined above), the project shall proceed to the Elected Officials' Ad Hoc Committee (Ad Hoc Committee). This committee holds a hearing where members of the Ad Hoc Committee determine the ultimate conclusion of a project's consistency with the MSHCP. The Permittee, Applicant, and RCA staff shall attend this meeting and may be called upon to present their respective MSHCP consistency determination. The decision of the Ad Hoc Committee is final; the Permittee's MSHCP Findings must reflect the decision of the Ad Hoc Committee (i.e., a project's ultimate MSHCP consistency determination must reflect the Ad Hoc Committee's ultimate decision). If a meaningful revision to the project is proposed, the project may be resubmitted to the Permittee and repeat the JPR process as outlined in Flow Chart 3-1 in an attempt to reach an alternative to the MSHCP consistency determination made by the Ad Hoc Committee. If the project is not found consistent through the resubmittal process, the findings of the Ad Hoc Committee are final.

STEP 4: Permittee Prepares MSHCP Findings

Once the JPR process is complete, the Permittee may prepare MSHCP Findings for inclusion in final project entitlement or approval documents/staff reports. Findings of MSHCP consistency/inconsistency cannot be made until the JPR process is complete.

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3.2.3.2 Outside Criteria Area

All projects must be reviewed for consistency with the MSHCP on some level. Projects that are located outside of the criteria area are subject to Steps 2 and 4, as outlined in Section 3.2.3.1 of this Manual. Projects that are outside of the criteria area do not need to comply with Step 1 (Reserve Assembly Consistency Determination) or Step 3 (JPR), as JPR only applies to projects within criteria cells. See Section 4.0 of this Manual for further discussion of "Other Plan Requirements" and how to determine if a project is consistent with such requirements. Appendix D includes a sample of MSHCP Findings prepared for a project located outside of the criteria area.

3.3 RELATIONSHIP TO THE STEPHENS' KANGAROO RAT HABITAT CONSERVATION PLAN (HCP)

As outlined in the MSHCP, the conservation provisions and ultimate habitat reserve areas outlined in the 1996 Stephens' Kangaroo Rat HCP stand as written, approved and adopted. The MSHCP provides coverage for the Stephens' kangaroo rat within all remaining areas within the MSHCP Study area that are not outlined in the 1996 Stephens' Kangaroo Rat HCP. Payment of the Stephens' Kangaroo Rat HCP Fee continues to be required.

P-13.7
(cont.)

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SECTION 4

MAKING CONSISTENCY DETERMINATIONS

4.1 BIOLOGICAL CONSISTENCY DETERMINATION TOOLS

This section of the Implementation Manual provides guidance for determining a proposed project's consistency with a range of biological requirements that apply throughout the Plan Area. Within the Plan area, the requirements vary by location. For example, ***all*** projects requiring a discretionary action on the part of a Permittee are subject to the Riparian/Riverine, Vernal Pool and Fairy Shrimp Policy (Section 4.1.1 below), ***some*** projects are subject to specific species survey requirements depending on whether the project is located within the species survey area (Section 4.2 below), and ***some*** projects that are within the Plan Area (i.e. those projects that are located within the MSHCP criteria area) must comply with MSHCP Reserve Assembly requirements (Section 4.4 below). **Every project requiring a discretionary action in Western Riverside County needs to demonstrate Plan compliance. A project's location outside the criteria area does not mean that MSHCP compliance is not necessary.**

Consistency Determinations should be made on all applicable sections of the Plan for all projects. Those MSHCP Sections that pertain to individual project review include:

- Riparian/Riverine, Vernal Pool, and Fairy Shrimp Requirements of the MSHCP (Section 6.1.2)
- Species Survey Requirements (Sections 6.1.3 and 6.3.2 of the MSHCP)
- Reserve Assembly Requirements within the Criteria Area (Section 3 of the MSHCP)
- Delhi Sands Flower-Loving Fly Provisions (Table 9-2 of the MSHCP) *(does not apply to Cities)*
- Urban/Wildlands Interface Guidelines (Section 6.14 of the MSHCP).

P-13.7 (cont.)

Each of these Plan sections has specific requirements that should be followed and documented to demonstrate full compliance. This section of the Implementation Manual includes guidance that the Permittees can follow to ensure compliance with these MSHCP requirements.

4.2 RIPARIAN/RIVERINE, VERNAL POOL, AND FAIRY SHRIMP HABITAT (SECTION 6.1.2 OF THE MSHCP)

Section 6.1.2 of the MSHCP specifies the requirements for protection of species associated with three key resources:

1) Riparian/riverine areas
2) Vernal pools
3) Fairy shrimp habitat.

The protection of these areas applies to the entire MSHCP area and is, therefore, **NOT** limited to the Criteria Area.

Flowchart 4-1 maps the process of making a consistency determination with the MSHCP Riparian/Riverine, Vernal Pool, and Fairy Shrimp procedures. Descriptions of the steps in the flowchart follow.

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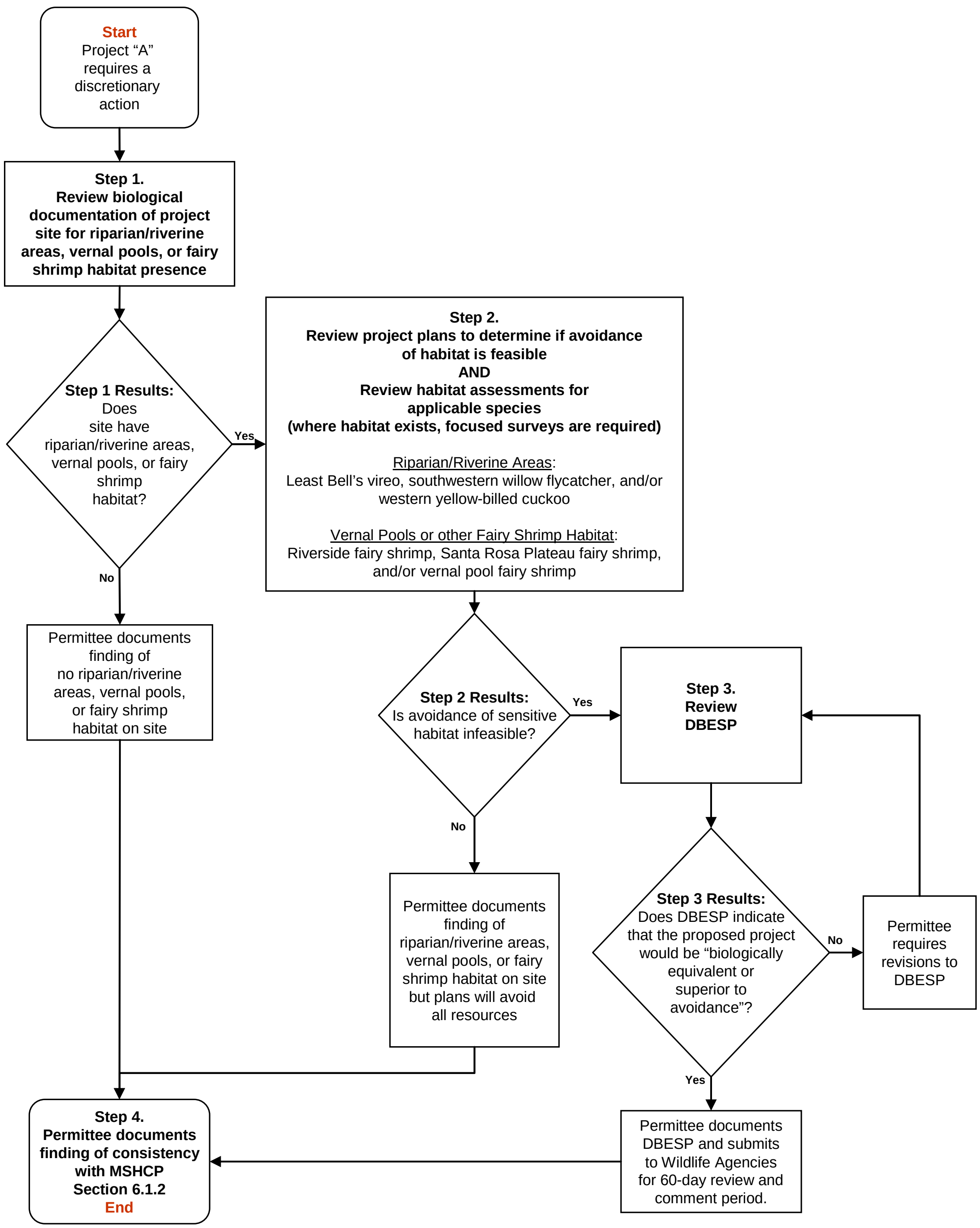
Flowchart 4-1. Process for Consistency Findings with Section 6.1.2, MSHCP Riparian/Riverine, Vernal Pool, and Fairy Shrimp Habitat Guidelines



P-13.7
(cont.)

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STEP 1: Determine if Riparian/Riverine, Vernal Pool, and/or Fairy Shrimp Resources Are Located on Site

Riparian/Riverine Resources

Riparian/riverine resources can include:

- Areas containing riparian vegetation.
- Riverine areas (streams) that do not contain riparian vegetation, but that have water flow for all or a portion of the year, and contain biological functions and values that contribute to downstream habitat values for covered species inside the MSHCP Conservation Area.

NOTE

Riparian/riverine and vernal pool/fairy shrimp habitat requirements apply to the entire MSHCP Area. These requirements are NOT limited to the Criteria Area/ criteria cells. Permittees must ensure that EVERY project is consistent with this policy regardless of its location.

Where the above descriptions apply, an area is **NOT** riparian/ riverine if it is also an:

- Area that was artificially created by human activity.

However, if it is determined to be artificially created by human activity, it **WILL** be considered riparian/riverine subject to MSHCP analysis if it is one of the following:

- Wetlands created to provide wetlands habitat (i.e., mitigation sites)
- Created open waters (i.e., Lake Perris)
- Wetlands created from the alteration of natural stream courses (an example would be a redirected, and/or channeled natural stream) (MSHCP, p. 6-22).

P-13.7 (cont.)

Riparian/Riverine Resources

Lands that contain habitat dominated by trees, shrubs, persistent emergents, or emergent mosses and lichens and that occur close to or depend upon soil moisture from a nearby fresh water source; also, areas with fresh water flow during all or a portion of the year.

Vernal Pools

In order to determine if a site has vernal pools, the site should be evaluated by a qualified biologist familiar with vernal pool characteristics. Vernal pools can be described as**:**

- Seasonal wetlands in depressional areas that during the wet season have three indicators:
  - Soils specific to vernal pools (clay soils)
  - Vernal pool indicator species
  - Hydrology.

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The determination that an area exhibits vernal pool characteristics, and the definition of the watershed supporting vernal pool hydrology, must be made on a case-by-case basis. Such determinations should consider the length of the time the area exhibits upland and wetland characteristics and the manner in which the area fits into the overall ecological system as a wetland. Evidence concerning the persistence of an area's wetness can be obtained from its history, vegetation, soils, and drainage characteristics, uses to which it has been subjected, and weather and hydrologic records.

Because vernal pools normally lack these indicators during the dry season, determination of vernal pools must be made by a qualified biologist on a case-by-case basis, and usually must be made when indicators are present during or soon after the wet season. Determinations of presence/absence of vernal pools should include a description of soils, vegetation, hydrology, and recent rainfall.

Where the above descriptions apply, an area is **NOT** considered a vernal pool under the MSHCP where it is also the following:

- An area that was artificially created by human activity:
  - Vernal pools created to provide vernal pool habitat (i.e., mitigation sites)
  - Vernal pools created from the alteration of natural vernal pools.

Vernal Pools

Seasonal wetlands in depressional areas that during the wet season have three indicators: soils specific to vernal pools (clay soils), vegetation, and hydrology.

P-13.7
(cont.)

Fairy Shrimp Habitat

The MSHCP stipulates that "for Riverside, vernal pool and Santa Rosa fairy shrimp, mapping of stock ponds, ephemeral pools, and other features shall also be undertaken as determined appropriate by a qualified biologist."

This means that, for each site, a biologist needs to determine whether the area includes suitable habitat for:

- Riverside fairy shrimp
- Vernal pool fairy shrimp
- Santa Rosa Plateau fairy shrimp.

The determination of the presence or absence of fairy shrimp habitat must be made by a qualified biologist on a case-by-case basis, usually during or soon after the wet season, and should include a description of soils, vegetation, hydrology, and recent rainfall.

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Fairy shrimp habitat that was artificially created **IS** considered fairy shrimp habitat per the MSHCP. It is important to note that areas that are the direct result of human activity (e.g., tire ruts and stock ponds) may be suitable habitat for listed fairy shrimp and are, therefore, **NOT** exempt from MSHCP requirements.

> **Fairy Shrimp Habitat**
>
> Habitat for Riverside fairy shrimp, vernal pool fairy shrimp, and/or Santa Rosa Plateau fairy shrimp.

The documentation used by Permittees to determine whether a site includes riparian/riverine areas, vernal pools, or fairy shrimp habitat must:

- Be prepared by a qualified biologist
- Describe the natural environment on site and include sufficient details and analysis to support a conclusion that riparian/riverine areas, vernal pools, or fairy shrimp habitat are/are not located on site
- Include sufficient details and analysis, such as documentation of historic and current hydrologic regime, vegetation descriptions, on-site soil characterization (not just relying on historic soils surveys), and mapping of the locations of riparian/riverine areas, on-site vernal pools, or fairy shrimp habitat in relation to the proposed development footprint/disturbance area.

STEP 1 Results:

a. If there are no riparian/riverine areas, vernal pools, or fairy shrimp habitat on site → go to **STEP 4**.

OR

b. If the site includes riparian/riverine areas, vernal pools, or fairy shrimp habitat → go to **STEP 2**.

STEP 2: Review Documented Riparian/Riverine Areas, Potential Sensitive Riparian Bird Species, Sensitive Fairy Shrimp Species, and Planned Impacts

Where riparian/riverine areas, vernal pools, or fairy shrimp habitat exist on site, the following documentation must be prepared in order for a project to have adequately addressed Section 6.1.2 compliance:

- A description of the functions and values of the riparian/riverine areas, vernal pools, or fairy shrimp habitat
- Quantification of the acreage of the riparian/riverine areas, vernal pools, or fairy shrimp habitat on the site and the acreage of such resources that would be impacted by the proposed project
- A detailed map of the location of the riparian/riverine areas, vernal pools, or fairy shrimp habitat, as well as a map showing the proposed impacted areas overlaid on these resources.

P-13.7 (cont.)

Comment P-13

- Determination of whether the riparian/riverine area includes suitable habitat for the following species (and details to support such a determination):
  - Least Bell's vireo
  - Southwestern willow flycatcher
  - Western yellow-billed cuckoo.

  Focused surveys are required where suitable habitat is present for any of the above-listed species. All focused surveys should be conducted by a qualified biologist, follow an accepted protocol, and be fully documented. Avoidance is required where species are present. A Determination of Biological Equivalent or Superior Preservation (DBESP) specific to the species habitat impacted is required where avoidance is not feasible. (For more information on how to prepare a DBESP, see Step 3 below and Appendix D, Example DBESP.)

NOTE

Focused surveys must be conducted within 1 year of project processing (i.e., surveys must be less than 1 year old in order to be considered valid).

- Determination of whether the vernal pools or potential fairy shrimp habitat include suitable habitat for the following species (and details to support such a determination):
  - Riverside fairy shrimp
  - Santa Rosa Plateau fairy shrimp
  - Vernal pool fairy shrimp.

  Focused surveys are required where suitable habitat is present for the above-listed species. All focused surveys should be conducted by a qualified biologist and be fully documented. Avoidance is required where species are present. A DBESP specific to the species habitat impacted is required where avoidance is not feasible. (For more information on how to prepare a DBESP, see Step 3 below and Appendix D, Example DBESP.) **P-13.7 (cont.)**

- Documentation on avoidance of all riparian/riverine areas, vernal pools, or fairy shrimp habitat on site. Permittees shall ensure that projects first avoid and then minimize direct and indirect effects to riparian/riverine areas, vernal pools, and fairy shrimp habitat (MSHCP, p. 6-24). Where avoidance of riparian/riverine areas, vernal pools, or fairy shrimp habitat is not feasible, additional MSHCP requirements (DBESP) apply. See Step 3 below.

STEP 2 Results:

a. If avoidance of riparian/riverine areas, vernal pools, or fairy shrimp habitat is ***feasible*** and avoidance is achieved → go to **STEP 4**.

OR

b. If avoidance of riparian/riverine areas, vernal pools, or fairy shrimp habitat is ***infeasible*** → go to **STEP 3**.

Comment P-13

STEP 3: Prepare Determination of Biological Equivalent or Superior Preservation (DBESP)

As stated on p. 6-24 of the MSHCP, "If an avoidance alternative is not Feasible and a practicable alternative is instead selected… determination of biologically equivalent or superior preservation shall be made by the Permittee to ensure replacement of any lost functions and values of habitat as it relates to Covered Species."

The MSHCP requires that a DBESP include:

- A definition of the project site
- A written project description, demonstrating why an avoidance alternative is not possible
- A written description of biological information available for the project site, including results of resource mapping
- Quantification of unavoidable impacts, including direct and indirect effects, to riparian/riverine areas and vernal pools associated with the project
- A written description of project design features and mitigation measures that reduce effects, such as edge treatments, landscaping, elevation difference, and minimization and/or compensation through restoration or enhancement
- A finding demonstrating that although the proposed project would not avoid impacts, with proposed design and compensation measures, it would be biologically equivalent or superior to that which would occur under an avoidance alternative without these measures, based on one or more of the following factors:
    - Effects on conserved habitats
    - Effects on the species listed above under the heading "Purpose" in Section 6.1.2
    - Effects on riparian linkages and functions of the MSHCP Conservation Area.

P-13.7 (cont.)

In summary, each DBESP should:

- Describe in detail (i.e., map, qualify, and quantify) the resources present, the resources to be impacted by the proposed project (both direct and indirect), and the acres proposed to mitigate for the proposed impacts
- Include a finding that the proposed project would be biologically equivalent or superior to the avoidance alternative.

See Appendix D for an Example DBESP.

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STEP 3 Results:

a. If the Permittee finds that the proposed project, with unavoidable impacts and compensation measures, would be biologically equivalent or superior to the avoidance alternative → go to **STEP 4**.

OR

b. If the Permittee finds that the proposed project, with unavoidable impacts and compensation measures, would **NOT** be biologically equivalent or superior to the avoidance alternative → the Permittee shall prepare or require the Applicant to prepare an adequate DBESP and return to **STEP 3**.

STEP 4: Final Determination of Compliance with MSHCP Section 6.1.2

The Permittee must make a determination of compliance with the MSHCP Riparian/Riverine, Vernal Pool, and Fairy Shrimp Habitat Guidelines (MSHCP, Section 6.1.2). Proper analysis and documentation (including all necessary DBESPs) will enable the Permittee to assess a project and make a final determination of compliance with Section 6.1.2. The Permittee compliance determination must be made during project planning and before project approval. Placing a condition on an Applicant to comply with any portion of Section 6.1.2 after project approval does not allow the Permittee to make complete MSHCP findings during the project approval process. The Implementing Agreement (IA) outlines Permittee obligations, which include making complete MSHCP consistency findings before project discussion by decision makers. **P-13.7 (cont.)**

4.3 SPECIES SURVEY REQUIREMENTS (SECTIONS 6.1.3 AND 6.3.2 OF THE MSHCP)

> **NOTE**
> For projects requiring MSHCP JPR (projects within the MSHCP Criteria Area), the analysis and final determination of compliance with Section 6.1.2 must also be submitted with the JPR packet to the RCA.

The MSHCP requires that additional data be collected during Plan implementation for certain species within areas of potential habitat. The species needing additional data collection are listed in the MSHCP in Section 6.1.3, Protection of Narrow Endemic Plant Species, and in Section 6.3.2, Criteria Area Plant Species, Amphibian Species, Burrowing Owl, and Mammal Species. The Plan includes mapped survey area boundaries for these species, the Narrow Endemic Plant Species Survey Area (NEPSSA), MSHCP Figure 6-1; the Criteria Area Species Survey Area (CASSA), MSHCP Figure 6-2; the Amphibian Species Survey Areas, MSHCP Figure 6-3; the Burrowing Owl Survey Area, MSHCP Figure 6-4; and the Mammal Species Survey Area, MSHCP Figure 6-5. The plant survey areas are broken into groups depending on potentially occurring habitat for each plant. Within these survey areas, the Plan requires that all private and public projects provide site-specific focused surveys where suitable habitat is present. Therefore, habitat assessments are required, at a minimum, for projects located within these survey areas for applicable species. To determine if a site is within one or more species survey areas, use the Report Generator (see Step 1 below). Then follow the additional steps below as they apply.

Comment P-13

Flowchart 4-2 (following page) outlines the process of making a consistency determination with the MSHCP Species Survey requirements.

STEP 1: Determine if Site is within One or More Species Survey Areas

The Plan includes the survey boundaries for the NEPSSA in MSHCP Figure 6-1, the CASSA in MSHCP Figure 6-2, the Amphibian Species Survey Area in Figure 6-3, the Burrowing Owl Survey Area in Figure 6-4, and the Mammal Species Survey Area in Figure 6-5. For ease of reference, MSHCP figures are included in this document as Appendix E.

STEP 1: Results

a. If the site is NOT within a species survey area → go to **STEP 7**.

OR

b. If the site is within a species survey area → go to **STEP 2**.

HINT

To determine whether a proposed project is within a species survey area, use the county's online report generator tool:

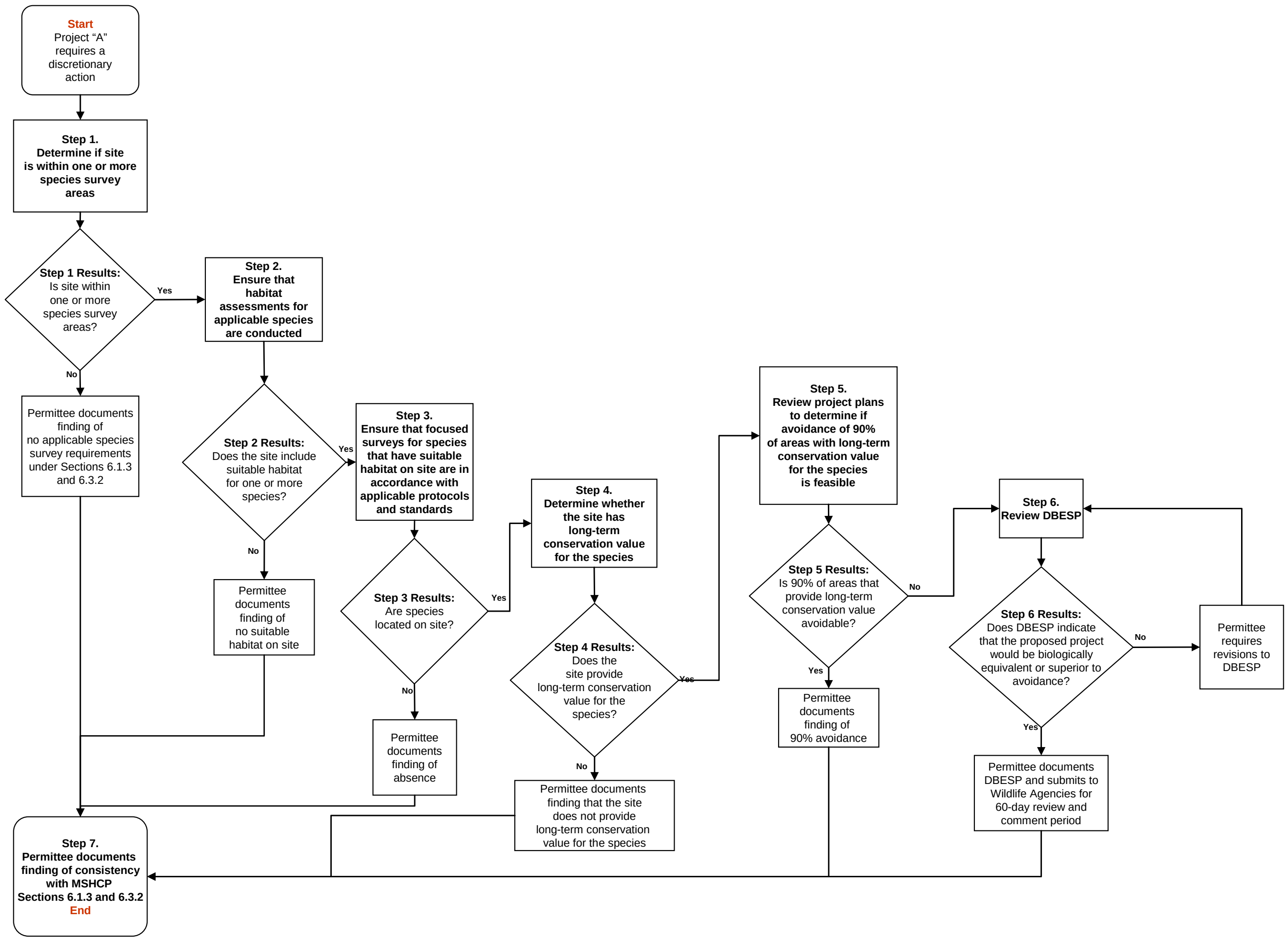
http://www.rctlma.org/gis/rciprepgen.html

You will need applicable Assessor's Parcel Numbers (APNs) to utilize this tool.

P-13.7
(cont.)

Comment P-13

Flowchart 4-2. Process for Consistency Findings with Sections 6.1.3 and 6.3.2, MSHCP Species Survey Requirements



P-13.7
(Cont.)

Comment P-13

STEP 2: Suitable Habitat Determination

For proposed project sites within one or more survey areas, a habitat assessment is required for each species. The habitat assessments shall:

> **NOTE**
> A biologist must make a determination if suitable habitat exists on site. If a biologist chooses to characterize habitat suitability as low, medium, or high, a low habitat suitability characterization means suitable habitat is present and, therefore, focused surveys are required.

- Be conducted by a qualified biologist
- Include the methodology of the habitat assessment, as well as details such as the date, time, and site conditions at the time of the survey and precipitation data for the year (note that habitat assessments may be conducted year-round, with the exception of habitat assessments for vernal pool plant species, which must be conducted during or immediately after the rainy season; see p. 6-31 of the MSHCP)
- Include a conclusion on whether the site has suitable habitat specific to each species required
- Include sufficient details describing the site to support the conclusion made for each species
- Include, where suitable habitat is present:
  - A description of the habitat present
  - Quantification of the acreage of the habitat
  - A map of the location of the habitat.
- Include focused surveys in the event that impacts are proposed within areas of suitable habitat.

P-13.7 (cont.)

Focused surveys are required when the project proposes impacts in areas where suitable habitat is present (Step 3). Focused surveys are not required if suitable habitat on site would be completely avoided. In cases where suitable habitat exists that would be completely avoided, the project materials must document both the suitable habitat on site and the boundary of the project impacts, including indirect impacts.

STEP 2: Results

a. If the site does NOT include suitable habitat for any species OR if the site includes suitable habitat for one or more species and will be completely avoided → go to **STEP 7**.

OR

b. If the site includes suitable habitat for one or more species → go to **STEP 3**.

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STEP 3: Focused Survey Requirements

Where suitable habitat exists on site in areas proposed for project impacts, focused surveys are required and must:

- Be conducted by a qualified biologist.
- Include sufficient details describing the survey methods, including:
  - The established accepted protocol followed (for species for which protocols and/or standards or guidelines have been established)
  - The dates, times, and temperatures of the site visit(s)
  - The amount of recent rainfall.
- Include, where species are present:
  - A description of the location of the species found
  - A map showing the location of the species found.

> **NOTE**
> Focused plant surveys must be conducted during the appropriate blooming season. See MSHCP Table 6-1 (pp. 6-32 to 6-37) for helpful information regarding habitat descriptions, soils, and blooming periods.

Permittees should review the focused surveys for adherence to the above requirements. Where survey results are positive and species were found on site, projects with the potential to affect these species shall be subject to avoidance, minimization, and mitigation strategies (see Step 4). **P-13.7 (cont.)**

STEP 3: Results

a. If the project will NOT impact the survey species → go to **STEP 7**.

OR

b. If the project impact area includes one or more survey species → go to **STEP 4**.

STEP 4: Long-Term Conservation Value Determination

Where surveys reveal presence of a species, the MSHCP requires that 90% of the area on site that has long-term conservation value be avoided. Therefore, a determination of whether the site has long-term conservation value for the species must be made. Characteristics of an area with long-term conservation value are specific to each species. The consulting biologist must determine if the specific conditions on the site indicate long-term conservation value. Considerations include, but are not necessarily limited to:

- Population size
- Condition of habitat
- Relative connectivity to, proximity to, or isolation from areas proposed for conservation.

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A qualified biologist must determine long-term conservation value. The MSHCP requires 90% of the areas providing long-term conservation value be avoided. A DBESP is required if it is not feasible to avoid 90% of the population (see Step 5).

STEP 4: Results

a. If the site does NOT provide long-term conservation value for the species → go to **STEP 7**.

OR

b. If the site provides long-term conservation value for the species → go to **STEP 5**.

STEP 5: 90% Avoidance Requirement/Equivalency Finding

For areas with long-term conservation value, 90% of the areas that provide long-term conservation value must be avoided. To demonstrate that the requirement has been met, an Equivalency Finding must be prepared that includes the following:

NOTE

The Equivalency Finding should clearly demonstrate that 90% avoidance will occur and should include project design measures, such as shielded lighting, to reduce indirect effects.

- A definition of the project site
- A written project description
- A written description of biological information available for the project site, including the results of species surveys
- Quantification of unavoidable impacts, including direct and indirect effects, to species associated with the project, documenting that the threshold will be met
- A written description of project design features that reduce indirect effects, such as edge treatments, landscaping, elevation differences, and minimization and/or compensation through restoration or enhancement
- A summary conclusion including findings of consistency with the 90% avoidance threshold (MSHCP, p. 6-40).

P-13.7 (cont.)

STEP 5: Results

a. If 90% of the area having long-term conservation value will be avoided → go to **STEP 7**.

OR

b. If 90% of the area having long-term conservation value CANNOT be avoided → go to **STEP 6**.

Comment P-13

STEP 6: Review Determination of Biological Equivalent or Superior Preservation (DBESP)

If 90% of the area providing long-term conservation value cannot be avoided, a DBESP must be prepared. As stated on p. 6-41 of the MSHCP, "Determination of Biologically Equivalent or Superior Preservation shall be made if making the equivalency findings is determined to be infeasible."

NOTE

Prior to Permittee approval of a DBESP and associated project, the Wildlife Agencies (USFWS and CDFG) shall be provided copies of the DBESP, which initiates a 60-day review and comment period.

The MSHCP requires that a DBESP include:

- A definition of the project site
- A written project description, demonstrating why an avoidance alternative is not possible
- A written description of biological information available for the project site, including results of resource mapping
- Quantification of unavoidable impacts, including direct and indirect effects, to riparian/riverine areas and fairy shrimp habitat associated with the project
- A written description of project design features and mitigation measures that reduce effects
- A finding demonstrating that, although the proposed project would not avoid impacts, proposed design and compensation measures would be biologically equivalent or superior to that which would occur under an avoidance alternative without these measures, based on one or more of the following factors:
  - Effects on conserved habitats
  - Effects on the species listed above under the heading "Purpose"
  - Effects on riparian linkages and functions of the MSHCP Conservation Area.

P-13.7 (cont.)

In summary, each DBESP should:

- Describe in detail (i.e., map, qualify, and quantify) the resources present, the resources to be impacted by the proposed project (both direct and indirect), and the area proposed for mitigation for the impacts
- Include a finding that the proposed project would be biologically equivalent or superior to the avoidance alternative.

See Appendix D for an example DBESP.

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STEP 6: Results

a. If the Permittee finds that the proposed project, with unavoidable impacts and compensation measures, would be biologically equivalent or superior to the avoidance alternative → go to **STEP 7**.

OR

b. If the Permittee finds that the proposed project, with unavoidable impacts and compensation measures, would NOT be biologically equivalent or superior to the avoidance alternative → the Permittee shall prepare or require the Applicant to prepare an adequate DBESP and return to **STEP 6**.

STEP 7: Consistency Determination with Survey Species Requirements

The Permittee must make a determination of compliance with the MSHCP Species Survey Requirements (MSHCP, Sections 6.1.3 and 6.3.2). Proper analysis and documentation (including all necessary DBESPs) will enable the Permittee to assess a project and make a final determination of compliance with Sections 6.1.3 and 6.3.2. The Permittee compliance determination must be made during project planning and before project approval. Placing a condition on an Applicant to comply with any portion of Section 6.1.3 or 6.3.2 after project approval does not allow the Permittee to make complete MSHCP findings before the project approval process. The MSHCP IA outlines Permittee obligations, which include making complete MSHCP consistency findings before project discussion.

NOTE

For projects requiring MSHCP JPR (projects within the MSHCP Criteria Area), the analysis and final determination of compliance with Section 6.1.3 and 6.3.2 must also be submitted to the RCA with the JPR application materials.

P-13.7 (cont.)

4.4 DELHI SANDS FLOWER-LOVING FLY PROVISIONS (TABLE 9-2 OF THE MSHCP)

To meet MSHCP conservation objectives for the Delhi Sands flower-loving fly, conservation strategy options are included in the Species Objectives for this species (see MSHCP Table 9-2, p. 9-29). Choices include adherence to Objectives 1A, 1B, and 1C. The areas impacted by the fly survey requirements are within the unincorporated areas of Riverside County; specifically, within the northwestern area of the Plan Area. Riverside County has elected to implement Objective 1B, which requires that where projects are located within the approximately 5,100 acres of mapped Delhi Soils within the Plan Area and suitable habitat for this species is located on site, focused surveys must be conducted in accordance with the USFWS 1996 "Interim General Survey Guidelines for the Delhi Sands Flower-Loving Fly." This

NOTE

This section does **NOT** apply to cities. If city boundaries change due to annexation of a portion of the Delhi Soils area, these requirements may apply to said city.

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requirement does not apply to projects located within MSHCP Criteria Cells 21, 22, and 55 in Subunit 3 of the Jurupa Area Plan.

Focused surveys are to be conducted by a qualified biologist if suitable habitat is present. If the focused surveys reveal that the site is occupied, 75% of the mapped soils shall be conserved. If the suitable habitat is not consistent with the mapped soils, then 75% of the suitable habitat shall be conserved. The USFWS will be given 60 days to review and comment on the surveys. If 75% conservation is not feasible, conservation may be required at a ratio of 3:1 within the areas identified in Objective 1A, in accordance with USFWS review and approval.

NOTE

See MSHCP Figure 9-10, Delhi Sands Flower-Loving Fly Soils within Criteria Area, to determine a site's relationship to mapped Delhi Soils.

- Once conservation of 220 acres of habitat is achieved through the survey methods listed above, surveys will no longer be required.
- Surveys are not required within MSHCP Criteria Cells 21, 22, and 55 in Subunit 3. Instead, 50 acres of additional reserve lands will be acquired within the areas described in Objective 1A (see MSHCP Table 9-2 for full discussion of Objective 1A).

NOTE

Survey protocol for this species requires two seasons of surveys to confirm absence.

P-13.7 (cont.)

Permittees shall review projects for compliance with the MSHCP Delhi Sands flower-loving fly requirements. The Permittee's determination of consistency with Delhi Sands flower-loving fly survey requirements should be included in the Permittee's MSHCP Findings.

4.5 RESERVE ASSEMBLY REQUIREMENTS WITHIN THE CRITERIA AREA (SECTION 3 OF THE MSHCP)

Coverage for the 146 species identified in the MSHCP is based on the establishment of a 500,000-acre Conservation Area, approximately one third of which will be assembled from private land acquisitions and donations and through the land-development entitlement process ("Additional Reserve Lands"). The MSHCP is a 100% criteria-based plan, meaning that hard-line reserve areas are not identified, but rather the required conservation is described at various levels of detail. The Additional Reserve Lands are proposed to be assembled from an area known as the Criteria Area, which is nearly twice the total land acreage of the Additional Reserve Lands. Therefore,

HINT

To determine whether a proposed project is within the Criteria Area, use the county's online report generator tool: http://www.rctlma.org/gis/rcipregen.html

You will need all applicable APNs to utilize this tool.

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flexibility in the Reserve Assembly is provided through the Plan. However, careful analysis is necessary to ensure that the Additional Reserve Lands will provide the level of conservation that was the basis for species coverage.

The Plan's criteria are stipulated in requirements that range from broad qualitative planning objectives to more specific quantitative acreage and geographic requirements, and are based on available data that include species data, soils mapping, vegetative mapping, and conservation biology principles. The requirements should be considered when implementing the Plan to ensure that MSHCP objectives are met. The Plan describes conservation both broadly (cores and linkages) and more specifically (criteria cells and cell groups). When followed properly, the MSHCP Criteria Area requirements will ensure that the Additional Reserve Lands will serve the form and function described in the MSHCP.

Complying with the MSHCP is a multi-step process. For projects that are within the Criteria Area, Permittees must make a determination of whether the project is consistent with MSHCP Reserve Assembly objectives. This section reviews the Criteria Area requirements and how Permittees can make consistency determinations for projects within the Criteria Area.

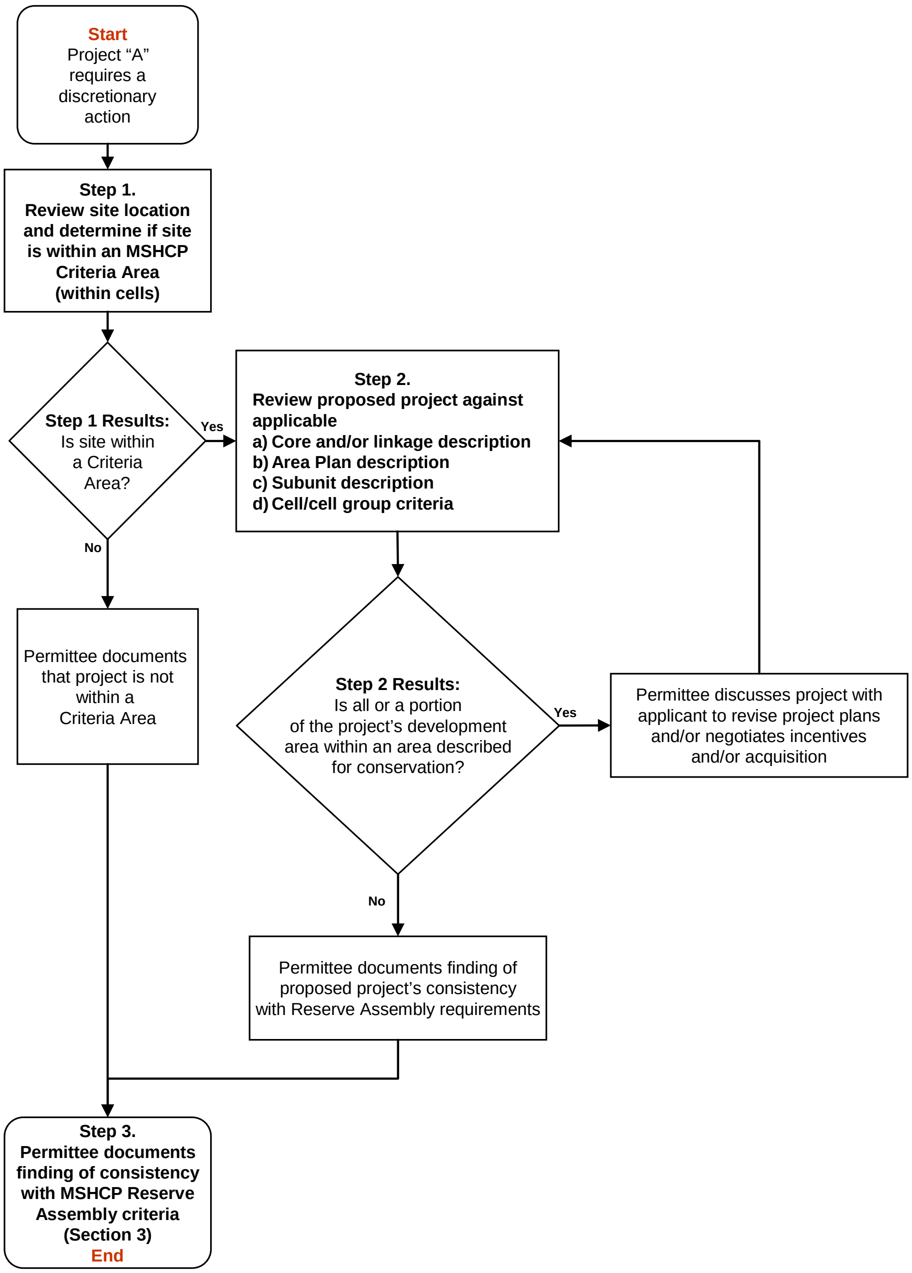
Flowchart 4-3 maps the process of making a consistency determination with MSHCP Reserve Assembly requirements.

Criteria Area = Area covered by cells = Areas subject to HANS and JPR = Area within which the Additional Reserve Lands will be assembled.

P-13.7
(cont.)

Comment P-13

Flowchart 4-3. Process for Consistency Findings with Criteria Area Requirements (Section 3 of MSHCP)



P-13.7
(cont.)

Comment P-13

4.5.1 Cores and Linkages

The MSHCP Conservation Area is comprised of existing and proposed cores and linkages, including extensions of existing cores, constrained linkages, and non-contiguous habitat blocks (see Section 3.2.3 of the MSHCP). See Figure 4-1, "Schematic Cores and Linkages Map" (MSHCP Figure 3-2). The cores and linkages together provide a cohesive habitat reserve of major habitat blocks as well as connections between those habitat blocks for species migration and genetic flow. The existing cores and linkages consist of public/quasi-public lands (which have already been conserved). The proposed cores and linkages represent the Additional Reserve Lands to be assembled to complete the reserve. The MSHCP includes a description of each core and linkage, the contribution it is expected to make as part of the MSHCP Conservation Area, rough dimensional characteristics, and the planning species for which it will provide conservation. This data should be reviewed during the planning process to understand the broad context of the MSHCP criteria and to ensure that planning decisions will help to further the broad purpose of the MSHCP and not conflict with reserve configuration requirements. Annotated examples are provided throughout this section to demonstrate the analysis required to review a proposed project for MSHCP Reserve Assembly consistency.

Core – A block of habitat of appropriate size, configuration, and vegetation characteristics to generally support the life history requirements of one or more covered species.

Extension of Existing Core – A block of habitat contiguous with an existing core area which serves to provide additional habitat for species in the adjacent existing core and to reduce exposed edge.

Non-Contiguous Habitat Block – A block of habitat not connected to other habitat areas via a linkage or constrained linkage, but important for specific planning species.

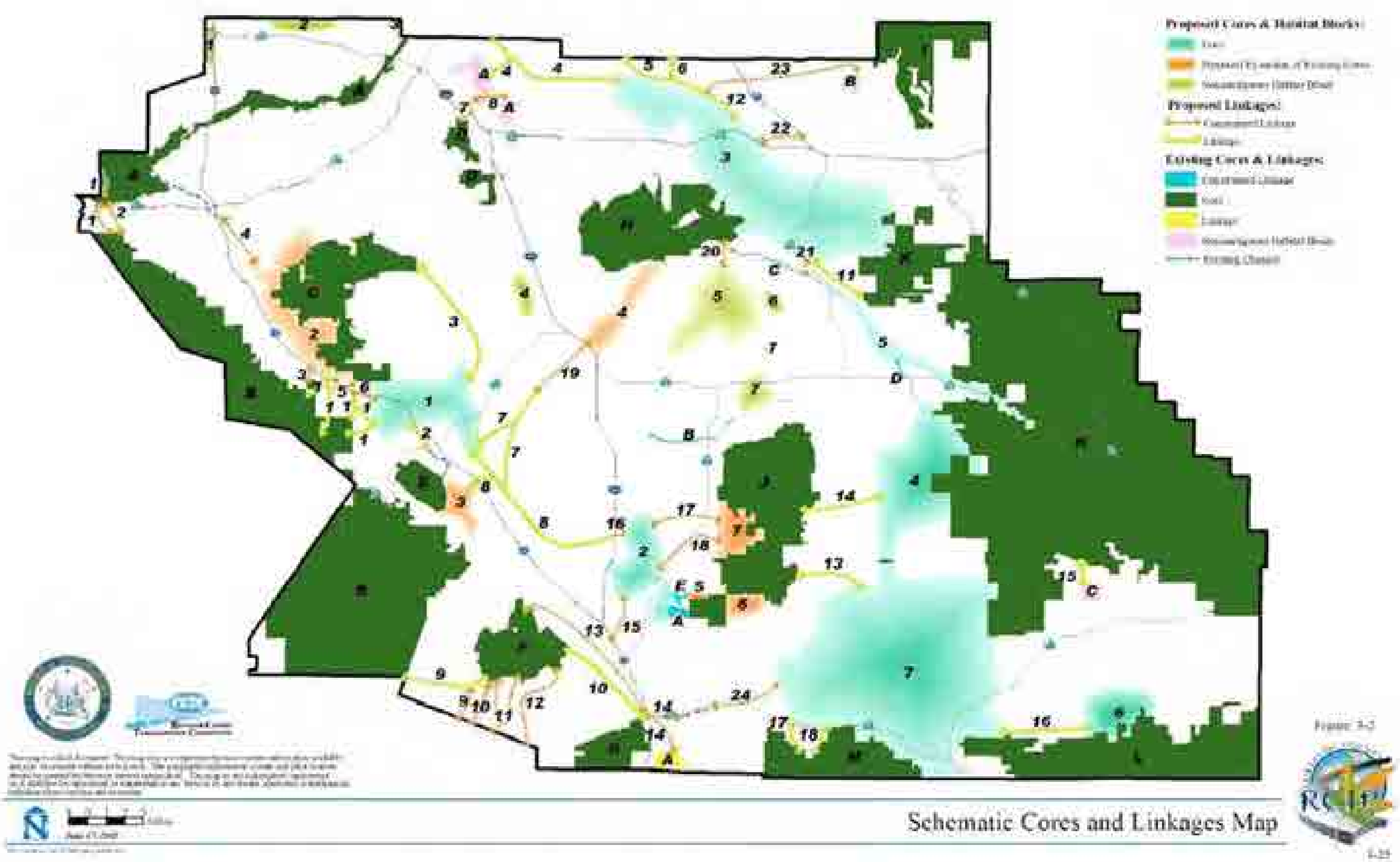
Linkage – A connection between core areas with adequate size, configuration, and vegetation characteristics to generally provide for live-in habitat and/or provide for genetic flow for identified planning species.

Constrained Linkage – A constricted connection expected to provide for movement of identified planning species between core areas, where options for assembly of the area connection are limited due to existing patterns of use.

P-13.7 (cont.)

Comment P-13

Figure 4-1. Schematic Cores and Linkages Map (Figure 3-2 in MSHCP)



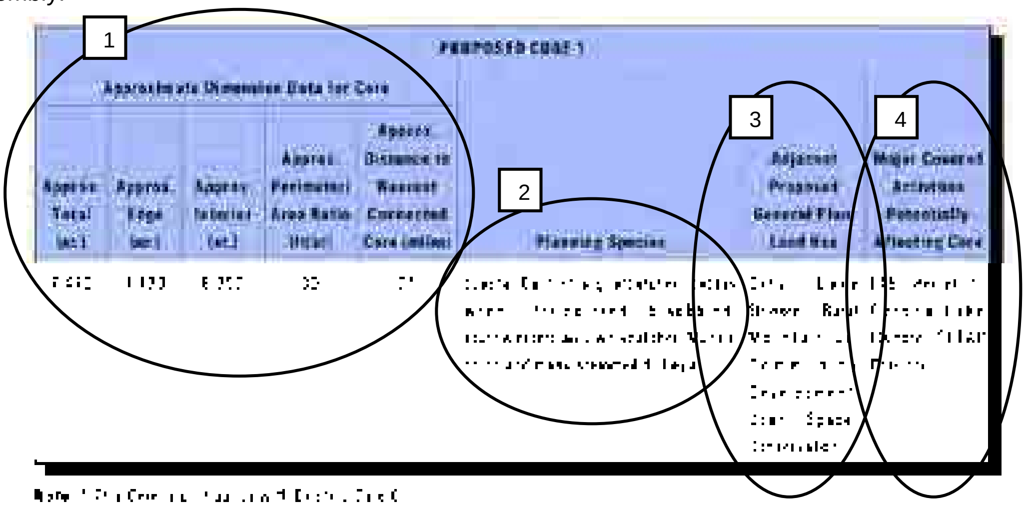
P-13.7
(Cont.)

Comment P-13

Proposed Core 1 **EXAMPLE**

The Permittee should, when considering proposed projects that would be within or near the core's boundary, assess whether such projects would be consistent with the purpose of the core or would interfere with the core's ability to fulfill its defined functions.

Proposed Core 3 is shown on Figure 4-1 (Figure 3-2 of the MSHCP). The description of the core includes a table (MSHCP, p. 3-61) listing several aspects of Proposed Core 1. The table below demonstrates how this information should be used when considering a proposed project's relationship to the Reserve Assembly.



1. **Approximate Dimension Data for Core.** The Permittee should use these data to verify the expected size and configuration of the core to assist in interpretation of the more specific cell criteria. The approximate perimeter/area ratio, calculated using the approximate edge and approximate interior, indicates the extent that the core may be subject to edge effects or impacts associated with adjacent development. The higher the ratio, the more vulnerable the core is to edge effects. The MSHCP includes requirements to minimize edge effects in Section 6.1.4. These requirements are discussed further in Section 4.7 of this Implementation Manual.

2. **Planning Species.** The Permittee should review the core's planning species and consider the proposed project's impacts on these species and their habitats.

3. **Adjacent Proposed General Plan Land Use.** The Permittee should review the core's adjacent proposed General Plan land uses to understand the proposed conservation in the context of community planning and surrounding existing and proposed land uses.

4. **Major Covered Activities Potentially Affecting Core.** The Permittee should consider the implications that the major covered activities within the core may have on the proposed project and on the assembly of the core in conjunction with the covered activities.

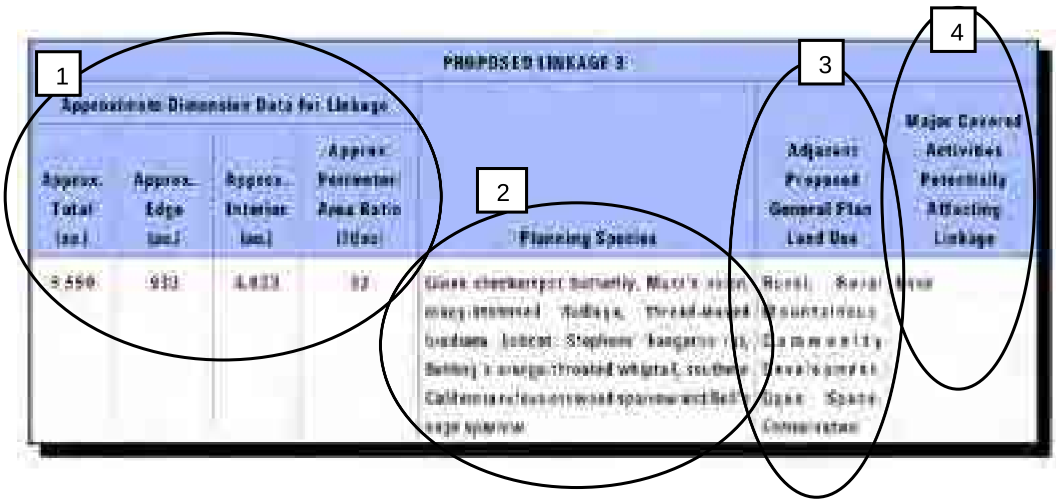
P-13.7
(cont.)

Comment P-13

Proposed Linkage 3 **EXAMPLE**

When considering proposed projects that would be within or near this linkage, the Permittee should assess whether such projects would be consistent with the purpose of the linkage or interfere with the ability of the linkage to fulfill its MSHCP-defined functions.

Proposed Linkage 3 is shown in Figure 4-1. The description of the linkage includes a table (MSHCP, p. 3-99) listing the dimensional data, planning species, adjacent proposed General Plan land uses, and major covered activities within Proposed Linkage 3. The table below demonstrates the applicability of this information during Plan implementation.



PROPOSED LINKAGE 3						
Approximate Dimension Data for Linkage						
Approx. Total (ac.)	Approx. Edge (ac.)	Approx. Interior (ac.)	Approx. Perimeter/Area Ratio (ft/ac)	Planning Species	Adjacent Proposed General Plan Land Use	Major Covered Activities Potentially Affecting Linkage
[illegible]	[illegible]	[illegible]	[illegible]	[illegible] checkerspot butterfly, [illegible] many-stemmed dudleya, thread-leaved brodiaea, bobcat, Stephens' kangaroo rat, Belding's orange-throated whiptail, southern California rufous-crowned sparrow and Bell's sage sparrow	Rural; Rural Mountainous; Community Development; Open Space Conservation	[illegible]

1\. **Approximate Dimension Data for Linkage.** The Permittee should use these data to verify the expected size of the linkage to ensure that projects are not approved that would hinder meeting the planned width of the linkage and the approximate acreage goal. The approximate perimeter/area ratio, calculated using the approximate edge and approximate interior, indicates the extent that the perimeter may be subject to edge effects or impacts associated with adjacent development. The higher the ratio, the more vulnerable the linkage is to edge effects. The MSHCP includes requirements to minimize edge effects in Section 6.1.4. These requirements are discussed further in Section 4.7 of this Implementation Manual.

2\. **Planning Species.** The Permittee should review the linkage's planning species and consider the proposed project's impacts on these species and their habitats.

3\. **Adjacent Proposed General Plan Land Use.** The Permittee should review the linkage's adjacent proposed General Plan land uses to understand the proposed conservation in the context of community planning and surrounding existing and proposed land uses.

4\. **Major Covered Activities Potentially Affecting Core.** The Permittee should consider the implications that the major covered activities within the linkage may have on the proposed project and on the assembly of the linkage in conjunction with the covered activities.

P-13.7
(cont.)

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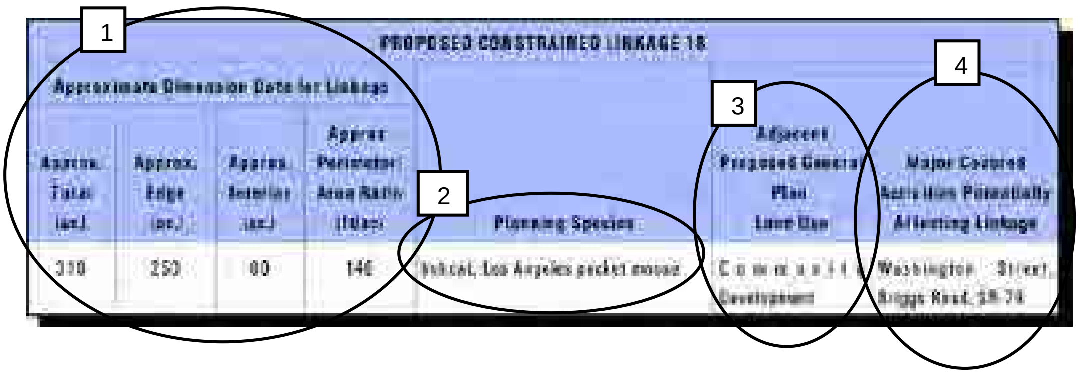
Proposed Constrained Linkage 18 **EXAMPLE**

When considering proposed projects that would be within or near the constrained linkage's boundary, the Permittee should assess whether such projects would be consistent with the purpose of the constrained linkage or would interfere with the ability of the linkage to fulfill its MSHCP-defined functions.

The description of the constrained linkage includes a table (MSHCP, p. 3-90) listing the dimensional data, planning species, adjacent proposed General Plan land uses, and major covered activities within Proposed Constrained Linkage 18. The table below summarizes Reserve Assembly information that should be used during Plan implementation.



PROPOSED CONSTRAINED LINKAGE 18						
Approximate Dimension Data for Linkage						
Approx. Total (ac.)	Approx. Edge (ac.)	Approx. Interior (ac.)	Approx. Perimeter: Area Ratio (ft/ac)	Planning Species	Adjacent Proposed General Plan Land Use	Major Covered Activities Potentially Affecting Linkage
330	250	80	146	Bobcat, Los Angeles pocket mouse	Community Development	Washington Street, Briggs Road, SR-79

1. **Approximate Dimension Data for Constrained Linkage.** The Permittee should use these data to verify the expected size of the constrained linkage to ensure that through the planning process projects will not generally preclude meeting the planned width of the linkage and the approximate acreage goal. The approximate perimeter/area ratio, calculated using the approximate edge and approximate interior, indicates the extent that the perimeter may be subject to edge effects or impacts associated with adjacent development. The higher the ratio, the more vulnerable the constrained linkage is to edge effects. The MSHCP includes requirements to minimize edge effects in Section 6.1.4. These requirements are discussed in Section 4.7 of this Implementation Manual. **P-13.7 (cont.)**

2. **Planning Species.** The Permittee should review the constrained linkage's planning species and consider the proposed project's impacts on these species and their habitats.

3. **Adjacent Proposed General Plan Land Use.** The Permittee should review the linkage's adjacent proposed General Plan land uses to understand the proposed conservation in the context of community planning and surrounding existing and proposed land uses.

4. **Major Covered Activities Potentially Affecting Core.** The Permittee should consider the implications that major covered activities or existing covered activities may present to Reserve Assembly.

Comment P-13

4.5.2 Area Plans

In order to provide a broad organizational framework and subdivision of the descriptions of the Conservation Area, the MSHCP uses the County's General Plan Area Plan boundaries as planning units (see MSHCP Section 3.3 and Figure 4-2, "Area Plans and City Boundaries"). Though the Area Plan boundaries are not biologically based, they relate to jurisdictional boundaries and so enable the Permittees to understand the Plan's criteria and ultimate conservation acreage objective as it applies to their corporate and community boundaries. Specific target conservation acreage ranges have been established for each Area Plan. The MSHCP also lists the Cities within each Area Plan and the target conservation acreages for each. Permittees should utilize the Area Plan acreage goals as a broad measure of the proposed project's relationship to Reserve Assembly.

4.5.3 Area Plan Subunits

The MSHCP further breaks the Area Plans into subunits. The subunits relate to plan features (core, linkage, etc.) and include only the portions of the Area Plans that are within the Criteria Area. For each subunit, the Plan specifies target acreage ranges for conservation within the subunit, planning species, and biological issues and considerations that should be considered when reviewing projects within the subunits.

The example below walks through the MSHCP conservation goals described for the Pass Area Plan, specifically Subunit 3, San Timoteo Creek. See Figure 4-3, "the Pass Area Plan," for a graphical representation of the Pass Area Plan. **P-13.7 (cont.)**

4.5.4 Cell/Cell Group Criteria

The MSHCP further describes conservation goals in the context of cells and cell groups. In certain instances, the cells are grouped and conservation goals are described for a number of cells. The Plan describes the core or linkage that each cell/cell group is in and the types of habitat to be conserved (e.g., vernal pools, coastal sage scrub), the adjacent habitats that the cell/cell group habitat is to connect, and the general location and target percentage acres of the cell/cell group that should be conserved. The MSHCP also lists the cells and cell groups within the subunit (Section 4.1.4).

> **Cell** – Each cell roughly corresponds to a U.S. Geological Survey quarter section and consists of approximately 160 acres.

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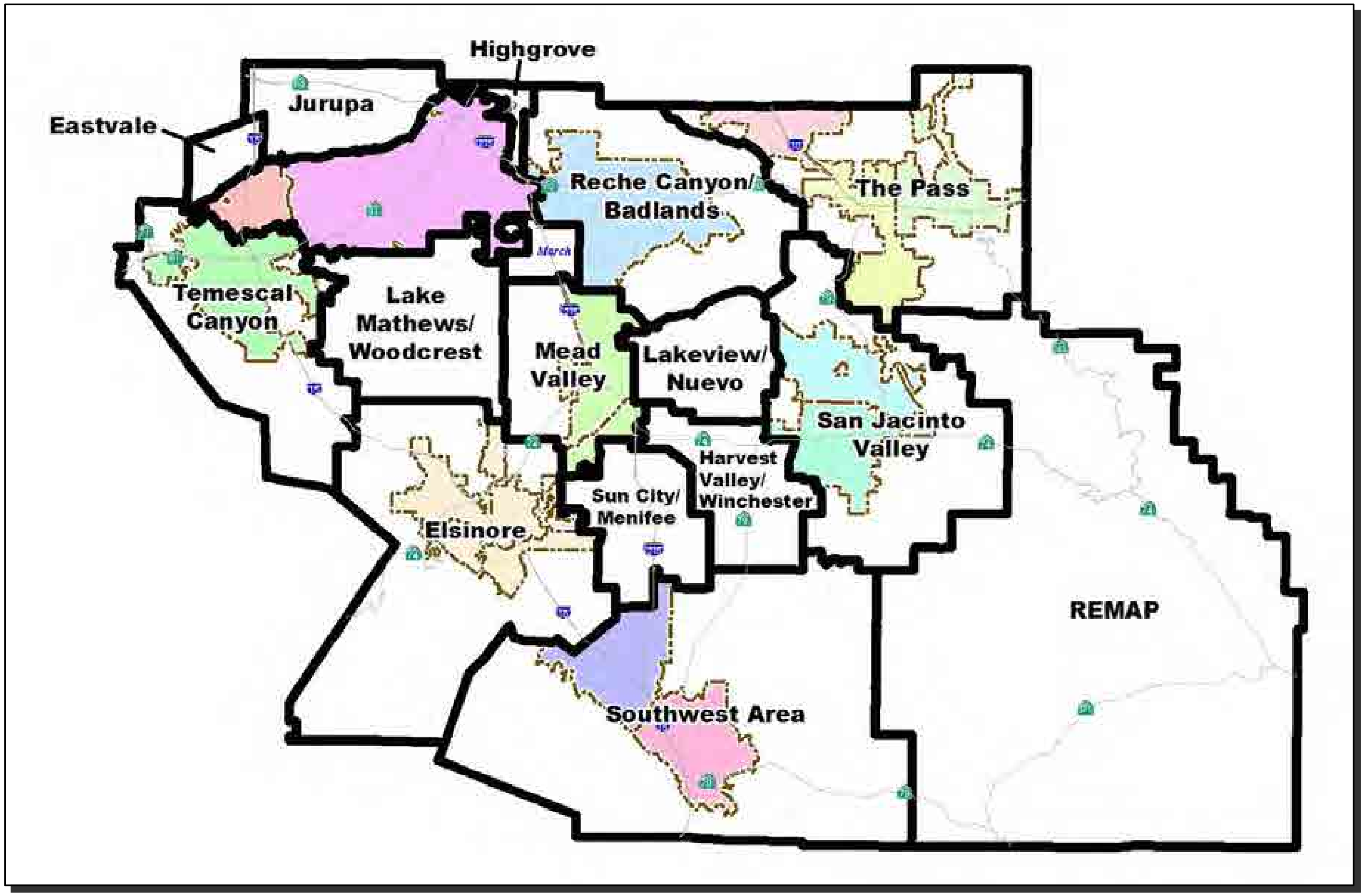
Figure 4-2. Area Plans and City Boundaries



P-13.7
(Cont.)

Comment P-13

The Pass Area Plan, Subunit 3 – San Timoteo Creek	**EXAMPLE**

The MSHCP lists the total target conservation acreage of 22,510 to 27,895 acres for the Pass Area Plan (see MSHCP, pp. 3-241; also Figure 4-3, "The Pass Area Plan"). Approximately 13,970 acres are existing public/quasi-public lands. Therefore, within the Pass Area Plan, the additional target conservation acreage is 8,540 to 13,925 acres. The Cities of Banning, Beaumont, and Calimesa are entirely within the Pass Area Plan, as well as unincorporated areas of the County. The target acreage for the City of Banning is 50 to 90 acres. The target acreage for the City of Beaumont is 5,440 to 9,060 acres. The target acreage for the City of Calimesa is 1,240 to 2,240 acres. The remaining target acreages apply to the unincorporated areas of Riverside County. The cores and linkages within the Pass Area Plan include:

- Proposed Constrained Linkage 22
- Proposed Constrained Linkage 23
- Proposed Linkage 12
- A portion of Proposed Core 3
- A portion of Proposed Linkage 6
- A portion of Existing Core I
- A portion of Existing Core K
- A portion of Existing Noncontiguous Habitat Block B

The MSHCP describes the San Timoteo Creek subunit (MSHCP, pp 3-244-246; also Figure 4-4, "Cells and Cell Groups within Subunit 3 – San Timoteo Creek within the Pass Area Plan"). The target acreage for additional Reserve lands within the subunit is 1,865 to 2,455 acres. The planning species for the subunit are: Bell's sage sparrow, Cooper's hawk, least Bell's vireo, loggerhead shrike, southwestern willow flycatcher, white-tailed kite, yellow-breasted chat, yellow warbler, bobcat, Los Angeles pocket mouse, mountain lion, San Bernardino kangaroo rat, Stephens' kangaroo rat. The biological issues and considerations for the subunit are:

- Maintain wetlands for purposes of connection and wildlife dispersal, as well as wetland species conservation.
- Maintain a contiguous connection between potential conservation in San Bernardino
- County and the proposed Badlands Core Area.
- Maintain winter roosts for white-tailed kite.
- Maintain core and linkage habitat for bobcat.
- Maintain linkage area for mountain lion.
- Maintain linkage area for Stephens' kangaroo rat.
- Determine potential for scattered populations of San Bernardino kangaroo rat along San Timoteo Creek.
- Determine presence of potential Core Area for Los Angeles pocket mouse in San Timoteo Creek.

P-13.7
(cont.)

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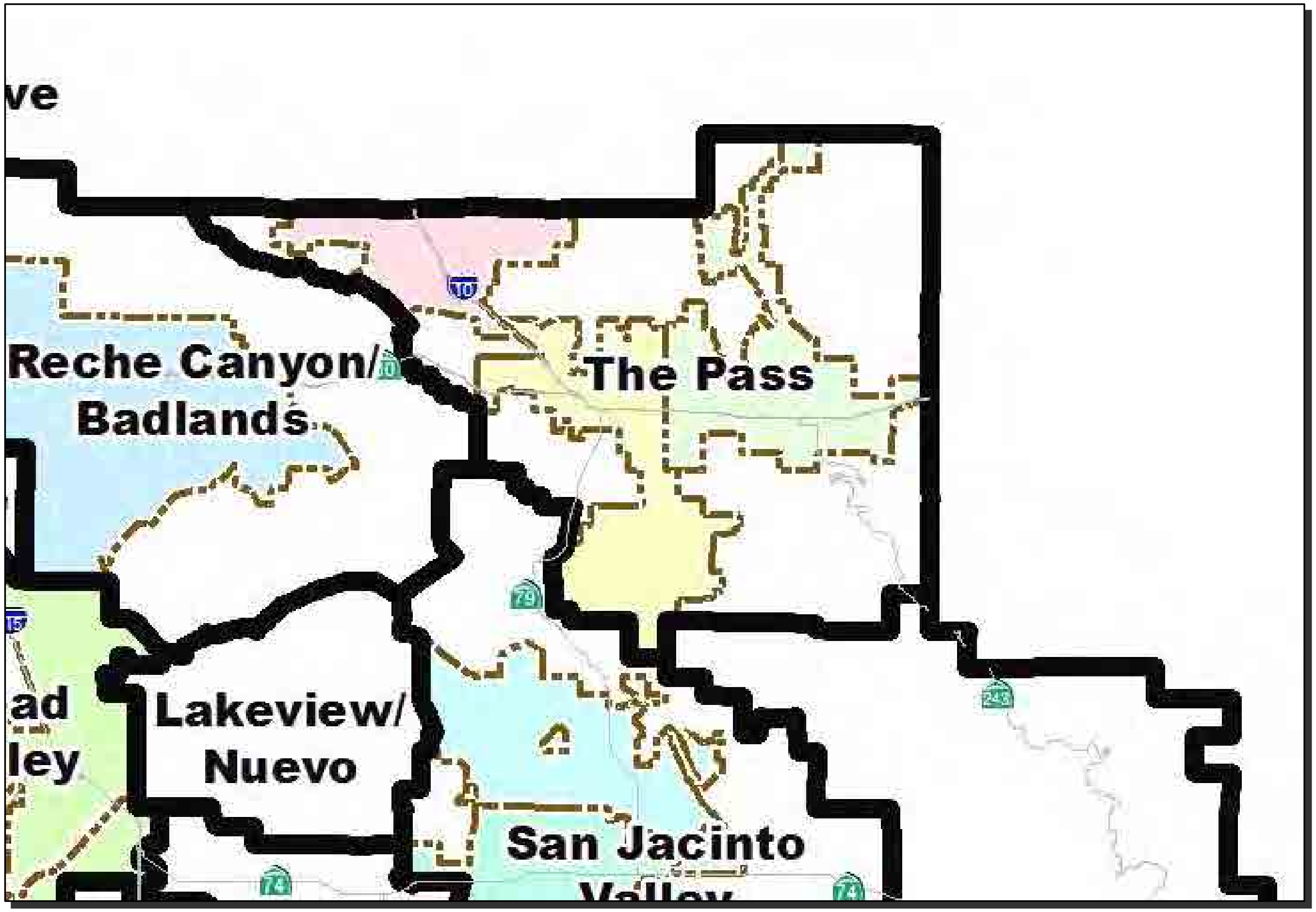
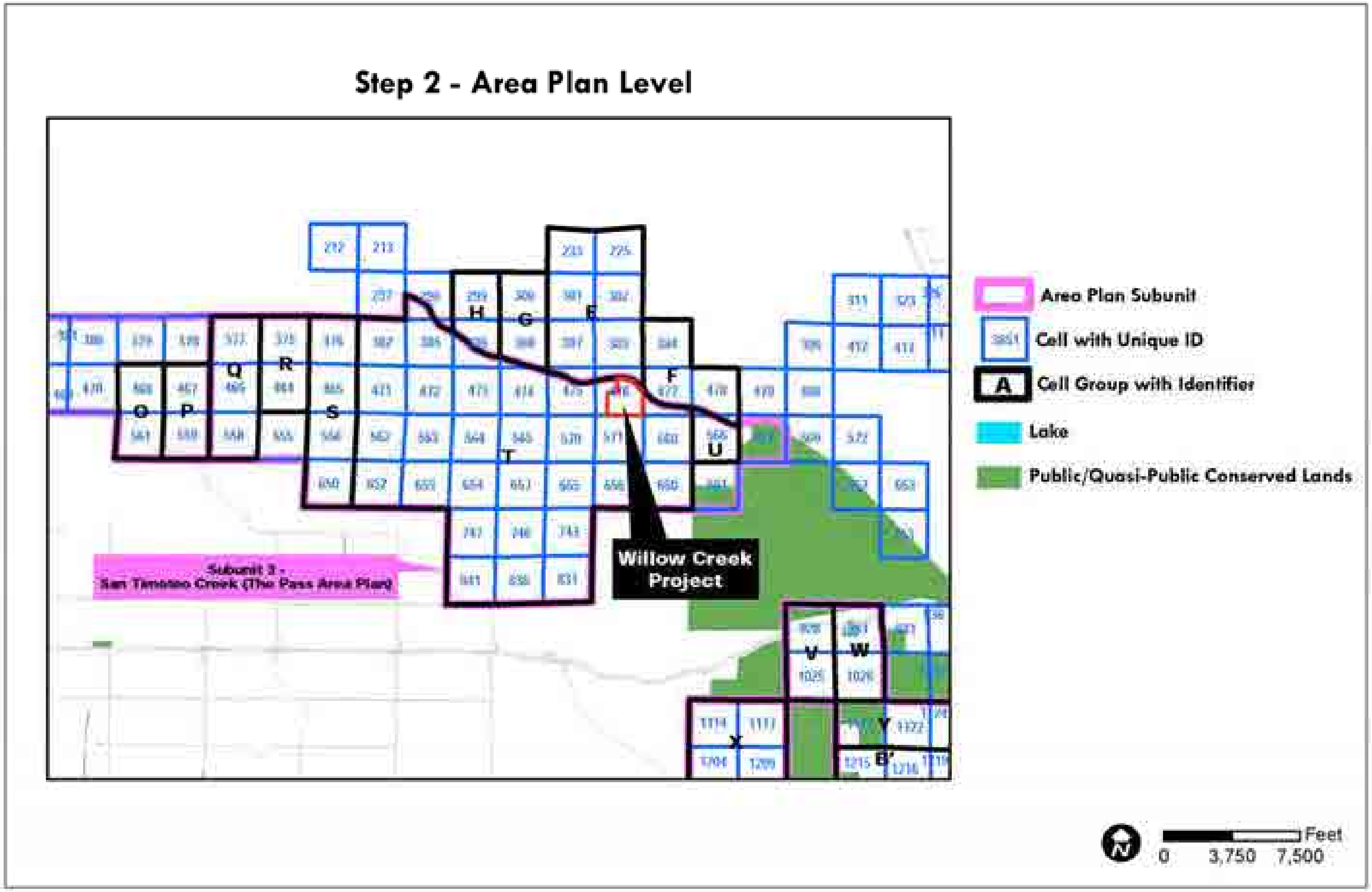
Figure 4-3. The Pass Area Plan



P-13.7
(Cont.)

Figure 4-4. Subunit 3 – San Timoteo Creek within the Pass Area Plan



P-13.7
(Cont.)

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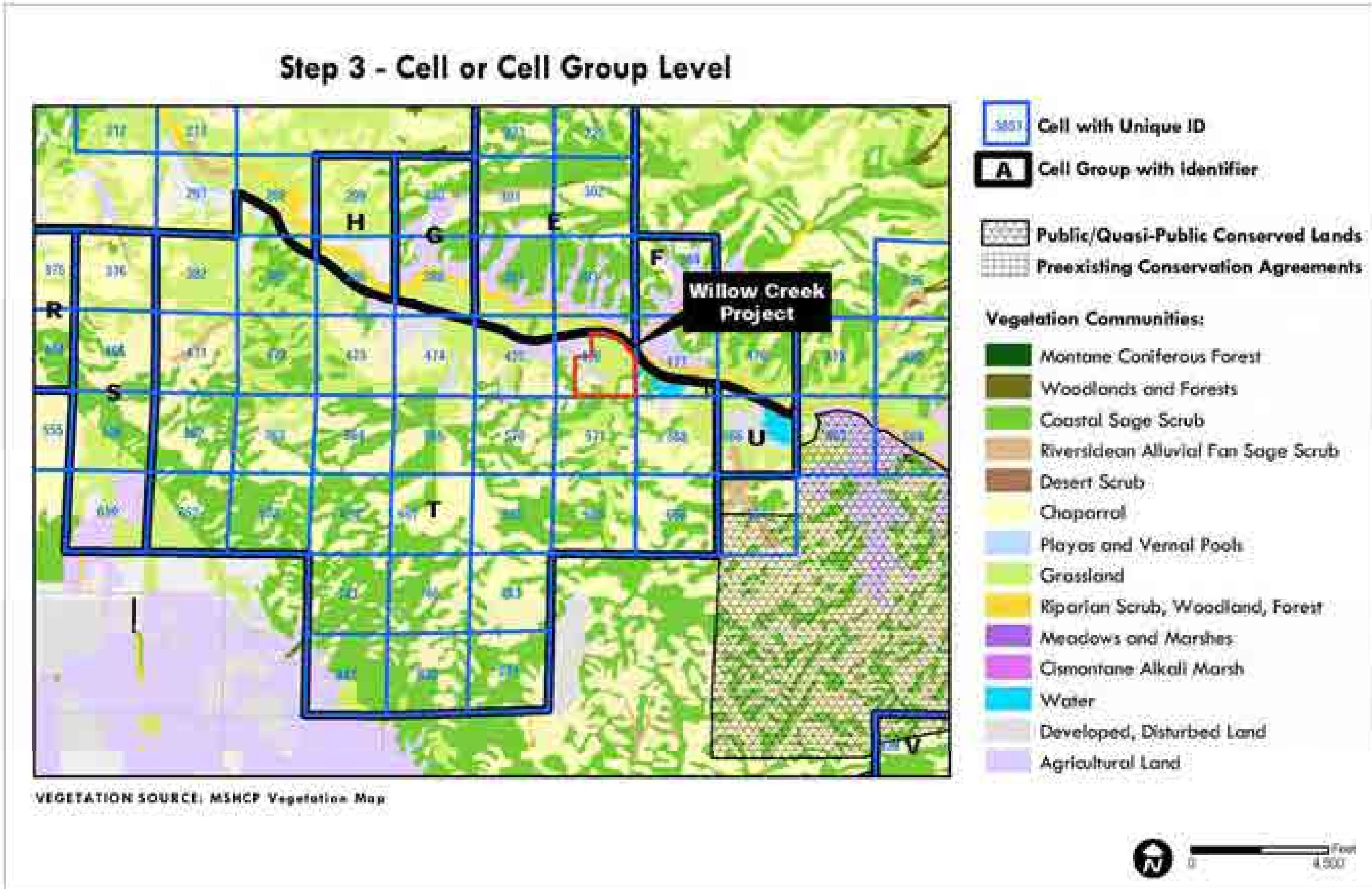
Figure 4-5. Cell Group T Located within Subunit 3 – San Timoteo Creek



P-13.7
(Cont.)

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The Pass Area Plan, Subunit 3, Cell Group E	**EXAMPLE**

Figure 4-5 provides a graphical representation of Cell Group E. Cell Group E and the criteria for Cell Group E are discussed below.

1. **Cell Group E within Subunit 3.** Note that the cell group is related geographically to the surrounding cell groups and to the Reche Canyon/Badlands Area Plan to the south.
2. **Description of Cell Group K within Subunit 1.** Note that the cell group consists of Cells 225, 233, 301, 302, 383, 387, 475, and 476. The Permittee should consider the implications that a proposed development or conservation project within the cell group may have on the MSHCP criteria for the cell group. For example, a development project that is proposed on 5 acres of riparian scrub, chaparral and woodlands in the southern portion of the cell group would not be consistent with the criteria and would likely need to be conserved in its entirety. However, a development project that is proposed on 1 acre of heavily disturbed land in the northern portion of the cell group would be consistent with the criteria. Proposed development that includes the described habitat types and/or is partially within the area described for conservation often requires a contribution of a portion of the project to the MSHCP Conservation Area. The Permittees should not approve projects that conflict with the criteria. The MSHCP includes a process—Habitat Acquisition Negotiation Strategy (HANS)—that addresses instances where project proponents and Permittee staff do not agree on the application of the criteria to a specific project. For more information on HANS, see Section 3.2.1 of this Implementation Manual.

P-13.7 (cont.)

4.5.5 Determination of Consistency with Criteria Area Requirements

Based on the analysis outlined above, for projects located within the Criteria Area, Permittees must make a determination of whether each proposed project is consistent with Criteria Area requirements. Before a Permittee can approve a project that is within the Criteria Area, that project must undergo Joint Project Review (JPR) by the RCA. A Consistency Determination with supporting documentation for all requirements within Chapter 4 of this document (including Sections 4-1-4.3) comprises a completed Joint Project Review (JPR) submittal package. The RCA has 14 days to review the JPR package, complete a finding of consistency, and send the findings to Permittee staff (with exception for submittals that are incomplete). Simultaneous with submittal of the RCA's findings of consistency to the permittee, the RCA will send their findings to the wildlife agencies.

Where the RCA does not find that a proposed project is consistent with the Criteria Area Requirements, the Permittee and RCA will engage in the Meet and Confer process to resolve consistency issues.

Figure 4-6. Criteria for the Pass Area Plan

SUB UNIT	CELL GROUP	QUADRAT NUMBER	USGS SECTION	QUARTER SECTION	CRITERIA
1	J	3654	14	NE	
1	J	3751	15	SW	
1	J	3752	15	SE	
1	J	3753	14	SW	
1	J	3756	14	SE	
1	K	3746	18	SE	Conservation within this Cell Group will contribute to assembly of Proposed Linkage 1. Conservation within this Cell Group will focus on chaparral, Riversidean alluvial fan sage scrub, riparian scrub, woodland and forest habitat and agricultural land. Areas conserved within this Cell Group will be connected to chaparral and Riversidean alluvial fan sage scrub proposed for habitat in Cell Group D to the north, to chaparral habitat proposed for conservation in Cell #3745 and #3844 both to the west and to chaparral, woodland and forest habitat proposed for conservation in Cell Group R to the south. Conservation within this Cell Group will range from 70%-80% of the Cell Group focusing in the northwestern portion of the Cell Group.
1	K	3846	19	NE	
1	L	3658	13	NW	Conservation within this Cell Group will contribute to assembly of Proposed Core 1. Conservation within this Cell Group will focus on coastal sage scrub, chaparral and grassland habitat. Areas conserved within this Cell Group will be connected to coastal sage scrub habitat proposed for conservation in Cell Group J to the west, to upland habitat proposed for conservation in Cell Groups, P and Q to the south and to existing PQP Lands also to the south. Conservation within this Cell Group will range from 75%-85% of the Cell Group focusing in the western portion of the Cell Group.
1	L	3671	17	NW	
1	L	3672	13	NE	
1	L	3673	18	NE	
1	L	3685	18	NW	
1	L	3759	13	SW	
1	L	3767	13	SE	
1	L	3774	18	SE	
1	L	3775	18	SW	

P-13.7
(Cont.)

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4.6 URBAN/WILDLANDS INTERFACE GUIDELINES (SECTION 6.14 OF THE MSHCP)

Section 6.1.4 of the MSHCP presents guidelines intended to reduce the indirect effects of development on areas described for conservation. Permittees must consider these guidelines when contemplating development within or near the criteria cells or other sensitive habitats, such as public/quasi-public reserves or other areas set aside for conservation purposes. Permittees should consider the following guidelines during the development review process:

NOTE

Projects requiring Joint Project Review must include the measures incorporated into the project to reduce impacts to conservation areas associated with edge effects in the Permittees' draft MSHCP Findings.

- **Drainage:** Incorporate measures to control the quantity and quality of runoff from the site entering the MSHCP Conservation Area. In particular, measures shall be put in place to avoid discharge of untreated surface runoff from developed and paved areas into the MSHCP Conservation Area.
- **Toxics:** Land uses proposed in proximity to the MSHCP Conservation Area that use chemicals or generate bioproducts, such as manure, that are potentially toxic or may adversely affect wildlife species, habitat, or water quality shall incorporate measures to ensure that application of such chemicals does not result in discharge to the MSHCP Conservation Area. The greatest risk is from landscaping fertilization overspray and runoff. **P-13.7 (cont.)**
- **Lighting:** Night lighting shall be directed away from the MSHCP Conservation Area to protect species within the MSHCP Conservation Area from direct night lighting. Shielding shall be incorporated into project designs to ensure ambient lighting in the MSHCP Conservation Area is not increased.
- **Noise:** Proposed noise generating land uses affecting the MSHCP Conservation Area shall incorporate setbacks, berms or walls to minimize the effects of noise on MSHCP Conservation Area resources pursuant to applicable rules, regulations, and guidelines related to land use noise standards.
- **Invasives:** Consider the invasive, non-native plant species listed in *Table 6-2* of the MSHCP in approving landscape plans to avoid the use of invasive species for the portions of Development that are adjacent to the MSHCP Conservation Area. Considerations in reviewing the applicability of this list shall include proximity of planting areas to the MSHCP Conservation Areas, species considered in the planting plans, resources being protected within the MSHCP Conservation Area and their relative sensitivity to invasion, and barriers to plant and seed dispersal, such as walls, topography, and other features. MSHCP Table 6-2 has been included in Appendix E for reference purposes.
- **Barriers:** Proposed land uses adjacent to the MSHCP Conservation Area shall incorporate barriers, where appropriate, in individual project designs to minimize unauthorized public access, domestic animal predation, illegal trespass, or dumping into the MSHCP Conservation Areas.

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Such barriers may include native landscaping, rocks/boulders, fencing, walls, signage, and/or other appropriate mechanisms.

- **Grading:** Manufactured slopes associated with the proposed site development shall not extend into the MSHCP Conservation Area.

Flowchart 4-4 maps the process of making a consistency determination with the MSHCP Urban/ Wildlands Interface Guidelines

4.6.1 Consistency Determination for Urban/Wildlands Interface Guidelines

The Permittee must make a determination of compliance with the MSHCP Urban/Wildlands Interface Guidelines (Section 6.1.4 of the MSHCP):

- A project might not be located in close proximity to areas that are currently within or proposed for conservation as a part of the MSHCP Conservation Area. Therefore, the guidelines contained in Section 6.1.4 are not applicable and the Permittee should note this.
- For projects located in close proximity to areas that are within of proposed for conservation as part of the MSHCP, the Permittee should review the project plans relative to the guidelines above and make a consistency determination.

4.7 MAKING A FINAL CONSISTENCY DETERMINATION

All projects in Western Riverside County requiring a discretionary action by a local permittee must be reviewed for consistency with the MSHCP. Consistency determinations and MSHCP Consistency Findings must be prepared for any said project. Projects located outside of criteria cells, while not subject to reserve assembly requirements of the MSHCP nor JPR, must be analyzed for MSHCP consistency by the local Permittee. Complete MSHCP findings must be made for the MSHCP **prior** to project approval. **P-13.7 (cont.)**

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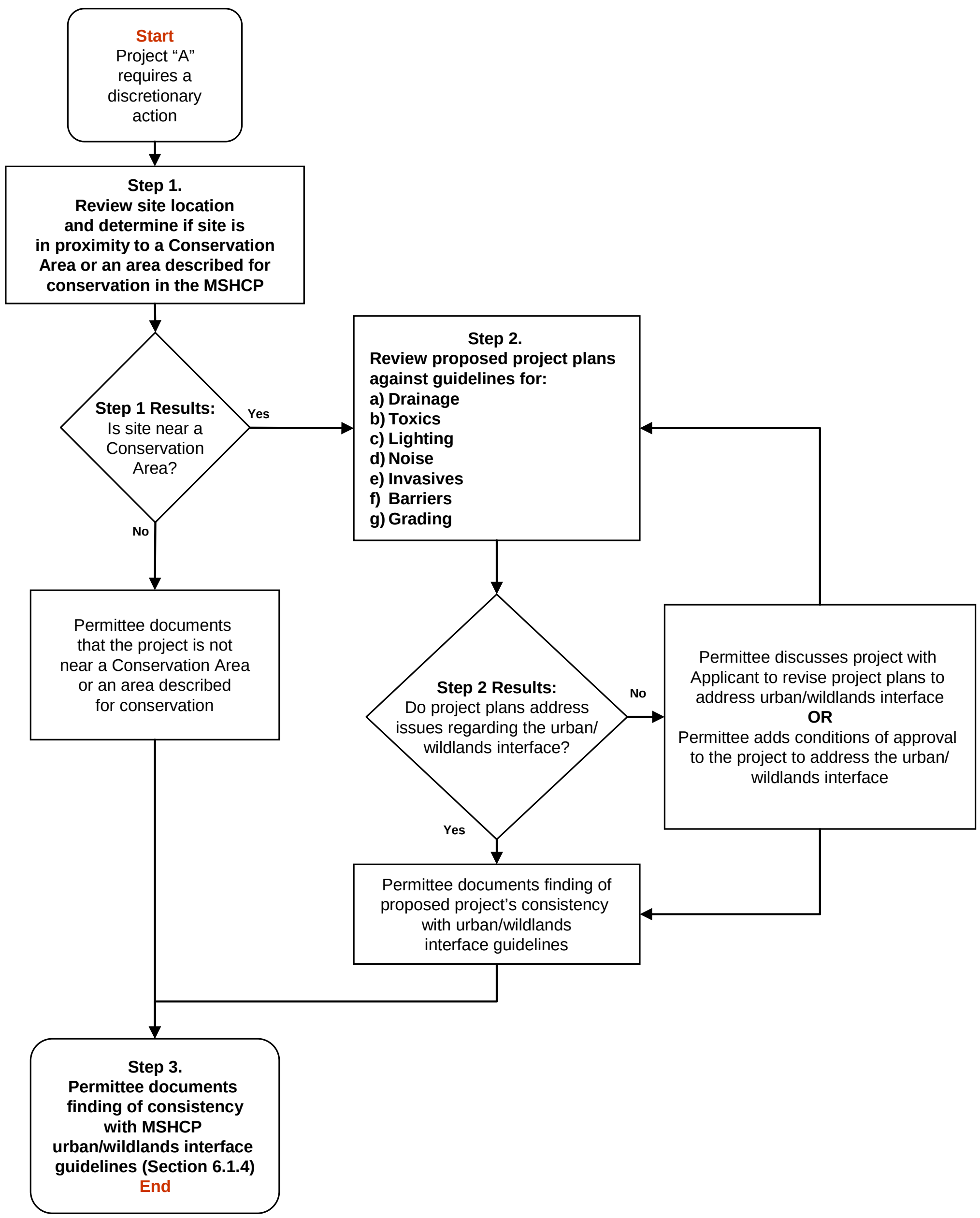
Flowchart 4-4. Process for Consistency Findings with Urban/Wildlands Interface Guidelines (Section 6.1.4 of MSHCP)



P-13.7
(cont.)

SECTION 5

ANNUAL REPORTING

5.1 MSHCP ANNUAL REPORTING REQUIREMENT

Successful implementation of the MSHCP requires that all Permittees adhere to the guidelines and requirements outlined in the MSHCP and IA. As indicated in Section 6.6.4 of the MSHCP, the Reserve Management Oversight Committee (RMOC) is responsible for the overall preparation of the MSHCP Annual Report. In the past, as well as foreseeable future, the RMOC has delegated the task of preparation of the Annual Report to RCA staff.

As spelled out throughout the MSHCP and IA, at a minimum, the MSHCP Annual Report must include the following items:

- Reserve Assembly activities in relation to the rough step formulas presented in Section 6.7 of the MSHCP and in accordance with species-specific Objective 1B of the Delhi Sands flower-loving fly
- Acres authorized for disturbance within the Plan Area during the reporting period
- Single-family and mobile home activity within the Criteria Area for the preceding year and cumulatively occurring as a result of the Expedited Review Provision (ERP) for these activities presented in Section 6.1.1 of the MSHCP
- New or expanded agricultural operations within the Criteria Area for the preceding year and cumulatively occurring under the processes identified in Section 6.2 of the MSHCP **P-13.7 (cont.)**
- Minor administrative/clerical amendments approved during the reporting period in accordance with the procedures described in Section 6.10.2 of the MSHCP
- Ongoing management and monitoring activities highlighting issues of concern and proposed remedies/actions
- Documentation concerning funding/collection of mitigation fees.

5.2 PERMITTEE DATA SUBMITTAL REQUIREMENTS

5.2.1 Required Data

Preparation of the MSHCP annual report requires submittal of areas authorized for disturbance (i.e., habitat "losses") and public works activity data from each Permittee (local Permittees, including the cities the County, and other Permittees, such as Caltrans and RCTC). The MSHCP requires that an annual report of Plan implementation activities be prepared by the RCA. Three types of data must be collected from each Permittee: (1) habitat loss data, (2) public works projects, and (3) ERP projects. As noted in Section 5.2.3 of this Manual, as of 2007, all data must be submitted to the RCA on a *quarterly* basis.

HABITAT LOSS DATA. The RCA keeps track of habitat "losses" to assist with the Rough Step, Area Plan/Subunits, and Jurisdiction acreage calculations. The loss of habitat occurs on the date the grading or building permit is issued. Therefore, if a grading or building permit was issued in 2006, the grading/land disturbance (i.e., habitat loss) that is attributed to the issuance of this permit must be reported in the 2006 annual report loss data. The RCA must receive loss data for all land within a City/County's jurisdiction; loss calculation is not limited to criteria cells.

PUBLIC WORKS PROJECTS. Public works projects, such as new road construction, facilities, or other infrastructure, need to be reported by each Permittee. For annual reporting purposes, a project should be reported to the RCA when a construction contract is approved by the governing body (i.e., City Council). Public works project submittal data must consist of a brief project description (i.e., widening of Main Street from a 2- to 4-lane road from 1st Avenue to 12th Avenue).

EXPEDITED REVIEW PROVISION PROJECTS. The ERP is an exemption from the MSHCP for projects that consist of construction/placement of one single-family home or one mobile home on an existing legal lot (i.e., if subdivision of land is required, the ERP provision cannot be utilized) (see Section 3.2.2 of this Manual). If a landowner decides to utilize this provision, the City or County must identify the least sensitive portion of the property and limit development to this least sensitive portion of the lot. The ERP exemption applies within the MSHCP cell criteria. The MSHCP requires that all projects that take advantage of the ERP exemption must be reported in the Annual Report. Submittal requirements must consist of a list of properties that took advantage of this exemption and an accompanying map that shows the area of the lot authorized for disturbance and the area of the lot that was to be avoided. See Appendix D for a sample map depicting the avoidance and development areas for a lot utilizing the ERP provision.

5.2.2 Data Submittal Format

The RCA recommends that a "MSHCP Data Submittal" project team be assembled within each City. Depending on the City's organizational structure and data/permit tracking system, members of the team should likely include, but not be limited to, a representative from Planning, Information Technology, and GIS. **P-13.7 (cont.)**

One of the two following formats must be used by each Permittee (Cities or County) to report annual report data: (1) manual format or (2) GIS format. The RCA much prefers to receive habitat loss and ERP data in a GIS format but will accept a manual format from Cities that do not have GIS capabilities. Public works projects are accepted in a manual format.

MANUAL FORMAT. Project information and attributes (e.g., APN, address, permit/approval type) with permit/project number must be digitally submitted (via email or CD) in an Excel file. See Appendix F for a sample excel file format. Paper copies of each Plot Plan/Tract/Parcel Map must be annotated on a City index map for RCA reference purposes. If a grading permit specified that an area was to be preserved, that area should be clearly delineated on the map. If the project was to preserve portions of the site and the RCA does not receive mapped information indicating the location of preserved areas, the RCA must assume that the entire site was graded. This may erroneously over-report habitat losses, which is detrimental to all Permittees and the overall health/legitimacy of the MSHCP program and may jeopardize the Section 10(a)(1)(b) Take Permit.

All project information for projects that take advantage of the ERP exemption must be submitted on a separate Excel spreadsheet. Similar to habitat loss data mapping requirements, a map must be provided for each project that takes advantage of this exemption; the map must show the area that can be developed

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(least sensitive portion of the lot) and the area that must be preserved (most sensitive portion of the lot). Each area on the map should be clearly delineated. The location of each ERP exemption should be noted on the City index map.

Public works projects should be listed on an Excel spreadsheet and digitally transmitted to the RCA. The RCA needs a short project description statement (i.e., construction of Main Street from 1st Avenue to 12th Avenue) and a boundary of the project. This could include the top plan sheet showing the extent of the project. Note: if the Permittee would rather submit the boundary of the project via a GIS file delineating the polygon/area of impact of the project, this is acceptable. Please indicate in the Excel spreadsheet the boundary map type (i.e., hard-copy map or GIS file titled example.shp).

GIS FORMAT. Permit information and attributes attached to polygon (not points) representing the project in GIS format (ESRI polygon shapefile format) with a Projected Coordinate System: NAD 1983 StatePlane Zone 6). Please note the requirement to identify areas of disturbance and conservation for single-family homes/mobile homes subject to the ERP review process.

GIS AND EXCEL DATA ATTRIBUTES DESCRIPTIONS

GIS and Excel Data Attributes Descriptions

- Permit_ID   Data type: String   Width: 12
  Internal tracking number for the grading or building permit each Permittee assigns on the project. The County or City all use different numbers or identification codes to identify the permit.
- PermitDate   Data type: Date   Width: 8

  Date that the permit, either Building or Grading, was issued by the Permittee of the MSHCP. For purposes of the report, this represents the date of loss on the parcel or area that was approved for development even though the project may have been approved by the Board or Council at a previous date.
- PermitType   Data type: String   Width: 20

  The Permittees' type code or description of the permit activity. For example, if this was a Building permit (e.g., SFR, SFD, Industrial) or a Grading permit (e.g., BGR, Prec Grade, Grading, Rough Grade).
- Applicant   Data type: String   Width: 50

  Owner of the parcel or project. This may be a developer, engineering firm, contractor, or, in the case of SFR (Single Family Residence) or mobile home, the owner.
- ProjectNam   Data type: String   Width: 50

  This describes the development activity on the parcel or project. In the cases of subdivisions, the tentative tract number as assigned by the County Surveyor may be present. In some cases, the recorded MB may be listed. This may include building descriptions and type as well as developer names. In general, it describes what type of project was approved with the permit that was issued by the County or City.
- APN   Data type: String   Width: 10

P-13.7
(cont.)

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Assessors Parcel Number at the time the permit for grading or building was issued. This attribute is not always present and in many cases only serves as a historical reference, since APNs are changed as part of the development process. Current Land Ownership records must be reviewed for the current owner of the land.

- Street_Nam Data type: String Width: 254

  This field is the street name of the parcel address.

- Street_Num Data type: Number Width: 19

  This field is the number of the parcel address to go with the street name. It must be in format that will support geo-coding.

- Area Data type: Float Width: 12 Number of decimals: 4

  Area in internal units squared for the project or parcel represented by the polygon shape. This field is used by dividing it by 43560 to calculate the acres field.

- Acres Data type: Float Width: 12 Number of decimals: 4

  Indicates the total size of the acres for the project or parcel.

- Conserve Data type: String Width: 25
  Value on each portion of the polygon for ERP projects/permits representing either Conserve or Develop or Area of Disturbance or No Disturbance.

Shape File Attributes Notes
County or Cities' standard GIS files maintained as part of the local development tracking process may contain additional attributes, such as the construction firm or engineer and associated contact addresses. Submittal of this additional, non-required information to the RCA is not problematic, as the RCA must review the data sets as part of the annual report data preparation process and standardize/collapse the data into a single, Plan Area-wide database. Extraneous information contained in local Permittee's data submittal GIS files can be eliminated at the time of submittal by RCA staff. **P-13.7 (cont.)**

5.2.3 Additional Data Submittal Information

TIMING. Beginning with the 2007 Annual Report, Permittees are required to submit the above data on a quarterly basis (e.g., 2007 Q1 data must be submitted by April 30, 2007; 2007 Q2 data must be submitted by July 31, 2007). Quarterly submittal of data will allow the RCA additional opportunities to run the analyses outlined in Section 5.1 of this Manual to assist with implementation activities and policy decisions.

QUESTIONS/COMMENTS. Please refer to Appendix D for a current list of MSHCP Annual Report contacts. Questions, comments, or suggestions regarding Annual Report preparation should be directed to these individuals.

SECTION 6

FEE COLLECTION AND REPORTING

6.1 FEE REQUIREMENTS

MSHCP Section 8.5 states that the County and the Cities shall adopt fee ordinances establishing Local Development Mitigation Fees that will be a primary source of MSHCP Program funding. The County and the Cities shall transmit all collected Local Development Mitigation Fees to the RCA on at least a quarterly basis. Appendix B includes a sample Fee Submittal Spreadsheet. Appendix A notes the RCA contact for any MSHCP Mitigation Fee questions.

DEVELOPMENT PROJECTS. As stated in Section 8.5, the fee ordinance adopted by the Cities and the County will provide for an annual Consumer Price Index (CPI) adjustment based upon the CPI (per criteria for “All Urban Consumers in the Los Angeles-Anaheim-Riverside Area”), measured as of the month of December in the calendar year which ends in the previous Fiscal Year. As noted in Section 8 of the MSHCP, the fee may be reevaluated and revised should it be found to insufficiently cover mitigation of new development. The MSHCP indicates that at the time of MSHCP adoption (2003-2004), a fee of $1,500 per residential unit (or an equivalent fee per acre) and $4,800 per acre of commercial or industrial development shall be imposed. Appendix B includes a list of each Permittee’s current Local Development Mitigation Fee schedule.

As set forth in Section 8.5.1 of the MSHCP, the Riverside County General Plan creates several incentive plans that can aid in the conservation of lands through non-acquisition means, including payment of a density bonus fees by developers. The incentive program enables developers to acquire the right to develop an additional 25% of units (i.e., increase density) in exchange for conservation of additional land on their project site. Through conservation of land described for conservation in the MSHCP, the developer is “buying” a density bonus. The Density Bonus Fee is anticipated to be $3,000 to $5,000 per additional unit; however, it is up to each Permittee to outline per local development fee structures. This program offers a significant incentive to developers when compared with the typical cost of creating a new buildable lot.

P-13.7 (cont.)

PUBLIC FACILITY PROJECTS. As outlined in the MSHCP, public facility projects must contribute a portion of their overall project budget toward MSHCP mitigation obligations. The following percentages should be used for each type of project:

- **Within Existing Public/Quasi-Public Lands.** When development is proposed in PQP Land, the Permittee must ensure than a replacement property of similar or greater biological value is located and purchased/donated to accommodate for the loss of the designated PQP Land. There is no fee system or fee payment associated with a “Public/Quasi-Public Trade-Out” action.
- **Within the Criteria Area.** Public facility projects that are “Covered Activities” as defined in Section 7.0 of the MSHCP shall pay a percentage of capital costs as a contribution to the MSHCP program.

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- **Non-Permittee Public Projects (Participating Special Entities).** For regional utility projects that will be constructed to serve private development, such as major trunk lines, Participating Special Entities shall pay a fee in the amount of 5% of total capital costs or take such other actions as may be agreed to by the RCA and the Wildlife Agencies. For such activities that will result in only temporary impacts and disturbance, Participating Special Entities shall pay a fee in the amount of 3% of total capital costs or other appropriate measures as may be agreed to by the RCA and the Wildlife Agencies. Public district or agency projects that will be constructed to serve public development, such as new schools and treatment plants, shall be required to pay a fee equivalent to the Local Development Mitigation Fees (utilizing commercial and/or industrial development fee rates) or take other appropriate actions as may be agreed to by the RCA and the Wildlife Agencies.

P-13.7
(cont.)

SECTION 7
REFERENCES CITED

7.1 REFERENCES CITED

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Multi-population puma connectivity could restore genomic diversity to at-risk coastal populations in California

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Abstract

Urbanization is decreasing wildlife habitat and connectivity worldwide, including for apex predators, such as the puma (*Puma concolor*). Puma populations along California's central and southern coastal habitats have experienced rapid fragmentation from development, leading to calls for demographic and genetic management. To address urgent conservation genomic concerns, we used double-digest restriction-site associated DNA (ddRAD) sequencing to analyze 16,285 genome-wide single-nucleotide polymorphisms (SNPs) from 401 pumas sampled broadly across the state. Our analyses indicated support for 4–10 geographically nested, broad- to fine-scale genetic clusters. At the broadest scale, the four genetic clusters had high genetic diversity and exhibited low linkage disequilibrium, indicating that pumas have retained genomic diversity statewide. However, multiple lines of evidence indicated substructure, including 10 finer-scale genetic clusters, some of which exhibited fixed alleles and linkage disequilibrium. Fragmented populations along the Southern Coast and Central Coast had particularly low genetic diversity and strong linkage disequilibrium, indicating genetic drift and close inbreeding. Our results demonstrate that genetically at risk populations are typically nested within a broader-scale group of interconnected populations that collectively retain high genetic diversity and heterogenous fixations. Thus, extant variation at the broader scale has potential to restore diversity to local populations if management actions can enhance vital gene flow and recombine locally sequestered genetic diversity. These state- and genome-wide results are critically important for science-based conservation and management practices. Our nested population genomic analysis highlights the information that can be gained from population genomic studies aiming to provide guidance for the conservation of fragmented populations. **P-13.7 (cont.)**

KEYWORDS
conservation genetics, mountain lion, nested population structure, population genetics, *Puma concolor*, SNP

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1 | INTRODUCTION

Human development is reducing habitats on a global scale, undermining efforts to conserve ecosystem structure and function (Newbold et al., 2016). Reports of fragmented wildlife populations and the increasing need for human housing and associated agriculture and energy have emphasized the necessity for development to avoid impacting the long-term sustainability of wildlife populations (Jordan et al., 2007; Kiesecker et al., 2011; Saha & Paterson, 2008). One of the most developed states in the United States is California, which contains the largest census size with over 39 million people (U.S. Census, 2019). Although the development of California has led to historical extirpations of other apex predators, such as the grizzly bear (*Ursus arctos*; Herrero, 1970) and gray wolf (*Canis lupus*; Schmidt, 1991), the puma (*Puma concolor*; also known as mountain lion and cougar) has maintained a widespread distribution throughout the state (Dellinger, Cristescu, et al., 2020).

The puma is a large-bodied felid that originated in South America, migrated and expanded throughout North America, and experienced a human-induced range restriction to the western United States, with an extant remnant population in Florida (Culver et al., 2000). Currently, approximately half of all apparent puma habitats in California is conserved, and the remainder could be subject to further development (Dellinger et al., 2020). Much of the inland areas of California have continous stretches of protected habitat (Dellinger et al., 2020), supporting puma populations with high genetic diversity and large effective population sizes (Gustafson et al., 2019). However, movement corridors among coastal mountain ranges are increasingly being degraded by human development (Burdett et al., 2010; Suraci et al., 2020; Zeller et al., 2017). Despite the natural long-range dispersal abilities of pumas (Gonzalez-Borrajo et al., 2017), interstate highways limit dispersal *via* avoidance and direct mortality in some urban areas (Riley et al., 2014; Vickers et al., 2015). Although human-caused mortality from vehicle collisions and lethal removal after wildlife–livestock conflicts are concerns (Guerisoli et al., 2021; Torres et al., 1996), a larger concern for long-term population viability is the genetic isolation of pumas within small or shrinking patches of habitat, which has led to high levels of intraspecific competition and mortality (Benson et al., 2020) and low genetic diversity in some areas (Ernest et al., 2014; Gustafson et al., 2019; Riley et al., 2014).

Previous studies have reported that two isolated puma populations in southern California, including the Santa Ana Mountains and the Santa Monica Mountains (Figure 1), had the lowest genetic diversity estimates measured throughout the range of *P. concolor* (Ernest et al., 2014; Riley et al., 2014), apart from the endangered Florida panther (*P. c. coryi*). In both the Santa Ana and Santa Monica Mountains, phenotypic evidence of inbreeding depression has been observed, similar to that of Florida panthers (Ernest et al., 2014; Huffmeyer et al., 2021; Roelke et al., 1993). For both populations, freeway traffic isolates pumas (Ernest et al., 2014; Riley et al., 2014; Vickers et al., 2015), and contemporary gene flow has been severely limited. Detailed pedigree analyses following the immigration of one male into each region showed evidence of natural genetic rescue (Ernest et al., 2014; Gustafson et al., 2017; Riley et al., 2014). Although migrant effects were positive, projection models predict the extirpation of these populations in 50 years without enhanced demographic dispersal and gene flow (Benson et al., 2016, 2019).

Recently published genome-resequencing data that included four pumas from California, two from Santa Monica Mountains, and two from the Central Coast North region in the Santa Cruz Mountains indicated that these individuals had ~20%–40% of their genomes represented as long runs of homozygosity, resulting from recent inbreeding (Saremi et al., 2019). However, these runs of homozygosity were not shared among individuals, and different populations exhibited different homozygous haplotypes, suggesting that genetic restoration (Hedrick, 2005; Tallmon et al., 2004) is possible because genetic variation still exists.

The complex distribution of pumas throughout California along a continuum of high genetic diversity populations occupying abundant habitat to strongly isolated populations displaying evidence of inbreeding depression requires a thorough characterization of state-wide genomic diversity to achieve proper conservation. In this study, our objective was to characterize patterns of genomic diversity at varying geographic scales. Such an approach has the potential to aid conservation strategies because it can identify at-risk, low-diversity local populations that would benefit from the restored gene flow within a broader geographic region. We identified 16,285 single-nucleotide polymorphisms (SNPs) from 401 individuals using a double-digest, restriction-site associated DNA sequencing method (ddRAD; Peterson et al., 2012). Specifically, our aims were to determine population genomic structure, genetic diversity, evidence for selection, and linkage disequilibrium. **P-13.7 (cont.)**

2 | METHODS

2.1 | Sample collection and DNA extraction

We obtained 354 tissue samples collected by the California Department of Fish and Wildlife between 2011–2017 from pumas either hit by car (~6%), found dead (~2%), poached (<1%), or through depredation permits (>90%), which had never been used in any previous genetic survey. Samples were well-distributed throughout the state, except for smaller populations in smaller mountain ranges. To bolster our sample size in the Los Angeles region of southern California, we added the only remaining DNA extracts (N = 144) from pumas collected between 2002–2015 (Riley et al., 2014; Vickers et al., 2015). After genomic and bioinformatic filtering (described below), we retained 401 out of 498 samples in the final dataset, which spanned the majority of puma habitat in California, excluding desert regions (Figure 1). For samples that lacked a precise GPS location, we used the nearest address or town where they were collected as their GPS point. Samples were stored at −80°C until DNA was extracted using Omega Bio-tek Mag-Bind Blood & Tissue DNA HDQ Kits (Omega Bio-tek, #M6399-01), with a manufacturer-designed protocol for the Kingfisher Duo Prime (ThermoFisher

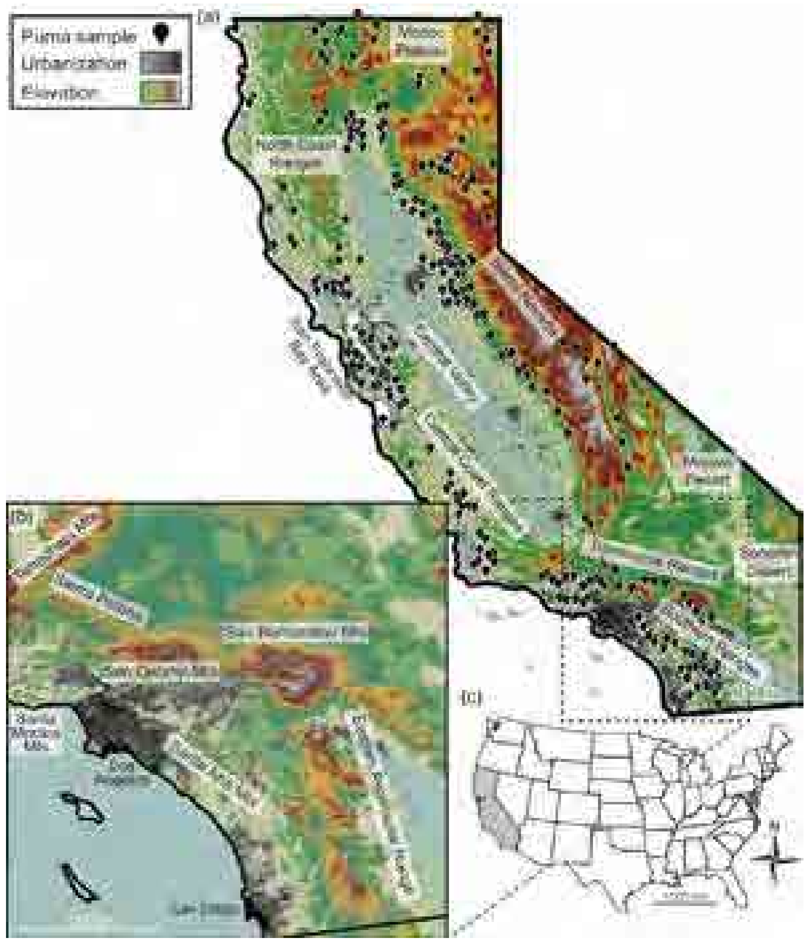

FIGURE 1 Location of 401 sampled pumas used in analyses, including (a) sample distribution across California, (b) geography of the mountain ranges surrounding the Los Angeles and San Diego regions, and (c) inset map showing the location of California in the United States of America

P-13.7 (cont.)

Scientific, #5400110) automated DNA purification system. We measured the concentration of DNA from each sample using a Qubit 3.0 fluorometer (Invitrogen, #Q33216) with Qubit dsDNA high-sensitivity kits (Invitrogen, #Q32854).

2.2 | Double-digest restriction-site associated DNA library preparation and sequencing

We reduced the genome size of our samples and identified single-nucleotide polymorphisms (SNPs) using modifications to the double-digest restriction-site associated DNA sequencing (ddRAD) protocols developed by Peterson et al. (2012). We used a library construction scheme which pooled 48 samples per library based on barcode availability, cost effective multiplexing, and sufficient coverage per individual. For each pooled library, we first normalized DNA concentrations to the sample with the lowest concentration within a library, with the goal to be more than 200 ng DNA starting material in 25 μL elution buffer (>8 ng/μl). The library with the lowest normalized starting concentration for each sample had 17.8 ng/μl DNA, whereas the library with the highest starting material had 51.6 ng/μl DNA. We used digestion enzymes and protocols established with previous puma studies (Trumbo et al., 2019). After DNA was normalized, we double-digested the DNA from each individual using NlaIII (New England BioLabs, #R0125S) and EcoRI (New England BioLabs, #R3101S) restriction enzymes (37°C for 3 h, then held at 4°C) at the manufacturer-recommended enzyme concentrations and used AMPure XP beads (Beckman Coulter, #A63881) at a 1.5X ratio to retain only DNA from the digestion. We omitted the DynaBeads cleanup step used by Peterson et al. (2012) and again used the Qubit to measure DNA concentrations and to guide another round of normalization. After normalization, the library with the lowest per-sample concentration had 2.1 ng/μl (in 29 μl), and the library with the highest per-sample concentration had 8.1 ng/μl.

We then ligated 48 uniquely barcoded P1 adaptors (e.g., P1.1 through P1.48) and two common P2 adapter pairs (i.e., P2.1 and P2.2) to each sample's double-digested fragments using the protocols of Peterson et al. (2012) to identify individual puma samples. Following ligation with individual barcodes, we pooled all 48 samples into a single tube and used AMPure XP beads to clean the library. We used TE buffer (rather than molecular-grade water) as the final step in this cleanup, which is recommended by the manufacturer for running size selection in the Pippin Prep (Sage Science, Beverly, Massachusetts). We selected fragments ranging from 375–475 bp (including 75 bp

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of adapters) using 2% dye-free gels run on a Pippin Prep. To minimize random polymerase chain reaction (PCR) duplicate errors, we split the library and ran five high-fidelity Phusion (New England BioLabs, #M0530) PCRs for 12 cycles on a SimpliAmp thermal cycler (ThermoFisher Scientific, #A24811). We then recombined the five PCR products and used an AMPure XP bead cleanup on the amplified library. Sample concentrations after size selection averaged 2.0 ng/μl DNA (range 0.82–3.7) and, after the PCR, averaged 8.2 ng/μl (range 3.6–15.0). We shipped the unfrozen DNA with cold packs to the University of Oregon's Genomics and Cell Characterization Core Facility (https://gc3f.uoregon.edu/) for 150 bp single-end sequencing on an Illumina HiSeq 4000 (Illumina).

2.3 | Bioinformatic SNP filtering

We ran standard quality control analyses using program *FastQC* v0.11.5 (Andrews, 2010). We used the *process_radtags* program in the *Stacks* v2.55 (Catchen et al., 2013) package to de-multiplex the reads based on unique barcodes to assign each sequence to an individual puma sample, to remove sequences with a Phred quality score below 20 (99% accuracy), and to remove Illumina adapter sequences from the data. We then aligned reads for each individual to PumCon1.0—the *Puma concolor* draft reference genome—using program *bwa* (Li & Durbin, 2009). We identified and filtered SNPs with *Samtools* (Li et al., 2009). We discarded loci with a mapping quality score below 20, minimum base quality less than 20, with more than two alleles at a site, and with a maximum depth greater than 100. We skipped indels and used only a random SNP per read to reduce linkage disequilibrium.

Using *vcftools*, we tested the effects of multiple filtering parameters on our dataset, specifically looking at which parameters produced unreliable and inconsistent heterozygosity estimates, inbreeding coefficients, and relatedness values. We retained loci with a minor allele frequency ≥0.05 as lower frequency SNPs could be sequencing error. The relationship between the minimum depth of reads per individual and heterozygosity was asymptotic and plateaued at about 3–4 reads. To be conservative, we selected a minimum depth of four reads per individual to reliably acquire genotypes based on both alleles. We also retained SNPs that had genotypes for at least 50% of the individuals. We iteratively removed samples with more than 50% missing data to maximize the number of SNPs retained in the dataset. Being more conservative with the percent of missing data decreased the number of SNPs in the final dataset but did not affect heterozygosity estimates, inbreeding coefficients, and relatedness values. We scanned for duplicate samples using relatedness values in *vcftools*, but, as expected, found none because most DNA samples were removed from the dead pumas. We also removed two potentially contaminated samples based on negative F statistics in *vcftools*.

In each library of 48 samples, we strategically included puma samples from across a large geographic area so libraries would have no correlation with the spatial location. For example, there was no significant difference between mean sample latitudes ($F_{7,309} = 1.108$, $p = 0.358$) or longitudes ($F_{7,309} = 1.533$, $p = 0.155$) among libraries. However, because the southern California libraries constructed from pre-existing extracts were from a small geographic region, there ended up being some latitudinal ($F_{10,395} = 33.76$, $p < 0.001$) and longitudinal ($F_{10,395} = 33.89$, $p < 0.001$) mean differences between those libraries and the libraries constructed from the new samples. However, as indicated below, there were no detectable biases of the southern California libraries in any analyses.

To test for library-effect biases (i.e., differences among sequencing lanes), we used *BayeScan* to identify outlier SNPs while treating sequencing lanes as "populations" and using a false discovery rate of 0.05 (Foll & Gaggiotti, 2008). There were no outlier loci among any of the libraries, including the southern California libraries. We also assessed bias with various genetic structure analyses. Genotypes resulting from the pre-existing DNA extracts consistently clustered with those genotypes resulting from the new samples collected from southern California. With no apparent library-effect biases, we retained 16,285 biallelic variants (mean ± SD = 12,245 ± 2749) with a mean depth at each locus of 11.7 ± 5.1 and a mean depth per locus per individual of 11.7 ± 7.1.

2.4 | Population structure and outlier loci

We used multiple approaches to identify genetic clusters of individuals, including a linear principal components analysis (PCA) and a spatially explicit population structure analysis in program R (R Core Team, 2020). We ran the PCA using *adegenet* 2.1.1 (Jombart, 2008) and the structure analysis in *tess3r* 1.1.0 (Caye et al., 2016). We used *adegenet*::*colorplot* to present the linear structure identified by the first three principal component axes. In *tess3r*, we ran 20 replicates for each *K* (1–20) at 100,000 iterations each. We kept the most highly supported model (i.e., "best" based on cross-entropy scores) within each of the 20 replicates. To test for evidence of loci under selection, we identified outlier loci among populations (Narum & Hess, 2011) using *BayeScan* and *tess3r* with the Benjamini–Hochberg statistical correction and the recommended α-value of 0.0001. **P-13.7 (cont.)**

2.5 | Genetic diversity, effective population size, genetic differentiation, and linkage decay

For each genetic cluster identified in *tess3r*, we calculated observed heterozygosity (H_O), gene diversity (H_S), and allelic richness (A_r) using *hierfstat*::*basic.stats* (Goudet, 2005; Nei, 1987). To test for Wahlund effects within broad-scale clusters, we used t-tests to test for differences between H_O and H_S. We calculated private alleles (A_p) using *poppr*::*private*_alleles (Kamvar et al., 2014). We used *NeEstimator* 2.1 (Do et al., 2014) to estimate effective population size (N_e) using the linkage disequilibrium model, random mating, allele frequencies >0.05, and with a correction factor of 19 haploid chromosomes (Hsu et al., 1963), as recommended by Waples et al. (2016). We used *hierf* *stat*::*pairwise.neifst* and *hierfstat*::*pairwise.WCfst* to estimate pairwise genetic differentiation based on F_{ST} according to Nei (1987) or Weir and Cockerham (1984).

We used *Plink* 2.0 (Purcell et al., 2007) to estimate linkage disequilibrium among loci (--ld-window-r2 0 --ld-window 999999 --ld-window-kb 8000). To determine the level of non-random segregation of alleles across the genome, we assessed linkage decay in each genetic cluster by plotting the correlation of loci (R^2) based on genomic distance between SNPs. We correlated loci using binned intervals of 100,000bp from 0 to the maximum scaffold size of PumCon1.0. Meiosis should break up linkage, resulting in low R^2 values. However, populations experiencing strong selection, low mutation, inbreeding, low migration, or strong genetic drift will have higher R^2 values. In short, SNPs that are close together on chromosomes are expected to be correlated (i.e., inherited as chromosomal/haplotype segments), but SNPs far away are expected to assort randomly during recombination. However, if sequences are too similar, which they may be in small and inbred populations, we will not be able to detect events of crossing over despite their occurrence, resulting in higher estimates of linkage disequilibrium, which is still an important indicator of genetic diversity and N_e.

3 | RESULTS

3.1 | Population structure and outlier loci

We recovered 16,285 SNPs that were randomly distributed among 125 draft-genome scaffolds. The first three axes of the PCA accounted for 14.6% of the variance and indicated that there were four broad-scale genetic clusters distributed across California (Figure 2). When each puma was plotted on a map of California (Figure 2a), the four clusters were geographically concordant with the Sierra Nevada (SN), North Coast (NC), Central Coast (CC), and Southern Coast (SC).

The first eigenvector separated the negative-valued CC and SC groups from the positive-valued SN and NC (Figure 2b,c). The second eigenvector separated negative-valued CC from positive-valued SC (Figure 2b). Finally, the third eigenvector separated negative-valued NC from all other groups (Figure 2c).

A spatially explicit population structure analysis indicated that there was broad- to fine-scale nested genetic structure with support for 4–10 genetic clusters (Figure 3). Root mean square error (inset plot in $K = 2$ panel of Figure 3) and cross-entropy scores (inset plot in $K = 3$ panel of Figure 3) provide statistical evidence for nested genetic structure; values begin to curve at $K = 4$, and there is a major increase in variance at $K = 5$, but there is a steady increase in statistical support at higher K values. However, single pumas formed individual clusters at $K > 10$, at which point K lost biological meaning. When K was set to 4, the genetic clusters corresponded to the broad-scale genetic groups identified by the PCA (Figures 2 and 3). Briefly, at $K = 5$, pumas in the Central Coast North (CC-N) emerged; at $K = 6$, the Eastern Sierra Nevada (ESN) cluster separated from the Western Sierra Nevada (WSN); at $K = 7$, the Santa Ana (SA) cluster separated from the Eastern Peninsular Range (EP); at $K = 8$, the San Gabriel–San Bernardino (SGSB) cluster emerged; at $K = 9$, the Klamath–Cascades (KC) cluster emerged; and at $K = 10$, the Central Coast South (CC-S) cluster separated from Central Coast Central (CC-C; Figure 3). We observed no significant evidence for outlier loci using the Benjamini–Hochberg statistical correction in *tess3r* nor *BayeScan* for either $K = 4$ or $K = 10$. **P-13.7 (cont.)**

3.2 | Genetic diversity, effective population size, genetic differentiation, and linkage decay

For $K = 4$, calculations of observed heterozygosity (H_O), gene diversity (H_S), polymorphic loci (*Poly*), allelic richness (A_r), and the private alleles (A_p) indicate that the Sierra Nevada cluster had higher

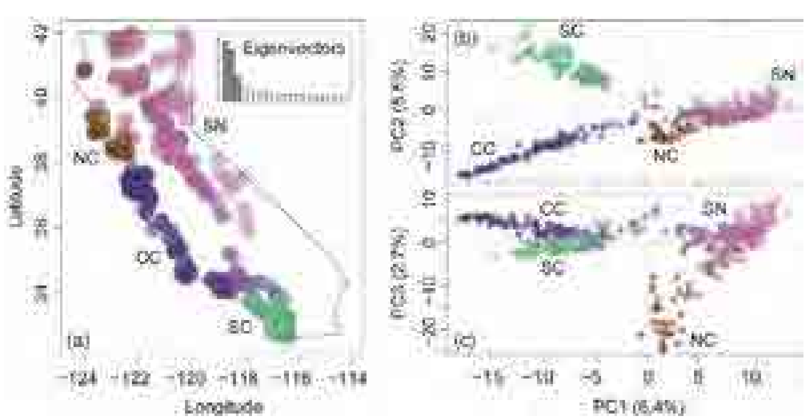

FIGURE 2 Principal component analysis (PCA) of 401 pumas at 16,285 SNPs reveals four genetic clusters. (a) Color plot (R package *adegenet*) of the PCA represents colors corresponding to a combination of the first three eigenvectors. The inset plot shows the proportion of the variance explained by shaded PC eigenvectors 1–3 compared to other eigenvectors. The color values are plotted at sample locations to demonstrate geographic structure. Color plots of (b) PC1 and PC2 and (c) PC1 and PC3 resolved the four broad-scale genetic clusters

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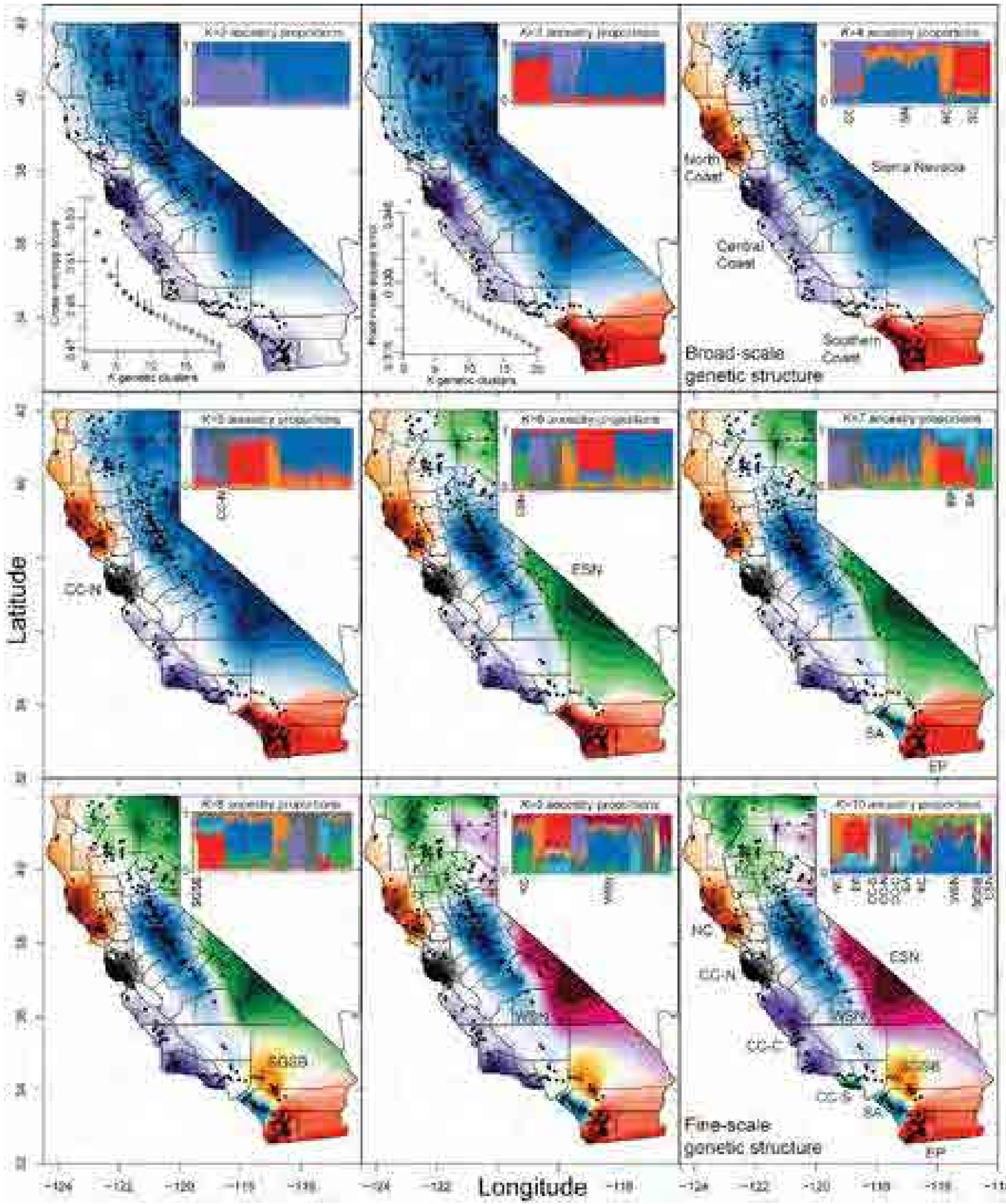

FIGURE 3 Interpolated ancestry proportions from *tess3r*, demonstrating the geographic distribution of biologically meaningful genetic clusters (*K*) ranging from 2–10. The "best" iterations of each *K*, based on the cross-entropy score, is presented (shaded circles of inset plot in *K* = 2 panel). Root mean square error is also presented (inset plot in *K* = 3 panel). Both *tess3r* and the PCA (Figure 2) support *K* = 4 and, therefore, the genetic clusters are labeled. At *K* = 10, nested genetic clusters are labeled consistent with previous microsatellite data (Gustafson et al., 2019). For visualization, at each *K*, the genetic cluster that emerges is labeled. In alphabetical order, acronyms include Central Coast Central (CC-C), Central Coast North (CC-N), Central Coast South (CC-S), Eastern Peninsular Range (EP), Eastern Sierra Nevada (ESN), Klamath–Cascades (KC), North Coast (NC), Santa Ana (SA), San Gabriel–San Bernardino (SGSB), and Western Sierra Nevada (WSN)

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genetic diversity than the Southern Coast, Central Coast, and North Coast (Table 1). Although significant, the North Coast was the only broad-scale genetic cluster that did not exhibit a strong Wahlund effect (i.e., significantly lower H_O than H_S; SN: $t = -50.6$, $p < 0.001$; SC: $t = -48.2$, $p < 0.001$; CC: $t = -58.5$, $p < 0.001$; NC: $t = -10.6$, $p < 0.001$) or finer-scale substructure. Effective population sizes were not reported for broad-scale clusters because substructure introduced major biases (i.e., near-zero values) into N_e estimates.

Broad-scale genetic clusters were moderately differentiated based on F_{ST} estimates which ranged from ~0.1–0.2 (Table 2). The Sierra Nevada cluster was least differentiated from the others, and the lowest F_{ST} estimates were between the Sierra Nevada and the North Coast clusters. In contrast, the Southern Coast cluster was the most differentiated from the others, and the highest F_{ST} estimates were between the Southern Coast and the North Coast, followed by the Southern Coast and the Central Coast. At the broad scale, the linkage decay plot indicated that linkage disequilibrium (LD) was lowest in the Sierra Nevada and slightly increased in the Central Coast, Southern Coast, and North Coast clusters (Figure 4a). When ignoring population assignments, California pumas ($N = 401$) had an LD R^2 of ~0.3 which decreased rapidly to less than 0.1 at a distance of 0.3 Mbp, then approached 0 at farther distances. Nearly, the same result was observed in the Sierra Nevada. The Central Coast also had a major reduction in LD with distance but did not fall under 0.1 until ~3 Mbp in distance. In contrast, the Southern Coast and North Coast started with an LD R^2 of ~0.4 which remained above 0.1 even at distance of 8 million bp (Figure 4a).

The nested genetic clusters within the Sierra Nevada—including KC, WSN, and ESN—had the highest genetic diversity estimates, as well as the highest estimates of N_e. Only the WSN had an N_e above 50, a threshold commonly considered to be sustainable over the long term (Table 1; Franklin, 1980). Pairwise F_{ST} estimates among nested genetic clusters within the Sierra Nevada suggested weak substructure, with little genetic differentiation (i.e., pairwise $F_{ST} < 0.05$), indicating substantial gene flow throughout this region (Table 2). Within the Sierra Nevada, the ESN showed slightly higher LD than KC or WSN, and all three retained a high proportion of polymorphic loci (i.e., 87–91%).

The nested genetic clusters within the Southern Coast—including EP, SGSB, and the SA—exhibited lower genetic diversity estimates when than the Sierra Nevada, as well as large differences when compared to each other (Table 1). Estimates were generally lowest in SA, whereas EP and SGSB had similar overall estimates. However, both SA and SGSB had extremely low estimates of N_e. Unlike the Sierra Nevada, nested genetic clusters within the Southern Coast had moderate to strong genetic differentiation from one another (pairwise F_{ST} values ~0.1–0.2; Table 2). Except for the moderate differentiation with EP (i.e., pairwise F_{ST} of ~0.1), SA was the most differentiated among the 10 finer-scale genetic clusters (pairwise F_{ST} values range: ~0.2–0.3). The SGSB cluster had relatively lower pairwise F_{ST} estimates with the Sierra Nevada and EP clusters, moderate F_{ST} estimates with CC-C and CC-S, and was more strongly differentiated from the CC-N and NC. The EP cluster showed similar patterns of differentiation but was least differentiated from the geographically **P-13.7 (cont.)**

TABLE 1 Heat map of genetic diversity statistics for $K = 4$ broad-scale and $K = 10$ nested fine-scale genetic clusters, including sample size (N), observed heterozygosity (H_O); gene diversity (H_s), proportion of polymorphic loci out of 16,285 (*Poly*), allelic richness corrected for sample size (A_r), private alleles (A_p), and effective population size (N_e)

Genetic diversity	Genetic Cluster			
$K = 4$	SN	SC	CC	NC
N	193	96	79	33
H_O	0.31	0.26	0.24	0.26
H_s	0.34	0.29	0.28	0.27
Poly	0.93	0.79	0.77	0.78
A_r	1.79	1.69	1.67	1.67
A_p	37	34	17	0

$K = 10$	KC	WSN	ESN	EP	SGSB	SA	CC-C	CC-S	CC-N	NC
N	53	110	27	66	13	25	27	17	35	28
H_O	0.32	0.31	0.31	0.27	0.29	0.23	0.27	0.24	0.22	0.25
H_s	0.33	0.33	0.33	0.29	0.30	0.24	0.29	0.27	0.24	0.26
Poly	0.91	0.90	0.87	0.78	0.78	0.64	0.77	0.70	0.63	0.74
A_r	1.33	1.33	1.33	1.29	1.30	1.24	1.29	1.27	1.24	1.26
N_e	28.9	54.4	42.2	14.8	2.3	3.5	26.9	4.1	19.0	14.1

Note: Values for N_e are not presented for the $K = 4$ Sierra Nevada (SN), Southern Coast (SC), Central Coast (CC), or North Coast (NC) because of model assumption violations. There were no private alleles at $K = 10$, including Klamath–Cascades (KC), Western Sierra Nevada (WSN), Eastern Sierra Nevada (ESN), Eastern Peninsular (EP), San Gabriel–San Bernardino (SGSB), Santa Ana (SA), Central Coast Central (CC-C), Central Coast South (CC-S), Central Coast North (CC-N), and North Coast (NC). Heat map colors bound the minimum (white) and maximum (darkest gray) values within rows.

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TABLE 2 Heat map of mean pairwise genetic distance values for the broad-scale $K = 4$ and fine-scale $K = 10$ genetic clusters. Weir and Cockerham F_{ST} is presented below the diagonal, and Nei's F_{ST} is presented above the diagonal (WC\Nei)

WC\Nei F_{ST}	Genetic Cluster			
$K = 4$	SN	SC	CC	NC
SN	-	0.133	0.124	0.100
SC	0.129	-	0.173	0.198
CC	0.120	0.173	-	0.156
NC	0.094	0.196	0.156	-

$K = 10$	KC	WSN	ESN	EP	SGSB	SA	CC-C	CC-S	CC-N	NC
KC	-	0.022	0.041	0.141	0.109	0.215	0.117	0.146	0.183	0.093
WSN	0.022	-	0.045	0.149	0.111	0.222	0.121	0.147	0.188	0.126
ESN	0.041	0.045	-	0.163	0.116	0.226	0.168	0.189	0.233	0.183
EP	0.141	0.146	0.166	-	0.130	0.100	0.164	0.196	0.231	0.214
SGSB	0.105	0.106	0.113	0.132	-	0.212	0.140	0.163	0.210	0.205
SA	0.202	0.203	0.221	0.095	0.217	-	0.254	0.287	0.319	0.301
CC-C	0.114	0.116	0.168	0.163	0.141	0.251	-	0.060	0.098	0.164
CC-S	0.137	0.136	0.183	0.192	0.164	0.289	0.059	-	0.148	0.202
CC-N	0.178	0.176	0.237	0.227	0.221	0.320	0.100	0.152	-	0.229
NC	0.090	0.118	0.183	0.211	0.210	0.300	0.164	0.203	0.230	-

Abbreviations: CC, Central Coast; CC-C, Central Coast Central; CC-N, Central Coast North; CC-S, Central Coast South; EP, Eastern Peninsular; ESN, Eastern Sierra Nevada; KC, Klamath–Cascades; NC, North Coast; SA, Santa Ana; SC, Southern Coast; SGSB, San Gabriel–San Bernardino; SN, Sierra Nevada; WSN, Western Sierra Nevada.

All pairwise F_{ST} estimates were significant ($p < 0.001$) based on a bootstrapping analysis using *hierfstat::boot.ppfst*.

Heat map colors bound the minimum (white) and maximum (darkest gray) values either below or above the diagonals.

P-13.7 (cont.)

adjacent SA and SGSB clusters. Although EP exhibited LD estimates similar to the Southern Coast as a whole, SGSB and SA started with a high LD R^2 of ~0.5 which decreased to just more than 0.3 at a distance of 0.3 Mbp, then remained high (more than 0.25) at farther distances (Figure 4).

The nested genetic clusters within the Central Coast exhibited the most variation in estimates of genetic diversity (Table 1). The CC-C cluster had the highest diversity within the region, including the largest estimate of N_e. The CC-S cluster had intermediate levels of diversity but exhibited the lowest N_e in the region. The CC-N cluster had as low, or lower, genetic diversity estimates than most of the 10 fine-scale genetic clusters examined overall, but had one of the higher N_e estimates outside of the Sierra Nevada. Differentiation within the Central Coast was moderate overall (pairwise F_{ST} ~ 0.06–0.15) and appeared to correlate with distance (i.e., CC-N more differentiated from CC-S than CC-C; Table 2). Within the Central Coast, CC-C had the lowest LD R^2 values (Figure 4). The CC-N cluster had higher LD values, especially at lower distances between SNPs, and CC-S had among the highest LD R^2 values, comparable to those of SGSB and SA in the Southern Coast.

Finally, the NC had genetic diversity estimates that were lower than those of the Sierra Nevada and comparable to the Southern Coast and Central Coast, with an N_e estimate of 14.1 (Table 1). Overall, the NC showed strong differentiation from the other fine-scale genetic clusters with the exception of KC and WSN for which differentiation was moderate (Table 2). The linkage decay plot indicates that the NC had similar LD R^2 values to that of ESN and EP (Figure 4).

4 | DISCUSSION

Our analyses of genetic diversity and linkage disequilibrium based on 16,285 SNPs from 401 pumas throughout California demonstrated that the complex geography and land use patterns in California result in equally complex patterns of gene flow and population structure. The high-density SNP data provided resolution to detect both four broad-scale genetic clusters with high genetic diversity as well as substructure at a finer scale that we designate as 10 genetic populations with highly variable genetic diversity. Our data further support the notion that puma populations in California form a "horseshoe" network around the Central Valley with San Francisco Bay acting as a barrier to gene flow along the coast (Gustafson et al., 2019). For the Sierra Nevada cluster, the nested finer-scale populations had consistently high genetic variation. However, within the coastal groups, genetic variation within certain fine-scale genetic populations was concerningly low, while others appeared to have retained sufficient variation to be capable of serving as sources of genetic rescue under various management scenarios to restore connectivity. In fact, our linkage decay analysis indicated that populations with low genetic diversity and high linkage disequilibrium may not necessarily share the same fixed loci, consistent with what was suggested by Saremi

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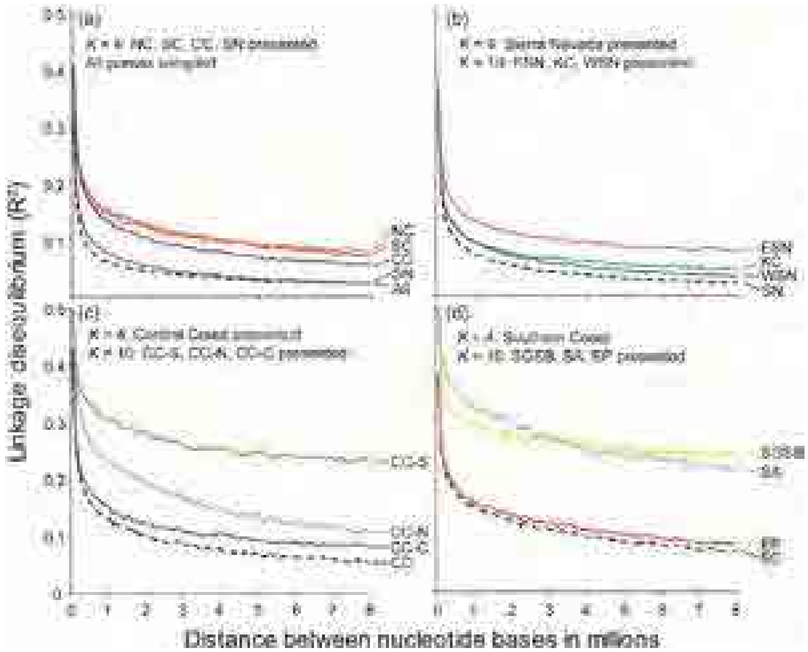

FIGURE 4 Correlation of SNPs with genomic distance, ranging from hundreds to 8 million nucleotides in distance. Based on pairwise estimates from 16,285 SNPs, linkage decay is presented for all 401 pumas sampled in California (All), from the $K = 4$ broad-scale genetic clusters (a: North Coast, NC; Southern Coast, SC; Central Coast, CC; Sierra Nevada, SN) and from the $K = 10$ fine-scale genetic clusters (b–d). Nested and finer-scale clusters are presented within their corresponding broad-scale group. The NC is presented only in the first panel because it did not exhibit substructure. (b) Eastern Sierra Nevada (ESN), Klamath–Cascades (KC), and Western Sierra Nevada (WSN) are nested within SN. (c) Central Coast South (CC-S), Central Coast North (CC-N), and Central Coast Central (CC-C) are nested within CC. (d) San Gabriel–San Bernardino (SGSB), Santa Ana (SA), and Eastern Peninsular Range (EP) are nested within SC. In each figure, the dashed line represents the broadest-scale designation within the group

P-13.7 (cont.)

et al. (2019). Specifically, when individuals from nested populations were combined within the four broader-scale groups, linkage decay values were much lower, indicating variation still exists among populations. Therefore, maintaining and enhancing connectivity within and among broad-scale groups could increase genetic diversity to entire regions and could decrease the apparent effects of genetic drift and inbreeding to some at-risk coastal populations (Ernest et al., 2003, 2014; Gustafson et al., 2017; Riley et al., 2014).

The support for four broad-scale genetic groups from SNPs is different than previous studies using microsatellites (Ernest et al., 2003; Gustafson et al., 2019), indicating the importance of using genomic methods in the study of broader-scale wildlife conservation genetics. Our data further support the claim that the Sierra Nevada region is a major refugium of puma genetic diversity in California (Gustafson et al., 2019). Therefore, it is important to protect the Sierra Nevada group from habitat degradation and foster conservation actions that can enhance gene flow with the North Coast, Central Coast, and Southern Coast clusters as well as with the Great Basin to the east (Gustafson et al., 2019). The broad-scale Southern Coast group is least connected to the other genetic clusters in the state but had higher genetic diversity and more private alleles than the Central Coast or North Coast. This indicates that the Southern Coast group retains unique genomic variations that must be conserved in order to maximize genetic diversity among pumas in California. Furthermore, our finding of greater genetic diversity at lower latitudes is consistent with a previous study of gene flow among puma populations across southwestern North America, which found both higher microsatellite allelic diversity and a greater number of private alleles among pumas in southern Arizona and New Mexico (McRae et al., 2005). Those authors suggested that the pattern was consistent with recolonization of North America following a late-Pleistocene extinction (Culver et al., 2000); range expansion from the south was accompanied by decreasing diversity in more northern populations because of serial founder events. Our finding of high genetic diversity in the Southern Coast group suggests the genetic legacy of recolonization is generally consistent across the contemporary range of pumas in North America.

Although the four major genetic clusters are highly consistent among our structure analysis and PCA, there was also statistical support for substructure (i.e., *tess3r* results and moderate to high pairwise F_{ST} values within and among the broad-scale groups), indicating 10 genetic populations at a finer scale. Generally, the 10 genetic populations identified with SNPs correspond strongly to those identified in previous studies using microsatellite markers and different samples (Ernest et al., 2003; Gustafson et al., 2019). However, the northern-most Klamath–Cascade population was not observed

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previously with microsatellites (Gustafson et al., 2019). This is likely because there were very few pumas available for analysis in the Klamath or Cascade Mountains during the 2019 microsatellite study. It is also possible that 42 microsatellites may not have been sufficient to detect the low genetic differentiation (F_{ST} = 0.022) observed between the Klamath–Cascade and Western Sierra Nevada populations. The 10 populations varied considerably in genetic diversity estimates (H_O range 0.22–0.32; H_S range 0.24–0.33; *Poly* range: 0.63–0.91; A_r range: 1.24–1.33), effective population sizes (N_e range 2.3–54.4), and genetic differentiation (F_{ST} range: 0.22–0.32) as discussed below.

A major difference between this and previous studies is the observation that pumas in the Central Coast North population have genetic diversity estimates as low as those in the Santa Ana and Central Coast South populations, which are highly isolated by urbanization and transportation infrastructure and exhibit evidence of inbreeding depression (Benson et al., 2020; Ernest et al., 2014; Gustafson et al., 2017; Riley et al., 2014; Vickers et al., 2015). Our results are consistent with those of Saremi et al. (2019), which indicated that inbreeding metrics between pumas from the Santa Monica Mountains (in Central Coast South) and pumas from the Santa Cruz Mountains (in Central Coast North) were similar. Interestingly, N_e for the Central Coast North was much higher than that in both the Santa Ana and Central Coast South populations. These observations are consistent with a large breeding population experiencing genetic drift due to dispersal barriers to the north (i.e., San Francisco Bay) and gene flow occurring only with the Central Coast Central population to the south. This pattern could also be driven by carrying capacity processes associated with habitat limitations (Dellinger et al., 2020). If dispersal is limited by continued development southeast of the Central Coast North population, rapid genetic drift and inbreeding may ensue (Mills & Allendorf, 1996; Wang, 2004), and local extinctions may occur as predicted in the Central Coast South and Santa Ana populations (Benson et al., 2016, 2019). Thus, puma population viability will be facilitated when land management agencies and land developers in the region work proactively to preserve or enhance wildlife corridors.

Notably, the San Gabriel–San Bernardino population had the lowest N_e, but had intermediate levels of genetic diversity. Occasional migrants could alter N_e estimates and temporarily inflate estimates of heterozygosity (Gustafson et al., 2017). We suggest this could also be the result of metapopulation dynamics—that is, a small local population with frequent turnover located at the intersection of dispersal corridors for the Sierra Nevada, Central Coast, and Southern Coast groups. Although the genetics of this population are complex and somewhat uncertain, this region is of critical importance for maintaining state-wide puma gene flow. Enhancing connectivity through the Transverse Ranges (including the Tehachapi Mountains, Sierra Pelona, San Gabriel Mountains, and San Bernardino Mountains; Figure 1b) is a critical conservation priority in order to maintain gene flow between the Southern Coast populations and the Sierra Nevada or Central Coast groups.

The three populations with the lowest N_e, including the San Gabriel–San Bernardino, Santa Ana, and Central Coast South populations, have the smallest available amount of habitat (Dellinger et al., 2020) and had the highest linkage disequilibrium throughout their genomes. As we observed, there was great variation among populations in the decay curves, with the Central Coast North population having the next highest linkage disequilibrium after these three populations. Given the genetic diversity, N_e, and linkage data, the San Gabriel–San Bernardino and Central Coast North populations may be approaching levels of genetic drift and inbreeding similar to the well-monitored and genetically depauperate Santa Ana and Central Coast South populations (Ernest et al., 2014; Gustafson et al., 2017; Riley et al., 2014).

Populations with intermediate genetic diversity include the North Coast, Central Coast Central, and Eastern Peninsular Range. Measures of genetic diversity were lower than expected for the North Coast population, given that there are no obvious anthropogenic barriers to gene flow with the Klamath–Cascade, Western Sierra Nevada, or pumas from Oregon (Gustafson et al., 2019). However, the majority of our samples from this genetic cluster came from just north of San Francisco Bay, an area of substantial human density and restricted gene flow on three sides. Thus, our results may not be truly representative of this region as a whole and may represent the most isolated pumas on a "peninsula" of habitat. Future studies would benefit from increased sampling throughout this genetic cluster, north to (and including) Oregon. Nonetheless, pumas and other animals would benefit if decisions for future development between the North Coast and Sierra Nevada consider the future connectivity of private timber land holdings along the coast with the inland national forests. **P-13.7 (cont.)**

The Central Coast Central population has ample habitat for maintaining a breeding population (Dellinger et al., 2020). Given the apparent absence of gene flow across the Central Valley, this population may be the only consistent source of migrants for the Central Coast North and Central Coast South, which have concerningly low levels of genetic diversity and evidence of inbreeding. Thus, we consider the Central Coast Central population to be essential for the long-term viability of both adjacent populations and urge that habitat in this region is not fragmented further.

Despite having less than half of the overall habitat of the Central Coast Central population (Dellinger et al., 2020), the Eastern Peninsular Range population has roughly similar genetic diversity estimates, but a much lower N_e. Dispersal in and out of the Eastern Peninsular Range is extremely limited, and the degree to which pumas disperse across the border between USA and Mexico remains unknown (Gustafson et al., 2019). Given that the Eastern Peninsular Range is the only population known to exchange individuals with the Santa Ana population, management actions which enhance gene flow between these areas remain critical to the recovery of pumas in the Santa Ana Mountains.

Our linkage decay analysis suggests that in the Central Coast South, San Gabriel–San Bernardino, Santa Ana, and perhaps the Central Coast North populations, pumas may have long runs of

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homozygosity that are identical by descent. This is consistent with the genome resequencing results of Saremi et al. (2019) in the Santa Cruz (i.e., Central Coast North) and Santa Monica Mountains (i.e., Central Coast South), which suggested that close and recent inbreeding led to runs of homozygosity. Although Saremi et al. (2019) sequenced individuals only from California populations known to have low genetic diversity, our linkage decay results from populations throughout the state indicate that the genome-level problems of inbreeding are not universal throughout California. Instead, the Klamath–Cascades, Western Sierra Nevada, Eastern Sierra Nevada, Central Coast Central, and the Eastern Peninsular Range populations all have low linkage disequilibrium throughout the genome. Additionally, when the inbred populations are analyzed with their broad-scale group, linkage decay curves demonstrated the potential for gene flow with adjacent populations to reduce linkage to negligible levels. We observed up to 30–37% of the SNPs as fixed in the Central Coast South, Santa Ana, and Central Coast North populations. Our linkage decay curves and the resequencing results of Saremi et al. (2019) demonstrate that fixed regions of the genome often differ among populations. Thus, genetic restoration is possible even among genetically depauperate populations. When considering that genetic diversity is much higher in several California puma populations than in those heavily studied along urban coasts, there is high potential for the long-term persistence of pumas throughout the majority of the state.

Genetic restoration or rescue has been successfully demonstrated for isolated, large-felid populations, such as the African lion (*Panthera leo*; Miller et al., 2020) and Florida panther (*P. concolor*; Ralls et al., 2018). There have also been calls for genetic rescue of other large felids, such as isolated populations of tigers (*Panthera tigris*; Armstrong et al., 2021) and leopards (*Panthera pardus*; Perez et al., 2006). Thus, it is becoming increasingly evident that large-bodied cats and other apex predators will need habitat and connectivity for long-term evolutionary survival. Natural events of genetic restoration among fragmented populations of pumas in California (Ernest et al., 2014; Gustafson et al., 2017; Riley et al., 2014), combined with our linkage decay analysis, indicates that pumas and other apex predators may need to be managed in a metapopulation framework that incorporates genomic data (Farquharson et al., 2021).

We tested for outlier loci using multiple methods (Narum & Hess, 2011), but found no evidence of local adaptation when $K = 4$ or $K = 10$. Detection of outlier loci with RAD-seq is limited by the reduced representation of the genome, yet it has often been shown to be an effective approach (Catchen et al., 2017). Pumas are long-distance dispersers (Hawley et al., 2016; Sweanor et al., 2000) and inhabit all major mountain ranges in California (Dellinger, Gustafson, et al., 2020), suggesting that local adaptation may be unlikely. Our results provide preliminary evidence that outbreeding depression resulting from potential active genetic management may be of minimal concern (Frankham et al., 2011). Recent modeling (Kyriazis et al., 2021) does suggest, however, that attempts to maximize genetic diversity in a population can introduce hidden deleterious recessive mutations, enhancing extinction risk. The modeling of Kyriazis et al. (2021) has faced criticisms (García-Dorado & Caballero, 2021), however, and Ralls et al. (2020) argue that the benefits of increasing genetic diversity outweigh the risks. Thus, managers could consider actions (e.g., wildlife overpasses/underpasses, translocation of individuals between populations, etc.) to improve viability of some coastal populations, as was empirically demonstrated to have shifted the trajectory of Florida panther population from extinction (Ralls et al., 2018). However, we suggest whole-genome resequencing methods better suited for detecting selection (Fuentes-Pardo & Ruzzante, 2017) be implemented before such efforts, especially over long distances. Managers would also need to consider other risks as well, such as the movement of pathogens or the ethical implications of moving large carnivores (Bevins et al., 2012). Wildlife managers will have to weigh these concerns against their obligation to minimize the risks of extirpation, such as those predicted for the Santa Ana and Central Coast South populations (Benson et al., 2019), and shown here to be a concern in the Central Coast North population as well. Should connectivity be re-established, then these factors, as well as possible local adaptation, should be weighed carefully. It is our opinion that current efforts to construct or improve wildlife crossing structures that can facilitate natural movement among coastal populations should be considered the primary management strategy for conserving viable puma populations in that region.

5 | CONCLUSION

P-13.7 (cont.)

Our population genomic analyses provide decision makers a contemporary and thorough evaluation of the genetic diversity, effective population sizes, and connectivity of puma populations throughout California. These state- and genome-wide results are critically important for conservation and management practices in California, especially considering the increasing demand for development and the current political climate surrounding the petition to list pumas in Southern and Central California as threatened under the California Endangered Species Act (Yap et al., 2019). In brief, puma populations are widespread throughout the mountains of California. Populations range from major genetic sources to populations with issues of low genetic diversity and inbreeding. Multiple lines of evidence suggest that inbred populations do not share the same runs of homozygosity and, therefore, genetic diversity could be restored through enhanced gene flow. Current challenges to puma populations are highly regional and should be addressed by focusing on how natural geography and human development impacts puma habitat and movements locally. Attention is understandably given to those populations that are highly imperiled, but it is important to note that California has several thriving populations throughout the state which represent an important resource for any genetic management strategy. Protecting tracts of contiguous habitat to preserve large populations will provide greater protection for the species as a whole. Specifically, further fragmentation of habitat in the Sierra Nevada group could be catastrophic to population viability of pumas in

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the state because it serves as a genetic refugium. Protecting, enhancing, and creating movement corridors to allow state-wide "stepping-stone" connectivity at broad and fine scales will allow for the migrants needed to counteract the local extirpations faced by some coastal populations.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Individual genotype data and associated location data are provided on Open Science Framework https://doi.org/10.17605/OSF.IO/HUF4K.

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P-13.7
(cont.)

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Response to Public Comment P-13

Kristeen Penrod, Cara Lacey
The Nature Conservancy
February 12, 2022

Response P-13.1

This email correspondence provides The Nature Conservancy's comment letter via attachment. Thank you for your comment and interest in the project.

Response P-13.2

The Nature Conservancy's concern for habitat connectivity and wildlife movement for native resident or migratory wildlife species, including federally and State listed species and candidate species, and established wildlife corridors is acknowledged.

It is important to note that the existing El Casco Creek culvert at I-10 would not be affected by the proposed project. As noted above, this culvert includes double 10-foot by 7-foot RCBs, and is the largest culvert along El Casco Creek within project limits. However, the proposed project would construct an approximately 62-foot extension of the existing 10-foot by 9-foot RCB beneath Cherry Valley Boulevard to allow for ramp reconfigurations associated with the interchange.

Following circulation of the Draft IS/EA and prior to completion of this Final IS/EA, on January 27, 2022, January 28, 2022, and again on April 19, 2023, the project team consulted with multiple resource agencies (i.e., Carly Beck and Katrina Rehrer with the California Department of Fish and Wildlife [CDFW], and John Taylor with the United States Fish and Wildlife Service [USFWS]) and has prepared a draft Determination of Biologically Equivalent or Superior Preservation (DBESP) to ensure potential adverse effects to riparian/riverine resources along El Casco Creek are minimized and mitigated to reduce impacts to sensitive biological resources, including impacts related to wildlife movement.

Based on these discussions with the resource agencies and DBESP, the project would purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts will be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, will be developed in conjunction with the wildlife agencies. In addition, the project would include a number of enhancements to minimize impacts related to wildlife movement under Cherry Valley Boulevard. Construction would include the installation of a three-foot-high concrete roadway barrier that would shield headlight and noise intrusion into the culvert. Planting of trees and shrubs would occur along Calimesa Road to further shield headlight and noise from entering the culvert. Revegetation would be installed per Caltrans Standard Specifications Sections 13-05 and 21. Directional fencing will be installed along the existing drainage as needed to guide wildlife to the culvert crossing. CDFW and USFWS concurred with the DBESP findings and mitigation strategy on July 6, 2023. This Final IS/EA has been updated to reflect these project features and measures to avoid, minimize, or mitigate impacts to connectivity.

Regarding Figure 2.3.1-2, Vegetation Communities and Other Land Uses, of the Draft IS/EA, portions of the property located east of Interstate 10 and north of Cherry Valley Boulevard have been updated to reflect “disturbed habitat” in this Final IS/EA..

Response P-13.3

The Nature Conservancy’s concern for the El Casco Creek corridor as a viable connection for multiple species, including mountain lion is acknowledged. Refer to Responses P-9.2 and P-13.2, above.

Response P-13.4

The following text has been amended since the Draft Environmental Document: The Nature Conservancy’s concern for the El Casco Creek corridor as a viable connection for multiple species is acknowledged. It also refers to a number of documents/resources prepared by The Nature Conservancy, SC Wildlands, and the California Department of Fish and Wildlife. Previous special-status plant and animal species occurrence records within the United States Geological Survey (USGS) Beaumont, El Casco, Forest Falls, and Yucaipa, California 7.5-minute quadrangles were determined through a query of the CDFW California Natural Diversity Database RareFind 5 (CNDDB), the California Native Plant Society (CNPS) Online Inventory of Rare and Endangered Plants of California (Online Inventory), the Calflora Database, species listings provided by the CDFW and the USFWS, the Regional Conservation Authority (RCA) online WR-MSHCP Interactive Map, and those species covered under the WR-MSHCP and evaluated in its associated technical documents. A review of the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Hydric Soils List for California was conducted to preliminarily verify whether any of the soils mapped within the survey area are considered to be hydric. Michael Baker also reviewed the USFWS National Wetlands Inventory (NWI) Mapper and Federal Emergency Management Agency (FEMA) National Flood Hazard Layer. In addition, an Official Species List was obtained from the USFWS Carlsbad Field Office via the Information for Planning and Consulting (IPaC) database on June 5, 2023 (refer to Chapter 4 attachments above). An updated IPaC and CNDDB list is included in this

Final IS/EA. In addition to the databases referenced above, available reports, survey results, and literature detailing the biological resources previously observed in the Biological Study Area (BSA) or within the vicinity were reviewed to gain an understanding of existing site conditions, confirm previous species observations, and note the extent of any disturbances that have occurred within the BSA that would otherwise limit the distribution of special-status biological resources. Also refer to Responses P-9.2 and P-13.2, above.

As discussed in Section 2.2.1, Hydrology and Floodplain, El Casco Creek is the primary drainage feature within the project area, consisting of an existing unlined natural waterway upstream of Cherry Valley Boulevard. It traverses Cherry Valley Boulevard east of the I-10/Cherry Valley Boulevard overcrossing via an existing reinforced concrete box (RCB) that is 10 feet wide by 9 feet high. This RCB then outlets to an existing concrete lined trapezoidal channel, where El Casco Creek continues to flow northwesterly in between the I-10 westbound on-ramp and Calimesa Boulevard. El Casco Creek then traverses under I-10 via a culvert that includes double RCBs that are each 10 feet wide by 7 feet high. At the outlet of the double RCB culvert crossing at I-10, El Casco Creek returns to an unlined natural waterway where it continues to flow westerly until it confluences with the San Timoteo Creek Reach 3 (Yucaipa Creek to Headwaters) approximately three miles west of the project site.

The reference documents noted within this comment have been reviewed and considered as part of this response. It is acknowledged that the South Coast Missing Linkages Project, dated September 2005, provides comprehensive information prepared by a range of governmental and non-governmental organizations to maintain wildlife connectivity within the South Coast Ecoregion, and specifically the San Bernardino-San Jacinto connection. The South Coast Missing Linkages Project provides landscape permeability analyses, patch size and configuration analyses, and linkage designs focusing on a range of species, including mountain lion. The proposed project site is situated within the westerly portion of the study area, and was identified as having varying ranges of suitability for providing wildlife connectivity for various species.

The Greater I-10 Linkage Implementation Workshop included a number governmental and non-governmental organizations that met virtually on April 19, 20, 27, and 28, 2021. The workshop series focused on implementation of linkages in the Greater Interstate 10 area of Riverside County, including the San Bernardino-San Jacinto Mountains Linkage, the San Bernardino-Little San Bernardino Mountains Linkage, and the Joshua Tree-Chocolate Mountains Linkage. The primary objectives of the workshop were to: 1) engage diverse stakeholders involved in various aspects of linkage implementation, such as wildlife and transportation agencies, land manager and planners, academic and professional scientists, land trusts and conservancies, and conservation organizations; 2) identify specific actions to further connectivity conservation; and 3) begin to develop coordinated strategies to maximize our collective impact for linkage implementation. The project site is located within the San Bernardino-San Jacinto linkage area. El Casco Creek is identified as a “threat/opportunity” area and notes the existing double box culvert beneath I-10.

Additional mapping tools noted by the commenter were also reviewed as part of developing this response.

It is important to note that the existing El Casco Creek culvert at I-10 would not be affected by the proposed project. As noted above, this culvert includes double 10-foot by 7-foot RCBs, and is the largest culvert along El Casco Creek within project limits. However, the proposed project would construct an approximately 62-foot extension of the existing 10-foot by 9-foot RCB beneath Cherry Valley Boulevard to allow for ramp reconfigurations associated with the interchange.

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Based on these discussions with the resource agencies and DBESP, the project would purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts will be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, will be developed in conjunction with the wildlife agencies. In addition, the project would include a number of enhancements to minimize impacts related to wildlife movement under Cherry Valley Boulevard. Construction would include the installation of a three-foot-high concrete roadway barrier that would shield headlight and noise intrusion into the culvert. Planting of trees and shrubs would occur along Calimesa Road to further shield headlight and noise from entering the culvert. Revegetation would be installed per Caltrans Standard Specifications Sections 13-05 and 21. Directional fencing will be installed along the existing drainage as needed to guide wildlife to the culvert crossing. CDFW and USFWS concurred with the DBESP findings and mitigation strategy on July 6, 2023. This Final IS/EA has been updated to reflect these project features and measures to avoid, minimize, or mitigate impacts to connectivity.

Response P-13.5

The Nature Conservancy's concern for the vulnerability of the project site to wildfires and flooding is acknowledged. Project impacts related to flooding, wildfire, and climate change are further discussed in Sections 2.2.1, Hydrology and Floodplain; 3.3, Wildfire; and 3.4, Climate Change, respectively. As discussed in Section 2.2.1, the project site is outside of the 0.2 percent annual chance floodplain. Implementation of Build Alternative 3 (Preferred Alternative) 4 would not result in increased risk related to stormwater runoff or drainage. The Local Hydraulic Study (LHS) prepared for the proposed project concluded that Build Alternative 3 (Preferred Alternative) 4 would not introduce significant risk, nor would it result in a localized rise in the water surface elevation at El Casco Creek; refer to Section 2.2.1.

As discussed in Section 3.3, the project would require construction and partial/full right-of-way (ROW) acquisition for the three parcels (APNs 413-270-19, 413-270-20, and 413-270-21) that are located in the "Very High Fire Hazard Severity Zone" for Local Responsibility Area. However, since the land is surrounded by urban development and disturbed graded land that has been prepared for new development, the likelihood of a wildfire resulting from demolition and construction activities is low. Additionally, the project would be subject to adherence to Chapter 33 of the California Fire Code, Fire Safety During Construction and Demolition, which includes safety provisions and precautions to minimize the potential for fires.

The project would improve an existing interchange, and would not include the extension of new roadways or other infrastructure that would support new development or otherwise increase the risk of upset related to wildfire hazards. As discussed in Sections 3.3 and 3.4, the project would comply Caltrans Standard Specifications (dated 2022), Section 20-2.0B(3), which would require the project to install backflow preventers that are fire resistant. The project would also comply with Section Spec 82-2.02F of the Caltrans Standard Specifications, which would require the project to install fiberglass-reinforced plastic where needed that would contain additives designed to suppress fire ignition and flame propagation. Additionally, local fire protection services will serve the project site, and firefighting capacity is likely to increase as the area develops. Pavement design includes a temperature assessment in determining materials, and pavement is generally replaced after about 20 years. Maximum 7-day average temperatures are projected to increase up to 6.4 degrees F by 2055; pavement materials will be selected appropriately. Drainage features would include new or reconstructed culverts that would meet Caltrans Specifications 61-6.02. Landscaping would involve installment of fire-tolerant plant species within the roadway right-of-way and would share similar (or lesser) water requirements. Landscaping concepts and plant palette would be developed in coordination with and approved by the Caltrans District Landscape Architect. As noted in the Draft IS/EA, adverse impacts related to flooding and wildfire would not occur as a result of the project.

Response P-13.6

The closing statement is acknowledged. Thank you for your comment and interest in the project.

Response P-13.7

The attachments referenced in this comment letter that are tied to the commenter's concerns related to wildlife connectivity and movement have been included into public record. Thank you for your comment and interest in the project.

Comment P-14

From: Licon, Sergio <sergio.licon@cpuc.ca.gov>
Sent: Monday, February 28, 2022 12:23 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Subject: I-10/Cherry Valley Boulevard Interchange Project

Mr. Oriaz,

My name is Sergio Licon and I am the Utilities Engineer for San Bernadino and Riverside County representing the California Public Utilities Commission (CPUC) which has jurisdiction over rail all crossings (crossings) in California. The CPUC's Rail Crossings Engineering Branch (RCEB) is in receipt of the Notice of Intent to Adopt a Mitigated Negative Declaration, attached please find my comments. **P-14.1**

Sergio Licon
Utilities Engineer
Rail Crossings & Engineering Branch - Rail Safety Division
California Public Utilities Commission
320 W. 4th Street, Suite 500 | Los Angeles, CA 90013
☎ (213) 576-7085 | Cell (213) 503-4866

Comment P-14

STATE OF CALIFORNIA GAVIN NEWSOM, *Governor*

320 WEST 4TH STREET, SUITE 500
LOS ANGELES, CA 90013

February 28, 2022

Shawn Oriaz
California Department of Transportation, District 8
464 W. 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401

Re: SCH **2021120553** – I-10/Cherry Valley Boulevard Interchange Project – *Notice of Intent to Adopt a Mitigated Negative Declaration*

Dear Mr. Oriaz:

The California Public Utilities Commission (Commission/CPUC) has jurisdiction over rail crossings (crossings) in California. CPUC ensures that crossings are safely designed, constructed, and maintained. The Commission's Rail Crossings Engineering Branch (RCEB) is in receipt of the Notice of Intent to Adopt a Mitigated Negative Declaration (NOI to adopt a MND) for the proposed I-10/Cherry Valley Boulevard Interchange Project. California Department of Transportation (Caltrans) is the lead agency.

The City of Calimesa (City), in cooperation with Caltrans and the County of Riverside (County), proposes to upgrade and reconfigure the existing Interstate 10 (I-10)/Cherry Valley Boulevard Interchange. The project is located on I-10, between the Singleton Road and Oak Valley Parkway interchanges. Three alternatives are being evaluated: Alternative 1 (No Build), Alternative 3 (Diverging Diamond Interchange), Alternative 4 (Partial Cloverleaf Interchange). Key components of the project would include the widening of Cherry Valley Boulevard (including the I-10 overcrossing), realignment and reconstruction of on- and off-ramps, auxiliary lanes along I-10 in both the eastbound and westbound directions, and provisions for sidewalks and bicycle facilities along Cherry Valley Boulevard.

P-14.2

Any development adjacent to or near the railroad right-of-way (ROW) should be planned with the safety of the rail corridor in mind. New developments may increase pedestrian or vehicular traffic volumes not only on streets and at intersections, but also at nearby rail crossings. Traffic impact studies should analyze rail crossing safety and potential mitigation measures. Safety improvement measures may include the planning for grade separations or improvements to existing at-grade crossings. Examples of improvements may include but are not limited to: addition or upgrade of crossing warning devices, detectable warning surfaces and edge lines on sidewalks, and pedestrian channelization. Pedestrian and bicycle routes should be designed to clearly prohibit and discourage unauthorized access (trespassing) onto the tracks, except at authorized crossings.

In addition, modifications to existing public crossings require authorization from the Commission. RCEB representatives are available for consultation on any potential safety impacts or concerns at crossings. Please continue to keep RCEB informed of the project's development. More information can be found at: http://www.cpuc.ca.gov/crossings.

If you have any questions, please contact Matt Cervantes at (213) 266-4716, or mci@cpuc.ca.gov.

P-14.3

Sincerely,

Sergio Licon
Utilities Engineer
Rail Crossings Engineering Branch
Safety and Enforcement Division

CC: State Clearinghouse, state.clearinghouse@opr.ca.gov

Response to Comment Letter P-14

Sergio Licon
California Public Utilities Commission
February 28, 2022

Response P-14.1

This email correspondence provides California Public Utilities Commission's comment letter via attachment. Thank you for your comment and interest in the project.

Response P-14.2

The introductory language and description of the project are acknowledged. Thank you for your comment and interest in the project.

Response P-14.3

The California Public Utilities Commission's guidance regarding development that occurs adjacent to or near railroad right-of-way is acknowledged. The project proposes to improve the existing I-10/Cherry Valley Boulevard interchange. The project does not include improvements to, adjacent to, or near railroad right-of-way or rail yards. Thank you for your comment and interest in the project.

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Comment P-15

From: Ann Brierty <ABrierty@morongo-nsn.gov>
Sent: Tuesday, March 1, 2022 4:52 PM
To: Cherry Valley Interchange@DOT <CherryValleyInterchange@dot.ca.gov>
Cc: Tribal Historic Preservation Office <thpo@morongo-nsn.gov>; Joan Schneider <joanschn@gmail.com>; Ann Brierty <ABrierty@morongo-nsn.gov>
Subject: I-10 Cherry Valley Boulevard Project, City of Calimesa (PMR2.1/R3.8) 08-0G170/08000000190 MND/EA Initial Study w/Proposed MND/EA

Dear Shawn Oriaz,

Please find attached Morongo Band of Mission Indians THPO comment letter. We are requesting to meet virtually regarding this proposed project. Our earliest time is Wednesday, 3/2 after 11AM or Thursday, 3/3 anytime. If these dates/times are not available, we can meet next week. **P-15.1**

Respectfully,

Ann Brierty
Tribal Historic Preservation Officer
Morongo Band of Mission Indians
12700 Pumarra Road
Banning, CA 92220
O: (951) 755.5259
M: (951) 663.2842
Fax: (951) 572.6004

TRIBAL HISTORIC PRESERVATION OFFICE

VIA ELECTRONIC MAIL

CherryValleyInterchange@dot.ca.gov

MORONGO BAND OF MISSION INDIANS

A SOVEREIGN NATION

February 21, 2022

Shawn Oriaz
Senior Environmental Planner
California Department of Transportation, District 8
464 West 4th Street, 6th Floor, MS-827
San Bernardino, CA 92401

Re: Interstate 10 Cherry Valley Boulevard Project, CITY OF CALIMESA, RIVERSIDE COUNTY, CALIFORNIA DISTRICT 8 (PM R2.1/R3.8) 08-0G170/0800000190 Initial Study with (Proposed) Mitigated Negative Declaration/ Environmental Assessment

Dear Mr. Oriaz

The Morongo Band of Mission Indians (Tribe/MBMI) Tribal Historic Preservation Office is in receipt of the Caltrans District 8 and the City of Calimesa (City) public notice that a Mitigated Negative Declaration (MND) will be adopted for the above referenced project and that the Study Results were available for review.

The above Project is of considerable concern to MBMI. The Tribe requested government-to-government consultation on this project in 2019 through the Tribal Historic Preservation Officer at that time, Travis Armstrong. Mr. Armstrong left his position at MBMI and there was a period of time when that position was not filled. When I became the THPO, the covid epidemic and the resulting loss of staff assistance and office closures led to considerable delays MBMI responding to consultation invitations. MBMI regrets this delay. P-15.2

MBMI has now reviewed the draft Initial Study with a Proposed Mitigated Negative Declaration/Environmental Assessment and wishes to make the following comments:

- This project is in a highly sensitive area for cultural resources and tribal cultural resources, yet there is no recommendation in the form of either archaeological or Native American monitoring during project activity. P-15.3
    - NAHC indicated that this area was sensitive for cultural resources, but this was not taken into account in the MND recommended mitigation measures P-15.4
    - The project area is in proximity to Yucaipa which is the location of a known ethnohistoric Serrano village complex P-15.5
    - The project area is in proximity to San Timeteo Canyon and incorporates El Casco Creek, a tributary to San Timeteo Creek, both known to have prehistoric and ethnohistoric Native American locations P-15.6
    - Within the APE there are three (3) recorded prehistoric sites. P-15.7

- The cultural resources study did not include any subsurface testing; only the surface was investigated, although the project area contains over 128 acres and the expected depth of vertical disturbance in the APE is up to twelve feet. The project area consists of an alluvial environment and is associated with drainages. The Qya young alluvial units are of Upper Pleistocene and Holocene ages – these units would be the ones that would be likely to contain cultural resources, if they are present. P-15.8

- The subject document does not contain the letters of response from tribes, but only the letters from the lead agencies inviting tribes to consult. P-15.9

For these and other reasons, MBMI respectfully requests that the MND for this project be revised to include both full time archaeological and Native American monitors during all ground-disturbing activity. For your convenience, MBMI is attaching its suggesting Mitigation Measures for your guidance in this project (Caltrans #OG170). P-15.10

Thank you for the opportunity to review the documents in anticipation of this project going forward.

The Project is within the ancestral territory and traditional use area of the Cahuilla and Serrano people of the Morongo Band of Mission Indians. Tribal cultural resources are non-renewable resources and therefore of high importance to the Morongo Tribe and tribal participation (a.k.a. tribal monitors) is recommended.

Projects within this area are highly sensitive for cultural resources for regardless of the presence or absence of remaining surface artifacts and features. Our office requests continuing government-to-government consultation under Section 106 (36 CFR 800).

We look forward to working with Caltrans District 8 and the City of Calimesa to protect these irreplaceable resources out of respect for ancestors of the Morongo people who left them there, and for the people of today and for generations to come. P-15.11

The lead contact for this Project is Bernadette Ann Brierty, Tribal Historic Preservation Officer (THPO). Dr. Joan Schneider, Consulting Archaeologist, is assisting the Tribe in the review of this project. Please do not hesitate to contact us at ABrierty@morongo-nsn.gov, THPO@morongo-nsn.gov, or (951) 663-2842, should you have any questions. The Tribe looks forward to ongoing meaningful government-to-government consultation with Caltrans District 8 and the City of Calimesa.

Respectfully,

Bernadette Ann Brierty

Bernadette Ann Brierty

Tribal Historic Preservation Officer

Morongo Band of Mission Indians

CC: Morongo THPO

12700 Pumarra Road – Banning, CA 92220 – (951) 755-5259 – Fax (951) 572-6004 – THPO@morongo-nsn.gov

Cultural Resource Mitigation Measures:

CR-1: **Native American Treatment Agreement** Prior to the issuance of grading permits, the applicant shall enter into a Tribal Monitoring Agreement with the Morongo Band of Mission Indians for the project. The Tribal Monitor shall be on-site during all ground-disturbing activities (including, but not limited to, clearing, grubbing, tree and bush removal, grading, trenching, fence post placement and removal, construction excavation, excavation for all utility and irrigation lines, and landscaping phases of any kind). The Tribal Monitor shall have the authority to temporarily divert, redirect or halt the ground-disturbing activities to allow identification, evaluation, and potential recovery of cultural resources.

CR-2: **Retention of Archaeologist** Prior to any ground-disturbing activities (including, but not limited to, clearing, grubbing, tree and bush removal, grading, trenching, fence post replacement and removal, construction excavation, excavation for all utility and irrigation lines, and landscaping phases of any kind) and prior to the issuance of grading permits, the Applicant shall retain a qualified archaeologist who meets U.S. Secretary of the Interior Standards (SOI). The archaeologist shall be present during all ground-disturbing activities to identify any known or suspected archaeological and/or cultural resources. The archaeologist will conduct a Cultural Resource Sensitivity Training, in conjunction with the Tribe[s] Tribal Historic Preservation Officer (THPO) and/or designated Tribal Representative. The training session will focus on what the archaeological and tribal cultural resources that may be encountered during ground-disturbing activities, and the procedures to be followed in such an event.

CR-3: **Cultural Resource Management Plan** Prior to any ground-disturbing activities the project archaeologist shall develop a Cultural Resource Management Plan (CRMP) and/or Archaeological Monitoring and Treatment Plan (AMTP) to address the details, timing and responsibility of all archaeological and cultural resource activities that occur on the project site. This Plan shall be written in consultation with the consulting Tribe[s] and shall include the following: approved Mitigation Measures (MM)/Conditions of Approval (COA), contact information for all pertinent parties, parties' responsibilities, procedures for each MM or COA, and an overview of the project schedule. **P-15.12**

CR-4: Pre-Grade Meeting The retained qualified archeologist and Consulting Tribe[s] representative shall attend the pre-grade meeting with the grading contractors to explain and coordinate the requirements of the monitoring plan.

CR-5: On-site Monitoring During all ground-disturbing activities the qualified archaeologist and the Native American monitor shall be on site full-time. The frequency of inspections shall depend on the rate of excavation, the materials excavated, and any discoveries of Tribal Cultural Resources as defined in California Public Resources Code Section 21074. Archaeological and Native American monitoring will be discontinued when the depth of grading and soil conditions no longer retain the potential to contain cultural deposits. The qualified archaeologist, in consultation with the Native American monitor, shall be responsible for determining the duration and frequency of monitoring.

CR-6: Inadvertent Discovery of Cultural Resources In the event that previously unidentified cultural resources are unearthed during construction, the qualified archaeologist and the Native American monitor shall have the authority to temporarily divert and/or temporarily halt ground disturbance operation in the area of discovery to allow for the evaluation of potentially significant

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cultural resources. Isolates and clearly non-significant deposits shall be minimally documented in the field and collected so the monitored grading can proceed.

If a potentially significant cultural resource(s) is discovered, work shall stop within 60-feet of the discovery and an Environmentally Sensitive Area (ESA) physical demarcation/barrier constructed. All work shall be diverted away from the vicinity of the find, so that the find can be evaluated by the qualified archaeologist and Tribal Monitor[s]. The archaeologist shall notify the Lead Agency and consulting Tribe[s] of said discovery. The qualified archaeologist, in consultation with the Lead Agency, the consulting Tribe[s] and the Native American monitor, shall determine the significance of the discovered resource. A recommendation for the Tribal Cultural Resource's treatment and disposition shall be made by the qualified archaeologist in consultation with the Tribe[s] and the Native American monitor[s] and be submitted to the Lead Agency for review and approval. Below are the possible treatment and dispositions of significant cultural resources in order of CEQAs preference:

A. Full avoidance.

B. If avoidance is not feasible, Preservation in place.

C. If Preservation in place is not feasible, all items shall be reburied in an area away from any future impacts and reside in a permanent conservation easement or Deed Restriction.

D. If all other options have been proven to be infeasible, data recovery through excavation and curated in a Curation Facility that meets the Federal Curation Standards (CFR s79.1)

P-15.12 (cont.)

CR-7: Inadvertent Discovery of Human Remains The Morongo Band of Mission Indians requests the following specific conditions to be imposed in order to protect Native American human remains and/or cremations. **No photographs are to be taken except by the coroner, with written approval by the consulting Tribe[s].**

A. Should human remains and/or cremations be encountered on the surface or during any and all ground-disturbing activities (i.e. clearing, grubbing, tree and bush removal, grading, trenching, fence post placement and removal, construction excavation, excavation for all water supply, electrical, and irrigation lines, and landscaping phases of any kind), work in the immediate vicinity of the discovery shall immediately stop within 100-feet of the discovery. The area shall be protected, project personnel/observers restricted. The County Coroner is to be contacted within 24 hours of discovery. The County Coroner has 48 hours to come to his/her determination pursuant to State and Safety Code §7050.5. and Public Resources Code (PRC) § 5097.98.

B. In the event that the human remains and/or cremations are identified as Native American, the Coroner shall notify the Native American Heritage Commission within 24 hours of determination pursuant to subdivision (c) of HSC §7050.5.

C. The Native American Heritage Commission shall immediately notify the person or persons it believes to be the Most Likely Descendant (MLD). The MLD has 48 hours, upon being granted access to the Project site, to inspect the site of discovery and make their recommendation for final treatment and disposition, with appropriate dignity, of the remains and all associated grave goods pursuant to PRC §5097.98

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D. If the Morongo Band of Mission Indians has been named the Most Likely Descendant (MLD), the Tribe may wish to rebury the human remains and/or cremation and sacred items in their place of discovery with no further disturbance and reside in perpetuity. The place(s) of reburial will not be disclosed by any party and is exempt from the California Public Records Act (California Government Code § 6254[r]). Reburial location of human remains and/or cremations will be determined by the Tribes Most Likely Descendant (MLD), the landowner, and the City Planning Department.

P-15.12
(cont.)

CR-8: **FINAL REPORT:** The final report[s] created as a part of the project (AMTP, isolate records, site records, survey reports, testing reports, etc.) shall be submitted to the Lead Agency and Consulting Tribe[s] for review and comment. After approval from all parties, the final reports are to be submitted to the Eastern Information Center, and the Consulting Tribe[s].

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Response to Comment Letter P-15

Ann Brierty
Morongo Band of Mission Indians
March 1, 2022

Response P-15.1

The request for tribal consultation by the Morongo Band of Mission Indians is acknowledged by the project team. Thank you for your comment and interest in the project.

Response P-15.2

It is acknowledged that the Morongo Band of Mission Indians (MBMI) requested government-to-government consultation for the project in 2019 and the reasons for the delay in response is noted. Section 106 consultation for the project was initiated in April 2019. The MBMI responded in May 2019 noting their preliminary review of the project did not immediately find tribal cultural resources in the project footprint, although the general area is of concern. However, the MBMI did not request Native American monitoring during Section 106 consultation. The Historic Property Survey Report (HPSR) was provided to the MBMI on March 15, 2021. The MBMI responded on March 26, 2021, confirming receipt of the email and noting they will be reviewing the HPSR packet and provide comments. This correspondence was nearly a year before the Draft IS/EA was released to the public for review.

Response P-15.3

The cultural and tribal resource sensitivity is noted. Section 106 consultation for the project was initiated in April 2019. The MBMI responded in May 2019 noting their preliminary review of the project did not immediately find tribal cultural resources in the project footprint, although the general area is of concern. However, the MBMI did not request Native American monitoring during Section 106 consultation.

Response P-15.4

The proximity to a known ethnohistoric Serrano village is noted. Yucaipa is approximately four miles north of the project. The record search limits include the project boundary and a 1-mile radius. Therefore, resources outside of these limits (i.e., four miles away from the project) would not be included in the cultural study prepared for the project. Information regarding proximity to a known ethnohistoric Serrano village complex was not mentioned during Section 106 consultation.

Response P-15.5

The proximity to San Timoteo Canyon and prehistoric and ethnohistoric Native American locations is noted. San Timoteo Canyon is approximately two miles west of the project. The record search limits include the project boundary and a 1-mile radius. Therefore, resources outside of these limits (i.e., two miles away from the project) would not be included in our cultural study. Information regarding proximity to San Timoteo Canyon and prehistoric and ethnohistoric Native American locations was not mentioned during Section 106 consultation.

Response P-15.6

The three (3) recorded prehistoric sites are noted. Three prehistoric sites (all lithic scatters) have been documented within 1-mile of the APE; however, no prehistoric sites are recorded within the APE. These three sites are documented nearly one mile west and south of the APE.

Response P-15.7

The MBMI's concern regarding subsurface testing, area of direct impact, and soil analysis is acknowledged. With regard to subsurface testing, it is standard practice for subsurface testing to be conducted for projects with prehistoric sites in the APE. Because this project has only historic-period cultural resources within the APE, it was not necessary to conduct subsurface testing of the sites to determine eligibility.

With regard to the APE, the 128-acre APE was expanded to include one parcel out from the Area of Direct Impact (ADI) in order to assess potential visual impacts. The ADI is approximately 25 acres.

With regard to the soils within the APE, a soil analysis was conducted of the APE. Geological and archaeological data indicate undisturbed sediments within the project are characterized by alluvial fans and terraces with low sensitivity for buried archaeological resources. Given the low potential of both the surface sediments as well as deeper sediments within the ADI and the degree of previous ground disturbance, the proposed project has little potential to encounter intact and significant archaeological deposits.

Response P-15.8

It is noted that the Draft IS/EA includes the lead agency's tribal consultation letters. The results of the consultation are summarized in the Draft IS/EA, but not included as part of the environmental document. Tribal consultation is detailed in the Historic Property Survey Report (HPSR), which was provided to the MBMI on March 15, 2021. The MBMI responded on March 26, 2021, confirming receipt of the email and noting they will be reviewing the HPSR packet and provide comments.

Response P-15.9

The request for archaeological and Native American monitoring during all ground-disturbing activity is noted; however, no prehistoric archaeological remains were encountered within the ADI during the pedestrian survey. Furthermore, information obtained from the records search indicates that the three known prehistoric sites in the project vicinity are concentrated farther west and south of the ADI. While the lack of surface evidence of prehistoric archaeological resources does not preclude their subsurface existence, the extant data suggest that this area is characterized by a relatively low level of cultural sensitivity. Results of the cultural resource survey also found that the sediments throughout much of the ADI are highly disturbed and as such, it is unlikely that any intact prehistoric subsurface archaeological deposits will be encountered during construction.

<u>Response P-15.10</u>

The request for continued government-to-government consultation under Section 106 is noted; however, Caltrans District 8 closed consultation on this project in June 2021, 60 days after no response was received from tribes who received copies of the HPSR packet for review.

<u>Response P-15.11</u>

The list of recommended cultural resources mitigation measures is acknowledged. The measures include construction monitoring, pre-grade meeting, Cultural Resource Sensitivity Training, preparation of a Cultural Resource Management Plan (CRMP) and/or Archaeological Monitoring and Treatment Plan (AMTP), and inadvertent discovery measures.

Caltrans District 8 closed consultation on this project in June 2021, 60 days after no response was received from tribes who received copies of the HPSR packet for review. No prehistoric archaeological remains were encountered within the ADI during the pedestrian survey. Furthermore, information obtained from the records search indicates that the three known prehistoric sites in the project vicinity are concentrated in the outer most western and southern portions of the ADI. While the lack of surface evidence of prehistoric archaeological resources does not preclude their subsurface existence, the extant data suggest that the project area is characterized by a relatively low level of cultural sensitivity. Results of the cultural resource survey also found that the sediments throughout much of the ADI are highly disturbed and as such, it is unlikely that any intact prehistoric subsurface archaeological deposits will be encountered during construction. The Draft IS/EA includes provisions for previously unidentified cultural resources discovered during construction activities and the process to be followed in the event of an accidental discovery of human remains during construction activities.

you definitely have a chance to excuse yourself, but you're welcome to stay and hang out with us. So, hopefully, I'm clear.

PUBLIC COMMENT PORTION OF MEETING

MR. REYES: I'm going to jump into the line of hands raised. So, Alan, can you let me know who is up first, and that person will open up your microphone. And I'm not keeping a hard time, but you've got about three minutes to ask your question or make your public comment.

If it goes longer than that, we'll give you a warning, just a heads-up, to try to have you wrap up. So we can -- I can help you answer the question and we can move on. So, hopefully, that fair to everyone and let's started.

So, Alan, who do I have up first?

MR. ASHIMINE: Yeah. So let's go ahead and -- in fact, we have two hands raised thus far. First up, we have Timothy. So, Surabhi, if you could unmute Timothy. Again, we'll allow three minutes. So, Timothy, the floor is yours.

MR. REEVES: Good evening. My name is Timothy Reeves, T-i-m-o-t-h-y; R-e-e-v-e-s, and I work PH-1.1

for Luis Retail Centers. The mailing is address is 1156 North Mountain Avenue Upland, California 91 -- it doesn't matter. So a couple questions:

Is funding for this particular project of Trump?

MR. REYES: Keep going, Timothy. Actually, Well, if you have a couple, I'll try to address them.

MR. REEVES: So If funding is through Trump, is it at a five-year tip? And then you-all need property from us and easements, when are you going to reach out to the property owners to start those discussions. So that's my questions.

PH-1.1 (Cont.)

MR. REYES: Okay. Receiving your first question, the funding, we'll have to document that question and get back to you formally, Timothy, publically. So I want to make sure we answer it, obviously, properly. So we'll get you that answer in the public documentation from a funding perspective.

I would imagine that you could look on the City's website and this information there. But we'll get back to on that question, Timothy. The second one:

Is property owner question. Correct me if I am wrong, you asked when if your property has acquisitions, when will we reach out to you.

The appraisal and acquisition phase of the

Response to Public Hearing Comment PH-1

Timothy Reeves
January 13, 2022

Response PH-1.1

The questions regarding funding sources for the project and the anticipated timeline for coordination of temporary construction easements and right-of-way acquisitions is acknowledged. As detailed in Section 1.1.2, Project Programming, of the Draft IS/EA, funding would be obtained locally with the Transportation Uniform Mitigation Fee (TUMF) administered by the Western Riverside Council of Governments (WRCOG). Federal funding is being considered via Congestion Mitigation and Air Quality (CMAQ) Improvement funds. At this time, no State funding has been identified. Coordination regarding temporary and permanent right-of-way acquisitions will occur during the PS&E phase of the project, which is anticipated to begin in Summer 2022.

project will start upon environmental clearance, Timothy, from a formal standpoint. And we'll also -- our team will get back to you on giving you, maybe, a more formal elaborate answer as well.

Anything else, Timothy, that you would like answered or do you have any other questions?

MR. REEVES: No. Thank you. I appreciate the presentation.

MR. REYES: No problem. Thank you.

Alan, I think we have one more hand raised at this point.

MR. ASHIMINE: Andrew Walcker. So, Surabhi, will you please unmute Andrew.

MR. WALCKER: Hi. Andrew Walcker here, can you hear me?

MR. REYES: We got you, Andrew.

MR. WALCKER: Good evening, Brandon, Alan. My name is Andrew Walcker with Overland Development. I'm here this evening on behalf of JR Watson and Associates Development Corp. The Watsons are the owners of assessor parcel Numbers 407230016 and -017. It totals about 4.29 acres. This site is adjacent to the Westbound Interstate 10 off-ramp to Cherry Valley Boulevard and has approximately 500 foot along the southerly frontage of Cherry Valley Boulevard. PH-2.1

We received a notice on December 23rd via FedEx from Michael Baker and Associates. As you can understand, we have not had sufficient time to review the proposal due to the holidays and some of the effects of COVID on our workforce.

But we did appreciate the invitation to participate in this evening's public meeting. Right now, we're just here to observe the presentation, and anticipate that we will have written comments submitted on or before the January 24th deadline.

Once again, I just wanted to thank you for being invited to this, and thank you for the opportunity to speak.

PH-2.1 (Cont.)

MR. REYES: Great. Thank you, Andrew. You made my job easy. I appreciate your comments and look forward to seeing your public comments.

Alan, I don't see any more hands raised, but before we jump into the questions, though, I want to give everyone the opportunity, in case they are scrambling to find the hand button. You've got to kind of hover over the Zoom screen, depending on your settings, and find that hand raise button. So let's give that another, you know, half a minute.

All right. Seeing none, let's go to the questions. Alan, I have them in front of me, so I can

PH-2.1 (Cont.)

read them. I think I can take this one. I'm going read them in order. The first question, I'm go, again, in order the way I see them. First question from Andrew Walcker:

Is there a video option for participants?

I think we have gotten to bottom of that. The video option was possible when it was your turn to speak, so I'm just to going to say, I believe, you could have turned your video off. I'm just going to write the answer, which you-all will see. The video audio option is possible during the public comment portion of the meeting.

The next question is from Michael F. Ballard. I am going to go back. I see that this question wasn't answered, so let me kind of work through this. Okay? So I'm looking in the order they came in. The first question which has been answered but it's under the answer section.

I am Michael F. Ballard, President of the Historic Highway 99 Association of California and had a question regarding Roberts Road adjacent to the project. The roadway has a long section of intact 1926 concrete with contractors date stamps. Will any of it be preserved or saved in any way? If not, is there a method to save at least the date stamps in the concrete?

PH-2.1 (Cont.)

Can you provide a link for this recorded meeting?

I think the answer is yes. I think we will put the link on the County website. Alan, is that correct?

MR. ASHIMINE: Do you want me to answer that? It's my understanding as well the PowerPoint will be available for reference.

MR. REYES: Okay. I'm going to answer. We'll post a link for this recording as well. Put the PowerPoint to the project website as soon as possible. And that is answered. All right.

We are at the top of the hour. So I -- we're going to start over. I don't see any more questions right now. But guess what? We get to do this all over again. So those you that attended, thank you. I'm not tracking who came in early, who came in late.

I just want to say, we're going to do this all over again one more time until 7:00. You do not have to stay. I hope you realize that. You're welcome to jump out. But, obviously, as long as we have attendees here from the public, we will present this information again.

I'm going to take a water break, and we're going to go to the top. So it's, again, just tracking the time. It's 6:03. We have until 7:00, and our timing is working out great. We're going to go back to

Response to Public Hearing Comment PH-2

Andrew Walcker
January 13, 2022

Response PH-2.1

The comment regarding the public review period is acknowledged. As a means of providing ample opportunity for agencies, interested parties, and members of the community to review and provide comments on the document, the public review end date was extended from January 24, 2022, to February 14, 2022. Thank you for your comment and interest in the project.

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read them. I think I can take this one. I'm going read them in order. The first question, I'm go, again, in order the way I see them. First question from Andrew Walcker:

Is there a video option for participants?

I think we have gotten to bottom of that. The video option was possible when it was your turn to speak, so I'm just to going to say, I believe, you could have turned your video off. I'm just going to write the answer, which you-all will see. The video audio option is possible during the public comment portion of the meeting.

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I am Michael F. Ballard, President of the Historic Highway 99 Association of California and had a question regarding Roberts Road adjacent to the project. The roadway has a long section of intact 1926 concrete with contractors date stamps. Will any of it be preserved or saved in any way? If not, is there a method to save at least the date stamps in the concrete? PH-3.1

There was an answer from Kelly Lucia from the City of Calimesa saying, please e-mail me at KellyLucia@cityofcalimesa.net to discuss. Thank you. I will also add -- let me see if I can do this -- our team, our project team will address this question on behalf of the project via formal -- lack of words here -- formally in the public document.

Okay. I'm going to answer that. I'm just adding to Kelly's answer. Next Michael F. Ballard:

For reference, Roberts Road was part of the Historic US 99 from 1926 to 1939. We're going to type and say "noted." Thank you. And Michael F. Ballard has another question:

PH-3.1 (Cont.)

What provisions will be made for bicyclists at the "free right" turns?

PH-3.2

I'm going to say a buffer operation between free right turns will be accommodated at intersections. We will provide additional responses, if necessary, as applicable in the public -- Alan, I'm having a loss of words. In the public document? What's the word I'm looking for?

MR. ASHIMINE: Final Environmental Document.

MR. REYES: Thank you. In the final... All right. Answering that question. The next question comes from Steve Mehlman. I'm going to read this

Response to Public Hearing Comment PH-3

Michael F. Ballard
January 13, 2022

Response PH-3.1

The question regarding the preservation of the contractor's concrete date stamp along Roberts Road is acknowledged. In response to this comment, a project feature has been added to this Final IS/EA: in the event the Old Roberts Road survey monument is found to occur within the project grading limits and would result in removal and replacement of the plaque during construction activities associated with the project, the monument would be salvaged and provided to the City to preserve.

Response PH-3.2

The question regarding the bicycle provisions at the proposed free right turns is acknowledged. As detailed in Section 1.4.3, Unique Features of Build Alternatives, of the Draft IS/EA, Build Alternative 3 (Preferred Alternative) would include right turn pockets with a four-foot wide bicycle buffer and bypass for the Cherry Valley Boulevard crossovers.

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verbatim in the open question section.

I'm Steve Mehlman from Beaumont -- and pardon me if I misinterpret any names or words -- the upgrade of I-10 CV Boulevard Interchange is due in part to the $1.8 million square-foot Gateway mega-warehouse being built on Cherry Valley Boulevard. This warehouse will attract some 600 diesel big rigs a day.

I need to remind people that an even larger warehouse, the 2.5 million square-foot Summit Station, is being proposed for further up Cherry Valley Boulevard. This mega-warehouse will attract even more big rigs than Gateway. It would be directly across the street from a 2,500 home senior community on one side and a proposed community park on the other. PH-4.1

While I hope and pray that the Beaumont Planning Commission and City Council will turn down this proposal, I believe that we have to consider the worst-case scenario when planning the upgrade of this vital interchange. Thank you.

Thank you, Steve. I will answer:

Noted. Thank you. This will be addressed in the Final Environmental Document as applicable.

Now, we have two more comments in the question portion, question-and-answer portion that are written, both coming from Rich Rowland. I'll start with the

Response to Public Hearing Comment PH-4

Steve Mehlman
January 13, 2022

Response PH-4.1

The commenter's concern regarding cumulative impacts as it relates to truck traffic is acknowledged. As discussed in Section 2.1.9, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the Draft IS/EA, proposed future projects within the project vicinity were considered and included in the traffic impact analysis.

The transportation and traffic analysis prepared for the project utilizes traffic forecasting data that accounts for truck traffic in the project vicinity, based on existing and planned land uses, including warehousing uses. The existing traffic volumes along the roadway segments in the project study area are provided in Table 2.2.6-13, Existing/Baseline (2019) Traffic Volumes, of the Draft IS/EA. As shown in Table 2.2.6-13, the annual average daily traffic (AADT) ranges in the project site from 10,200 to 106,900. Trucks make up between one to two percent of the AADT for each segment. Tables 2.2.6-14 through 2.2.6-19 depict the Opening Year (2025) and Design Year (2045) study segment traffic volumes for the No-Build and Build Alternatives. As shown in each table, the opening year and design year AADT and truck volumes increase compared to the baseline year. However, the total AADT volumes and the percentage of diesel trucks are expected to remain consistent between the No-Build and Build Alternatives. Accordingly, the project would not increase the truck traffic volumes and would not result in a higher proportion of trucks overall in the project area. Therefore, the project would not significantly increase the number of diesel vehicles.

Further, Build Alternative 3 (Preferred Alternative) would improve vehicle flow at the Cherry Valley Boulevard Overcrossing structure. Tables 2.2.6-20 and 2.2.6-25, summarize the peak-hour LOS and delay at 10 study area intersections under opening-year (2025) and design-year (2045) conditions. As shown in Table 2.2.6-20, Opening-Year (2025) Intersection Operations Analysis- No-Build Alternative, all vehicle lanes, with the exception of the Calimesa Boulevard/Cherry Valley Boulevard and the I-10 westbound off-ramp during the AM peak hour and the Cherry Valley Boulevard/I-10 westbound on-ramp during both the AM and PM peak hours, would be at an unacceptable LOS D or better under opening-year (2025) no-build conditions. Tables 2.2.6-21 and 2.2.6-22 show that the implementation of Build Alternative 3 (Preferred Alternative) would enhance traffic operations and facilitate vehicle movement at the I-10 on- and off-ramps and along Cherry Valley Boulevard, improving the Calimesa Boulevard/Cherry Valley Boulevard and I-10 westbound off-ramp from an unacceptable LOS E to an LOS D during the AM peak hour and the Cherry Valley Boulevard/I-10 westbound on-ramp from an unacceptable LOS E to an acceptable LOS C during the AM and PM peak hours. As shown in Table 2.2.6-23 the majority of the intersections, including Cherry Valley Boulevard and Palmer Avenue/Desert Lawn, Cherry Valley Boulevard and Roberts Road, and I-10 eastbound ramps and Cherry Valley Boulevard would operate at an unacceptable LOS E or F during the design-year (2045) under the No-Build Alternative. Implementation of Build Alternative 3 (Preferred Alternative) would improve traffic operations and facilitate vehicle movement at the aforementioned intersections and would improve LOS to C or better during AM and PM peak hours for all intersections.

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first one.

Can you replay the diverging diamond simulation? PH-5.1

Sure. Yes. Replayed upon answering. Okay. I'm going to hit send on that. I'm going to pause and I'm going to play that for Rich. I'll have to find it. Okay. Pardon me. I'm going to pause sharing. I'm going to find my way over there. And you would like to see the diverging diamond.

I'm going to resume sharing. I'm going to click that for you, and I'm probably going to have to change the way I share here. So hold on a second. You can't see it yet. So I'm going to new share and I'm going to share my entire screen and we're going to play it.

So for per your request, Rich, and others on the phone, here is the diverging diamond. And, again, I'm talking to -- I feel like no one here. So I'm going to describe what I see to you and let this play out.

We're facing west here from this top view, west down the I-10 Freeway -- excuse me -- westbound is probably the best way to say it. It's going up eastbound, it's going down off the screen, to the left-hand side, the southerly side of Cherry Valley Boulevard near the Stator Brothers' Shopping to share that.

I'm going to pause my share and go to the end again, and reshare my screen, for Zoom share, and I am going to look at the next question. Hopefully -- yeah. You're welcome, Rich. So I noticed, to my team, we'll answer this last question then. Mr. Paul King, you have put a question in the chat, but if you can find the Q-and-A button, which is a different button next to the chat. Can you copy and paste that question for us, so that we can document it?

If you would like, Paul, you can also raise your hand. We'll go ahead and say that. And you can have this verbally. We would just like to get in the Q-and-A portion, Paul, for you -- there you go -- so that we can answer it for you. Thank you.

So either the hand or the question and I'll give you some time there, of course. So the last question on the list here before Paul, maybe he's able to get his on board, is from Rich Rowland.

Kelly, we plan on preserving the brass plaque on Old Roberts Road. A not to Kelly at the City. "Noted" is my answer. And I have no other questions. PH-5.1 (Cont.)
But, Paul, I'm going to give you a moment. You may be trying to cut and paste that in. You can either chat and say, yes, I need a moment unless, maybe, your

Response to Public Hearing Comment PH-5

Rich Rowland
January 13, 2022

Response PH-5.1

A request to replay of the diverging diamond simulation for the proposed project was accommodated during the public hearing.

A project feature has been added to this Final IS/EA: in the event the Old Roberts Road survey monument is found to occur within the project grading limits and would result in removal and replacement of the plaque during construction activities associated with the project, the monument would be salvaged and provided to the City to preserve.

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question was answered.

But we have time here, so we're in no big rush. We're all here until 7:00. I don't see any other questions coming in while we wait for Mr. King. There he is. So just for the rest of your awareness, Alan will get to the Andrew question. Let's jump over to Paul. Andrew, I'm going to come to yours after. Paul, you have a raised hand. Surabhi, or a team member, can you please unmute Paul King?

MR. KING: Hi, guys, can you hear me?

MR. REYES: We got you, Paul.

MR. KING: Okay. Thank you for taking my question.

MR. REYES: No problem.

MR. KING: As we all know, as Mr. Mehlman already identified, the truck warehouses, everybody is freaking out here about it. It seems like Alternative 4 isolates the truck traffic a little bit better, especially in the westbound direction. Do you think -- I mean, I can break it up into two. PH-6.1

Do you think that's true? My other -- the other side of it is, and I know this is a long way down the line and we still have a lot of time to express our concerns, and, you know, maybe tweak the plan a little bit.

But it just seems like the ramps, as long as we're mobilizing and doing a complete interchange rebuild, basically is what it is, so it seems to me it would make sense to just add an additional lane to the ramps that the trucks would use and also to isolate truck traffic a little bit for the eastbound direction during peak hours.

It's gotten to be really bad. So that's my two questions.

PH-6.1 (Cont.)

MR. REYES: Okay. Thanks, Paul. Very good questions, like all of them. Very complex answer that I'm going to say that we will answer formally in the public Environmental Document for you. I want to make sure that our team has the ability to address it thoroughly for you, and give you as much information as possible, Paul. So we'll answer that question there.

But I do understand what your question is, and I am following along with what you wrote. So thank you. Paul and others, I just want to remind you, you are also more than welcome to ask these questions via e-mail or via mail.

So just keep that in mind, if you do want elaborate or ask another question. So thanks, Paul, I appreciate your time and jumping on.

Andrew, I am going to come back to you.

Response to Public Hearing Comment PH-6

Paul King
January 13, 2022

Response PH-6.1

The commenter's concern regarding cumulative impacts as it relates to truck traffic is acknowledged. As discussed in Section 2.1.9, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the Draft IS/EA, proposed future projects within the project vicinity were considered and included in the traffic impact analysis.

The transportation and traffic analysis prepared for the project utilizes traffic forecasting data that accounts for truck traffic in the project vicinity, based on existing and planned land uses, including warehousing uses. The existing traffic volumes along the roadway segments in the project study area are provided in Table 2.2.6-13, Existing/Baseline (2019) Traffic Volumes, of the Draft IS/EA. As shown in Table 2.2.6-13, the annual average daily traffic (AADT) ranges in the project site from 10,200 to 106,900. Trucks make up between one to two percent of the AADT for each segment. Tables 2.2.6-14 through 2.2.6-19 depict the Opening Year (2025) and Design Year (2045) study segment traffic volumes for the No-Build and Build Alternatives. As shown in each table, the opening year and design year AADT and truck volumes increase compared to the baseline year. However, the total AADT volumes and the percentage of diesel trucks are expected to remain consistent between the No-Build and Build Alternatives. Accordingly, the project would not increase the truck traffic volumes and would not result in a higher proportion of trucks overall in the project area. Therefore, the project would not significantly increase the number of diesel vehicles.

Further, Build Alternative 3 (Preferred Alternative) would improve vehicle flow at the Cherry Valley Boulevard Overcrossing structure. Tables 2.2.6-20 and 2.2.6-25, summarize the peak-hour LOS and delay at 10 study area intersections under opening-year (2025) and design-year (2045) conditions. As shown in Table 2.2.6-20, Opening-Year (2025) Intersection Operations Analysis- No-Build Alternative, all vehicle lanes, with the exception of the Calimesa Boulevard/Cherry Valley Boulevard and the I-10 westbound off-ramp during the AM peak hour and the Cherry Valley Boulevard/I-10 westbound on-ramp during both the AM and PM peak hours, would be at an unacceptable LOS D or better under opening-year (2025) no-build conditions. Tables 2.2.6-21 and 2.2.6-22 show that the implementation of Build Alternative 3 (Preferred Alternative) would enhance traffic operations and facilitate vehicle movement at the I-10 on- and off-ramps and along Cherry Valley Boulevard, improving the Calimesa Boulevard/Cherry Valley Boulevard and I-10 westbound off-ramp from an unacceptable LOS E to an LOS D during the AM peak hour and the Cherry Valley Boulevard/I-10 westbound on-ramp from an unacceptable LOS E to an acceptable LOS C during the AM and PM peak hours. As shown in Table 2.2.6-23 the majority of the intersections, including Cherry Valley Boulevard and Palmer Avenue/Desert Lawn, Cherry Valley Boulevard and Roberts Road, and I-10 eastbound ramps and Cherry Valley Boulevard would operate at an unacceptable LOS E or F during the design-year (2045) under the No-Build Alternative. Implementation of Build Alternative 3 (Preferred Alternative) would improve traffic operations and facilitate vehicle movement at the aforementioned intersections and would improve LOS to C or better during AM and PM peak hours for all intersections.

Dedicated truck lanes would not meet the purpose and need of the project, and thus, are not under consideration.

PUBLIC COMMENT PORTION OF MEETING (Continued.)

MR. REYES: And, again, we don't see any questions or hands raised or questions in the Q and A, but I will put this information in front of everyone one last time in case they do want to ask a question. With that said, we have nothing.

We're here until 7:00. So I'm going to stay here the entire time, along with the team, until 7:00. But I'll be here no matter what for the next 25 minutes, 24 minutes.

Okay. Martha Van Rooijen, I don't know if I pronounced that correctly. I see that you're comment came in: I have several questions. So, Martha, you have the floor, but I want to make sure we do this right. We're going to ask you to raise your hand or list them. PH-7.1

Okay. Martha is going to list them. And, Martha, as you write that, I am going to answer. Noted. You will list them. Martha says, I will list them. And I'm going to respond with "noted." Martha those ane showing up in the answer section. You still, obviously, have time to ask your questions in the next 23 minutes and counting. PH-7.1 (Cont.)

But, of course, I'm here to stay and answer questions this evening. And, again, you may also raise your hand, if you want to just verbally ask a question. It's up to you. Okay. Sorry. I was muted. I see the first question coming is from Martha.

The first question is: Can you comment on what the level of service for the interchange alternatives will be at the local streets such as Singleton and Palmer at Cherry Valley Boulevard, the streets that serve the residential development? **PH-7.1 (Cont.)**

Martha, I'm going to answer with -- excuse me -- your question will be looked at and addressed by the project team in the Final Environmental Document. We will address it properly. I'm just going to accept all that. So, Martha, I wasn't able to answer that first question, which you should see, but I'm still here. So you're welcome to keep on going.

And, Martha, again, you can raise your hand for a second question. Okay? Martha's second question has come in.

Second question: Can you address if the environmental and project scoping for each of the alternatives has considered the amount of high school traffic in morning and afternoon, including the amount of student drivers and families driving to school? **PH-7.2**

This is a very sensitive subject for the neighborhood as the Cherry Valley Interchange is the main access road to the high school from Fairway Canyon and Summerwind Trails. PH-7.2 (Cont.)

Thank you, Martha. I'm going to respond accordingly with the same answer as I wrote on your previous question. Again, Martha, I want to reiterate to you and the public that these comments will be responded to in the Final Environmental Document. So please look for them.

As you'll see in the case the response is the same. The response is your question will be looked at and addressed by the project team in the Final Environmental Document to address it properly and thoroughly. Thank you, Martha.

And I am still here to answer questions. So let me know if you have a third question for me, Martha, or anyone else, of course, that is still there. Martha, I see a third question that just came into the question and answer.

Third question: I also meant to include if you can explain the impact of traffic at Roberts Road and Cherry Valley? This in the interchange where the Stator Brothers Shopping Center is and where new retail is starting to be constructed on the other side. PH-7.3

I'm going to say, traffic was assessed and our team, project team, will respond to this question in the Environmental Document is our answer to that, Martha. The answer has been posted. The traffic was assessed. Our project team will respond to this question in Final Environmental Document.

Okay. Back to the questions. I don't see any right now. Martha or others, if you have questions, please type them into the chat room or raise your hand. Okay.

Fourth question: Can you address how truck traffic will be addressed in the Environmental Document? Excuse me, in the environmental. The alternative for the Cherry Valley Interchange were shown during the public hearing as video simulations; however, no truck traffic was shown. This is a very big concern due to truck traffic congestion and air quality impacts and greenhouse gas emissions. PH-7.4

Okay. In answering that, I'm going to type in the answer, cut and paste the answer. Your question will be looked at and addressed by the project team in the Final Environmental Document to address it properly and thoroughly.

Martha, video simulations -- video simulations shown in the previously mentioned meeting and this public hearing was for visual information only and for not part of the formal project packets.

Okay. Next question in order, I have a question from Elaine Morgan, a different person asking.

I have not read through the entire project. The Eastbound I-10 off-ramp truck traffic as you are preparing your report today, will not be at the same level once you expect to build out the interchange in 2024. Have you addressed the expected additional truck traffic that will increase once the warehouse on Cherry Valley Boulevard is open for business?

Elaine, I appreciate your question. The answer is going to be similar as previous. Your question will be looked at and addressed by project team in the Final Environmental Document to address it properly and thoroughly. Martha has a fourth question add-on.

Fourth question add-on: I want to make sure that the truck traffic is addressed for air quality, greenhouse gas emissions and traffic congestion. In addition, it would be good before an alternative is selected to see how truck traffic interacts with vehicle traffic, pedestrians and bicyclists on the different alternatives. PH-7.4 (Cont.)

Thank you for your comment, Martha, your add-on. I will answer the question with, your question will be looked at and addressed by the project team in the Final Environmental Document to address it properly and thoroughly.

Thank you for those questions. I'm not sure if we have any others. Of course, we are still here and we will be here until 7:00. So if you have any more, those who are still remaining, let us know. We're here to help.

Fifth question: Is there a possibility of Caltrans -- I want to read this as it's stated.

Is there a possibility if Caltrans working with Caltrans on an interim basis to make Eastbound I-10 on-ramp a separate lane?

Noted in the comments, is Calimesa working with Caltrans? I'm going to say "noted" to that.

So is there a possibility of Calimesa working with Caltrans on an interim basis to make Eastbound I-10 on-ramp a separate lane by sawcutting back the existing barrier and moving the signage just a little to give some relief to the horrendous traffic that is at the interchange intersection every day, and it continues to get worse, as we only have two lanes for the entire neighborhoods and commercial developments.

I understand this is an environmental and scoping public hearing, but I am hoping that this interim improvement could be done, as it would cost very

PH-7.5

little, and would give a small amount of traffic that could get out of the way on the Eastbound I-10 off-ramp more quickly and easily if it could ease out of the queue to go over the existing narrow freeway bridge. PH-7.5 (Cont.)

Thank you for your comment, Martha. Noted. And you're going to have a similar answer. Your question will be looked at and addressed by the project team in the Final Environmental Document to address it properly and thoroughly.

I just want to iterate to you and any caller that panelists are here receiving these questions and we'll be answering these questions formally in the Final Environmental Document. But there are representatives from the community agencies that are seeing these questions as they come through.

All right. We've got another question coming in from Elaine Morgan. Thank you, Elaine.

One other question, the rise of the I-10 -- excuse me -- East I-10 off-ramp is somewhat steep, which will cause a slower response in trucks being able to proceed through the intersection after they've come to a complete stop.

Will the design of the new off-ramp allow a more leveled rise to the intersection allowing trucks more quickly proceed?

Thank you, Elaine, for the question. And I appreciate it. We're documenting it like all of them. And we will -- your question will be looked at and addressed by the project team in the Final Environmental Document to address it properly and thoroughly. I really appreciate your question, and we will make sure to answer it, like all of them, in the Final Environmental Document.

All right. Final comment from Martha just came in. Let me answer this and then we'll be wrapping up. Martha, thank for the final comment. I know that it's the last one.

Final comment. I live in Fairway Canyon neighborhood for 15 years, I am very hopeful that the Cherry Valley Interchange will move forward quickly with the best alternative selected that considers the needs of the freeway traffic and off- and on-ramps so they flow efficiently, but also consider the neighborhood, pedestrians, bicyclists, impacts to our local roads near the I-10 Freeway, air quality, sight distance, safety, the future development in the area and the amount of truck traffic that will be here from the warehouse that is now being built next to this interchange in Cherry Valley and Calimesa. PH-7.6

We want and need this interchange improvement as the existing conditions continue to worsen and the backups are very real. Please work to keep this project on schedule, ensure this project is listed as a priority in all regional transportation plans, and submit it for any road and infrastructure funding that is available. Thank you.

PH-7.6 (Cont.)

Thank you, Martha. I don't see a question here, but it's a comment to your point. So we are going to say "noted." Noted. Thank you, Martha, for your comment.

All right. I believe that it. It is 7:00. I'm going to wrap up the meeting here. Thank you to everyone that stayed back mainly while Martha, our public attendee, and the entire team that stayed on throughout the project, I really appreciate your time. I do see a note that says we have question, but we addressed it. Just checking around.

Does anyone see any more questions coming in? I believe the answer is no. I do not see questions in Q and A or hands raised. Thank you for everyone that attended. Thank you, team, for helping with this and getting this far, to the public and everyone watching at home, we thank you for having us tonight. And we look forward to continuing progress on this interchange project in the City of Calimesa.

Response to Public Hearing Comment PH-7

Martha Van Rooijen
January 13, 2022

Response PH-7.1

The concern regarding declining local street operations that serve residential development as a result of the proposed project is acknowledged by the project team. Singleton Road and Cherry Valley Boulevard do not intersect; therefore, a level of service (LOS) value does not apply. However, it should be noted that the intersection of Cherry Valley Boulevard and Palmer Avenue/Desert Lawn Drive was analyzed in the Traffic and Operations Report (TOAR) and the results were summarized Draft IS/EA. As shown in Tables 2.1.9-22 through 2.1.9-23 of the Draft IS/EA, under the No-Build Alternative, the Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive would perform at LOS F. Tables 2.1.9-46 through 2.1.9-47, and Tables 2.1.9-66 through 2.1.9-67 of the Draft IS/EA show that, under Build Alternative 3 (Preferred Alternative), the Cherry Valley Boulevard/Palmer Avenue/Desert Lawn Drive intersection would perform at an LOS C during the AM peak hour, and at an LOS B during the PM peak hour under the Opening Year (2025) and Design Year (2045) conditions.

Response PH-7.2

The concern regarding traffic impacts, when project trips are added to existing high school-related trips, is acknowledged. According to Appendix A of the TOAR, the traffic count data was taken on February 26, 2019 (i.e., on a weekday when schools were in session); and include (but are not limited to) the traffic counts at the current eastbound I-10 ramps/Cherry Valley Boulevard, westbound I-10 ramps/Cherry Valley Boulevard, South Roberts Road/Cherry Valley Boulevard, and the Palmer Avenue/Desert Lawn Drive/Cherry Valley Boulevard intersections during AM and PM peak hours. The traffic counts under Existing Conditions (2019) were utilized to develop the forecasted traffic volumes under the Opening Year (2025) and Design Year (2045) during AM and PM peak hours. Accordingly, these traffic counts reflect the effect of traffic generated by trips to/from schools within the project area that utilize the roadways and intersections considered in the TOAR and summarized in the Draft IS/EA.

Response PH-7.3

The concern regarding traffic impacts at the intersection of Roberts Road and Cherry Valley Boulevard is acknowledged. The Existing Conditions (2019), Opening Year (2025), and Design Year (2045) operations at the Cherry Valley Boulevard/Roberts Road intersection were analyzed in the TOAR and summarized in the Draft IS/EA. It should be noted however, that the Old

Roberts Road/Cherry Valley Boulevard intersection would be closed by the project's Opening Year (2025). Therefore, the level of service (LOS) at this intersection was not analyzed.

Tables 2.1.9-8 through 2.1.9-9 of the Draft IS/EA show that, under Existing Conditions (2019), the Cherry Valley Boulevard/Roberts Road intersection operates at an LOS B during AM peak hours, and at an LOS A under PM peak hours. Tables 2.1.9-22 through 2.1.9-23, and Tables 2.1.-32 through 2.1.9-33 show that, under the No-Build Alternative, the Cherry Valley Boulevard/Roberts Road intersection would operate at an LOS F during the AM and PM peak hours under both Opening Year (2025) and Design Year (2045) conditions. Tables 2.1.9-46 through 2.1.9-49 show that, under Build Alternative 3 (Preferred Alternative), the Cherry Valley Boulevard/Roberts Road intersection would operate at an LOS B during the AM and PM peak hours under Opening Year (2025) conditions. Tables 2.1.9-66 and 2.1.9-68 show that, under Build Alternative 3 (Preferred Alternative), the Cherry Valley Boulevard/Roberts Road intersection would operate at an LOS C during the AM peak hour under Design Year (2045) conditions. Tables 2.1.9-67 and 2.1.9-69 show that, under Build Alternative 3 (Preferred Alternative), the Cherry Valley Boulevard/Roberts Road intersection would operate at an LOS E during the PM peak hour under Design Year (2045) conditions. As such, traffic operations at the Roberts Road and Cherry Valley Boulevard intersection would improve under Build Alternative 3 (Preferred Alternative) as compared to the No-Build Alternative under both Opening (2025) and Design Year (2045) conditions.

Response PH-7.4

The concern regarding truck traffic and potential impacts to greenhouse gas emissions and air quality is acknowledged. As summarized in the Draft IS/EA, the TOAR and the Air Quality Report (AQR) utilize traffic forecasting data that accounts for truck traffic in the project vicinity, based on existing and planned land uses, including warehousing uses. Additionally, the AQR utilizes this data to assess the project's impacts and regional contribution to air quality and greenhouse gas emissions based on regulatory thresholds. The visual simulations that were presented during the public hearing for the project were for general reference purposes only and were not a true representation of the project or vehicular fleet mix that would travel on the roadways in the project area.

Response PH-7.5

The project team acknowledges the suggestion of an interim project to make eastbound I-10 on-ramp a separate lane. Thank you for your comment and interest in the project.

Response PH-7.6

The concluding statement is acknowledged. Thank you for your comment and interest in the project.

not part of the formal project packets.

Okay. Next question in order, I have a question from Elaine Morgan, a different person asking.

I have not read through the entire project. The Eastbound I-10 off-ramp truck traffic as you are preparing your report today, will not be at the same level once you expect to build out the interchange in 2024. Have you addressed the expected additional truck traffic that will increase once the warehouse on Cherry Valley Boulevard is open for business? **PH-8.1**

Elaine, I appreciate your question. The answer is going to be similar as previous. Your question will be looked at and addressed by project team in the Final Environmental Document to address it properly and thoroughly. Martha has a fourth question add-on.

Fourth question add-on: I want to make sure that the truck traffic is addressed for air quality, greenhouse gas emissions and traffic congestion. In addition, it would be good before an alternative is selected to see how truck traffic interacts with vehicle traffic, pedestrians and bicyclists on the different alternatives.

Thank you for your comment, Martha, your add-on. I will answer the question with, your question will be looked at and addressed by the project team in little, and would give a small amount of traffic that could get out of the way on the Eastbound I-10 off-ramp more quickly and easily if it could ease out of the queue to go over the existing narrow freeway bridge.

Thank you for your comment, Martha. Noted. And you're going to have a similar answer. Your question will be looked at and addressed by the project team in the Final Environmental Document to address it properly and thoroughly.

I just want to iterate to you and any caller that panelists are here receiving these questions and we'll be answering these questions formally in the Final Environmental Document. But there are representatives from the community agencies that are seeing these questions as they come through.

All right. We've got another question coming in from Elaine Morgan. Thank you, Elaine.

One other question, the rise of the I-10 -- excuse me -- East I-10 off-ramp is somewhat steep, which will cause a slower response in trucks being able to proceed through the intersection after they've come to a complete stop. PH-8.2

Will the design of the new off-ramp allow a more leveled rise to the intersection allowing trucks more quickly proceed?

Response to Public Hearing Comment PH-8

Elaine Morgan
January 13, 2022

Response PH-8.1

The concern regarding truck traffic is acknowledged. Truck traffic from planned future warehouse development projects was considered and analyzed in the Draft IS/EA. A Traffic and Operations Report (TOAR) was prepared for the project which analyzes Existing (2019), Opening Year (2025), and Design Year (2045) traffic operations and Section 2.1.9, Traffic and Transportation/Pedestrian and Bicycle Facilities, of the Draft IS/EA summarizes the results of the TOAR. As discussed in Section 2.1.9, existing and planned land uses within the study area were taken into account for the traffic forecasting methodology for the project, including warehouse developments and the truck traffic associated with their operations.

Response PH-8.2

Under Build Alternative 3 (Preferred Alternative), the proposed on-and-off ramp design related to grade are anticipated to be similar to existing conditions. However, the proposed signalized intersections would result in less stop and go traffic as compared to the current stop-controlled setting at the on-and-off ramp intersections.

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Chapter 5 List of Preparers

The following persons were principally responsible for review and preparation of this IS/EA.

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Chapter 6 Distribution List

The Initial Study/Environmental Assessment (IS/EA) and/or a Notice of Availability was distributed to the following federal, state, regional, and local agencies, elected officials, interested groups, organizations and individuals, and utilities and service providers in the project area. In addition, all property owners and resident/occupants located within 500 feet of the proposed project were provided with a Notice of Availability.

Federal Agencies

United States Army Corps of Engineers
Attn: Intergovernmental Reviewer
915 Wilshire Blvd., Ste. 1101
Los Angeles, CA 90017

United States Fish and Wildlife Service
Attn: Intergovernmental Reviewer
Palm Springs Office
777 East Tahquitz Road
Palm Springs, CA 92262

U.S. Department of Agriculture
Natural Resources Conservation Service
Attn: Intergovernmental Reviewer
25864 Business Center Drive, Ste. K
Redlands, CA 92374-4515

United States Department of the Interior
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Main Interior Bldg. MS 2340
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320 West 4th Street, Ste. 500
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Department of Toxic Substances Control
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California Transportation Commission
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California Department of Conservation
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Garden Grove, CA 92841

Southern California Gas Company
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San Dimas, CA 91773

Southern California Edison
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Rosemead, CA 91772-0001

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Appendix A Resources Evaluated Relative to the Requirements of Section 4(f): No-Use Determination

Introduction

Section 4(f) of the Department of Transportation Act of 1966, codified in federal law at 49 United States Code (USC) 303, declares that "it is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites."

This section of the document discusses parks, recreational facilities, wildlife refuges, and historic properties found within or next to the project area that do not trigger Section 4(f) protection because: 1) they are not publicly owned, 2) they are not open to the public, 3) they are not eligible historic properties, or 4) the project does not permanently use the property and does not hinder the preservation of the property. Refer to Figure A-1, Resources Evaluated Relative to the Requirements of Section 4(f).

Resources Evaluated Relative to the Requirements of Section 4(f)

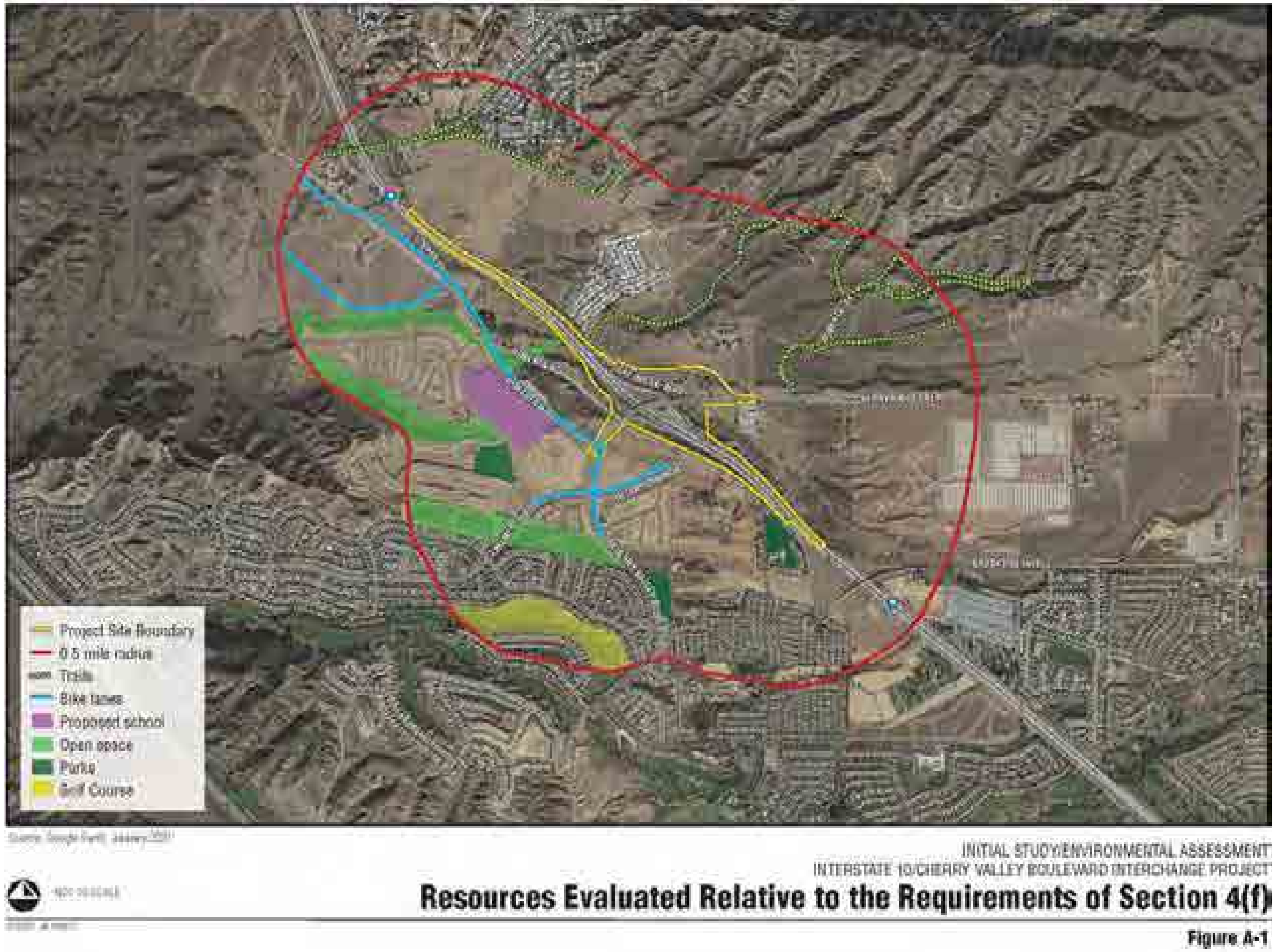
As noted above, Section 4(f) requires an analysis of potential project impacts to parks, recreational facilities, wildlife refuges, and historic properties that qualify as resources protected under Section 4(f).

There are no publicly owned wildlife and waterfowl refuges within 0.5-mile of the project site.

The study area for National Register listed and eligible resources was defined as the Area of Potential Effects (APE) delineated in the Historic Property Survey Report (HPSR) (May 2021); Historic Resources Evaluation Report (HRER) (May 2021); and Archaeological Survey Report (ASR) (May 2021). These documents determined there are no National Register listed or eligible cultural resources in the APE for the proposed project. Therefore, there are no National Register listed or eligible cultural resources that would trigger the requirements for protection under Section 4(f), and no further discussion of such resources required.

The following is a list of publicly-owned parks and recreation resources within 0.5-mile of the project site. These resources include a range of recreational paths/trails, parks, and a golf club that includes recreational facilities. The locations of those resources are shown on Figure A-1, Resources Evaluated Relative to the Requirements of Section 4(f).

Figure A-1: Resources Evaluated Relative to the Requirements of Section 4(f)



Resources Not Subject to the Provisions of Section 4(f)

City of Calimesa Trails

Based on the City of Calimesa's CommunityView Geographical Information System (GIS) website (http://maps.digitalmapcentral.com/production/VECommunityView/cities/calimesa/index.aspx), which provides an interactive map of the City's land use and zoning designations, location of trails and trailheads, among other things, multiple trails occur within 0.5-mile of the project site; refer to Figure A-1.

Trails located within 0.5-mile of the project site:

- Osborne Spine Trail
- Box Canyon Trail
- Posey's Road
- Beef Canyon
- Hobo's Loop
- Brown Ridge
- Roberts Street
- Existing trail within Southern California Edison (SCE) power utility easement
- Singleton/Bryant Connector
- PASEO Trails

According to email communication with City of Calimesa staff, of the 10 trails listed above, the following 8 trails are located on private property (Email Correspondence, Lori Askew, City of Calimesa, August 7, 2019):

- Osborne Spine Trail
- Box Canyon Trail
- Posey's Road
- Beef Canyon
- Hobo's Loop
- Brown Ridge
- Roberts Street
- Existing trail within SCE easement

As such, these eight trails are not Section 4(f) properties and the provisions of Section 4(f) do not apply.

The Singleton/Bryant Connector and PASEO trails are discussed below under Section A.2.2, Resources Subject to the Provisions of Section 4(f) - No Use.

City of Calimesa Bicycle Routes

Bicycle facilities are planned along Roberts Road and Palmer Avenue within the southern portion of the project boundaries, prior to project implementation, refer to Figure A-1. However, based on email communication with City staff, the proposed bicycle facilities would be on-street, striped, Class II bike lanes. Because Class II bike lanes are on-street facilities that share the roadway with vehicles, they are considered transportation facilities opposed to Class I bicycle facilities, which are separate from vehicles and can be used as multi-use trail systems. These Class II facilities are not anticipated to have a primary function that supports recreation. Accordingly, the bicycle facilities are not Section 4(f) properties and the provisions of Section 4(f) do not apply.

Morongo Golf Club at Tukwet Canyon

The Morongo Golf Club at Tukwet Canyon is located approximately 0.3-mile south of the project site at 36211 Champions Drive, Beaumont. The facility offers two 18-hole courses (the Champions Course and Legends Course), a restaurant and bar called, “The Clubhouse,” and banquet facilities for private events. A parking lot is provided near the northeast portion of the golf club. Morongo Golf Club Tukwet Canyon is privately owned. Accordingly, the proposed recreational facility is not a Section 4(f) property and the provisions of Section 4(f) do not apply.

Plantation by the Lake

The Plantation by the Lake is a senior mobile home community located within a half mile of the eastern portion of the project site at 10961 Desert Lawn Drive. The facility includes the following amenities:

<u>Clubhouse</u>: The 5,000 square foot clubhouse provides residents with a community office, restaurant kitchen, pool tables and card room, swimming pool, spa, library with fireplace, and hobby room complete with ceramic kiln.

<u>Recreation Center</u>: The 8,500 square foot recreation center includes a restaurant kitchen, fireside lounge, swimming pool, spa, fitness room, and dining hall with 700-person seating capacity.

<u>Open Space</u>: The facility provides a lake, pond, and stream with walking paths, and picnic tables.

<u>Vineyard and Orchard</u>: The vineyard and orchard at the facility provide residents with seasonal fruit such as grapes, peaches, plums, nectarines, apricots, figs, persimmons, pears, oranges, lemons and pomegranates.

A photograph of the recreational facility is included within the City's Open Space, Parks, and Recreation Element of the General Plan as an example of open space resources within the City. However, based on email communication with City staff, the Plantation by the Lake recreational facilities are located on private property and are not open to the public (Email Correspondence, Lori Askew, City of Calimesa, August 7, 2019). Accordingly, the property is not a Section 4(f) property and the provisions of Section 4(f) do not apply.

Resources Subject to the Provisions of Section 4(f) - No Use

Singleton/Bryant Connector Trail

Based on the City of Calimesa's CommunityView GIS website, the Singleton/Bryant Connector trail is located approximately 0.3-mile northeast of the project site. Within the project area, the trail is generally a dirt/gravel shoulder, with the exception of sidewalk provided along the northern side of the I-10/Singleton interchange. The trail begins approximately 355 feet west of the eastbound I-10 on-ramp along Singleton Road and continues east until turning southeast along Beckwith Avenue or continuing northeast along Singleton Road; refer to Figure A-1. The trail is open to the public and is considered a Section 4(f) property subject to the provisions of Section 4(f).

The Build Alternative's facilities and construction activities would not encroach onto the trail facility. Thus, there would be no permanent incorporation or temporary occupancy of the trail as a result of the Build Alternatives.

In addition, the Build Alternatives would have minimal adverse constructive use effects (i.e., "proximity" impacts), that would substantially impair the activities, features, and/or attributes that qualify this facility for protection under Section 4(f). This conclusion is based on the following:

- Access: Singleton/Bryant Connector trail can be accessed via multiple roadways surrounding the facility (Woodhouse Road/Roberts Road, Singleton Road, I-10, Calimesa Boulevard, etc.). The Build Alternatives would not include any temporary or permanent improvements or activities that would have the capacity to alter or impede access to the trail facility with implementation of a Transportation Management Plan (TMP). Access to this facility would be maintained throughout the duration of construction, and the TMP would be implemented during the Plans, Specifications, and Estimates (PS&E) phase. The Caltrans TMP Guidelines identify the processes, roles, and responsibilities for preparing and implementing TMPs, as well as useful strategies for reducing congestion and managing work zone circulation and access. One of the primary objectives of the TMP is to maintain safe movement and access for vehicles, pedestrians, and bicyclists through the construction zone.

- Visual/Aesthetics: The Build Alternatives would not include any features that would be tall enough to be visible from the trail, or that would substantively alter views from the trail given the existing rolling topography. Additionally, the houses and mature trees that surround portions of the trail do not allow views towards the I-10/Cherry Valley Boulevard interchange. Thus, the Build Alternatives would not result in adverse proximity effects to the Singleton/Bryant Connector trail.
- Water Quality: The Build Alternatives would not have the potential to adversely affect water quality at the trail facility. No storm water drainage or runoff from the project site would encroach or enter onto the trail, and adverse proximity impacts would not occur under the Build Alternatives.
- Air Quality: As noted in Section 2.2.6, Air Quality, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational pollutant emissions, upon adherence to Caltrans' Standard Specifications intended to reduce equipment emissions and fugitive dust. Thus, the Build Alternatives would not have adverse proximity effects related to air quality on the Singleton/Bryant Connector trail.
- Noise: As described in Section 2.2.7, Noise, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational noise, upon adherence to Caltrans' Standard Specifications and recommended abatement measures. Additionally, intervening structures, rolling terrain, and mature trees would serve as a buffer between trail users and the project site. Thus, the Build Alternatives would have minimal proximity effects related to noise on the Singleton/Bryant Connector trail.
- Biological Environment: Within the project area, the Singleton/Bryant Connector trail is primarily dirt/gravel with sidewalk along the I-10/Singleton interchange overcrossing. The trail appears to be maintained. Given the lack of natural habitat and level of human activity/disturbance on a daily basis, it is not anticipated that any sensitive natural communities or species exist. However, there would be no project construction within or immediately adjacent to the trail, and no disturbance of any vegetation associated with the trail would occur. In addition, as noted above, the Build Alternatives are not expected to result in adverse effects related to air quality or noise, that could otherwise result in proximity effects to biological resources at the facility.

The property is a Section 4(f) property, but no “use” will occur. Therefore, the provisions of Section 4(f) do not apply.

PASEO Trails

A portion of the Summerwind Ranch at Oak Valley Specific Plan Area 1 is located on-site, west of Roberts Road within the western portion of the project site. Recreational facilities shown within the Summerwind Ranch at Oak

Valley Specific Plan Area 1 on the Land Use Map include parks, trails, and community recreation uses, as well as open space, and schools. Based on email communication with the City on August 7, 2019, Phase I of the Summerwind Ranch at Oak Valley Specific Plan Area 1 is currently under construction and includes construction of the proposed PASEO trails.

PASEO trails are asphalt/concrete residential trail connectors. Based on the City of Calimesa's CommunityView GIS website, the PASEO trails are located within the western portion of the project site, approximately 0.15-mile west of the I-10 along Roberts Road, Cherry Valley Boulevard, and Palmer Avenue; refer to Figure A-1. The trails are open to the public and are considered Section 4(f) properties, subject to the provisions of Section 4(f).

The Build Alternative's facilities and construction activities would not encroach onto the trail facilities. Thus, there would be no permanent incorporation or temporary occupancy of the trails as a result of the Build Alternatives.

In addition, the Build Alternatives would have minimal adverse constructive use effects (i.e., "proximity" impacts), that would substantially impair the activities, features, and/or attributes that qualify these facilities for protection under Section 4(f). This conclusion is based on the following:

- <u>Access</u>: The PASEO trails can be accessed via multiple roadways surrounding the facility (Cherry Valley Boulevard, Palmer Avenue, Desert Lawn Drive, Roberts Road, etc.). The Build Alternatives would not include any temporary or permanent improvements or activities that would have the capacity to alter or impede access to the trail facility with implementation of a TMP. A TMP would be implemented that would maintain safe movement and access for vehicles, pedestrians, and bicyclists through the construction zone.
- <u>Visual/Aesthetics</u>: The Build Alternatives would not include any features that would be tall enough to be visible from the trail, or that would substantively alter views from the trail given the existing rolling topography. Additionally, the residential uses currently under construction that surround portions of the trail facilities will further impede views towards the I-10/Cherry Valley Boulevard interchange. Thus, the Build Alternatives would not result in adverse proximity effects to the PASEO trails.
- <u>Water Quality</u>: The Build Alternatives would not have the potential to adversely affect water quality at the trail facilities. No storm water drainage or runoff from the project site would encroach or enter onto the PASEO trails, and adverse proximity impacts would not occur under the Build Alternatives.
- <u>Air Quality</u>: As noted in Section 2.2.6, Air Quality, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational pollutant

emissions, upon adherence to Caltrans' Standard Specifications intended to reduce equipment emissions and fugitive dust. Thus, the Build Alternatives would have minimal proximity effects related to air quality on the PASEO trails.

- <u>Noise</u>: As described in Section 2.2.7, Noise, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational noise, upon adherence to Caltrans' Standard Specifications and recommended abatement measures. Additionally, intervening structures would serve as a buffer between trail users and the project site. Thus, the Build Alternatives would have minimal proximity effects related to noise on the PASEO trails.
- <u>Biological Environment</u>: The PASEO trails are asphalt/concrete residential trail connectors. Given the lack of natural habitat and level of human activity/disturbance on a daily basis, it is not anticipated that any sensitive natural communities or species exist. No disturbance of any vegetation associated with the trail would occur. In addition, as noted above, the Build Alternatives are not expected to result in adverse effects related to air quality or noise, that could otherwise result in proximity effects to biological resources at the PASEO trails.

The PASEO trails are Section 4(f) properties, but no "use" will occur. Therefore, the provisions of Section 4(f) do not apply.

Trevino Park

Trevino Park and associated parking lot are located approximately 0.25-mile southwest of the project site at 11286 Tukwet Canyon Parkway, Beaumont. Based on the City of Beaumont website (http://beaumontca.gov/facilities/facility/details/Trevino-Park-18), the Trevino Park amenities include a baseball diamond, playground equipment, two basketball courts, picnic benches, barbeques, and a grass field. Sidewalk occurs along the outer boundary and bisects the central portion of the park. The parking lot provides 38 parking spots and three Americans with Disabilities Act (ADA) parking spots. The facility is owned and operated by the City of Beaumont and is open to the public. Thus, it is considered a Section 4(f) property and is subject to the provisions Section 4(f).

The Build Alternative's facilities and construction activities would not encroach into Trevino Park. Thus, there would be no permanent incorporation or temporary occupancy of the park as a result of the Build Alternatives.

In addition, the Build Alternatives would have minimal adverse constructive use effects (i.e., "proximity" impacts), that would substantially impair the activities, features, and/or attributes that qualify this facility for protection under Section 4(f). This conclusion is based on the following:

- Access: Trevino Park and the associated parking lot can be accessed via multiple roadways surrounding the facility (Desert Lawn Drive, Palmer Avenue, and Champions Drive all connect to Cherry Valley Boulevard). The Build Alternatives would not include any temporary or permanent improvements or activities that would have the capacity to alter or impede access to the park or affect parking associated with the facility with implementation of a TMP. A TMP would be implemented that would maintain safe movement and access for vehicles, pedestrians, and bicyclists through the construction zone.
- Visual/Aesthetics: The Build Alternatives would not include any features that would be tall enough to be visible from the park, or that would substantively alter views from the park given the rolling topography and intervening structures. Between the park and the project site, residential properties are currently being developed. Additionally, the current topography of the land does not afford views of the I-10/Cherry Valley Boulevard interchange. Thus, the Build Alternatives would not result in adverse proximity effects to Trevino Park.
- Water Quality: The Build Alternatives would not have the potential to adversely affect water quality at the park. No storm water drainage or runoff from the project site would encroach or enter Trevino Park, and adverse proximity impacts would not occur under the Build Alternatives.
- Air Quality: As noted in Section 2.2.6, Air Quality, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational pollutant emissions, upon adherence to Caltrans' Standard Specifications intended to reduce equipment emissions and fugitive dust. Thus, the Build Alternatives would have minimal proximity effects related to air quality on Trevino Park.
- Noise: As described in Section 2.2.7, Noise, of this IS/EA, the Build Alternatives would have minimal adverse effects on surrounding uses related to short-term construction or long-term operational noise, upon adherence to Caltrans' Standard Specifications and recommended abatement measures. Additionally, intervening structures and rolling topography would serve as a buffer between park users and the project site. Thus, the Build Alternatives would have minimal proximity effects related to noise on Trevino Park.
- Biological Environment: Trevino Park is routinely maintained, and on-site vegetation consists primarily of turf and ornamental landscaping. Given the lack of natural habitat and level of human activity/disturbance on a daily basis, it is not anticipated that any sensitive natural communities or species exist. However, there would be no project construction within or immediately adjacent to the park, and no disturbance of any vegetation associated with the park would occur. In addition, as noted above, the Build Alternatives are not expected to result in adverse effects related to

air quality or noise, that could otherwise result in proximity effects to biological resources at the facility.

The property is a Section 4(f) property, but no “use” will occur. Therefore, the provisions of Section 4(f) do not apply.

Appendix B Title VI Policy Statement

STATE OF CALIFORNIA—CALIFORNIA STATE TRANSPORTATION AGENCY Gavin Newsom, Governor

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Making Conservation a California Way of Life.

November 2019

NON-DISCRIMINATION POLICY STATEMENT

The California Department of Transportation, under Title VI of the Civil Rights Act of 1964, ensures "*No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance.*"

Related federal statutes, remedies, and state law further those protections to include sex, disability, religion, sexual orientation, and age.

For information or guidance on how to file a complaint, or obtain more information regarding Title VI, please contact the Title VI Branch Manager at (916) 324-8379 or visit the following web page: https://dot.ca.gov/programs/business-and-economic-opportunity/title-vi.

To obtain this information in an alternate format such as Braille or in a language other than English, please contact the California Department of Transportation, Office of Business and Economic Opportunity, at 1823 14th Street, MS-79, Sacramento, CA 95811; (916) 324-8379 (TTY 711); or at Title.VI@dot.ca.gov.

Toks Omishakin
Director

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California's economy and livability"

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Appendix C Summary of Relocation Benefits and Right-of-Way Acquisition

California Department of Transportation Relocation Assistance Program

RELOCATION ASSISTANCE ADVISORY SERVICES

DECLARATION OF POLICY

"The purpose of this title is to establish a uniform policy for fair and equitable treatment of persons displaced as a result of federal and federally assisted programs in order that such persons shall not suffer disproportionate injuries as a result of programs designed for the benefit of the public as a whole."

The Fifth Amendment to the U.S. Constitution states, "No Person shall…be deprived of life, liberty, or property, without due process of law, nor shall private property be taken for public use without just compensation." The Uniform Act sets forth in statute the due process that must be followed in Real Property acquisitions involving federal funds. Supplementing the Uniform Act is the government-wide single rule for all agencies to follow, set forth in 49 Code of Federal Regulations Part 24. Displaced individuals, families, businesses, farms, and nonprofit organizations may be eligible for relocation advisory services and financial benefits, as discussed below.

FAIR HOUSING

The Fair Housing Law (Title VIII of the Civil Rights Act of 1968) sets forth the policy of the U.S. to provide, within constitutional limitations, for fair housing. This act, and as amended, makes discriminatory practices in the purchase and rental of most residential units illegal. Whenever possible, minority persons shall be given reasonable opportunities to relocate to any available housing regardless of neighborhood, as long as the replacement dwellings are decent, safe, and sanitary and are within their financial means. This policy, however, does not require the Department to provide a person a larger payment than is necessary to enable a person to relocate to a comparable replacement dwelling.

Any persons to be displaced will be assigned to a relocation advisor, who will work closely with each displacee in order to see that all payments and benefits are fully utilized and that all regulations are observed, thereby avoiding the possibility of displacees jeopardizing or forfeiting any of their benefits or payments. At the time of the initiation of negotiations (usually the first written offer to purchase), owner-occupants are given a detailed explanation of the state's relocation services. Tenant occupants of properties to be acquired are contacted soon after the initiation of negotiations and also are given a detailed explanation of the Caltrans Relocation Assistance Program. To avoid loss of possible benefits, no individual, family, business, farm, or nonprofit organization should commit to purchase or rent a replacement property without first contacting a Department relocation advisor.

RELOCATION ASSISTANCE ADVISORY SERVICES

In accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, the Department will provide relocation advisory assistance to any person, business, farm, or nonprofit organization displaced as a result of the acquisition of real property for public use, so long as they are legally present in the U.S. The Department will assist eligible displacees in obtaining comparable replacement housing by providing current and continuing information on the availability and prices of both houses for sale and rental units that are “decent, safe, and sanitary.” Nonresidential displacees will receive information on comparable properties for lease or purchase (for business, farm, and nonprofit organization relocation services, see below).

Residential replacement dwellings will be in a location generally not less desirable than the displacement neighborhood at prices or rents within the financial ability of the individuals and families displaced and reasonably accessible to their places of employment. Before any displacement occurs, comparable replacement dwellings will be offered to displacees that are open to all persons regardless of race, color, religion, sex, national origin and consistent with the requirements of Title VIII of the Civil Rights Act of 1968. This assistance will also include the supplying of information concerning federal and state-assisted housing programs and any other known services being offered by public and private agencies in the area.

Persons who are eligible for relocation payments and who are legally occupying the property required for the project will not be asked to move without first being given at least 90 days written notice. Residential occupants eligible for relocation payment(s) will not be required to move unless at least one comparable “decent, safe, and sanitary” replacement dwelling, available on the market, is offered to them by the Department.

RESIDENTIAL RELOCATION FINANCIAL BENEFITS

The Relocation Assistance Program will help eligible residential occupants by paying certain costs and expenses. These costs are limited to those necessary for or incidental to the purchase or rental of a replacement dwelling and actual reasonable moving expenses to a new location within 50 miles of the displacement property. Any actual moving costs in excess of the 50 miles are the responsibility of the displacee. The Residential Relocation Assistance Program can be summarized as follows:

Moving Costs

Any displaced person, who lawfully occupied the acquired property, regardless of the length of occupancy in the property acquired, will be eligible for reimbursement of moving costs. Displacees will receive either the actual reasonable costs involved in moving themselves and personal property up to a maximum of 50 miles or a fixed payment based on a fixed moving cost schedule. Lawful occupants who move into the displacement property after the initiation of negotiations must wait until the Department obtains control of the property in order to be eligible for relocation payments.

Purchase Differential

In addition to moving and related expense payments, fully eligible homeowners may be entitled to payments for increased costs of replacement housing.

Homeowners who have owned and occupied their property for 90 days or more prior to the date of the initiation of negotiations (usually the first written offer to purchase the property) may qualify to receive a price differential payment and may qualify to receive reimbursement for certain nonrecurring costs incidental to the purchase of the replacement property. An interest differential payment is also available if the interest rate for the loan on the replacement dwelling is higher than the loan rate on the displacement dwelling, subject to certain limitations on reimbursement based upon the replacement property interest rate.

Rent Differential

Tenants and certain owner-occupants (based on length of ownership) who have occupied the property to be acquired by the Department prior to the date of the initiation of negotiations may qualify to receive a rent differential payment. This payment is made when the Department determines that the cost to rent a comparable “decent, safe, and sanitary” replacement dwelling will be more than the present rent of the displacement dwelling. As an alternative, the tenant may qualify for a down payment benefit designed to assist in the purchase of a replacement property and the payment of certain costs incidental to the purchase, subject to certain limitations noted under the Down Payment section below. To receive any relocation benefits, the displaced person must buy or rent and occupy a “decent, safe and sanitary” replacement dwelling within one year from the date the Department takes legal possession of the property or from the date the displacee vacates the displacement property, whichever is later.

Down Payment

The down payment option has been designed to aid owner-occupants of less than 90 days and tenants in legal occupancy prior to the Department’s initiation of negotiations. The one-year eligibility period in which to purchase and occupy a "decent, safe and sanitary" replacement dwelling will apply.

Last Resort Housing

Federal regulations (49 Code of Federal Regulations 24) contain the policy and procedure for implementing the Last Resort Housing Program on Federal-aid projects. Last Resort Housing benefits are, except for the amounts of payments and the methods in making them, the same as those benefits for standard residential relocation as explained above. Last Resort Housing has been designed primarily to cover situations where a displacee cannot be relocated because of lack of available comparable replacement housing, or when the anticipated replacement housing payments exceed the limits of the standard relocation procedure, because either the displacee lacks the financial ability or other valid circumstances.

After the initiation of negotiations, the Department will, within a reasonable length of time, personally contact the displacees to gather important information, including the following:

- Number of people to be displaced.
- Specific arrangements needed to accommodate any family member(s) with special needs.
- Financial ability to relocate into comparable replacement dwelling which will adequately house all members of the family.
- Preferences in area of relocation.
- Location of employment or school.

NONRESIDENTIAL RELOCATION ASSISTANCE

The Nonresidential Relocation Assistance Program provides assistance to businesses, farms, and nonprofit organizations in locating suitable replacement property and reimbursement for certain costs involved in relocation. The Relocation Advisory Assistance Program will provide current lists of properties offered for sale or rent, suitable for a particular business's specific relocation needs. The types of payments available to eligible businesses, farms, and nonprofit organizations are: searching and moving expenses, and possibly reestablishment expenses; or a fixed in lieu payment instead of any moving, searching, and reestablishment expenses. The payment types can be summarized as follows:

Moving Expenses

Moving expenses may include the following actual, reasonable costs:

- The moving of inventory, machinery, equipment, and similar business-related property, including: dismantling, disconnecting, crating, packing, loading, insuring, transporting, unloading, unpacking, and reconnecting of personal property. Items identified as real property may not be moved under the Relocation Assistance Program. If the displacee buys an Item Pertaining to the Realty back at salvage value, the cost to move that item is borne by the displacee.
- Loss of tangible personal property provides payment for actual, direct loss of personal property that the owner is permitted not to move.
- Expenses related to searching for a new business site, up to $2,500, for reasonable expenses actually incurred.

Reestablishment Expenses

Reestablishment expenses related to the operation of the business at the new location, up to $25,000 for reasonable expenses actually incurred.

Fixed In Lieu Payment

A fixed payment in lieu of moving, searching, and reestablishment payments may be available to businesses that meet certain eligibility requirements. This payment is an amount equal to half the average annual net earnings for the last two taxable years prior to the relocation and may not be less than $1,000 nor more than $40,000.

ADDITIONAL INFORMATION

Reimbursement for moving costs and replacement housing payments are not considered income for the purpose of the Internal Revenue Code of 1954 or for the purpose of determining the extent of eligibility of a displacee for assistance under the Social Security Act or any other law, except for any federal law providing local “Section 8” Housing Programs.

Any person, business, farm, or nonprofit organization that has been refused a relocation payment by the Department relocation advisor or believes that the payment(s) offered by the agency are inadequate may appeal for a special hearing of the complaint. No legal assistance is required. Information about the appeal procedure is available from the relocation advisor.

California law allows for the payment for lost goodwill that arises from the displacement for a public project. A list of ineligible expenses can be obtained from the Department’s Division of Right of Way and Land Surveys. California’s law and the federal regulations covering relocation assistance provide that no payment shall be duplicated by other payments being made by the displacing agency.

Table C-1: Potential Partial Temporary (TCE) ROW Acquisitions

The following table has been amended since the Draft Environmental Document.

APN	Address	Alternative 3 Impacts (Acres)	Alternative 4 Impacts (Acres)	Property Type/Current Land Use	Relocation	ROW Acquisition
413-270-004	--	0.16	0.14	Commercial/Vacant Land	No	N/A
413-270-014	3607 Cherry Valley Boulevard	1.59	2.20	Commercial/Multiple SFR Structures	No	N/A
413-270-015	36240 Cherry Valley Boulevard	0.50	0.09	Residential/Residential	No	N/A
407-230-018	--	0.19	0.08	Commercial/Vacant Land	No	N/A
407-230-004	--	--	--	Commercial/Vacant Land	No	N/A
407-230-017	36015 Cherry Valley Boulevard	0.13	--	Commercial/Vacant Land	No	N/A
407-230-016	--	0.06	--	Commercial/Vacant Land	No	N/A
413-780-020	--	--	--	Commercial/Shopping Center	No	N/A
413-290-044	--	0.17	0.02	Commercial/Vacant Land	No	N/A
413-270-021	--	--	--	Commercial/Vacant Land	No	N/A
413-270-019	--	--	--	Commercial/Vacant Land	No	N/A
413-270-020	--	--	--	Residential/Vacant Land	No	N/A
TOTAL	--	**2.80**	**2.53**	--	--	--

Source: Michael Baker International, Relocation Impact Memorandum, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, July 2020; Michael Baker International, Final Relocation Impact Memorandum, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, May 2023.

Table C-2: Potential Permanent ROW Acquisitions and Relocations

The following table has been amended since the Draft Environmental Document.

APN	Address	Alternative 3 Impacts (Acres)	Alternative 4 Impacts (Acres)	Property Type/Current Land Use	Relocation	ROW Acquisition
413-270-004	--	0.63	1.02	Commercial/Vacant Land	No	Temporary
413-270-014	3607 Cherry Valley Boulevard	1.94	1.31	Commercial/Multiple SFR Structures	Yes (Under Alt. 4)	Temporary
413-270-015	36240 Cherry Valley Boulevard	0.81	<0.01	Residential/Residential	No	Temporary
407-230-018	--	0.02	--	Commercial/Vacant Land	No	Temporary
407-230-004	--	--	0.01	Commercial/Vacant Land	No	Temporary
407-230-017	36015 Cherry Valley Boulevard	--	2.77	Commercial/Vacant Land	No	Temporary
407-230-016	--	--	0.92	Commercial/Vacant Land	No	Temporary
413-780-020	--	0.44	0.26	Commercial/Shopping Center	No	Temporary
413-780-018	--	--	--	Commercial/Shopping Center	No	Temporary
413-290-044	--	0.02	--	Commercial/Vacant Land	No	Temporary
413-270-019	--	0.01	--	Commercial/Vacant Land	No	Temporary
413-270-020	--	0.002	--	Commercial/Vacant Land	No	Temporary
413-270-021	--	0.21	0.21	Commercial/Vacant Land	No	Full
TOTAL	--	**4.08**	**6.50**	--	--	--

Source: Michael Baker International, Relocation Impact Memorandum, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, July 2020; Michael Baker International, Final Relocation Impact Memorandum, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project, May 2023.

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Appendix D List of Acronyms

AADT	Annual Average Daily Traffic
AB	Assembly Bill
AB52	Assembly Bill 52
ACM	Asbestos Containing-Materials
ADT	Average Daily Traffic
ADA	Americans with Disabilities Act
ADL	Aerially Deposited Lead
AGR	Agriculture Supply
AJD	Approved Jurisdictional Determination
amsl	Above Mean Sea Level
APCD	Air Pollution Control District
APE	Area of Potential Effects
APN	Assessor’s Parcel Number
ARB	Air Resources Board
AST	Above Storage Tank
ASTM	American Society for Testing and Materials
blvd	boulevard
bgs	below ground surface
BAU	Business as Usual
BCVD	Beaumont-Cherry Valley Water District
BMP	Best Management Practices
BP	Business Park
BSA	Biological Study Area
C-R	Regional Commercial

C-P-S	Scenic Highway Commercial
CA	California
CAFÉ	Corporate Average Fuel Economy
CalFire	California Department of Forestry and Fire Protection
Caltrans	California Department of Transportation
Cal-IPC	California Invasive Plant Council
CAL/OSHA	California Division of Occupational Safety and Health
CAP	Climate Action Plan
CARB	California Air Resources Board
CCAA	California Clean Air Act
CDFW	California Department of Fish and Wildlife
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERFA	Community Environmental Response Facilitation Act
CESA	California Endangered Species Act
CFR	Code of Federal Regulations
CHP	California Highway Patrol
CIA	Community Impact Assessment
CNDDB	California Natural Diversity Database
CNPS	California Native Plant Society
CNS	Commercial Neighborhood
CRCMP	County of Riverside Corridor Master Plan
CO	carbon monoxide
CO2	carbon dioxide

CO2eq	carbon dioxide equivalent
CPT	Cone Penetrometer Tests
CR	Commercial Retail
CTP	California Transportation Plan
CWA	Clean Water Act
CZMA	Coastal Zone Management Act of 1972
DI-WET	Deionized Water Waste Extraction Test
dBA	A weighted decibel scale
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DHHS	Department of Health and Human Services
DLRP	Division of Land Resource Protection
DPP	Detention Pollution Prevention
DRIM	Draft Relocation Impact Memorandum
DSA	Disturbed Soil Area
DTSC	Department of Toxic Substances Control
DWR	Department of Water Resources
EA	Environmental Assessment
EB	eastbound
EDR	Environmental Data Resources
EIC	Eastern Information Center
EIR	Environmental Impact Report
EMFAC	Emission Factors
EO	Executive Order

EPA	Environmental Protection Agency
EQUUS	Excellence Quality Uniqueness Universality
ESAs	Environmentally Sensitive Areas
FCAA	Federal Clean Air Act
FEMA	Federal Emergency Management Agency
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIRM	Flood Insurance Rate Map
FIS	Flood Insurance Study
FMMP	Farmland Mapping and Monitoring Program
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act

The following text has been amended since the Draft Environmental Document: FRIM Final Relocation Impact Memorandum

FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Program
GHG	greenhouse gas
GPS	Global Positioning System
GWR	Ground Water Recharge
H2S	hydrogen sulfide
H&SC	Health and Safety Code
Ha	High A
Hb	High B
HBP	Highway Bridge Program
HCM	Highway Capacity Manual

HCS	Highway Capacity Software
HDM	Highway Design Manual
HFC	Hydrofluorocarbons
HPSR	Historic Property Survey Report
HRER	Historical Resource Evaluation Report
HSA	Hydrologic Sub-Area
HOV	High Occupancy Vehicle
I-P	Industrial Park
ICE	Intersection Control Evaluation
IPaC	Information for Planning and Conservation
IPCC	Intergovernmental Panel on Climate Change
IS/EA	Initial Study/Environmental Assessment
ISA	Initial Site Assessment
ITS	Intelligent Transportation Systems
IND	Industrial Service Supply
JD	Jurisdictional Delineation
LBP	Lead-Based Paint
LCFS	Low Carbon Fuel Standard
LEDPA	least environmentally damaging practicable alternative
LHS/SFER	Location Hydraulic Study and Summary Floodplain Encroachment Report
LI	Light Industrial
LOS	Level of Service
LRA	Locally Responsibility Area
MBTA	Migratory Bird Treaty Act
MGS	Midwest Guardrail Systems

MMTCO2e	Million Metric Tons of Carbon Dioxide Equivalent
MOE	Measures of Effectiveness
MOU	Memorandum of Understanding
mph	miles per hour
MPO	Metropolitan Planning Organization
MS4	Municipal Separate Storm Sewer Systems
MSAT	Mobile Source Air Toxics
MTCO2eq	metric tons per year of carbon dioxide equivalent
MUN	Municipal and Domestic Supply
MVP	Maintenance Vehicle Pullouts
N2O	Nitrous Oxide
N/A	Not Available
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAHC	Native American Heritage Commission
NB	northbound
NCHRP	National Cooperative Highway Research Program Report
ND	Negative Declaration
NEPA	National Environmental Policy Act
NES-MI	Natural Environment Study (Minimal Impacts)
NFIP	National Flood Insurance Program
NHMLAC	Natural History Museum of Los Angeles County
NHS	National Highway System
NMFS	National Marine Fisheries Service
NO2	nitrogen dioxide

NOA	naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resource Conservation Service
NSR	Noise Study Report
NWI	National Wetland Inventory
O3	ozone
OC	Overcrossing
OHP	Office of Historic Preservation
OSHA	Occupational Safety and Health Act
OS-R	Open Space Recreation
P/QP	Public/Quasi-Public
PA	Programmatic Agreement
PA/ED	Project Approval/Environmental Document
Pb	lead
PBDB	Paleobiology Database
PCBs	polychlorinated biphenyls
PDR	Preliminary Drainage Report
PDT	Project Development Team
PGDR	Preliminary Geotechnical Design Report
PJD	Preliminary Jurisdictional Determination
PIR/PER	Paleontological Identification Report and Paleontological Evaluation Report
PLACs	permits, licenses, agreements, and certifications
PM	particulate matter
PM	Post Mile

PMP	Paleontological Mitigation Plan
PM2.5	particles of 2.5 micrometers or smaller
PM10	particles of 10 micrometers or smaller
POAQC	project of air quality concern
PRC	Public Resources Code
PROC	Industrial Process Supply
PS&E	Plans, Specifications and Estimates
PSR-PDS	Project Study Report-Project Development Support
QA	quality assurance
Qlo	Live Oak Canyon
Qof2	old alluvial-fan deposits
Qvof2	Pleistocene alluvial-fan deposits
Qvof3	Very Old Alluvial-Fan Deposits
Qvors	Pedogenic Soils
Qya5	Holocene axial-valley deposits
Qya	Young Axial-Valley Series
Qvywm	Very Young Wash Deposits
Qvyw	Very Young Wash
R-A-1	Residential Agricultural
R-L-M	Residential Low/ Medium
RAP	Relocation Assistance Program
RCB	Reinforced Concrete Box
RCEM	Roadway Construction Emissions Model
RCFC	Riverside County Flood Control
RCRA	Resource Conservation and Recovery Act

RCSD	Riverside County Sheriff's Department
REC	Recognized Environmental Condition
RFG	reformulated gasoline
RivTAM	Riverside County Traffic Analysis Model
RL	Residential Low
RLM	Residential Low Medium
ROG	Reactive Organic Gas
ROW	right-of-way
RR	Residential Rural
RSA	Resource Study Areas
RSIRS	Rural and Single Interstate Routing System
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RWQCB	Regional Water Quality Control Board
SAA	Streambed Alteration Agreement
SARWQCB	Santa Ana Regional Water Quality Control Board
SB	Senate Bill
SCAB	Southern California Air Basin
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCE	Southern California Edison
SCG	Southern California Gas Company
SCS	Sustainable Communities Strategy
SHPO	State Historic Preservation Officer
SI	Site Investigation

SIP	State Implementation Plan
SLR	Sea-Level Rise
SO2	sulfur dioxide
SMARTS	Stormwater Multi-Application Tracking System
SMP	Soil Management Plan
SoCal Gas	Southern California Gas Company
sp.	species
spp	subspecies
SQWQI	Scoping Questionnaire for Water Quality Issues
SSP	Standard Special Provisions
STAA	Surface Transportation Assistance Act
STIP	State Transportation Improvement Program
STRAHNET	Strategic Highway Corridor Network
STURA	Surface Transportation and Uniform Relocation Act of 1987
STLC	Soluble Threshold Limit Concentration
SWPPP	Storm Water Pollution Prevention Plan
SWRCB	State Water Resources Control Board
TASAS	Traffic Accident Surveillance and Analysis System
TCE	Temporary Construction Easement
TCWG	Transportation Conformity Working Group
TDM	Transportation Demand Management
TIPS	Transportation Improvement Programs
TMDL	Total Maximum Daily Loads
TMP	Transportation Management Plan
TOAR	Traffic Operations Analysis Report

TPPS	Transportation Project Prioritization Study
TRB	Transportation Research Board
TSCA	Toxic Substances Control Act
TSM	Transportation System Management
TSN	Transportation Systems Network
Tstm	San Timoteo Formation
TUMF	Transportation Uniform Mitigation Funds
UCMP	University of California Museum of Paleontology
USACE	United States Army Corps of Engineers
USC	United States Code
UST	Underground Storage Tank
U.S.	United States
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
USGCRP	United States Global Change Research Program
USPS	United States Postal Service
UST	underground storage tank
v/c	volume-to-capacity
VLDR	Very Low Density Residential
VHD	Vehicle Hours Delay
VHT	Vehicle Hours Travelled
VMT	Vehicle Miles Traveled

WB	westbound
WCD	Water Conservation District
WDID	Waste Discharge Identification
WDR	Waste Discharge Requirement
WEAP	Worker's Environmental Awareness Program
WILD	Wildlife Habitat
WoUS	Waters of the United States
WPCP	Water Pollution Control Program
WQC	Water Quality Certification
WQF	Water Quality Flow
WRCOG	Western Riverside Council of Governments
WR-MSHCP	Western Riverside Multiple Species Habitat Conservation Plan

Appendix E Avoidance, Minimization and/or Mitigation Summary

To ensure that all of the environmental measures identified in this document are executed at the appropriate times, the following mitigation program (as articulated on the proposed Environmental Commitments Record [ECR] that follows) would be implemented. During project design, avoidance, minimization, and/or mitigation measures will be incorporated into the project's final plans, specifications, and cost estimates, as appropriate. All permits will be obtained prior to implementation of the project. During construction, environmental and construction/engineering staff will ensure that the commitments contained in the Environmental Commitments Record are fulfilled. Following construction and appropriate phases of project delivery, long-term mitigation maintenance and monitoring will take place, as applicable. Because the following Environmental Commitments Record is a draft, some fields have not been completed; they will be filled out as each of the measures is implemented.

Note: Some measures may apply to more than one resource area. Duplicated or redundant measures have not been included in this Environmental Commitments Record.

Caltrans Standardized Project Measures

This project contains standardized project measures (Caltrans Standard Specifications, Special Provisions, and current federal and State regulations) that are used on most, if not all, Caltrans projects and were not developed in response to any specific environmental impact resulting from the proposed project. These measures are included as project features and addressed in more detail in the Environmental Consequences sections found in Chapter 2 when appropriate.

- A Transportation Management Plan (TMP) will be prepared during the final design phase to minimize traffic impacts during construction. The primary objective of the TMP is to maintain safe movement through the construction zone, as well as minimize traffic delays during the construction period. The TMP will include, but not be limited to, the following six major elements:
    1. Public information/public awareness campaign
    2. Traveler information strategies
    3. Incident management
    4. Construction strategies

5. Demand management
6. Alternate route strategies

- Comply with standard provisions dealing with the discovery of unanticipated cultural materials and human remains.
- Comply with Standard Specification 14-9.02 and other standard practices according to the California Air Resources Board (CARB) and South Coast Air Quality Management District (SCAQMD) requirements for air quality restrictions such as reducing idling time, proper maintenance of equipment, and fugitive dust control during the construction period.
- Comply with Standard Specifications for construction (Sections 14-11.04 [Dust Control]) and 14-9.02 [Air Pollution Control]) regarding the use of heavy construction equipment for all earthwork, clearing and grubbing, and roadbed activities emitting asphalt concrete emissions.
- Construction equipment fleets will be in compliance with Best Available Control Technology requirements.
- The following text has been amended since the Draft Environmental Document: Comply with sound control provisions as included in Section 14-8.02, “Noise Control,” of Caltrans’ 2022 Standard Specifications and Special Provisions. The contractor shall not exceed 86 dBA at 50 feet from the job site from 9:00 PM to 6:00 AM. Internal combustion engines shall be equipped with the manufacturer-recommended muffler. Internal combustion engines shall not be operated on the job site without the appropriate muffler.
- Design pollution prevention BMPs as required under the Caltrans MS4 Permit for areas within State ROW that focus on reducing or eliminating runoff and controlling sources of pollutants.
- Comply with Caltrans SSP 14-11.14 regarding the proper disposal of treated wood waste.
- Comply with the following Caltrans’ Standard Special Provision’s regarding proper removal, handling, and disposal of the generated traffic striping waste at a permitted disposal facility:
  1. Section 14-11.12, Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue,
  2. Section 36-4, Residue Containing Lead from Paint and Thermoplastic, and
  3. The following text has been amended since the Draft Environmental Document: Section 84-9.03B, Remove Traffic Stripes and Pavement Markings Containing Lead.

- Follow Caltrans Standard Specifications Section 14-11.02, Discovery of Unanticipated Asbestos and Hazardous Substances, in the event unknown wastes or suspect materials are discovered during site disturbance activities that may involve hazardous waste/materials.
    1. During construction, solid waste would be disposed of as specified in Caltrans' Standard Specifications Section 14-10.01, General.
    2. During construction, dust palliatives would be used as specified in the Caltrans Standard Specifications Section 18-1.03A, General.
- Follow Standard Specifications Sections 13-05 and 21 related to erosion control during construction. Measures include fiber rolls, silt fencing, soil binders, rock slope protection, revegetation with erosion control seed mix, and the use of 4:1 slopes or flatter.
- Comply with Caltrans Standard Specifications, Section 19, Earthwork regarding standardized measures related to compacted fill, over-excavation and recompacting, and retaining walls, and specifically:
- During construction, soil compaction would be accomplished in accordance with Caltrans Standard Specifications Section 19-5, Compaction.
- During construction, fill for the widening of the embankments would be benched into the existing slopes in accordance with Caltrans Standard Specifications Section 19-6, Embankment Construction.
- Construction shall be conducted in accordance with Division III, "Earthwork and Landscape" Section 21-1 through 21-3 of Caltrans Standard Specifications (2022), requiring erosion protection and drainage control.
- Comply with California Health and Safety Code Section 7050.5 which establishes provisions in the event human remains are discovered during ground disturbing activities performed during construction.
- Adherence to Chapter 33 of the California Fire Code, Fire Safety During Construction and Demolition, which includes safety provisions and precautions to minimize the potential for fires during construction.
- If buried cultural resources are encountered during project activities, it is Caltrans' policy that all work stop in that area until a qualified archaeologist can evaluate the nature and significance of the find.
- In the event that human remains are found, the county coroner shall be notified and all construction activities within 60 feet of the discovery shall stop. Pursuant to Public Resources Code 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 Descendant (MLD). The person who discovered the remains will contact the District 8 Division of Environmental Planning; Andrew Walters, District Environmental Branch Chief: (909) 383-2647 and Gary Jones,

District Native American Coordinator: (909) 383-7505. Further provisions of PRC 5097.98 are to be followed as applicable.

- The following text has been amended since the Draft Environmental Document: In the event the Old Roberts Road survey monument is found to occur within the project grading limits and would result in removal and replacement of the plaque during construction activities associated with the project, the monument would be salvaged and provided to the City to preserve.

Environmental Commitments Record (ECR)

DIST-CO-RTE: 08-RIV-10 **PM/PM:** R2.1/R3.8 **EA/Project ID.:** 0G170/0800000190
Project Description: Construction of interchange improvements at Interstate 10 (I-10) and Cherry Valley Boulevard, located at Post Mile (PM) Revised (R) 3.5 between PM R2.1 and PM R3.8 on I-10 in the City of Calimesa, County of Riverside, California.
Date (Last modification): August 2023
Environmental Planner: Shawn Oriaz **Phone No.:** (909) 501-5743
Construction Liaison: TBD **Phone No.:** TBD
Resident Engineer: TBD **Phone No.:** TBD

PERMITS

The following table has been amended since the Draft Environmental Document.

Permit	**Agency**	**Application Submitted**	**Permit Received**	**Permit Expiration**	**Permit Requirement Completed by:**	**Permit Requirement Completed on:**	**Comments**
Section 1602 Streambed Alteration Agreement	California Department of Fish and Wildlife	Enter date	Enter date	Enter date	Enter Name	Enter date	Enter comments
Determination of Biologically Equivalent or Superior Preservation (DBESP)	California Department of Fish and Wildlife/U.S. Fish and Wildlife Service	Enter date	Enter date	Enter date	Enter Name	Enter date	Enter comments
Approved Jurisdictional Determination (AJD), or Preliminary Jurisdictional Determination (PJD) with Section 404 Nationwide Permit	U.S. Army Corps of Engineers	Enter date	Enter date	Enter date	Enter Name	Enter date	Enter comments
401 Water Quality Certification or Waste Discharge Requirements	Santa Ana Regional Water Quality Control Board and State Water Resources Control Board	Enter date	Enter date	Enter date	Enter Name	Enter date	Enter comments
402 NPDES (National Pollutant Discharge Elimination System) (Construction Activity)/Caltrans NPDES Permit CAS000003 and CAS000002 (General Permit)	Santa Ana Regional Water Quality Control Board (SARWQCB) and State Water Resources Control Board	Enter date	Enter date	Enter date	Enter Name	Enter date	Enter comments
Encroachment Permit	Beaumont Cherry Valley Water District	Enter date	Enter date	Enter date	Enter Name	Enter date	Enter comments
Freeway Maintenance Agreement	County of Riverside and California Department of Transportation	Enter date	Enter date	Enter date	Enter Name	Enter date	Enter comments

ENVIRONMENTAL COMMITMENTS

PA&ED

The following table has been amended since the Draft Environmental Document.

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
Community Impact Assessment	ROW-1: Right-of-way shall be acquired in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and property owners shall receive just compensation and fair market value for their property.	DED, Page 121	Yes	County of Riverside/City of Calimesa/Caltrans Right-of-way	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Other	TT-1 A Traffic Management Plan (TMP) shall be prepared during Plans, Specifications, and Estimates (PS&E) phase of the project. The Caltrans Transportation Management Plan Guidelines (TMP Guidelines) identifies the processes, roles, and responsibilities for preparing and implementing TMPs, as well as useful strategies for reducing congestion and managing work zone traffic impacts. The primary objective of the TMP is to maintain safe movement for vehicles, pedestrians, and bicyclists through the construction zone, as well as minimize traffic delays during the construction period. The TMP prepared for the project shall implement alternate route strategies to minimize adverse effects to roadways and reduce potential congestion. The TMP shall include, but not be limited to, the following six major elements: • Public information/public awareness campaign • Traveler information strategies • Incident management • Construction strategies • Demand management • Alternate route strategies The TMP shall be submitted to Caltrans for review and approval.	DED, Page 220								
Visual Resources	VIS-1 During nighttime construction activities, the construction contractor shall minimize project-related light and glare to the maximum extent feasible by directing construction lighting away from land uses located off-site and shall contain and direct construction lighting toward the specific area of construction.	DED, Page 224	Yes	County of Riverside/City of Calimesa/Resident Engineer/ Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Visual Resources	VIS-2 To maintain consistency with the existing infrastructure (i.e., bridges, walls, etc.) in the project area, landscape and/or architectural treatments (i.e., color, texture, etc.) for the structure elements of the proposed project shall be determined in consultation with the District Landscape Architect during the Final Design process. Elements discussed corridor-wide, as well as those identified for Area A, of the I-10 Corridor Master Plan (I-10 Corridor Master Plan) shall be incorporated as applicable pertaining to structures, slope paving, landscape design, signage, and lighting.	DED, Page 224	Yes	County of Riverside/City of Calimesa/Caltrans Landscape Architecture/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
Visual Resources	VIS-3 To maintain the context of the project area (color, form, and texture) the proposed project shall install landscaping that is compatible with the existing landscape along the freeway. The landscape concept and plant palette shall be determined in consultation with the District Landscape Architect during the Final Design process. Erosion control plant species utilized shall be determined by the District Landscape Architect to ensure that the mix and application strategy is appropriate for the specific soil composition of the area. In addition, all proposed landscaping species shall be well suited for the local climate, humidity, soil types, and local wind.	DED, Page 224	Yes	County of Riverside/City of Calimesa/Caltrans Landscape Architecture/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Visual Resources	VIS-4 Based on California Streets and Highways Code Section 92.3, Caltrans shall use drought resistant landscaping and recycled water when feasible, and incorporate native wildflowers and native and climate-appropriate vegetation into the planting design when appropriate.	DED, Page 225	Yes	County of Riverside/City of Calimesa/Caltrans Landscape Architecture/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Paleontology	PAL-1 Prior to the start of construction, all field personnel shall be briefed during a Worker's Environmental Awareness Program (WEAP) regarding the types of fossils that could be found in the project area and the procedures to follow shall paleontological resources be encountered. This training shall be accomplished first at the preconstruction kick-off meeting by a Principal Paleontologist who meets the Caltrans qualifications standards or his/her qualified and supervised representative. The training shall be developed by the Principal Paleontologist and may be conducted concurrently with other environmental training (e.g., biological, cultural, and natural resources awareness training, safety training, etc.). Specifically, the training will provide brochure handouts with descriptions of the fossil resources that may be encountered in the project area, outline steps to follow in the event that a fossil discovery is made, and provide contact information for the Principal Paleontologist and on-site paleontological monitor(s). A project-specific sign-in sheet will be utilized to illustrate that all construction personnel have completed the WEAP training prior to the start of construction for CEQA compliance. Extra sign-in sheets and brochures would be left with the construction contractor for distribution and WEAP training of future construction personnel as they are added to the project. If possible, the original WEAP training should be recorded on video for future use as additional construction personnel are added to the project.	DED, Page 257	Yes	County of Riverside/City of Calimesa/Caltrans Paleontology/Project Paleontologist/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
Paleontology	PAL-2 Prior to the commencement of ground-disturbing activities, a Principal Paleontologist who meets the Caltrans qualification standards shall be retained to prepare and implement a Paleontological Mitigation Plan (PMP) for the project. The project's PMP shall develop mitigation measures based on the assigned sensitivity rankings as well as the proposed depths of ground disturbance throughout the project area, as surface and near-surface geologic units are well documented while geologic units at greater depths remain undocumented. Depending on the proposed project's excavation depths, the type of monitoring shall be one of the following: • For areas categorized as High Potential: Full-time monitoring shall be required for disturbance at all depths in selected areas with intact sediments. In subareas of High Potential, monitoring efforts shall be reduced or eliminated at the discretion of the Principal Paleontologist if no fossil resources are encountered after 50 percent of the excavations are completed. • For areas categorized as Low Potential: Spot-check monitoring is recommended for disturbance in particular areas at four feet or greater below group surface (bgs) in intact sediments. If High Potential geologic units are encountered at depth in those particular locations during spot-check monitoring, those subareas shall be elevated to High Potential and monitoring shall be upgraded to full-time. Monitoring shall not be required for excavations less than four feet bgs in subareas with Low Potential or within any subareas with artificial fill. Although monitoring is not typically required in subareas of Low Potential, spot-check monitoring shall be implemented at the discretion of the Principal Paleontologist to confirm the presence of subsurface High Potential geologic units. In particular, deeper excavations of approximately 12 to 25 feet bgs for items such as bridge abutments, bent footings, and overhead sign foundations shall be spot-checked, as these construction activities may impact High Potential geologic units at depth. All monitoring shall include the visual inspection of excavated or graded areas, trench sidewalls, spoils, and any other disturbed sediment. In the event that a paleontological resource is discovered, either the	DED, Page 258	Yes	County of Riverside/City of Calimesa/Caltrans Paleontology/Project Paleontologist/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	Yes

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	Principal Paleontologist or approved on-site paleontological monitor shall have the authority to temporarily divert the construction equipment around the find until it is assessed for scientific significance and collected. Additionally, test samples of sediments from geologic units with High Potential shall be collected and screened on site to determine the presence of fossils in the small grain-size fractions. If significant small-fraction fossils are discovered during the test sampling, larger bulk samples of sediments may be collected for further processing in the laboratory. The recommended sampling shall follow best practice procedures in mitigation paleontology.									
Paleontology	PAL-3 If fossils are encountered during construction monitoring, significant fossils shall be collected and prepared in a properly equipped paleontology laboratory to a point ready for curation. Preparation shall include the careful removal of excess matrix from fossil materials and stabilizing and repairing specimens, as necessary. Following laboratory work, all fossil specimens shall be identified to the lowest taxonomic level, cataloged, analyzed, and prepared for curation. Assuming landowners concur and will sign a Deed of Gift Form, fossil specimens shall be submitted for permanent curation in a museum repository approved by Caltrans. The cost of curation is assessed by the repository and is the responsibility of the landowners. At the conclusion of laboratory work and curation, the paleontological contractor shall prepare a final report to describe the results of the paleontological monitoring. The report shall include an overview of the project area geology and paleontology, a description of the field and laboratory methods, a list of taxa recovered (if any), an analysis of fossils recovered (if any) and their scientific significance, and recommendations. If fossils will be donated for permanent curation, a copy of the report shall be submitted to the curation institution along with the fossil assemblage.	DED, Page 259	Yes	County of Riverside/City of Calimesa/Caltrans Paleontology/Project Paleontologist/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HAZ-1 The following text has been amended since the Draft Environmental Document: If the ACM bolt mastic or shims associated with the Cherry Valley Boulevard Overcrossing (Bridge No. 56-0481) are impacted by construction activities, the ACMs shall be abated by a Cal/OSHA licensed asbestos abatement contractor using methods in accordance with Title 8 of California Code of Regulations (CCR) 1529 for a Class II material using wet methods and SCAQMD Rule 1403. In accordance with	DED, Page 273	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	Caltrans Standard Special Provisions (SSPs) 14-9.02 (Air Pollution Control) and 14-11.16 (Asbestos-Containing Construction Materials in Bridges), notification to the U.S. EPA, California Air Resources Board (CARB), APCD, or SCAQMD regarding the demolition or rehabilitation of a bridge or building with ACMs would be required. Additionally, if proposed utility relocation (underground pipelines) is determined to include ACMs, the project shall comply with all existing regulatory agency and utility purveyor standards and procedures including those pertaining to the handling and disposal of hazardous materials/waste (such as ACMs) during construction.									
Hazardous Waste	HAZ-2 As some of the paint associated with the Cherry Valley Boulevard Overcrossing (Bridge No. 56-0481) contains minimal amounts of lead, workers that perform either manual demolition, manual scraping or sanding of painted surfaces shall undergo an exposure assessment including air monitoring of the breathing zone pursuant to Title 8 CCR 1532.1 (Lead) and follow Caltrans SSP 14-11.13 (Disturbance of existing Paint Systems on Bridges). Given that observed traffic striping along I-10, Cherry Valley Boulevard, Tukwet Canyon Parkway, Calimesa Boulevard, and Roberts Road could date back to road construction in 1967, LBPs may be present on-site. Disturbance and disposal of these materials would be required to follow Caltrans SSPs 84-9.03B (Remove Traffic Stripes and Pavement Markings Containing Lead), 14-11.12 (Removal of Yellow Traffic Stripe and Pavement Marking with Hazardous Waste Residue), and 36-4 (Residue Containing Lead from Paint and Thermoplastic).	DED, Page 274, ISA	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HAZ-3 Any transformer to be relocated/removed during site construction/ demolition should be conducted under the purview of the local purveyor to identify property-handling procedures regarding PCBs in accordance with Caltrans SS 14-11.15 (Disposal of Electrical Equipment Requiring Special Handling).	DED, Page 274, ISA	Select a response	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HAZ-4 A Soil Management Plan (SMP) shall be prepared by a qualified environmental professional with Phase II/Site Characterization experience during the plan, specification and estimates (PS&E) phase of the project for Assessor's Parcel Numbers 413-270-004, 413-270-014, 413-270-015, and 407-230-17. The SMP shall include guidelines for safety measures and soil management in the event that soils are to be disturbed, and for handling soil during any planned earthwork	DED, Page 274, ISA	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	activities. The SMP shall also include a decision framework and specific risk management measures for managing soil, including any soil import/export activities, in a manner protective of human health and consistent with applicable regulatory requirements. As part of this SMP, all excavation activities shall be documented daily using digital photography. In addition, the sides and the bottom of the excavation areas of concern should be appropriately logged on scaled paper. Observed materials, including an estimate of the quantity observed, and PID and dust monitor readings shall be recorded on the Daily Field Record and/or the Direct Reading Log. Well abandonment should be conducted in accordance with state and local laws and regulations. The SMP shall include measures in the event that potential USTs are discovered during grading activities. The SMP should require Caltrans to contact the appropriate regulatory agency (i.e., the County of Riverside Department of Environmental Health Hazardous Materials Management Branch) for further guidance and oversight, if deemed necessary by the regulatory agency. If the results of the stockpile samples show no contamination, or detected concentrations of chemicals or ACMs or LBPs in soils, within acceptable regulatory limits, then the soil may be redistributed within the excavation in accordance with Caltrans SSP 7-1.02K(6)(j)(iii) (Unregulated Earth Material Containing Lead) for nonhazardous soil. If soil is deemed contaminated, then it should be disposed of off-site at an approved landfill facility. Caltrans SSP 14-11.08 (Regulated Material Containing Aerially Deposited Lead) would be implemented if the project requires exportation of contaminated soil. Should any soils be imported or exported at an off-site location, a Phase II/Site Characterization Specialist should verify that all imported/exported soils are not contaminated with hazardous materials above regulatory thresholds. Caltrans SSP 6-1.03 (Local Materials) would be implemented if the project requires import borrow. If import/export soils are determined to be contaminated above regulatory thresholds, the Phase II/Site Characterization Specialist would recommend proper handling, use, and/or disposal of these soils. The Soil Management Plan shall also document that excavation activities could disturb septic systems and leach fields that may be present. It is the opinion of									

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	Michael Baker that the location of septic tanks and leach fields should be confirmed prior to site disturbance activities. Should septic systems be present on-site, the septic system shall be properly closed/abandoned and/or removed per City of Calimesa requirements.									
Hazardous Waste	HAZ-5 The following text has been amended since the Draft Environmental Document: A Phase II Site Investigation Specialist shall conduct ACMs and LBPs surveys, as well as treated wood surveys, prior to site clearing activities, for all on-site structures and utility relocations proposed for demolition or modification, or any on-site debris piles suspect of containing demolition debris materials that could contain ACMs, LBPs, or treated wood. If present, the Specialist shall recommend appropriate remedial measures, such as the proper removal and disposal, of the ACMs/LBPs and/or treated wood as they are uncovered. Surveying, sampling and analysis, removal, and management of asbestos and/or treated wood must comply with all applicable federal, State, and local laws and regulation.	DED, Page 275, ISA	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HAZ-6 Based on the results of the ADL survey, the 95 percent UCL concentration of total (TTLC) lead (35.59 milligrams per kilogram [mg/kg]) for the entire data set is less than the DTSC health-risk based screening level for unrestricted land use of 80 mg/kg. Soluble lead concentrations (Soluble Threshold Limit Concentration [STLC]/CAWET), defined by U.S. EPA as lead concentrations greater than 5 milligrams/liter (mg/L), were detected in three samples from a total of 60 samples along I-10. However, extractable lead concentrations (Deionized Water Waste Extraction Test [DI-WET]) were detected below 1.5 mg/L. As a result, soils in the area of these samples may be reused on-site if buried under a pavement structure or under at least one foot of clean soil. If excavated and removed, ADL contaminated soil shall be hauled to a Class I landfill and categorized as hazardous waste (i.e. Type Z2). DTSC shall be notified of the STLC/CA-WET soluble lead concentration exceedances. As some of the soil contains minimal amounts of lead, workers that perform either manual excavation shall undergo an exposure assessment including air monitoring of the breathing zone pursuant to Title 8 CCR 1532.1 (Lead). Handling, removing, and disposing of earth material containing lead would be in accordance with Caltrans SSPs 7-1.02k(6)(j)(iii) (Unregulated Earth Material Containing Lead), 14-11.08 (Regulated Material Containing Aerially Deposited	DED, Page 275, ISA	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	Lead), and/or 14-11.09 (Minimal Disturbance of Regulated Material Containing Aerially Deposited Lead).									
Hazardous Waste	HAZ-7 Additional Site Investigation (SI)/sampling shall be conducted by a qualified environmental professional with Phase II/Site Characterization experience during the plan, specification and estimate (PS&E) phase of the project to verify the presence or absence of the identified RECs presented in the Phase I ISA prepared for the project.	DED, Page 276, ISA	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Hazardous Waste	HAZ-8 If unknown wastes or suspect materials are discovered during construction by the contractor that are believed to involve hazardous waste or materials, the contractor shall comply with the following: • Immediately cease work in the vicinity of the suspected contaminant, and remove workers and the public from the area; • Notify the City Engineer of the City of Calimesa; • Secure the area as directed by the City Engineer; and • Notify the County of Riverside Department of Environmental Health (or other appropriate agency specified by the City Engineer). The Hazardous Waste/Materials coordinator shall advise the responsible part of further actions that shall be taken, if required.	DED, Page 276, ISA	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	NC-1: Prior to the commencement of construction, a qualified biologist shall prepare and present a Workers Environmental Awareness Program (WEAP) training in Spanish and English to all contractors, subcontractors, and workers expected to be on-site throughout the entire construction period. The WEAP shall include a brief review of any special-status vegetation communities and special-status species, including habitat requirements and where they might be found, and other sensitive biological resources that could occur in and adjacent to the project. The WEAP shall address the biological mitigation measures listed in the project's approved Mitigation Monitoring and Reporting Program, as well as applicable conditions and provisions of any associated environmental permits (e.g., Section 404 permit, Section 401 Certification, Section 1602 SAA), including but not limited to pre-construction biological surveys, pre-construction installation of perimeter sediment and erosion control best management practices per the RWQCB-approved Storm Water Pollution Prevention Plan, and any recurrent nesting bird surveys (as needed).	DED, Page 394	Yes	County of Riverside/City of Calimesa/Project Biologist/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
Biology	NC-2: All construction equipment shall be inspected and cleaned prior to use in the project area to minimize the importation of non-native plant material. A weed abatement program shall be implemented should invasive plant species colonize the area within the limits of disturbance post-construction.	DED, Page 394	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	WET-1: The following regulatory approvals shall be obtained prior to commencement of any construction activities within the identified jurisdictional areas: 1) A determination from USACE via an Approved Jurisdictional Determination (AJD) or a Preliminary Jurisdictional Determination (PJD); 2) RWQCB CWA Section 401 Water Quality Certification (WQC) or a Waste Discharge Requirements (WDR); 3) CDFW Section 1602 Streambed Alteration Agreement (SAA); and 4) a determination from CDFW/USFWS via a Determination of Biologically Equivalent or Superior Preservation (DBESP). As part of the regulatory approval process, the project shall purchase credits from the Riverpark Mitigation Bank in western Riverside County or other approved bank at a ratio of up to 3:1 and 1:1 for permanent and temporary impacts, respectively, for impacts to riparian and riverine habitat. Areas with temporary impacts shall be restored and returned to original grade, with plantings in upland areas with locally appropriate vegetation. Development of a Habitat Mitigation and Monitoring Plan (HMMP), if required, shall be developed in conjunction with the wildlife agencies.	DED, Page 401	Yes	C County of Riverside/City of Calimesa/Project Regulatory Specialist	Enter action	Enter date	Enter Name	Enter date	Enter remarks	Yes
Biology	WET-2: The limits of construction shall be clearly delineated by a survey crew prior to the commencement of project activities. The limits of construction shall be defined with silt fencing or orange construction fencing and checked by a qualified biologist before initiation of construction.	DED, Page 402	Yes	County of Riverside/City of Calimesa/Project Biologist/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	AS-1: Prior to the commencement of project activities, a bat survey shall be conducted by a qualified bat specialist to identify the presence of bats or potential bat roosting cavities. The bat survey shall be conducted no more than three days prior to initiating project activities. Target areas include the trees along the proposed grading limits, where bats may roost, and in the surrounding open habitats where they may forage. Bats may utilize cavities within the trees, spaces behind loose bark or dense foliage, or cracks or splits in the trees for roosting, and these areas should be examined closely for roosting activity during the day. Bat roosting opportunities inside	DED, Page 422	Yes	County of Riverside/City of Calimesa/Project Biologist/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	cracks in the Cherry Valley Boulevard overcrossing over Interstate 10 (I-10) are limited due to the continual disturbance from traffic above and below; however, this area shall be examined for roosting activity during the day. Surveys in any open fields should begin at dusk. Equipment will include an AnaBat Detector or other bat detecting unit for ease. Any bats found to be roosting during the pre-construction survey shall be safely evicted using exclusionary measures under the direction of the qualified bat specialist and California Department of Fish and Wildlife (CDFW).									
Biology	AS-2: To avoid direct mortality, a qualified biological monitor shall be on-site during ground and habitat disturbance activities associated with implementation of the proposed project to move out of harm's way any San Diegan tiger whiptails that would be injured or killed by grubbing or other project-related grading activities.	DED, Page 423	Yes	County of Riverside/City of Calimesa/ Biological Monitor/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	AS-3: If project-related activities are to be initiated during the nesting season (February 1 through September 30), a pre-construction nesting bird clearance survey shall be conducted by a qualified biologist no more than three days prior to the start of any vegetation removal or ground disturbing activities. The qualified biologist shall survey all suitable nesting habitat within the project footprint, and areas within a biologically defensible buffer zone (e.g., 500 feet) surrounding the project footprint. Documentation of surveys and findings shall be submitted to the City for review and file. If no active nests are detected during the clearance survey, project activities may begin, and no additional measures would be required. If an active nest is found, the bird species shall be identified and a "no-disturbance" buffer shall be established around the active nest. The size of the "no-disturbance" buffer shall be increased or decreased based on the judgement of the qualified biologist and level of activity and sensitivity of the species. The qualified biologist shall periodically monitor any active nests to determine if project-related activities occurring outside the "no-disturbance" buffer disturb the birds and if the buffer should be increased. Once the young have fledged and left the nest, or the nest otherwise becomes inactive under natural conditions, project activities within the "no-disturbance" buffer may occur.	DED, Page 423	Yes	County of Riverside/City of Calimesa/Project Biologist/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Biology	AS-4: Prior to initiating any ground disturbance or vegetation removal activities, a qualified biologist shall conduct one pre-construction clearance survey no more	DED, Page 423	Yes	County of Riverside/City of Calimesa/Project Biologist/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	than 30 days prior to initiating ground disturbance activities to confirm that burrowing owl (BUOW) remain absent and impacts do not occur to any occupied burrows that may be located on or within the Biological Study Area (BSA). Documentation of the survey and findings shall be provided to the City for review prior to initiating project activities. If no BUOW or occupied burrows are detected, project-related activities may begin. If BUOW are observed, active burrows shall be avoided in accordance with the Burrowing Owl Survey Instructions for the Western Riverside County Multiple Species Habitat Conservation Plan Area (RCA, 2006). The Regional Conservation Authority (RCA) and California Department of Fish and Wildlife (CDFW)shall be immediately notified of any BUOW observations. A BUOW avoidance and minimization plan would need to be prepared and submitted to the RCA and the CDFW for approval prior to initiating project activities. The plan shall detail specific avoidance measures that shall be implemented during construction, including any passive or active relocation methodology, and monitoring requirements.									
Air Quality	CC-1 The project will incorporate facilities to promote mobility for pedestrians and bicyclists, including sidewalks, crosswalks, and bicycle buffers.	DED, Page 525	Yes	County of Riverside/City of Calimesa/Resident Engineer	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	CC-2 A Transportation Management Plan (TMP) will be prepared during the final design phase to minimize traffic delays and idling during construction.	DED, Page 525	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	CC-6 The project will incorporate the use of energy-efficient lighting, such as LED traffic signals, to help reduce the project’s CO_2 emissions.	DED, Page 526	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	CC-8 The project will incorporate complete streets components, specifically pedestrian sidewalks and turn-lane bicycle buffers along Cherry Valley Boulevard.	DED, Page 526	Yes	County of Riverside/City of Calimesa/Resident Engineer	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	CC-9 The project will implement landscaping as determined during final design in coordination with the City of Calimesa and the Caltrans District Landscape Architect. This landscaping will include energy- and water-efficient irrigation systems and native plants as appropriate, to conserve energy and help offset any potential CO_2 emissions increase.	DED, Page 526	Yes	County of Riverside/City of Calimesa/Caltrans Landscape Architecture/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	CC-14 The project will recycle construction debris as practicable.	DED, Page 527	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	CC-15 Tree removals required for project implementation will be subject to tree removal permit(s) associated requirements for replacement consistent with	DED, Page 527	Yes	County of Riverside/City of Calimesa/Resident Engineer/Project Biologist	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

Category	Task and Brief Description	Source	Included in PS&E package	Responsible Branch/Staff	Action to Comply	Due Date	Task Completed by	Task Completed on	Remarks	Mitigation for significant impacts under CEQA?
	the City of Calimesa Zoning Code, Chapters 18.70 and 18.80.									
Air Quality	CC-16 Idling is limited to five minutes for delivery and dump trucks and other diesel-powered equipment (with some exceptions).	DED, Page 527	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	GHG-1 According to the Caltrans' Standard Specifications, the contractor must comply with all local Air Pollution Control District's (APCD) rules, ordinances, and regulations for air quality restrictions. This includes CARB's anti-idling rule (Section 2489 of the California Code of Regulations) and South Coast Air Quality Management District's (SCAQMD) Rule 2449 (In-Use Mobile Source Emission Reduction Programs).	DED, Page 525	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	GHG-2 According to the Caltrans Standard Specifications, idling time for lane closure during construction will be limited to 10 minutes in each direction. In addition, the contractor will comply with all SCAQMD rules, ordinances, and regulations regarding air quality restrictions.	DED, Page 526	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	GHG-3 The project will maintain equipment in proper tune and working condition. Construction equipment fleets will be in compliance with Best Available Control Technology requirements.	DED, Page 526	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	GHG-4 Bids will be solicited that include use of energy and fuel-efficient fleets in accordance with current practices.	DED, Page 526	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	GHG-5 The project will use cement blended with the maximum feasible amount of fly ash or other materials that reduce GHG emissions from cement production.	DED, Page 5263	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	GHG-6 The project will incorporate design measures to reduce GHG emissions from solid waste management through solid waste reduction, recycling, and reuse.	DED, Page 526	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	GHG-7 The project will utilize energy- and fuel-efficient vehicles and equipment that meet and exceed U.S. EPA/NHTSA/CARB standards relating to fuel efficiency and emission reduction.	DED, Page 526	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No
Air Quality	GHG-8 The project will use the minimum feasible amount of GHG-emitting construction materials.	DED, Page 527	Yes	County of Riverside/City of Calimesa/Resident Engineer/Contractor	Enter action	Enter date	Enter Name	Enter date	Enter remarks	No

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Appendix F List of Technical Studies

The technical studies listed below were used as supporting documentation in the preparation of this Initial Study/Environmental Assessment. All listed technical studies were prepared specifically for the proposed I-10/Cherry Valley Boulevard Interchange Improvement Project.

Abbreviated Visual Impact Assessment, Interstate 10/Cherry Valley Boulevard Interchange Project (July 2021)

Aerially Deposited Lead Report, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (November 18, 2020)

Air Quality Report, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (December 2020)

Combined Paleontological Identification Report and Paleontological Evaluation Report, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (December 2020)

Community Impact Assessment Memorandum, Interstate 10/Cherry Valley Boulevard Interchange Improvement (January 2021)

Delineation of State and Federal Jurisdictional Waters, Interstate 10/Cherry Valley Boulevard Interchange Improvement, (November 2020)

Energy Analysis Report, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (January 2021)

Historic Property Survey Report, Interstate 10/Cherry Valley Boulevard Interchange Improvement (May 2021)

Location Hydraulic Study, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (October 2019)

Natural Environment Study (Minimal Impacts), Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (December 2020)

Noise Abatement Decision Report, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (August 2021)

Noise Study Report, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (April 2021)

Phase I Initial Site Assessment, Interstate 10/Cherry Valley Boulevard Interchange Improvement Project (December 2020)

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Appendix G Farmland Conversion Impact Rating Form

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*

Date Of Land Evaluation Request

Name of Project: I-10/Cherry Valley Boulevard Interchange

Federal Agency Involved: FHWA

Proposed Land Use: Transportation Use

County and State: Riverside, California

PART II *(To be completed by NRCS)*

Date Request Received By NRCS: December 16, 2020

Person Completing Form: Peter Fahnestock

Does the site contain Prime, Unique, Statewide or Local Important Farmland? YES ☑ NO ☐
(If no, the FPPA does not apply - do not complete additional parts of this form)

Acres Irrigated: 126,217

Average Farm Size: 99

Major Crop(s): Vegetable, Melons, Misc., Livestock and Poultry and Tree/Vine

Farmable Land In Govt. Jurisdiction: Acres: 937,530 %: 19.9

Amount of Farmland As Defined in FPPA: Acres: 713,559 %: 15.1

Name of Land Evaluation System Used:

Name of State or Local Site Assessment System: Storie

Date Land Evaluation Returned by NRCS: December 22, 2020

	Maximum Points	Site A	Site B	Site C	Site D
PART III *(To be completed by Federal Agency)* — Alternative Site Rating		Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly		11.02	9.22		
B. Total Acres To Be Converted Indirectly		0.22	0.22		
C. Total Acres In Site		65.5	67.0		
PART IV *(To be completed by NRCS)* Land Evaluation Information		Site A	Site B	Site C	Site D
A. Total Acres Prime And Unique Farmland		8.0	8.4		
B. Total Acres Statewide Important or Local Important Farmland		1.2	0.6		
C. Percentage Of Farmland in County Or Local Govt. Unit To Be Converted		0.001	0.001		
D. Percentage Of Farmland in Govt. Jurisdiction With Same Or Higher Relative Value		7.22	7.22		
PART V (To be completed by NRCS) Land Evaluation Criterion Relative Value of Farmland To Be Converted (Scale of 0 to 100 Points)		86	87		
PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(Criteria are explained in 7 CFR 658.5 b. For Corridor project use form NRCS-CPA-106)*	Maximum Points	Site A	Site B	Site C	Site D
1. Area In Non-urban Use	(15)	12	12		
2. Perimeter In Non-urban Use	(10)	6	6		
3. Percent Of Site Being Farmed	(20)	0	0		
4. Protection Provided By State and Local Government	(20)	20	20		
5. Distance From Urban Built-up Area	(15)	0	0		
6. Distance To Urban Support Services	(15)	0	0		
7. Size Of Present Farm Unit Compared To Average	(10)	0	0		
8. Creation Of Non-farmable Farmland	(10)	0	0		
9. Availability Of Farm Support Services	(5)	5	5		
10. On-Farm Investments	(20)	2	2		
11. Effects Of Conversion On Farm Support Services	(10)	0	0		
12. Compatibility With Existing Agricultural Use	(10)	3	3		
TOTAL SITE ASSESSMENT POINTS	160	48	48	0	0
PART VII ***(To be completed by Federal Agency)***					
Relative Value Of Farmland *(From Part V)*	100	86	87	0	0
Total Site Assessment *(From Part VI above or local site assessment)*	160	48	48	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	134	135	0	0

Site Selected: N/A

Date Of Selection: N/A

Was A Local Site Assessment Used? YES ☑ NO ☐

Reason For Selection:

N/A

Name of Federal agency representative completing this form:

Date:

(See Instructions on reverse side)

Form AD-1006 (03-02)